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2022-2023 INITIAL SITE ASSESSMENTS SUMMARY REPORT DOT&PF Statewide Airport PFAS Investigations

MULTIPLE LOCATIONS, ALASKA



June 2023

Shannon & Wilson No: 102219

Submitted To: Alaska Department of Transportation & Public Facilities

PO Box 112500

Juneau, Alaska 99811

Attn: Mr. Andrew Warner and Mr. Daniel Phillips, P.E.

Subject: FINAL 2022-2023 INITIAL SITE ASSESSMENTS SUMMARY REPORT,

DOT&PF STATEWIDE AIRPORT PFAS INVESTIGATIONS, MULTIPLE

LOCATIONS, ALASKA

Shannon & Wilson, Inc. prepared this report and participated in this project as a consultant to the Alaska Department of Transportation and Public Facilities (DOT&PF). Shannon & Wilson's services were authorized by DOT&PF under Professional Services Agreement Number 25-19-1-013, issued by the DOT&PF on December 19, 2018, and subsequent amendments authorized August 26, 2022 under Contract Amendment 44:

- NTP P6-7: Statewide Airport PFAS Investigations (Statewide Aviation);
- NTP P6-8: Historical Results (Statewide Aviation); and
- NTP P6-9: Statewide Public Relations (Statewide Aviation).

This report presents a summary of Shannon & Wilson's initial site assessment activities performed for this project from August 2022 through March 2023.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON

Kristen Freiburger Associate

EXECUTIVE SUMMARY

The Alaska Department of Transportation and Public Facilities (DOT&PF) has contracted Shannon & Wilson, Inc. (Shannon & Wilson) to assess potential per- and polyfluoroalkyl substances (PFAS) contamination related to the historical use of aqueous film forming foam (AFFF) at several state-owned airport properties in multiple locations across Alaska. PFAS are a category of persistent organic compounds that are considered emerging environmental contaminants due to evidence that exposure to the compounds can lead to adverse health effects. Due to their persistence, toxicity, and bioaccumulative potential, these compounds are of increasing concern to environmental and health agencies.

Our investigation, which is still ongoing at multiple sites, includes an evaluation of airports requiring certification by the Federal Aviation Administration (FAA) under the Code of Federal Regulations Part 139 (Part 139 airports) and potentially affected nearby properties.

In June 2022, the Alaska Department of Environmental Conservation (DEC) requested that DOT&PF perform an assessment of the current or former Part 139 airports where an initial investigation of the presence of PFAS in nearby domestic water supply wells had not yet been completed. This report summarizes the findings of our investigation for the 11 sites listed below.

- Deadhorse Airport; Deadhorse, Alaska
- Ketchikan International Airport; Ketchikan, Alaska
- Ralph Wien Memorial Airport; Kotzebue, Alaska
- McGrath Airport; McGrath, Alaska
- Port Heiden Airport; Port Heiden, Alaska
- Sand Point Airport; Sand Point, Alaska
- Sitka Rocky Gutierrez Airport; Sitka, Alaska
- St. Mary's Airport; St. Mary's Alaska
- St. Paul Island Airport; St. Paul, Alaska
- Tom Madsen Airport; Unalaska, Alaska
- Wiley Post-Will Rogers Memorial Airport; Utqiagvik, Alaska

Two additional sites, the Galbraith Lake and Prospect Creek airports, were formerly owned by DOT&PF but are now owned by Alyeska Pipeline Service Company (Alyeska) and were also included in DEC's request for assessment. Alyeska informed DOT&PF that no wells

were present in the airports' vicinity and no further assessment was performed for these sites during this investigation.

While not addressed in detail in this report, Table 1 provided with this report also summarizes the current status for the other DOT&PF-owned/managed airports assessed as part of the overall project.

1	intro	oauctio	on					
	1.1	Projec	ct Objective	1				
	1.2	,	ct Summary					
	1.3	-	Contaminants of Concern and Action Levels					
		1.3.1	Routine Monitoring Criteria	3				
	1.4	Feder	al Regulatory Levels	4				
	1.5	Analy	ytical Methods	4				
	1.6	Water	r Supply Well Categories	5				
2	Proj	ect Site	Summaries	6				
	2.1	Dead	horse Airport (SCC)	7				
		2.1.1	Analytical Results	8				
		2.1.2	Discussion and Recommendations	10				
	2.2	Ketch	nikan Airport (KTN)	10				
		2.2.1	Discussion and Recommendations	11				
	2.3	Kotze	ebue Airport (OTZ)	11				
		2.3.1	Analytical Results	12				
		2.3.2	Discussion and Recommendations	12				
	2.4	McGr	rath Airport (MCG)	13				
		2.4.1	Analytical Results	14				
		2.4.2	Discussion and Recommendations	14				
	2.5	Port I	Heiden Airport (PTH)	15				
		2.5.1	Analytical Results	16				
		2.5.2	Discussion and Recommendations	16				
	2.6	Sand	Point Airport (SDP)	18				
		2.6.1	Sand Point Analytical Results	18				
		2.6.2	Discussion and Recommendations	18				
	2.7	Sitka	Airport (SIT)	19				
		2.7.1	Discussion and Recommendations	20				
	2.8	St. Ma	ary's Airport (KSM)	20				
		2.8.1	St. Mary's Analytical Results	20				

		2.8.2	Discussion and Recommendations	21
	2.9	St. Pau	ıl Airport (SNP)	22
		2.9.1	St. Paul Analytical Results	22
		2.9.2	Discussion and Recommendations	22
	2.10	Unalas	ska Airport (DUT)	23
		2.10.1	Discussion and Recommendations	23
	2.11	Utqiaġ	gvik Airport (BRW)	24
		2.11.1	Utqiagvik Analytical Results	24
		2.11.2	Discussion and Recommendations	25
	2.12	Galbra	nith Lake and Prospect Creek	26
3	Qual	lity Ass	urance/ Quality Control	26
4			ification	
5	Cond	ceptual	Site Models	27
6		•	roject Discussion	
	6.1		al Project Recommendations	
7	Refe		,	
Exhi				
		,	et Sites	
			Plan Addenda to the <i>Revision 1 – DOT&PF Statewide PFAS General W</i>	
			toring Guidelines for WSWs at DOT&PF Statewide Airport PFAS	
			s	4
Exhi	bit 1-4	l: 18 PF.	AS Analytes and Abbreviations	5
Exhil	bit 2-1	l: Samp	ling Summary	7
Exhil	bit 2-2	2: Deadl	horse Water Treatment Plant PFAS Detections Summary	9
Exhil	bit 2 -3	3: Kotze	bue Monitoring Wells PFAS Detections Summary	12
Exhil	bit 2-4	l: McGr	ath Water Supply Wells PFAS Detections Summary	14
Exhil	bit 2- 5	5: McGr	ath Monitoring Wells PFAS Detections Summary	14
Exhil	bit 2-6		ath Water Supply Wells Usage Summary for Wells with PFAS Detect	
 Ev.b.:1			Joidon Water Supply Walls DEAS Detections Supply	
			Heiden Water Supply Wells PFAS Detections Summary	16
Doto			Heiden Water Supply Wells Usage Summary for Wells with PFAS	17

Exhibit 2-9: Sand Point Water Supply Wells PFAS Detections Summary	18
Exhibit 2-10: Sand Point Water Supply Wells Usage Summary for Wells with PFAS	
Detections	19
Exhibit 2-11: St. Mary's Water Supply Wells PFAS Detections Summary	20
Exhibit 2-12: St. Mary's Monitoring Wells PFAS Detections Summary	21
Exhibit 2-13: St. Mary's Water Supply Wells Usage Summary for Wells with PFAS	
Detections	21
Exhibit 2-14: St. Paul Water Supply Wells PFAS Detections Summary	22
Exhibit 2-15: St. Paul Monitoring Wells PFAS Detections Summary	22
Exhibit 2-16: St. Paul Water Supply Wells Usage Summary for Wells with PFAS Detection	ons
	23
Exhibit 2-17: Utqiagʻvik Water Treatment Plant PFAS Sampling Results Summary	25

Tables

Table 1: Updated Status of DOT&PF Airports as of May 2023

Figures

Figure 1: DOT& PF Statewide Airport PFAS Investigation Sites

Appendices

Appendix A: Deadhorse Airport Supporting Documents
Appendix B: Ketchikan Airport Supporting Documents
Appendix C: Kotzebue Airport Supporting Documents
Appendix D: McGrath Airport Supporting Documents
Appendix E: Port Heiden Airport Supporting Documents
Appendix F: Sand Point Airport Supporting Documents
Appendix G: Sitka Airport Supporting Documents
Appendix H: St. Mary's Airport Supporting Documents
Appendix I: St. Paul Airport Supporting Documents
Appendix J: Unalaska Airport Supporting Documents
Appendix K: Utqiagvik Airport Supporting Documents
Important Information

AAC Alaska Administrative Code AFFF aqueous film-forming foam

ARFF Aircraft Rescue and Fire Fighting

bgs below ground surface

BUECI Barrow Utilities and Electric Coop, Inc.

COC chain of custody

CSM conceptual site model

DEC Alaska Department of Environmental Conservation

DOT&PF Alaska Department of Transportation and Public Facilities

DNR Alaska Department of Natural Resources
EPA U.S. Environmental Protection Agency

Eurofins Eurofins Environment Testing in Sacramento, California
GenX hexafluoropropylene oxide dimer and its ammonium salt
GWP Revision 1 – DOT&PF Statewide PFAS General Work Plan

LHA Lifetime Health Advisory
MCL maximum contaminant level

MW monitoring well ng/L nanograms per liter

NPDWR National Primary Drinking Water Regulation

PFAS per- and polyfluoroalkyl substances

PFBS perfluorobutanesulfonic acid

PFDA perluorodecanoic acid PFHpA perfluoroheptanoic acid PFHxA perfluorohexanoic acid

PFHxS perfluorohexanesulfonic acid

PFOA perfluorooctanoic acid

PFOS perfluorooctanesulfonic acid PFNA perfluorononanoic acid

QA quality assurance QC quality control

Shannon & Wilson Shannon & Wilson, Inc.

SREB Snow-Removal Equipment Building
SWA DOT&PF Statewide Aviation Leasing

USPS EDDM United States Postal Service Everyday Door Direct Mail Service

WELTS DNR Well Log Tracking System

WSW water supply well
WTP water treatment plant

1 INTRODUCTION

This interim report summarizes activities performed to investigate potential per- and polyfluoroalkyl substances (PFAS) contamination related to the historical use of aqueous film forming foam (AFFF) at 11 airport properties owned by the Alaska Department of Transportation and Public Facilities (DOT&PF). In June 2022, the Alaska Department of Environmental Conservation (DEC) requested an assessment of Part 139 airports where an initial investigation for the presence of PFAS in nearby water supply wells (WSWs) had not yet been completed.

This report summarizes the findings of our initial site visit and project activities performed from August 2022 through March 2023 for the 11 sites presented in Exhibit 1-1 below. Project site locations are shown in Figure 1.

Exhibit 1-1: Project Sites

Airport Location	Airport Code	Airport Name			
Deadhorse	SCC	Deadhorse Airport			
Ketchikan	KTN	Ketchikan International Airport			
Kotzebue	OTZ	Ralph Wien Memorial Airport			
McGrath	MCG	McGrath Airport			
Port Heiden	PTH	Port Heiden Airport			
Sand Point	SDP	Sand Point Airport			
Sitka	SIT	Sitka Rocky Gutierrez Airport			
St. Mary's	KSM	St. Mary's Airport			
St. Paul	SNP	St. Paul Island Airport			
Unalaska DUT		Tom Madsen Airport			
Utqiaġvik	BRW	Wiley Post-Will Rogers Memorial Airport			

This report was prepared for DOT&PF in accordance with the terms and conditions of Shannon & Wilson's contracts, relevant DEC guidance documents, and 18 Alaska Administrative Code (AAC) 75.335.

1.1 Project Objective

The project objective was to identify and sample WSWs at or near the 11 project sites to assess the potential for human exposure to PFAS in groundwater or other impacted water bodies.

1.2 Project Summary

Our scope of services included the following activities in relation to achieving the project objective, as applicable based on project site characteristics:

- reviewing historical information for the project sites;
- coordinating with DOT&PF and local community sources to identify WSWs to be sampled;
- preparing work plan addenda documenting our site review, background findings, and proposed investigative approach for each site;
- coordinating with DOT&PF to develop appropriate messaging to be used during our sampling events;
- coordinating with DOT&PF to develop letters to send to the community members prior to our arrival, or to notify them of our well search efforts, where travel was deemed unnecessary;
- mobilizing to the sites to perform door-to-door well searches and collect water samples, where necessary;
- submitting analytical groundwater samples to Eurofins Environment Testing, Inc. (Eurofins) for laboratory analysis of 18 PFAS analytes;
- performing a quality-assurance/quality control (QA/QC) review for each laboratory data deliverable;
- preparing a data table and results map for each community to notify the project team of the results; and
- notifying the property owners and occupants of each sampled well by telephone and a personalized results notification letter of the results of their water sample.

Shannon & Wilson personnel who collected water samples for this project are State of Alaska Qualified Environmental Processionals as defined in 18 AAC 75.333[b]. Project activities were performed in accordance with our *Revision 1 – DOT&PF Statewide PFAS General Work Plan* (GWP) and site-specific work plan addenda. Work plan addenda prepared for each site are summarized in Exhibit 1-2 below.

Exhibit 1-2: Work Plan Addenda to the Revision 1 – DOT&PF Statewide PFAS General Work Plan

Airport Location	General Work Plan Addendum Title	Date
Deadhorse	023-SCC-01 Deadhorse Water Supply Sampling Final General Work Plan Addendum	January 2023
Ketchikan	018-KTN-01 Ketchikan Well Monitoring General Work Plan Addendum	October 2022
Kotzebue	015-OTZ-01 Kotzebue Water Supply Sampling Final General Work Plan Addendum	October 2022
McGrath	020-MCG-01 McGrath Initial Site Characterization Final General Work Plan	November 2022
Port Heiden	014-PTH-01 Initial Site Characterization Revision 1 Final General Work Plan	October 2022
Sand Point	024-SDP-01 Water Supply Well Sampling Final General Work Plan Addendum	January 2023
Sitka	016-SIT-01 Sitka Airport WSW Search Final General Work Plan Addendum	October 2022
St. Mary's	025-KSM-01 Saint Mary's Water Supply Well Sampling General Work Plan Addendum	February 2023
St. Paul	019-SNP-01 St. Paul Island Airport WSW Search Final General Work Plan Addendum	November 2022
Unalaska	021-DUT-01 Initial Site Characterization Final General Work Plan Addendum	December 2022
Utqiaģvik	022-BRW-01 Utqiagvik Water Supply Sampling Final General Work Plan Addendum	January 2023

1.3 Contaminants of Concern and Action Levels

For the purpose of this report, we consider the two PFAS compounds currently regulated by DEC, perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), to be contaminants of concern. In 2006, DEC promulgated groundwater cleanup levels for PFOS and PFOA of 400 ng/L for the individual analytes. In October 2019, DEC published the revised *Technical Memorandum: Action Levels for PFAS in Water and Guidance on Sampling Groundwater and Drinking Water* (DEC PFAS Technical Memorandum) which set the current action level for PFAS in drinking water at 70 nanograms per liter (ng/L) for the sum of PFOS and PFOA (DEC drinking water action level). We understand the State of Alaska currently considers this action level as the threshold for determining if responsible parties need to provide water treatment or alternative water sources for PFAS-affected domestic water supplies. We further understand the DEC is currently drafting updated regulations that are anticipated to be published in 2023.

Additional details regarding the changes to State of Alaska PFAS regulations are discussed in the GWP.

1.3.1 Routine Monitoring Criteria

In coordination with DEC, DOT&PF has developed monitoring guidelines to determine the routine sampling frequency of WSWs at project sites included in the statewide investigation of PFAS contamination at and near Part 139 airports. Exhibit 1-3 below outlines the monitoring frequency criteria used at other state-owned airports where PFAS-affected water has been detected. We note that ongoing monitoring for the 11 sites described in this report has not been initiated.

Criteria	Sum of PFOS and PFOA Detected	Relative to DEC Action Level	Monitoring Frequency
Α	Greater than or equal to 70 ng/L	Exceeding	None; Affected Well
В	Between 35 ng/L and 70 ng/L	Between 50% and 100%	Quarterly
С	Between 17.5 ng/L and 35 ng/L	Between 25% and 50%	Annual
WSWs within 500 feet of Criteria A. B. or C	N/A	N/A	Quarterly (A/B) or Annual (C)

Exhibit 1-3: Monitoring Guidelines for WSWs at DOT&PF Statewide Airport PFAS Investigation Sites

NOTES: % = percent, ng/L = nanograms per liter

1.4 Federal Regulatory Levels

In June 2022, the Environmental Protection Agency (EPA) published Interim lifetime health advisory (LHA) levels of 0.004 ng/L for PFOA and 0.02 ng/L for PFOS, and Final LHA levels of 2,000 ng/L for perfluorobutanesulfonic acid (PFBS) and 10 ng/L for hexafluoropropylene oxide dimer and its ammonium salt (together referred to as "GenX chemicals"). We understand the DEC is currently evaluating the Interim LHA levels released by EPA to determine their impact on DOT&PF PFAS projects and other projects in the State of Alaska. Currently the DEC considers the EPA Final LHA of 70 ng/L for the sum of PFOS and PFOA to be the drinking water action level.

In March 2023, EPA announced draft maximum contaminant levels (MCLs) via proposed National Primary Drinking Water Regulation (NPDWR) for six PFAS including PFOS, PFOA, PFBS, GenX chemicals, perfluoronanoic acid (PFNA), and perfluorohexanesulfonic acid (PFHxS). We understand that DEC is currently evaluating the impact this may have on public water systems in Alaska. We note DEC currently adopts the NPDWR requirements in the State of Alaska drinking water regulations (18 AAC 80.010).

Additional details regarding the changes to EPA's PFAS regulations are discussed in the GWP.

1.5 Analytical Methods

Water samples collected by Shannon & Wilson during these efforts were submitted to Eurofins for laboratory analysis of 18 PFAS compounds by the EPA Method 537M compliant with the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories Version 5.3 Table B-15 based on laboratory certification with the DEC. These 18 PFAS analytes and their abbreviated names are presented in Exhibit 1-4 below. These analytes are consistent with samples collected at other airport sites where AFFF was used.

Exhibit 1-4: 18 PFAS Analytes and Abbreviations

Analyte	Abbreviation
Perfluorooctanesulfonic acid	PFOS
Perfluorooctanoic acid	PFOA
Perfluoroheptanoic acid	PFHpA
Perfluorononanoic acid	PFNA
Perfluorohexanesulfonic acid	PFHxS
Perfluorobutanesulfonic acid	PFBS
Perfluorodecanoic acid	PFDA
Perfluorohexanoic acid	PFHxA
Perfluorotetradecanoic acid	PFTeA
Perfluorotridecanoic acid	PFTrDA or PFTriA
Perfluoroundecanoic acid	PFUnA
Hexafluoropropylene oxide dimer acid	HFPO-DA
N-ethyl perfluorooctane sulfonamidoacetic acid	N-EtFOSAA
N-methyl perfluorooctane sulfonamidoacetic acid	N-MeFOSAA
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11CL-PF3OUdS
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9CL-PF3ONS

Additional information regarding the analytical results can be found in the appended analytical laboratory data.

1.6 Water Supply Well Categories

Information gathered during the WSW surveys was used to designate a well category based on use, as follows:

- Category 1: water supply wells used for drinking or cooking, as reported by owners or occupants.
- Category 2: water supply wells used for dish washing, bathing, and other domestic purposes. Homes or businesses where the occupants report they do not drink the water, but where the water supply wells lead to kitchen or bathroom faucets, are considered possible future drinking water wells.
- Category 3: water supply wells used for vegetable gardening and are not plumbed to indoor faucets or spigots. The well water is not accessed by outdoor plumbing, but the well may be located underneath or inside the structure. These wells are considered nondrinking water wells.
- Category 4: water supply wells used for outdoor purposes only, such as irrigation or vehicle washing. These wells are considered non-drinking water wells.

Category 5: water supply wells currently not in use. Wells that have been abandoned in place, are inoperable, disconnected, or intended for future use, are considered nondrinking water wells.

Water supply wells are categorized in this way for consistency and to allow for easy sorting of wells by use.

2 PROJECT SITE SUMMARIES

The following sections summarize project activities performed for each of the 11 sites. We also provide a discussion of analytical sample results and recommendations for further investigation, as applicable. The approximate extent of the investigation areas associated with each project site are presented in the appended vicinity map figures.

Our well search activities for each site included querying the Alaska Department of Natural Resources (DNR) Well Log Tracking System (WELTS), contacting DOT&PF Statewide Aviation Leasing (SWA Leasing), and interviewing airport personnel. We also relied on information provided directly by the DOT&PF project team. We performed a preliminary, office-based investigation for each site to evaluate the potential presence of WSWs within the well search areas and depending on findings either mobilized to sample identified wells and/or mailed questionnaires to property owners in the investigation area.

During our site review and preliminary well search activities, we identified several sites without WSWs in the proposed investigation areas. Field mobilization and/or sampling were not performed for these sites. Exhibit 2-1 below summarizes the number of locations sampled at each site for this assessment and the dates of field activities, where applicable.

Airport Locations Location Sampled ¹		Field Event Month/Year	Comments			
Deadhorse	Deadhorse None N/A		PFAS results provided by the municipal water treatment plant.			
Ketchikan	None	October 2022	No WSWs were identified in the investigation area.			
Kotzebue	2	N/A	Two monitoring wells were sampled.			
McGrath	9	January 2023	Four WSWs, four monitoring wells, and the municipal water treatment plant were sampled.			
Port Heiden	Port Heiden 28 November 2022		28 WSWs were sampled.			
Sand Point	3	February 2023	3 WSWs were sampled.			
Sitka	None	N/A	No WSWs were identified in the investigation area.			
St. Mary's	3	February 2023	One WSW and two monitoring wells were sampled.			
St. Paul 5 January 2023		January 2023	Three municipal wells and two monitoring wells were sampled.			
Unalaska	None	N/A	No WSWs were identified in investigation area.			
Utqiaġvik None N/A		N/A	PFAS results provided by the municipal water treatment plant.			

NOTES:

We have appended documents regarding the project activities described in the following sections. The appended supporting documentation includes the following:

- Vicinity Map, Site Map, and Results Map Figures, where applicable
- Tabulated Analytical Results, where applicable
- Analytical Laboratory Reports and Data Review Documentation, where applicable
- Well Search Questionnaire Letters and PFAS Fact Sheet Mailings
- Completed Well Search Questionnaires
- Private Well Inventory Survey Forms, where applicable
- Private Well Sampling Logs and Monitoring Well Sampling Logs, where applicable
- Results Notification Letter Templates, where applicable

2.1 Deadhorse Airport (SCC)

The Deadhorse municipal water supply reservoir was the only domestic water source identified within the well search area for the Deadhorse Airport site. The Deadhorse water treatment plant (WTP) supplies domestic water for the airport and community. Water for the system is sourced from a reservoir adjacent to the Sagavanirktok River, colloquially referred to as the Sag River.

In February 2023, we mailed WSW search questionnaire letters to properties within the well search area, including lessees at the Deadhorse Airport property. A figure showing the well

¹ Locations sampled by Shannon & Wilson. See project summaries for additional information. N/A = Not applicable

search area and a copy of the mailing letter are included in Appendix A for reference. We received three responses to the questionnaire; the responses indicated there were no WSWs present in the search area.

Due to the lack of WSWs identified in the investigation area, we did not mobilize to Deadhorse to perform sampling activities. However, we did acquire PFAS sampling results from the Deadhorse WTP which is operated by the North Slope Borough. The Deadhorse WTP (Figure A1) is identified in the DEC Drinking Water Program database as:

Water System Name: North Slope Borough SA 10

Water System Number: AK2331184

2.1.1 Analytical Results

The Deadhorse WTP provided us with analytical results for historical samples collected from the water system in November 2018, January 2019, April 2019, August 2019, August 2020, and September 2022. Multiple detections of PFAS were reported in the sample results, including PFOS, PFOA, PFHxS, PFHxA, and PFNA.

We have included the analytical laboratory reports received from the Deadhorse WTP in Appendix A. Results were detected below the current DEC drinking water action; however, several samples exceeded the proposed MCL. Exhibit 2-2 below summarizes PFAS analytes detected in the water samples collected at the Deadhorse WTP.

Exhibit 2-2: Deadhorse Water Treatment Plant PFAS Detections Summary

Event		Sample			Dete	ected Ana	lytes‡	
Date	Sample Name	Date	Units	PFOS	PFOA	PFHxS	PFHxA	PFNA
	Raw Water Pond House	11/17/2018	ng/L	4.0	_	3.1	2.3	_
	Raw Tank UF Feed	11/17/2018	ng/L	4.3		3.1	2.2	
	UF1 Permeate	11/17/2018	ng/L	4.6	_	3.4	2.3	
	UF2 Permeate	11/17/2018	ng/L	3.5		2.9	2.3	
November	Potable Tanks Combined	11/17/2018	ng/L	4.1		3.2	2.3	
2018	Potable Fill 4	11/17/2018	ng/L	3.7		3.2	2.3	
	Potable Truck 19518	11/17/2018	ng/L	4.1		3.3	2.3	
	Potable Truck 19520	11/17/2018	ng/L	4.2		3.3	2.3	
	Potable Truck 7-21	11/17/2018	ng/L	3.9	_	2.3	3.2	
	Raw Water Pond House	1/27/2019	ng/L	4.6	_	3.5	2.5	
	Raw Water Plant Sample Port	1/27/2019	ng/L	4.6	_	3.3	2.3	
	Raw Tank UF Feed	1/27/2019	ng/L	4.6	_	3.4	2.5	
	UF1 Permeate	1/27/2019	ng/L	3.7	_	3.3	2.5	
January	UF2 Permeate	1/27/2019	ng/L	3.8	_	3.2	2.4	
2019	Potable Tanks Combined	1/27/2019	ng/L	3.6	_	3.2	2.4	
	Potable Fill 4	1/27/2019	ng/L	3.3	14	3.4	2.5	
	Potable Truck 19518	1/27/2019	ng/L	3.8	_	3.1	2.3	
	Potable Truck 19520	1/27/2019	ng/L	3.2		3.2	2.5	_
	Potable Truck 7-21	1/27/2019	ng/L	3.7	_	3.3	2.4	
A:1 0040	Potable Truck Fill 4	4/1/2019	ng/L	4.2		3.2	2.1	_
April 2019	Raw Water Sample Port	4/1/2019	ng/L	4.3		3.2	2.1	
	Raw Water Pondhouse	8/5/2019	ng/L	2.1		_	_	_
	Raw Water Plant Sample Port	8/5/2019	ng/L	2.9				
	Raw Tank UF Feed	8/5/2019	ng/L	2.2				
	UF 1 Permeate	8/5/2019	ng/L	7.5	_	_	_	
August	UF 2 Permeate	8/5/2019	ng/L	8.2	_	_	_	
2019	Potable Tanks Combined	8/5/2019	ng/L	3.7		_	_	
	Potable Fill 4	8/5/2019	ng/L	3.9	_	_	_	
	Potable Truck 19518	8/5/2019	ng/L	3.6	_	_	_	
	Potable Truck 19520	8/5/2019	ng/L	4.0	_	_	_	
	Potable Truck 7-21	8/5/2019	ng/L	3.8	_	_	_	_
A	Well 1	8/24/2020	ng/L	24	_	5.2	2.9	3.4
August 2020	Well 2	8/24/2020	ng/L	14	_	4.5	2.3	2.5
2020	Raw Surface Water	8/24/2020	ng/L	2.4	_	_	_	
	Raw Water Pondhouse	9/12/2022	ng/L	3.0		2.2		
Contour br	Raw Water Plant Sample Port	9/11/2022	ng/L	3.1		2.1		
September 2022	UF 1 Permeate	9/11/2022	ng/L	2.8		2.2	_	
2022	UF 2 Permeate	9/12/2022	ng/L	3.2		2.2		
	CFE Post CI2	9/11/2022	ng/L	3.0		2.3	_	

NOTES:

102219 June 2023

Only detected analytes are summarized in this table. The data was supplied by North Slope Borough Deadhorse WTP personnel; Shannon & Wilson did not perform a quality-assurance/quality-control assessment for the data. The analytical data packets are presented in Appendix A.

The analyte was not detected above the laboratory's method reporting limit (i.e., not-detected result).
 ng/L nanograms per liter

2.1.2 Discussion and Recommendations

The Deadhorse WTP was the only domestic water source identified in the current investigation area for the Deadhorse Airport site. According to the sample results we received from the Deadhorse WTP, PFOS has been detected in the community's water source at concentrations up to 24 ng/L and PFOA was detected at a concentration of 14 ng/L in the January 2019 sampling event. Detected results were also reported for PFHxS, PFHxA, and PFNA in one or more of the WTP samples.

The source water for the Deadhorse WTP is located approximately one-quarter mile northeast of the Deadhorse Airport. According to the DEC Drinking Water Program database, which refers to the reservoir as both the Sag River Reservoir and NANA Reservoir, the approximately rectangular-shaped reservoir is lined on three sides and its base. The eastern side of the reservoir which abuts the Sag River is an unlined gravel levy. The reservoir is replenished by water from the Sag River that seeps through the levy (Figure A1).

The Deadhorse Airport property is located adjacent to the Sag River in the upstream direction from the WTP source water reservoir. Potential migration of PFAS from the airport property to the Sag River could affect water quality at the WTP source water reservoir, though the PFAS source area affecting the Deadhorse WTP has not been determined and there are potentially several potential sources near the Deadhorse WTP.

The Prudhoe Bay Operation Center (DEC Water System Number AK2331011) also uses the Sag River as a water supply; water is pumped from the river into reservoirs. The water intake on the Sag River for the facility is located approximately 5 miles northeast and downstream of the airport.

We recommend coordinating with DEC to determine additional steps for investigating potential effects on soil and groundwater quality resulting from the use of AFFF at the Deadhorse Airport. We also recommend coordinating with the Deadhorse WTP to develop a plan for additional sampling of the community water system to include additional PFAS analytes (e.g., analysis of the 18 PFAS analytes by EPA Method 537M reported for project sites). Given the potential for additional sources, we further recommend forensic assessment of the analytical results.

2.2 Ketchikan Airport (KTN)

Our well search activities for the Ketchikan Airport site did not identify WSWs within the current investigation area (Appendix B). The airport is located on Gravina Island, separated from Ketchikan on Revillagigedo Island by the Tongass Narrows. We understand the

airport is supplied by Ketchikan's municipal water system via a water main that runs beneath Tongass Narrows (Coffman 1989). The municipal water system's source is located on Revillagigedo Island and not within the bounds of the current investigation area.

We performed a site visit to the airport property in October 2022 while our personnel were in Ketchikan for reasons unrelated to the project. During our site visit, which included a drive-around on the airport property, airport personnel noted that there are residential properties on Gravina Island located outside of the current well search area. We were informed that water supplies for these residences are likely sourced from rain catchment, or the residences lacked indoor plumbing (i.e., "dry" cabins). We did not find evidence of WSWs within the search area during our site visit.

Airport personnel also informed us that potential areas where AFFF has been used on the airport property include the 1976 Alaska Airline Flight 60 crash site and a training area adjacent to the Aircraft Rescue and Fire Fighting (ARFF) building. Based on information provided, we understand the Flight 60 crash site at the Ketchikan Airport has since been covered by additional earthen fill during subsequent airport improvements.

2.2.1 Discussion and Recommendations

Our well search activities for the Ketchikan Airport site did not identify WSWs within the current investigation area. We recommend coordinating with DEC to determine additional steps for investigating potential effects on soil and groundwater quality resulting from the use of AFFF at the site. Additionally, we were informed of one residential property to the north of the airport that was under construction. During subsequent site visits, we recommend contacting this property to verify their water source.

2.3 Kotzebue Airport (OTZ)

Our well search activities for the Kotzebue Airport site did not identify WSWs within the current investigation area. In November 2022, we mailed WSW search questionnaire letters to Kotzebue addresses (zip code 99752) using the United States Postal Service's Everyday Door Direct Mail (USPS EDDM) bulk mailing service. This service allows a company to send letters to every address within a certain zip code. A copy of the mailing letter is included in Appendix C for reference.

We received six responses to the well search questionnaire. The six questionnaire respondents noted domestic water for their properties was supplied by the Kotzebue municipal water system. One respondent indicated they had a hand-dug well approximately six feet in depth in their basement but that it was not in use. Another

respondent indicated they were employed by the Kotzebue WTP and were unaware of WSWs in Kotzebue used as a drinking water source.

The DEC Drinking Water Program database indicates that the municipal water supply for Kotzebue is sourced from two surface water bodies. Devils Lake is located approximately two miles east of the Kotzebue Airport and is the system's primary water source. Vortac Lake is located approximately one mile from the airport and is a backup source for the water system. Both of these lakes are located at elevations greater than the airport property and unlikely to be affected by activities at the airport (Figure C1).

Though our well search for the Kotzebue Airport site did not identify WSWs in the investigation area, we did collect samples from groundwater monitoring wells (MWs) located at the airport property during the mobilization for a separate PFAS site characterization project for DOT&PF in December 2022.

2.3.1 Analytical Results

In December 2022, we collected groundwater samples from MW10-04 and MW10-09 at the Kotzebue Airport property (Figure C2) using a peristaltic pump. PFOS and PFOA were detected at concentrations less than the DEC groundwater cleanup level of 400 ng/L for the individual analytes. Exhibit 2-3 below summarizes PFAS analytes detected in the groundwater samples collected from the monitoring wells. The full set of PFAS data are summarized in Table C1 and results are presented in Figure C3 (Appendix C).

Exhibit 2-3: Kotzebue Monitoring Wells PFAS Detections Summary

Sample	Sample		Detected Analytes [‡]							
Name	Date	Units	PFOS	PFOA	PFBS	PFDA	PFHpA	PFHxS	PFHxA	PFNA
MW10-04	12/3/2022	ng/L	160	10	0.84 J	2.6	7.8	9.6	15	24
MW10-09	12/3/2022	ng/L	5.2	41	7.9	_	160	43	280	1.2 J

NOTES:

- Only detected analytes are summarized in this table. For field duplicate pairs, the maximum result for each analyte in the duplicate pair is presented. Refer to the analytical data in Appendix C for further information.
- The analyte was not detected above the laboratory's method detection limit (i.e., not-detected result).
- J The analyte was detected at an estimated concentration greater than the detection limit but less than the reporting limit. ng/L nanograms per liter

2.3.2 Discussion and Recommendations

PFOS was detected at a concentration greater than the DEC drinking water action level at monitoring well MW10-04. However, the MW is not used for domestic water purposes and our well search did not indicate that residents in Kotzebue are using groundwater for household purposes.

Without evidence that groundwater is used for drinking water in Kotzebue, our opinion is the applicable regulatory levels for PFAS in groundwater at the site are the DEC groundwater cleanup levels listed in 18 AAC 75.345. The regulations list groundwater cleanup levels of 400 ng/L for PFOS and 400 ng/L for PFOA. Concentrations of these analytes were not detected above DEC groundwater cleanup levels at the site.

We recommend coordinating with DEC to develop additional steps to characterize and delineate potentially affected soil, groundwater, and surface water at the site. We also recommend continued coordination to provide updated information to community residents, local agencies, and other project stakeholders regarding PFAS at the site and verify that affected water is not being used for domestic purposes or in other ways that could present a potential exposure pathway or lead to migration of PFAS to currently unaffected areas.

2.4 McGrath Airport (MCG)

Our well search activities for the McGrath Airport site identified several potential properties with WSWs in the investigation area. In November 2022, we mailed WSW search questionnaire letters to McGrath addresses (zip code 99627) using the USPS EDDM bulk mailing service indicating we would mobilize to perform a door-to-door survey effort to identify and sample wells (Appendix D). We have included a copy of the questionnaire letter in Appendix D. As a point of clarification, the letter notes we would travel to McGrath in December 2022, but our mobilization occurred in January 2023 due to weather delays.

Preliminary information obtained for the site indicated there was no evidence of AFFF having been used at the McGrath Airport, and that domestic water for most community residents was supplied by the municipal water system. Our mobilization therefore focused on identifying and sampling MWs or WSWs in the immediate vicinity of the airport during the scheduled timeframe.

During our January 2023 mobilization, we collected samples from four WSWs, four groundwater monitoring wells, and the McGrath WTP, which sources its water from the Kuskokwim River upstream of the McGrath Airport (Figure D1). Due to time limitations, we were unable to visit every property in the investigation area. We were informed by longtime residents contacted during our well search that they were not aware of additional WSWs in McGrath that were currently in use within Search Area 1. However, there may be additional garden WSWs within the search areas used in the summer months, and one property in Search Area 2 with a domestic well.

During our site visit, we coordinated with DOT&PF to provide McGrath's local radio station with information describing the well search effort. A version of the prepared statement from

DOT&PF was read on-air by the radio station's host as an additional outreach effort to inform residents in McGrath of the well search and sampling effort.

2.4.1 Analytical Results

We collected samples from four WSWs, four groundwater MWs, and the municipal WTP during our January 2023 mobilization to McGrath. Sample results are presented in Figure D3. PFAS analytes detected in WSWs sampled in McGrath are summarized in Exhibit 2-4. The full data set is presented in Table D1 in Appendix D.

Exhibit 2-4: McGrath Water Supply Wells PFAS Detections Summary

Sample	Sample		Detected Analytes [‡]							
Name	Date	Units	PFOS	PFOA	PFBS	PFHpA	PFHxS	PFHxA		
MCG-001	1/10/2023	ng/L		_	2.7	0.26 J	4.6	2.2		
MCG-003	1/10/2023	ng/L	_	5.5	_	1.8	1.6 J	3.8		
MCG-007	1/10/2023	ng/L	_	_	0.71 J	_	_	3.4		
MCG-021	1/10/2023	ng/L	6.7	3.9	1.1 J	1.3 J	9.0	3.1		

NOTES:

- ‡ Only detected analytes are summarized in this table. For field duplicate pairs, the maximum result for each analyte in the duplicate pair is presented. Refer to the analytical data in Appendix D for further information.
- The analyte was not detected above the laboratory's method detection limit (i.e., not-detected result).

PFAS analytes detected in MWs sampled in McGrath are summarized in Exhibit 2-5 below. The full data set is presented in Table D2 in Appendix D.

Exhibit 2-5: McGrath Monitoring Wells PFAS Detections Summary

Sample	Sample	Detected Analytes‡						
Name	Date	Units	PFOS	PFOA	PFBS	PFHpA	PFHxS	PFHxA
MCG-MW-01	1/11/2023	ng/L	_	_	6.0	2.3	14	25
MCG-MW-02	1/11/2023	ng/L	_	55	18	32	450	65
MCG-MW-03	1/11/2023	ng/L	_	_	1.8	0.27 J	0.82 JH*	2.6
MCG-MW-04	1/11/2023	ng/L	_	_	0.39 J	_	_	0.64 J

NOTES:

- Only detected analytes are summarized in this table. For field duplicate pairs, the maximum result for each analyte in the duplicate pair is presented. Refer to the analytical data in Appendix D for further information.
- The analyte was not detected above the laboratory's method detection limit (i.e., not-detected result).
- J The analyte was detected at an estimated concentration greater than the detection limit but less than the reporting limit.
- JH* The result is considered an estimated concentration, biased high, due to quality control failures. Flag applied by Shannon & Wilson. ng/L nanograms per liter

2.4.2 Discussion and Recommendations

PFOS and PFOA were not detected above the DEC drinking water action level at locations sampled in McGrath during this investigation. Concentrations of PFOA detected at MCG-

J The analyte was detected at an estimated concentration greater than the detection limit but less than the reporting limit. ng/L nanograms per liter

MW-02 are greater than the DOT&PF criteria for initiating routine monitoring of WSWs within 500 feet of the monitoring well. Based on our well search activities, we anticipate there may be one or more wells within 500 feet of MCG-MW-02. None of the requested PFAS analytes were detected in the municipal WTP sample (Sample Name: *MCG-024;* Appendix D).

The WSWs sampled during our January 2023 mobilization provided water for commercial buildings or buildings occupied by governmental agencies. No private residences were sampled because our well search did not identify residences with drinking water WSWs. In Exhibit 2-6 below, we summarize information collected during our well search regarding WSW usage at the properties where PFAS was detected in McGrath.

Exhibit 2-6: McGrath Water Supply Wells Usage Summary for Wells with PFAS Detections

Sample Name	Description	Well Category	Notes
MCG-001	ADF&G Office	1	WSW is used for internal plumbing, and food preparation/cooking. Drinking water is noted to be supplied by bottled water.
MCG-003	DOT&PF Shop	2	WSW is used for internal plumbing, and vehicle maintenance. Unknown if water is consumed. New construction – drinking water supply is unknown.
MCG-007	Commercial Airline Services	2	WSW is used for toilets and handwashing. Unknown if water is consumed by visitors/customers. Drinking water is noted to be supplied by bottled water.
MCG-021	Gas Station	1	WSW is used for internal plumbing, and food preparation/cooking. Drinking water is noted to be supplied by bottled water. Unknown if water is used for coffee sales.

We recommend remobilizing to McGrath to complete the onsite well search and sampling activities during the summer field season to include garden wells used during this period.

We recommend coordinating with DEC to develop additional steps to characterize and delineate PFAS-affected soil, groundwater, and surface water at the site. We also recommend continued coordination to provide updated information to community residents, local agencies, and other project stakeholders regarding PFAS at the site and verify that affected water is not being used for domestic purposes or in other ways that could present a potential exposure pathway or lead to migration of PFAS to currently unaffected areas.

2.5 Port Heiden Airport (PTH)

Our well search activities for the Port Heiden Airport site identified several potential wells in the investigation area. We sent a letter to inform residents in October 2022 that our personnel would be mobilizing to Port Heiden in November 2022 to perform a door-to-door survey effort to identify and sample wells. A copy of the letter is included in Appendix E.

2.5.1 Analytical Results

We collected samples from 28 WSWs during our November 2022 mobilization to Port Heiden. PFAS were detected in samples collected at the 14 locations summarized in Exhibit 2-7 below. Table E1 presented in Appendix E summarizes the full set of analytical data. Additional properties noted to have wells were not sampled because we were unable to establish contact with the owners/occupants.

Exhibit 2-7: Port Heiden Water Supply Wells PFAS Detections Summary

Sample	Sample				Detected	Analytes [‡]		
Name	Date	Units	PFOS	PFOA	PFBS	PFHpA	PFHxS	PFHxA
PTH-013	11/11/2022	ng/L	_	_	0.34 J	_	0.70 J	0.65 J
PTH-016	11/10/2022	ng/L	0.50 J	_	_	_	_	_
PTH-020	11/10/2022	ng/L	_	_	1.7 J*	0.47 J*	5.8 J*	1.3 J*
PTH-025	11/9/2022	ng/L	_	_	9.9	1.1 J	35	4.8
PTH-031	11/9/2022	ng/L	1.3 J	2.0	_	0.24 J	_	_
PTH-032	11/9/2022	ng/L	_	_	1.2 J	_	0.60 J	_
PTH-033	11/10/2022	ng/L	_	_	0.22 J	_	_	_
PTH-042	11/10/2022	ng/L	0.64 J	_	_	_	_	_
PTH-046	11/10/2022	ng/L	36	22	110	21	250	89
PTH-201	11/11/2022	ng/L	_	_	0.33 J*	_	_	_
PTH-202	11/11/2022	ng/L	_	3.1	2.3	1.0 J	4.9	1.7 J
PTH-205	11/11/2022	ng/L	2.9 JH*	15	9.9	4.0	7.1	9.1
PTH-206	11/11/2022	ng/L	_	_	0.74 J	_	_	_
PTH-213	11/10/2022	ng/L			0.41 J	_	_	

NOTES:

2.5.2 Discussion and Recommendations

PFAS were not detected above the DEC drinking water action level in WSWs sampled in Port Heiden during this investigation. The sum of PFOS and PFOA concentrations detected at location PTH-046 was greater than 50% of the DEC drinking water action level (i.e., 35 ng/L), and at location PTH-205 was greater than 25% of the DEC drinking water action level (i.e., 17.5 ng/L). We understand these PFAS concentrations exceed the threshold used by DOT&PF to determine if WSWs should be included in a routine monitoring program. Locations PTH-201 and PTH-206 are the only WSWs located within approximately 500 feet of either PTH-205 or PTH-046.

[‡] Only detected analytes are summarized in this table. For field duplicate pairs, the maximum result for each analyte in the duplicate pair is presented. Refer to the analytical data in Appendix E for further information.

The analyte was not detected above the laboratory's method detection limit (i.e., not-detected result).

J The analyte was detected at an estimated concentration greater than the detection limit but less than the reporting limit.

J* The result is considered an estimated concentration due to quality control failures. Flag applied by Shannon & Wilson.

JH* The result is considered an estimated concentration, biased high, due to quality control failures. Flag applied by Shannon & Wilson.

In Exhibit 2-8 below, we summarize information collected during our well search regarding WSW usage at the properties where PFAS was detected in Port Heiden.

Exhibit 2-8: Port Heiden Water Supply Wells Usage Summary for Wells with PFAS Detections

Sample Name	Description	Well Category	Notes
PTH-013	Residential	1	WSW is used for drinking and food preparation/cooking.
PTH-016	Residential	1	WSW is used for drinking and food preparation/cooking.
PTH-020	Residential	1	WSW is used for drinking and food preparation/cooking.
PTH-025	Residential	1	WSW is used for drinking and food preparation/cooking.
PTH-031	Residential	1	WSW is used for drinking, food preparation/cooking, and gardening.
PTH-032	Residential	1	WSW is used for drinking, food preparation/cooking, and gardening.
PTH-033	Residential	1	WSW use noted as "1" however well broken at time of sampling.
PTH-042	Residential	1	WSW is used for drinking and food preparation/cooking.
PTH-046	DOT&PF Utility Well	2	WSW is used for filling ARFF Truck.
PTH-201	Residential	1	WSW use is unknown; well category implied based on location of water sample (kitchen sink).
PTH-202	Residential	1	WSW is used for drinking and food preparation/cooking.
PTH-205	Residential	1	WSW is used for drinking, food preparation/cooking, and gardening.
PTH-206	Residential	1	WSW is used for drinking and food preparation/cooking.
PTH-213	Residential	1	WSW is used for drinking and food preparation/cooking.

During our site visit, we observed several locations with water treatment systems in their homes due to groundwater contamination identified during a previous project unrelated to the DOT&PF. In some instances, the system was observed to be in the home's yard. It is unclear if these systems have been maintained; we did not collect post-treatment samples to evaluate these systems' effectiveness.

We recommend coordinating with DEC to develop additional steps to characterize and delineate PFAS-affected soil, groundwater, and surface water at the site. We also recommend continued coordination to provide updated information to community residents, local agencies, and other project stakeholders regarding PFAS at the site and verify that affected water is not being used for domestic purposes or in other ways that could present a potential exposure pathway or lead to migration of PFAS to currently unaffected areas.

We recommend remobilizing to Port Heiden to coordinate sample collection with property owners we were unable to contact in January 2023. We further recommend routine monitoring of PFAS concentrations at locations PTH-046 and PTH-205, PTH-201, and PTH-206. We recommend annual monitoring at these locations given the usage of the water at PTH-046 is not used for drinking purposes.

2.6 Sand Point Airport (SDP)

The Sand Point Airport is located approximately two miles southwest of the community of Sand Point. Waterlines for the municipal water system do not extend to the airport property; domestic water for the Sand Point Airport vicinity is supplied either by WSWs or water hauled by truck from Sand Point. The community's water source, Humboldt Creek Reservoir, is located near Sand Point, and outside of the current investigation area. The area of influence for the municipal water source is shown on Figure F1 in Appendix F.

2.6.1 Sand Point Analytical Results

We mobilized to Sand Point in February 2023 to collect samples from three WSWs identified in the current investigation area. PFAS analytes detected in the WSW samples are summarized in Exhibit 2-9 below. The full set of data is presented in Table F1.

Exhibit 2-9: Sand Point Water Supply Wells PFAS Detections Summary

Sample	Sample					Detected /	Analytes‡			
Name	Date	Units	PFOS	PFOA	PFBS	PFDA	PFHpA	PFHxS	PFHxA	PFNA
SDP-001	2/8/2023	ng/L	_	_	_	_	_	0.86 J	_	_
SDP-002	2/8/2023	ng/L	20	4.4	1.7 J	0.50 JH*	24	16	76	1.8

NOTES:

- ‡ Only detected analytes are summarized in this table. For field duplicate pairs, the maximum result for each analyte in the duplicate pair is presented. Refer to the analytical data in Appendix F for further information.
- The analyte was not detected above the laboratory's method detection limit (i.e., not-detected result).
- J The analyte was detected at an estimated concentration greater than the detection limit but less than the reporting limit.
- JH* The result is considered an estimated concentration, biased high, due to quality control failures. Flag applied by Shannon & Wilson. ng/L nanograms per liter

2.6.2 Discussion and Recommendations

PFOS and PFOA were not detected above the DEC drinking water action level in locations sampled in Sand Point during this investigation. Concentrations of PFOS and PFOA detected at location SDP-002 were greater than 25% of the DEC drinking water action level (i.e., 17.5 ng/L), which we understand is the threshold used by DOT&PF to determine if WSWs should be included in a routine monitoring program. Based on our interviews with the property occupants, it does not appear that the WSW is used for drinking water.

In Exhibit 2-10 below, we summarize information collected during our well search regarding WSW usage at the properties where PFAS was detected in Sand Point. Information for each WSW located in Sand Point is provided in Appendix F.

Exhibit 2-10: Sand Point Water Supply Wells Usage Summary for Wells with PFAS Detections

Sample Name	Description	Well Category	Notes
SDP-001	Tribally-Owned Airline Service Building	2	WSW is used for bathrooms.
SDP-002	DOT&PF SREB	2	WSW is used for bathrooms and maintenance activities.
SDP-003	Commercial Seafoods	1	WSW is used for bathrooms/laundry. Water for coffee is treated with a Brita filter.

We recommend coordinating with DEC to develop additional steps to characterize and delineate PFAS-affected soil, groundwater, and surface water at the site. We also recommend continued coordination to provide updated information to community residents, local agencies, and other project stakeholders regarding PFAS at the site and verify that affected water is not being used for domestic purposes or in other ways that could present a potential exposure pathway or lead to migration of PFAS to currently unaffected areas.

2.7 Sitka Airport (SIT)

Our well search activities for the Sitka Airport site did not identify WSWs within the current investigation area. The airport is located on Japonski Island, separated from Sitka on Baranoff Island by the Sitka Channel. We understand the airport is supplied by Sitka's municipal water system whose source is located on Baranoff Island and not within the current investigation area (Figure G1). SWA Leasing informed us that leasing contracts at the airport prohibit the installation of drinking water wells where local water utility service is available. We understand this prohibition was instated at the request of the U.S. Coast Guard, likely due to historical contamination on Japonski Island related to former military operations. We also contacted the Environmental Superintendent with the City of Sitka's Department of Public Works who confirmed that there were no WSWs on Japonski Island and water is supplied by the municipal water system. The operations supervisor with the University of Alaska Southeast (located on Japonski Island) also confirmed that the facility was supplied by the municipal water system.

In November 2022, we mailed WSW search questionnaire letters to property owners in the well search area. Mailing addresses were obtained from the contract public relations consultant, HDR, Inc. We received three responses to the questionnaire. One respondent indicated their house was connected to the municipal water system and two respondents noted their properties were currently vacant lots and they planned to connect to the municipal water system once structures were built. Copies of the mailing letter and the responses received are included in Appendix G for reference.

Due to the lack of WSWs identified in the investigation area, we did not mobilize to Sitka to perform sampling activities.

2.7.1 Discussion and Recommendations

Our well search activities for the Sitka Airport site did not identify WSWs within the current investigation area. We recommend coordinating with DEC and the U.S. Coast Guard to determine additional steps for investigating potential effects on soil and groundwater quality resulting from the use of AFFF at the site.

2.8 St. Mary's Airport (KSM)

Our well search activities for the St. Mary's Airport site indicated potential properties with WSWs in the investigation area were likely limited to the airport property. The airport serves the communities of St. Mary's and Pitka Point, which are both located several thousand feet from the airport and within separate watersheds (i.e., outside of the current investigation area). These areas are depicted on Figure H1.

We mobilized to St. Mary's in February 2023 to identify wells for sampling in the investigation area. We collected samples from one WSW and two groundwater MWs at the airport property during our February 2023 mobilization. During our site visit, we were also informed of a well present at the former Boreal Fisheries, Inc. processing plant located on the bank of the Yukon River approximately one mile southwest of the airport; we understand the property is currently owned by DOT&PF. We were unable to collect a sample at the processing plant in February 2023 due to snow conditions on the access road.

2.8.1 St. Mary's Analytical Results

We collected samples from one WSW and two groundwater MWs at the airport property during our February 2023 mobilization to St. Mary's. PFAS analytes detected in the WSW sampled in St. Mary's are summarized in Exhibit 2-11 below. The full set of WSW analytical data is presented in Table H1.

Exhibit 2-11: St. Mary's Water Supply Wells PFAS Detections Summary

Sample	Sample	_	De	tected Analyt	es‡
Name	Date	Units	PFOS	PFHxS	PFHxA
KSM-05	2/24/2023	ng/L	4.4	1.6J	1.5J

NOTES:

Only detected analytes are summarized in this table. For field duplicate pairs, the maximum result for each analyte in the duplicate pair is presented. Refer to the analytical data in Appendix H for further information.
ng/L nanograms per liter

PFAS analytes detected in the MWs sampled in St. Mary's are summarized in Exhibit 2-12 below. The full set of analytical data is presented in Table H2.

Exhibit 2-12: St. Mary's Monitoring Wells PFAS Detections Summary

Sample	Sample				Detected	Analytes [‡]		
Name	Date	Units	PFOS	PFOA	PFBS	PFHpA	PFHxS	PFHxA
SM-MW22-1	2/24/2023	ng/L	9.2	0.94J	0.63J	0.70J	5.0	5.1
SM-MW22-2	2/24/2023	ng/L	250	7.9	13	2.9	120	47

NOTES:

2.8.2 Discussion and Recommendations

Our well search indicated the only WSWs in the airport vicinity are located at the DOT&PF Snow-Removal Equipment Building (SREB) and the former Boreal Fisheries processing plant. Concentrations of PFAS detected in the SREB well (KSM-05) were below the DEC drinking water action level; the fish plant's well was inaccessible during our sampling mobilization. Based on our interviews with DOT&PF personnel during our mobilization, we understand that drinking water for properties at the airport is delivered from St. Mary's. According to DOT&PF personnel, the SREB well is used for indoor plumbing, but not drinking water, as described in Exhibit 2-13 below.

Exhibit 2-13: St. Mary's Water Supply Wells Usage Summary for Wells with PFAS Detections

Sample Name	Description	Well Category	Notes
KSM-05	DOT&PF SREB	2	WSW is used for bathrooms and maintenance activities.

PFOS was detected at a concentration greater than the DEC drinking water action level at monitoring well SM-MW22-2. However, the monitoring well is not used for domestic water purposes. Concentrations of PFOS and PFOA detected at the site were below their respective 400 ng/L DEC groundwater cleanup levels. Differences in PFAS concentrations between the MWs and WSW may be associated with the difference in well depths. The MWs were installed as part of an unrelated DOT&PF project to approximately 25 feet below ground surface (bgs) and the WSW is thought to be installed to approximately 388 feet bgs. The boring logs for the MWs are included in Appendix H.

We recommend coordinating with DEC to develop additional steps to characterize and delineate potentially affected soil, groundwater, and surface water at the site. We recommend remobilizing to the site in the summer to collect a sample from the Boreal Fisheries processing plant. We also recommend continued coordination to provide updated information to community residents, local agencies, and other project stakeholders

Only detected analytes are summarized in this table. For field duplicate pairs, the maximum result for each analyte in the duplicate pair is presented. Refer to the analytical data in Appendix H for further information.
ng/L nanograms per liter

regarding PFAS at the site and verify that affected water is not being used for domestic purposes or in other ways that could present a potential exposure pathway or lead to migration of PFAS to currently unaffected areas.

2.9 St. Paul Airport (SNP)

Our well search activities for the St. Paul Airport site identified municipal WSWs and monitoring wells in the investigation area (Figure I1). In January 2023, we mobilized to St. Paul to collect groundwater samples from three municipal WSWs and two groundwater MWs. We also identified an additional WSW in the airport vicinity that we were unable to sample during our mobilization due to the wells being shutoff for the winter season.

2.9.1 St. Paul Analytical Results

PFOS was detected in two municipal WSWs sampled in January 2023 as summarized in Exhibit 2-14 below. The full set of analytical data is presented in Table I1.

Exhibit 2-14: St. Paul Water Supply Wells PFAS Detections Summary

Sample	Sample		Detected Analytes‡		
Name	Date	Units	PFOS		
SNP-WellF2	1/17/2023	ng/L	1.2 J		
SNP-WellF5	1/17/2023	ng/L	0.83 J		

NOTES:

- the Only detected analytes are summarized in this table. For field duplicate pairs, the maximum result for each analyte in the duplicate pair is presented. Refer to the analytical data in Appendix I for further information.
- J The analyte was detected at an estimated concentration greater than the detection limit but less than the reporting limit.

PFHpA was also detected in one monitoring well sampled at the St. Paul Airport property in January 2023 as summarized in Exhibit 2-15 below. The full set of analytical data is presented in table I2.

Exhibit 2-15: St. Paul Monitoring Wells PFAS Detections Summary

Sample	Sample		Detected Analytes‡
Name	Date	Units	PFHpA
SNP-MWNW512	1/18/2023	ng/L	0.28 J

NOTES:

- Only detected analytes are summarized in this table. For field duplicate pairs, the maximum result for each analyte in the duplicate pair is presented. Refer to the analytical data in Appendix I for further information.
- J The analyte was detected at an estimated concentration greater than the detection limit but less than the reporting limit.

2.9.2 Discussion and Recommendations

PFOS and PFOA were not detected above the DEC drinking water action level in locations sampled in St. Paul during this investigation. Exhibit 2-16 below summarizes water usage for the WSWs where PFAS was detected in Sand Point.

Exhibit 2-16: St. Paul Water Supply Wells Usage Summary for Wells with PFAS Detections

Sample Name	Description	Well Category	Notes
SNP-WellF2	Municipal WSW	1	Sand Point municipal water supply well.
SNP-WellF5	Municipal WSW	1	Sand Point municipal water supply well.

We recommend remobilizing to St. Paul to complete the onsite well search and sampling activities during the summer field season.

We recommend coordinating with DEC to develop additional steps to characterize and delineate potentially affected soil, groundwater, and surface water at the site. We also recommend continued coordination to provide updated information to community residents, local agencies, and other project stakeholders regarding PFAS at the site and verify that affected water is not being used for domestic purposes or in other ways that could present a potential exposure pathway or lead to migration of PFAS to currently unaffected areas.

2.10 Unalaska Airport (DUT)

Our well search activities for the Unalaska Airport site did not identify WSWs within the current investigation area. Domestic water for the airport and community is supplied by the Unalaska WTP (DEC Water System Number AK2260309) and sourced from surface water bodies several miles outside of the current investigation area (Figure J1).

In December 2022, we obtained addresses from the City of Unalaska online GIS service and mailed WSW search questionnaire letters to property owners in the current investigation area. As of the submittal date of this report, we have not received any responses. A copy of the mailing letter is included in Appendix J for reference. We also contacted the City of Unalaska Water Division Supervisor who indicated that water in the investigation area was supplied by the municipal water system, and he was not aware of WSWs in use.

Due to the lack of WSWs identified in the investigation area, we did not mobilize to Unalaska to perform sampling activities.

2.10.1 Discussion and Recommendations

Our well search activities for the Unalaska Airport site did not identify WSWs within the current investigation area. We recommend coordinating with DEC to develop additional steps to characterize and delineate potentially affected soil, groundwater, and surface water at the site. We also recommend continued coordination to provide updated information to community residents, local agencies, and other project stakeholders regarding PFAS at the site and verify that affected water is not being used for domestic purposes or in other ways

that could present a potential exposure pathway or lead to migration of PFAS to currently unaffected areas.

2.11 Utqiagvik Airport (BRW)

Our well search activities for the Utqiagvik Airport site did not identify WSWs within the current investigation area. Information obtained during our office-based research indicated domestic water for the airport and community is supplied by the Utqiagvik municipal WTP (DEC Water System Number: AK2320078) and sourced from the Isatkoak Reservoir located adjacent to east extent of the airport runway. The Utqiagvik WTP is operated by Barrow Utilities and Electric Coop, Inc. (BUECI).

In February 2023, we mailed WSW search questionnaire letters to Utqiagʻvik addresses (zip code 99723) using the USPS EDDM bulk mailing service. A copy of the mailing letter is included in Appendix K for reference.

We received one response from a Utqiagʻvik resident who indicated the domestic water for their property was supplied by the municipal water system and that they did not have a WSW. We also received a call from one respondent from outside the search area who indicated a freshwater lake south of the airport was previously used for a water source by the community and verified their property was supplied by the municipal water system.

2.11.1 Utqiagvik Analytical Results

Due to the lack of WSWs in the investigation area, we did not mobilize to Utqiagvik to perform sampling activities. However, we did acquire PFOS and PFOA sampling results from monthly samples collected in 2021 at the Utqiagvik WTP.

Exhibit 2-17 below summarizes PFAS analytes detected in the water samples collected at the Utqiagvik WTP. The analytical laboratory reports are included in Appendix K.

Exhibit 2-17: Utqiagvik Water Treatment Plant PFAS Sampling Results Summary

	Sample	Sample		Detected Analytes [‡]	
Event Date	Name	Date	Units	PFOS	PFOA
January 2021	Raw Water Tap	1/5/2021	ng/L	44	4.3
	MG Tank	1/5/2021	ng/L	_	_
February 2021	Raw Water Tap	2/1/2021	ng/L	50	5.6
	MG Tank	2/1/2021	ng/L	_	_
March 2021 -	Raw Water Tap	3/2/2021	ng/L	54	5.4
	MG Tank	3/2/2021	ng/L	_	_
April 2021 -	Raw Water Tap	4/7/2021	ng/L	62	6.0
	MG Tank	4/7/2021	ng/L	_	_
May 2021 -	Raw Water Tap	5/4/2021	ng/L	52	5.8
	MG Tank	5/4/2021	ng/L	_	_
June 2021	Raw Water Tap	6/7/2021	ng/L	69	7.3
	MG Tank	6/7/2021	ng/L	_	_
July 2021	Raw Water Tap	7/13/2021	ng/L	45	4.2
	MG Tank	7/13/2021	ng/L	_	_
August 2021	Raw Water Tap	8/9/2021	ng/L	43	3.6
	MG Tank	8/9/2021	ng/L	_	_
September 2021	Raw Water Tap	9/7/2021	ng/L	50	4.5
	MG Tank	9/7/2021	ng/L	_	_
October 2021	Raw Water Tap	10/25/2021	ng/L	61	5.3
	MG Tank	10/25/2021	ng/L	_	_
November 2021	Raw Water Tap	11/1/2021	ng/L	53	4.8
	MG Tank	11/1/2021	ng/L	_	_
December 2021	Raw Water Tap	12/7/2021	ng/L	61	5.7
	MG Tank	12/7/2021	ng/L		

NOTES:

2.11.2 Discussion and Recommendations

PFOS was detected at concentrations up to 69 ng/L and PFOA was detected at concentrations up to 7.3 ng/L in samples collected at the Utqiagvik WTP. Based on information obtained from the WTP, we understand that the "Raw Water Tap" sample location is located upstream of water treatment systems at the facility. Notably, not-detected results were reported for PFOS and PFOA in samples collected after treatment at the Utqiagvik WTP (i.e., samples identified as "MG Tank" in the analytical data reports in Appendix K).

the data was supplied by BUECI; Shannon & Wilson did not perform a quality-assurance/quality-control assessment for the data. The analytical data packets are presented in Appendix K.

[—] The analyte was not detected above the laboratory's method detection limit (i.e., not-detected result).

PFAS concentrations detected in the Utqiagʻvik WTP source water in June 2021 exceeded the DEC drinking water action level. Based on analytical results provided by BUECI, water treatment processes in effect at the WTP in 2021 appear to have reduced concentrations of PFOS and PFOA to below regulatory limits.

We recommend coordinating with the Utqiaġvik WTP to expand the PFAS sampling program to include additional PFAS analytes prior to the finalization of the EPA MCL. We recommend coordinating with DEC to develop additional steps to characterize and delineate potentially affected soil, groundwater, and surface water at the site. We also recommend continued coordination to provide updated information to community residents, local agencies, and other project stakeholders regarding PFAS at the site and verify that affected water is not being used for domestic purposes or in other ways that could present a potential exposure pathway or lead to migration of PFAS to currently unaffected areas.

2.12 Galbraith Lake and Prospect Creek

DEC's June 2022 request for assessments of Part 139 airports also included sites at Galbraith Lake and Prospect Creek. These properties are now owned and operated by Alyeska Pipeline Service Company (Alyeska). Alyeska informed DOT&PF that there are no wells present in the vicinity of the airports. We did not perform any site assessment activities for the airports.

3 QUALITY ASSURANCE/ QUALITY CONTROL

We reviewed the laboratory QC sample data and also conducted our own QA assessment for analytical results obtained from sampling performed by Shannon and Wilson for this project. We did not perform a QA/QC assessment for analytical results provided to us by other parties.

Our QA/QC procedures included evaluating the accuracy and precision of the analytical data and verifying analyses were sufficiently sensitive to detect analytes at levels below regulatory standards. We also reviewed chain of custody (COC) records and laboratory sample-receipt forms to check that we followed proper custody procedures, met sample-holding times, and kept samples properly chilled during shipping. Details regarding the QA/QC assessments are summarized in the DEC Laboratory Data Review Checklists included in appended documents for each site.

4 RESULTS NOTIFICATION

After receiving and reviewing analytical results, we mailed letters summarizing the results to each WSW owner/user sampled, and also attempted to contact the owner/user by telephone. Where requested, we also emailed the results letters. Templates of the results notification letters for each site, which were prepared in coordination with DOT&PF, are included in Appendices A through K, where applicable.

5 CONCEPTUAL SITE MODELS

A conceptual site model (CSM) describes potential pathways between a contaminant source and possible receptors (i.e., people, animals, and plants) and is used to determine who may be at risk of exposure to those contaminants. We appended a DEC *Human Health Conceptual Site Model Graphic Form* and *Human Health Conceptual Site Model Scoping Form* for each site based on our preliminary understanding of site conditions. Copies are provided in Appendices A through K.

Potentially affected media at the project sites include soil, groundwater, surface water, sediment, and biota. Potential human exposure pathways include:

- Incidental soil ingestion;
- Dermal absorption of contaminants from soil, groundwater, or surface water;
- Inhalation of fugitive dust;
- Ingestion of groundwater and surface water;
- Direct contact with sediment; and
- Ingestion of wild or farmed foods.

6 STATEWIDE PROJECT DISCUSSION

In addition to the sites discussed above, DOT&PF is investigating potential or known PFAS impacts related to AFFF use at several Part 139 airports in communities across Alaska. Site locations are depicted in Figure 1. An updated status summary for the Part 139 airport PFAS investigation sites under the DOT&PF Statewide contract is presented in Table 1.

6.1 General Project Recommendations

We recommend coordinating with DEC to develop additional steps to characterize and delineate potentially affected soil, groundwater, and surface water at the site. We also recommend continued coordination to provide updated information to community residents, local agencies, and other project stakeholders regarding PFAS at the site.

We recommend that SWA Leasing impose restrictions on new WSW installations and use at the airport properties and coordinate with lessees regarding the use of existing WSWs to ensure PFAS-affected water is not being used for domestic purposes or in other ways that could present a potential exposure pathway or lead to migration of PFAS to currently unaffected areas.

We also recommend DOT&PF provide internal training to staff who may engage in construction projects at the airports. Training should include, but not be limited to, known concentrations of PFAS in project areas, how PFAS-contaminated media can impact construction projects, a generalized timeline of PFAS assessment activities prior to construction, an understanding of potential health impacts to constructor workers, communication of PFAS to contractors.

7 REFERENCES

- Alaska Department of Environmental Conservation (DEC), Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites, March 2017.
- Alaska Department of Environmental Conservation (DEC), Field Sampling Guidance, January 2022.
- Alaska Department of Environmental Conservation (DEC), 18 AAC 75: Oil and Other Hazardous Substances Pollution Control, February 2023.
- Alaska Department of Environmental Conservation (DEC), 18 AAC 80: Drinking Water, May 2019.
- Alaska Department of Environmental Conservation (DEC), Division of Environmental Health, Drinking Water Program, Drinking Water Watch online database. Available at https://dec.alaska.gov/dww/.
- Alaska Department of Natural Resources (DNR), Well Log Tracking System (WELTS) online database. Available at: https://dnr.alaska.gov/welts/.
- Coffman Associates, Inc., Airport Master Plan and F.A.R Part 150 Noise Compatibility Study for Ketchikan International Airport. May 1989
- Shannon & Wilson, Inc., DOT&PF Statewide PFAS General Work Plan, July 2020.



Table 1 – Updated Status of DOT&PF Airports as of May 2023

Airport Name	Airport Location	Airport Code	DOT&PF Region ²	Site Type	May 2023 Status	Is groundwater used as a drinking water source? (Yes/No)	Are there impacted drinking water wells? (Yes/No) Impacted = any detectable PFAS
Adak	Adak	ADK	Southcoast	Part 139	PFAS work to be completed by DoD, per DOT&PF	Well search to be completed by DoD. Information unknown.	?
Ted Stevens Anchorage International	Anchorage	ANC	Central ³	Part 139	Active well search, results to date to be reported in June 2023.	Yes, although waterline is available in area and aquifer is classified as non-drinking water.	Yes
Aniak	Aniak	ANI	Central	FP139 or FDoD	DEC screened site for water supply well impacts, noted no action for DOT&PF under current drinking water action levels.	Yes	Yes
Bethel	Bethel	BET	Central	Part 139	DEC screened site for water supply well impacts, noted no action for DOT&PF under current drinking water action levels; 1 well within monitoring criteria. DOT&PF monitoring and addressing PFAS after emergency-response event.	Yes	Yes
Cold Bay	Cold Bay	CDB	Southcoast	Part 139	Bottled water provided. Feasibility study to define treatment options for the impacted municipal water supply to be completed, currently pending funding.	Yes	Yes
Merle K (Mudhole) Smith	Cordova	CDV	Northern	Part 139	DEC screened site for water supply well impacts, all results ND, passed along as no action for DOT&PF under current drinking water action levels. PFAS present on site and factored into construction projects by DOT&PF. Well sampled at ARFF under S&W project associated with construction had PFAS detections; well not used for drinking.	Yes	No
Deadhorse Airport	Deadhorse	SCC	Northern	Part 139	Letters sent to community to determine if water supply wells are present; no wells reported or likely. However, known water reservoir impacts, although unknown source of PFAS contamination.	No, although surface water is used by the public water system in Deadhorse and has PFAS detections, per discussions with system operator.	Yes; see note to left
Dillingham	Dillingham	DLG	Central	Part 139	Monitoring; long-term alternative water solutions in progress.	Yes	Yes
Fairbanks International	Fairbanks	FAI	Northern ³	Part 139	Monitoring; long-term alternative water provided	Yes, although waterline is available in area.	Yes
Galbraith Lake	Galbraith Lake	GBH	Northern	FP139 ⁴	Information provided by Alyeska, no wells present at airport.	No	N/A
Gustavus	Gustavus	GST	Southcoast	Part 139	Monitoring; long-term alternative water solutions in progress.	Yes	Yes
Homer	Homer	НОМ	Central	Part 139	Well search completed; no impacts to drinking water wells. PFAS known at site and is factored into construction projects.	Wells near airport not used for drinking.	No
lliamna	lliamna	ILI	Southcoast	FP139 or FDoD	Monitoring; no alternative water required under current drinking water action level.	Yes	Yes
Ketchikan International	Ketchikan	KTN	Southcoast	Part 139	No wells discovered during site visit.	Not near airport	N/A
King Salmon	King Salmon	AKN	Southcoast	Part 139	Monitoring; long-term alternative water solutions in progress.	Yes	Yes
Kodiak	Kodiak	ADQ	Southcoast	Part 139	PFAS work to be completed by DoD, per DOT&PF. S&W assisting DOT&PF with sampling/CMMP plans prior to construction projects. PFAS detected and known at site.	Well search to be completed by DoD. Information unknown.	?
Ralph Wien Memorial	Kotzebue	OTZ	Northern	Part 139	Letters sent to community to determine if water supply wells are present; no wells reported or likely.	No	N/A
McGrath Airport	McGrath	MCG	Central	FP139 or FDoD	Additional well search activities needed. See section 2.4.2 of the report.	Yes, although waterline is available in area and receives water from river (sample collected; no PFAS detections).	Yes
Nome	Nome	OME	Northern	Part 139	Well search completed; no impacts to drinking water wells. PFAS known at site and is factored into construction projects.	Wells near airport not used for drinking.	No
Petersburg James Johnson	Petersburg	PSG	Southcoast	Part 139	DEC screened site for water supply well impacts, noted no action for DOT&PF under current drinking water action levels.	Yes	Yes



Table 1 – Updated Status of DOT&PF Airports as of May 2023

Airport Name	Airport Location	Airport Code	DOT&PF Region ²	Site Type	May 2023 Status	Is groundwater used as a drinking water source? (Yes/No)	Are there impacted drinking water wells? (Yes/No) Impacted = any detectable PFAS
Port Heiden	Port Heiden	PTH	Southcoast	FP139 or FDoD	Additional well search activities needed. See section 2.5.2 of the report.	Yes	Yes
Prospect Creek	Prospect Creek	PPC	Northern	FP139 ⁴	Information provided by Alyeska, no wells present at airport.	No	N/A
Sand Point Airport	Sand Point	SDP	Southcoast	Part 139	Monitoring; see section 2.6.2 of the report.	Wells with PFAS detections near airport are not used for drinking, but are connected to indoor plumbing.	No; see note to left
Sitka Rocky Gutierrez	Sitka	SIT	Southcoast	Part 139	Letters sent to community to determine if water supply wells are present; no wells reported or likely.	Wells not allowed on Japonski Island where airport is located.	N/A
St. Mary's Airport	St. Mary's	KSM	Southcoast	Part 139	Monitoring; see section 2.8.2 of the report.	Wells near airport not used for drinking, but are connected to indoor plumbing.	No; see note to left
St. Paul Island Airport	St. Paul	SNP	Southcoast	FP139 or FDoD	Monitoring; see section 2.9.2 of the report.	Yes	Yes
Tom Madsen	Unalaska	DUT	Southcoast	Part 139	Letters sent to community to determine if water supply wells are present; no wells reported or likely.	No	N/A
Wiley Post-Will Rogers Memorial	Utqiagvik	BRW	Northern	Part 139	Letters sent to community to determine if water supply wells are present; no wells reported or likely. However, known water reservoir impacts. Treatment by city appears to be effective. Further coordination may be needed to discuss the current system.	No; however, reservoir near airport is impacted and used as drinking water source.	Yes; see note to left
Valdez	Valdez	VDZ	Northern	Part 139	DEC screened site for water supply well impacts, noted no action for DOT&PF under current drinking water action levels.	Yes	Yes
Wrangell	Wrangell	WRG	Southcoast	Part 139	DEC screened site for water supply well impacts, no action for DOT&PF under current drinking water action levels. S&W working with a DOT&PF contractor to address PFAS during construction projects. PFAS detected onsite.	Yes	Yes
Yakutat	Yakutat	YAK	Southcoast	Part 139	Monitoring; long-term alternative water solutions in progress.	Yes	Yes

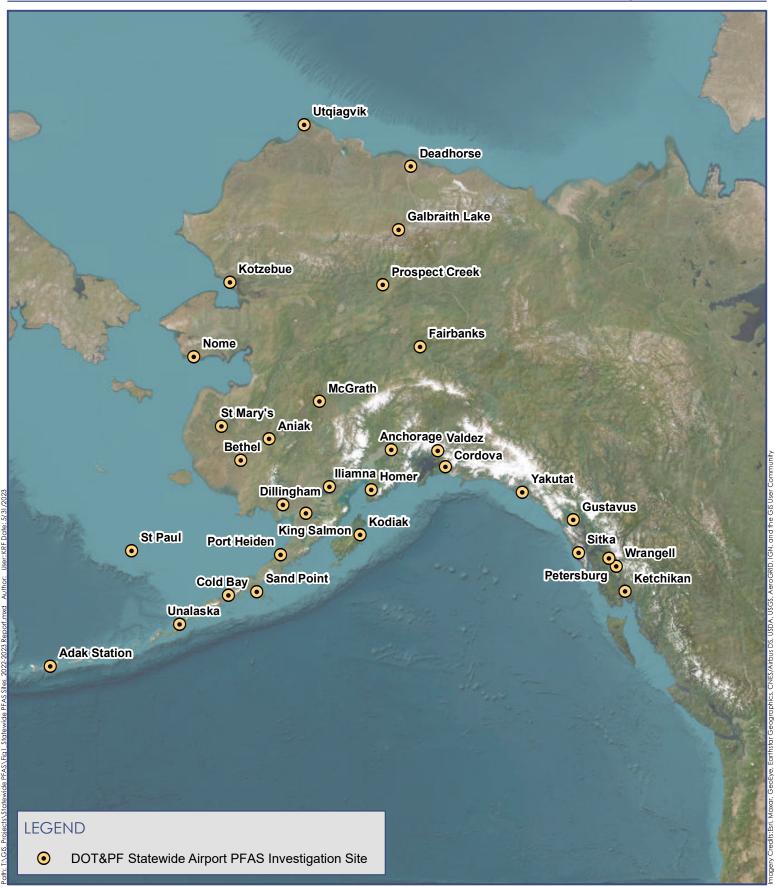
NOTES:

¹ Current list as of Part 139 or former Part 139 DOT&PF managed airports as of February 2023.

² DOT&PF region responsible for the airport.

³ Fairbanks and Anchorage International Airports are part of DOT&PF Northern and Central Regions, respectively. However, they are separate from their respective regions as they are also part of the Alaska International Airport System.

⁴ Former Alyeska Part 139 airport.



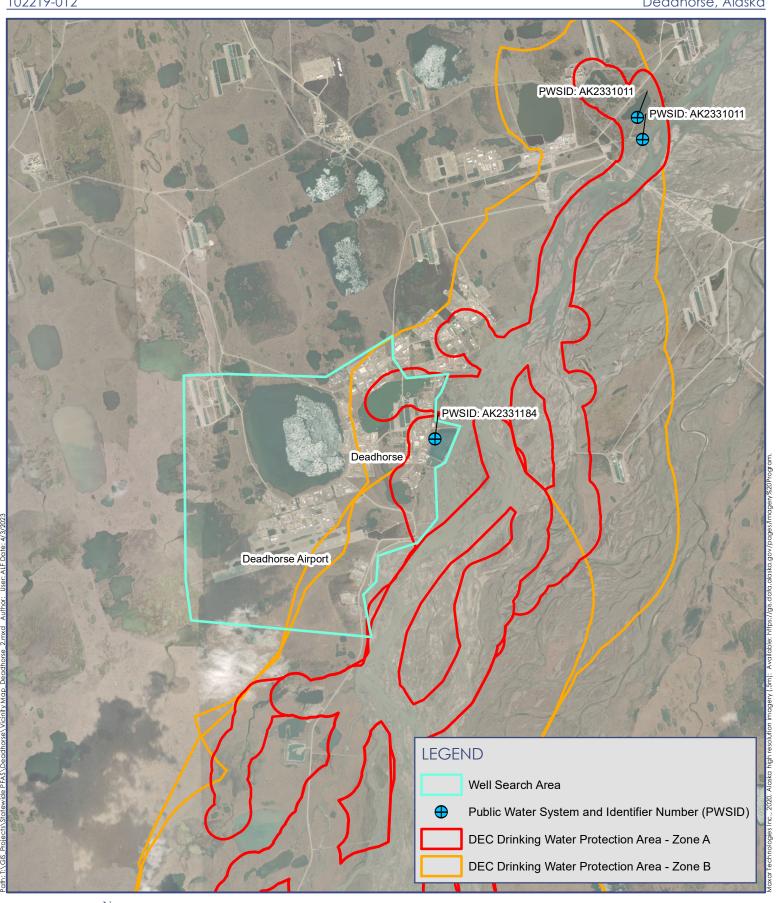
June 2023

Appendix A

Deadhorse Airport Supporting Documents

CONTENTS

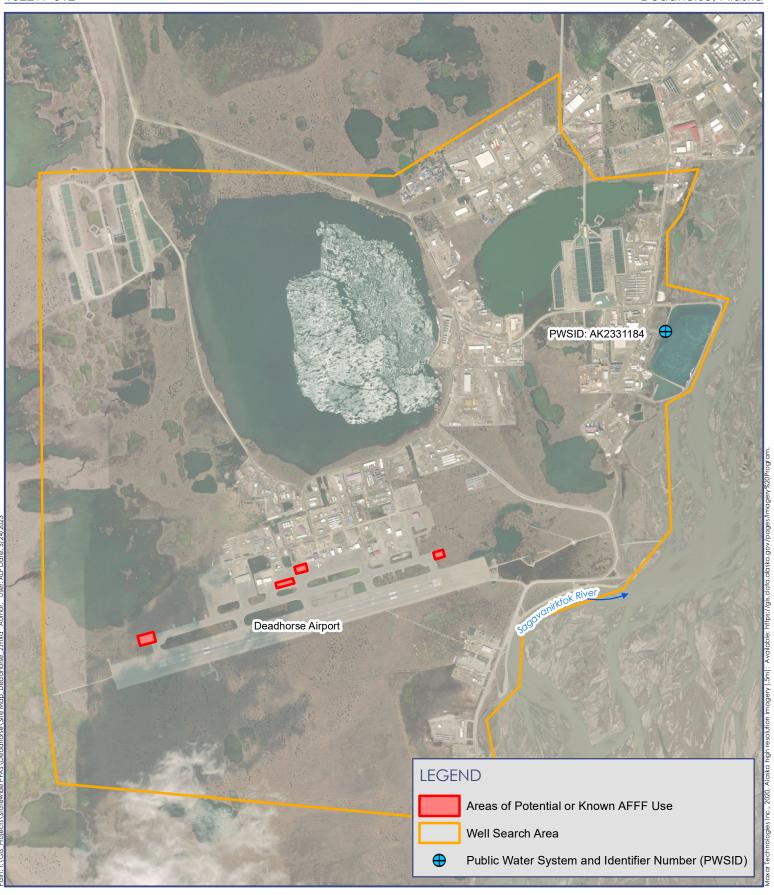
- Figure A1 Vicinity Map
- Figure A2 Site Map
- Well Search Questionnaire Letter and PFAS Fact Sheet Mailing
- Well Search Questionnaire Responses
- Completed Well Search Questionnaires
- Analytical Laboratory Reports (supplied by Deadhorse WTP)
- DEC Conceptual Site Model Scoping and Graphic Forms





June 2023

102219-012





June 2023



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

January 2023

Dear Property Owner or Occupant:

The Department of Transportation and Public Facilities (DOT&PF) is conducting a comprehensive evaluation of per- and polyfluoroalkyl substances (PFAS) contamination at state owned airports across the state. Firefighters at the Deadhorse Airport (SCC) have used aqueous film forming foam (AFFF), a standard firefighting agent that contains PFAS, to extinguish hydrocarbon fires during training exercises and emergency events.

The DOT&PF has contracted with environmental consulting firm, Shannon & Wilson, Inc., to collect groundwater samples from water supply wells near the airport in Deadhorse. Prior to the sampling event, DOT&PF and their representatives will also reach out to the community leadership to discuss the project and address questions.

If you have an active well within the search area (see attached map), please complete the enclosed water supply well survey and return to the address below, or call (907) 458-3146.

Shannon & Wilson 2355 Hill Road Fairbanks, AK 99709

Water supply well sample results will be compared to the Alaska Department of Conservation (DEC) drinking water action level of 70 parts per trillion for the sum of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), two compounds within the PFAS family. PFAS are emerging contaminants, and the research into the health effects of exposure to PFAS is ongoing. Results for the water samples will be shared with property owners and residents. If your drinking-water well is found to have PFAS above the action level, DOT&PF will assist with access to alternative drinking water.

If you have any questions, please contact me, or see the enclosed contact list to identify the most appropriate person or agency for your inquiry. We appreciate your patience as we work through this process.

Sincerely,

Sammy Cummings

Danning Ummung

PFAS Program Manager, DOT&PF Statewide Aviation



Water Supply Well Inventory Survey Form

Da	::	
Pa	el:	
Na	e (Owner):	
Na	e (Occupant):	
Ph	ical Address:	
Ma	ing Address:	
Em	il Address (optional):	
Со	act Phone Number: (owner) (occupant)	
	Adults (18 and over) Teenagers (13 to 17) Children (12 and under) s at this residence:Full-Time Seasonal	
1)	From where do you obtain your drinking water? a) Water Supply Utility b) Well Water c) Water Delivery d) Other	
2)	f you have a water well, please answer the following questions: a) Where is the well located on the property?	
3)	Do you have any treatment on your well (e.g. water softener)? Please describe	: your
	Signature Date	





Notes:

AFFF: Aqueous Film Foarming Foam
 Search area is approximate

January 2023

SITE MAP Figure 2



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

PFAS Fact Sheet – Deadhorse Airport

January 2023

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging, and firefighting foams.

The presumed source of potential PFAS in groundwater in your community is the use of a fire-fighting foam called aqueous film forming foam (AFFF). Airport firefighters used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

The Alaska Department of Environmental Conservation (DEC) has adopted the Environmental Protection Agency's former lifetime health advisory (LHA) level for drinking water of **70 parts per trillion** for the sum of PFOS and PFOA. On June 15, 2022, the EPA adopted a revised interim LHA level. DOT&PF will continue to work with our state and federal partners to determine what this means for Alaska and will adjust as more information becomes available.

Website: www.dot.alaska.gov/airportwater/

For questions about well testing:

Shannon & Wilson, Inc.

Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program

Phone: 907-269-3057

Email: bill.oconnell@alaska.gov

For questions about PFAS and health effects:

Alaska Department of Health

Sarah Yoder, Env. Public Health Manager

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

For questions about fire training & other inquiries:

DOT&PF - Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

We advise residents with test results above the DEC Action Level not to use their water for drinking or cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC Action Level, DOT&PF will assist with access to an alternate source of drinking water.



SHANNON & WILSON, INC.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS WORTH Stope Borough.

water Supply Well Inventory Survey Form	
Date: 2/4/23 + Neadh	orge Amport
Parcel: Tract 54, AGLS 81-119 Cots [+2, Blocks	01+Block 303
Parcel: <u>Maet</u> 57, Wast 54, ABLS 81-119 Lots[+2, Block 3,	
Name (Occupant): COLVINE + BROOKS PANGE	
Physical Address: 100 Sog River Road Prudhae Bau	1, APL 797
Mailing Address: 4300 B Street Suite 308 Archaraget	HL 99503
Email Address (optional): Kelly. doopacolvilleine. Con	M
Contact Phone Number: (owner) $(901)529-9310$ (occupant)	
Number of persons residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under)	
Years at this residence: Full-Time Seasonal Seasonal	
a) Water Supply Utility	
h) What is the well type?	
3) Sample Permission Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permiss private water well? Yes No 2/4/23	ion to sample your
Signature Date Date	



February 15, 2023

VIA FIRST CLASS MAIL

Shannon & Wilson 2355 Hill Road Fairbanks, AK 99709

Re: DOTP&F Water Supply Well Inventory Survey From

Dear Surveyor:

In response to the attached letter dated January 2023, we do not have any active wells within the identified search area.

If you have any questions or need additional information, please do not hesitate to contact me directly at (907) 339-4506.

Sincerely,

Jerry Webre

Enclosures: DOT&PF Letter dated January 2023 and Site Map

Whe



Called in response

Water Supply Well Inventory Survey Form

Name (Owner): Tyler Bones (AK west Express Name (Occupant): Mailing Address: ___ Email Address (optional): Contact Phone Number: (owner) 907-328-4332 (occupant) Number of persons residing at this location: Adults (18 and over) Teenagers (13 to 17)____ Children (12 and under) Years at this residence: _____Full-Time Seasonal 1) From where do you obtain your drinking water? a) Water Supply Utility 📈 b) Well Water c) Water Delivery d) Other 2) If you have a water well, please answer the following questions: a) Where is the well located on the property? b) Is the well in use? Yes No c) If yes, please check all that apply regarding the usage of your well water: Drinking Cooking Gardening Pets Other d) If <u>no</u>, is the well usable, unusable, or properly abandoned? Usable Unusable Abandoned Method e) When was the well installed? _____ Do you have the well log? Yes No f) What is the well depth? _____ g) What is the well diameter? _____ Dug Well h) What is the well type? Driven Drilled Unknown i) Do you have any treatment on your well (e.g. water softener)? Please describe. 3) Sample Permission Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permission to sample your private water well? Yes No Signature Date

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99734 (907) 479-8368 Phone (907) 452-6853 Fax Jerry@pollenenv.com

2018 PWS

CLIENT INFORMATION Company: NSB SA-10 (Ice Services)		Contact	Person: Rich Helinsl Logan / Chu	h Helinski Operators:		quested Analysis				Page	1 of 1		
Address: Pouch 340044		DWC	# 331184 - specia	I non routino		Perservative Ad	ded						
City, State Zip: Prudhoe Bay, AK 99734		FWS	# 331164 - Specia	i, non-routine		v		11 = 11					
Phone: (907) 659-9060			Send Results to A	ADEC:	1 8	37*						□ Normal Tu	urnaround
Fax: (907) 659-9061			v Yes □	No		17							
Email: rhelinski@iceservices.net			Purchase Order/Char	ge Code:	iners	/ EPA					☐ RUSH day(s)		
Project Name: NSB SA-10 WTP			2018-839		of Contai	S by							
Sampled By: Carl Cornfo	rth				lumber	PFC'							
Sample Identification Sample Date	Sample Time	Matrix	PE Lab ID#	PEF Lab ID#								Sample Cor	mments
Raw Water Pondhaue 11-17-18	2:32 pm	W	PEF45655		1	×							
Water Plant Sample 11-17-18	10:52 an	w	PEF45656		C	×		11251					
4 1006	1:04pm	W	PEF45657		1	X							_
UF 1 Permente 11-17-18		w	PEF45658		1	X							
UF2 Permeate 11-18-18	1:08pm	W	PEF45659		1	×							
Porable Tanks ined 11-17-18		W	PEF45660		1	X							
POTABLE FILL 4 11-17-18	6:56gm	W	PEF45661		1	X							
	8:05am	W	PEF45662		1	×			- 1				
Truck 19520 11-17-18		W	PEF45663		1	X							
Truck 7-21 11-17-18	9:41am	W	PEF45664		1	X							
Possible Hazard Identification: Non-Hazardous Flammable Special Instructions/QC Requirements Water Plant Sample Relinquished by: Company: Ice	e	* PFBS,	Unknown PFDA, FPHpA, PFH		, PFT	Sample Concon arrival: e on arrival: e On Blank e by:	5,9 °C °C PFOS, PFO		PFUnA vided, Pollen	Intac	t origin	Broken Broken nally On me: 06	□ Absent □ Absent coc
1	Hen Env		Date & Time: -18			eived gy:		Company	ciitai		ate & Ti	10 - 10	00
Reinquished by: Company:	. Tone Care		Date & Time:	-110 van	-	eived by:		Company		D	ate & Ti	me:	



CERTIFICATE OF ANALYSIS

Report Date:

Received Date:

Received Time:

Sampled By:

7/31/2018

7/12/2018

Carl Cornforth

4:00 PM

NSB SA-10 (Ice Services)

Attn: Rich Helinski Pouch 340044

Prudhoe Bay, AK 99734

Phone: 907-659-9060 Fax: 907-659-9061

rhelinski@iceservices.net

Project Name: NSB SA-10 WTP - PFAS Monitoring

PWS ID: AK2331184 - Special Samples Analysis: PFAS - Method EPA 537

Comments: Samples analyzed by Eurofins Eaton Analytical in South Bend, IN.

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Pondhouse	PEF45655	4132459	11/17/2018	2:32 PM
Field Blank	PEF45656	4132460	11/17/2018	10:33 AM
Raw Tank UF Feed	PEF45657	4132461	11/17/2018	1:04 PM
UF1 Permeate	PEF45658	4132462	11/17/2018	10:08 AM
UF2 Permeate	PEF45659	4132463	11/18/2018	1:08 PM
Potable Tanks Combined	PEF45660	4132464	11/17/2018	10:36 AM
Potable Fill 4	PEF45661	4132465	11/17/2018	6:56 AM
Potable Truck 19518	PEF45662	4132466	11/17/2018	8:05 AM
Potable Truck 19520	PEF45663	4132467	11/17/2018	10:17 AM
Potable Truck 7-21	PEF45664	4132468	11/17/2018	9:41 AM

Jerry Pollen

Pollen Environmental, LLC



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN035	New Jersey*	IN598
Colorado Radiochemistry	IN035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074-001
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-15-8
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA180008	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 01/02/2018



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

Client: Pollen Environmental LLC Report: 436923

Attn: Jerry Pollen Priority: Standard Written

3536 International Avenue Status: Final

Fairbanks, AK 99701 PWS ID: AK2331184

Alaska Lab ID # IN00035

	Sample Information												
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time								
4132459	PEF45655RawWaterPondHouse	537	11/17/18 14:32	Client	11/27/18 10:00								
4132460	PEF45656 FTB	537	11/17/18 10:33	Client	11/27/18 10:00								
4132461	PEF45657RawTankUFFeed	537	11/17/18 13:04	Client	11/27/18 10:00								
4132462	PEF45658 UF1 Permeate	537	11/17/18 10:08	Client	11/27/18 10:00								
4132463	PEF45659 UF2 Permeate	537	11/18/18 13:08	Client	11/27/18 10:00								
4132464	PEF45660PotableTanksCombined	537	11/17/18 10:36	Client	11/27/18 10:00								
4132465	PEF45661 Potable Fill 4	537	11/17/18 06:56	Client	11/27/18 10:00								
4132466	PEF45662 PotableTruck19518	537	11/17/18 08:05	Client	11/27/18 10:00								
4132467	PEF45663 PotableTruck19520	537	11/17/18 10:17	Client	11/27/18 10:00								
4132468	PEF45664 PotableTruck7-21	537	11/17/18 09:41	Client	11/27/18 10:00								

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Some Chilebowshi ASM

12/04/2018

Date

Authorized Signature

Client Name:

Pollen Environmental LLC

Report #: 436923

Title

Sampling Point: PEF45655RawWaterPondHouse PWS ID: AK2331184

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.1	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.3	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
376-06-7	Perfluorotetradecanoic acid (PFTeDA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	4.0	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:29	4132459			

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF45656 FTB PWS ID: AK2331184

	EEA Methods												
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#				
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
376-06-7	Perfluorotetradecanoic acid (PFTeDA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:38	4132460				

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF45657RawTankUFFeed PWS ID: AK2331184

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.1	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.2	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
376-06-7	Perfluorotetradecanoic acid (PFTeDA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	4.3	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:12	4132461			

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF45658 UF1 Permeate PWS ID: AK2331184

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.4	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.3	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
376-06-7	Perfluorotetradecanoic acid (PFTeDA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	4.6	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:04	4132462			

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF45659 UF2 Permeate PWS ID: AK2331184

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	2.9	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.3	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
376-06-7	Perfluorotetradecanoic acid (PFTeDA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.5	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 23:46	4132463					

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF45660PotableTanksCombined

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.2	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.3	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
376-06-7	Perfluorotetradecanoic acid (PFTeDA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	4.1	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:55	4132464					

^{\$} The state of origin does not offer certification for this parameter.

PWS ID: AK2331184

Sampling Point: PEF45661 Potable Fill 4 PWS ID: AK2331184

			EEA Met	hods					
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.2	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.3	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
376-06-7	Perfluorotetradecanoic acid (PFTeDA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.7	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:13	4132465
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:13	4132465

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF45662 PotableTruck19518 PWS ID: AK2331184

	EEA Methods												
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#				
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.3	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.3	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537 2.0 < 2.0		< 2.0	ng/L	11/30/18 08:01	11/30/18 21:30	4132466					
376-06-7	Perfluorotetradecanoic acid (PFTeDA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				
1763-23-1				2.0	4.1	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				
2058-94-8	958-94-8 Perfluoroundecanoic acid (PFUnA) \$			2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:30	4132466				

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF45663 PotableTruck19520 PWS ID: AK2331184

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.3	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.3	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
376-06-7	Perfluorotetradecanoic acid (PFTeDA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
1763-23-1				2.0	4.2	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					
2058-94-8	958-94-8 Perfluoroundecanoic acid (PFUnA) \$			2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 22:21	4132467					

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF45664 PotableTruck7-21 PWS ID: AK2331184

	EEA Methods												
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#				
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.2	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.3	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
376-06-7	Perfluorotetradecanoic acid (PFTeDA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
1763-23-1				2.0	3.9	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				
2058-94-8	958-94-8 Perfluoroundecanoic acid (PFUnA) \$			2.0	< 2.0	ng/L	11/30/18 08:01	11/30/18 21:47	4132468				

^{\$} The state of origin does not offer certification for this parameter.

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / **Surrogate Analyte (SUR)** - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM 358534

2018 PWS 436923

3536 International Street Fairbanks, AK 99734 (907) 479-8368 Phone (907) 452-6853 Fax Jerry@pollenenv.com

	CLIENT IN	FORMATION		Contact	Person: Rich Helinsl	(i Operators:				Requ	ested An	alysis			D	1 - 6 1	
	Company: NSB SA-10 (Ice	Services)	7-1_1		Logan / Chu	ck		Percentat	ive Added						Page	1 of 1	
	Address: Pouch 340044							reiseivai	ive Added								
	City, State Zip: Prudhoe Ba	зу, АК 99734		PWS	# 331184 - specia	I, non-routine											
	Phone: (907) 659-9060				Send Results to A	ADEC:	-111	37*							□ Normal	Turnaround	
	Fax: (907) 659-9061				v Yes □	No		rv									
	Email: rhelinski@iceservic	es.net			Purchase Order/Char	ge Code:	ners	EPA							□ RUSH _	day(s)	
	Project Name: NSB SA-10	WTP			2018-839		of Contai	s by									į.
	Sampled By: Carl	Cornfo	rth		00 0 00 1		umber	PFC'						-			
	Sample Identification			Matrix	PE Lab ID#	PEF Lab ID#				1290000					Sample Co	omments	
	Raw Water Pondhau			w	PEF45655	41325450	1	×								CIA	
* Field Blank	RAW Plant Sample Water Port	11-17-18	10:52 aun	w	PEF45656	1 460	(B0-	HU SV	1066	ine o	6103	3 55	11-2218	3 CI-A	
		11-17-18	The state of the s	w	PEF45657	461	T	X					U		Pines	na-A	
		11-17-18		W	PEF45658	462	1	X					-	· 61	01.	CI-A	/
	UF2 Permeate	14-18-18	1:08pm	W	PEF45659	463	1	X					CO_{ℓ}	,		CI-A	
	Porable Tounks ined	11-17-18	10:36 am	W	PEF45660	464	1	X			nff5	01,				CI-A	>
	POTABLE FILL 4			W	PEF45661	465	1	X	CYC	35	J					CI-A	11-27-
Potabl	Truck 19518		8:05 am	W	PEF45662	466	1	X	01.				+ tim	e S	jiven	CI-A	11-200
Potable	Truck 19520		10:17am	15 5 5 6	PEF45663	467	1	X		.00	ear	lies	F riv.			CI-A	
	Truck 7-21		9:41am		PEF45664	1 468	1	XI	AIII	U20						CI-A	
10.	Possible Hazard Identific	ation:						Sample	Condition				/				
	□ Non-Hazardous	□ Flammabl	le 🗆 Skin l	rritant	Unknown	Pollen Env Tempe	erature			7 °C	coc s	eal:	Inta	ect 🗆	Broken	□ Absent	
						NTL Alaska Temp				8°C	coc s	eal:	Inta		Broken	□ Absent	
	Special Instructions/QC			* DEDC	DED 4 EDIT 4 DELL	C DELL 4 DED										7 7 1	
	I can water pla	nt sample	port sam	ple hr	oken when arrive	I @ Pallon For	· u	E'allol F	lank &	ample	was or	ovided.	but no	toria	inally of	n coc	
	d row water plan	Company: Ice	e Services	10 01	Date & Time:	1 C Milai Ci	Re	ceiled by	u Rolli	n	Company	/: Pollen		Date & 7	1-98@ 1	600	K
P	Religioushed/by	Company? Po	llen Env	,	Date & Time: -18	@1100 and	Re	eived #	0	100	Compan			Date &	ime:	1000	
Page '	Relinquished by:	Company:	., ., .		Date & Time:	110 0001		ceived by	5	5	Compan			Date & 7		1000	
10	1							~									



Eurofins Eaton Analytical Run Log

Run ID: **252173** Method: **537**

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4136485		OS	FL	11/30/2018 19:32	113018M537a-FL-PFC14.mdb
LRB	4136476		RW	FL	11/30/2018 20:06	113018M537a-FL-PFC14.mdb
FBH	4136477		RW	FL	11/30/2018 20:39	113018M537a-FL-PFC14.mdb
FS	4132465	PEF45661 Potable Fill 4	DW	FL	11/30/2018 21:13	113018M537a-FL-PFC14.mdb
FS	4132466	PEF45662 PotableTruck19518	DW	FL	11/30/2018 21:30	113018M537a-FL-PFC14.mdb
FS	4132468	PEF45664 PotableTruck7-21	DW	FL	11/30/2018 21:47	113018M537a-FL-PFC14.mdb
FS	4132462	PEF45658 UF1 Permeate	DW	FL	11/30/2018 22:04	113018M537a-FL-PFC14.mdb
FS	4132467	PEF45663 PotableTruck19520	DW	FL	11/30/2018 22:21	113018M537a-FL-PFC14.mdb
FTB	4132460	PEF45656 FTB	RW	FL	11/30/2018 22:38	113018M537a-FL-PFC14.mdb
FS	4132464	PEF45660PotableTanksCombined	DW	FL	11/30/2018 22:55	113018M537a-FL-PFC14.mdb
FS	4132461	PEF45657RawTankUFFeed	DW	FL	11/30/2018 23:12	113018M537a-FL-PFC14.mdb
FS	4132459	PEF45655RawWaterPondHouse	DW	FL	11/30/2018 23:29	113018M537a-FL-PFC14.mdb
FS	4132463	PEF45659 UF2 Permeate	DW	FL	11/30/2018 23:46	113018M537a-FL-PFC14.mdb
CCM	4136486		OS	FL	12/01/2018 00:20	113018M537a-FL-PFC14.mdb

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
CCL	IS-NMeFOSAA-d3	537	N/A			1294530.00	1294530	ng/L	100	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	IS-PFOA-13C2	537	N/A			2475490.00	2475490	ng/L	100	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	IS-PFOS-13C4	537	N/A			523416.00	523416	ng/L	100	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	SS-NEtFOSAA-d5	537	N/A			203.0780	200	ng/L	102	70 - 130			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	SS-PFDA-13C2	537	N/A			102.7110	100	ng/L	103	70 - 130			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	SS-PFHxA-13C2	537	N/A			49.0474	50.0	ng/L	98	70 - 130			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluorobutanesulfonic acid (PFBS)	537	2.0			1.8383	2.0	ng/L	92	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluorodecanoic acid (PFDA)	537	2.0			2.0132	2.0	ng/L	101	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluoroheptanoic acid (PFHpA)	537	2.0			1.9134	2.0	ng/L	96	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			1.8745	2.0	ng/L	94	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluorohexanoic acid (PFHxA)	537	2.0			1.9461	2.0	ng/L	97	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluorododecanoic acid (PFDoA)	537	2.0			2.0119	2.0	ng/L	101	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			2.0755	2.0	ng/L	104	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluorononanoic acid (PFNA)	537	2.0			2.0012	2.0	ng/L	100	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluorooctanesulfonic acid (PFOS)	537	2.0			1.9819	2.0	ng/L	99	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluorooctanoic acid (PFOA)	537	2.0			1.9641	2.0	ng/L	98	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluorotridecanoic acid (PFTrDA)	537	2.0			2.0341	2.0	ng/L	102	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
CCL	Perfluoroundecanoic acid (PFUnA)	537	2.0			2.0349	2.0	ng/L	102	50 - 150			1.0	11/28/2018 12:22	11/30/2018 19:32	4136485
LRB	IS-NMeFOSAA-d3	537	N/A			1010160.00	1294530	ng/L	78	50 - 150			0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	IS-PFOA-13C2	537	N/A			1922450.00	2475490	ng/L	78	50 - 150			0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	IS-PFOS-13C4	537	N/A			405522.00	523416	ng/L	77	50 - 150			0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	SS-NEtFOSAA-d5	537	N/A			154.8440	200	ng/L	91	70 - 130			0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	SS-PFDA-13C2	537	N/A			86.5953	100	ng/L	102	70 - 130			0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	SS-PFHxA-13C2	537	N/A			44.1793	50.0	ng/L	104	70 - 130			0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluorobutanesulfonic acid (PFBS)	537	2.0		<	2.0		ng/L					0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluorodecanoic acid (PFDA)	537	2.0		<	2.0		ng/L					0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluoroheptanoic acid (PFHpA)	537	2.0		<	2.0		ng/L					0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0		<	2.0		ng/L					0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluorohexanoic acid (PFHxA)	537	2.0		<	2.0		ng/L					0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluorododecanoic acid (PFDoA)	537	2.0		<	2.0		ng/L					0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0		<	2.0		ng/L					0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluorononanoic acid (PFNA)	537	2.0		<	2.0		ng/L					0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluorooctanesulfonic acid (PFOS)	537	2.0		<	2.0		ng/L					0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluorooctanoic acid (PFOA)	537	2.0		<	2.0		ng/L					0.85	11/30/2018 08:01	11/30/2018 20:06	4136476
LRB	Perfluorotridecanoic acid (PFTrDA)	537	2.0		<	2.0		ng/L					0.85		11/30/2018 20:06	
LRB	Perfluoroundecanoic acid (PFUnA)	537	2.0		<	2.0		ng/L					0.85		11/30/2018 20:06	
то FВН	IS-NMeFOSAA-d3	537	N/A			1214460.00	1294530	ng/L	94	50 - 150			1.0		11/30/2018 20:39	
a G F B H	IS-PFOA-13C2	537	N/A			2224740.00	2475490	ng/L	90	50 - 150			1.0		11/30/2018 20:39	
⊕ FBH	IS-PFOS-13C4	537	N/A			471864.00	523416	ng/L	90	50 - 150			1.0		11/30/2018 20:39	
QFBH	SS-NEtFOSAA-d5	537	N/A			180.9960	200	ng/L	90	70 - 130			1.0		11/30/2018 20:39	

					QC S	Summary Re	port (cont.)									
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FBH	SS-PFDA-13C2	537	N/A			99.5585	100	ng/L	100	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	SS-PFHxA-13C2	537	N/A			50.6138	50.0	ng/L	101	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluorobutanesulfonic acid (PFBS)	537	2.0			203.8730	200	ng/L	102	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluorodecanoic acid (PFDA)	537	2.0			200.4170	200	ng/L	100	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluoroheptanoic acid (PFHpA)	537	2.0			201.2580	200	ng/L	101	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			203.9090	200	ng/L	102	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluorohexanoic acid (PFHxA)	537	2.0			200.9890	200	ng/L	100	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluorododecanoic acid (PFDoA)	537	2.0			188.2610	200	ng/L	94	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			188.5640	200	ng/L	94	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluorononanoic acid (PFNA)	537	2.0			202.1160	200	ng/L	101	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluorooctanesulfonic acid (PFOS)	537	2.0			200.5410	200	ng/L	100	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluorooctanoic acid (PFOA)	537	2.0			202.8790	200	ng/L	101	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluorotridecanoic acid (PFTrDA)	537	2.0			188.9090	200	ng/L	94	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FBH	Perfluoroundecanoic acid (PFUnA)	537	2.0			193.4620	200	ng/L	97	70 - 130			1.0	11/30/2018 08:01	11/30/2018 20:39	4136477
FS	IS-NMeFOSAA-d3	537	N/A	PEF45661 Potable Fill 4		1283960.00	1294530	ng/L	99	50 - 150			0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	IS-PFOA-13C2	537	N/A	PEF45661 Potable Fill 4		2421710.00	2475490	ng/L	98	50 - 150			0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	IS-PFOS-13C4	537	N/A	PEF45661 Potable Fill 4		511023.00	523416	ng/L	98	50 - 150			0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	SS-NEtFOSAA-d5	537	N/A	PEF45661 Potable Fill 4		171.0720	200	ng/L	91	70 - 130			0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	SS-PFDA-13C2	537	N/A	PEF45661 Potable Fill 4		92.7641	100	ng/L	99	70 - 130			0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	SS-PFHxA-13C2	537	N/A	PEF45661 Potable Fill 4		46.7661	50.0	ng/L	100	70 - 130			0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF45661 Potable Fill 4	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF45661 Potable Fill 4	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF45661 Potable Fill 4	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF45661 Potable Fill 4		3.2		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF45661 Potable Fill 4		2.3		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF45661 Potable Fill 4	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF45661 Potable Fill 4	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF45661 Potable Fill 4	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF45661 Potable Fill 4		3.7		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF45661 Potable Fill 4	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF45661 Potable Fill 4	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF45661 Potable Fill 4	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 21:13	4132465
FS	IS-NMeFOSAA-d3	537	N/A	PEF45662 PotableTruck19518		1156310.00	1294530	ng/L	89	50 - 150			0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	IS-PFOA-13C2	537	N/A	PEF45662 PotableTruck19518		2191610.00	2475490	ng/L	89	50 - 150			0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	IS-PFOS-13C4	537	N/A	PEF45662 PotableTruck19518		465269.00	523416	ng/L	89	50 - 150			0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	SS-NEtFOSAA-d5	537	N/A	PEF45662 PotableTruck19518		171.9500	200	ng/L	94	70 - 130			0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	SS-PFDA-13C2	537	N/A	PEF45662 PotableTruck19518		92.3271	100	ng/L	101	70 - 130			0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
T FS	SS-PFHxA-13C2	537	N/A	PEF45662 PotableTruck19518		47.7513	50.0	ng/L	105	70 - 130			0.91		11/30/2018 21:30	-
Page FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF45662 PotableTruck19518	<	2.0		ng/L					0.91		11/30/2018 21:30	
FS FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF45662 PotableTruck19518	<	2.0		ng/L	T				0.91		11/30/2018 21:30	-
သ of FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF45662 PotableTruck19518	<	2.0		ng/L					0.91		11/30/2018 21:30	-

					QC :	Summary Re	port (cont.))								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF45662 PotableTruck19518		3.3		ng/L					0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF45662 PotableTruck19518		2.3		ng/L	Ī				0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF45662 PotableTruck19518	<	2.0		ng/L					0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF45662 PotableTruck19518	<	2.0		ng/L					0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF45662 PotableTruck19518	<	2.0		ng/L					0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF45662 PotableTruck19518		4.1		ng/L					0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF45662 PotableTruck19518	<	2.0		ng/L					0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF45662 PotableTruck19518	<	2.0		ng/L					0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF45662 PotableTruck19518	<	2.0		ng/L					0.91	11/30/2018 08:01	11/30/2018 21:30	4132466
FS	IS-NMeFOSAA-d3	537	N/A	PEF45664 PotableTruck7-21		1212380.00	1294530	ng/L	94	50 - 150			0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	IS-PFOA-13C2	537	N/A	PEF45664 PotableTruck7-21		2289060.00	2475490	ng/L	92	50 - 150			0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	IS-PFOS-13C4	537	N/A	PEF45664 PotableTruck7-21		485125.00	523416	ng/L	93	50 - 150			0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	SS-NEtFOSAA-d5	537	N/A	PEF45664 PotableTruck7-21		171.7530	200	ng/L	90	70 - 130			0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	SS-PFDA-13C2	537	N/A	PEF45664 PotableTruck7-21		94.2664	100	ng/L	99	70 - 130			0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	SS-PFHxA-13C2	537	N/A	PEF45664 PotableTruck7-21		48.4119	50.0	ng/L	102	70 - 130			0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF45664 PotableTruck7-21	<	2.0		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF45664 PotableTruck7-21	<	2.0		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF45664 PotableTruck7-21	<	2.0		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF45664 PotableTruck7-21		3.2		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF45664 PotableTruck7-21		2.3		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF45664 PotableTruck7-21	<	2.0		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF45664 PotableTruck7-21	<	2.0		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF45664 PotableTruck7-21	<	2.0		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF45664 PotableTruck7-21		3.9		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF45664 PotableTruck7-21	<	2.0		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF45664 PotableTruck7-21	<	2.0		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF45664 PotableTruck7-21	<	2.0		ng/L					0.95	11/30/2018 08:01	11/30/2018 21:47	4132468
FS	IS-NMeFOSAA-d3	537	N/A	PEF45658 UF1 Permeate		1108150.00	1294530	ng/L	86	50 - 150			0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	IS-PFOA-13C2	537	N/A	PEF45658 UF1 Permeate		2062720.00	2475490	ng/L	83	50 - 150			0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	IS-PFOS-13C4	537	N/A	PEF45658 UF1 Permeate		437731.00	523416	ng/L	84	50 - 150			0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	SS-NEtFOSAA-d5	537	N/A	PEF45658 UF1 Permeate		169.5630	200	ng/L	95	70 - 130			0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	SS-PFDA-13C2	537	N/A	PEF45658 UF1 Permeate		93.3803	100	ng/L	105	70 - 130			0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	SS-PFHxA-13C2	537	N/A	PEF45658 UF1 Permeate		49.2878	50.0	ng/L	111	70 - 130			0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF45658 UF1 Permeate	<	2.0		ng/L					0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF45658 UF1 Permeate	<	2.0		ng/L					0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF45658 UF1 Permeate	<	2.0		ng/L					0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF45658 UF1 Permeate		3.4		ng/L					0.89		11/30/2018 22:04	
Ū ^{FS}	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF45658 UF1 Permeate		2.3		ng/L	T				0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
age s	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF45658 UF1 Permeate		2.0		ng/L					0.89		11/30/2018 22:04	
n FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF45658 UF1 Permeate	<	2.0		ng/L	T				0.89		11/30/2018 22:04	
FS FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF45658 UF1 Permeate	<	2.0		ng/L					0.89		11/30/2018 22:04	

					QC :	Summary Re	port (cont.)									
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF45658 UF1 Permeate		4.6		ng/L					0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF45658 UF1 Permeate	<	2.0		ng/L					0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF45658 UF1 Permeate	<	2.0		ng/L					0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF45658 UF1 Permeate	<	2.0		ng/L	Ī				0.89	11/30/2018 08:01	11/30/2018 22:04	4132462
FS	IS-NMeFOSAA-d3	537	N/A	PEF45663 PotableTruck19520		1266540.00	1294530	ng/L	98	50 - 150			0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	IS-PFOA-13C2	537	N/A	PEF45663 PotableTruck19520		2385560.00	2475490	ng/L	96	50 - 150			0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	IS-PFOS-13C4	537	N/A	PEF45663 PotableTruck19520		503252.00	523416	ng/L	96	50 - 150			0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	SS-NEtFOSAA-d5	537	N/A	PEF45663 PotableTruck19520		168.1870	200	ng/L	91	70 - 130			0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	SS-PFDA-13C2	537	N/A	PEF45663 PotableTruck19520		91.1336	100	ng/L	99	70 - 130			0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	SS-PFHxA-13C2	537	N/A	PEF45663 PotableTruck19520		46.8060	50.0	ng/L	102	70 - 130			0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF45663 PotableTruck19520	<	2.0		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF45663 PotableTruck19520	<	2.0		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF45663 PotableTruck19520	<	2.0		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF45663 PotableTruck19520		3.3		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF45663 PotableTruck19520		2.3		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF45663 PotableTruck19520	<	2.0		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF45663 PotableTruck19520	<	2.0		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF45663 PotableTruck19520	<	2.0		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF45663 PotableTruck19520		4.2		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF45663 PotableTruck19520	<	2.0		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF45663 PotableTruck19520	<	2.0		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF45663 PotableTruck19520	<	2.0		ng/L					0.92	11/30/2018 08:01	11/30/2018 22:21	4132467
FTB	IS-NMeFOSAA-d3	537	N/A	PEF45656 FTB		1294670.00	1294530	ng/L	100	50 - 150			0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	IS-PFOA-13C2	537	N/A	PEF45656 FTB		2406140.00	2475490	ng/L	97	50 - 150			0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	IS-PFOS-13C4	537	N/A	PEF45656 FTB		512768.00	523416	ng/L	98	50 - 150			0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	SS-NEtFOSAA-d5	537	N/A	PEF45656 FTB		158.7190	200	ng/L	91	70 - 130			0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	SS-PFDA-13C2	537	N/A	PEF45656 FTB		84.9735	100	ng/L	98	70 - 130			0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	SS-PFHxA-13C2	537	N/A	PEF45656 FTB		44.7859	50.0	ng/L	103	70 - 130			0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	Perfluorodecanoic acid (PFDA)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF45656 FTB	<	2.0		ng/L	Ī				0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	Perfluorononanoic acid (PFNA)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
□ FTB	Perfluorooctanoic acid (PFOA)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
Ø FTB │	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
FTB	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF45656 FTB	<	2.0		ng/L					0.87	11/30/2018 08:01	11/30/2018 22:38	4132460
တ် O	IS-NMeFOSAA-d3	537	N/A	PEF45660PotableTanksCombined		1191050.00	1294530	ng/L	92	50 - 150			0.93	11/30/2018 08:01	11/30/2018 22:55	4132464

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	IS-PFOA-13C2	537	N/A	PEF45660PotableTanksCombined		2258610.00	2475490	ng/L	91	50 - 150			0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	IS-PFOS-13C4	537	N/A	PEF45660PotableTanksCombined		475661.00	523416	ng/L	91	50 - 150			0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	SS-NEtFOSAA-d5	537	N/A	PEF45660PotableTanksCombined		181.6830	200	ng/L	98	70 - 130			0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	SS-PFDA-13C2	537	N/A	PEF45660PotableTanksCombined		97.0134	100	ng/L	104	70 - 130			0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	SS-PFHxA-13C2	537	N/A	PEF45660PotableTanksCombined		49.0009	50.0	ng/L	105	70 - 130			0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF45660PotableTanksCombined	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF45660PotableTanksCombined	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF45660PotableTanksCombined	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF45660PotableTanksCombined		3.2		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF45660PotableTanksCombined		2.3		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF45660PotableTanksCombined	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF45660PotableTanksCombined	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF45660PotableTanksCombined	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF45660PotableTanksCombined		4.1		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF45660PotableTanksCombined	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF45660PotableTanksCombined	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF45660PotableTanksCombined	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 22:55	4132464
FS	IS-NMeFOSAA-d3	537	N/A	EF45657RawTankUFFee		1309390.00	1294530	ng/L	101	50 - 150			0.94		11/30/2018 23:12	
FS	IS-PFOA-13C2	537	N/A	EF45657RawTankUFFee		2449570.00	2475490	ng/L	99	50 - 150			0.94	11/30/2018 08:01	11/30/2018 23:12	4132461
FS	IS-PFOS-13C4	537	N/A	EF45657RawTankUFFee		516250.00	523416	ng/L	99	50 - 150			0.94		11/30/2018 23:12	_
FS	SS-NEtFOSAA-d5	537	N/A	EF45657RawTankUFFee		172.0090	200	ng/L	91	70 - 130			0.94	11/30/2018 08:01	11/30/2018 23:12	4132461
FS	SS-PFDA-13C2	537	N/A	EF45657RawTankUFFee		91.7537	100	ng/L	98	70 - 130			0.94		11/30/2018 23:12	
FS	SS-PFHxA-13C2	537	N/A	EF45657RawTankUFFee		47.2327	50.0	ng/L	100	70 - 130			0.94		11/30/2018 23:12	_
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	EF45657RawTankUFFee	<	2.0	i i	ng/L					0.94	11/30/2018 08:01	11/30/2018 23:12	4132461
FS	Perfluorodecanoic acid (PFDA)	537	2.0	EF45657RawTankUFFee	<	2.0		ng/L					0.94		11/30/2018 23:12	-
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	EF45657RawTankUFFee	=	2.0		ng/L					0.94		11/30/2018 23:12	
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	EF45657RawTankUFFee		3.1		ng/L					0.94		11/30/2018 23:12	-
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	EF45657RawTankUFFee	=	2.2		ng/L					0.94		11/30/2018 23:12	
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	EF45657RawTankUFFee		2.0		ng/L					0.94		11/30/2018 23:12	-
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	EF45657RawTankUFFee	<	2.0		ng/L					0.94		11/30/2018 23:12	
FS	Perfluorononanoic acid (PFNA)	537	2.0	EF45657RawTankUFFee	<	2.0		ng/L					0.94		11/30/2018 23:12	
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	EF45657RawTankUFFee		4.3		ng/L					0.94		11/30/2018 23:12	
FS	Perfluorooctanoic acid (PFOA)	537	2.0	EF45657RawTankUFFee	<	2.0		ng/L					0.94		11/30/2018 23:12	-
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	EF45657RawTankUFFee		2.0		ng/L					0.94		11/30/2018 23:12	
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	EF45657RawTankUFFee		2.0		ng/L					0.94		11/30/2018 23:12	
FS	IS-NMeFOSAA-d3	537	N/A	EF45655RawWaterPondHous		1331470.00	1294530	ng/L	103	50 - 150			0.94		11/30/2018 23:29	
FS	IS-PFOA-13C2	537	N/A	EF45655RawWaterPondHous		2514950.00	2475490	ng/L	102	50 - 150			0.94		11/30/2018 23:29	
	IS-PFOS-13C4	537	N/A	EF45655RawWaterPondHous		528863.00	523416	ng/L	101	50 - 150			0.94		11/30/2018 23:29	
D ES	SS-NEtFOSAA-d5	537	N/A	EF45655RawWaterPondHous		173.1150	200	ng/L	92	70 - 130			0.94		11/30/2018 23:29	
Page 1	SS-PFDA-13C2	537	N/A	EF45655RawWaterPondHous		90.8236	100		97	70 - 130			0.94		11/30/2018 23:29	
16 FS	SS-PFHxA-13C2	537	N/A	EF45655RawWaterPondHous		46.6734	50.0	ng/L ng/L	99	70 - 130			0.94		11/30/2018 23:29	

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	EF45655RawWaterPondHous	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluorodecanoic acid (PFDA)	537	2.0	EF45655RawWaterPondHous	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	EF45655RawWaterPondHous	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	EF45655RawWaterPondHous		3.1		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	EF45655RawWaterPondHous		2.3		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	EF45655RawWaterPondHous	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	EF45655RawWaterPondHous	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluorononanoic acid (PFNA)	537	2.0	EF45655RawWaterPondHous	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	EF45655RawWaterPondHous		4.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluorooctanoic acid (PFOA)	537	2.0	EF45655RawWaterPondHous	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	EF45655RawWaterPondHous	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	EF45655RawWaterPondHous	<	2.0		ng/L					0.94	11/30/2018 08:01	11/30/2018 23:29	4132459
FS	IS-NMeFOSAA-d3	537	N/A	PEF45659 UF2 Permeate		1246520.00	1294530	ng/L	96	50 - 150			0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	IS-PFOA-13C2	537	N/A	PEF45659 UF2 Permeate		2388860.00	2475490	ng/L	97	50 - 150			0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	IS-PFOS-13C4	537	N/A	PEF45659 UF2 Permeate		506839.00	523416	ng/L	97	50 - 150			0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	SS-NEtFOSAA-d5	537	N/A	PEF45659 UF2 Permeate		163.3970	200	ng/L	88	70 - 130			0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	SS-PFDA-13C2	537	N/A	PEF45659 UF2 Permeate		85.9475	100	ng/L	92	70 - 130			0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	SS-PFHxA-13C2	537	N/A	PEF45659 UF2 Permeate		46.6326	50.0	ng/L	100	70 - 130			0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF45659 UF2 Permeate	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF45659 UF2 Permeate	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF45659 UF2 Permeate	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF45659 UF2 Permeate		2.9		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF45659 UF2 Permeate		2.3		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF45659 UF2 Permeate	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF45659 UF2 Permeate	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF45659 UF2 Permeate	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF45659 UF2 Permeate		3.5		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF45659 UF2 Permeate	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF45659 UF2 Permeate	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF45659 UF2 Permeate	<	2.0		ng/L					0.93	11/30/2018 08:01	11/30/2018 23:46	4132463
ССМ	IS-NMeFOSAA-d3	537	N/A			1314970.00	1314970	ng/L	100	50 - 150			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
ССМ	IS-PFOA-13C2	537	N/A			2417210.00	2417210	ng/L	100	50 - 150			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
ССМ	IS-PFOS-13C4	537	N/A			515907.00	515907	ng/L	100	50 - 150			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
ССМ	SS-NEtFOSAA-d5	537	N/A			199.9940	200	ng/L	100	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
ССМ	SS-PFDA-13C2	537	N/A			98.7544	100	ng/L	99	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
ССМ	SS-PFHxA-13C2	537	N/A			49.5319	50.0	ng/L	99	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
ССМ	Perfluorobutanesulfonic acid (PFBS)	537	2.0			99.4087	100	ng/L	99	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
ССМ	Perfluorodecanoic acid (PFDA)	537	2.0			100.3450	100	ng/L	100	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
а ССМ	Perfluoroheptanoic acid (PFHpA)	537	2.0			101.5710	100	ng/L	102	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
CCW	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			101.0310	100	ng/L	101	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
OCCM	Perfluorohexanoic acid (PFHxA)	537	2.0			100.8330	100	ng/L	101	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits			Dil Factor	Extracted	Analyzed	EEA ID#
ССМ	Perfluorododecanoic acid (PFDoA)	537	2.0			103.5060	100	ng/L	104	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
CCM	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			104.0070	100	ng/L	104	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
CCM	Perfluorononanoic acid (PFNA)	537	2.0			103.3320	100	ng/L	103	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
CCM	Perfluorooctanesulfonic acid (PFOS)	537	2.0			100.6390	100	ng/L	101	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
CCM	Perfluorooctanoic acid (PFOA)	537	2.0			101.4020	100	ng/L	101	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
CCM	Perfluorotridecanoic acid (PFTrDA)	537	2.0			103.4750	100	ng/L	103	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486
CCM	Perfluoroundecanoic acid (PFUnA)	537	2.0			103.5960	100	ng/L	104	70 - 130			1.0	11/28/2018 12:22	12/01/2018 00:20	4136486

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FTB	Field Trip Blank		
FBH	Fortified Blank High		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99734 (907) 479-8368 Phone (907) 452-6853 Fax Jerry@pollenenv.com

2019 PFC

CLIENT IN Company: NSB SA-10 (Ice	FORMATION Services)		Contact	Person: Rich Helins Logan / Chu	The state of the s				Requ	ested An	alysis			Page	1 of 1	
Address: Pouch 340044							Perserva	tive Added			-					
City, State Zip: Prudhoe B	ay, AK 99734		PWS	# 331184 - specia	ıl, non-routine											
Phone: (907) 659-9060				Send Results to	ADEC:		37*							□ Normal 1	Turnarour	nd
Fax: (907) 659-9061				√ Yes □	No		EPA 5.					/				
Email: rhelinski@iceservic	ces.net			Purchase Order/Char	ge Code:	tainers	by EF							□ RUSH _	day(:	s)
Project Name: NSB SA-10	WTP PFAS Moni	toring	2	019-72		Number of Containers	S									
	VE SHI	BE)BE		4/ LOGAN P		Numbe	PFC									
Sample Identification	Sample Date S	ample Time	Matrix	PE Lab ID#	PEF Lab ID#								=	Sample Co	mment	s
Raw Water Pondhouse	1-27-19	10:74	W	PEF411980		1								Sample	Point ID: 01RAW	
Raw Water Plant Sample Port 12	1-27-19	10:15	W	PEF410981		1								Sample	Point ID: 01RAW	
Raw Tank UF Feed	1-27-19	13:25	W	PEF46982		1								Facility : Sample Point	ID: TP002 ID: SPTP0	
UF 1 Permeate	1-27-19	13:27	W	PEF40983		1				_				Facility : Sample Point	ID: TP002 ID: SPTP0	002EP
UF 2 Permeate	1-27-19	10:17	W	PEF46984		1								Facility : Sample Point	ID: TP002 ID: SPTP0	
Potable Tanks Combined	1-27-19	13;29	W	PEF410985		1								Facility : Sample Point	ID: TP002 ID: SPTP0	
Potable Fill 4	1-27-19	10:11	W	PEF40980		1								Facility Sample Point	ID: TP002 ID: SPTP0	
Potable Truck 19518	1-27-19	04.53	11:17	PEF410987		1								Facility Sample Point	ID: TP002 ID: SPTP0	002EP
Potable Truck 19520	1-27-19	11:50	W	PEF40988		1								Facility : Sample Point	ID: TP002 ID: SPTP0	002EP
Potable Truck 7-21	1-27-19	15:13	w	PEF46989		1								Facility : Sample Point	ID: TP002 ID: SPTP0	
Field Blank NE VIII	1-27-19	13:33	W	PEF41090		1								Facility : Sample Point	ID: TP002 ID: SPTP0	: 002EP
Possible Hazard Identific	□ Flammable	□ Skin I			Pollen Env Temper NTL Alaska Tempe	ratur	e on arriv e on arri	val:	λ °c °c	coc s	eal:	☐ Intact		Broken Broken	□ <i>Ab</i> :	2-2-0-0
Special Instructions/QC			* PFBS,	PFDA, FPHpA, PFH>	(S, PFHxA, PFDoA	, PFT	reDA, PF	NA, PFO	S, PFOA							
Relinquished by:	Company: Ice S	Services		Date & Time:	9/7:0044	Rec	LOW!	Hall	M	Compan Environr	y: Pollen nental	D	1-28	-19016	600	
Relinguished by	Company: Pol	len Env		Date & Time: 1-3/-/9@	1100am	Red	eived by	:		Compan	/ :	Di	ate & T	ime:		
Religioushed by:	Company:			Date & Time:		Rec	eived by	ľ		Compan	y :	D	ate & T	îme:		



CERTIFICATE OF ANALYSIS

Report Date:

Received Date:

Received Time:

Sampled By:

2/12/2019

1/28/2019

4:00 PM

SS / LP

NSB SA-10 (Ice Services)

Attn: Rich Helinski Pouch 340044

Prudhoe Bay, AK 99734 Phone: 907-659-9060 Fax: 907-659-9061

rhelinski@iceservices.net

Project Name: NSB SA-10 WTP - PFAS Monitoring

PWS ID: AK2331184 - Special Samples Analysis: PFAS - Method EPA 537

Comments: Samples analyzed by Eurofins Eaton Analytical in South Bend, IN.

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Pondhouse	PEF46980	4186531	1/27/2019	10:38 AM
Raw Water Plant Sample Port	PEF46981	4186532	1/27/2019	10:15 AM
Raw Tank UF Feed	PEF46982	4186533	1/27/2019	1:25 PM
UF1 Permeate	PEF46983	4186534	1/27/2019	1:27 PM
UF2 Permeate	PEF46984	4186535	1/27/2019	10:17 AM
Potable Tanks Combined	PEF46985	4186536	1/27/2019	1:29 PM
Potable Fill 4	PEF46986	4186537	1/27/2019	10:11 AM
Potable Truck 19518	PEF46987	4186538	1/27/2019	11:17 AM
Potable Truck 19520	PEF46988	4186539	1/27/2019	11:50 AM
Potable Truck 7-21	PEF46989	4186540	1/27/2019	3:13 PM
Field Blank (near NF Unit)	PEF46990	4186541	1/27/2019	1:33 PM

Jerry Pollen

Pollen Environmental, LLC



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN035	New Jersey*	IN598
Colorado Radiochemistry	IN035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074-001
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-15-8
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA180008	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 01/02/2018



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

Pollen Environmental LLC 442125 Client: Report:

Priority: Standard Written Jerry Pollen Attn:

Status: Final 3536 International Avenue

PWS ID: AK2331184 Fairbanks, AK 99701 Alaska Lab ID # IN00035

	Sampl	e Information			
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
4186531	PEF46980/RawWaterPondhouse	537	01/27/19 10:38	Client	02/01/19 10:00
4186532	PEF46981/RawWaterPlantSample	537	01/27/19 10:15	Client	02/01/19 10:00
4186533	PEF46982/Raw Tank UF Feed	537	01/27/19 13:25	Client	02/01/19 10:00
4186534	PEF46983/UF 1 Permeate	537	01/27/19 13:27	Client	02/01/19 10:00
4186535	PEF46984/UF 2 Permeate	537	01/27/19 10:17	Client	02/01/19 10:00
4186536	PEF46985/PotableTanksCombined	537	01/27/19 13:29	Client	02/01/19 10:00
4186537	PEF46986/Potable Fill 4	537	01/27/19 10:11	Client	02/01/19 10:00
4186538	PEF46987/PotableTruck19518	537	01/27/19 11:17	Client	02/01/19 10:00
4186539	PEF46988/PotableTruck19520	537	01/27/19 11:50	Client	02/01/19 10:00
4186540	PEF46989/Potable Truck 7-21	537	01/27/19 15:13	Client	02/01/19 10:00
4186541	PEF46990 FTB	537	01/27/19 13:33	Client	02/01/19 10:00

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Mu Chilebowser Title

02/12/2019

Date

Client Name:

Pollen Environmental LLC

Report #: 442125

Sampling Point: PEF46980/RawWaterPondhouse PWS ID: AK2331184

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.5	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.5	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	4.6	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:05	4186531			

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF46981/RawWaterPlantSample

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.3	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.3	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	4.6	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:14	4186532			

^{\$} The state of origin does not offer certification for this parameter.

PWS ID: AK2331184

Sampling Point: PEF46982/Raw Tank UF Feed PWS ID: AK2331184

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.4	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.5	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	4.6	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:13	4186533			

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF46983/UF 1 Permeate PWS ID: AK2331184

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.3	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.5	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.7	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:30	4186534			

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF46984/UF 2 Permeate PWS ID: AK2331184

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.2	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.4	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.8	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:31	4186535			

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF46985/PotableTanksCombined

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.2	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.4	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.6	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 03:47	4186536			

^{\$} The state of origin does not offer certification for this parameter.

PWS ID: AK2331184

Sampling Point: PEF46986/Potable Fill 4 PWS ID: AK2331184

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.4	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.5	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.3	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	14	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 01:48	4186537			

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF46987/PotableTruck19518 PWS ID: AK2331184

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.1	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.3	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.8	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:39	4186538			

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF46988/PotableTruck19520 PWS ID: AK2331184

			EEA Met	hods					
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.2	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.5	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.2	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:56	4186539
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 02:56	4186539

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF46989/Potable Truck 7-21 PWS ID: AK2331184

		I	EEA Met	hods					
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.3	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.4	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.7	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:21	4186540
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:21	4186540

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF46990 FTB PWS ID: AK2331184

			EEA Met	hods					
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	02/08/19 08:18	02/09/19 04:04	4186541

^{\$} The state of origin does not offer certification for this parameter.

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / **Surrogate Analyte (SUR)** - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM 364213
2019 PFC 442125

3536 International Street Fairbanks, AK 99734 (907) 479-8368 Phone (907) 452-6853 Fax Jerry@pollenenv.com

CLIENT IN	FORMATION	Contact !	Person: Rich Helinsl	ci Operators				Requ	uested An	alysis		Dag	e 1 of 1
Company: NSB SA-10 (Ice	Services)		Logan / Chu	ck		Perservat	ive Added					Page	21011
Address: Pouch 340044						70.50,10	10000						
City, State Zip: Prudhoe Ba	у, АК 99734	PWS	# 331184 - specia	I, non-routine									
Phone: (907) 659-9060			Send Results to	ADEC:	1	37*						□ Normal	Turnaround
Fax: (907) 659-9061			√ Yes □	No		EPA 5			h :				
Email: rhelinski@iceservic	es.net		Purchase Order/Char	ge Code:	ainers	by E						□ RUSH _	day(s)
Project Name: NSB SA-10 V	WTP PFAS Monitoring	2	019-72		Number of Containers	l's b							
Sampled By: STE	VE SHBEIG		1/LOGAN P		2 Numbe	PFC'							
Sample Identification	Sample Date Sample Tim	e Matrix	PE Lab ID#	PEF Lab ID#		1		-	1			Sample C	comments ID: INUUT e Point ID:
Raw Water Pondhouse	1-27-19 10:29	W	PEF411980	4186,531	1		CI	A				Sample SPIN Facility	e Point ID: 1001RAW 71D: INUUI
Raw Water Plant Sample Port 12	1-27-19 10:15	w	PEF410981	532	2 1		CI	-A				Sampl	e Point ID: 1001RAW
Raw Tank UF Feed	1-27-19 13:29	W	PEF46982	533	1		CI	A		1			ID: TP002 at ID: SPTP002EP
UF 1 Permeate	1-27-19 13:27	W	PEF40983	534	1		CI	A				Facility Sample Poin	/ ID: TP002 at ID: SPTP002EP
UF 2 Permeate	1-27-19 10:17	w	PEF46984	535	5 1		CI	A				Facility Sample Poin	ID: TP002 at ID: SPTP002EP
Potable Tanks Combined	1-27-19 13;29	W	PEF40985	536	1	7	CI	A	755	2-2-19			/ ID: TP002 at ID: SPTP002EP
Potable Fill 4	1-27-19 10:11	w	PEF40980	537	7 1	V	CI	A				Facility Sample Poin	/ ID: TP002 ht ID: SPTP002EP
Potable Truck 19518	1-27-19 09.33	11:17	PEF410987	538	1		CI	A		1-1	LE	Facility Sample Poin	ID: TP002 at ID: SPTP002EP
Potable Truck 19520	1-27-19 11:50	W	PEF400188	530	7 1		CI	A					y ID: TP002 ht ID: SPTP002EP
Potable Truck 7-21	1-27-19 15:13	w	PEF46989	540) 1		CI	-A				Facility Sample Poir	y ID: TP002 ht ID: SPTP002EP
Field Blank NEAR	1-27-19 13:33	W	PEF41990	V541	1		CI	A					y ID: TP002 nt ID: SPTP002EP
Possible Hazard Identific	ation: □ Flammable □ Skin	Irritant	₽ Unknown	Pollen Env Temp NTL Alaska Temp		re on arriv					Intact		□ Absent Absent
Special Instructions/QC	Requirements & Comment	s: * PFBS,	PFDA, FPHpA, PFH:	xS, PFHxA, PFDo	oA, PI	TeDA, PI	FNA, PFC	OS, PFO					
Relinquished by:	Company: Ice Services		Date & Time:	19/7:00A	4 Re	ceiled by	Hall	M	Environ	2000	D	ate & Time: 1-28-19@1	600
Relinguished by 7	Company: Pollen En	V	Date & Time: 9@	1100am	Re	dived by	2	a	Compar	E.A	D	ate & Time: 11	200
Relinquished by:	Company:		Date & Time:		Re	eceived by	5 (5	Compar	iy:	D	ate & Time:	



Eurofins Eaton Analytical Run Log

Run ID: **254904** Method: **537**

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4191397		os	FL	02/08/2019 19:34	020819M537a-FL-PFC12.mdb
LRB	4191386		RW	FL	02/08/2019 20:08	020819M537a-FL-PFC12.mdb
FBH	4191387		RW	FL	02/08/2019 20:42	020819M537a-FL-PFC12.mdb
FS	4186532	PEF46981/RawWaterPlantSample	DW	FL	02/09/2019 01:14	020819M537a-FL-PFC12.mdb
FS	4186535	PEF46984/UF 2 Permeate	DW	FL	02/09/2019 01:31	020819M537a-FL-PFC12.mdb
FS	4186537	PEF46986/Potable Fill 4	DW	FL	02/09/2019 01:48	020819M537a-FL-PFC12.mdb
FS	4186531	PEF46980/RawWaterPondhouse	DW	FL	02/09/2019 02:05	020819M537a-FL-PFC12.mdb
CCM	4191398		OS	FL	02/09/2019 02:22	020819M537a-FL-PFC12.mdb
FS	4186538	PEF46987/PotableTruck19518	DW	FL	02/09/2019 02:39	020819M537a-FL-PFC12.mdb
FS	4186539	PEF46988/PotableTruck19520	DW	FL	02/09/2019 02:56	020819M537a-FL-PFC12.mdb
FS	4186533	PEF46982/Raw Tank UF Feed	DW	FL	02/09/2019 03:13	020819M537a-FL-PFC12.mdb
FS	4186534	PEF46983/UF 1 Permeate	DW	FL	02/09/2019 03:30	020819M537a-FL-PFC12.mdb
FS	4186536	PEF46985/PotableTanksCombined	DW	FL	02/09/2019 03:47	020819M537a-FL-PFC12.mdb
FTB	4186541	PEF46990 FTB	RW	FL	02/09/2019 04:04	020819M537a-FL-PFC12.mdb
FS	4186540	PEF46989/Potable Truck 7-21	DW	FL	02/09/2019 04:21	020819M537a-FL-PFC12.mdb
CCH	4191399		OS	FL	02/09/2019 06:37	020819M537a-FL-PFC12.mdb

					QC S	Summar	y Repo	ort								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
CCL	IS-PFOA-13C2	537	N/A			1989270.00	1989270	ng/L	100	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	IS-PFOS-13C4	537	N/A			367117.00	367117	ng/L	100	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	SS-PFDA-13C2	537	N/A			101.6160	100	ng/L	102	70 - 130			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	SS-PFHxA-13C2	537	N/A			50.4471	50.0	ng/L	101	70 - 130			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluorobutanesulfonic acid (PFBS)	537	2.0			1.8877	2.0	ng/L	94	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluorodecanoic acid (PFDA)	537	2.0			2.0383	2.0	ng/L	102	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluoroheptanoic acid (PFHpA)	537	2.0			1.9423	2.0	ng/L	97	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			1.9331	2.0	ng/L	97	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluorohexanoic acid (PFHxA)	537	2.0			1.9985	2.0	ng/L	100	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluorododecanoic acid (PFDoA)	537	2.0			2.1234	2.0	ng/L	106	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			2.1786	2.0	ng/L	109	50 - 150		i i	1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluorononanoic acid (PFNA)	537	2.0			2.0362	2.0	ng/L	102	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluorooctanesulfonic acid (PFOS)	537	2.0			2.0394	2.0	ng/L	102	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluorooctanoic acid (PFOA)	537	2.0			1.9839	2.0	ng/L	99	50 - 150		T	1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluorotridecanoic acid (PFTrDA)	537	2.0			2.0971	2.0	ng/L	105	50 - 150			1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
CCL	Perfluoroundecanoic acid (PFUnA)	537	2.0			2.0573	2.0	ng/L	103	50 - 150		T	1.0	02/04/2019 14:13	02/08/2019 19:34	4191397
LRB	IS-PFOA-13C2	537	N/A			1829140.00	1989270	ng/L	92	50 - 150			0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	IS-PFOS-13C4	537	N/A			335878.00	367117	ng/L	91	50 - 150			0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	SS-PFDA-13C2	537	N/A			84.9038	100	ng/L	98	70 - 130			0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	SS-PFHxA-13C2	537	N/A			43.3802	50.0	ng/L	100	70 - 130			0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluorobutanesulfonic acid (PFBS)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluorodecanoic acid (PFDA)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluoroheptanoic acid (PFHpA)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluorohexanoic acid (PFHxA)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluorododecanoic acid (PFDoA)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluorononanoic acid (PFNA)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluorooctanesulfonic acid (PFOS)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluorooctanoic acid (PFOA)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluorotridecanoic acid (PFTrDA)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
LRB	Perfluoroundecanoic acid (PFUnA)	537	2.0		<	2.0		ng/L					0.87	02/08/2019 08:18	02/08/2019 20:08	4191386
FBH	IS-PFOA-13C2	537	N/A			1877210.00	1989270	ng/L	94	50 - 150			1.0	02/08/2019 08:18	02/08/2019 20:42	4191387
FBH	IS-PFOS-13C4	537	N/A			358396.00	367117	ng/L	98	50 - 150			1.0	02/08/2019 08:18	02/08/2019 20:42	4191387
FBH	SS-PFDA-13C2	537	N/A			97.4430	100	ng/L	97	70 - 130			1.0		02/08/2019 20:42	
FBH	SS-PFHxA-13C2	537	N/A			50.6438	50.0	ng/L	101	70 - 130			1.0		02/08/2019 20:42	
TO FBH	Perfluorobutanesulfonic acid (PFBS)	537	2.0			186.9220	200	ng/L	93	70 - 130			1.0		02/08/2019 20:42	
a G F B H	Perfluorodecanoic acid (PFDA)	537	2.0			187.3800	200	ng/L	94	70 - 130			1.0		02/08/2019 20:42	
⊕ ⇒FBH	Perfluoroheptanoic acid (PFHpA)	537	2.0			190.7180	200	ng/L	95	70 - 130			1.0		02/08/2019 20:42	
ω QFBH	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			187.8520	200	ng/L	94	70 - 130			1.0		02/08/2019 20:42	
N) -						.00020			Ų.						J	1.0.007

					QC S	Summary Rep	port (cont.)					_				
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FBH	Perfluorohexanoic acid (PFHxA)	537	2.0			190.7040	200	ng/L	95	70 - 130			1.0	02/08/2019 08:18	02/08/2019 20:42	4191387
FBH	Perfluorododecanoic acid (PFDoA)	537	2.0			178.1780	200	ng/L	89	70 - 130			1.0	02/08/2019 08:18	02/08/2019 20:42	4191387
FBH	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			175.9270	200	ng/L	88	70 - 130			1.0	02/08/2019 08:18	02/08/2019 20:42	4191387
FBH	Perfluorononanoic acid (PFNA)	537	2.0			189.7560	200	ng/L	95	70 - 130			1.0	02/08/2019 08:18	02/08/2019 20:42	4191387
FBH	Perfluorooctanesulfonic acid (PFOS)	537	2.0			182.5740	200	ng/L	91	70 - 130			1.0	02/08/2019 08:18	02/08/2019 20:42	4191387
FBH	Perfluorooctanoic acid (PFOA)	537	2.0			189.6540	200	ng/L	95	70 - 130			1.0	02/08/2019 08:18	02/08/2019 20:42	4191387
FBH	Perfluorotridecanoic acid (PFTrDA)	537	2.0			176.5520	200	ng/L	88	70 - 130			1.0	02/08/2019 08:18	02/08/2019 20:42	4191387
FBH	Perfluoroundecanoic acid (PFUnA)	537	2.0			181.0790	200	ng/L	91	70 - 130			1.0	02/08/2019 08:18	02/08/2019 20:42	4191387
FS	IS-PFOA-13C2	537	N/A	PEF46981/RawWaterPlantSample		2220250.00	1989270	ng/L	112	50 - 150			0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	IS-PFOS-13C4	537	N/A	PEF46981/RawWaterPlantSample		397982.00	367117	ng/L	108	50 - 150			0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	SS-PFDA-13C2	537	N/A	PEF46981/RawWaterPlantSample		87.2265	100	ng/L	93	70 - 130			0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	SS-PFHxA-13C2	537	N/A	PEF46981/RawWaterPlantSample		47.4345	50.0	ng/L	101	70 - 130			0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46981/RawWaterPlantSample	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46981/RawWaterPlantSample	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46981/RawWaterPlantSample	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46981/RawWaterPlantSample		3.3		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46981/RawWaterPlantSample		2.3		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46981/RawWaterPlantSample	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46981/RawWaterPlantSample	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF46981/RawWaterPlantSample	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46981/RawWaterPlantSample		4.6		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46981/RawWaterPlantSample	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46981/RawWaterPlantSample	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46981/RawWaterPlantSample	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 01:14	4186532
FS	IS-PFOA-13C2	537	N/A	PEF46984/UF 2 Permeate		2166560.00	1989270	ng/L	109	50 - 150			0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	IS-PFOS-13C4	537	N/A	PEF46984/UF 2 Permeate		391893.00	367117	ng/L	107	50 - 150			0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	SS-PFDA-13C2	537	N/A	PEF46984/UF 2 Permeate		87.7597	100	ng/L	94	70 - 130			0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	SS-PFHxA-13C2	537	N/A	PEF46984/UF 2 Permeate		45.5469	50.0	ng/L	98	70 - 130			0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46984/UF 2 Permeate	<	2.0		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46984/UF 2 Permeate	<	2.0		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46984/UF 2 Permeate	<	2.0		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46984/UF 2 Permeate		3.2		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46984/UF 2 Permeate		2.4		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46984/UF 2 Permeate	<	2.0		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46984/UF 2 Permeate	<	2.0		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF46984/UF 2 Permeate	<	2.0		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46984/UF 2 Permeate		3.8		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
¬FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46984/UF 2 Permeate	<	2.0		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
Page FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46984/UF 2 Permeate	<	2.0		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
<u> </u>	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46984/UF 2 Permeate	<	2.0		ng/L					0.93	02/08/2019 08:18	02/09/2019 01:31	4186535
of FS	IS-PFOA-13C2	537	N/A	PEF46986/Potable Fill 4		2155890.00	1989270	ng/L	108	50 - 150			0.89	02/08/2019 08:18	02/09/2019 01:48	4186537

					QC S	Summary Re	port (cont.)					_				
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	IS-PFOS-13C4	537	N/A	PEF46986/Potable Fill 4		388796.00	367117	ng/L	106	50 - 150			0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	SS-PFDA-13C2	537	N/A	PEF46986/Potable Fill 4		87.1703	100	ng/L	98	70 - 130			0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	SS-PFHxA-13C2	537	N/A	PEF46986/Potable Fill 4		46.8353	50.0	ng/L	105	70 - 130			0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46986/Potable Fill 4	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46986/Potable Fill 4	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46986/Potable Fill 4	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46986/Potable Fill 4		3.4		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46986/Potable Fill 4		2.5		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46986/Potable Fill 4	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46986/Potable Fill 4	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF46986/Potable Fill 4	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46986/Potable Fill 4		3.3		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46986/Potable Fill 4		14		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46986/Potable Fill 4	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46986/Potable Fill 4	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 01:48	4186537
FS	IS-PFOA-13C2	537	N/A	PEF46980/RawWaterPondhouse		2090930.00	1989270	ng/L	105	50 - 150			0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	IS-PFOS-13C4	537	N/A	PEF46980/RawWaterPondhouse		374390.00	367117	ng/L	102	50 - 150			0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	SS-PFDA-13C2	537	N/A	PEF46980/RawWaterPondhouse		91.7470	100	ng/L	98	70 - 130			0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	SS-PFHxA-13C2	537	N/A	PEF46980/RawWaterPondhouse		48.9041	50.0	ng/L	104	70 - 130			0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46980/RawWaterPondhouse	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46980/RawWaterPondhouse	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46980/RawWaterPondhouse	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46980/RawWaterPondhouse		3.5		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46980/RawWaterPondhouse		2.5		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46980/RawWaterPondhouse	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46980/RawWaterPondhouse	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF46980/RawWaterPondhouse	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46980/RawWaterPondhouse		4.6		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46980/RawWaterPondhouse	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46980/RawWaterPondhouse	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46980/RawWaterPondhouse	<	2.0		ng/L					0.94	02/08/2019 08:18	02/09/2019 02:05	4186531
ССМ	IS-PFOA-13C2	537	N/A			2132870.00	2132870	ng/L	100	50 - 150			1.0	02/04/2019 14:13	02/09/2019 02:22	4191398
ССМ	IS-PFOS-13C4	537	N/A			378090.00	378090	ng/L	100	50 - 150			1.0	02/04/2019 14:13	02/09/2019 02:22	4191398
ССМ	SS-PFDA-13C2	537	N/A			100.2300	100	ng/L	100	70 - 130			1.0	02/04/2019 14:13	02/09/2019 02:22	4191398
ССМ	SS-PFHxA-13C2	537	N/A			51.3598	50.0	ng/L	103	70 - 130			1.0		02/09/2019 02:22	
ССМ	Perfluorobutanesulfonic acid (PFBS)	537	2.0			99.2670	100	ng/L	99	70 - 130			1.0		02/09/2019 02:22	
ССМ	Perfluorodecanoic acid (PFDA)	537	2.0			100.4810	100	ng/L	100	70 - 130			1.0		02/09/2019 02:22	
ССМ	Perfluoroheptanoic acid (PFHpA)	537	2.0			101.0000	100	ng/L	101	70 - 130			1.0		02/09/2019 02:22	
Рассм Се	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			100.6950	100	ng/L	101	70 - 130			1.0		02/09/2019 02:22	
TCCM	Perfluorohexanoic acid (PFHxA)	537	2.0			102.3410	100	ng/L	102	70 - 130			1.0		02/09/2019 02:22	
OCCW OCCW	Perfluorododecanoic acid (PFDoA)	537	2.0			106.3830	100	ng/L	106	70 - 130			1.0	02/04/2019 14:13		

					QC S	Summary Re	port (cont.)									
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
ССМ	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			107.4380	100	ng/L	107	70 - 130			1.0	02/04/2019 14:13	02/09/2019 02:22	4191398
ССМ	Perfluorononanoic acid (PFNA)	537	2.0			100.4410	100	ng/L	100	70 - 130			1.0	02/04/2019 14:13	02/09/2019 02:22	4191398
ССМ	Perfluorooctanesulfonic acid (PFOS)	537	2.0			101.5550	100	ng/L	102	70 - 130			1.0	02/04/2019 14:13	02/09/2019 02:22	4191398
ССМ	Perfluorooctanoic acid (PFOA)	537	2.0			100.0600	100	ng/L	100	70 - 130			1.0	02/04/2019 14:13	02/09/2019 02:22	4191398
ССМ	Perfluorotridecanoic acid (PFTrDA)	537	2.0			107.7920	100	ng/L	108	70 - 130			1.0	02/04/2019 14:13	02/09/2019 02:22	4191398
ССМ	Perfluoroundecanoic acid (PFUnA)	537	2.0			103.2410	100	ng/L	103	70 - 130			1.0	02/04/2019 14:13	02/09/2019 02:22	4191398
FS	IS-PFOA-13C2	537	N/A	PEF46987/PotableTruck19518		2059550.00	2132870	ng/L	97	50 - 150			0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	IS-PFOS-13C4	537	N/A	PEF46987/PotableTruck19518		367869.00	378090	ng/L	97	50 - 150			0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	SS-PFDA-13C2	537	N/A	PEF46987/PotableTruck19518		87.5946	100	ng/L	96	70 - 130			0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	SS-PFHxA-13C2	537	N/A	PEF46987/PotableTruck19518		43.3016	50.0	ng/L	95	70 - 130			0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46987/PotableTruck19518	<	2.0		ng/L					0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46987/PotableTruck19518	<	2.0		ng/L					0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46987/PotableTruck19518	<	2.0		ng/L					0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46987/PotableTruck19518		3.1		ng/L					0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46987/PotableTruck19518		2.3		ng/L				i i	0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46987/PotableTruck19518	<	2.0		ng/L					0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46987/PotableTruck19518	<	2.0		ng/L					0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF46987/PotableTruck19518	<	2.0		ng/L				T	0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46987/PotableTruck19518		3.8		ng/L					0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46987/PotableTruck19518	<	2.0		ng/L					0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46987/PotableTruck19518	<	2.0		ng/L					0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46987/PotableTruck19518	<	2.0		ng/L					0.91	02/08/2019 08:18	02/09/2019 02:39	4186538
FS	IS-PFOA-13C2	537	N/A	PEF46988/PotableTruck19520		2120890.00	2132870	ng/L	99	50 - 150			0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	IS-PFOS-13C4	537	N/A	PEF46988/PotableTruck19520		359361.00	378090	ng/L	95	50 - 150			0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	SS-PFDA-13C2	537	N/A	PEF46988/PotableTruck19520		90.7804	100	ng/L	102	70 - 130			0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	SS-PFHxA-13C2	537	N/A	PEF46988/PotableTruck19520		46.7613	50.0	ng/L	105	70 - 130			0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46988/PotableTruck19520	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46988/PotableTruck19520	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46988/PotableTruck19520	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46988/PotableTruck19520		3.2		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46988/PotableTruck19520		2.5		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46988/PotableTruck19520	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46988/PotableTruck19520	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF46988/PotableTruck19520	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46988/PotableTruck19520		3.2		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46988/PotableTruck19520	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46988/PotableTruck19520	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
T FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46988/PotableTruck19520	<	2.0		ng/L					0.89	02/08/2019 08:18	02/09/2019 02:56	4186539
Page FS	IS-PFOA-13C2	537	N/A	PEF46982/Raw Tank UF Feed		2057640.00	2132870	ng/L	96	50 - 150			0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
<u> </u>	IS-PFOS-13C4	537	N/A	PEF46982/Raw Tank UF Feed		366441.00	378090	ng/L	97	50 - 150			0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
တ္ ^{FS}	SS-PFDA-13C2	537	N/A	PEF46982/Raw Tank UF Feed		87.6037	100	ng/L	95	70 - 130			0.92	02/08/2019 08:18	02/09/2019 03:13	4186533

					QC S	Summary Rep	oort (cont.))								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	SS-PFHxA-13C2	537	N/A	PEF46982/Raw Tank UF Feed		48.0511	50.0	ng/L	104	70 - 130			0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46982/Raw Tank UF Feed	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46982/Raw Tank UF Feed	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46982/Raw Tank UF Feed	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46982/Raw Tank UF Feed		3.4		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46982/Raw Tank UF Feed		2.5		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46982/Raw Tank UF Feed	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46982/Raw Tank UF Feed	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF46982/Raw Tank UF Feed	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46982/Raw Tank UF Feed		4.6		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46982/Raw Tank UF Feed	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46982/Raw Tank UF Feed	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46982/Raw Tank UF Feed	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:13	4186533
FS	IS-PFOA-13C2	537	N/A	PEF46983/UF 1 Permeate		1966690.00	2132870	ng/L	92	50 - 150			0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	IS-PFOS-13C4	537	N/A	PEF46983/UF 1 Permeate		349573.00	378090	ng/L	92	50 - 150			0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	SS-PFDA-13C2	537	N/A	PEF46983/UF 1 Permeate		92.7779	100	ng/L	101	70 - 130			0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	SS-PFHxA-13C2	537	N/A	PEF46983/UF 1 Permeate		49.6085	50.0	ng/L	108	70 - 130			0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46983/UF 1 Permeate	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46983/UF 1 Permeate	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46983/UF 1 Permeate	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46983/UF 1 Permeate		3.3		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46983/UF 1 Permeate		2.5		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46983/UF 1 Permeate	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46983/UF 1 Permeate	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF46983/UF 1 Permeate	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46983/UF 1 Permeate		3.7		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46983/UF 1 Permeate	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46983/UF 1 Permeate	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46983/UF 1 Permeate	<	2.0		ng/L					0.92	02/08/2019 08:18	02/09/2019 03:30	4186534
FS	IS-PFOA-13C2	537	N/A	PEF46985/PotableTanksCombined		2117110.00	2132870	ng/L	99	50 - 150			0.88	02/08/2019 08:18	02/09/2019 03:47	4186536
FS	IS-PFOS-13C4	537	N/A	PEF46985/PotableTanksCombined		375795.00	378090	ng/L	99	50 - 150			0.88	02/08/2019 08:18	02/09/2019 03:47	4186536
FS	SS-PFDA-13C2	537	N/A	PEF46985/PotableTanksCombined		83.4237	100	ng/L	95	70 - 130			0.88	02/08/2019 08:18	02/09/2019 03:47	4186536
FS	SS-PFHxA-13C2	537	N/A	PEF46985/PotableTanksCombined		45.9929	50.0	ng/L	105	70 - 130			0.88	02/08/2019 08:18	02/09/2019 03:47	4186536
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46985/PotableTanksCombined	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 03:47	4186536
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46985/PotableTanksCombined	<	2.0		ng/L					0.88		02/09/2019 03:47	
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46985/PotableTanksCombined	<	2.0		ng/L					0.88		02/09/2019 03:47	
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46985/PotableTanksCombined		3.2		ng/L					0.88		02/09/2019 03:47	
	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46985/PotableTanksCombined		2.4		ng/L					0.88		02/09/2019 03:47	
Page FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46985/PotableTanksCombined	<	2.0		ng/L					0.88		02/09/2019 03:47	
o FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46985/PotableTanksCombined	<	2.0		ng/L					0.88		02/09/2019 03:47	
of FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF46985/PotableTanksCombined	<	2.0		ng/L					0.88		02/09/2019 03:47	

					QC :	Summary Re	port (cont.)									
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46985/PotableTanksCombined		3.6		ng/L					0.88	02/08/2019 08:18	02/09/2019 03:47	4186536
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46985/PotableTanksCombined	<	2.0		ng/L				i i	0.88	02/08/2019 08:18	02/09/2019 03:47	4186536
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46985/PotableTanksCombined	<	2.0		ng/L				i i	0.88	02/08/2019 08:18	02/09/2019 03:47	4186536
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46985/PotableTanksCombined	<	2.0		ng/L				Ī Ī	0.88	02/08/2019 08:18	02/09/2019 03:47	4186536
FTB	IS-PFOA-13C2	537	N/A	PEF46990 FTB		2083930.00	2132870	ng/L	98	50 - 150			0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	IS-PFOS-13C4	537	N/A	PEF46990 FTB		375584.00	378090	ng/L	99	50 - 150		i i	0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	SS-PFDA-13C2	537	N/A	PEF46990 FTB		85.7148	100	ng/L	97	70 - 130			0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	SS-PFHxA-13C2	537	N/A	PEF46990 FTB		44.3528	50.0	ng/L	101	70 - 130			0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46990 FTB	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46990 FTB	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46990 FTB	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46990 FTB	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46990 FTB	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46990 FTB	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46990 FTB	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluorononanoic acid (PFNA)	537	2.0	PEF46990 FTB	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46990 FTB	<	2.0		ng/L				i i	0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46990 FTB	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46990 FTB	<	2.0		ng/L				i i	0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FTB	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46990 FTB	<	2.0		ng/L					0.88	02/08/2019 08:18	02/09/2019 04:04	4186541
FS	IS-PFOA-13C2	537	N/A	PEF46989/Potable Truck 7-21		2193610.00	2132870	ng/L	103	50 - 150		Ī Ī	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	IS-PFOS-13C4	537	N/A	PEF46989/Potable Truck 7-21		389974.00	378090	ng/L	103	50 - 150		i i	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	SS-PFDA-13C2	537	N/A	PEF46989/Potable Truck 7-21		91.6725	100	ng/L	95	70 - 130		Ĭ Ĭ	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	SS-PFHxA-13C2	537	N/A	PEF46989/Potable Truck 7-21		48.0829	50.0	ng/L	100	70 - 130			0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF46989/Potable Truck 7-21	<	2.0		ng/L				Ĭ Ĭ	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF46989/Potable Truck 7-21	<	2.0		ng/L					0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF46989/Potable Truck 7-21	<	2.0		ng/L				T	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF46989/Potable Truck 7-21		3.3		ng/L				Ī Ī	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF46989/Potable Truck 7-21		2.4		ng/L				T	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF46989/Potable Truck 7-21	<	2.0		ng/L				Í Í	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF46989/Potable Truck 7-21	<	2.0		ng/L				T	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF46989/Potable Truck 7-21	<	2.0		ng/L				Í Í	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF46989/Potable Truck 7-21		3.7		ng/L				T	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF46989/Potable Truck 7-21	<	2.0		ng/L				Ĭ Ĭ	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF46989/Potable Truck 7-21	<	2.0		ng/L				T	0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF46989/Potable Truck 7-21	<	2.0		ng/L	<u> </u>				0.96	02/08/2019 08:18	02/09/2019 04:21	4186540
ССН	IS-PFOA-13C2	537	N/A			2091330.00	2091330	ng/L	100	50 - 150			1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
ССН	IS-PFOS-13C4	537	N/A			370142.00	370142	ng/L	100	50 - 150			1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
а Ссн	SS-PFDA-13C2	537	N/A			99.3586	100	ng/L	99	70 - 130			1.0		02/09/2019 06:37	
CCH CCH	SS-PFHxA-13C2	537	N/A			52.1327	50.0	ng/L	104	70 - 130			1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
∞ CCH	Perfluorobutanesulfonic acid (PFBS)	537	2.0			206.6990	200	ng/L	103	70 - 130			1.0	02/04/2019 14:13	02/09/2019 06:37	4191399

	QC Summary Report (cont.)														
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	Dil Factor	Extracted	Analyzed	EEA ID#
ССН	Perfluorodecanoic acid (PFDA)	537	2.0			206.2310	200	ng/L	103	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
CCH	Perfluoroheptanoic acid (PFHpA)	537	2.0			211.4360	200	ng/L	106	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
CCH	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			207.3930	200	ng/L	104	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
CCH	Perfluorohexanoic acid (PFHxA)	537	2.0			213.5190	200	ng/L	107	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
CCH	Perfluorododecanoic acid (PFDoA)	537	2.0			219.2860	200	ng/L	110	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
CCH	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			223.0660	200	ng/L	112	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
CCH	Perfluorononanoic acid (PFNA)	537	2.0			202.8370	200	ng/L	101	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
CCH	Perfluorooctanesulfonic acid (PFOS)	537	2.0			209.7240	200	ng/L	105	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
CCH	Perfluorooctanoic acid (PFOA)	537	2.0			206.2470	200	ng/L	103	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
CCH	Perfluorotridecanoic acid (PFTrDA)	537	2.0			223.2080	200	ng/L	112	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399
ССН	Perfluoroundecanoic acid (PFUnA)	537	2.0			207.1040	200	ng/L	104	70 - 130		 1.0	02/04/2019 14:13	02/09/2019 06:37	4191399

Samp	ole Type	Kev

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCH	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FTB	Field Trip Blank		
FBH	Fortified Blank High		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street (907) 479-8368 Phone (907) 452-6853 Fax

2019 PFC

Fairbanks, AK 99734 Jerry@pollenenv.com

CLIENT INI Company: NSB SA-10 (Ice	Services)		Contact	Contact Person: Rich Helinski Operators: Logan / Chuck				tive Added	Requ	ested An	ested Analysis			Page 1 of 1		
Address: Pouch 340044			7.5	Sandina .	Tours Tree		reiseiva	dive Added		1	- 1					
City, State Zip: Prudhoe Ba	y, AK 99734		PWS	# 331184 - specia	al, non-routine											
Phone: (907) 659-9060			Send Results to ADEC:				537*							□ Normal	Turnaro	und
Fax: (907) 659-9061			v Yes □ No				EPA 5.									
Email: rhelinski@iceservic	es.net			Purchase Order/Char	ge Code:	ainers								□ RUSH	day	/(s)
Project Name: NSB SA-10 \	WTP PFAS Moi	nitoring		2019-223		Number of Containers	's by									
	ornforth					Number	PFC's									
Sample Identification	Sample Date	Sample Time	Matrix	PE Lab ID#	PEF Lab ID#									Sample C	omme	nts
POTABLE Truck 4	4-1-19	11:2594	W	PEF48344		1	X									
RAW Water Sample	4-1-19	11:10 am	W	PEF48345		1	X									
Field Blank	4-1-19	11:12 am	W	PEF484346		1	X									
1																
												1				
f																
Possible Hazard Identifica	ation:	e □ Skin Iı	rritant	□ Unknown	Pollen Env Temper NTL Alaska Tempe		e on arri		o n: °C °C	COC S		□ Int		Broken Broken		bsent bsent
Special Instructions/QC F	Requirements	& Comments:	* PFBS,	PFDA, FPHpA, PFH:	xS, PFHxA, PFDoA	, PF1	ΓeDA, P	FNA, PFO	S, PFOA	, PFTrDA	, PFUn	A				
Relinquished by:	Company: Ice	e Services		Date & Time:		Rec	ceived by	- / 1	lew	Compan Environr		n	Date & 7	ime:	142	Ö
Relinquished W	Company: R	llen Env		Date & Time: 4-4-19-18	Q O	Rec	ceived by		0	Compan		- 45	Date & 7	4 4		
Relinquished by:	Company:			Date & Time:		Rec	ceived by	/ :		Compan	y:		Date & 7	ime:		

CERTIFICATE OF ANALYSIS

Report Date:

Received Date:

Received Time:

Sampled By:

4/17/2019

4/2/2019

2:20 PM

CC

NSB SA-10 (Ice Services)

Attn: Rich Helinski Pouch 340044 Prudhoe Bay, AK 99734

Phone: 907-659-9060 Fax: 907-659-9061

rhelinski@iceservices.net

Project Name: NSB SA-10 WTP - PFAS Monitoring

PWS ID: AK2331184 - Special Samples Analysis: PFAS - Method EPA 537

Comments: Samples analyzed by Eurofins Eaton Analytical in South Bend, IN.

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Potable Truck Fill 4	PEF48344	4249698	4/1/2019	11:25 AM
Raw Water Sample Port	PEF48345	4249699	4/1/2019	11:10 AM
Field Blank	PEF48346	4249700	4/1/2019	11:12 AM

Jerry Pollen

Pollen Environmental, LLC



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-18-12
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 03/14/2019



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

Pollen Environmental LLC 448080 Client: Report:

Priority: Standard Written Attn: Jerry Pollen

Status: Final 3536 International Avenue

Fairbanks, AK 99701 PWS ID: Not Supplied Alaska Lab ID # IN00035

	Sample Information										
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time						
4249698	PEF48344	537	04/01/19 11:25	Client	04/05/19 08:30						
4249699	PEF48345	537	04/01/19 11:10	Client	04/05/19 08:30						
4249700	PEF48346, Blank	537	04/01/19 11:12	Client	04/05/19 08:30						

eport Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

The Chilebowser Title

04/17/2019

Date

Client Name:

Pollen Environmental LLC

Report #: 448080

Sampling Point: PEF48344 PWS ID: Not Supplied

	EEA Methods								
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.2	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.1	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	4.2	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 03:53	4249698
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 03:53	4249698

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF48345 PWS ID: Not Supplied

	EEA Methods								
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	3.2	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	2.1	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	4.3	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 04:10	4249699
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	04/08/19 08:30	04/09/19 04:10	4249699

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF48346, Blank PWS ID: Not Supplied

	EEA Methods								
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	04/10/19 07:55	04/11/19 18:03	4249700

^{\$} The state of origin does not offer certification for this parameter.

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / **Surrogate Analyte (SUR)** - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

2019 PFC₄₄₈₀₈₀

3536 International Street Fairbanks, AK 99734 (907) 479-8368 Phone (907) 452-6853 Fax Jerry@pollenenv.com

CLIENT INF	ORMATION		Contact I	Person: Rich Helins					Page 1 of	1								
Company: NSB SA-10 (Ice S	Services)			Logan / Chu		Perserva	tive Added											
Address: Pouch 340044			1500					T	7.11									
City, State Zip: Prudhoe Bay	, AK 99734		PWS	# 331184 - specia														
Phone: (907) 659-9060			Send Results to	ADEC:		537*		1					□ Normal Turnar	ound				
Fax: (907) 659-9061			v Yes □		EPA 5													
Email: rhelinski@iceservice	s.net			Purchase Order/Cha	tainers	by EF							□ RUSH da	ıy(s)				
Project Name: NSB SA-10 W	TP PFAS Mor	nitoring		2019-223		r of Containers	S'S b											
	rnforth				v	Numbe	PFC's			- 1								
		Sample Time		PE Lab ID#	PEF Lab ID#			1		11	1			Sample Comme	ints			
POTABLE Truck 4	4-1-19	11:25gm	W	PEF48344	4249678	1	X	W		U=	H	1 10						
RAW Water Sample	4-1-19	11:10 am	W	PEF48345	1 699	1	X	(1)		Cl=	AY	an	11					
Field Blank	4-1-19	11:12 am	W	PEF484396	100	1	X	(1)		Ce=	A	419	117					
					8													
						-						-			_			
				1														
	-																	
Possible Hazard Identifica	ition:							le Conditio										
□ Non-Hazardous	□ Flammabi	le 🗆 Skin i	Irritant	□ Unknown	Pollen Env Tempel NTL Alaska Tempe				°C ~ °C	coc:		□ In			Absent Absent			
Special Instructions/QC F	lequirements	& Comments	: * PFBS,	PFDA, FPHpA, PFH	ixS, PFHxA, PFDoA	, PF	TeDA, I	PFNA, PFOS	S, PFOA	, PFTrD	A, PFUn	4						
Relinquished by:	Company: Ic	e Services		Date & Time:		Re	///	ceived by: Corley			ny: Polle mental	n	11/7	& Time: 2/19 1420				
Relificuished William	Company: R	ollen Env		Date & Time: 4-4-19618	200	Re	eceived by:			Compa	4-513	Date & 4/5	& Time: 0830					
Relinquished by:	Company:							eceived by: Company: Dat						te & Time:				



Eurofins Eaton Analytical Run Log

Run ID: **257555** Method: **537**

Type	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4251624		OS	FL	04/08/2019 19:24	040819M537a-FL-PFC-Ext.mdb
LRB	4251613		RW	FL	04/08/2019 19:58	040819M537a-FL-PFC-Ext.mdb
FBL	4251614		RW	FL	04/08/2019 20:15	040819M537a-FL-PFC-Ext.mdb
CCM	4251625		OS	FL	04/09/2019 01:21	040819M537a-FL-PFC-Ext.mdb
FS	4249698	PEF48344	DW	FL	04/09/2019 03:53	040819M537a-FL-PFC-Ext.mdb
FS	4249699	PEF48345	DW	FL	04/09/2019 04:10	040819M537a-FL-PFC-Ext.mdb
CCH	4251626		OS	FL	04/09/2019 05:01	040819M537a-FL-PFC-Ext.mdb

					QC S	Summar	y Repo	ort								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
CCL	IS-NMeFOSAA-d3	537	N/A			456607.00	456607	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	IS-PFOA-13C2	537	N/A			1396220.00	1396220	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	IS-PFOS-13C4	537	N/A			340002.00	340002	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	IS-GenX-13C3	537	N/A			97567.30	97567.3	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	SS-NEtFOSAA-d5	537	N/A			188.9410	200	ng/L	94	70 - 130			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	SS-PFDA-13C2	537	N/A			92.1489	100	ng/L	92	70 - 130			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	SS-PFHxA-13C2	537	N/A			45.4329	50.0	ng/L	91	70 - 130			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluorobutanesulfonic acid (PFBS)	537	2.0			1.8613	2.0	ng/L	93	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluorodecanoic acid (PFDA)	537	2.0			1.9725	2.0	ng/L	99	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluoroheptanoic acid (PFHpA)	537	2.0			1.9282	2.0	ng/L	96	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluorohexanesulfonic acid (PFHxS)	537	2.0		i	2.0317	2.0	ng/L	102	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluorohexanoic acid (PFHxA)	537	2.0			1.9529	2.0	ng/L	98	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluorododecanoic acid (PFDoA)	537	2.0			2.0130	2.0	ng/L	101	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			1.9310	2.0	ng/L	97	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluorononanoic acid (PFNA)	537	2.0		i	1.9607	2.0	ng/L	98	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluorooctanesulfonic acid (PFOS)	537	2.0			2.0057	2.0	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluorooctanoic acid (PFOA)	537	2.0			1.9935	2.0	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluorotridecanoic acid (PFTrDA)	537	2.0			1.9324	2.0	ng/L	97	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
CCL	Perfluoroundecanoic acid (PFUnA)	537	2.0		i	1.9990	2.0	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/08/2019 19:24	4251624
LRB	IS-NMeFOSAA-d3	537	N/A			360972.00	456607	ng/L	79	50 - 150			0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	IS-PFOA-13C2	537	N/A			1090360.00	1396220	ng/L	78	50 - 150			0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	IS-PFOS-13C4	537	N/A			257761.00	340002	ng/L	76	50 - 150			0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	IS-GenX-13C3	537	N/A			73827.40	97567.3	ng/L	76	50 - 150			0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	SS-NEtFOSAA-d5	537	N/A			157.9870	200	ng/L	91	70 - 130			0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	SS-PFDA-13C2	537	N/A			85.1338	100	ng/L	98	70 - 130			0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	SS-PFHxA-13C2	537	N/A			42.4210	50.0	ng/L	98	70 - 130			0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	Perfluorobutanesulfonic acid (PFBS)	537	2.0		<	2.0		ng/L					0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	Perfluorodecanoic acid (PFDA)	537	2.0		<	2.0		ng/L					0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	Perfluoroheptanoic acid (PFHpA)	537	2.0		<	2.0		ng/L					0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0		<	2.0		ng/L					0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	Perfluorohexanoic acid (PFHxA)	537	2.0		<	2.0		ng/L					0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	Perfluorododecanoic acid (PFDoA)	537	2.0		<	2.0		ng/L					0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0		<	2.0		ng/L					0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	Perfluorononanoic acid (PFNA)	537	2.0		<	2.0		ng/L					0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
LRB	Perfluorooctanesulfonic acid (PFOS)	537	2.0		<	2.0		ng/L					0.87		04/08/2019 19:58	
LRB	Perfluorooctanoic acid (PFOA)	537	2.0		<	2.0		ng/L					0.87	04/08/2019 08:30	04/08/2019 19:58	4251613
U LRB	Perfluorotridecanoic acid (PFTrDA)	537	2.0		<	2.0		ng/L					0.87		04/08/2019 19:58	
age LRB	Perfluoroundecanoic acid (PFUnA)	537	2.0		<	2.0		ng/L					0.87		04/08/2019 19:58	
OFBL	IS-NMeFOSAA-d3	537	N/A			395483.00	456607	ng/L	87	50 - 150			1.0		04/08/2019 20:15	
9 →FBL	IS-PFOA-13C2	537	N/A		i	1204420.00	1396220	ng/L	86	50 - 150		T	1.0		04/08/2019 20:15	
%D	0 - 1 5							3						1. 7.12 22.00	1. 7.17 = 1.17	

					QC S	Summary Re	port (cont.)									
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FBL	IS-PFOS-13C4	537	N/A			284252.00	340002	ng/L	84	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	IS-GenX-13C3	537	N/A			78800.90	97567.3	ng/L	81	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	SS-NEtFOSAA-d5	537	N/A			171.5180	200	ng/L	86	70 - 130			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	SS-PFDA-13C2	537	N/A			93.1490	100	ng/L	93	70 - 130			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	SS-PFHxA-13C2	537	N/A			45.1886	50.0	ng/L	90	70 - 130			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluorobutanesulfonic acid (PFBS)	537	2.0			1.8418	2.0	ng/L	92	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluorodecanoic acid (PFDA)	537	2.0			1.8516	2.0	ng/L	93	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluoroheptanoic acid (PFHpA)	537	2.0			1.9125	2.0	ng/L	96	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			1.9648	2.0	ng/L	98	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluorohexanoic acid (PFHxA)	537	2.0			1.8844	2.0	ng/L	94	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluorododecanoic acid (PFDoA)	537	2.0			1.7043	2.0	ng/L	85	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			1.7130	2.0	ng/L	86	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluorononanoic acid (PFNA)	537	2.0			1.7710	2.0	ng/L	89	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluorooctanesulfonic acid (PFOS)	537	2.0			1.9018	2.0	ng/L	95	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluorooctanoic acid (PFOA)	537	2.0			2.3594	2.0	ng/L	118	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluorotridecanoic acid (PFTrDA)	537	2.0			1.7411	2.0	ng/L	87	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
FBL	Perfluoroundecanoic acid (PFUnA)	537	2.0			1.7870	2.0	ng/L	89	50 - 150			1.0	04/08/2019 08:30	04/08/2019 20:15	4251614
ССМ	IS-NMeFOSAA-d3	537	N/A			440494.00	440494	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/09/2019 01:21	4251625
ССМ	IS-PFOA-13C2	537	N/A			1341960.00	1341960	ng/L	100	50 - 150			1.0		04/09/2019 01:21	
ССМ	IS-PFOS-13C4	537	N/A			328399.00	328399	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/09/2019 01:21	4251625
ССМ	IS-GenX-13C3	537	N/A			92025.80	92025.8	ng/L	100	50 - 150			1.0		04/09/2019 01:21	
ССМ	SS-NEtFOSAA-d5	537	N/A			199.2030	200	ng/L	100	70 - 130			1.0		04/09/2019 01:21	
ССМ	SS-PFDA-13C2	537	N/A			99.6531	100	ng/L	100	70 - 130			1.0	04/04/2019 11:46	04/09/2019 01:21	4251625
ССМ	SS-PFHxA-13C2	537	N/A			48.0384	50.0	ng/L	96	70 - 130			1.0		04/09/2019 01:21	
ССМ	Perfluorobutanesulfonic acid (PFBS)	537	2.0			95.0182	100	ng/L	95	70 - 130			1.0		04/09/2019 01:21	
ССМ	Perfluorodecanoic acid (PFDA)	537	2.0			100.0710	100	ng/L	100	70 - 130			1.0		04/09/2019 01:21	
ССМ	Perfluoroheptanoic acid (PFHpA)	537	2.0			98.5567	100	ng/L	99	70 - 130			1.0		04/09/2019 01:21	
ССМ	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			101.9480	100	ng/L	102	70 - 130			1.0		04/09/2019 01:21	
ССМ	Perfluorohexanoic acid (PFHxA)	537	2.0			92.7421	100	ng/L	93	70 - 130			1.0		04/09/2019 01:21	
ССМ	Perfluorododecanoic acid (PFDoA)	537	2.0			95.4382	100	ng/L	95	70 - 130			1.0		04/09/2019 01:21	
ССМ	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			91.5316	100	ng/L	92	70 - 130			1.0		04/09/2019 01:21	
ССМ	Perfluorononanoic acid (PFNA)	537	2.0			98.0828	100	ng/L	98	70 - 130			1.0		04/09/2019 01:21	
CCM	Perfluorooctanesulfonic acid (PFOS)	537	2.0			99.1232	100	ng/L	99	70 - 130			1.0		04/09/2019 01:21	
CCM	Perfluorooctanoic acid (PFOA)	537	2.0			99.7026	100	ng/L	100	70 - 130			1.0		04/09/2019 01:21	
CCM	Perfluorotridecanoic acid (PFTrDA)	537	2.0			92.1774	100	ng/L	92	70 - 130			1.0		04/09/2019 01:21	
CCM	Perfluoroundecanoic acid (PFUnA)	537	2.0			97.9739	100	ng/L	98	70 - 130			1.0		04/09/2019 01:21	
FS	IS-NMeFOSAA-d3	537	N/A	PEF48344		387228.00	440494	ng/L	88	50 - 150			0.93		04/09/2019 03:53	
	IS-PFOA-13C2	537	N/A	PEF48344	╬	1196810.00	1341960	ng/L	89	50 - 150			0.93		04/09/2019 03:53	
Page FS	IS-PFOS-13C4	537	N/A	PEF48344		282065.00	328399	ng/L	86	50 - 150			0.93		04/09/2019 03:53	_
9 FS			_	PEF48344				_	81						04/09/2019 03:53	-
	IS-GenX-13C3 SS-NEtFOSAA-d5	537	N/A		+	74256.40	92025.8	ng/L	_	50 - 150			0.93			-
o FS	55-NEIFUSAA-05	537	N/A	PEF48344		163.7520	200	ng/L	88	70 - 130			0.93	04/08/2019 08:30	04/09/2019 03:53	4249098

					QC S	Summary Re	port (cont.)									
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	SS-PFDA-13C2	537	N/A	PEF48344		89.1492	100	ng/L	96	70 - 130			0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	SS-PFHxA-13C2	537	N/A	PEF48344		43.3311	50.0	ng/L	93	70 - 130			0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF48344	<	2.0		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF48344	<	2.0		ng/L	Ī				0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF48344	<	2.0		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF48344		3.2		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF48344		2.1		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF48344	<	2.0		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF48344	<	2.0		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF48344	<	2.0		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF48344		4.2		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF48344	<	2.0		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF48344	<	2.0		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF48344	<	2.0		ng/L					0.93	04/08/2019 08:30	04/09/2019 03:53	4249698
FS	IS-NMeFOSAA-d3	537	N/A	PEF48345		423845.00	440494	ng/L	96	50 - 150			0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	IS-PFOA-13C2	537	N/A	PEF48345		1297590.00	1341960	ng/L	97	50 - 150			0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	IS-PFOS-13C4	537	N/A	PEF48345		305492.00	328399	ng/L	93	50 - 150			0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	IS-GenX-13C3	537	N/A	PEF48345		82060.10	92025.8	ng/L	89	50 - 150			0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	SS-NEtFOSAA-d5	537	N/A	PEF48345		161.8910	200	ng/L	88	70 - 130			0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	SS-PFDA-13C2	537	N/A	PEF48345		85.3448	100	ng/L	93	70 - 130			0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	SS-PFHxA-13C2	537	N/A	PEF48345		41.9197	50.0	ng/L	91	70 - 130			0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF48345	<	2.0		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF48345	<	2.0		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF48345	<	2.0		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF48345		3.2		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF48345		2.1		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF48345	<	2.0		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF48345	<	2.0		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF48345	<	2.0		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF48345		4.3		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF48345	<	2.0		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF48345	<	2.0		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF48345	<	2.0		ng/L					0.92	04/08/2019 08:30	04/09/2019 04:10	4249699
ССН	IS-NMeFOSAA-d3	537	N/A			97582.10	97582.1	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
ССН	IS-PFOA-13C2	537	N/A			371008.00	371008	ng/L	100	50 - 150			1.0		04/09/2019 05:01	
ССН	IS-PFOS-13C4	537	N/A			87823.10	87823.1	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
ССН	IS-GenX-13C3	537	N/A			14697.00	14697	ng/L	100	50 - 150			1.0		04/09/2019 05:01	
ССН	SS-NEtFOSAA-d5	537	N/A			239.1560	200	ng/L	120	70 - 130			1.0		04/09/2019 05:01	
а ссн	SS-PFDA-13C2	537	N/A			97.4317	100	ng/L	97	70 - 130			1.0		04/09/2019 05:01	
CCH CH	SS-PFHxA-13C2	537	N/A			42.0891	50.0	ng/L	84	70 - 130			1.0		04/09/2019 05:01	
o ccH	Perfluorobutanesulfonic acid (PFBS)	537	2.0			147.3000	200	ng/L	74	70 - 130			1.0		04/09/2019 05:01	

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
ССН	Perfluorodecanoic acid (PFDA)	537	2.0			178.2720	200	ng/L	89	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
CCH	Perfluoroheptanoic acid (PFHpA)	537	2.0			251.0030	200	ng/L	126	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
CCH	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			231.6230	200	ng/L	116	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
CCH	Perfluorohexanoic acid (PFHxA)	537	2.0			139.9890	200	ng/L	70	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
CCH	Perfluorododecanoic acid (PFDoA)	537	2.0			180.7710	200	ng/L	90	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
CCH	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			272.9610	200	ng/L	136	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
CCH	Perfluorononanoic acid (PFNA)	537	2.0			180.9820	200	ng/L	90	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
CCH	Perfluorooctanesulfonic acid (PFOS)	537	2.0			205.3620	200	ng/L	103	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
CCH	Perfluorooctanoic acid (PFOA)	537	2.0			200.7190	200	ng/L	100	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
CCH	Perfluorotridecanoic acid (PFTrDA)	537	2.0			239.6740	200	ng/L	120	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626
CCH	Perfluoroundecanoic acid (PFUnA)	537	2.0			165.4880	200	ng/L	83	70 - 130			1.0	04/04/2019 11:46	04/09/2019 05:01	4251626



Run ID: **257719** Method: **537**

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4254008		OS	FL	04/11/2019 11:15	041119M537a-FL-PFC14.mdb
LRB	4254012		RW	FL	04/11/2019 11:49	041119M537a-FL-PFC14.mdb
FBH	4254013		RW	FL	04/11/2019 12:23	041119M537a-FL-PFC14.mdb
CCM	4254009		OS	FL	04/11/2019 17:12	041119M537a-FL-PFC14.mdb
FTB	4249700	PEF48346, Blank	RW	FL	04/11/2019 18:03	041119M537a-FL-PFC14.mdb
CCH	4254010		OS	FL	04/11/2019 19:11	041119M537a-FL-PFC14.mdb

Page Page		QC Summary Report Analyte Method MRI Client ID Result Amount Target Units % Recovery RPD RPD Dil Extracted Analyzed FEA															
CC2		Analyte	Method	MRL	Client ID		Amount	Target	Units			RPD		ı	Extracted	Analyzed	EEA ID#
CCIL SAPES-SCAC 5.37 NA	CCL	IS-NMeFOSAA-d3	537	N/A			807538.00	807538	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
Col. SS-METICSA-A65 537 NA	CCL	IS-PFOA-13C2	537	N/A			1810880.00	1810880	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL SSPPPA-13CZ 537 N/A	CCL	IS-PFOS-13C4	537	N/A			411512.00	411512	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL Perfluoroderamentarion and (PFRA) S37 20	CCL	SS-NEtFOSAA-d5	537	N/A			190.5250	200	ng/L	95	70 - 130			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL Perfluoroblemonic acid (PFDA) 537 2.0 1.047 2.0 mgl. 92 50.150 1.0 0.00420191140 0.411720191151 25.00 0.0 0.00420191140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.411720191151 25.00 0.0042019140 0.4042019140 0.411720191151 25.00 0.0042019140 0.40420191440 0.4042019140 0.4042019140 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191440 0.40420191	CCL	SS-PFDA-13C2	537	N/A			93.3751	100	ng/L	93	70 - 130			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
Perfluorotecamoia codi (PFDA) 537 20 2.0138 2.0 mgil. 101 50.150 1.0 04042019 1146 04112019 1115 2540 25	CCL	SS-PFHxA-13C2	537	N/A			46.4569	50.0	ng/L	93	70 - 130			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL Perfluoronheptanic acid (PFHA) 537 2.0 1.9734 2.0 rgl. 99 50.150 1.0 0.0402191146 0.041120191151 2540 0.050	CCL	Perfluorobutanesulfonic acid (PFBS)	537	2.0			1.8447	2.0	ng/L	92	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
Col. Perfluoronbeamesunfonic and (PFHAS) S37 2.0 1.9644 2.0 rgl. 98 50-150 1.0 0.004/2019 1146 0.011/2019 1115 0.2506 Col. Perfluoronbeamesunfonic and (PFHAS) S37 2.0 1.9696 2.0 rgl. 100 50-150 1.0 0.004/2019 1146 0.011/2019 1115 0.2506 Col. Perfluoronbeamesunde (PFHAA) S37 2.0 2.0079 2.0 rgl. 100 50-150 1.0 0.004/2019 1146 0.011/2019 1115 0.2506 Col. Perfluoronbeamesunde and (PFHAA) S37 2.0 2.0079 2.0 rgl. 100 50-150 1.0 0.004/2019 1146 0.011/2019 1115 0.2506 Col. Perfluoronbeamesunde and (PFHAA) S37 2.0 2.0089 2.0 rgl. 100 50-150 1.0 0.004/2019 1146 0.011/2019 1115 0.2506 Col. Perfluoronbeamesunde and (PFDA) S37 2.0 2.0089 2.0 rgl. 100 50-150 1.0 0.004/2019 1146 0.011/2019 1115 0.2506 Col. Perfluoronbeamesunde and (PFDA) S37 2.0 2.0099 2.0 rgl. 100 50-150 1.0 0.004/2019 1146 0.011/2019 1115 0.2506 Col. Perfluoronbeamesunde and (PFDA) S37 2.0 2.0099 2.0 rgl. 100 50-150 1.0 0.004/2019 1146 0.011/2019 1115 0.2506 Col. Perfluoronbeamesunde and (PFDA) S37 2.0 2.0233 2.0 rgl. 101 50-150 1.0 0.004/2019 1146 0.011/2019 1115 0.2506 Col. Perfluoronbeamesunde and (PFDA) S37 2.0 2.0233 2.0 rgl. 101 50-150 1.0 0.004/2019 1146 0.011/2019 1115 0.2506 Col. Perfluoronbeamesunde and (PFDA) S37 2.0 2.0233 2.0 rgl. 101 50-150 1.0 0.004/2019 1146 0.011/2019 1116	CCL	Perfluorodecanoic acid (PFDA)	537	2.0			2.0138	2.0	ng/L	101	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL Perfluorothezamo: add (PFHA) 537 2.0 1.9886 2.0 ngl. 98 50-150 1.0 04/04/2019 1146 04/11/2019 11:15 42540 1.9999 2.0 ngl. 100 50-150 1.0 04/04/2019 1146 04/11/2019 11:15 42540 1.0 04/04/2019 1146 04/11/2019 11:15	CCL	Perfluoroheptanoic acid (PFHpA)	537	2.0			1.9734	2.0	ng/L	99	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL Perfluorocladecanoic acid (PFDA) 537 2.0 1.9899 2.0 ngl. 100 80-150 1.0 04/04/20191146 04/11/20191115 2540 2500	CCL	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			1.9644	2.0	ng/L	98	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL Perfluoronario: acid (PFIeDA) S37 2.0 2.0079 2.0 ngl. 100 50-150 1.0 040420191146 0411/20191115 25400 CCL Perfluoronario: acid (PFIAA) S37 2.0 2.0042 2.0 ngl. 100 50-150 1.0 0404/20191146 0411/20191115 25400 CCL Perfluoronario: acid (PFIDA) S37 2.0 2.0165 2.0 ngl. 100 50-150 1.0 0404/20191146 0411/20191115 25400 CCL Perfluoronario: acid (PFIDA) S37 2.0 1.9989 2.0 ngl. 100 50-150 1.0 0404/20191146 0411/20191115 25400 CCL Perfluoronario: acid (PFIDA) S37 2.0 1.9989 2.0 ngl. 100 50-150 1.0 0404/20191146 0411/20191115 25400 CCL Perfluoronario: acid (PFIDA) S37 2.0 2.0233 2.0 ngl. 101 50-150 1.0 0404/20191146 0411/20191115 25400 CCL Perfluoronario: acid (PFIDA) S37 2.0 2.0233 2.0 ngl. 101 50-150 1.0 0404/20191146 0411/20191115 25400 CCL Perfluoronario: acid (PFIDA) S37 2.0 2.0233 2.0 ngl. 96 50-150 0.91 0410/20190755 0411/20191115 25400 CCL Perfluoronario: acid (PFIDA) S37 NA 1774440,00 1810880 ngl. 96 50-150 0.91 0410/20190755 0411/20191149 25400 CCL Perfluoronario: acid (PFIDA) S37 NA 168.6910 2.00 ngl. 90 50-150 0.91 0410/20190755 0411/20191149 25400 CCL PERFLUORIA: acid (PFIDA) S37 NA 168.6910 2.00 ngl. 90 70-130 0.91 0410/20190755 0411/20191149 25400 CCL Ngl. Na Na Na Na Na Na Na N	CCL	Perfluorohexanoic acid (PFHxA)	537	2.0			1.9686	2.0	ng/L	98	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL Perfluoronomanoic acid (PFNA) 537 2.0 2.0185 2.0 mg/L 110 50-150 1.0 0404/2019 1146 04/11/2019 1115 42540 CCL Perfluoronochanae acid (PFOA) 537 2.0 2.009 2.0 mg/L 110 50-150 1.0 0404/2019 1146 04/11/2019 1115 42540 CCL Perfluoronochanae acid (PFOA) 537 2.0 2.009 2.0 mg/L 100 50-150 1.0 0404/2019 1146 04/11/2019 1115 42540 CCL Perfluoronochanae acid (PFUA) 537 2.0 2.009 2.0 mg/L 100 50-150 1.0 0404/2019 1146 04/11/2019 1115 42540 CCL Perfluoronochanae acid (PFUA) 537 2.0 2.003 2.0 mg/L 101 50-150 1.0 0404/2019 1146 04/11/2019 1115 42540 CCL Perfluoronochanae acid (PFUA) 537 2.0 2.003 2.0 mg/L 101 50-150 1.0 0404/2019 1146 04/11/2019 1115 42540 CCL Perfluoronochanae acid (PFUA) 537 N/A 2.00540 807538 mg/L 98 50-150 0.10 04/04/2019 1146 04/11/2019 1114 42540 CCL Perfluoronochanae acid (PFUA) 537 N/A 408380.0 Mg/L 98 50-150 0.91 04/10/2019 0755 04/11/2019 1149 42540 CCL Perfluoronochanae acid (PFUA) 537 N/A 408380.0 Mg/L 99 50-150 0.91 04/10/2019 0755 04/11/2019 1149 42540 CCL PERFLUORONOCHANAE ACID STAN ACID	CCL	Perfluorododecanoic acid (PFDoA)	537	2.0			1.9989	2.0	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCI. Perfluorooctaneeudfonic acid (PFOS)	CCL	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			2.0079	2.0	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL Perfluoroottanoic acid (PFOA)	CCL	Perfluorononanoic acid (PFNA)	537	2.0			2.0042	2.0	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL Perfluoroundecanoic acid (PFTDA) 537 2.0 1.9999 2.0 ng/L 100 50-150 1.0 04/04/20191149 04/11/20191115 42540 CCL Perfluoroundecanoic acid (PFTDA) 537 2.0 2.0233 2.0 ng/L 101 50-150 1.0 04/04/20191149 04/11/20191115 42540 1288 IS-NP6C-13C2 537 N/A 1773805.0 807538 ng/L 98 50-150 0.91 04/10/201907:55 04/11/20191149 42540 1288 IS-PFOS-13C4 537 N/A 177444.0 1810880 ng/L 98 50-150 0.91 04/10/201907:55 04/11/20191149 42540 1288 IS-PFOS-13C4 537 N/A 1613.6190 200 ng/L 90 70-130 0.91 04/10/201907:55 04/11/20191149 42540 1288 IS-PFOS-13C4 537 N/A 1613.6190 200 ng/L 90 70-130 0.91 04/10/201907:55 04/11/20191149 42540 1288 IS-PFOS-13C2 537 N/A 86.9917 100 ng/L 99 70-130 0.91 04/10/201907:55 04/11/20191149 42540 1288 IS-PFOS-13C2 537 N/A 86.9917 100 ng/L 99 70-130 0.91 04/10/201907:55 04/11/20191149 42540 1288 IS-PFOS-13C2 537 N/A 86.9917 100 ng/L 99 70-130 0.91 04/10/201907:55 04/11/20191149 42540 1288 IS-PFOS-13C2 537 N/A 86.9917 100 ng/L 99 70-130 0.91 04/10/201907:55 04/11/20191149 42540 1288 IS-PFOS-13C2 537 N/A 45.3638 50.0 ng/L 0.91 04/10/201907:55 04/11/20191149 42540 1288 IS-PFOS-13C2 537 N/A 45.3638 50.0 ng/L 0.91 04/10/201907:55 04/11/20191149 42540 1288 IS-PFOS-13C4 537 S2.0 < 2.0 ng/L 0.91 04/10/201907:55 04/11/20191149 42540 1288 Perfluoronecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/201907:55 04/11/20191149 42540 1288 Perfluoronecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/201907:55 04/11/20191149 42540 1288 Perfluoronecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/201907:55 04/11/20191149 42540 1288 Perfluoronecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/201907:55 04/11/20191149 42540 1288 Perfluoronecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/201907:55 04/11/20191149 42540 1288 Perfluoronecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/201907:55 04/11/20191149 42540 1288 Perfluoronecanoic acid (PFD	CCL	Perfluorooctanesulfonic acid (PFOS)	537	2.0			2.0185	2.0	ng/L	101	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
CCL Perfluoroundecanoic acid (PFUnA) 537 2.0 2.0233 2.0 ng/L 101 50-150 1.0 04/04/2019 11-46 04/11/2019 11-15 425-06	CCL	Perfluorooctanoic acid (PFOA)	537	2.0			2.0069	2.0	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
LRB IS-NMeFOSAA-3 537 N/A 793805 00 807538 ng/L 98 50 - 150 0.91 04/10/2019 07:55 04/11/2019 11:49 42540	CCL	Perfluorotridecanoic acid (PFTrDA)	537	2.0			1.9999	2.0	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
LRB IS-PFOA-13C2	CCL	Perfluoroundecanoic acid (PFUnA)	537	2.0			2.0233	2.0	ng/L	101	50 - 150			1.0	04/04/2019 11:46	04/11/2019 11:15	4254008
LRB IS-PFOS-13C4 537 N/A 408380.00 411512 ng/L 99 50-150 0.9 04102019 07.55 04112019 11.49 42540 LRB SS-NEIFOSAAd5 537 N/A 163.6190 200 ng/L 90 70-130 0.91 04102019 07.55 041112019 11.49 42540 LRB SS-PFDA-13C2 537 N/A 458.638 50.0 ng/L 96 70-130 0.91 04102019 07.55 041112019 11.49 42540 LRB SS-PFDA-13C2 537 N/A 458.638 50.0 ng/L 100 70-130 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluorobutanesulfonic acid (PFBS) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluorobeptancic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluorobeptancic acid (PFHA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluorobeptancic acid (PFHA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluorobeptancic acid (PFHA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluorobeptancic acid (PFHA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluorobeptancic acid (PFHA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluorobetancic acid (PFHA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluorobetancic acid (PFEA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluoroctancic acid (PFEA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluoroctancic acid (PFEA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluoroctancic acid (PFEA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluoroctancic acid (PFEA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluoroctancic acid (PFEA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 041112019 11.49 42540 LRB Perfluoroctancic acid (PFEA) 537 2.0 < 2.0 ng/L 0.91 04102019 07.55 04111	LRB	IS-NMeFOSAA-d3	537	N/A			793805.00	807538	ng/L	98	50 - 150			0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB SS-NEIFOSAA-d5 537 N/A 163.6190 200 ng/L 90 70 - 130 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB SS-PFDA-13C2 537 N/A 45.3636 50.0 ng/L 100 70 - 130 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluorobtanesulfonic acid (PFBS) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluorobtanesulfonic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluorobtanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluorobtanesulfonic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluorobtanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluorobtanesulfonic acid (PFHxS) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluorobtanesulfonic acid (PFHxS) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluorobtanesulfonic acid (PFEDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluorobtanesulfonic acid (PFEDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluorobtanesulfonic acid (PFEDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluoroctanesulfonic acid (PFEDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluoroctanesulfonic acid (PFEDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluoroctanesulfonic acid (PFEDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluoroctaneoic acid (PFEDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 04/11/2019 11.49 42540 LRB Perfluoroctaneoic acid (PFEDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07.55 0	LRB	IS-PFOA-13C2	537	N/A			1774440.00	1810880	ng/L	98	50 - 150			0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB SS-PFDA-13C2 537 N/A 86.9917 100 ng/L 96 70 - 130 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB SS-PFHxA-13C2 537 N/A 45.3636 50.0 ng/L 100 70 - 130 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorobutanesulfonic acid (PFBs) 537 2.0 <	LRB	IS-PFOS-13C4	537	N/A			408380.00	411512	ng/L	99	50 - 150			0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB SS-PFHxA-13C2 537 N/A 45.3636 50.0 ng/L 100 70-130 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorobutanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorobetanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexanesulfonic acid (PFHpA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexanesulfonic acid (PFHxS) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexanesulfonic acid (PFHxA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexanesulfonic acid (PFHxA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexanesulfonic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexanesulfonic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaraceanic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaraceanic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaraceanic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctanesulfonic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctanesulfonic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaneoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaneoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorodecanoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.	LRB	SS-NEtFOSAA-d5	537	N/A			163.6190	200	ng/L	90	70 - 130			0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluorobutanesulfonic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexaneoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexanesulfonic acid (PFHA) 537 2.0 < 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexanesulfonic acid (PFHxS) 537 2.0 < 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexaneoic acid (PFHxA) 537 2.0 < 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexaneoic acid (PFDA) 537 2.0 < 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorototecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaneoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaneoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaneoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaneoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaneoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaneoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctaneoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctanoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctanoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.	LRB	SS-PFDA-13C2	537	N/A			86.9917	100	ng/L	96	70 - 130			0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluorodecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540	LRB	SS-PFHxA-13C2	537	N/A			45.3636	50.0	ng/L	100	70 - 130			0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluoroheptanoic acid (PFHpA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540	LRB	Perfluorobutanesulfonic acid (PFBS)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluorohexanesulfonic acid (PFHxS) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorohexancic acid (PFHxA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorodedecancic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorotetradecancic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctancic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctanesulfonic acid (PFOS) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctancic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctancic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctancic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctancic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctancic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecancic acid (PFUA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecancic acid (PFUA) 537 2.0 < 2.0 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecancic acid (PFUA) 537 2.0 < 2.0 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecancic acid (PFUA) 537 2.0 < 2.0	LRB	Perfluorodecanoic acid (PFDA)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluorotexanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorotetradecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorotetradecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctanesulfonic acid (PFOS) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctanesulfonic acid (PFOS) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctanesulfonic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroctanesulfonic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorotridecanoic acid (PFTDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFUA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFUA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFUA) 537 2.0 < 2.0 sq. ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFUA) 537 2.0 < 2.0 sq. ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFUA) 537 N/A sq. ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFUA) 537 N/A sq. ng/L	LRB	Perfluoroheptanoic acid (PFHpA)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluorodedecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540	LRB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluorotetradecanoic acid (PFTeDA) 537 2.0 < 2.0	LRB	Perfluorohexanoic acid (PFHxA)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluorononanoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorooctanesulfonic acid (PFOS) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorooctanoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroortidecanoic acid (PFTDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroortidecanoic acid (PFTDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFUnA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 DFBH IS-NMeFOSAA-d3 53	LRB	Perfluorododecanoic acid (PFDoA)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluorooctanesulfonic acid (PFOS) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluorooctanoic acid (PFOA) 537 2.0 < 2.0	LRB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluorooctanoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFTrDA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFUnA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFUnA) 537 2.0 < 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 DFBH IS-NMeFOSAA-d3 537 N/A 827261.00 807538 ng/L 102 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540 DFBH IS-PFOA-13C2 537 N/A 1761460.00 1810880 ng/L 97 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540 DFBH IS-PFOS-13C4 537 N/A 418198.00 411512 ng/L 102 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540	LRB	Perfluorononanoic acid (PFNA)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluorotridecanoic acid (PFTrDA) 537 2.0 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 LRB Perfluoroundecanoic acid (PFUnA) 537 2.0 < 2.0	LRB	Perfluorooctanesulfonic acid (PFOS)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
LRB Perfluoroundecanoic acid (PFUnA) 537 2.0 2.0 ng/L 0.91 04/10/2019 07:55 04/11/2019 11:49 42540 TFBH IS-NMeFOSAA-d3 537 N/A 827261.00 807538 ng/L 102 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540 GFBH IS-PFOA-13C2 537 N/A 1761460.00 1810880 ng/L 97 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540 FBH IS-PFOS-13C4 537 N/A 418198.00 411512 ng/L 102 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540	LRB	Perfluorooctanoic acid (PFOA)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
TFBH IS-NMeFOSAA-d3 537 N/A 827261.00 807538 ng/L 102 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540 GFBH IS-PFOA-13C2 537 N/A 1761460.00 1810880 ng/L 97 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540 FBH IS-PFOS-13C4 537 N/A 418198.00 411512 ng/L 102 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540	LRB	Perfluorotridecanoic acid (PFTrDA)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
© FBH IS-PFOA-13C2 537 N/A 1761460.00 1810880 ng/L 97 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540 TFBH IS-PFOS-13C4 537 N/A 418198.00 411512 ng/L 102 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540	LRB	Perfluoroundecanoic acid (PFUnA)	537	2.0		<	2.0		ng/L					0.91	04/10/2019 07:55	04/11/2019 11:49	4254012
→FBH IS-PFOS-13C4 537 N/A 418198.00 411512 ng/L 102 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540	D FBH	IS-NMeFOSAA-d3	537	N/A			827261.00	807538	ng/L	102	50 - 150			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
→FBH IS-PFOS-13C4 537 N/A 418198.00 411512 ng/L 102 50 - 150 1.0 04/10/2019 07:55 04/11/2019 12:23 42540	g GFBH	IS-PFOA-13C2	537	N/A			1761460.00	1810880	ng/L	97	50 - 150			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
		IS-PFOS-13C4	537	N/A			418198.00	411512		102	50 - 150			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
QFBH SS-NEtFOSAA-d5 537 N/A 176.4540 200 ng/L 88 70 - 130 1.0 04/10/2019 07:55 04/11/2019 12:23 42540	QFBH	SS-NEtFOSAA-d5	537	N/A			176.4540	200	ng/L	88	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013

	QC Summary Report (cont.) Analyte Method MRL Client ID Result Amount Target Units % Recovery RPD RPD Dil Extracted Analyzed EEA															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FBH	SS-PFDA-13C2	537	N/A			97.6941	100	ng/L	98	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	SS-PFHxA-13C2	537	N/A			52.6677	50.0	ng/L	105	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluorobutanesulfonic acid (PFBS)	537	2.0			200.3170	200	ng/L	100	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluorodecanoic acid (PFDA)	537	2.0			194.9180	200	ng/L	97	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluoroheptanoic acid (PFHpA)	537	2.0			193.1900	200	ng/L	97	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			196.5070	200	ng/L	98	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluorohexanoic acid (PFHxA)	537	2.0			201.2750	200	ng/L	101	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluorododecanoic acid (PFDoA)	537	2.0			186.2500	200	ng/L	93	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			186.6850	200	ng/L	93	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluorononanoic acid (PFNA)	537	2.0			196.5030	200	ng/L	98	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluorooctanesulfonic acid (PFOS)	537	2.0			195.4590	200	ng/L	98	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluorooctanoic acid (PFOA)	537	2.0			194.0500	200	ng/L	97	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluorotridecanoic acid (PFTrDA)	537	2.0			187.4800	200	ng/L	94	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
FBH	Perfluoroundecanoic acid (PFUnA)	537	2.0			189.4770	200	ng/L	95	70 - 130			1.0	04/10/2019 07:55	04/11/2019 12:23	4254013
CCM	IS-NMeFOSAA-d3	537	N/A			773792.00	773792	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	IS-PFOA-13C2	537	N/A			1650480.00	1650480	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	IS-PFOS-13C4	537	N/A			374388.00	374388	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	SS-NEtFOSAA-d5	537	N/A			199.0200	200	ng/L	100	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	SS-PFDA-13C2	537	N/A			99.2809	100	ng/L	99	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	SS-PFHxA-13C2	537	N/A			51.0611	50.0	ng/L	102	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	Perfluorobutanesulfonic acid (PFBS)	537	2.0			99.0018	100	ng/L	99	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	Perfluorodecanoic acid (PFDA)	537	2.0			99.2283	100	ng/L	99	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	Perfluoroheptanoic acid (PFHpA)	537	2.0			100.0800	100	ng/L	100	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			99.3025	100	ng/L	99	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	Perfluorohexanoic acid (PFHxA)	537	2.0			98.9150	100	ng/L	99	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	Perfluorododecanoic acid (PFDoA)	537	2.0			100.3220	100	ng/L	100	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			99.8675	100	ng/L	100	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
CCM	Perfluorononanoic acid (PFNA)	537	2.0			98.8508	100	ng/L	99	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	Perfluorooctanesulfonic acid (PFOS)	537	2.0			98.9390	100	ng/L	99	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
CCM	Perfluorooctanoic acid (PFOA)	537	2.0			99.5493	100	ng/L	100	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	Perfluorotridecanoic acid (PFTrDA)	537	2.0			100.7020	100	ng/L	101	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
ССМ	Perfluoroundecanoic acid (PFUnA)	537	2.0			100.8930	100	ng/L	101	70 - 130			1.0	04/04/2019 11:46	04/11/2019 17:12	4254009
FTB	IS-NMeFOSAA-d3	537	N/A	PEF48346, Blank		785575.00	773792	ng/L	102	50 - 150			0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
FTB	IS-PFOA-13C2	537	N/A	PEF48346, Blank		1682070.00	1650480	ng/L	102	50 - 150			0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
FTB	IS-PFOS-13C4	537	N/A	PEF48346, Blank		375226.00	374388	ng/L	100	50 - 150			0.88		04/11/2019 18:03	
FTB	SS-NEtFOSAA-d5	537	N/A	PEF48346, Blank		158.6710	200	ng/L	90	70 - 130			0.88		04/11/2019 18:03	_
FTB	SS-PFDA-13C2	537	N/A	PEF48346, Blank		86.5384	100	ng/L	98	70 - 130			0.88		04/11/2019 18:03	
T FTB	SS-PFHxA-13C2	537	N/A	PEF48346, Blank		44.4345	50.0	ng/L	101	70 - 130			0.88		04/11/2019 18:03	-
P ^{FTB}	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88		04/11/2019 18:03	_
o FTB	Perfluorodecanoic acid (PFDA)	537	2.0	PEF48346, Blank	<	2.0		ng/L	T				0.88		04/11/2019 18:03	-
ა OFTB	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88	04/10/2019 07:55		

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
FTB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
FTB	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
FTB	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
FTB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
FTB	Perfluorononanoic acid (PFNA)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
FTB	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
FTB	Perfluorooctanoic acid (PFOA)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
FTB	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
FTB	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF48346, Blank	<	2.0		ng/L					0.88	04/10/2019 07:55	04/11/2019 18:03	4249700
ССН	IS-NMeFOSAA-d3	537	N/A			808725.00	808725	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	IS-PFOA-13C2	537	N/A			1653370.00	1653370	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
CCH	IS-PFOS-13C4	537	N/A			377679.00	377679	ng/L	100	50 - 150			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	SS-NEtFOSAA-d5	537	N/A			220.2600	200	ng/L	110	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	SS-PFDA-13C2	537	N/A			114.8190	100	ng/L	115	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	SS-PFHxA-13C2	537	N/A			60.3277	50.0	ng/L	121	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
CCH	Perfluorobutanesulfonic acid (PFBS)	537	2.0			204.0080	200	ng/L	102	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	Perfluorodecanoic acid (PFDA)	537	2.0			201.2770	200	ng/L	101	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
CCH	Perfluoroheptanoic acid (PFHpA)	537	2.0			202.7930	200	ng/L	101	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			203.4170	200	ng/L	102	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
CCH	Perfluorohexanoic acid (PFHxA)	537	2.0			203.1550	200	ng/L	102	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	Perfluorododecanoic acid (PFDoA)	537	2.0			203.5330	200	ng/L	102	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			197.4020	200	ng/L	99	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	Perfluorononanoic acid (PFNA)	537	2.0			196.9680	200	ng/L	98	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
CCH	Perfluorooctanesulfonic acid (PFOS)	537	2.0			204.1240	200	ng/L	102	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	Perfluorooctanoic acid (PFOA)	537	2.0			202.8380	200	ng/L	101	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	Perfluorotridecanoic acid (PFTrDA)	537	2.0			201.5930	200	ng/L	101	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010
ССН	Perfluoroundecanoic acid (PFUnA)	537	2.0			201.7560	200	ng/L	101	70 - 130			1.0	04/04/2019 11:46	04/11/2019 19:11	4254010

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
ССН	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FTB	Field Trip Blank		
FBH	Fortified Blank High		
FBL	Fortified Blank Low		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99734 (907) 479-8368 Phone (907) 452-6853 Fax Jerry@pollenenv.com

2019 PFC

CLIENT IN Company: NSB SA-10 (Ice	Services)		Contact	Person: Rich Helins Logan / Chu					Requ	ested An	alysis			Page 1 of 1
Address: Pouch 340044				36 Th. 4.56			Perservativ	ve Added	-					
			PWS	5 # 331184 - specia	al, non-routine								1	
City, State Zip: Prudhoe B	ay, AK 99734		2.07.5		7		*							11 L
Phone: (907) 659-9060				Send Results to	ADEC:		37*							□ Normal Turnaround
Fax: (907) 659-9061				√ Yes □	No		EPA 5							
Email: rhelinski@iceservic	ces.net			Purchase Order/Cha	rge Code:	alners								□ RUSH day(s)
Project Name: NSB SA-10	WTP PFAS Mo	nitoring		2019-579		r of Containers	's by							
Sampled By: ARL		enfor				Number	PFC						-	
Sample Identification		Sample Time	Matrix		PEF Lab ID#		1							Sample Comments
Raw Water Pondhouse	8-5-19	1520	W	PEF52068		1	X						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Sample Point ID: SPIN001RAW Facility ID: 19001
Raw Water Plant Sample Port	8-5-19	1154	W	PEF52069		1	X					1 4 4		Sample Point ID: SPIN001RAW
Raw Tank UF Feed	8-5-19	1057	w	PEF52070		1	X							Facility ID: TP002 Sample Point ID: SPTP0028
UF 1 Permeate	8-5-19	1100	W	PEF52071		1	×	1						Facility ID: TP002 Sample Point ID: SPTP0028
UF 2 Permeate	8-5-19	1445	w	PET52072		1	X							Facility ID: TP002 Sample Point ID: SPTP0028
Potable Tanks Combined	8-5-19	1055	W	PEF52073		1	X							Facility ID: TP002 Sample Point ID: SPTP0028
Potable Fill 4	8-5-19	1352	W	PEF52074		1	X							Facility ID: TP002 Sample Point ID: SPTP0028
Potable Truck 19518	8-5-19	1110	W	PEF52075		1	X							Facility ID: TP002 Sample Point ID: SPTP0028
Potable Truck 19520	8-5-19	1355	W	PEF52076		i	×							Facility ID: TP002 Sample Point ID: SPTP0028
Potable Truck 7-21	8-5-4	1435	W	PEF52077		1	X							Facility ID: TP002 Sample Point ID: SPTP0028
Field Blank	8-5-19	1050	W	PEF52078		1	X							Facility ID: TP002 Sample Point ID: SPTP0028
Possible Hazard Identific	cation:	le 🗆 Skin .	Irritant	□ Unknown	Polien Env Temper NTL Alaska Tempe			11: H-		coc s		□ Inta		
Special Instructions/QC	Requirements	& Comments	: * PFBS,	PFDA, FPHpA, PFH	xS, PFHxA, PFDoA	, PF1	TeDA, PFN	NA, PFOS	S, PFO	, PFTrD/	A, PFUn <i>l</i>	1		
Relinquished by:	Company: Ic			Date & Time:		Rec	elved by	bler	1	Compan Environ	y: Pollei mental	n	Date &	-1981415
Reliabuished by	Company: Po	llen Enu	/	Date & Time 196	1100am	Rec	eived by:			Compan	у:		Date &	Time:
Reinquistled by:	Company:			Date & Time:		Rec	ceived by:			Compan	y:		Date &	Time:



CERTIFICATE OF ANALYSIS

Report Date:

Received Date:

Received Time:

Sampled By:

8/19/2019

8/6/2019

2:15 PM

CC

NSB SA-10 (Ice Services)

Attn: Rich Helinski Pouch 340044

Prudhoe Bay, AK 99734 Phone: 907-659-9060

Fax: 907-659-9061

rhelinski@iceservices.net

Project Name: NSB SA-10 WTP - PFAS Monitoring

PWS ID: AK2331184 - Special Samples Analysis: PFAS - Method EPA 537

Comments: Samples analyzed by Eurofins Eaton Analytical in South Bend, IN.

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Pondhouse	PEF52068	4381214	8/5/2019	3:20 PM
Raw Water Plant Sample Port	PEF52069	4381215	8/5/2019	11:54 AM
Raw Tank UF Feed	PEF52070	4381216	8/5/2019	10:57 AM
UF1 Permeate	PEF52071	4381217	8/5/2019	11:00 AM
UF2 Permeate	PEF52072	4381218	8/5/2019	2:45 PM
Potable Tanks Combined	PEF52073	4381219	8/5/2019	10:55 AM
Potable Fill 4	PEF52074	4381220	8/5/2019	1:52 PM
Potable Truck 19518	PEF52075	4381221	8/5/2019	11:10 AM
Potable Truck 19520	PEF52076	4381222	8/5/2019	1:55 PM
Potable Truck 7-21	PEF52077	4381223	8/5/2019	2:35 PM
Field Blank (near NF Unit)	PEF52078	4381224	8/5/2019	10:50 AM

Jerry Pollen

Pollen Environmental, LLC



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-18-12
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 03/14/2019



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

Client: Pollen Environmental LLC Report: 461311

Attn: Jerry Pollen Priority: Standard Written

3536 International Avenue Status: Final

Fairbanks, AK 99701 PWS ID: AK2331184
Alaska Lab ID # IN00035

	Sampl	e Information			
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
4381214	PEF52068/Raw Water Pondhouse	537	08/05/19 15:20	Client	08/09/19 08:30
4381215	PEF52069/Raw Plant Sample Port	537	08/05/19 11:54	Client	08/09/19 08:30
4381216	PEF52070/Raw Tank UF Feed	537	08/05/19 10:57	Client	08/09/19 08:30
4381217	PEF52071/UF 1 Permeate	537	08/05/19 11:00	Client	08/09/19 08:30
4381218	PEF52072/UF 2 Permeate	537	08/05/19 14:45	Client	08/09/19 08:30
4381219	PEF52073/Potable Tanks Comb	537	08/05/19 10:55	Client	08/09/19 08:30
4381220	PEF52074Potable Fill 4	537	08/05/19 13:52	Client	08/09/19 08:30
4381221	PEF52075/Potable Truck 19518	537	08/05/19 11:10	Client	08/09/19 08:30
4381222	PEF52076/Potable Truck 19520	537	08/05/19 13:55	Client	08/09/19 08:30
4381223	PEF52077/Potable Truck 7-21	537	08/05/19 14:35	Client	08/09/19 08:30
4381224	PEF52078/Field Blank	537	08/05/19 10:50	Client	08/09/19 08:30

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Some Chilebowshi ASM

08/19/2019

Date

Authorized Signature

Client Name:

Pollen Environmental LLC

Report #: 461311

Title

Sampling Point: PEF52068/Raw Water Pondhouse PWS ID: AK2331184

		I	EEA Met	hods					
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	2.1	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:15	4381214

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF52069/Raw Plant Sample Port

			EEA Met	hods					
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	2.9	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:28	4381215

^{\$} The state of origin does not offer certification for this parameter.

PWS ID: AK2331184

Sampling Point: PEF52070/Raw Tank UF Feed PWS ID: AK2331184

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	2.2	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:41	4381216					

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF52071/UF 1 Permeate PWS ID: AK2331184

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	7.5	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/13/19 07:58	08/15/19 08:54	4381217					

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF52072/UF 2 Permeate PWS ID: AK2331184

	EEA Methods												
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#				
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	8.2	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:01	4381218				

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF52073/Potable Tanks Comb PWS ID: AK2331184

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.7	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:14	4381219					

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF52074Potable Fill 4 PWS ID: AK2331184

	EEA Methods												
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#				
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.9	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:27	4381220				

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF52075/Potable Truck 19518 PWS ID: AK2331184

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.6	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:40	4381221					

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF52076/Potable Truck 19520 PWS ID: AK2331184

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	4.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 18:53	4381222					

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF52077/Potable Truck 7-21 PWS ID: AK2331184

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	3.8	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/14/19 08:04	08/15/19 19:06	4381223					

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF52078/Field Blank PWS ID: AK2331184

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
375-73-5	Perfluorobutanesulfonic acid (PFBS) \$	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
335-76-2	Perfluorodecanoic acid (PFDA) \$	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
375-85-9	Perfluoroheptanoic acid (PFHpA) \$	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
355-46-4	Perfluorohexanesulfonic acid (PFHxS) \$	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
375-95-1	Perfluorononanoic acid (PFNA) \$	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
335-67-1	Perfluorooctanoic acid (PFOA)	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537		2.0	< 2.0	ng/L	08/15/19 08:01	08/17/19 03:51	4381224					

^{\$} The state of origin does not offer certification for this parameter.

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / **Surrogate Analyte (SUR)** - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

378434

3536 International Street
Fairbanks, AK 99734
(907) 479-8368 Phone (907) 452-6853 Fax
Jerry@polleneny.com

2019 PFC

			1										40	2/ 5	
CLIENT IN	FORMATION		Contact	Person: Rich Helins	ski	Operators:	B			Requ	ested A	nalysis			
Company: NSB SA-10 (Ice	Services)		2011120	Logan / Ch		орегисого.									Page 1 of 1
Address: Pouch 340044								12:4 MA	ative Added						
City, State Zip: Prudhoe Ba	ау, АК 99734		PWS	# 331184 <mark>- speci</mark>	ial, n	on-routine		pre set		7.					
Phone: (907) 659-9060				Send Results to	ADE	C:		37*						I	☐ Normal Turnaround
Fax: (907) 659-9061				v Yes 🗆	No			5							
Email: rhelinski@iceservic	es.net			Purchase Order/Cha	arge C	ode:	y EPA			1	RUSH day(s)				
Project Name: NSB SA-10	WTP PFAS Mor	nitoring		2019-579	7		of Containers	's by							
Sampled By: ARL		NFOR	74				Number	PFC'							
Sample Identification	Sample Date	Sample Time	Matrix	PE Lab ID#	1	PEF Lab ID#				V				9	Sample Comments
Raw Water Pondhouse	8-5-19	1520	W	PEF52068	4	381214	1	X	CLA	1					Sample Point ID: SPIN001RAW
Raw Water Plant Sample Port	8-5-19	1154	W	PEF52169		215	1	X	CLA	1					Sample Point ID: SPIN001RAW
Raw Tank UF Feed	8-5-19	1057	W	PEF52070		216	1	X	OLA					c	Facility ID: TP002 Sample Point ID: SPTP002EP
UF 1 Permeate	8-5-19	1100	w	PEF52071		217	1	×	CLA		1				Facility ID: TP002 ample Point ID: SPTP002EP
UF 2 Permeate	8-5-19	1445	W	PEF52072		218	1	X	CLA			080	92010	1	Facility ID: TP002 Fample Point ID: SPTP002EP
Potable Tanks Combined	8-5-19	1055	w	PEF52073		219	1	X	CLA		/		K		Facility ID: TP002 ample Point ID: SPTP002EP
Potable Fill 4	8-5-19	1352	w	PEF52074		220	1	X	CLA		/		3		Facility ID: TP002
Potable Truck 19518	8-5-19	1110	W	PEF52075		221	1	X	ax						Facility ID: SPTP002EP
Potable Truck 19520	8-5-19	1355	w	PEF52076		222	1	×	WA		1				ample Point ID: SPTP002EP Facility ID: TP002 ample Point ID: SPTP002EP
Potable Truck 7-21	8-5-4	1435	w	PEF5Q077		223	1	X	CLA						Facility ID: TP002 ample Point ID: SPTP002EP
Field Blank	8-5-19	1050	w	PEF52078	1	224	1	X	CCA	1					Facility ID: TP002 ample Point ID: SPTP002EP
Possible Hazard Identifica	ation:				_			Samul	e Conditio					3	ample Point ID: SPIP002EP
□ Non-Hazardous	□ Flammable	□ Skin	Irritant	□ Unknown		len Env Tempera - Alaska Temper		on arri	val: 4.	d oc	coc .		☐ Intact Intact		Broken □ Absent Broken □ Absent
Special Instructions/QC I	Requirements	& Comments	: * PFBS,	PFDA, FPHpA, PFH	lxS, I	PFHxA, PFDoA,	PFT	TeDA, P	FNA, PFO	S, PFOA	, PFTrD	A, PFUnA			
Relinquished by:	Company: Ice			Date & Time:			Rec	elyed by	Roller	1	Compar	ny: Poller	Da	te & Tie	781415
Religiuished Willen	Company: Po	llen En	/	Date & Time 196	- 11	00am	Red	eived by	1:		Compar			ite & Tir	
Reinquisted by:	Company:	1		Date & Time:			Rec	elved by	(:,)		Compar	NA.	Da	ite & Tir	ne: 9-10 0830



Run ID: **263297** Method: **537**

Type	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4384150		os	FL	08/15/2019 02:49	081519M537a-FL-PFC-Ext.mdb
LRB	4384167		RW	FL	08/15/2019 03:15	081519M537a-FL-PFC-Ext.mdb
FBM	4383156		RW	FL	08/15/2019 03:41	081519M537a-FL-PFC-Ext.mdb
CCM	4384151		os	FL	08/15/2019 06:44	081519M537a-FL-PFC-Ext.mdb
FS	4381214	PEF52068/Raw Water Pondhouse	DW	FL	08/15/2019 08:15	081519M537a-FL-PFC-Ext.mdb
FS	4381215	PEF52069/Raw Plant Sample Port	DW	FL	08/15/2019 08:28	081519M537a-FL-PFC-Ext.mdb
FS	4381216	PEF52070/Raw Tank UF Feed	DW	FL	08/15/2019 08:41	081519M537a-FL-PFC-Ext.mdb
FS	4381217	PEF52071/UF 1 Permeate	DW	FL	08/15/2019 08:54	081519M537a-FL-PFC-Ext.mdb
CCH	4384152		OS	FL	08/15/2019 11:55	081519M537a-FL-PFC-Ext.mdb

		QC Summary Report															
CCL SS-PCM-STC2 S37 NA		Analyte	Method	MRL	Client ID		Amount	Target	Units	II .		RPD			Extracted	Analyzed	EEA ID#
CCL SS-PER-VISICA S57	CCL	IS-NMeFOSAA-d3	537	N/A			902499.00	902499	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL SS FFDA 1322 S37	CCL	IS-PFOA-13C2	537	N/A			1472550.00	1472550	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL SS.METCAN.dS 537 NA	CCL	IS-PFOS-13C4	537	N/A			356546.00	356546	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
Col. SS-PPA-13C2 S37	CCL	IS-GenX-13C3	537	N/A			134682.00	134682	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorofeneareulorine and (PFTA) S37 2.0 2.0213 2.0 right 101 2.55 150 1.0 068062019 0015 06152019 0249	CCL	SS-NEtFOSAA-d5	537	N/A			210.8830	200	ng/L	105	70 - 130			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorobalmeau/force acid (PFIBS) 537 2.0 2.0319 2.0 ngiL 101 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 1.0442 2.0 ngiL 102 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIBS) 537 2.0 2.0568 2.0 ngiL 103 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIBS) 537 2.0 2.0568 2.0 ngiL 103 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 2.0160 2.0 ngiL 110 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 2.1910 2.0 ngiL 110 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 2.1910 2.0 ngiL 110 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 2.1488 2.0 ngiL 110 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 2.1488 2.0 ngiL 110 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 2.2527 2.0 ngiL 110 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 2.2528 2.0 ngiL 108 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 2.2586 2.0 ngiL 108 50.150 1.0 08082019 0815 08152019 0249 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 2.2586 2.0 ngiL 108 50.150 1.0 08082019 0815 08152019 0245 CCL Perfluorobalmeau/force acid (PFIDA) 537 2.0 2.2089 2.0 ngiL 108 50.150 1.0 08082019 0815 08152019 0245 CCL Perfluorobalmeau/force acid (PFIDA)	CCL	SS-PFDA-13C2	537	N/A			100.6050	100	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorordecannic acid (PFDA) 537 2.0 1.042 2.0 ng/L 102 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluororheameurations and (PFHA) 537 2.0 2.0508 2.0 ng/L 103 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluororheameurations and (PFHA) 537 2.0 2.0508 2.0 ng/L 110 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluorordedeceannic acid (PFHA) 537 2.0 2.2060 2.0 ng/L 110 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluorordedeceannic acid (PFHA) 537 2.0 2.2060 2.0 ng/L 110 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluorordedeceannic acid (PFHA) 537 2.0 2.2086 2.0 ng/L 110 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluorordaneucand acid (PFHA) 537 2.0 2.1458 2.0 ng/L 110 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluorordaneucand acid (PFNA) 537 2.0 2.1458 2.0 ng/L 110 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluorordaneucand acid (PFNA) 537 2.0 2.0266 2.0 ng/L 110 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluorordaneucand aci (PFNA) 537 2.0 2.0599 2.0 ng/L 110 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluorordaneucand aci (PFNA) 537 2.0 2.0599 2.0 ng/L 110 50 -150 1.0 0808/2019 0915 0815/2019 0249 CCL Perfluorordaneucand (PFNA) 537 2.0 2.0599 2.0 ng/L 116 50 -150 1.0 0808/2019 0915 0815/2019 0315 CCL Perfluorordaneucand (PFNA) 537 2.0 2.1597 2.0 ng/L 110 50 -150 1.0 0808/2019 0915 0815/2019 0315 CCL Perfluorordaneucand acid (PFNA) 537 2.0 2.1597 2.0 1.0 0808/2019 0915 0815/2019 0315 CCL Perfluororhameurand acid (PFNA) 537 2.0 2.1597 2.0 2.	CCL	SS-PFHxA-13C2	537	N/A			49.1698	50.0	ng/L	98	70 - 130			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorotheptanoic acid (PFHpA) 557 2.0 1.9442 2.0 ngl. 97 85.150 1.0 06082019 0315 08152019 0249 CCL Perfluorotheparames acid (PFHpA) 537 2.0 2.0508 2.0 ngl. 103 80 -150 1.0 06082019 0315 08152019 0249 CCL Perfluorotheparame acid (PFHpA) 537 2.0 2.1010 2.0 ngl. 101 80 -150 1.0 06082019 0015 08152019 0249 CCL Perfluorotheparame acid (PFDA) 537 2.0 2.1010 2.0 ngl. 110 80 -150 1.0 06082019 0015 08152019 0249 CCL Perfluorotheparame acid (PFDA) 537 2.0 2.2086 2.0 ngl. 110 80 -150 1.0 06082019 0015 08152019 0249 CCL Perfluorotheparame acid (PFDA) 537 2.0 2.1458 2.0 ngl. 110 80 -150 1.0 06082019 0015 08152019 0249 CCL Perfluorotheparame acid (PFDA) 537 2.0 2.1458 2.0 ngl. 110 80 -150 1.0 06082019 0015 08152019 0249 CCL Perfluorocheparame acid (PFDA) 537 2.0 2.1458 2.0 ngl. 110 80 -150 1.0 06082019 0015 08152019 0249 CCL Perfluorocheparame acid (PFDA) 537 2.0 2.0268 2.0 ngl. 102 50 150 1.0 06082019 0015 08152019 0249 CCL Perfluorocheparame acid (PFDA) 537 2.0 2.0268 2.0 ngl. 102 50 150 1.0 06082019 0015 08152019 0249 CCL Perfluorocheparame acid (PFDA) 537 2.0 2.0369 2.0 ngl. 105 50 150 1.0 06082019 0015 08152019 0249 CCL Perfluorocheparame acid (PFDA) 537 2.0 2.1699 2.0 ngl. 105 50 150 1.0 06082019 0015 08152019 0249 CCL Perfluorocheparame acid (PFDA) 537 2.0 2.1699 2.0 ngl. 105 50 150 1.0 06082019 0015 08152019 0249 CCL Perfluorocheparame acid (PFDA) 537 2.0 2.1699 2.0 ngl. 105 50 150 1.0 06082019 0015 08152019 0249 CCL Perfluorocheparame acid (PFDA) 537 2.0 2.1699 2.0 ngl. 105 50 150 1.0 06082019 0015 08152019 0249 CCL Perfluorocheparame acid (PFDA) 537 2.0 124920 0014 12450 0014 125 0015 0 1.0 06082019 0015 08152019 0249 CCL Perfluorocheparame acid (PFDA) 537 0.0 101 08082019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019 0015 08152019	CCL	Perfluorobutanesulfonic acid (PFBS)	537	2.0			2.0213	2.0	ng/L	101	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorothrameaulfonic acid (PFHAS) 537 2.0 2.0568 2.0 mg/L 103 85 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorothrameaulfonic acid (PFHAS) 537 2.0 2.0160 2.0 mg/L 110 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorothrameaulfonic acid (PFHAS) 537 2.0 2.2086 2.0 mg/L 110 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorochrameaulfonic acid (PFHAS) 537 2.0 2.1586 2.0 mg/L 110 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorochrameaulfonic acid (PFNAS) 537 2.0 2.1586 2.0 mg/L 110 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorochrameaulfonic acid (PFNAS) 537 2.0 2.1927 2.0 mg/L 110 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorochrameaulfonic acid (PFNAS) 537 2.0 2.0388 2.0 mg/L 105 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorochrameaulfonic acid (PFNAS) 537 2.0 2.0388 2.0 mg/L 105 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorochrameaulfonic acid (PFNAS) 537 2.0 2.0598 2.0 mg/L 105 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorochrameaulfonic acid (PFNAS) 537 2.0 2.0598 2.0 mg/L 105 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorochrameaulfonic acid (PFNAS) 537 2.0 2.1597 2.0 mg/L 105 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorochrameaulfonic acid (PFNAS) 537 2.0 2.1597 2.0 mg/L 105 50 - 150 1.0 00082019 09:15 00152019 02:49 CCL Perfluorochrameaulfonic acid (PFNAS) 537 2.0 2.1597 2.0 mg/L 105 50 - 150 1.0 00082019 09:15 00152019 02:35 00152019 02:35 00152019 02:35 00152019 02:35 00152019 02:35 00152019 02:35 00152019 02:35 00152019 02:35 0	CCL	Perfluorodecanoic acid (PFDA)	537	2.0			2.0319	2.0	ng/L	102	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorodeancia acid (PFNA) 537 2.0 2.0160 2.0 ng.L 101 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFDA) 537 2.0 2.1910 2.0 ng.L 110 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.1910 2.0 ng.L 110 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.1910 2.0 ng.L 110 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.1910 2.0 ng.L 110 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.0820 2.0889 2.0 ng.L 110 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.0889 2.0 ng.L 102 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.0889 2.0 ng.L 105 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.1910 2.0 ng.L 108 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.1910 2.0 ng.L 108 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.1910 2.0 ng.L 108 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.1910 2.0 ng.L 108 50.150 1.0 08.082019 09.15 08152019 02.49 CCL Perfluorodeancia acid (PFNA) 537 2.0 2.1910 2.0 ng.L 108 50.150 1.0 08.082019 09.15 08152019 03.15 CRB IS-MAMPGDAA-d3 537 NA 1048980.00 802499 ng.L 108 50.150 1.0 08.082019 09.15 08152019 03.15 CRB IS-PEA-13C2 537 NA 182040.00 1472550 ng.L 121 50.150 0.91 08132019 07.58 08152019 03.15 CRB IS-PEA-13C2 537 NA 182040.00 1472550 ng.L 121 50.150 0.91 08132019 07.58 08152019 03.15 CRB IS-PEA-15C2 537 NA 182040.00 1472550 ng.L 121 50.150 0.91 08132019 07.58 08152019 03.15 CRB Perfluorodeancia acid (PFNA) 537 2.0 < 2.0 ng.L 0.91 08132019 07.58	CCL	Perfluoroheptanoic acid (PFHpA)	537	2.0			1.9442	2.0	ng/L	97	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorotedecancic acid (PFDA) 537 2.0 2.1910 2.0 ngiL 110 50-150 1.0 68082019 09.15 88152019 02.49 CCL Perfluorotedecancic acid (PFTDA) 537 2.0 2.2096 2.0 ngiL 110 50-150 1.0 08082019 09.15 89152019 02.49 CCL Perfluoroctaneous acid (PFDA) 537 2.0 2.1458 2.0 ngiL 110 50-150 1.0 08082019 09.15 89152019 02.49 CCL Perfluoroctaneous acid (PFDA) 537 2.0 2.1927 2.0 ngiL 110 50-150 1.0 08082019 09.15 89152019 02.49 CCL Perfluoroctaneous acid (PFDA) 537 2.0 2.0936 2.0 ngiL 102 50-150 1.0 08082019 09.15 89152019 02.49 CCL Perfluoroctaneous acid (PFDA) 537 2.0 2.0936 2.0 ngiL 102 50-150 1.0 08082019 09.15 89152019 02.49 CCL Perfluoroundecancic acid (PFDA) 537 2.0 2.0936 2.0 ngiL 108 50-150 1.0 08082019 09.15 89152019 02.49 CCL Perfluoroundecancic acid (PFDA) 537 2.0 2.1957 2.0 ngiL 108 50-150 1.0 08082019 09.15 89152019 02.49 CCL Perfluoroundecancic acid (PFDA) 537 2.0 2.1959 2.0 ngiL 108 50-150 1.0 08082019 09.15 89152019 02.49 CCL Perfluoroundecancic acid (PFDA) 537 2.0 2.1959 2.0 ngiL 108 50-150 1.0 08082019 09.15 89152019 02.49 CCL Perfluoroundecancic acid (PFDA) 537 2.0 2.1959 2.0 ngiL 108 50-150 1.0 08082019 09.15 89152019 02.49 CCL Perfluoroundecancic acid (PFDA) 537 N/A 1174120 0.0 10.49880.0 09.0499 ngiL 116 50-150 1.0 08082019 09.15 89152019 03.15 CREATED STAN STAN STAN STAN STAN STAN STAN STAN	CCL	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			2.0508	2.0	ng/L	103	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluoronanoia add (PFNA) 537 2.0 2.2096 2.0 ng/L 110 50-150 1.0 08082019 09.15 08152019 02.49 cCL Perfluoronanoia add (PFNA) 537 2.0 2.1488 2.0 ng/L 107 50-150 1.0 08082019 00.15 08152019 02.49 cCL Perfluoronanoia add (PFNA) 537 2.0 2.0098 2.0 ng/L 107 50-150 1.0 08082019 00.15 08152019 02.49 cCL Perfluorodanoia add (PFNA) 537 2.0 2.0089 2.0 ng/L 102 50-150 1.0 08082019 00.15 08152019 02.49 cCL Perfluorodanoia add (PFNA) 537 2.0 2.0089 2.0 ng/L 105 50-150 1.0 08082019 00.15 08152019 02.49 cCL Perfluorodanoia add (PFNA) 537 2.0 2.0089 2.0 ng/L 105 50-150 1.0 08082019 00.15 08152019 02.49 cCL Perfluorodanoia add (PFNA) 537 2.0 2.1597 2.0 ng/L 105 50-150 1.0 08082019 00.15 08152019 02.49 cCL Perfluorodanoia add (PFNA) 537 2.0 2.1597 2.0 ng/L 105 50-150 1.0 08082019 00.15 08152019 02.49 cCL Perfluorodanoia add (PFNA) 537 N/A 1045980.00 90.2499 ng/L 116 50-150 1.0 08082019 00.15 08152019 02.49 cCL Perfluorodanoia add (PFNA) 537 N/A 1045980.00 90.2499 ng/L 116 50-150 1.0 08082019 00.15 08152019 03.15 cCL Perfluorodanoia add (PFNA) 537 N/A 1784120.00 1472550 ng/L 121 50-150 0.9 01 08132019 07.58 08152019 03.15 cCL Perfluorodanoia add (PFNA) 537 N/A 1842000 1472550 ng/L 121 50-150 0.9 01 08132019 07.58 08152019 03.15 cCL Perfluorodanoia add (PFNA) 537 N/A 182440 2.00 ng/L 95 70-130 0.9 01 08132019 07.58 08152019 03.15 cCL Perfluorodanoia add (PFNA) 537 2.0 4 2.20 ng/L 0.9 01 08132019 07.58 08152019 03.15 cCL Perfluorodanoia add (PFNA) 537 2.0 4 2.0 ng/L 0.9 01 08132019 07.58 08152019 03.15 cCL Perfluorodaceanoic add (PFNA) 537 2.0 4 2.0 ng/L 0.9 01 08132019 07.58 08152019 03.15 cCL Perfluorodaceanoic add (PFNA) 537 2.0 4 2.0 ng/L 0.9 01 08132019 07.58 08152019 03.15 cCL Perfluorodaceanoic add (PFNA) 537 2.0 4 2.0 ng/L 0.9 01 08132019 07.58 08152019 03.15 cCL Perfluorodaceanoic add (PFNA) 537 2.0 4 2.0 ng/L 0.9 01 08132019 07.58 08152019 03.	CCL	Perfluorohexanoic acid (PFHxA)	537	2.0			2.0160	2.0	ng/L	101	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorontanoic acid (PFNA) 537 2.0 2.1458 2.0 ng/L 107 50-150 1.0 08082019 0815 08152019 0249 4 2.150 pg/L 110 50-150 1.0 08082019 0815 08152019 0249 4 2.150 pg/L 110 50-150 1.0 08082019 0815 08152019 0249 4 2.150 pg/L 110 50-150 1.0 08082019 0815 08152019 0249 4 2.150 pg/L 102 50-150 1.0 08082019 0815 08152019 0249 4 2.150 pg/L 102 50-150 1.0 08082019 0815 08152019 0249 4 2.150 pg/L 102 50-150 1.0 08082019 0815 08152019 0249 4 2.150 pg/L 102 50-150 1.0 08082019 0815 08152019 0249 4 2.150 pg/L 102 50-150 1.0 08082019 0815 08152019 0249 4 2.150 pg/L 108 50-150 1.0 08082019 0815 08152019 0249 4 2.150 pg/L 108 15-NNFOSA.d3 537 NA 1045980.00 902499 ng/L 108 50-150 0.91 08132019 0758 08152019 0249 4 2.150 pg/L 121 50-150 0.91 08132019 0758 08152019 0315 4	CCL	Perfluorododecanoic acid (PFDoA)	537	2.0			2.1910	2.0	ng/L	110	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorocotanoic acid (PFOA) 537 2.0 2.1927 2.0 ng/L 110 50-150 1.0 08/08/2019 09:15 08/15/2019 02:49 CCL Perfluorocotanoic acid (PFTA) 537 2.0 2.0936 2.0 ng/L 102 50-150 1.0 08/08/2019 09:15 08/15/2019 02:49 CCL Perfluorocotanoic acid (PFUA) 537 2.0 2.0999 2.0 ng/L 105 50-150 1.0 08/08/2019 09:15 08/15/2019 02:49 CCL Perfluorocotanoic acid (PFUA) 537 2.0 2.0999 2.0 ng/L 105 50-150 1.0 08/08/2019 09:15 08/15/2019 02:49 CCL Perfluorocotanoic acid (PFUA) 537 2.0 1.045980.00 90:249 ng/L 116 50-150 1.0 08/08/2019 09:15 08/15/2019 02:49 LRB IS-NMEFOSA-d3 537 N/A 1045980.00 90:249 ng/L 116 50-150 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB IS-PFOA-13C2 537 N/A 1784120.00 1472550 ng/L 120 50-150 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB IS-PGOS-13C4 537 N/A 126240.00 134682 ng/L 120 50-150 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB IS-PGOS-13C2 537 N/A 126240.00 134682 ng/L 120 50-150 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB SS-PEDA-13C2 537 N/A 1724440 200 ng/L 93 70-130 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB SS-PEDA-13C2 537 N/A 84.7529 100 ng/L 93 70-130 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB SS-PEDA-13C2 537 N/A 42.200 50.0 ng/L 93 70-130 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorocotanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorocotanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorocotanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorocotanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorocotanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorocotanoic acid (PFDA) 537	CCL	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			2.2096	2.0	ng/L	110	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorocidancia caid (PFOA) 537 2.0 2.0326 2.0 ng/L 102 50.150 1.0 08/08/2019 09:15 08/15/2019 02:49 CCL Perfluorocidancia caid (PFIDA) 537 2.0 2.0599 2.0 ng/L 105 50.150 1.0 08/08/2019 09:15 08/15/2019 02:49 CCL Perfluorocidancia caid (PFUA) 537 2.0 2.1597 2.0 ng/L 108 50.150 1.0 08/08/2019 09:15 08/15/2019 02:49 CCL Perfluorocidancia caid (PFUA) 537 N/A 1045980.00 902499 ng/L 116 50.150 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB IS-PEOA-13C2 537 N/A 1784120.00 1472550 ng/L 121 50.150 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB IS-PEOA-13C2 537 N/A 162040.00 134682 ng/L 120 50.150 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB SS-PEDA-13C2 537 N/A 162040.00 134682 ng/L 120 50.150 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB SS-PEDA-13C2 537 N/A 172.4440 200 ng/L 95 70.130 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB SS-PEDA-13C2 537 N/A 422200 ng/L 93 70.130 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB SS-PEDA-13C2 537 N/A 422200 50.0 ng/L 93 70.130 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB Perfluorobdaneausilonic acid (PFDA) 537 2.0 4 2.2 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB Perfluorobdaneausilonic acid (PFDA) 537 2.0 4 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB Perfluorobeanaeusilonic acid (PFDA) 537 2.0 4 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB Perfluorobeanaeusilonic acid (PFDA) 537 2.0 4 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB Perfluorobeanaeusilonic acid (PFDA) 537 2.0 4 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB Perfluorobeanaeusilonic acid (PFDA) 537 2.0 4 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB Perfluorocheanaeusilonic acid (PFDA) 537 2.0 4 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 CRB Perfluorocheanaeusilonic acid (PFDA) 537 2.0 4 2.0 ng/L 0.91 08/13/2019 07:58 08/15/20	CCL	Perfluorononanoic acid (PFNA)	537	2.0			2.1458	2.0	ng/L	107	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluorotridecanoic acid (PFTrDA) 537 2.0 2.0989 2.0 ng/L 105 50-150 1.0 08/08/2019 08:15 08/15/2019 02:49 CCL Perfluoroundecanoic acid (PFUA) 537 2.0 1045080.00 902499 ng/L 116 50-150 1.0 08/08/2019 08:15 08/15/2019 02:49 LRB IS-NME/OSAA-d3 537 N/A 1045080.00 902499 ng/L 116 50-150 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB IS-PFOA-13C2 537 N/A 1784120.00 1172550 ng/L 121 50-150 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB IS-PFOA-13C3 537 N/A 162040.00 134682 ng/L 120 50-150 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB IS-S-NEIFOSAA-d5 537 N/A 162040.00 134682 ng/L 120 50-150 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB SS-NEIFOSAA-d5 537 N/A 1724440 200 ng/L 95 70-130 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB SS-PFDA-13C2 537 N/A 84.7529 100 ng/L 93 70-130 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB SS-PFDA-13C2 537 N/A 84.7529 100 ng/L 93 70-130 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB Perfluorobetranesulfonic acid (PFBS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB Perfluorobetranesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB Perfluorobetranesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB Perfluorobetranesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB Perfluorobetranesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB Perfluorobetranesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB Perfluorotrobetranesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:55 08/15/2019 03:15 LRB Perfluorotrobetranesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorotrobetranesulfonic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019	CCL	Perfluorooctanesulfonic acid (PFOS)	537	2.0			2.1927	2.0	ng/L	110	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
CCL Perfluoroundecanoic acid (PFUIA) 537 2.0 2.1597 2.0 97L 108 50-150 1.0 00092019 09-13 08.715/2019 02-149 LRB IS-NMeFOSAA-d3 537 N/A 1045980.00 902499 ng/L 116 50-150 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB IS-PFOA-13C2 537 N/A 428258.00 366546 ng/L 120 50-150 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB IS-PGN-13C3 537 N/A 162040.00 134882 ng/L 120 50-150 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB IS-GenX-13C3 537 N/A 162040.00 134882 ng/L 120 50-150 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB SS-PEDA-13C2 537 N/A 172.4440 200 ng/L 95 70-130 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB SS-PEDA-13C2 537 N/A 84.7529 100 ng/L 95 70-130 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB SS-PEDA-13C2 537 N/A 84.7529 100 ng/L 93 70-130 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB Perfluorobutanesulfonic acid (PFBS) 537 2.0 < 2.0 ng/L 93 70-130 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB Perfluorobetanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB Perfluorobetanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB Perfluorobetanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB Perfluorobetanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB Perfluorobetanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB Perfluorobetanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB Perfluorobetanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB Perfluorobetanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08.713/2019 07-58 08.715/2019 03.15 LRB Perfluorobetanesulfonic acid (PFBA) 537 2.0 < 2.0 ng/L 0.91 08.71	CCL	Perfluorooctanoic acid (PFOA)	537	2.0			2.0326	2.0	ng/L	102	50 - 150		Ĭ Ĭ	1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
LRB IS-NMeFOSA-43 537 N/A 1045980.00 902499 ng/L 116 50 - 150 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB IS-PFOA-13C2 537 N/A 426258.00 366546 ng/L 121 50 - 150 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB IS-PFOS-13C4 537 N/A 426258.00 366546 ng/L 120 50 - 150 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB IS-GenX-13C3 537 N/A 162040.00 134682 ng/L 120 50 - 150 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB SS-NEIFOSA-d5 537 N/A 172.4440 200 ng/L 95 70 - 130 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB SS-PFHA-13C2 537 N/A 84.7529 100 ng/L 93 70 - 130 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB SS-PFHA-13C2 537 N/A 42.2200 50.0 ng/L 93 70 - 130 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorobutanesulfonic acid (PFBS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorobetanesulfonic acid (PFHA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorobetanesulfonic acid (PFHxS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorobetanesulfonic acid (PFHxS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorobetanesulfonic acid (PFHxS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorobetanesulfonic acid (PFHA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 LRB Perfluorobetanesulfonic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 CRA STA	CCL	Perfluorotridecanoic acid (PFTrDA)	537	2.0			2.0989	2.0	ng/L	105	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
LRB IS-PFOA-13C2 537 N/A 178412.0.0 1472550 ng/L 121 50 - 150 0.91 08/13/2019 07:58 08/15/2019 03:15 2 2 2 2 2 2 2 2 2	CCL	Perfluoroundecanoic acid (PFUnA)	537	2.0			2.1597	2.0	ng/L	108	50 - 150			1.0	08/08/2019 09:15	08/15/2019 02:49	4384150
LRB IS-PFOS-13C4 537 N/A 426258.00 356546 ng/L 120 50-150 0.91 08/13/2019 07:58 08/15/2019 03:15 0.91 0.9	LRB	IS-NMeFOSAA-d3	537	N/A			1045980.00	902499	ng/L	116	50 - 150			0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB IS-GenX-13C3 537 N/A 162040.00 134682 ng/L 120 50-150 0.91 08/13/2019 07:58 08/15/2019 03:15 2.0 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 2.0 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 0.91/5/2019 03:	LRB	IS-PFOA-13C2	537	N/A			1784120.00	1472550	ng/L	121	50 - 150			0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB SS-NEIFOSAA-d5 537 N/A 172.4440 200 ng/L 95 70-130 0.91 08/13/2019 07:58 08/15/2019 03:15 4	LRB	IS-PFOS-13C4	537	N/A			426258.00	356546	ng/L	120	50 - 150			0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB SS-PFDA-13C2 537 N/A 84.7529 100 ng/L 93 70 - 130 0.91 08/13/2019 07:58 08/15/2019 03:15 4	LRB	IS-GenX-13C3	537	N/A			162040.00	134682	ng/L	120	50 - 150			0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB SS-PFHxA-13C2 537 N/A 42.2200 50.0 ng/L 93 70 - 130 0. 0.91 08/13/2019 07:58 08/15/2019 03:15 4	LRB	SS-NEtFOSAA-d5	537	N/A			172.4440	200	ng/L	95	70 - 130			0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluorobutanesulfonic acid (PFBS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4	LRB	SS-PFDA-13C2	537	N/A			84.7529	100	ng/L	93	70 - 130			0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluorodecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluoroheptanoic acid (PFHpA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorohexanesulfonic acid (PFHxS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorohexanoic acid (PFHxA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorodecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorotetradecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorotetradecanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluoroctanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluoroctanoic acid (PFDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluoroctanosulfonic acid (PFOS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluoroctanoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluoroctanoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluoroctanoic acid (PFOA) 537 2.0 < 2.0 0.91 08/13/2019 07:58 08/15/2019 03:15 4 TDLRB Perfluoroundecanoic acid (PFTDA) 537 2.0 < 2.0 0.91 08/13/2019 07:58 08/15/2019 03:15 4 TDLRB Perfluoroundecanoic acid (PFUNA) 537 2.0 < 2.0	LRB	SS-PFHxA-13C2	537	N/A			42.2200	50.0	ng/L	93	70 - 130			0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluoroheptanoic acid (PFHpA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 2.0 0.91 08/13/2019 07:	LRB	Perfluorobutanesulfonic acid (PFBS)	537	2.0		<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluorohexanesulfonic acid (PFHxS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorohexanoic acid (PFHxA) 537 2.0 < 2.0	LRB	Perfluorodecanoic acid (PFDA)	537	2.0		<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluorohexanoic acid (PFHxA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorododecanoic acid (PFDoA) 537 2.0 <	LRB	Perfluoroheptanoic acid (PFHpA)	537	2.0		<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluorododecanoic acid (PFDoA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorotetradecanoic acid (PFTeDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorononanoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorooctanesulfonic acid (PFOS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorooctanesulfonic acid (PFOS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorooctanoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorooctanoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorooctanoic acid (PFTDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorooctanoic acid (PFTDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorooctanoic acid (PFTDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4	LRB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0		<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluorotetradecanoic acid (PFTeDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorononanoic acid (PFNA) 537 2.0 <	LRB	Perfluorohexanoic acid (PFHxA)	537	2.0		<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluorononanoic acid (PFNA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorooctanesulfonic acid (PFOS) 537 2.0 <	LRB	Perfluorododecanoic acid (PFDoA)	537	2.0		<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluorooctanesulfonic acid (PFOS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorooctanoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 DLRB Perfluorotridecanoic acid (PFTrDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 QLRB Perfluoroundecanoic acid (PFUnA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4	LRB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0		<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluorooctanesulfonic acid (PFOS) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 LRB Perfluorooctanoic acid (PFOA) 537 2.0 <	LRB	Perfluorononanoic acid (PFNA)	537	2.0		<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
LRB Perfluorooctanoic acid (PFOA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15	LRB	Perfluorooctanesulfonic acid (PFOS)	537	2.0		<	2.0							0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
Perfluorotridecanoic acid (PFTrDA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15 4 0	LRB	Perfluorooctanoic acid (PFOA)	537	2.0		<	2.0							0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
© LRB Perfluoroundecanoic acid (PFUnA) 537 2.0 < 2.0 ng/L 0.91 08/13/2019 07:58 08/15/2019 03:15	D LRB	Perfluorotridecanoic acid (PFTrDA)	537	2.0		<								0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
	O)	Perfluoroundecanoic acid (PFUnA)	537	2.0		<	2.0		_					0.91	08/13/2019 07:58	08/15/2019 03:15	4384167
		IS-NMeFOSAA-d3	537	N/A				902499	_	117	50 - 150			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
QFBM IS-PFOA-13C2 537 N/A 1719420.00 1472550 ng/L 117 50 - 150 1.0 08/13/2019 07:58 08/15/2019 03:41 4		IS-PFOA-13C2	537	N/A		ī	1719420.00	1472550	ng/L	117	50 - 150		<u> </u>	1.0	08/13/2019 07:58	08/15/2019 03:41	4383156

					QC S	Summary Rep	oort (cont.)					_				
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
FBM	IS-PFOS-13C4	537	N/A			423854.00	356546	ng/L	119	50 - 150			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	IS-GenX-13C3	537	N/A			156323.00	134682	ng/L	116	50 - 150			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	SS-NEtFOSAA-d5	537	N/A			180.3250	200	ng/L	90	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	SS-PFDA-13C2	537	N/A			95.4196	100	ng/L	95	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	SS-PFHxA-13C2	537	N/A			48.4293	50.0	ng/L	97	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluorobutanesulfonic acid (PFBS)	537	2.0			91.3153	100	ng/L	91	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluorodecanoic acid (PFDA)	537	2.0			87.4023	100	ng/L	87	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluoroheptanoic acid (PFHpA)	537	2.0			89.4289	100	ng/L	89	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			92.1733	100	ng/L	92	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluorohexanoic acid (PFHxA)	537	2.0			86.3962	100	ng/L	86	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluorododecanoic acid (PFDoA)	537	2.0			85.6656	100	ng/L	86	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			82.3658	100	ng/L	82	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluorononanoic acid (PFNA)	537	2.0			90.6097	100	ng/L	91	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluorooctanesulfonic acid (PFOS)	537	2.0			89.7885	100	ng/L	90	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluorooctanoic acid (PFOA)	537	2.0			89.3812	100	ng/L	89	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluorotridecanoic acid (PFTrDA)	537	2.0			83.0035	100	ng/L	83	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
FBM	Perfluoroundecanoic acid (PFUnA)	537	2.0			87.5775	100	ng/L	88	70 - 130			1.0	08/13/2019 07:58	08/15/2019 03:41	4383156
ССМ	IS-NMeFOSAA-d3	537	N/A			890230.00	890230	ng/L	100	50 - 150			1.0	08/08/2019 09:15		
ССМ	IS-PFOA-13C2	537	N/A			1397460.00	1397460	ng/L	100	50 - 150			1.0	08/08/2019 09:15		
ССМ	IS-PFOS-13C4	537	N/A			343908.00	343908	ng/L	100	50 - 150			1.0	08/08/2019 09:15		
ССМ	IS-GenX-13C3	537	N/A			129552.00	129552	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 06:44	4384151
ССМ	SS-NEtFOSAA-d5	537	N/A			199.4620	200	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 06:44	4384151
ССМ	SS-PFDA-13C2	537	N/A			98.8127	100	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 06:44	4384151
ССМ	SS-PFHxA-13C2	537	N/A			49.6082	50.0	ng/L	99	70 - 130			1.0	08/08/2019 09:15		
ССМ	Perfluorobutanesulfonic acid (PFBS)	537	2.0			100.9520	100	ng/L	101	70 - 130			1.0	08/08/2019 09:15		
ССМ	Perfluorodecanoic acid (PFDA)	537	2.0			101.7980	100	ng/L	102	70 - 130			1.0	08/08/2019 09:15		
ССМ	Perfluoroheptanoic acid (PFHpA)	537	2.0			98.8754	100	ng/L	99	70 - 130			1.0	08/08/2019 09:15		
ССМ	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			102.1760	100	ng/L	102	70 - 130			1.0	08/08/2019 09:15		
ССМ	Perfluorohexanoic acid (PFHxA)	537	2.0			98.2150	100	ng/L	98	70 - 130			1.0	08/08/2019 09:15		
ССМ	Perfluorododecanoic acid (PFDoA)	537	2.0			100.9520	100	ng/L	101	70 - 130			1.0	08/08/2019 09:15		
ССМ	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			99.5027	100	ng/L	100	70 - 130			1.0	08/08/2019 09:15		
ССМ	Perfluorononanoic acid (PFNA)	537	2.0			103.0370	100	ng/L	103	70 - 130			1.0	08/08/2019 09:15		
CCM	Perfluorooctanesulfonic acid (PFOS)	537	2.0			101.0560	100	ng/L	101	70 - 130			1.0	08/08/2019 09:15		
CCM	Perfluorooctanoic acid (PFOA)	537	2.0			100.4050	100	ng/L	100	70 - 130			1.0		08/15/2019 06:44	
CCM	Perfluorotridecanoic acid (PFTrDA)	537	2.0			99.4637	100	ng/L	99	70 - 130			1.0	08/08/2019 09:15		
CCM	Perfluoroundecanoic acid (PFUnA)	537	2.0			101.5680	100	ng/L	102	70 - 130			1.0	08/08/2019 09:15		
FS	IS-NMeFOSAA-d3	537	N/A	PEF52068/Raw Water Pondhouse		1019440.00	890230	ng/L	115	50 - 150			0.91	08/13/2019 07:58		
	IS-PFOA-13C2	537	N/A	PEF52068/Raw Water Pondhouse		1625100.00	1397460	ng/L	116	50 - 150			0.91	08/13/2019 07:58		
Page FS	IS-PFOS-13C4	537	N/A	PEF52068/Raw Water Pondhouse		386529.00	343908	ng/L	112	50 - 150			0.91	08/13/2019 07:58		
g FS	IS-GenX-13C3	537	N/A	PEF52068/Raw Water Pondhouse		142269.00	129552	_	110					08/13/2019 07:58		
4 4			-	PEF52068/Raw Water Pondhouse				ng/L	_	50 - 150			0.91			
o FS	SS-NEtFOSAA-d5	537	N/A	1 LI J2000/Naw Water Foliullouse		174.9720	200	ng/L	96	70 - 130			0.91	08/13/2019 07:58	00/15/2019 08:15	4381214

					QC S	Summary Rep	port (cont.))								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	SS-PFDA-13C2	537	N/A	PEF52068/Raw Water Pondhouse		87.9693	100	ng/L	97	70 - 130			0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	SS-PFHxA-13C2	537	N/A	PEF52068/Raw Water Pondhouse		45.7770	50.0	ng/L	101	70 - 130			0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52068/Raw Water Pondhouse		2.1		ng/L	T				0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L	T				0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L	Ī				0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52068/Raw Water Pondhouse	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:15	4381214
FS	IS-NMeFOSAA-d3	537	N/A	PEF52069/Raw Plant Sample Port		1058610.00	890230	ng/L	119	50 - 150			0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	IS-PFOA-13C2	537	N/A	PEF52069/Raw Plant Sample Port		1687230.00	1397460	ng/L	121	50 - 150			0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	IS-PFOS-13C4	537	N/A	PEF52069/Raw Plant Sample Port		404817.00	343908	ng/L	118	50 - 150			0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	IS-GenX-13C3	537	N/A	PEF52069/Raw Plant Sample Port		148984.00	129552	ng/L	115	50 - 150			0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	SS-NEtFOSAA-d5	537	N/A	PEF52069/Raw Plant Sample Port		163.5480	200	ng/L	90	70 - 130			0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	SS-PFDA-13C2	537	N/A	PEF52069/Raw Plant Sample Port		83.9939	100	ng/L	92	70 - 130			0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	SS-PFHxA-13C2	537	N/A	PEF52069/Raw Plant Sample Port		44.7790	50.0	ng/L	98	70 - 130			0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L	-				0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L	-				0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L	-				0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L	-				0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L	-				0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52069/Raw Plant Sample Port		2.9		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52069/Raw Plant Sample Port	<	2.0		ng/L					0.91	08/13/2019 07:58	08/15/2019 08:28	4381215
FS	IS-NMeFOSAA-d3	537	N/A	PEF52070/Raw Tank UF Feed		1043980.00	890230	ng/L	117	50 - 150			0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	IS-PFOA-13C2	537	N/A	PEF52070/Raw Tank UF Feed		1674490.00	1397460	ng/L	120	50 - 150			0.92		08/15/2019 08:41	
FS	IS-PFOS-13C4	537	N/A	PEF52070/Raw Tank UF Feed		398958.00	343908	ng/L	116	50 - 150			0.92		08/15/2019 08:41	_
FS	IS-GenX-13C3	537	N/A	PEF52070/Raw Tank UF Feed		146631.00	129552	ng/L	113	50 - 150			0.92		08/15/2019 08:41	
T FS	SS-NEtFOSAA-d5	537	N/A	PEF52070/Raw Tank UF Feed		168.1500	200	ng/L	91	70 - 130			0.92		08/15/2019 08:41	_
Page 10	SS-PFDA-13C2	537	N/A	PEF52070/Raw Tank UF Feed		86.0974	100	ng/L	94	70 - 130			0.92		08/15/2019 08:41	
T FS	SS-PFHxA-13C2	537	N/A	PEF52070/Raw Tank UF Feed		45.1526	50.0	ng/L	98	70 - 130			0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
ர of FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L					0.92	08/13/2019 07:58		

	QC Summary Report (cont.) Analyte Method MRL Client ID Result Amount Target Units % Recovery RPD RPD Dil Extracted Analyzed EEA															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L					0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L					0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L					0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L	Ī				0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L					0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L					0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L					0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52070/Raw Tank UF Feed		2.2		ng/L					0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L					0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L					0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52070/Raw Tank UF Feed	<	2.0		ng/L					0.92	08/13/2019 07:58	08/15/2019 08:41	4381216
FS	IS-NMeFOSAA-d3	537	N/A	PEF52071/UF 1 Permeate		871104.00	890230	ng/L	98	50 - 150			0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	IS-PFOA-13C2	537	N/A	PEF52071/UF 1 Permeate		1672190.00	1397460	ng/L	120	50 - 150			0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	IS-PFOS-13C4	537	N/A	PEF52071/UF 1 Permeate		396608.00	343908	ng/L	115	50 - 150			0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	IS-GenX-13C3	537	N/A	PEF52071/UF 1 Permeate		152711.00	129552	ng/L	118	50 - 150			0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	SS-NEtFOSAA-d5	537	N/A	PEF52071/UF 1 Permeate		191.8420	200	ng/L	109	70 - 130			0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	SS-PFDA-13C2	537	N/A	PEF52071/UF 1 Permeate		81.1611	100	ng/L	92	70 - 130			0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	SS-PFHxA-13C2	537	N/A	PEF52071/UF 1 Permeate		43.6902	50.0	ng/L	99	70 - 130			0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52071/UF 1 Permeate		7.5		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52071/UF 1 Permeate	<	2.0		ng/L					0.88	08/13/2019 07:58	08/15/2019 08:54	4381217
ССН	IS-NMeFOSAA-d3	537	N/A			892597.00	892597	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
CCH	IS-PFOA-13C2	537	N/A			1305350.00	1305350	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
ССН	IS-PFOS-13C4	537	N/A			324800.00	324800	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
ССН	IS-GenX-13C3	537	N/A			113733.00	113733	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
ССН	SS-NEtFOSAA-d5	537	N/A			190.2840	200	ng/L	95	70 - 130			1.0		08/15/2019 11:55	
ССН	SS-PFDA-13C2	537	N/A			98.4055	100	ng/L	98	70 - 130			1.0		08/15/2019 11:55	-
ССН	SS-PFHxA-13C2	537	N/A			50.0396	50.0	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
ССН	Perfluorobutanesulfonic acid (PFBS)	537	2.0			200.0000	200	ng/L	100	70 - 130			1.0		08/15/2019 11:55	
а Се Се	Perfluorodecanoic acid (PFDA)	537	2.0			202.1930	200	ng/L	101	70 - 130			1.0		08/15/2019 11:55	-
CCH	Perfluoroheptanoic acid (PFHpA)	537	2.0			196.3220	200	ng/L	98	70 - 130			1.0		08/15/2019 11:55	-
ල CCH	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			200.9900	200	ng/L	100	70 - 130			1.0		08/15/2019 11:55	-

					QC S	Summary Rep	ort (cont.))								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits			Dil Factor	Extracted	Analyzed	EEA ID#
ССН	Perfluorohexanoic acid (PFHxA)	537	2.0			193.9800	200	ng/L	97	70 - 130			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
CCH																
CCH	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			208.8820	200	ng/L	104	70 - 130			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
CCH	Perfluorononanoic acid (PFNA)	537	2.0			196.9960	200	ng/L	98	70 - 130			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
CCH	Perfluorooctanesulfonic acid (PFOS)	537	2.0			199.2700	200	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
CCH	Perfluorooctanoic acid (PFOA)	537	2.0			197.7610	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
CCH	Perfluorotridecanoic acid (PFTrDA)	537	2.0			198.4100	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152
CCH	Perfluoroundecanoic acid (PFUnA)	537	2.0			198.9670	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 11:55	4384152



Run ID: **263304** Method: **537**

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4384847		os	FL	08/15/2019 13:39	081519M537b-FL-PFC14.mdb
LRB	4384830		RW	FL	08/15/2019 14:06	081519M537b-FL-PFC14.mdb
FBH	4384837		RW	FL	08/15/2019 14:32	081519M537b-FL-PFC14.mdb
CCM	4384849		OS	FL	08/15/2019 17:22	081519M537b-FL-PFC14.mdb
FS	4381218	PEF52072/UF 2 Permeate	DW	FL	08/15/2019 18:01	081519M537b-FL-PFC14.mdb
FS	4381219	PEF52073/Potable Tanks Comb	DW	FL	08/15/2019 18:14	081519M537b-FL-PFC14.mdb
FS	4381220	PEF52074Potable Fill 4	DW	FL	08/15/2019 18:27	081519M537b-FL-PFC14.mdb
FS	4381221	PEF52075/Potable Truck 19518	DW	FL	08/15/2019 18:40	081519M537b-FL-PFC14.mdb
FS	4381222	PEF52076/Potable Truck 19520	DW	FL	08/15/2019 18:53	081519M537b-FL-PFC14.mdb
FS	4381223	PEF52077/Potable Truck 7-21	DW	FL	08/15/2019 19:06	081519M537b-FL-PFC14.mdb
CCH	4384850		OS	FL	08/15/2019 21:04	081519M537b-FL-PFC14.mdb

	QC Summary Report															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
CCL	IS-NMeFOSAA-d3	537	N/A			939306.00	939306	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	IS-PFOA-13C2	537	N/A			1503700.00	1503700	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	IS-PFOS-13C4	537	N/A			343475.00	343475	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	SS-NEtFOSAA-d5	537	N/A			209.2840	200	ng/L	105	70 - 130			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	SS-PFDA-13C2	537	N/A			95.6177	100	ng/L	96	70 - 130			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	SS-PFHxA-13C2	537	N/A			48.6220	50.0	ng/L	97	70 - 130			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluorobutanesulfonic acid (PFBS)	537	2.0			1.9870	2.0	ng/L	99	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluorodecanoic acid (PFDA)	537	2.0			2.0664	2.0	ng/L	103	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluoroheptanoic acid (PFHpA)	537	2.0			1.9602	2.0	ng/L	98	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			2.0182	2.0	ng/L	101	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluorohexanoic acid (PFHxA)	537	2.0			2.0234	2.0	ng/L	101	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluorododecanoic acid (PFDoA)	537	2.0			2.0730	2.0	ng/L	104	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			2.1480	2.0	ng/L	107	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluorononanoic acid (PFNA)	537	2.0			2.1166	2.0	ng/L	106	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluorooctanesulfonic acid (PFOS)	537	2.0			2.1809	2.0	ng/L	109	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluorooctanoic acid (PFOA)	537	2.0			2.0497	2.0	ng/L	102	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluorotridecanoic acid (PFTrDA)	537	2.0			2.0704	2.0	ng/L	104	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
CCL	Perfluoroundecanoic acid (PFUnA)	537	2.0			2.1078	2.0	ng/L	105	50 - 150			1.0	08/08/2019 09:15	08/15/2019 13:39	4384847
LRB	IS-NMeFOSAA-d3	537	N/A			940353.00	939306	ng/L	100	50 - 150			0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	IS-PFOA-13C2	537	N/A			1528090.00	1503700	ng/L	102	50 - 150			0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	IS-PFOS-13C4	537	N/A			345818.00	343475	ng/L	101	50 - 150			0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	SS-NEtFOSAA-d5	537	N/A			170.3140	200	ng/L	96	70 - 130			0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	SS-PFDA-13C2	537	N/A			81.2056	100	ng/L	91	70 - 130			0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	SS-PFHxA-13C2	537	N/A			42.6465	50.0	ng/L	96	70 - 130			0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluorobutanesulfonic acid (PFBS)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluorodecanoic acid (PFDA)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluoroheptanoic acid (PFHpA)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluorohexanoic acid (PFHxA)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluorododecanoic acid (PFDoA)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluorononanoic acid (PFNA)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluorooctanesulfonic acid (PFOS)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluorooctanoic acid (PFOA)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
LRB	Perfluorotridecanoic acid (PFTrDA)	537	2.0		<	2.0		ng/L					0.89		08/15/2019 14:06	
LRB	Perfluoroundecanoic acid (PFUnA)	537	2.0		<	2.0		ng/L					0.89	08/14/2019 08:04	08/15/2019 14:06	4384830
TO FBH	IS-NMeFOSAA-d3	537	N/A			943162.00	939306	ng/L	100	50 - 150			1.0		08/15/2019 14:32	
a G F B H	IS-PFOA-13C2	537	N/A			1452850.00	1503700	ng/L	97	50 - 150			1.0	-	08/15/2019 14:32	
⊕ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	IS-PFOS-13C4	537	N/A			345955.00	343475	ng/L	101	50 - 150			1.0		08/15/2019 14:32	
QFBH	SS-NEtFOSAA-d5	537	N/A			175.8090	200	ng/L	88	70 - 130			1.0		08/15/2019 14:32	

					QC S	Summary Rep	port (cont.)									
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FBH	SS-PFDA-13C2	537	N/A			96.6181	100	ng/L	97	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	SS-PFHxA-13C2	537	N/A			50.7343	50.0	ng/L	101	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluorobutanesulfonic acid (PFBS)	537	2.0			183.9620	200	ng/L	92	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluorodecanoic acid (PFDA)	537	2.0			175.9250	200	ng/L	88	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluoroheptanoic acid (PFHpA)	537	2.0			187.4830	200	ng/L	94	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			184.7560	200	ng/L	92	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluorohexanoic acid (PFHxA)	537	2.0			181.1260	200	ng/L	91	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluorododecanoic acid (PFDoA)	537	2.0	i i		169.1710	200	ng/L	85	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			168.8620	200	ng/L	84	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluorononanoic acid (PFNA)	537	2.0	i i		179.0330	200	ng/L	90	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluorooctanesulfonic acid (PFOS)	537	2.0			181.7900	200	ng/L	91	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluorooctanoic acid (PFOA)	537	2.0	i i		183.1800	200	ng/L	92	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluorotridecanoic acid (PFTrDA)	537	2.0			167.9890	200	ng/L	84	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
FBH	Perfluoroundecanoic acid (PFUnA)	537	2.0			172.4690	200	ng/L	86	70 - 130			1.0	08/14/2019 08:04	08/15/2019 14:32	4384837
ССМ	IS-NMeFOSAA-d3	537	N/A			932157.00	932157	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	IS-PFOA-13C2	537	N/A			1446790.00	1446790	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	IS-PFOS-13C4	537	N/A			336519.00	336519	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	SS-NEtFOSAA-d5	537	N/A			202.4500	200	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	SS-PFDA-13C2	537	N/A			97.9884	100	ng/L	98	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	SS-PFHxA-13C2	537	N/A			49.6605	50.0	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluorobutanesulfonic acid (PFBS)	537	2.0			99.9543	100	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluorodecanoic acid (PFDA)	537	2.0			98.5849	100	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluoroheptanoic acid (PFHpA)	537	2.0			100.0140	100	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			100.5720	100	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluorohexanoic acid (PFHxA)	537	2.0			97.5429	100	ng/L	98	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluorododecanoic acid (PFDoA)	537	2.0			101.5050	100	ng/L	102	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			99.6930	100	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluorononanoic acid (PFNA)	537	2.0			100.4570	100	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluorooctanesulfonic acid (PFOS)	537	2.0			99.2208	100	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluorooctanoic acid (PFOA)	537	2.0			100.2550	100	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluorotridecanoic acid (PFTrDA)	537	2.0			99.7932	100	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
ССМ	Perfluoroundecanoic acid (PFUnA)	537	2.0			100.9500	100	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/15/2019 17:22	4384849
FS	IS-NMeFOSAA-d3	537	N/A	PEF52072/UF 2 Permeate		830215.00	932157	ng/L	89	50 - 150			0.92	08/14/2019 08:04	08/15/2019 18:01	4381218
FS	IS-PFOA-13C2	537	N/A	PEF52072/UF 2 Permeate		1601400.00	1446790	ng/L	111	50 - 150			0.92		08/15/2019 18:01	
FS	IS-PFOS-13C4	537	N/A	PEF52072/UF 2 Permeate		355934.00	336519	ng/L	106	50 - 150			0.92		08/15/2019 18:01	_
FS	SS-NEtFOSAA-d5	537	N/A	PEF52072/UF 2 Permeate		202.0770	200	ng/L	110	70 - 130			0.92		08/15/2019 18:01	_
FS	SS-PFDA-13C2	537	N/A	PEF52072/UF 2 Permeate	=	82.0140	100	ng/L	89	70 - 130			0.92		08/15/2019 18:01	
	SS-PFHxA-13C2	537	N/A	PEF52072/UF 2 Permeate		44.8793	50.0	ng/L	98	70 - 130			0.92		08/15/2019 18:01	
Page FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52072/UF 2 Permeate	=	2.0		ng/L					0.92		08/15/2019 18:01	_
o FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52072/UF 2 Permeate		2.0		ng/L					0.92		08/15/2019 18:01	
20 FS Of	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52072/UF 2 Permeate		2.0		ng/L					0.92		08/15/2019 18:01	

	Analyte Method MRL Client ID Result Amount Target Units % Recovery RPD RPD Dil Extracted Analyzed EEA															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52072/UF 2 Permeate	<	2.0		ng/L					0.92	08/14/2019 08:04	08/15/2019 18:01	4381218
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52072/UF 2 Permeate	<	2.0		ng/L					0.92	08/14/2019 08:04	08/15/2019 18:01	4381218
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52072/UF 2 Permeate	<	2.0		ng/L					0.92	08/14/2019 08:04	08/15/2019 18:01	4381218
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52072/UF 2 Permeate	<	2.0		ng/L	Ī				0.92	08/14/2019 08:04	08/15/2019 18:01	4381218
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF52072/UF 2 Permeate	<	2.0		ng/L					0.92	08/14/2019 08:04	08/15/2019 18:01	4381218
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52072/UF 2 Permeate		8.2		ng/L					0.92	08/14/2019 08:04	08/15/2019 18:01	4381218
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52072/UF 2 Permeate	<	2.0		ng/L					0.92	08/14/2019 08:04	08/15/2019 18:01	4381218
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52072/UF 2 Permeate	<	2.0		ng/L					0.92	08/14/2019 08:04	08/15/2019 18:01	4381218
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52072/UF 2 Permeate	<	2.0		ng/L					0.92	08/14/2019 08:04	08/15/2019 18:01	4381218
FS	IS-NMeFOSAA-d3	537	N/A	PEF52073/Potable Tanks Comb		842204.00	932157	ng/L	90	50 - 150			0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	IS-PFOA-13C2	537	N/A	PEF52073/Potable Tanks Comb		1494160.00	1446790	ng/L	103	50 - 150			0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	IS-PFOS-13C4	537	N/A	PEF52073/Potable Tanks Comb		335058.00	336519	ng/L	100	50 - 150			0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	SS-NEtFOSAA-d5	537	N/A	PEF52073/Potable Tanks Comb		199.8230	200	ng/L	107	70 - 130			0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	SS-PFDA-13C2	537	N/A	PEF52073/Potable Tanks Comb		86.7963	100	ng/L	93	70 - 130			0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	SS-PFHxA-13C2	537	N/A	PEF52073/Potable Tanks Comb		47.0296	50.0	ng/L	101	70 - 130			0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52073/Potable Tanks Comb		3.7		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52073/Potable Tanks Comb	<	2.0		ng/L					0.93	08/14/2019 08:04	08/15/2019 18:14	4381219
FS	IS-NMeFOSAA-d3	537	N/A	PEF52074Potable Fill 4		794325.00	932157	ng/L	85	50 - 150			0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	IS-PFOA-13C2	537	N/A	PEF52074Potable Fill 4		1447040.00	1446790	ng/L	100	50 - 150			0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	IS-PFOS-13C4	537	N/A	PEF52074Potable Fill 4		320486.00	336519	ng/L	95	50 - 150			0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	SS-NEtFOSAA-d5	537	N/A	PEF52074Potable Fill 4		192.4150	200	ng/L	107	70 - 130			0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	SS-PFDA-13C2	537	N/A	PEF52074Potable Fill 4		83.4117	100	ng/L	93	70 - 130			0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	SS-PFHxA-13C2	537	N/A	PEF52074Potable Fill 4		44.2978	50.0	ng/L	98	70 - 130			0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L					0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L					0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L					0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L					0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
⊤ FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L					0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
Page 1	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L					0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
e N FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L					0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
o FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L					0.9	08/14/2019 08:04	08/15/2019 18:27	4381220

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52074Potable Fill 4		3.9		ng/L					0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L	Ī				0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L	Ī				0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52074Potable Fill 4	<	2.0		ng/L	Ī				0.9	08/14/2019 08:04	08/15/2019 18:27	4381220
FS	IS-NMeFOSAA-d3	537	N/A	PEF52075/Potable Truck 19518		882425.00	932157	ng/L	95	50 - 150			0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	IS-PFOA-13C2	537	N/A	PEF52075/Potable Truck 19518		1553020.00	1446790	ng/L	107	50 - 150			0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	IS-PFOS-13C4	537	N/A	PEF52075/Potable Truck 19518		351846.00	336519	ng/L	105	50 - 150			0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	SS-NEtFOSAA-d5	537	N/A	PEF52075/Potable Truck 19518		191.3580	200	ng/L	105	70 - 130			0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	SS-PFDA-13C2	537	N/A	PEF52075/Potable Truck 19518		84.2135	100	ng/L	93	70 - 130			0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	SS-PFHxA-13C2	537	N/A	PEF52075/Potable Truck 19518		45.6423	50.0	ng/L	100	70 - 130			0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52075/Potable Truck 19518		3.6		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52075/Potable Truck 19518	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:40	4381221
FS	IS-NMeFOSAA-d3	537	N/A	PEF52076/Potable Truck 19520		862880.00	932157	ng/L	93	50 - 150			0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	IS-PFOA-13C2	537	N/A	PEF52076/Potable Truck 19520		1552480.00	1446790	ng/L	107	50 - 150			0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	IS-PFOS-13C4	537	N/A	PEF52076/Potable Truck 19520		348236.00	336519	ng/L	103	50 - 150			0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	SS-NEtFOSAA-d5	537	N/A	PEF52076/Potable Truck 19520		199.2850	200	ng/L	109	70 - 130			0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	SS-PFDA-13C2	537	N/A	PEF52076/Potable Truck 19520		86.7885	100	ng/L	95	70 - 130			0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	SS-PFHxA-13C2	537	N/A	PEF52076/Potable Truck 19520		46.8637	50.0	ng/L	103	70 - 130			0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L	Ī				0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L	Ī				0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52076/Potable Truck 19520		4.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
¬ FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
Page FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
N FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52076/Potable Truck 19520	<	2.0		ng/L					0.91	08/14/2019 08:04	08/15/2019 18:53	4381222
of FS	IS-NMeFOSAA-d3	537	N/A	PEF52077/Potable Truck 7-21		842631.00	932157	ng/L	90	50 - 150			0.88	08/14/2019 08:04	08/15/2019 19:06	4381223

					QC :	Summary Rep	port (cont.))								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	IS-PFOA-13C2	537	N/A	PEF52077/Potable Truck 7-21		1528730.00	1446790	ng/L	106	50 - 150			0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	IS-PFOS-13C4	537	N/A	PEF52077/Potable Truck 7-21		342439.00	336519	ng/L	102	50 - 150			0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	SS-NEtFOSAA-d5	537	N/A	PEF52077/Potable Truck 7-21		191.1430	200	ng/L	109	70 - 130			0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	SS-PFDA-13C2	537	N/A	PEF52077/Potable Truck 7-21		82.1576	100	ng/L	93	70 - 130			0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	SS-PFHxA-13C2	537	N/A	PEF52077/Potable Truck 7-21		45.3706	50.0	ng/L	103	70 - 130			0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluorononanoic acid (PFNA)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52077/Potable Truck 7-21		3.8		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
FS	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52077/Potable Truck 7-21	<	2.0		ng/L					0.88	08/14/2019 08:04	08/15/2019 19:06	4381223
ССН	IS-NMeFOSAA-d3	537	N/A			898199.00	898199	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	IS-PFOA-13C2	537	N/A			1345840.00	1345840	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	IS-PFOS-13C4	537	N/A			327029.00	327029	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	SS-NEtFOSAA-d5	537	N/A			191.9490	200	ng/L	96	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	SS-PFDA-13C2	537	N/A			98.3955	100	ng/L	98	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	SS-PFHxA-13C2	537	N/A			51.8020	50.0	ng/L	104	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluorobutanesulfonic acid (PFBS)	537	2.0			197.1400	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluorodecanoic acid (PFDA)	537	2.0			198.6530	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluoroheptanoic acid (PFHpA)	537	2.0			201.0450	200	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			196.7000	200	ng/L	98	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluorohexanoic acid (PFHxA)	537	2.0			199.3600	200	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluorododecanoic acid (PFDoA)	537	2.0			200.1050	200	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			211.0720	200	ng/L	106	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluorononanoic acid (PFNA)	537	2.0			197.5880	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluorooctanesulfonic acid (PFOS)	537	2.0			198.7300	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluorooctanoic acid (PFOA)	537	2.0			197.6870	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluorotridecanoic acid (PFTrDA)	537	2.0			197.0400	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850
ССН	Perfluoroundecanoic acid (PFUnA)	537	2.0			198.8480	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/15/2019 21:04	4384850



Run ID: **263315** Method: **537**

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4386880		os	FL	08/16/2019 22:50	081619M537b-FL-PFC12.mdb
LRB	4386883		RW	FL	08/16/2019 23:16	081619M537b-FL-PFC12.mdb
FBM	4386884		RW	FL	08/16/2019 23:42	081619M537b-FL-PFC12.mdb
CCM	4386881		OS	FL	08/17/2019 02:58	081619M537b-FL-PFC12.mdb
FTB	4381224	PEF52078/Field Blank	RW	FL	08/17/2019 03:51	081619M537b-FL-PFC12.mdb
CCH	4386882		OS	FL	08/17/2019 06:27	081619M537b-FL-PFC12.mdb

QC Summary Report																
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
CCL	IS-PFOA-13C2	537	N/A			1240890.00	1240890	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	IS-PFOS-13C4	537	N/A			327507.00	327507	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	SS-PFDA-13C2	537	N/A			98.0967	100	ng/L	98	70 - 130			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	SS-PFHxA-13C2	537	N/A			49.9392	50.0	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluorobutanesulfonic acid (PFBS)	537	2.0			1.9867	2.0	ng/L	99	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluorodecanoic acid (PFDA)	537	2.0			2.0864	2.0	ng/L	104	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluoroheptanoic acid (PFHpA)	537	2.0			1.9667	2.0	ng/L	98	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			1.9350	2.0	ng/L	97	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluorohexanoic acid (PFHxA)	537	2.0			2.0414	2.0	ng/L	102	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluorododecanoic acid (PFDoA)	537	2.0			2.1318	2.0	ng/L	107	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			2.1193	2.0	ng/L	106	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluorononanoic acid (PFNA)	537	2.0			2.0750	2.0	ng/L	104	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluorooctanesulfonic acid (PFOS)	537	2.0			2.1835	2.0	ng/L	109	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluorooctanoic acid (PFOA)	537	2.0			2.0051	2.0	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluorotridecanoic acid (PFTrDA)	537	2.0			2.0638	2.0	ng/L	103	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
CCL	Perfluoroundecanoic acid (PFUnA)	537	2.0			2.1305	2.0	ng/L	107	50 - 150			1.0	08/08/2019 09:15	08/16/2019 22:50	4386880
LRB	IS-PFOA-13C2	537	N/A			1307540.00	1240890	ng/L	105	50 - 150			0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	IS-PFOS-13C4	537	N/A			350928.00	327507	ng/L	107	50 - 150			0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	SS-PFDA-13C2	537	N/A			102.3220	100	ng/L	111	70 - 130			0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	SS-PFHxA-13C2	537	N/A			51.7400	50.0	ng/L	112	70 - 130			0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluorobutanesulfonic acid (PFBS)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluorodecanoic acid (PFDA)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluoroheptanoic acid (PFHpA)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluorohexanoic acid (PFHxA)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluorododecanoic acid (PFDoA)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluorononanoic acid (PFNA)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluorooctanesulfonic acid (PFOS)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluorooctanoic acid (PFOA)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluorotridecanoic acid (PFTrDA)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
LRB	Perfluoroundecanoic acid (PFUnA)	537	2.0		<	2.0		ng/L					0.92	08/15/2019 08:01	08/16/2019 23:16	4386883
FBM	IS-PFOA-13C2	537	N/A			1488390.00	1240890	ng/L	120	50 - 150			1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
FBM	IS-PFOS-13C4	537	N/A			401137.00	327507	ng/L	122	50 - 150	Ī		1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
FBM	SS-PFDA-13C2	537	N/A			96.7323	100	ng/L	97	70 - 130			1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
FBM	SS-PFHxA-13C2	537	N/A			48.2780	50.0	ng/L	97	70 - 130	i		1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
T FBM	Perfluorobutanesulfonic acid (PFBS)	537	2.0			87.1883	100	ng/L	87	70 - 130	i		1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
a G F B M	Perfluorodecanoic acid (PFDA)	537	2.0			84.5425	100	ng/L	85	70 - 130	i		1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
NFBM 5	Perfluoroheptanoic acid (PFHpA)	537	2.0			83.5586	100	ng/L	84	70 - 130	i		1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
QFBM	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			86.6414	100	ng/L	87	70 - 130	Í		1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
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QC Summary Report (cont.)																
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FBM	Perfluorohexanoic acid (PFHxA)	537	2.0			83.2335	100	ng/L	83	70 - 130			1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
FBM	Perfluorododecanoic acid (PFDoA)	537	2.0			85.6100	100	ng/L	86	70 - 130			1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
FBM	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			81.0733	100	ng/L	81	70 - 130			1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
FBM	Perfluorononanoic acid (PFNA)	537	2.0			86.5919	100	ng/L	87	70 - 130			1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
FBM	Perfluorooctanesulfonic acid (PFOS)	537	2.0			85.1268	100	ng/L	85	70 - 130			1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
FBM	Perfluorooctanoic acid (PFOA)	537	2.0			85.3983	100	ng/L	85	70 - 130			1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
FBM	Perfluorotridecanoic acid (PFTrDA)	537	2.0			84.1157	100	ng/L	84	70 - 130			1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
FBM	Perfluoroundecanoic acid (PFUnA)	537	2.0			84.5629	100	ng/L	85	70 - 130			1.0	08/15/2019 08:01	08/16/2019 23:42	4386884
ССМ	IS-PFOA-13C2	537	N/A			1153010.00	1153010	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	IS-PFOS-13C4	537	N/A			322078.00	322078	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	SS-PFDA-13C2	537	N/A			104.3850	100	ng/L	104	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	SS-PFHxA-13C2	537	N/A			50.6021	50.0	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluorobutanesulfonic acid (PFBS)	537	2.0			99.6809	100	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluorodecanoic acid (PFDA)	537	2.0			101.6570	100	ng/L	102	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluoroheptanoic acid (PFHpA)	537	2.0			101.2660	100	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			99.0154	100	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluorohexanoic acid (PFHxA)	537	2.0			100.8120	100	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluorododecanoic acid (PFDoA)	537	2.0			103.2530	100	ng/L	103	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			100.6290	100	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluorononanoic acid (PFNA)	537	2.0			103.2890	100	ng/L	103	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluorooctanesulfonic acid (PFOS)	537	2.0			99.4437	100	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluorooctanoic acid (PFOA)	537	2.0			100.1930	100	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluorotridecanoic acid (PFTrDA)	537	2.0			103.0360	100	ng/L	103	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
ССМ	Perfluoroundecanoic acid (PFUnA)	537	2.0			102.1710	100	ng/L	102	70 - 130			1.0	08/08/2019 09:15	08/17/2019 02:58	4386881
FTB	IS-PFOA-13C2	537	N/A	PEF52078/Field Blank		1515840.00	1153010	ng/L	131	50 - 150			0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	IS-PFOS-13C4	537	N/A	PEF52078/Field Blank		412918.00	322078	ng/L	128	50 - 150			0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	SS-PFDA-13C2	537	N/A	PEF52078/Field Blank		83.6416	100	ng/L	95	70 - 130			0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	SS-PFHxA-13C2	537	N/A	PEF52078/Field Blank		42.0517	50.0	ng/L	96	70 - 130			0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	Perfluorobutanesulfonic acid (PFBS)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	Perfluorodecanoic acid (PFDA)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	Perfluoroheptanoic acid (PFHpA)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	Perfluorohexanoic acid (PFHxA)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	Perfluorododecanoic acid (PFDoA)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	Perfluorononanoic acid (PFNA)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
FTB	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
¬ FTB	Perfluorooctanoic acid (PFOA)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
Page FTB	Perfluorotridecanoic acid (PFTrDA)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
N _{EIR}	Perfluoroundecanoic acid (PFUnA)	537	2.0	PEF52078/Field Blank	<	2.0		ng/L					0.88	08/15/2019 08:01	08/17/2019 03:51	4381224
O CCH	IS-PFOA-13C2	537	N/A			1079380.00	1079380	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882

QC Summary Report (cont.)																
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits			Dil Factor	Extracted	Analyzed	EEA ID#
ССН	IS-PFOS-13C4	537	N/A			311407.00	311407	ng/L	100	50 - 150			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	SS-PFDA-13C2	537	N/A			100.1620	100	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	SS-PFHxA-13C2	537	N/A			50.8725	50.0	ng/L	102	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	Perfluorobutanesulfonic acid (PFBS)	537	2.0			196.1390	200	ng/L	98	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	Perfluorodecanoic acid (PFDA)	537	2.0			201.2050	200	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	Perfluoroheptanoic acid (PFHpA)	537	2.0			200.3660	200	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			195.1090	200	ng/L	98	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	Perfluorohexanoic acid (PFHxA)	537	2.0			200.2260	200	ng/L	100	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	Perfluorododecanoic acid (PFDoA)	537	2.0			201.2800	200	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			201.8960	200	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	Perfluorononanoic acid (PFNA)	537	2.0			194.9380	200	ng/L	97	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	Perfluorooctanesulfonic acid (PFOS)	537	2.0			198.7180	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
CCH	Perfluorooctanoic acid (PFOA)	537	2.0			197.8740	200	ng/L	99	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
ССН	Perfluorotridecanoic acid (PFTrDA)	537	2.0			203.2930	200	ng/L	102	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882
ССН	Perfluoroundecanoic acid (PFUnA)	537	2.0			202.5290	200	ng/L	101	70 - 130			1.0	08/08/2019 09:15	08/17/2019 06:27	4386882



Eurofins Eaton Analytical Run Log

Run ID: **263320** Method: **537**

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4388190		os	FL	08/17/2019 11:53	081719M537a-FL-PFC12.mdb
LRB	4388876		RW	FL	08/17/2019 12:19	081719M537a-FL-PFC12.mdb
FBH	4388877		RW	FL	08/17/2019 12:45	081719M537a-FL-PFC12.mdb
CCM	4388191		OS	FL	08/17/2019 15:22	081719M537a-FL-PFC12.mdb
CCH	4388192		os	FL	08/17/2019 17:59	081719M537a-FL-PFC12.mdb

	QC Summary Report															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
CCL	IS-PFOA-13C2	537	N/A			1247660.00	1247660	ng/L	100	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	IS-PFOS-13C4	537	N/A			316463.00	316463	ng/L	100	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	SS-PFDA-13C2	537	N/A			99.6059	100	ng/L	100	70 - 130			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	SS-PFHxA-13C2	537	N/A			48.4614	50.0	ng/L	97	70 - 130			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluorobutanesulfonic acid (PFBS)	537	2.0			2.0412	2.0	ng/L	102	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluorodecanoic acid (PFDA)	537	2.0			2.1411	2.0	ng/L	107	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluoroheptanoic acid (PFHpA)	537	2.0			2.0716	2.0	ng/L	104	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			2.1133	2.0	ng/L	106	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluorohexanoic acid (PFHxA)	537	2.0			2.0737	2.0	ng/L	104	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluorododecanoic acid (PFDoA)	537	2.0			2.1558	2.0	ng/L	108	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			2.2091	2.0	ng/L	110	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	438819
CCL	Perfluorononanoic acid (PFNA)	537	2.0			2.1935	2.0	ng/L	110	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluorooctanesulfonic acid (PFOS)	537	2.0			2.2634	2.0	ng/L	113	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluorooctanoic acid (PFOA)	537	2.0			2.1087	2.0	ng/L	105	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluorotridecanoic acid (PFTrDA)	537	2.0			2.1803	2.0	ng/L	109	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
CCL	Perfluoroundecanoic acid (PFUnA)	537	2.0			2.1817	2.0	ng/L	109	50 - 150			1.0	08/15/2019 16:15	08/17/2019 11:53	4388190
LRB	IS-PFOA-13C2	537	N/A			1248700.00	1247660	ng/L	100	50 - 150			0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	IS-PFOS-13C4	537	N/A			311907.00	316463	ng/L	99	50 - 150			0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	SS-PFDA-13C2	537	N/A			82.8778	100	ng/L	94	70 - 130			0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	SS-PFHxA-13C2	537	N/A			40.9474	50.0	ng/L	93	70 - 130			0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	Perfluorobutanesulfonic acid (PFBS)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	438887
LRB	Perfluorodecanoic acid (PFDA)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	438887
LRB	Perfluoroheptanoic acid (PFHpA)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	Perfluorohexanesulfonic acid (PFHxS)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	438887
LRB	Perfluorohexanoic acid (PFHxA)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	Perfluorododecanoic acid (PFDoA)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	Perfluorotetradecanoic acid (PFTeDA)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	Perfluorononanoic acid (PFNA)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	Perfluorooctanesulfonic acid (PFOS)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	Perfluorooctanoic acid (PFOA)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	Perfluorotridecanoic acid (PFTrDA)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
LRB	Perfluoroundecanoic acid (PFUnA)	537	2.0		<	2.0		ng/L					0.88	08/16/2019 06:50	08/17/2019 12:19	4388876
FBH	IS-PFOA-13C2	537	N/A			1150620.00	1247660	ng/L	92	50 - 150			1.0	08/16/2019 06:50	08/17/2019 12:45	438887
FBH	IS-PFOS-13C4	537	N/A			297392.00	316463	ng/L	94	50 - 150			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
FBH	SS-PFDA-13C2	537	N/A			98.3179	100	ng/L	98	70 - 130			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
FBH	SS-PFHxA-13C2	537	N/A			48.2653	50.0	ng/L	97	70 - 130			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
T FBH	Perfluorobutanesulfonic acid (PFBS)	537	2.0			210.9720	200	ng/L	105	70 - 130			1.0		08/17/2019 12:45	
a Q FBH	Perfluorodecanoic acid (PFDA)	537	2.0			203.6630	200	ng/L	102	70 - 130			1.0		08/17/2019 12:45	
O NFBH O	Perfluoroheptanoic acid (PFHpA)	537	2.0			202.1590	200	ng/L	101	70 - 130			1.0		08/17/2019 12:45	
O OFBH	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			207.8420	200	ng/L	104	70 - 130			1.0	08/16/2019 06:50		

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FBH	Perfluorohexanoic acid (PFHxA)	537	2.0			201.0050	200	ng/L	101	70 - 130			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
FBH	Perfluorododecanoic acid (PFDoA)	537	2.0			203.0350	200	ng/L	102	70 - 130			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
FBH	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			194.0040	200	ng/L	97	70 - 130			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
FBH	Perfluorononanoic acid (PFNA)	537	2.0			206.8160	200	ng/L	103	70 - 130			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
FBH	Perfluorooctanesulfonic acid (PFOS)	537	2.0			209.2630	200	ng/L	105	70 - 130			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
FBH	Perfluorooctanoic acid (PFOA)	537	2.0			205.0130	200	ng/L	103	70 - 130			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
FBH	Perfluorotridecanoic acid (PFTrDA)	537	2.0			200.4270	200	ng/L	100	70 - 130			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
FBH	Perfluoroundecanoic acid (PFUnA)	537	2.0			196.6660	200	ng/L	98	70 - 130			1.0	08/16/2019 06:50	08/17/2019 12:45	4388877
ССМ	IS-PFOA-13C2	537	N/A			1186270.00	1186270	ng/L	100	50 - 150			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	IS-PFOS-13C4	537	N/A			304731.00	304731	ng/L	100	50 - 150		i	1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	SS-PFDA-13C2	537	N/A			100.4050	100	ng/L	100	70 - 130			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	SS-PFHxA-13C2	537	N/A			49.3384	50.0	ng/L	99	70 - 130		i	1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluorobutanesulfonic acid (PFBS)	537	2.0			101.9790	100	ng/L	102	70 - 130			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluorodecanoic acid (PFDA)	537	2.0			100.5040	100	ng/L	101	70 - 130			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluoroheptanoic acid (PFHpA)	537	2.0			102.6660	100	ng/L	103	70 - 130			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			103.8500	100	ng/L	104	70 - 130		i	1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluorohexanoic acid (PFHxA)	537	2.0			100.0550	100	ng/L	100	70 - 130		i	1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluorododecanoic acid (PFDoA)	537	2.0			103.1030	100	ng/L	103	70 - 130		i	1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			105.4800	100	ng/L	105	70 - 130			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluorononanoic acid (PFNA)	537	2.0			104.8340	100	ng/L	105	70 - 130			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluorooctanesulfonic acid (PFOS)	537	2.0			101.5680	100	ng/L	102	70 - 130			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluorooctanoic acid (PFOA)	537	2.0			102.9700	100	ng/L	103	70 - 130			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluorotridecanoic acid (PFTrDA)	537	2.0			102.8950	100	ng/L	103	70 - 130			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССМ	Perfluoroundecanoic acid (PFUnA)	537	2.0			103.2710	100	ng/L	103	70 - 130			1.0	08/15/2019 16:15	08/17/2019 15:22	4388191
ССН	IS-PFOA-13C2	537	N/A			1178570.00	1178570	ng/L	100	50 - 150			1.0	08/15/2019 16:15	08/17/2019 17:59	4388192
ССН	IS-PFOS-13C4	537	N/A			299365.00	299365	ng/L	100	50 - 150			1.0	08/15/2019 16:15	08/17/2019 17:59	4388192
ССН	SS-PFDA-13C2	537	N/A			97.2910	100	ng/L	97	70 - 130			1.0	08/15/2019 16:15	08/17/2019 17:59	4388192
ССН	SS-PFHxA-13C2	537	N/A			48.1246	50.0	ng/L	96	70 - 130			1.0	08/15/2019 16:15	08/17/2019 17:59	4388192
ССН	Perfluorobutanesulfonic acid (PFBS)	537	2.0			182.7960	200	ng/L	91	70 - 130			1.0	08/15/2019 16:15	08/17/2019 17:59	4388192
ССН	Perfluorodecanoic acid (PFDA)	537	2.0			181.7470	200	ng/L	91	70 - 130			1.0	08/15/2019 16:15	08/17/2019 17:59	4388192
ССН	Perfluoroheptanoic acid (PFHpA)	537	2.0			179.4160	200	ng/L	90	70 - 130			1.0	08/15/2019 16:15	08/17/2019 17:59	4388192
ССН	Perfluorohexanesulfonic acid (PFHxS)	537	2.0			186.6170	200	ng/L	93	70 - 130			1.0	08/15/2019 16:15	08/17/2019 17:59	4388192
ССН	Perfluorohexanoic acid (PFHxA)	537	2.0			175.4520	200	ng/L	88	70 - 130			1.0	08/15/2019 16:15	08/17/2019 17:59	4388192
ССН	Perfluorododecanoic acid (PFDoA)	537	2.0			182.0620	200	ng/L	91	70 - 130			1.0	08/15/2019 16:15	08/17/2019 17:59	4388192
ССН	Perfluorotetradecanoic acid (PFTeDA)	537	2.0			183.2930	200	ng/L	92	70 - 130			1.0		08/17/2019 17:59	
ССН	Perfluorononanoic acid (PFNA)	537	2.0			179.5460	200	ng/L	90	70 - 130			1.0		08/17/2019 17:59	
ССН	Perfluorooctanesulfonic acid (PFOS)	537	2.0			183.8220	200	ng/L	92	70 - 130			1.0		08/17/2019 17:59	
¬CCH	Perfluorooctanoic acid (PFOA)	537	2.0			183.6180	200	ng/L	92	70 - 130			1.0		08/17/2019 17:59	
D CCH	Perfluorotridecanoic acid (PFTrDA)	537	2.0			179.0000	200	ng/L	90	70 - 130			1.0		08/17/2019 17:59	
မှာ သ ^{CCH}	Perfluoroundecanoic acid (PFUnA)	537	2.0			179.7540	200	ng/L	90	70 - 130			1.0		08/17/2019 17:59	

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCH	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FTB	Field Trip Blank		
FBH	Fortified Blank High		
FBM	Fortified Blank Mid		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC - 2020 Slant PFC's

CLIENT INFORMATION Company: Ice Services NSB SA-10		Contact Person: Ric	h Helinski		Requested Analysis						Page 1 of 1				
Company: Ice Services	NSB 5A-10	11					Perservati	ive Added							
Address: Pouch 340044															
City, State Zip: Prudhoe	Bay, AK 99734			PWS ID #											
Phone: (907) 659-9060				Send Results to	ADEC:		37*							□ Normal	Turnaround
Fax: (907) 659-9061				□ Yes 🐹 No			N								
Email: rhelinski@iceserv	vices.net			Purchase Order/Char	ge Code:	ners	epa							□ RUSH	day(s)
Project Name: Slant Well	Testing		2020-667		of Contai	l o		kg s,							
Sampled By: Logan	similar					Number	PFC								
Sample Identification	Sample Date Sa	mple Time	Matrix	PE Lab ID#	PEF Lab ID#									Sample C	omments
Well 1	8/24/2010	2840	w	PEF 61091		1	Х			111					
Well 2	8/24/200	840	w	7EF 61092		1	Х								
Raw Surface Water	8/24/20 0	0830	w	PEF-61013		1	х								
Travel Blank			W			1	- X-	-							
				1					-				-		-
													-		
Possible Hazard Identifi	ication:						Sample	Condition						-	
□ Non-Hazardous	□ Flammable	□ Skin Iri	ritant	□ Unknown	Pollen Env Tempe NTL Alaska Temp	erature (on arrival	: 5.0	°C	COC Seal				Broken Broken	□ Absent □ Absent
Special Instructions/QC	Requirements & C	Comments:	*PFB	S, PFDA, FPH	A, PFHxS,	PFHx	A, PF	DoA, P	PFTel	DA, PFN	A, PFO	S, PFO	A, PFTr	DA, PFL	JnA
Relinquished by:	Company:			Date & Time:		Rece	ived by:	Colon		Company:	End		Date &	Jime:) 93C)
Relinquished by:	Company: Paller	n Env		Date & Time: 101	100am	Rece	ived by:	8	Y	Company:	J,. J		Date &		,
Relinquished by:	Company:			Date & Time:		Rece	ived by:			Company:			Date &	Time:	

CERTIFICATE OF ANALYSIS

Report Date: 9/23/2020 Received Date: 8/25/2020

NSB SA-10 (Ice Services)

Attn: Rich Helinski Pouch 340044

Prudhoe Bay, AK 99734 Phone: 907-659-9060 Fax: 907-659-9061

rhelinski@iceservices.net

Project Name: Slant Well Testing Sampled By: Logan Poindexter

Sample ID:	Pollen Env ID:	Eurofins Report:	Date:	Time:
Well 1	PEF61091	4709013	8/24/2020	8:40 AM
Well 2	PEF61092	4709014	8/24/2020	8:40 AM
Raw Surface Water	PEF61093	4709015	8/24/2020	8:30 AM

Jerry Pollen

Pollen Environmental, LLC



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-18-12
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 03/14/2019



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

Pollen Environmental LLC 496073 Client: Report:

Priority: Standard Written Jerry Pollen Attn:

Status: Final 3536 International Avenue

PWS ID: Not Supplied Fairbanks, AK 99701 Alaska Lab ID # IN00035

	Sample Information										
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time						
4709013	PEF61091/Well 1	537.1	08/24/20 08:40	Client	08/26/20 10:00						
4709014	PEF61092/Well 2	537.1	08/24/20 08:40	Client	08/26/20 10:00						
4709015	PEF61093/Raw Surface Water	537.1	08/24/20 08:30	Client	08/26/20 10:00						

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Mui Chlebowser Title

09/08/2020

Date

Authorized Signature

Client Name:

Pollen Environmental LLC

Report #: 496073 Client Name: Pollen Environmental LLC Report #: 496073

Sampling Point: PEF61091/Well 1 PWS ID: Not Supplied

	EEA Methods									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#	
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	24	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
375-73-5	Perfluorobutanesulfonic acid (PFBS)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
375-85-9	Perfluoroheptanoic acid (PFHpA)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	537.1		2.0	5.2	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
375-95-1	Perfluorononanoic acid (PFNA)	537.1		2.0	3.4	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
335-76-2	Perfluorodecanoic acid (PFDA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537.1		2.0	2.9	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:02	4709013	

^{\$} The state of origin does not offer certification for this parameter.

Sampling Point: PEF61092/Well 2 PWS ID: Not Supplied

	EEA Methods									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#	
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	14	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
375-73-5	Perfluorobutanesulfonic acid (PFBS)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
375-85-9	Perfluoroheptanoic acid (PFHpA)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	537.1		2.0	4.5	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
375-95-1	Perfluorononanoic acid (PFNA)	537.1		2.0	2.5	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
335-76-2	Perfluorodecanoic acid (PFDA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537.1		2.0	2.3	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:15	4709014	

^{\$} The state of origin does not offer certification for this parameter.

Client Name: Pollen Environmental LLC Report #: 496073

Sampling Point: PEF61093/Raw Surface Water PWS ID: Not Supplied

	EEA Methods									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#	
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	2.4	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
375-73-5	Perfluorobutanesulfonic acid (PFBS)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
375-85-9	Perfluoroheptanoic acid (PFHpA)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
375-95-1	Perfluorononanoic acid (PFNA)	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
335-76-2	Perfluorodecanoic acid (PFDA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
307-24-4	Perfluorohexanoic acid (PFHxA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
307-55-1	Perfluorododecanoic acid (PFDoA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
72629-94-8	Perfluorotridecanoic acid (PFTrDA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
2058-94-8	Perfluoroundecanoic acid (PFUnA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	
376-06-7	Perfluorotetradecanoic acid (PFTeDA) \$	537.1		2.0	< 2.0	ng/L	09/03/20 08:05	09/04/20 16:29	4709015	

^{\$} The state of origin does not offer certification for this parameter.

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Client Name: Pollen Environmental LLC Report #: 496073

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery** %

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM 406081

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC - 2020 Slant PFC's 496073

CLIENT	INFORMATION				100000		7				Requeste	d Analy	sis				
Company: Ice Services	NSB SA-10			Contact Person: Ric	h Helinski		3	Perserval	tive Adde	d						P	age 1 of 1
Address: Pouch 340044				PWS ID #									5/				
City, State Zip: Prudhoe	Bay, AK 99734			FW3 1D #													
Phone: (907) 659-9060				Send Results to	ADEC:			37*					1 - 1			□ Norm	al Turnaround
Fax: (907) 659-9061				□ Yes 🎉	No			7									
Email: rhelinski@iceserv	vices.net			Purchase Order/Char	rge Code:		ners	eba								□ RUSH	day(s)
Project Name: Slant Wel	1		0	2020-667			r of Contai	s's by									
Sampled By: Logan	ondedr						Yumber	PFC's			-						
Sample Identification	Sample Date		Matrix	PE Lab ID#	PEF Lab	ID#	- 1							1		Sample	Comments
Well 1	8/24/20	1.0840	w	PEF 61091			1	Χ								470	8013
Well 2	8/24/20	0840	w	PEF 61092			1	X									614
Raw Surface Water	8/24/20	0830	w				1	х								1	015
	1 // 1															08 34	202000
								1-23.1									
Travel Blank			₩-				1	-X-	_								
						Cro		0	ff c	nc	oc	by	Clie	try's			
						VIU	0	5 C	110	110		wy	Q111X	y 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
Possible Hazard Identif	□ Flammabl	le 🗆 Skin i	Trritant	□ Unknown	Pollen Env Te NTL Alaska T		ire i	on arriva		0 °C	coc s			□ Int		□ Broken □ Broken	☐ Absent☐ Absent
Special Instructions/Q0	Requirements	& Comments	*PFB	S, PFDA, FPH	pA, PFHx	S, PF	Нх	A, PF	DoA,	PFTel	DA, PF	NA, F	FOS,	PFOA,	PFT	rDA, PF	UnA
Relinquished by:	Company:			Date & Time:		R	ece	ived by:	0	1	Compan	/: <i>/</i>		•	Daţe &	Tjime:	
Relinguished by:	Company: Pa	llen Env		Date & Time: AP I	100000	R	ece	ived by: oranzived by:	Cog	Y	Compan Compan	n Cu	· V		8/25 Date &	Time:	0930
Relinquished by:	Company:	MICH		Date & Time:	(UVECH)	R	ece	ived by:	w	U	Company	For			Date &	Time: 26-202	0
					14.27		1				16				-0	100	



Eurofins Eaton Analytical Run Log

Run ID: 279286 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4715752		os	FL	09/04/2020 11:29	090420M537_1a-FL.mdb
LRB	4715759		RW	FL	09/04/2020 11:55	090420M537_1a-FL.mdb
FBL	4715763		RW	FL	09/04/2020 12:08	090420M537_1a-FL.mdb
FBH	4715766		RW	FL	09/04/2020 12:21	090420M537_1a-FL.mdb
CCM	4715755		OS	FL	09/04/2020 15:10	090420M537_1a-FL.mdb
FS	4709013	PEF61091/Well 1	DW	FL	09/04/2020 16:02	090420M537_1a-FL.mdb
FS	4709014	PEF61092/Well 2	DW	FL	09/04/2020 16:15	090420M537_1a-FL.mdb
FS	4709015	PEF61093/Raw Surface Water	DW	FL	09/04/2020 16:29	090420M537_1a-FL.mdb
CCH	4715757		OS	FL	09/04/2020 17:21	090420M537_1a-FL.mdb

Part						QC S	Summar	y Repo	ort							
CCL Perfluence and Perfluence and Perfluence Perfluence and Perfluence Perf		Analyte	Method	MDA95	Client ID	- 11 11	Amount	Target	Units			RPD		Extracted	Analyzed	
CGL IS-NeM-CSA-A23 SS71 NA	CCL	Perfluorooctanoic acid (PFOA)	537.1	2.0			2.0014	2.0	ng/L	100	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL SS-POK-16C2 SS71 NA	CCL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			2.0622	2.0	ng/L	103	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL SS-FEO-N2C4 SS71 NA	CCL	IS-NMeFOSAA-d3	537.1	N/A			808556	808556	ng/L	100	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
Col. SS-HEIP COAL-65 537.1 NA	CCL	IS-PFOA-13C2	537.1	N/A			1164140	1164140	ng/L	100	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL SS.PFID.1612 S57.1 NA	CCL	IS-PFOS-13C4	537.1	N/A			422506	422506	ng/L	100	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL Perfluor/columneal/unite and (PFFA) S37.1 2.0 1.967.27 2.0 mgl. 96 70.100 1.0 0.000/2020 13.15 0.004/2020 11.29 274576 CCL Perfluor/columneal/unite and (PFFA) S37.1 2.0 2.0687 2.0 mgl. 103 0.01 0.00 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/columneal/unite and (PFFA) S37.1 2.0 2.0124 2.0 mgl. 103 0.015 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/columneal/unite and (PFFA) S37.1 2.0 1.05851 2.0 mgl. 101 50.150 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/columneal/unite and (PFFA) S37.1 2.0 2.0124 2.0 mgl. 101 50.150 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/columneal/unite and (PFFA) S37.1 2.0 2.0124 2.0 mgl. 101 50.150 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/columneal/unite and (PFFA) S37.1 2.0 2.02880 2.0 mgl. 104 50.150 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/collegenative and (PFFA) S37.1 2.0 2.02880 2.0 mgl. 104 50.150 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/collegenative and (PFFA) S37.1 2.0 2.02880 2.0 mgl. 104 50.150 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/collegenative and (PFFA) S37.1 2.0 2.02880 2.0 mgl. 104 50.150 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/collegenative and (PFFA) S37.1 2.0 2.02880 2.0 mgl. 104 50.150 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/collegenative and (PFFA) S37.1 2.0 2.02880 2.0 mgl. 104 50.150 1.0 0.000/2020 13.15 0.004/2020 11.29 474576 CCL Perfluor/collegenative and (PFFA) S37.1 2.0 2.02880 2.0 mgl. 0	CCL	SS-NEtFOSAA-d5	537.1	N/A			169.0770	160	ng/L	106	70 - 130		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL Perfluoroblameaufforic acid (PFBS) 537.1 2.0 1.9107 2.0 rg/L 96 50-150 1.0 06032020 13.15 08042020 11.29 471575	CCL	SS-PFDA-13C2	537.1	N/A			40.0526	40.0	ng/L	100	70 - 130		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL Perfluoronhepanoic acid (PFHpA) 637.1 2.0 2.0837 2.0 nglL 103 50-130 1.0 0803/2202 1315 0804/2202 1122 471575	CCL	SS-PFHxA-13C2	537.1	N/A			39.7127	40.0	ng/L	99	70 - 130		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
Perfluoronchesanesunfonic acid (PFHAS) 537.1 2.0 1.0 2.0 1.0	CCL	Perfluorobutanesulfonic acid (PFBS)	537.1	2.0			1.9107	2.0	ng/L	96	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL Perfluorotoranoica dd (PFNA) 537.1 2.0 1.9551 2.0 ngl. 98 50.150 1.0 00032202 13.15 (09042202 11.29 471575 CCL Perfluorodecancic and (PFNA) 537.1 2.0 2.0115 2.0 ngl. 1011 50.150 1.0 00032202 13.15 (09042202 11.29 471575 CCL Perfluorotoranoica and (PFNA) 537.1 2.0 2.0884 2.0 ngl. 104 50.150 1.0 00032202 13.15 (09042202 11.29 471575 CCL Perfluorotoranoica and (PFNA) 537.1 2.0 2.0884 2.0 ngl. 104 50.150 1.0 00032202 13.15 (09042202 11.29 471575 CCL Perfluorotoranoica and (PFNA) 537.1 2.0 2.0884 2.0 ngl. 104 50.150 1.0 00032202 13.15 (09042202 11.29 471575 CCL Perfluorotoranoica and (PFNA) 537.1 2.0 2.0884 2.0 ngl. 104 50.150 1.0 00032202 13.15 (09042202 11.29 471575 CCL Perfluorotoranoica and (PFNA) 537.1 2.0 2.0888 2.0 ngl. 104 50.150 1.0 00032202 13.15 (09042202 11.29 471575 CCL Perfluorotoranoica and (PFNA) 537.1 2.0 2.2888 2.0 ngl. 104 50.150 1.0 00032202 13.15 (09042202 11.29 471575 CCL Perfluorotoranoica and (PFNA) 537.1 2.0 2.1720 2.0 ngl. 109 50.150 1.0 00032202 13.15 (09042202 11.29 471575 CCL SS-HFPO-DA-13C3 537.1 NA 40.0784 40.0 ngl. 100 70.130 10 00032202 13.15 (09042202 11.29 471575 CR 10 00032202 13.15 (0904220 11.29 471575 CR 10 00032202 13.15 (0904220 11.29 471575 CR 10 0003202 13.15 (0904220 11.29 471575 CR 10 0003202 13.15 (0904220 11.29 471575 CR 10 0003202 13.15 (0904220 11.29 471575 CR 10 000320 11.29 471575 CR 10 0003202 13.15 (0904220 11.29 471575 CR 10 000320 11.29 471575 CR .	CCL	Perfluoroheptanoic acid (PFHpA)	537.1	2.0			2.0637	2.0	ng/L	103	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL Perfluorodecanoic acid (PFDA)	CCL	Perfluorohexanesulfonic acid (PFHxS)	537.1	2.0			2.0124	2.0	ng/L	101	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL Perfluorodecanoic acid (PFHAX) 537.1 2.0 1.9112 2.0 ng/L 96 50-150 1.0 09/03/2020 13.15 09/04/2020 11.29 471575 CCL Perfluorodecanoic acid (PFHAX) 537.1 2.0 2.084 2.0 ng/L 104 50-150 1.0 09/03/2020 13.15 09/04/2020 11.29 471575 CCL Perfluorodecanoic acid (PFHAX) 537.1 2.0 2.084 2.0 ng/L 104 50-150 1.0 09/03/2020 13.15 09/04/2020 11.29 471575 CCL Perfluoroundecanoic acid (PFHAX) 537.1 2.0 2.084 2.0 ng/L 104 50-150 1.0 09/03/2020 13.15 09/04/2020 11.29 471575 CCL Perfluoroundecanoic acid (PFHAX) 537.1 2.0 2.1720 2.0 ng/L 104 50-150 1.0 09/03/2020 13.15 09/04/2020 11.29 471575 CCL Perfluoroundecanoic acid (PFHAX) 537.1 2.0 2.1720 2.0 ng/L 109 50-150 1.0 09/03/2020 13.15 09/04/2020 11.29 471575 CCL SS-HFPO-DA-13G3 S57.1 N/A 40.0764 40.0 ng/L 100 70-150 1.0 09/03/2020 13.15 09/04/2020 11.29 471575 CCL SS-HFPO-DA-13G3 S57.1 N/A 40.0764 40.0 ng/L 100 70-150 1.0 09/03/2020 13.15 09/04/2020 11.29 471575 CCL SS-HFPO-DA-13G3 S57.1 N/A 40.0764 40.0 ng/L 100 70-150 1.0 09/03/2020 13.15 09/04/2020 11.29 471575 CCL SS-HFPO-DA-13G3 S57.1 N/A 40.0764 40.0 ng/L 100 70-150 1.0 09/03/2020 08.05 09/04/2020 11.55 471575 LRB IS-MBE-DS-AAG3 S57.1 N/A 798741 808559 ng/L 99 50-150 0.92 09/03/2020 08.05 09/04/2020 11.55 471575 LRB IS-PEO-LAG2 S57.1 N/A 1209660 1164140 ng/L 104 50-150 0.92 09/03/2020 08.05 09/04/2020 11.55 471575 LRB SS-HEPO-SAA-05 S57.1 N/A 1309520 100 ng/L 90 70-130 0.92 09/03/2020 08.05 09/04/2020 11.55 471575 LRB SS-HEPO-SAA-05 S57.1 N/A 1309520 100 ng/L 90 70-130 0.92 09/03/2020 08.05 09/04/2020 11.55 471575 LRB SS-HEPO-SAA-05 S57.1 N/A 1309520 100 ng/L 90 70-130 0.92 09/03/2020 08.05 09/04/2020 11.55 471575 LRB SS-HEPO-SAA-05 S57.1 N/A 1309520 100 ng/L 90 70-130 0.92 09/03/2020 08.05 09/04/2020 11.55 471575 LRB Perfluorobalance acid (PFBA) S57.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08.05 09/04/2020 11.55 471575 LRB Perfluorobalance a	CCL	Perfluorononanoic acid (PFNA)	537.1	2.0			1.9551	2.0	ng/L	98	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCI. Perfluorotodecanoic acid (PFDA) 537.1 2.0 2.0880 2.0 ngiL 104 50-160 1.0 0903/2020 13.15 0904/2020 11.29 471575 CCI. Perfluorotidecanoic acid (PFTDA) 537.1 2.0 2.0884 2.0 ngiL 104 50-160 1.0 0903/2020 13.15 0904/2020 11.29 471575 CCI. Perfluorotidecanoic acid (PFTDA) 537.1 2.0 2.0884 2.0 ngiL 104 50-160 1.0 0903/2020 13.15 0904/2020 11.29 471575 CCI. Perfluorotidecanoic acid (PFTDA) 537.1 2.0 2.0884 2.0 ngiL 109 50-160 1.0 0903/2020 13.15 0904/2020 11.29 471575 CCI. Perfluorotidecanoic acid (PFTDA) 537.1 2.0 4.0 0.0784 40.0 ngiL 100 70-130 10 0903/2020 13.15 0904/2020 11.29 471575 CCI. SS-HFPD.0A-13C3 537.1 N/A 40-0784 40.0 ngiL 100 70-130 10 0903/2020 13.15 0904/2020 11.29 471575 LR8 Perfluorocotanoead (PFOA) 537.1 2.0 4 2.0 ngiL	CCL	Perfluorodecanoic acid (PFDA)	537.1	2.0			2.0115	2.0	ng/L	101	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL Perfluoroutindecanoic acid (PFTDA) 537.1 2.0 2.0884 2.0 ng/L 104 50-150 1.0 0903/2020 13.15 0904/2020 11.28 471575 CCL Perfluorouteranoic acid (PFTDA) 537.1 2.0 2.0838 2.0 ng/L 104 50-150 1.0 0903/2020 13.15 0904/2020 11.29 471575 CCL SS-HFPC-DA-13C3 537.1 N/A 4.00764 40.0 ng/L 109 70-130 1.0 0903/2020 13.15 0904/2020 11.29 471575 CCL SS-HFPC-DA-13C3 537.1 N/A 4.00764 40.0 ng/L 100 70-130 1.0 0903/2020 13.15 0904/2020 11.29 471575 N/A 4.00764 40.0 ng/L 100 70-130 1.0 0903/2020 13.15 0904/2020 11.29 471575 N/A 4.00764 40.0 ng/L 100 70-130 1.0 0903/2020 13.15 0904/2020 11.29 471575 N/A 4.00764 40.0 ng/L 0.92 0903/2020 08.05 0904/2020 11.29 471575 N/A 4.00764 40.0 ng/L 0.92 0903/2020 08.05 0904/2020 11.29 471575 N/A 4.00764 N/A	CCL	Perfluorohexanoic acid (PFHxA)	537.1	2.0			1.9112	2.0	ng/L	96	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL Perfluoroundecanoic acid (PFUnA) 537.1 2.0 2.0838 2.0 ngiL 104 50-150 1.0 09/03/2020 13:15 09/04/2020 11:29 471575 CCL Perfluorouts acid control (PFEDA) 537.1 2.0 2.1720 2.0 ngiL 109 50-150 1.0 09/03/2020 13:15 09/04/2020 11:29 471575 CCL SS-HFPO-DA:303 537.1 N/A 40.0724 40.0 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:59 471575 CLRB Perfluorooctaneoid (PFOA) 537.1 2.0 < 2.0 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:59 471575 CLRB PERFLUORACIA (PFOA) 537.1 N/A 1209660 1164140 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB IS-NMEFOSA-43 537.1 N/A 1209660 1164140 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB IS-NMEFOSA-43 537.1 N/A 1209660 1164140 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB IS-PFOA-1302 537.1 N/A 1209660 1164140 ngiL 104 50-150 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB IS-PFOA-1302 537.1 N/A 1399505 160 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB IS-PFOA-1302 537.1 N/A 1399505 40.0 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB S-S-PFIA-1302 537.1 N/A 1399505 40.0 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB Perfluoroobatneosid (PFBS) 537.1 N/A 1399505 40.0 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB Perfluorobeaneosid caid (PFBA) 537.1 0.0 4 2.0 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB Perfluorobeaneosid caid (PFBA) 537.1 2.0 4 2.0 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB Perfluorobeaneosid caid (PFDA) 537.1 2.0 4 2.0 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB Perfluorobeaneosid caid (PFDA) 537.1 2.0 4 2.0 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB Perfluorobeaneosid caid (PFDA) 537.1 2.0 4 2.0 ngiL 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 CLRB Perflu	CCL	Perfluorododecanoic acid (PFDoA)	537.1	2.0			2.0880	2.0	ng/L	104	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL Perfluorotetradecanoic acid (PFTeDA) 537.1 2.0 2.1720 2.0 ng/L 109 50-150 1.0 09/03/2020 13:15 09/04/2020 11:29 471575 CCL SS-HFPC-DA-13C3 537.1 N/A 40.0784 40.0 ng/L 1.0 09/03/2020 13:15 09/04/2020 11:29 471575 LRB Perfluoroctanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroctanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB IS-NME-COSA-4.3 537.1 N/A 798741 808556 ng/L ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB IS-PEOA-13C2 537.1 N/A 120960 ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	CCL	Perfluorotridecanoic acid (PFTrDA)	537.1	2.0			2.0884	2.0	ng/L	104	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
CCL SS-HFPO-DA-1303	CCL	Perfluoroundecanoic acid (PFUnA)	537.1	2.0			2.0838	2.0	ng/L	104	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
LRB Perfluorooctaneoic acid (PFOA) 537.1 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorooctaneosulfonic acid (PFOA) 537.1 2.0 < 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB IS-NMEFOSA-d3 537.1 N/A 1209660 11164140 ngil. 104 50 -150 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB IS-PFOA-13C2 537.1 N/A 1209660 11164140 ngil. 104 50 -150 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB IS-PFOA-13C4 537.1 N/A 139.9520 160 ngil. 103 50 -150 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB SS-NEIFOSA-d5 537.1 N/A 139.9520 160 ngil. 95 70 -130 0.092 09/03/2020 08:05 09/04/2020 11:55 471575 LRB SS-PFDA-13C2 537.1 N/A 33.9155 40.0 ngil. 92 70 -130 0.092 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetaneosulfonic acid (PFBS) 537.1 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroheptaneoic acid (PFBA) 537.1 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroheptaneoic acid (PFBA) 537.1 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroheptaneoic acid (PFBA) 537.1 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroheptaneoic acid (PFBA) 537.1 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroheptaneoic acid (PFBA) 537.1 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroheptaneoic acid (PFBA) 537.1 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroheptaneoic acid (PFBA) 537.1 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroheptaneoic acid (PFDA) 537.1 2.0 < 2.0 ngil 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroheptaneoic acid (PFDA) 537.1 2.0 < 2.0 ngil 0.9	CCL	Perfluorotetradecanoic acid (PFTeDA)	537.1	2.0			2.1720	2.0	ng/L	109	50 - 150		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
LRB Perfluoroctanesulfonic acid (PFOS) 537.1 2.0 < 2.0	CCL	SS-HFPO-DA-13C3	537.1	N/A			40.0784	40.0	ng/L	100	70 - 130		 1.0	09/03/2020 13:15	09/04/2020 11:29	4715752
LRB IS-NMeFOSA-d3 537.1 N/A 798741 808556 ng/L 99 50 - 150 0.92 09/03/2020 08:05 09/04/2020 11:55 47157	LRB	Perfluorooctanoic acid (PFOA)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB IS-PFOA-13C2 537.1 N/A 1209660 1164140 ng/L 104 50-150 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB IS-PFOS-13C4 537.1 N/A 438057 422506 ng/L 103 50-150 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB SS-NEIFOSA-Ad-5 537.1 N/A 139.9520 160 ng/L 92 70-130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB SS-PFDA-13C2 537.1 N/A 33.9155 40.0 ng/L 92 70-130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB SS-PFDA-13C2 537.1 N/A 33.9155 40.0 ng/L 92 70-130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetanesulfonic acid (PFBS) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetanesulfonic acid (PFBS) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetanesulfonic acid (PFHS) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetanesulfonic acid (PFHS) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetanesulfonic acid (PFHS) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetanesulfonic acid (PFHA) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetaneous acid (PFDA) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetaneous acid (PFDA) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetaneous acid (PFDA) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetaneous acid (PFDA) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetaneous acid (PFDA) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetaneous acid (PFDA) 537.1 0.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobetaneous aci	LRB	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB IS-PFOS-13C4 537.1 N/A 436057 422506 ng/L 103 50 - 150 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 139 9520 160 ng/L 95 70 - 130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 139 9520 160 ng/L 95 70 - 130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 158	LRB	IS-NMeFOSAA-d3	537.1	N/A			798741	808556	ng/L	99	50 - 150		 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB SS-NEIFOSAA-d5 537.1 N/A 139 9520 160 ng/L 95 70 - 130 0.92 09/03/2020 08:05 09/04/2020 11:55 47157	LRB	IS-PFOA-13C2	537.1	N/A			1209660	1164140	ng/L	104	50 - 150		 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB SS-PFDA-13C2 537.1 N/A 33.9155 40.0 ng/L 92 70 - 130 0.92 0.9/03/2020 08:05 0.9/04/2020 11:55 471575 LRB SS-PFHxA-13C2 537.1 N/A 34.0122 40.0 ng/L 92 70 - 130 0.92 0.9/03/2020 08:05 0.9/04/2020 11:55 471575 LRB Perfluorobutanesulfonic acid (PFBS) 537.1 2.0 < 2.0 ng/L 0.92 0.9/03/2020 08:05 0.9/04/2020 11:55 471575 LRB Perfluorohexanesulfonic acid (PFHxS) 537.1 2.0 < 2.0 ng/L 0.92 0.9/03/2020 08:05 0.9/04/2020 11:55 471575 LRB Perfluorohexanesulfonic acid (PFHxS) 537.1 2.0 < 2.0 ng/L 0.92 0.9/03/2020 08:05 0.9/04/2020 11:55 471575 LRB Perfluorohexanesulfonic acid (PFHxS) 537.1 2.0 < 2.0 ng/L 0.92 0.9/03/2020 08:05 0.9/04/2020 11:55 471575 LRB Perfluorohexanesulfonic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 0.9/03/2020 08:05 0.9/04/2020 11:55 471575 LRB Perfluorohexanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 0.9/03/2020 08:05 0.9/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 0.9/03/2020 08:05 0.9/04/2020 11:55 471575 LRB Perfluorodedecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 0.9/03/2020 08:05 0.9/04/2020 11:55 471575 471	LRB	IS-PFOS-13C4	537.1	N/A			436057	422506	ng/L	103	50 - 150		 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB SS-PFHxA-13C2 537.1 N/A 34.0122 40.0 ng/L 92 70-130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobutanesulfonic acid (PFBS) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobeptanoic acid (PFHpA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorobexanesulfonic acid (PFHxS) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorononanoic acid (PFNA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 DLRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 DLRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 DLRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L	LRB	SS-NEtFOSAA-d5	537.1	N/A			139.9520	160	ng/L	95	70 - 130		 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB Perfluorobutanesulfonic acid (PFBS) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorohexanesulfonic acid (PFHxS) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorohexanesulfonic acid (PFHxS) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorohexanesulfonic acid (PFNA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorohexanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorohexanoic acid (PFDA) 537.1 2.0 < 2.0 0.91 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorohexanoic acid (PFDA) 537.1 2.0 < 2.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorothexanoic acid (PFDA) 537.1 2.0 < 2.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorothexanoic acid (PFDA) 537.1 2.0 < 2.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorothexanoic acid (PFDA) 537.1 2.0 < 2.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorothexanoic acid (PFDA) 537.1 2.0 < 2.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorothexanoic acid (PFDA) 537.1 2.0 < 2.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 00.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 00.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 00.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 00.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 00.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 00.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 00.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 00.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 00.0 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 00.0 0.92 09/03/2020 08:05 09/04/2020 11:55 4	LRB	SS-PFDA-13C2	537.1	N/A			33.9155	40.0	ng/L	92	70 - 130		 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB Perfluorohexanesulfonic acid (PFHpA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 471575 LRB Perfluorohexanesulfonic acid (PFHxS) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 471575 LRB Perfluoronanoic acid (PFNA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 471575 LRB Perfluorotridecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 471575 LRB Perfluorotridecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575	LRB	SS-PFHxA-13C2	537.1	N/A			34.0122	40.0	ng/L	92	70 - 130		 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB Perfluorohexanesulfonic acid (PFHxS) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 47157	LRB	Perfluorobutanesulfonic acid (PFBS)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB Perfluoronanoic acid (PFNA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFNA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorotridecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroundecanoic acid (PFTDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroundecanoic acid (PFUNA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroundecanoic acid (PFUNA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 DLRB Perfluorotetradecanoic acid (PFUNA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 DLRB Perfluorotetradecanoic acid (PFUNA) 537.1 2.0 < 2.0 sq/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 DLRB Perfluorotetradecanoic acid (PFUNA) 537.1 2.0 sq/L sq/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 DLRB Perfluorotetradecanoic acid (PFUNA) 537.1 2.0 sq/L sq/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 DLRB Perfluoroctanoic acid (PFOA) 537.1 2.0 sq/L sq/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 DLRB Perfluoroctanoic acid (PFOA) 537.1 2.0 sq/L sq/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 DLRB Perfluoroctanoic acid (PFOA) 537.1 2.0 sq/L sq/L	LRB	Perfluoroheptanoic acid (PFHpA)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorodecanoic acid (PFDA) 537.1 2.0 <	LRB	Perfluorohexanesulfonic acid (PFHxS)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB Perfluorohexanoic acid (PFHxA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluorododecanoic acid (PFDoA) 537.1 2.0 <	LRB	Perfluorononanoic acid (PFNA)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB Perfluorododecanoic acid (PFDoA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroundecanoic acid (PFTrDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroundecanoic acid (PFUnA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 TURB Perfluorotetradecanoic acid (PFUnA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 TURB Perfluorotetradecanoic acid (PFTeDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 TURB Perfluorotetradecanoic acid (PFTeDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 TURB Perfluorocotetradecanoic acid (PFTeDA) 537.1 2.0 < 34.1553 40.0 ng/L 93 70 - 130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 TURB Perfluorocotanoic acid (PFTeDA) 537.1 2.0 < 34.1553 40.0 ng/L 93 70 - 130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 TURB Perfluorocotanoic acid (PFTeDA) 537.1 2.0 < 34.1553 40.0 ng/L 93 70 - 130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 TURB Perfluorocotanoic acid (PFTeDA) 537.1 2.0	LRB	Perfluorodecanoic acid (PFDA)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB Perfluorotridecanoic acid (PFTrDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 LRB Perfluoroundecanoic acid (PFUnA) 537.1 2.0 <	LRB	Perfluorohexanoic acid (PFHxA)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
LRB Perfluoroundecanoic acid (PFUnA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 QLRB Perfluorotetradecanoic acid (PFTeDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 QLRB SS-HFPO-DA-13C3 537.1 N/A 34.1553 40.0 ng/L 93 70 - 130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 QPEBL Perfluorococtanoic acid (PFOA) 537.1 2.0 1.7536 2.0 ng/L 88 50 - 150 1.0 09/03/2020 08:05 09/04/2020 12:08 471575	LRB	Perfluorododecanoic acid (PFDoA)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
Perfluorotetradecanoic acid (PFTeDA) 537.1 2.0 < 2.0 ng/L 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 GLRB SS-HFPO-DA-13C3 537.1 N/A 34.1553 40.0 ng/L 93 70 - 130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 GPBL Perfluorocotanoic acid (PFOA) 537.1 2.0 1.7536 2.0 ng/L 88 50 - 150 1.0 09/03/2020 08:05 09/04/2020 12:08 471576	LRB	Perfluorotridecanoic acid (PFTrDA)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
G LRB SS-HFPO-DA-13C3 537.1 N/A 34.1553 40.0 ng/L 93 70 - 130 0.92 09/03/2020 08:05 09/04/2020 11:55 471575 G FBL Perfluorooctanoic acid (PFOA) 537.1 2.0 1.7536 2.0 ng/L 88 50 - 150 1.0 09/03/2020 08:05 09/04/2020 12:08 471576	LRB	Perfluoroundecanoic acid (PFUnA)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
OFBL Perfluorooctanoic acid (PFOA) 537.1 2.0 1.7536 2.0 ng/L 88 50 - 150 1.0 09/03/2020 08:05 09/04/2020 12:08 471576	D LRB	Perfluorotetradecanoic acid (PFTeDA)	537.1	2.0		<	2.0		ng/L				 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
OFBL Perfluorooctanoic acid (PFOA) 537.1 2.0 1.7536 2.0 ng/L 88 50 - 150 1.0 09/03/2020 08:05 09/04/2020 12:08 471576	g LRB	SS-HFPO-DA-13C3	537.1	N/A			34.1553	40.0	ng/L	93	70 - 130		 0.92	09/03/2020 08:05	09/04/2020 11:55	4715759
FBL Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 1.8580 2.0 ng/L 93 50 - 150 1.0 09/03/2020 08:05 09/04/2020 12:08 471576	ΦFBL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.7536	2.0	ng/L	88	50 - 150		 1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
	FBL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.8580	2.0	ng/L	93	50 - 150		 1.0	09/03/2020 08:05	09/04/2020 12:08	4715763

					QC S	Summary Re	port (cont.)									
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FBL	IS-NMeFOSAA-d3	537.1	N/A			851449	808556	ng/L	105	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	IS-PFOA-13C2	537.1	N/A			1273490	1164140	ng/L	109	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	IS-PFOS-13C4	537.1	N/A			452602	422506	ng/L	107	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	SS-NEtFOSAA-d5	537.1	N/A			148.9850	160	ng/L	93	70 - 130			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	SS-PFDA-13C2	537.1	N/A			36.2069	40.0	ng/L	91	70 - 130			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	SS-PFHxA-13C2	537.1	N/A			32.1879	40.0	ng/L	80	70 - 130			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	Perfluorobutanesulfonic acid (PFBS)	537.1	2.0			1.4716	2.0	ng/L	74	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	Perfluoroheptanoic acid (PFHpA)	537.1	2.0			1.7584	2.0	ng/L	88	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	Perfluorohexanesulfonic acid (PFHxS)	537.1	2.0			1.8048	2.0	ng/L	90	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	Perfluorononanoic acid (PFNA)	537.1	2.0			1.6622	2.0	ng/L	83	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	Perfluorodecanoic acid (PFDA)	537.1	2.0		i	1.7126	2.0	ng/L	86	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	Perfluorohexanoic acid (PFHxA)	537.1	2.0			1.4887	2.0	ng/L	74	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	Perfluorododecanoic acid (PFDoA)	537.1	2.0		i	1.7183	2.0	ng/L	86	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	Perfluorotridecanoic acid (PFTrDA)	537.1	2.0			1.6125	2.0	ng/L	81	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	Perfluoroundecanoic acid (PFUnA)	537.1	2.0		i	1.7929	2.0	ng/L	90	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	Perfluorotetradecanoic acid (PFTeDA)	537.1	2.0			1.6675	2.0	ng/L	83	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBL	SS-HFPO-DA-13C3	537.1	N/A		i	31.7531	40.0	ng/L	79	70 - 130			1.0	09/03/2020 08:05	09/04/2020 12:08	4715763
FBH	Perfluorooctanoic acid (PFOA)	537.1	2.0			190.7540	200	ng/L	95	70 - 130			1.0	09/03/2020 08:05	09/04/2020 12:21	4715766
FBH	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			194.9740	200	ng/L	97	70 - 130			1.0	09/03/2020 08:05	09/04/2020 12:21	4715766
FBH	IS-NMeFOSAA-d3	537.1	N/A			822493	808556	ng/L	102	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:21	4715766
FBH	IS-PFOA-13C2	537.1	N/A			1201620	1164140	ng/L	103	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:21	4715766
FBH	IS-PFOS-13C4	537.1	N/A			458833	422506	ng/L	109	50 - 150			1.0	09/03/2020 08:05	09/04/2020 12:21	4715766
FBH	SS-NEtFOSAA-d5	537.1	N/A			143.5000	160	ng/L	90	70 - 130			1.0	09/03/2020 08:05	09/04/2020 12:21	4715766
FBH	SS-PFDA-13C2	537.1	N/A			36.3378	40.0	ng/L	91	70 - 130			1.0	09/03/2020 08:05	09/04/2020 12:21	4715766
FBH	SS-PFHxA-13C2	537.1	N/A			38.6462	40.0	ng/L	97	70 - 130			1.0	09/03/2020 08:05	09/04/2020 12:21	4715766
FBH	Perfluorobutanesulfonic acid (PFBS)	537.1	2.0			180.3180	200	ng/L	90	70 - 130			1.0		09/04/2020 12:21	
FBH	Perfluoroheptanoic acid (PFHpA)	537.1	2.0			185.1760	200	ng/L	93	70 - 130			1.0		09/04/2020 12:21	
FBH	Perfluorohexanesulfonic acid (PFHxS)	537.1	2.0			191.7670	200	ng/L	96	70 - 130			1.0		09/04/2020 12:21	
FBH	Perfluorononanoic acid (PFNA)	537.1	2.0			184.9910	200	ng/L	92	70 - 130			1.0		09/04/2020 12:21	
FBH	Perfluorodecanoic acid (PFDA)	537.1	2.0			185.9930	200	ng/L	93	70 - 130			1.0		09/04/2020 12:21	
FBH	Perfluorohexanoic acid (PFHxA)	537.1	2.0			186.5550	200	ng/L	93	70 - 130			1.0		09/04/2020 12:21	
FBH	Perfluorododecanoic acid (PFDoA)	537.1	2.0			185.5120	200	ng/L	93	70 - 130			1.0		09/04/2020 12:21	
FBH	Perfluorotridecanoic acid (PFTrDA)	537.1	2.0			184.4030	200	ng/L	92	70 - 130			1.0		09/04/2020 12:21	
FBH	Perfluoroundecanoic acid (PFUnA)	537.1	2.0			183.0840	200	ng/L	92	70 - 130			1.0		09/04/2020 12:21	
FBH	Perfluorotetradecanoic acid (PFTeDA)	537.1	2.0			181.6660	200	ng/L	91	70 - 130			1.0		09/04/2020 12:21	
FBH	SS-HFPO-DA-13C3	537.1	N/A			37.4546	40.0	ng/L	94	70 - 130			1.0		09/04/2020 12:21	
CCM	Perfluorooctanoic acid (PFOA)	537.1	2.0			98.3970	100	ng/L	98	70 - 130			1.0		09/04/2020 15:10	
	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			98.1731	100	ng/L	98	70 - 130			1.0		09/04/2020 15:10	
D _{CCM}	IS-NMeFOSAA-d3	537.1	N/A			894710	894710	ng/L	100	50 - 150			1.0		09/04/2020 15:10	
ассм ССМ	IS-PFOA-13C2	537.1	N/A			1202810	1202810	_	100	50 - 150			1.0		09/04/2020 15:10	
			-					ng/L					1.0		09/04/2020 15:10	
occw	IS-PFOS-13C4	537.1	N/A			453311	453311	ng/L	100	50 - 150			1.0	03/03/2020 13.15	03/04/2020 15:10	+1 10100

					QC S	Summary Re	port (cont.)									
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
ССМ	SS-NEtFOSAA-d5	537.1	N/A			161.9070	160	ng/L	101	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	SS-PFDA-13C2	537.1	N/A		i	40.2423	40.0	ng/L	101	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	SS-PFHxA-13C2	537.1	N/A		i	42.0735	40.0	ng/L	105	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	Perfluorobutanesulfonic acid (PFBS)	537.1	2.0		i	96.0364	100	ng/L	96	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	Perfluoroheptanoic acid (PFHpA)	537.1	2.0			104.0540	100	ng/L	104	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	Perfluorohexanesulfonic acid (PFHxS)	537.1	2.0			99.8969	100	ng/L	100	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	Perfluorononanoic acid (PFNA)	537.1	2.0			99.1467	100	ng/L	99	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	Perfluorodecanoic acid (PFDA)	537.1	2.0			101.8030	100	ng/L	102	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	Perfluorohexanoic acid (PFHxA)	537.1	2.0			100.6780	100	ng/L	101	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	Perfluorododecanoic acid (PFDoA)	537.1	2.0		i	103.2510	100	ng/L	103	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	Perfluorotridecanoic acid (PFTrDA)	537.1	2.0			107.2910	100	ng/L	107	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	Perfluoroundecanoic acid (PFUnA)	537.1	2.0		i	103.1870	100	ng/L	103	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
CCM	Perfluorotetradecanoic acid (PFTeDA)	537.1	2.0		i	111.4210	100	ng/L	111	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
ССМ	SS-HFPO-DA-13C3	537.1	N/A			42.9099	40.0	ng/L	107	70 - 130			1.0	09/03/2020 13:15	09/04/2020 15:10	4715755
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF61091/Well 1	<	2.0		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF61091/Well 1		24		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF61091/Well 1		874265	894710	ng/L	98	50 - 150			0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	IS-PFOA-13C2	537.1	N/A	PEF61091/Well 1		1224940	1202810	ng/L	102	50 - 150			0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	IS-PFOS-13C4	537.1	N/A	PEF61091/Well 1		470481	453311	ng/L	104	50 - 150			0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF61091/Well 1		126.8940	160	ng/L	87	70 - 130			0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	SS-PFDA-13C2	537.1	N/A	PEF61091/Well 1		34.5273	40.0	ng/L	95	70 - 130			0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	SS-PFHxA-13C2	537.1	N/A	PEF61091/Well 1		38.7757	40.0	ng/L	107	70 - 130			0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluorobutanesulfonic acid (PFBS)	537.1	2.0	PEF61091/Well 1	<	2.0		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluoroheptanoic acid (PFHpA)	537.1	2.0	PEF61091/Well 1	<	2.0		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluorohexanesulfonic acid (PFHxS)	537.1	2.0	PEF61091/Well 1		5.2		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluorononanoic acid (PFNA)	537.1	2.0	PEF61091/Well 1		3.4		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluorodecanoic acid (PFDA)	537.1	2.0	PEF61091/Well 1	<	2.0		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluorohexanoic acid (PFHxA)	537.1	2.0	PEF61091/Well 1		2.9		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluorododecanoic acid (PFDoA)	537.1	2.0	PEF61091/Well 1	<	2.0		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluorotridecanoic acid (PFTrDA)	537.1	2.0	PEF61091/Well 1	<	2.0		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluoroundecanoic acid (PFUnA)	537.1	2.0	PEF61091/Well 1	<	2.0		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluorotetradecanoic acid (PFTeDA)	537.1	2.0	PEF61091/Well 1	<	2.0		ng/L					0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF61091/Well 1		38.6482	40.0	ng/L	106	70 - 130			0.91	09/03/2020 08:05	09/04/2020 16:02	4709013
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF61092/Well 2	<	2.0		ng/L					0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF61092/Well 2		14		ng/L					0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF61092/Well 2	i	859539	894710	ng/L	96	50 - 150			0.92		09/04/2020 16:15	_
FS	IS-PFOA-13C2	537.1	N/A	PEF61092/Well 2		1266600	1202810	ng/L	105	50 - 150			0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
T FS	IS-PFOS-13C4	537.1	N/A	PEF61092/Well 2	i	454018	453311	ng/L	100	50 - 150			0.92		09/04/2020 16:15	
Page S	SS-NEtFOSAA-d5	537.1	N/A	PEF61092/Well 2		121.0990	160	ng/L	82	70 - 130			0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
o FS	SS-PFDA-13C2	537.1	N/A	PEF61092/Well 2	i	32.8978	40.0	ng/L	89	70 - 130			0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
o FS	SS-PFHxA-13C2	537.1	N/A	PEF61092/Well 2		35.4248	40.0	ng/L	96	70 - 130			0.92		09/04/2020 16:15	

Sample Type	Analyte														
	•	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	 RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
FS	Perfluorobutanesulfonic acid (PFBS)	537.1	2.0	PEF61092/Well 2	<	2.0		ng/L			 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluoroheptanoic acid (PFHpA)	537.1	2.0	PEF61092/Well 2	<	2.0		ng/L			 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluorohexanesulfonic acid (PFHxS)	537.1	2.0	PEF61092/Well 2		4.5		ng/L			 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluorononanoic acid (PFNA)	537.1	2.0	PEF61092/Well 2		2.5		ng/L			 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluorodecanoic acid (PFDA)	537.1	2.0	PEF61092/Well 2	<	2.0		ng/L			 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluorohexanoic acid (PFHxA)	537.1	2.0	PEF61092/Well 2		2.3		ng/L			 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluorododecanoic acid (PFDoA)	537.1	2.0	PEF61092/Well 2	<	2.0		ng/L			 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluorotridecanoic acid (PFTrDA)	537.1	2.0	PEF61092/Well 2	<	2.0		ng/L			 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluoroundecanoic acid (PFUnA)	537.1	2.0	PEF61092/Well 2	<	2.0		ng/L			 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluorotetradecanoic acid (PFTeDA)	537.1	2.0	PEF61092/Well 2	<	2.0		ng/L			 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF61092/Well 2		35.3457	40.0	ng/L	96	70 - 130	 	0.92	09/03/2020 08:05	09/04/2020 16:15	4709014
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF61093/Raw Surface Water		2.4		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF61093/Raw Surface Water		838824	894710	ng/L	94	50 - 150	 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	IS-PFOA-13C2	537.1	N/A	PEF61093/Raw Surface Water		1238840	1202810	ng/L	103	50 - 150	 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	IS-PFOS-13C4	537.1	N/A	PEF61093/Raw Surface Water		450358	453311	ng/L	99	50 - 150	 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF61093/Raw Surface Water		126.7430	160	ng/L	89	70 - 130	 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	SS-PFDA-13C2	537.1	N/A	PEF61093/Raw Surface Water		32.3765	40.0	ng/L	91	70 - 130	 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	SS-PFHxA-13C2	537.1	N/A	PEF61093/Raw Surface Water		35.0396	40.0	ng/L	98	70 - 130	 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluorobutanesulfonic acid (PFBS)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluoroheptanoic acid (PFHpA)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluorohexanesulfonic acid (PFHxS)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluorononanoic acid (PFNA)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluorodecanoic acid (PFDA)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluorohexanoic acid (PFHxA)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluorododecanoic acid (PFDoA)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluorotridecanoic acid (PFTrDA)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluoroundecanoic acid (PFUnA)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	Perfluorotetradecanoic acid (PFTeDA)	537.1	2.0	PEF61093/Raw Surface Water	<	2.0		ng/L			 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF61093/Raw Surface Water		33.3792	40.0	ng/L	94	70 - 130	 	0.89	09/03/2020 08:05	09/04/2020 16:29	4709015
ССН	Perfluorooctanoic acid (PFOA)	537.1	2.0			200.7790	200	ng/L	100	70 - 130	 	1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
ССН	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			199.7340	200	ng/L	100	70 - 130	 	1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
ССН	IS-NMeFOSAA-d3	537.1	N/A			776811	776811	ng/L	100	50 - 150	 	1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
ССН	IS-PFOA-13C2	537.1	N/A			1005700	1005700	ng/L	100	50 - 150	 	1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
ССН	IS-PFOS-13C4	537.1	N/A			423352	423352	ng/L	100	50 - 150	 	1.0		09/04/2020 17:21	
ССН	SS-NEtFOSAA-d5	537.1	N/A			158.6630	160	ng/L	99	70 - 130	 <u> </u>	1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
ССН	SS-PFDA-13C2	537.1	N/A			40.8864	40.0	ng/L	102	70 - 130	 <u> </u>	1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
ССН	SS-PFHxA-13C2	537.1	N/A			41.4796	40.0	ng/L	104	70 - 130	 	1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
В ССН	Perfluorobutanesulfonic acid (PFBS)	537.1	2.0			195.9760	200	ng/L	98	70 - 130	 	1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
_CCH	Perfluoroheptanoic acid (PFHpA)	537.1	2.0			208.2260	200	ng/L	104	70 - 130	 	1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
OCCH	Perfluorohexanesulfonic acid (PFHxS)	537.1	2.0			196.5760	200	ng/L	98	70 - 130	 	1.0	09/03/2020 13:15	09/04/2020 17:21	4715757

					QC S	Summary Rep	ort (cont.)								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	II I	Dil Factor	Extracted	Analyzed	EEA ID#
ССН	Perfluorononanoic acid (PFNA)	537.1	2.0			202.2580	200	ng/L	101	70 - 130			1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
CCH	Perfluorodecanoic acid (PFDA)	537.1	2.0			210.0180	200	ng/L	105	70 - 130			1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
CCH	Perfluorohexanoic acid (PFHxA)	537.1	2.0			202.7370	200	ng/L	101	70 - 130			1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
CCH	Perfluorododecanoic acid (PFDoA)	537.1	2.0			214.1160	200	ng/L	107	70 - 130			1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
CCH	Perfluorotridecanoic acid (PFTrDA)	537.1	2.0			224.8290	200	ng/L	112	70 - 130			1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
CCH	Perfluoroundecanoic acid (PFUnA)	537.1	2.0			205.2990	200	ng/L	103	70 - 130			1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
CCH	Perfluorotetradecanoic acid (PFTeDA)	537.1	2.0			232.9000	200	ng/L	116	70 - 130			1.0	09/03/2020 13:15	09/04/2020 17:21	4715757
ССН	SS-HFPO-DA-13C3	537.1	N/A			44.8997	40.0	ng/L	112	70 - 130			1.0	09/03/2020 13:15	09/04/2020 17:21	4715757

Samp	le Type	Kev

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCH	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FBH	Fortified Blank High		
FBL	Fortified Blank Low		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC

CHAIN OF CUSTODY/WORKORDER FORM

2022 PFC

Company: NSB SA-10 (Ice	Services)		Contact	Person: Rich Helins Logan / Ca			Perservative Added	Requested	Analysis	Page 1 of 1
Address: Pouch 340044 City, State Zip: Prudhoe Ba	y, AK 99734		PWS	# 331184 - specia	al, non-routine		Perservative Added			
Phone: (907) 659-9060				Send Results to	ADEC:		*			□ Normal Turnaround
Fax: (907) 659-9061				√ Yes □	No		4 53			
Email: rhelinski@iceservice	es.net			Purchase Order/Char	ge Code:	ren	EPA			□ RUSH day(s)
Project Name: NSB SA-10 W	NTP PFAS Mor	nitoring	0	2022-931		of Contai	s by			
Sampled By:	L Con	RNFOR	ZTH			Number	PFC			
Sample Identification	Sample Date			PE Lab ID#	PEF Lab ID#					Sample Comments
	9-12-22	1350	W	PEF79385		2	x			Sample Point ID: SPIN001RAW Facility ID: IN001
Raw Water Plant Sample Port	9-11-22	1417	w	PEF79386		2	x			Sample Point ID: SPIN001RAW
UF 1 Permeate	9-11-22	1405	w	PEF79387		2	х			Facility ID: TP002 Sample Point ID: SPTP002
UF 2 Permeate	9-12-22	1125	w	PEF79388	×	2	x			Facility ID: TP002 Sample Point ID: SPTP002
CFE Post Cl2	9-11-22	1424	w	PEF79389		2	х			Facility ID: TP002 Sample Point ID: SPTP002
Special Instructions/QC Re	equirements 8	& Comments:							Pollen Env Tem	Sample Condition: sperature on arrival: 28 °C erature on arrival: °C
al language	Company:		nc.	2	0630		eived by:	Comp	HEN ENV	Date & Time: 9/13/22 1530 Date & Time:
way bouen	Company:	n Eav	-	9-15-23 @11 Date & Time:	00		eived by:	Comp		Date & Time:



CERTIFICATE OF ANALYSIS

Report Date: 9/27/2022 Received Date: 9/13/2022

NSB SA-10 (Ice Services)

Attn: Rich Helinski Pouch 340044

Prudhoe Bay, AK 99734 Phone: 907-659-9060 Fax: 907-659-9061

rhelinski@iceservices.net

Project Name: NSB SA-10 WTP PFAS Monitoring

Sampled By: Carl Cornforth

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Pondhouse	PEF79385	810-37687-1	9/12/2022	1:50 PM
Raw Water Plant Sample Port	PEF79386	810-37687-2	9/11/2022	2:17 PM
UF 1 Permeate	PEF79387	810-37687-3	9/11/2022	2:05 PM
UF 2 Permeate	PEF79388	810-37687-4	9/12/2022	11:25 AM
CFE Post Cl2	PEF79389	810-37687-5	9/11/2022	2:24 PM

Jerry Pollen

Pollen Environmental, LLC



SAMPLE RECEIPT CHECKLIST

ves A A A A	NO D D D D D	Custody Seals intact? (N/A if hand delivered) Chain of Custody (COC) present and properly filled out? Samples received in hold time? Proper container and preservatives used?
X X		Chain of Custody (COC) present and properly filled out? Samples received in hold time?
M M		Samples received in hold time?
A		
U.S.		Proper container and preservatives used?
M		Policination materialization desirable desirable extension of the feature of the
		Bottles received intact and properly labeled
M		Do sample labels match the COC?
×		Sufficient volume of sample for all analysis?
X		Temperature Blank received in cooler?
×		Did samples arrive in container with ice/ice packs?
		If samples are above 6 Degrees Celsius, were samples taken within two hours of delivery to lab? If so, mark ITTC (Insufficient Time To Cool) on COC form.
		Are air bubbles present in VOA vials?
peratur	e upon	receipt at the laboratory 2.8°C
	⊠ ⊠ □ □ □ □ □ □	



Environment Testing America

ANALYTICAL REPORT

Eurofins Eaton South Bend 110 S Hill Street South Bend, IN 46617 Tel: (574)233-4777

Laboratory Job ID: 810-37687-1 Client Project/Site: 2022-931

For:

Pollen Environmental LLC 3039 Davis Road Fairbanks, Alaska 99709

Attn: Jerry Pollen

Eraci Ca46

Authorized for release by: 9/26/2022 4:10:13 PM

Traci Chlebowski, Project Manager (574)233-4777

Traci.Chlebowski@et.eurofinsus.com

Review your project results through

Have a Question?



Visit us at: www.eurofinsus.com/Env This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: Pollen Environmental LLC Project/Site: 2022-931

Laboratory Job ID: 810-37687-1

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
Surrogate Summary	10
QC Sample Results	11
QC Association Summary	17
Lab Chronicle	18
Certification Summary	19
Method Summary	20
Sample Summary	21
Chain of Custody	22
Receipt Checklists	23

Definitions/Glossary

Client: Pollen Environmental LLC Job ID: 810-37687-1

Project/Site: 2022-931

Qualifiers

LCMS

Qualifier **Qualifier Description** Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)

EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Le

MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)

MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC **Quality Control**

RER Relative Error Ratio (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) TEQ Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count TNTC

Eurofins Eaton South Bend

Page 3 of 23

9/26/2022

Case Narrative

Client: Pollen Environmental LLC

Job ID: 810-37687-1 Project/Site: 2022-931

Job ID: 810-37687-1

Laboratory: Eurofins Eaton South Bend

Narrative

Job Narrative 810-37687-1

Receipt

The samples were received on 9/16/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.6°C

PFAS

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Pollen Environmental LLC

Project/Site: 2022-931

Client Sample ID: Raw Water Pondhouse-PEF79385

PWSID Number: AK2331184

Analyte	Result Qualifier	RL	Unit	Dil Fac D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	3.0	2.0	ng/L		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.2	2.0	ng/L	1	537.1	Total/NA

Client Sample ID: Raw Water Plant Sample Port-PEF79386

PWSID Number: AK2331184

Analyte	Result Quali	ifier RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	3.1	1.9	ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.1	1.9	ng/L	1		537.1	Total/NA

Client Sample ID: UF 1 Permeate-PEF79387

PWSID Number: AK2331184

Analyte	Result (Qualifier	RL	Unit	Dil Fac	D Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	2.8		1.9	ng/L	1	537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.2		1.9	ng/L	1	537.1	Total/NA

Client Sample ID: UF 2 Permeate-PEF79388

PWSID Number: AK2331184

Analyte	Result	Qualifier	RL	Unit	Dil Fac	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	3.2		1.9	ng/L	1	537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.2		1.9	ng/L	1	537.1	Total/NA

Client Sample ID: CFE Post CI2-PEF79389

PWSID Number: AK2331184

Analyte	Result Qualifier	RL	Unit	Dil Fac	D Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	3.0	1.9	ng/L	1	537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.3	1.9	ng/L	1	537.1	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Eaton South Bend

9/26/2022

Page 5 of 23

Job ID: 810-37687-1

Lab Sample ID: 810-37687-1

Lab Sample ID: 810-37687-2

Lab Sample ID: 810-37687-3

Lab Sample ID: 810-37687-4

Lab Sample ID: 810-37687-5

Client: Pollen Environmental LLC Job ID: 810-37687-1

Project/Site: 2022-931

Client Sample ID: Raw Water Pondhouse-PEF79385

Lab Sample ID: 810-37687-1 Date Collected: 09/12/22 13:50 **Matrix: Drinking Water** Date Received: 09/16/22 09:30 PWSID Number: AK2331184

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	3.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
(PFOS)								
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Perfluorohexanesulfonic acid (PFHxS)	2.2		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Perfluorotetradecanoic acid (PFTeDA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		09/23/22 06:54	09/24/22 16:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	109		70 - 130			09/23/22 06:54	09/24/22 16:22	1
13C2 PFDA	94		70 - 130			09/23/22 06:54	09/24/22 16:22	1
13C3 HFPO-DA	107		70 - 130			09/23/22 06:54	09/24/22 16:22	1
d5-NEtFOSAA	81		70 - 130			09/23/22 06:54	09/24/22 16:22	1

Client Sample ID: Raw Water Plant Sample Port-PEF79386

Lab Sample ID: 810-37687-2 Date Collected: 09/11/22 14:17 **Matrix: Drinking Water** Date Received: 09/16/22 09:30 PWSID Number: AK2331184

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	3.1		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluorohexanoic acid (PFHxA)	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluorooctanoic acid (PFOA)	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluorohexanesulfonic acid (PFHxS)	2.1		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluorobutanesulfonic acid (PFBS)	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluorotetradecanoic acid (PFTeDA)	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Perfluorotridecanoic acid (PFTrDA)	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1

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Page 6 of 23 9/26/2022

Client Sample Results

Client: Pollen Environmental LLC

Project/Site: 2022-931

Client Sample ID: Raw Water Plant Sample Port-PEF79386

Date Collected: 09/11/22 14:17 Date Received: 09/16/22 09:30 Lab Sample ID: 810-37687-2

Matrix: Drinking Water
PWSID Number: AK2331184

Job ID: 810-37687-1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoa	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
cetic acid (NMeFOSAA)								
N-ethylperfluorooctanesulfonamidoac	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
etic acid (NEtFOSAA)								
Hexafluoropropylene Oxide Dimer	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
Acid (HFPO-DA)								
9-Chlorohexadecafluoro-3-oxanonan	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
e-1-sulfonic acid								
11-Chloroeicosafluoro-3-oxaundecan	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
e-1-sulfonic acid								
4,8-Dioxa-3H-perfluorononanoic acid	<1.9		1.9	ng/L		09/21/22 07:05	09/22/22 00:25	1
(ADONA)								
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		70 - 130			09/21/22 07:05	09/22/22 00:25	1
13C2 PFDA	95		70 - 130			09/21/22 07:05	09/22/22 00:25	1
13C3 HFPO-DA	101		70 - 130			09/21/22 07:05	09/22/22 00:25	1
d5-NEtFOSAA	80		70 - 130			09/21/22 07:05	09/22/22 00:25	1

Client Sample ID: UF 1 Permeate-PEF79387

Date Collected: 09/11/22 14:05 Date Received: 09/16/22 09:30 Lab Sample ID: 810-37687-3

Matrix: Drinking Water
PWSID Number: AK2331184

15

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	2.8		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
(PFOS)								
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
Perfluorohexanoic acid (PFHxA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
Perfluorooctanoic acid (PFOA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
Perfluorohexanesulfonic acid	2.2		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
(PFHxS)								
Perfluorobutanesulfonic acid (PFBS)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
Perfluorotetradecanoic acid (PFTeDA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
Perfluorotridecanoic acid (PFTrDA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
N-ethylperfluorooctanesulfonamidoac	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
etic acid (NEtFOSAA) Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130			09/21/22 07:10	09/22/22 03:04	1

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Client: Pollen Environmental LLC Job ID: 810-37687-1

Project/Site: 2022-931

Client Sample ID: UF 1 Permeate-PEF79387

Lab Sample ID: 810-37687-3 Date Collected: 09/11/22 14:05 **Matrix: Drinking Water** Date Received: 09/16/22 09:30 PWSID Number: AK2331184

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Surrogate	%Recovery Qu	ualifier Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	92	70 - 130	09/21/22 07:10	09/22/22 03:04	1
13C3 HFPO-DA	97	70 - 130	09/21/22 07:10	09/22/22 03:04	1
d5-NEtFOSAA	87	70 - 130	09/21/22 07:10	09/22/22 03:04	1

Client Sample ID: UF 2 Permeate-PEF79388

Lab Sample ID: 810-37687-4 Date Collected: 09/12/22 11:25 **Matrix: Drinking Water** Date Received: 09/16/22 09:30 PWSID Number: AK2331184

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	3.2		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
(PFOS)								
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Perfluorohexanoic acid (PFHxA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Perfluorooctanoic acid (PFOA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Perfluorohexanesulfonic acid (PFHxS)	2.2		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Perfluorobutanesulfonic acid (PFBS)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Perfluorotetradecanoic acid (PFTeDA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Perfluorotridecanoic acid (PFTrDA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		1.9	ng/L		09/23/22 06:54	09/24/22 16:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	106		70 - 130			09/23/22 06:54	09/24/22 16:33	

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
13C2 PFHxA	106		70 - 130	_	09/23/22 06:54	09/24/22 16:33	1
13C2 PFDA	97		70 - 130		09/23/22 06:54	09/24/22 16:33	1
13C3 HFPO-DA	98		70 - 130		09/23/22 06:54	09/24/22 16:33	1
d5-NEtFOSAA	89		70 - 130		09/23/22 06:54	09/24/22 16:33	1

Client Sample ID: CFE Post CI2-PEF79389

Date Collected: 09/11/22 14:24 **Matrix: Drinking Water** PWSID Number: AK2331184 Date Received: 09/16/22 09:30

Method: 537.1 - Perfluorinated A	lkyl Acids (LC/N	NS)						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	3.0		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1

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Lab Sample ID: 810-37687-5

Page 8 of 23 9/26/2022

Client Sample Results

Client: Pollen Environmental LLC

Project/Site: 2022-931

Client Sample ID: CFE Post CI2-PEF79389

Date Collected: 09/11/22 14:24 Date Received: 09/16/22 09:30 Lab Sample ID: 810-37687-5

Matrix: Drinking Water PWSID Number: AK2331184

Job ID: 810-37687-1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Perfluorooctanoic acid (PFOA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Perfluorohexanesulfonic acid (PFHxS)	2.3		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Perfluorobutanesulfonic acid (PFBS)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Perfluorotetradecanoic acid (PFTeDA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Perfluorotridecanoic acid (PFTrDA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		1.9	ng/L		09/21/22 07:10	09/22/22 03:15	1
Surrogate	<u>-</u>	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130			09/21/22 07:10	09/22/22 03:15	1
13C2 PFDA	90		70 - 130			09/21/22 07:10	09/22/22 03:15	1
13C3 HFPO-DA	97		70 - 130			09/21/22 07:10	09/22/22 03:15	1
d5-NEtFOSAA	75		70 - 130			09/21/22 07:10	09/22/22 03:15	

Surrogate Summary

Client: Pollen Environmental LLC Job ID: 810-37687-1

Project/Site: 2022-931

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Drinking Water Prep Type: Total/NA

				Percent Su	rrogate Reco
		PFHxA	PFDA	HFPODA	d5NEFOS
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
810-37687-1	Raw Water Pondhouse-PEF79385	109	94	107	81
810-37687-2	Raw Water Plant Sample Port-PEF79386	104	95	101	80
810-37687-3	UF 1 Permeate-PEF79387	99	92	97	87
810-37687-4	UF 2 Permeate-PEF79388	106	97	98	89
810-37687-5	CFE Post CI2-PEF79389	99	90	97	75
LCS 810-32424/3-A	Lab Control Sample	97	88	95	88
LLCS 810-32424/2-A	Lab Control Sample	111	102	105	90
LLCS 810-32427/2-A	Lab Control Sample	104	102	101	90
LLCS 810-32712/2-A	Lab Control Sample	103	92	102	84
MBL 810-32424/1-A	Method Blank	96	98	99	88
MBL 810-32427/1-A	Method Blank	95	87	92	84
MBL 810-32712/1-A	Method Blank	96	100	101	92

PFHxA = 13C2 PFHxA PFDA = 13C2 PFDA

HFPODA = 13C3 HFPO-DA

d5NEFOS = d5-NEtFOSAA

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Job ID: 810-37687-1

Project/Site: 2022-931

Client: Pollen Environmental LLC

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample	ID: MBL	. 810-32424/1-A
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Matrix: Drinking Water Analysis Batch: 32504

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 32424

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<0.40		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluoroundecanoic acid (PFUnA)	<0.50		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluorohexanoic acid (PFHxA)	<0.40		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluorododecanoic acid (PFDoA)	<0.40		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluorooctanoic acid (PFOA)	<0.40		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluorodecanoic acid (PFDA)	<0.50		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluorohexanesulfonic acid (PFHxS)	<0.50		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluorobutanesulfonic acid (PFBS)	<0.40		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluoroheptanoic acid (PFHpA)	<0.40		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluorononanoic acid (PFNA)	<0.50		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluorotetradecanoic acid (PFTeDA)	<0.60		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Perfluorotridecanoic acid (PFTrDA)	<0.50		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<0.50		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<0.60		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.50		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<0.50		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	<0.50		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.61		2.0	ng/L		09/21/22 07:05	09/21/22 20:43	1

MBL MBL

MBL MBL

Surrogate	%Recovery Qualit	fier Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96	70 - 130	09/21/22 07:05	09/21/22 20:43	1
13C2 PFDA	98	70 - 130	09/21/22 07:05	09/21/22 20:43	1
13C3 HFPO-DA	99	70 - 130	09/21/22 07:05	09/21/22 20:43	1
d5-NEtFOSAA	88	70 - 130	09/21/22 07:05	09/21/22 20:43	1

Lab Sample ID: LCS 810-32424/3-A

Matrix: Drinking Water Analysis Batch: 32504

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Prep Batch: 32424

	Spike	LCS	LCS				%Rec
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid	190	170		ng/L		89	70 - 130
(PFOS)							
Perfluoroundecanoic acid	190	166		ng/L		87	70 - 130
(PFUnA)							
Perfluorohexanoic acid (PFHxA)	190	173		ng/L		91	70 - 130
Perfluorododecanoic acid	190	160		ng/L		84	70 - 130
(PFDoA)							
Perfluorooctanoic acid (PFOA)	190	174		ng/L		92	70 - 130
Perfluorodecanoic acid (PFDA)	190	166		ng/L		87	70 - 130
Perfluorohexanesulfonic acid	190	184		ng/L		97	70 - 130
(PFHxS)							
Perfluorobutanesulfonic acid	190	160		ng/L		84	70 - 130
(PFBS)							
Perfluoroheptanoic acid (PFHpA)	190	182		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	190	180		ng/L		95	70 - 130

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Page 11 of 23

Client: Pollen Environmental LLC Job ID: 810-37687-1

Project/Site: 2022-931

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LCS 810-32424/3-A **Client Sample ID: Lab Control Sample Matrix: Drinking Water Prep Type: Total/NA** Analysis Batch: 32504 Prep Batch: 32424 LCS LCS Snike

	Spike	LUS	LUS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorotetradecanoic acid	190	164		ng/L		86	70 - 130	
(PFTeDA)								
Perfluorotridecanoic acid	190	163		ng/L		86	70 - 130	
(PFTrDA)								
N-methylperfluorooctanesulfona	190	160		ng/L		84	70 - 130	
midoacetic acid (NMeFOSAA)								
N-ethylperfluorooctanesulfonami	190	160		ng/L		84	70 - 130	
doacetic acid (NEtFOSAA)								
Hexafluoropropylene Oxide	190	176		ng/L		93	70 - 130	
Dimer Acid (HFPO-DA)								
9-Chlorohexadecafluoro-3-oxan	190	175		ng/L		92	70 - 130	
onane-1-sulfonic acid								
11-Chloroeicosafluoro-3-oxaund	190	165		ng/L		87	70 - 130	
ecane-1-sulfonic acid								
4,8-Dioxa-3H-perfluorononanoic	190	185		ng/L		98	70 - 130	
acid (ADONA)								

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
13C2 PFHxA	97		70 - 130
13C2 PFDA	88		70 - 130
13C3 HFPO-DA	95		70 - 130
d5-NEtFOSAA	88		70 - 130

Lab Sample ID: LLCS 810-32424/2-A Client Sample ID: Lab Control Sample **Matrix: Drinking Water** Prep Type: Total/NA Analysis Batch: 32504

Prep Batch: 32424

	Spike	LLCS	LLCS				%Rec
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid	1.88	1.76	J	ng/L		94	50 - 150
(PFOS)							
Perfluoroundecanoic acid	1.88	1.69	J	ng/L		90	50 - 150
(PFUnA)							
Perfluorohexanoic acid (PFHxA)	1.88	1.88	J	ng/L		100	50 - 150
Perfluorododecanoic acid (PFDoA)	1.88	1.75	J	ng/L		93	50 - 150
Perfluorooctanoic acid (PFOA)	1.88	1.85	J	ng/L		98	50 - 150
Perfluorodecanoic acid (PFDA)	1.88	1.76	J	ng/L		93	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.88	1.74	J	ng/L		92	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.88	1.50	J	ng/L		80	50 _ 150
Perfluoroheptanoic acid (PFHpA)	1.88	1.83	J	ng/L		97	50 - 150
Perfluorononanoic acid (PFNA)	1.88	1.81	J	ng/L		96	50 - 150
Perfluorotetradecanoic acid (PFTeDA)	1.88	1.66	J	ng/L		88	50 - 150
Perfluorotridecanoic acid (PFTrDA)	1.88	1.77	J	ng/L		94	50 - 150
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	1.88	1.44	J	ng/L		76	50 - 150
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	1.88	1.61	J	ng/L		86	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.88	1.76	J	ng/L		94	50 - 150

Eurofins Eaton South Bend

Page 12 of 23

Client: Pollen Environmental LLC Job ID: 810-37687-1

Project/Site: 2022-931

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCS 810-32424/2-A **Client Sample ID: Lab Control Sample Matrix: Drinking Water Prep Type: Total/NA** Analysis Batch: 32504 Prep Batch: 32424

	Spike	LLCS	LLCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
9-Chlorohexadecafluoro-3-oxan	1.88	1.62	J	ng/L		86	50 - 150	
onane-1-sulfonic acid								
11-Chloroeicosafluoro-3-oxaund	1.88	1.58	J	ng/L		84	50 - 150	
ecane-1-sulfonic acid								
4,8-Dioxa-3H-perfluorononanoic	1.88	1.78	J	ng/L		94	50 - 150	
acid (ADONA)								

LLCS LLCS Surrogate %Recovery Qualifier Limits 13C2 PFHxA 111 70 - 130 70 - 130 13C2 PFDA 102 13C3 HFPO-DA 105 70 - 130 d5-NEtFOSAA 70 - 130 90

Lab Sample ID: MBL 810-32427/1-A Client Sample ID: Method Blank **Matrix: Drinking Water Prep Type: Total/NA**

Analysis Batch: 32506 Prep Batch: 32427

	MDI	MBL						
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<0.40		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluoroundecanoic acid (PFUnA)	<0.50		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluorohexanoic acid (PFHxA)	<0.40		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluorododecanoic acid (PFDoA)	<0.40		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluorooctanoic acid (PFOA)	<0.40		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluorodecanoic acid (PFDA)	<0.50		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluorohexanesulfonic acid (PFHxS)	<0.50		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluorobutanesulfonic acid (PFBS)	<0.40		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluoroheptanoic acid (PFHpA)	<0.40		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluorononanoic acid (PFNA)	<0.50		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluorotetradecanoic acid (PFTeDA)	<0.60		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Perfluorotridecanoic acid (PFTrDA)	<0.50		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<0.50		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<0.60		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.50		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<0.50		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	<0.50		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.61		2.0	ng/L		09/21/22 07:10	09/22/22 02:43	1

	MBL	MBL				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130	09/21/22 07:10	09/22/22 02:43	1
13C2 PFDA	87		70 - 130	09/21/22 07:10	09/22/22 02:43	1
13C3 HFPO-DA	92		70 - 130	09/21/22 07:10	09/22/22 02:43	1
d5-NEtFOSAA	84		70 - 130	09/21/22 07:10	09/22/22 02:43	1

Job ID: 810-37687-1

Project/Site: 2022-931

Client: Pollen Environmental LLC

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCS 810-32427/2-A	Client Sample ID: Lab Control Sample
Matrix: Drinking Water	Prep Type: Total/NA
Analysis Batch: 32506	Prep Batch: 32427

	Spike	LLCS	LLCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorooctanesulfonic acid	1.88	1.84	J	ng/L		98	50 - 150	
(PFOS)								
Perfluoroundecanoic acid	1.88	1.81	J	ng/L		96	50 - 150	
(PFUnA)								
Perfluorohexanoic acid (PFHxA)	1.88	1.84	J	ng/L		98	50 - 150	
Perfluorododecanoic acid	1.88	1.60	J	ng/L		85	50 - 150	
(PFDoA)								
Perfluorooctanoic acid (PFOA)	1.88	1.84	J	ng/L		98	50 - 150	
Perfluorodecanoic acid (PFDA)	1.88	1.71	J	ng/L		91	50 - 150	
Perfluorohexanesulfonic acid	1.88	1.65	J	ng/L		88	50 - 150	
(PFHxS)				· ·				
Perfluorobutanesulfonic acid	1.88	1.69	J	ng/L		90	50 - 150	
(PFBS)								
Perfluoroheptanoic acid (PFHpA)	1.88	1.90		ng/L		101	50 - 150	
Perfluorononanoic acid (PFNA)	1.88	1.93		ng/L		102	50 - 150	
Perfluorotetradecanoic acid	1.88	1.66	J	ng/L		88	50 - 150	
(PFTeDA)								
Perfluorotridecanoic acid	1.88	1.67	J	ng/L		89	50 - 150	
(PFTrDA)								
N-methylperfluorooctanesulfona	1.88	1.68	J	ng/L		89	50 - 150	
midoacetic acid (NMeFOSAA)								
N-ethylperfluorooctanesulfonami	1.88	1.66	J	ng/L		88	50 - 150	
doacetic acid (NEtFOSAA)								
Hexafluoropropylene Oxide	1.88	1.79	J	ng/L		95	50 - 150	
Dimer Acid (HFPO-DA)								
9-Chlorohexadecafluoro-3-oxan	1.88	1.56	J	ng/L		83	50 - 150	
onane-1-sulfonic acid								
11-Chloroeicosafluoro-3-oxaund	1.88	1.63	J	ng/L		87	50 - 150	
ecane-1-sulfonic acid								
4,8-Dioxa-3H-perfluorononanoic	1.88	1.79	J	ng/L		95	50 - 150	
acid (ADONA)								

LLCS LLCS

Surrogate	%Recovery	Qualifier	Limits
13C2 PFHxA	104		70 - 130
13C2 PFDA	102		70 - 130
13C3 HFPO-DA	101		70 - 130
d5-NFtFOSAA	90		70 - 130

Lab Sample ID: MBL 810-32712/1-A

Matrix: Drinking Water

Prep Type: Total/NA

Prep Type: Total/NA

Analysis Batch: 32824

MBL MBL

MBL MBL

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<0.40		2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Perfluoroundecanoic acid (PFUnA)	<0.50		2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Perfluorohexanoic acid (PFHxA)	<0.40		2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Perfluorododecanoic acid (PFDoA)	<0.40		2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Perfluorooctanoic acid (PFOA)	<0.40		2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Perfluorodecanoic acid (PFDA)	<0.50		2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Perfluorohexanesulfonic acid (PFHxS)	<0.50		2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Perfluorobutanesulfonic acid (PFBS)	<0.40		2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1

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Page 14 of 23

3

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110

9/26/2022

QC Sample Results

Client: Pollen Environmental LLC

Project/Site: 2022-931

Job ID: 810-37687-1

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: MBL 810-32712/1-A

Matrix: Drinking Water

Analysis Batch: 32824

MBL MBL

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 32712

	IVIDE IVIDE						
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	<0.40	2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Perfluorononanoic acid (PFNA)	<0.50	2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Perfluorotetradecanoic acid (PFTeDA)	<0.60	2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Perfluorotridecanoic acid (PFTrDA)	<0.50	2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<0.50	2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<0.60	2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.50	2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<0.50	2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	<0.50	2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.61	2.0	ng/L		09/23/22 06:54	09/24/22 13:44	1

MBL MBL %Recovery Qualifier Limits Dil Fac Surrogate Prepared Analyzed 13C2 PFHxA 09/23/22 06:54 96 70 - 130 09/24/22 13:44 13C2 PFDA 100 70 - 130 09/23/22 06:54 09/24/22 13:44 13C3 HFPO-DA 101 70 - 130 09/23/22 06:54 09/24/22 13:44 d5-NEtFOSAA 09/23/22 06:54 92 70 - 130 09/24/22 13:44

Lab Sample ID: LLCS 810-32712/2-A

Matrix: Drinking Water

Analysis Batch: 32824

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 32712

	Spike	LLCS	LLCS				%Rec
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid	1.93	1.75	J	ng/L		91	50 - 150
(PFOS)							
Perfluoroundecanoic acid	1.93	1.66	J	ng/L		86	50 - 150
(PFUnA)							
Perfluorohexanoic acid (PFHxA)	1.93	1.93		ng/L		100	50 - 150
Perfluorododecanoic acid	1.93	1.68	J	ng/L		87	50 - 150
(PFDoA)							
Perfluorooctanoic acid (PFOA)	1.93	1.89	J	ng/L		98	50 - 150
Perfluorodecanoic acid (PFDA)	1.93	1.78	J	ng/L		92	50 - 150
Perfluorohexanesulfonic acid	1.93	1.83	J	ng/L		95	50 - 150
(PFHxS)							
Perfluorobutanesulfonic acid	1.93	1.67	J	ng/L		87	50 - 150
(PFBS)							
Perfluoroheptanoic acid (PFHpA)	1.93	2.10		ng/L		109	50 - 150
Perfluorononanoic acid (PFNA)	1.93	1.80	J	ng/L		93	50 - 150
Perfluorotetradecanoic acid	1.93	1.73	J	ng/L		90	50 - 150
(PFTeDA)							
Perfluorotridecanoic acid	1.93	1.67	J	ng/L		86	50 - 150
(PFTrDA)							
N-methylperfluorooctanesulfona	1.93	1.55	J	ng/L		80	50 - 150
midoacetic acid (NMeFOSAA)							
N-ethylperfluorooctanesulfonami	1.93	1.54	J	ng/L		80	50 - 150
doacetic acid (NEtFOSAA)							

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QC Sample Results

Client: Pollen Environmental LLC Job ID: 810-37687-1

Project/Site: 2022-931

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCS 810-32712/2-A	Client Sample ID: Lab Control Sample	е
Matrix: Drinking Water	Prep Type: Total/NA	A
Analysis Batch: 32824	Prep Batch: 32712	2

	Spike	LLCS	LLCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Hexafluoropropylene Oxide	1.93	1.86	J	ng/L		96	50 - 150	
Dimer Acid (HFPO-DA)								
9-Chlorohexadecafluoro-3-oxan	1.93	1.48	J	ng/L		77	50 - 150	
onane-1-sulfonic acid								
11-Chloroeicosafluoro-3-oxaund	1.93	1.46	J	ng/L		76	50 - 150	
ecane-1-sulfonic acid								
4,8-Dioxa-3H-perfluorononanoic	1.93	1.87	J	ng/L		97	50 - 150	
acid (ADONA)								
1100 1100								

	LLCS	LLCS		
Surrogate	%Recovery	Qualifier	Limits	
13C2 PFHxA	103		70 - 130	
13C2 PFDA	92		70 - 130	
13C3 HFPO-DA	102		70 - 130	
d5-NEtFOSAA	84		70 - 130	

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QC Association Summary

Client: Pollen Environmental LLC Job ID: 810-37687-1

Project/Site: 2022-931

LCMS

Pre	p Bate	ch: 3	2424
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Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method Prep E	Batch
810-37687-2	Raw Water Plant Sample Port-PEF79386	Total/NA	Drinking Water	537.1 DW	
MBL 810-32424/1-A	Method Blank	Total/NA	Drinking Water	537.1 DW	
LCS 810-32424/3-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW	
LLCS 810-32424/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW	

Prep Batch: 32427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-37687-3	UF 1 Permeate-PEF79387	Total/NA	Drinking Water	537.1 DW	
810-37687-5	CFE Post Cl2-PEF79389	Total/NA	Drinking Water	537.1 DW	
MBL 810-32427/1-A	Method Blank	Total/NA	Drinking Water	537.1 DW	
LLCS 810-32427/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW	

Analysis Batch: 32504

Lab Sample ID 810-37687-2	Client Sample ID Raw Water Plant Sample Port-PEF79386	Prep Type Total/NA	Matrix Drinking Water	Method 537.1	Prep Batch 32424
MBL 810-32424/1-A	Method Blank	Total/NA	Drinking Water	537.1	32424
LCS 810-32424/3-A	Lab Control Sample	Total/NA	Drinking Water	537.1	32424
LLCS 810-32424/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1	32424

Analysis Batch: 32506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-37687-3	UF 1 Permeate-PEF79387	Total/NA	Drinking Water	537.1	32427
810-37687-5	CFE Post Cl2-PEF79389	Total/NA	Drinking Water	537.1	32427
MBL 810-32427/1-A	Method Blank	Total/NA	Drinking Water	537.1	32427
LLCS 810-32427/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1	32427

Prep Batch: 32712

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-37687-1	Raw Water Pondhouse-PEF79385	Total/NA	Drinking Water	537.1 DW	·
810-37687-4	UF 2 Permeate-PEF79388	Total/NA	Drinking Water	537.1 DW	
MBL 810-32712/1-A	Method Blank	Total/NA	Drinking Water	537.1 DW	
LLCS 810-32712/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW	

Analysis Batch: 32824

Lab Sample ID 810-37687-1	Client Sample ID Raw Water Pondhouse-PEF79385	Prep Type Total/NA	Matrix Drinking Water	Method 537.1	Prep Batch 32712
810-37687-4	UF 2 Permeate-PEF79388	Total/NA	Drinking Water	537.1	32712
MBL 810-32712/1-A	Method Blank	Total/NA	Drinking Water	537.1	32712
LLCS 810-32712/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1	32712

Project/Site: 2022-931

Client Sample ID: Raw Water Pondhouse-PEF79385

Date Collected: 09/12/22 13:50 Date Received: 09/16/22 09:30

Client: Pollen Environmental LLC

Lab Sample ID: 810-37687-1

Matrix: Drinking Water

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	537.1 DW			32712	SS	EA SB	09/23/22 06:54
Total/NA	Analysis	537.1		1	32824	MH	EA SB	09/24/22 16:22

Client Sample ID: Raw Water Plant Sample Port-PEF79386

Date Collected: 09/11/22 14:17 Date Received: 09/16/22 09:30 Lab Sample ID: 810-37687-2

Matrix: Drinking Water

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	537.1 DW			32424	SS	EA SB	09/21/22 07:05
Total/NA	Analysis	537.1		1	32504	MH	EA SB	09/22/22 00:25

Client Sample ID: UF 1 Permeate-PEF79387

Date Collected: 09/11/22 14:05 Date Received: 09/16/22 09:30 Lab Sample ID: 810-37687-3

Matrix: Drinking Water

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	537.1 DW			32427	SS	EA SB	09/21/22 07:10
Total/NA	Analysis	537.1		1	32506	MH	EA SB	09/22/22 03:04

Client Sample ID: UF 2 Permeate-PEF79388

Date Collected: 09/12/22 11:25 Date Received: 09/16/22 09:30 Lab Sample ID: 810-37687-4

Matrix: Drinking Water

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	537.1 DW			32712	SS	EA SB	09/23/22 06:54
Total/NA	Analysis	537.1		1	32824	MH	EA SB	09/24/22 16:33

Client Sample ID: CFE Post CI2-PEF79389

Date Collected: 09/11/22 14:24 Date Received: 09/16/22 09:30 Lab Sample ID: 810-37687-5

Matrix: Drinking Water

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	537.1 DW			32427	SS	EA SB	09/21/22 07:10
Total/NA	Analysis	537.1		1	32506	MH	EA SB	09/22/22 03:15

Laboratory References:

EA SB = Eurofins Eaton South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Accreditation/Certification Summary

Client: Pollen Environmental LLC Job ID: 810-37687-1

Project/Site: 2022-931

Laboratory: Eurofins Eaton South Bend

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

ıthority		Program	Identification Number	Expiration Date
aska		State	IN00035	06-30-23
The following analytes	are included in this repor	t but the laboratory is not certified b	by the governing authority. This list ma	v include analytes for which
the agency does not of	•	i, but the labelatory to het continour	y and governing dualency. This list me	y molado analytoo for which
Analysis Method	Prep Method	Matrix	Analyte	
537.1	537.1 DW	Drinking Water	11-Chloroeicosafluoro-3-oxaur	ndecane-1-s
			ulfonic acid	
537.1	537.1 DW	Drinking Water	4,8-Dioxa-3H-perfluorononano	ic acid
			(ADONA)	
537.1	537.1 DW	Drinking Water	9-Chlorohexadecafluoro-3-oxa	nonane-1-s
			ulfonic acid	
537.1	537.1 DW	Drinking Water	Hexafluoropropylene Oxide Di	mer Acid
507.4	507.4 DW	Deinbin v Matan	(HFPO-DA)	
537.1	537.1 DW	Drinking Water	N-ethylperfluorooctanesulfona acid (NEtFOSAA)	midoacetic
537.1	537.1 DW	Drinking Water	N-methylperfluorooctanesulfor	namidoacetic
007.1	007.1 DVV	Dilliking Water	acid (NMeFOSAA)	amidoacetic
537.1	537.1 DW	Drinking Water	Perfluorodecanoic acid (PFDA)
537.1	537.1 DW	Drinking Water	Perfluorododecanoic acid (PFI	•
537.1	537.1 DW	Drinking Water	Perfluorohexanoic acid (PFHx	,
537.1	537.1 DW	Drinking Water	Perfluorotetradecanoic acid (P	,
537.1	537.1 DW	Drinking Water	Perfluorotridecanoic acid (PFT	,
537.1	537.1 DW	Drinking Water	Perfluoroundecanoic acid (PFI	,
337.1	331.1 DVV	Dilliking water	Ferniuorounidecanoic acid (PFC	JIIA)

Method Summary

Client: Pollen Environmental LLC

Project/Site: 2022-931

Job ID: 810-37687-1

Method	Method Description	Protocol	Laboratory
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA SB
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	EA SB

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EA SB = Eurofins Eaton South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

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Sample Summary

Client: Pollen Environmental LLC

Project/Site: 2022-931

Job ID: 810-37687-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
810-37687-1	Raw Water Pondhouse-PEF79385	Drinking Water	09/12/22 13:50	09/16/22 09:30	AK2331184
810-37687-2	Raw Water Plant Sample Port-PEF79386	Drinking Water	09/11/22 14:17	09/16/22 09:30	AK2331184
810-37687-3	UF 1 Permeate-PEF79387	Drinking Water	09/11/22 14:05	09/16/22 09:30	AK2331184
810-37687-4	UF 2 Permeate-PEF79388	Drinking Water	09/12/22 11:25	09/16/22 09:30	AK2331184
810-37687-5	CFE Post Cl2-PEF79389	Drinking Water	09/11/22 14:24	09/16/22 09:30	AK2331184

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1350

1417

1405

1125

9-11-22 1424

Company ollen Env

Company:

Contact Person: Rich Helinski

2022.931

PE Lab ID#

PEF79385

PEF-79386

PEF79387

PEF79388

PEF79389

Date & Time:

Logan / Carl

CLIENT INFORMATION

Project Name: NSB SA-10 WTP PFAS Monitoring

Sample Identification | Sample Date Sample Time | Matrix

Special Instructions/QC Requirements & Comments:

Company: NSB SA-10 (Ice Services)

Email: rhelinski@iceservices.net

City, State Zip: Prudhoe Bay, AK 99734

Address: Pouch 340044

Phone: (907) 659-9060

Raw Water Pondhouse

UF 1 Permeate

UF 2 Permeate

CFE Post CI2

Raw Water Plant Sample

Fax: (907) 659-9061

Sampled By:

CHAIN OF CUSTODY/WORKORDER FOR

2022 PFC Requested Analysis Page 1 of 1 Operators: Perservative Added PWS # 331184 - special, non-routine ormal Turnaround 537* Send Results to ADEC: y Yes D No EPA □ RUSH ____ day(s) Purchase Order/Charge Code: by S PFC Sample Comments PEF Lab ID# Sample Point ID: SPIN001RAW X Sample Point ID: SPIN001RAW X Facility ID: TP002 Sample Point ID: SPTP002EP X Facility ID: TP002 imple Point ID: SPTP002EF X Facility ID: TP002 ample Point ID: SPTP002EP X Sample Condition: Shipping straps 2.8 °C Pollen Env Temperature on arrival: intact upon receipt Sub Lab Temperature on arrival: Company: POLLEN ENV Received by: Date & Time: 20930 Received by Date & Time: Company: Received by:

Accuracy, Precision, and Professional Service

Login Sample Receipt Checklist

Client: Pollen Environmental LLC Job Number: 810-37687-1

Login Number: 37687 List Source: Eurofins Eaton South Bend

List Number: 1

Creator: Spurgeon, Sheri

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

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Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	ADOT&PF Deadhorse Airport Sitewide	PFAS		
File Number:	300.38.327			
Completed by:	Shannon & Wilson, Inc.			
about which exposure about which exposure summary text about the characterization is about the characterization is about which exposure about which exposure is a characterization is a characterization.	be used to reach agreement with the osure pathways should be further in out the CSM and a graphic depiction work plan and updated as needed in	vestigated dung exposure pan later reports.	ring site character thways should be	rization. From this information
1. General I	tions: Follow the italicized instruct nformation: potential sources at the site)	tions in each	section below.	
☐ USTs	,	☐ Vehicles	3	
☐ ASTs		☐ Landfill:	S	
☐ Dispensers/fu	el loading racks	☐ Transfor	mers	
☐ Drums	C	⊠ Other:	Aqueous Film Form	ning Foam (AFFF) releases
Release Mechan	iisms (check potential release mech	nanisms at the	site)	
⊠ Spills		⊠ Direct d	ischarge	
⊠ Leaks		☐ Burning		
		☐ Other:		
Impacted Media	a (check potentially-impacted medic	a at the site)	,	
✓ Surface soil (,	⊠ Groundy	vater	
Subsurface so Sub	G ,	Surface Surface		
☐ Air		⊠ Biota		
⊠ Sediment		☐ Other:		
Receptors (chec	k receptors that could be affected b	y contaminatio	on at the site)	
⊠ Residents (ad	ult or child)	⊠ Site visi	tor	
	or industrial worker	□ Trespass	ser	
	worker	⊠ Recreati	onal user	
⊠ Subsistence h	arvester (i.e. gathers wild foods)	⋉ Farmer		
⊠ Subsistence c	onsumer (i.e. eats wild foods)	Other:		

2.	Exposure Pathways: (The answers to the following quest exposure pathways at the site. Check each box where the		•				
a)	Direct Contact - 1. Incidental Soil Ingestion						
	Are contaminants present or potentially present in surface soil betw (Contamination at deeper depths may require evaluation on a site-space)	the ground surface?					
	If the box is checked, label this pathway complete:						
	Comments:						
	S&W is aware of soil PFAS contamination present at the SCC.						
	Dermal Absorption of Contaminants from Soil						
	Are contaminants present or potentially present in surface soil betw (Contamination at deeper depths may require evaluation on a site sp	the ground surface?					
	Can the soil contaminants permeate the skin (see Appendix B in the	\boxtimes					
	If both boxes are checked, label this pathway complete:	Complete					
	Comments:						
	According to the Alaska Department of Health and Social Services, PFOS and absorbed through the skin. However, Appendix B of the 2017 Guidance on D Models lists both PFOS and PFOA.						
b)	Ingestion - 1. Ingestion of Groundwater						
	Have contaminants been detected or are they expected to be detected or are contaminants expected to migrate to groundwater in the future	×					
	Could the potentially affected groundwater be used as a current or f source? Please note, only leave the box unchecked if DEC has determined to 18 AAC 75.350.						
	If both boxes are checked, label this pathway complete:						
	Comments:						
	Surface water is used as a drinking water source in Deadhorse						

2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, \overline{X} or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a $\overline{\times}$ drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Complete Comments: The Sagavanirktok River (Sag River) is used as a drinking water source for Deadhorse. The river is directly east of the runway. PFAS have been detected. Source of PFAS is unknown and may not be associated with the airport. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or \overline{X} harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into \overline{X} biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the \overline{X} ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? If both boxes are checked, label this pathway complete: Incomplete Comments:

PFAS are not included in Appendix D.

2. Inhalation of Indoor Air				
Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminated soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)				
Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)?				
If both boxes are checked, label this pathway complete:	Incomplete			
Comments:				
PFAS are not included in Appendix D.				

3.	Additional Exposure Pathways: (Although there are no definitive questions provided in this section,
	these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)
De	ermal Exposure to Contaminants in Groundwater and Surface Water
	Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if

 Climate permits recreational use of waters for swimming. Climate permits exposure to groundwater during activities, such as construction. 					
o Groundwater or surface water is used for household purposes, such as bathing or cleaning.					
Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of dermal absorption is incorporated into the groundwater exposure equation for residential uses.					
Check the box if further evaluation of this pathway is needed:	X				
Comments:					
According to the Alaska Department of Health and Social Services, PFOS and PFOA are not appreciably absorbed through the skin. However, Appendix B of the 2017 Guidance on Developing Conceptual Site Models lists both PFOS and PFOA. We consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.					
Inhalation of Volatile Compounds in Tap Water					
Inhalation of volatile compounds in tap water may be a complete pathway if: The contaminated water is used for indoor household purposes such as showering, washing.	laundering, and dish				
 The contaminants of concern are volatile (common volatile contaminants are listed guidance document.) 	in Appendix D in the				
DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because vapors during normal household activities is incorporated into the groundwater exposure equations of the pathway because vapors during normal household activities is incorporated into the groundwater exposure equations.					
Check the box if further evaluation of this pathway is needed:					
Comments:	_				
PFAS are not included in Appendix D.					

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed:	X
Comments:	
S&W is aware of PFAS contamination present in surface soil at the SCC.	

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- O Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:

$\overline{\times}$

Comments:

To our knowledge, no sediment samples have been collected at the SCC. However, AFFF was likely release to the ground surface in unpaved and/or lightly graveled areas are open to DOT&PF employees and the public.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Deadhorse Airport - ADOT&PF Statewide Airport PF	AS Investigation		Instructions: Follow the numbered consider contaminant concentrations	ions o	r engine				
Completed By: Shannon & Wilson, Inc.			use controls when describing pat	nways	i. 				
Date Completed: March 2023							(5)		
(1) (2) Check the media that could be directly affected by the release. For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.	(3) Check all exposure media identified in (2)	2).	(4) Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.	expe "F" f futu C	osure pathw for future re- re receptors Current	eptors, or "I"	ter "C" s, "C/F" for insi utur	for curre for both gnifican	ceptors
Media Transport Mechanisms	Exposure Me	edia	Exposure Pathway/Route	/	ers	sspas user	orker	siste	msun /
Surface Soil Wigration to subsurface check soil Wigration to groundwater check groundwater (0-2 ft bgs) Otherwise check air, che				Residents	Commercial or Site view	Or recreational users	Farmers or	Subsistence	Other
Runoff or erosion check surface water		✓ Incide	ental Soil Ingestion	C/F	C/F C/F	C/F	C/F	C/F	
Uptake by plants or animals check biota	soil	✓ Derm	al Absorption of Contaminants from Soil	I	l I	ı	ı	ı	
Other (list):]	✓ Inhala	ation of Fugitive Dust	C/F	C/F C/F	C/F	C/F	C/F	
Subsurface Soil (2-15 ft bgs) Volatilization Other (list): Direct release to subsurface soil Check soil Check groundwater Check groundwater Check groundwater Check groundwater Check biota Check biota	groundwater	✓ Derm	tion of Groundwater al Absorption of Contaminants in Groundwater ation of Volatile Compounds in Tap Water	I	I I	I	I	I	
Groundwater Volatilization Volatilization Flow to surface water body Check surface water Flow to sediment Uptake by plants or animals Other (list):	air	Inhala	ation of Outdoor Air ation of Indoor Air ation of Fugitive Dust						
Direct release to surface water check surface water		✓ Inges	tion of Surface Water	C/F	C/F C/F	C/F	C/F	C/F	
Surface Volatilization check air	surface water		al Absorption of Contaminants in Surface Water	I		ı	ı	ı	
Water V Sedimentation check sediment Uptake by plants or animals check biota Other (list):			ation of Volatile Compounds in Tap Water						
Direct release to sediment check sediment	sediment	✓ Direct	t Contact with Sediment	C/F	C/F C/F	C/F	C/F	C/F	
Sediment V Resuspension, runoff, or erosion check surface water V Uptake by plants or animals check biota Other (list):	☑ biota	V Inges	tion of Wild or Farmed Foods	C/F	C/F C/F	C/F	C/F	C/F	

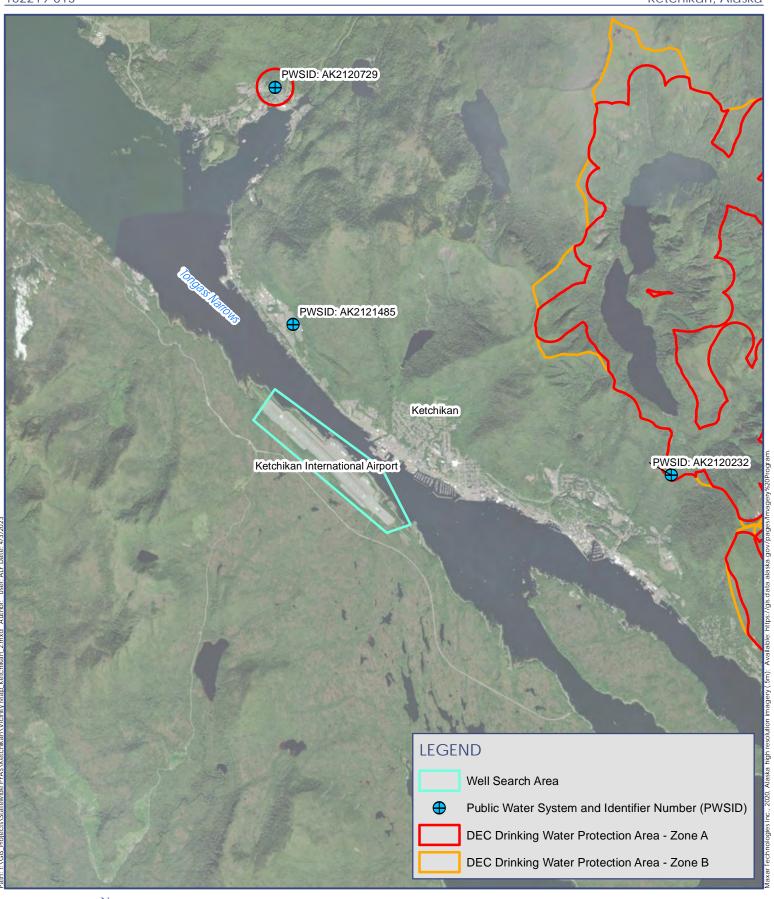
Appendix B

Ketchikan Airport Supporting Documents

CONTENTS

- Figure B1 Vicinity Map
- Figure B2 Site Map
- PFAS Fact Sheet Mailing
- Typed Field Notes
- DEC Conceptual Site Model Scoping and Graphic Forms

102219-013





102219-013





June 2023 **SITE MAP Figure B2**



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

PFAS Fact Sheet -Ketchikan International Airport

October 2022

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging and firefighting foams.

A potential source of PFAS in groundwater near the airport is the use of a fire-fighting foam called aqueous film forming foam (AFFF). Airport firefighters used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

The Alaska Department of Environmental Conservation (DEC) has adopted the Environmental Protection Agency's (EPA's) former lifetime health advisory (LHA) level for drinking water of **70 parts per trillion** for the sum of PFOS and PFOA. On June 15, 2022, the EPA adopted a revised interim LHA level. DOT&PF will continue to work with our state and federal partners to determine what this means for Alaska and will adjust as more information becomes available.

We advise well users with test results above the DEC Action Level not to use their water for drinking or

Website: www.dot.alaska.gov/airportwater/

For questions about well testing:

Shannon & Wilson, Inc.

Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program

Phone: 907-269-3057

Email: bill.oconnell@alaska.gov

For questions about PFAS and health effects:

Alaska Dept. of Health & Social Services Sarah Yoder, Public Health Specialist

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

For questions about fire training & other inquiries:

DOT&PF – Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC Action Level, DOT&PF will assist with access to an alternate source of drinking water.

October 2022 - ARM Field Notes from KTN site visit with Alex Peura and drive-around with Brian (airport employee >20yrs)

KTN gets water (and sewer) from the city since establishment. City source waters are not on the airport island.

There are residential lots to the south of the airport that are accessed by boat. (Outside Search Area, noted as using rain catchment, or dry)

Alex indicated most people who are not connected to the city system use rain-catchment cisterns. He considered the expense and challenges of a well to not be an option for most people, considering the excess of rainfall available.

Also one resident to the north Alex indicated could be accessed via a road around the airport. ARM drove this road and it appeared to be a staging and/or storage area. ARM did not see any structures that looked like housing. There was a port-a-potty, but no tanks or cisterns. Did not see anyone around, though there were recent tire tracks.

The past crash and the training areas are the only known AFFF use. Crash site was filled in when airport runway was extended. Current "crash site" would be fill on top of crash area. Airplane crashed into the end of the runway, which ended at a steep cliff down to a creek (with flow to the narrows). Government Creek was re-routed, but still lies between the airport and the residential areas.

Currently, AFFF in trucks, but none stored onsite.

Training was done in front of "ARFF" building in the early 2000s.

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	Ketchikan Airport Sitewide PFAS			
File Number:	1516.38.055			
Completed by:	Shannon & Wilson, Inc.			
about which expo summary text abo	be used to reach agreement with the osure pathways should be further in out the CSM and a graphic depicting work plan and updated as needed in	vestigated dur g exposure pa	ring site characteria	zation. From this information
General Instruct	tions: Follow the italicized instruc	tions in each	section below.	
1. General In Sources (check)	nformation: potential sources at the site)			
☐ USTs		☐ Vehicles	3	
☐ ASTs		Landfill	S	
☐ Dispensers/fu	el loading racks	☐ Transfor	mers	
☐ Drums		⋉ Other:	Aqueous Film Formii	ng Foam (AFFF) releases
Release Mechan	nisms (check potential release mech	nanisms at the	site)	
⊠ Spills		⊠ Direct d	ischarge	
⊠ Leaks		☐ Burning		
		☐ Other:		
Impacted Media	a (check potentially-impacted medic	a at the site)		
✓ Surface soil (, , ,	⊠ Groundy	vater	
Subsurface so Sub	<u> </u>	⊠ Surface	water	
☐ Air		⊠ Biota		
⊠ Sediment		☐ Other:		
Receptors (chec	k receptors that could be affected b	y contaminati	on at the site)	
⊠ Residents (ad	ult or child)	⊠ Site visi	tor	
	or industrial worker	⊠ Trespass	ser	
▼ Construction	worker	Recreati	onal user	
⊠ Subsistence h	arvester (i.e. gathers wild foods)	⊠ Farmer		
Subsistence c	onsumer (i.e. eats wild foods)	☐ Other:		

2.	Exposure Pathways: (The answers to the following exposure pathways at the site. Check each box when	-		-	
a)	Direct Contact - 1. Incidental Soil Ingestion				
	Are contaminants present or potentially present in surface so (Contamination at deeper depths may require evaluation on a	_	urface? ⋜		
	If the box is checked, label this pathway complete:		Complete		
	Comments:				
	No surface soil samples have been collected at the KTN. However, AF could cause soil contamination.	FF release	es to the ground surface		
	2. Dermal Absorption of Contaminants from Soil				
	Are contaminants present or potentially present in surface so (Contamination at deeper depths may require evaluation on a			_	urface? ≺
	Can the soil contaminants permeate the skin (see Appendix l	B in the g	guidance document)?		₹
	If both boxes are checked, label this pathway complete:		Complete		
	Comments:				
	No surface soil samples have been collected at the KTN. However, AF could cause soil contamination. According to the Alaska Department PFOS and PFOA are not appreciably absorbed through the skin. How Guidance on Developing Conceptual Site Models lists both PFOS and	of Health ever, App	and Social Services,		
b)	Ingestion - 1. Ingestion of Groundwater				
	Have contaminants been detected or are they expected to be or are contaminants expected to migrate to groundwater in the		≺		
	Could the potentially affected groundwater be used as a curr source? Please note, only leave the box unchecked if DEC h water is not a currently or reasonably expected future source to 18 AAC 75.350.	Γ			
	If both boxes are checked, label this pathway complete:		Incomplete		
	Comments:				
	No water supply or monitoring well samples have been collected for KTN. However, PFAS contaminated groundwater is possible. Groundwater near the airport in Ketchikan.		_		

2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, \overline{X} or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Incomplete Comments: It is unlikely that surface water near the KTN would be used for drinking water purposes. If our investigation discovers this scenario, we will update this CSM. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or \overline{X} harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into \overline{X} biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the \overline{X} ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? If both boxes are checked, label this pathway complete: Incomplete Comments:

revised January 2017

PFAS are not included in Appendix D. If volatile organic compounds are reported during site

characterization activities, this section will be updated with the new information.

2. Inhalation of Indoor Air						
Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)						
Are volatile compounds present in soil or groundwater (see Andocument)?	ppendix D in the guidance					
If both boxes are checked, label this pathway complete:	Incomplete					
Comments:						
See comments for 3.c.1.						

3.	Additional Exposure Pathways: (Although there are no definitive questions provided in this section,
	these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)
De	ermal Exposure to Contaminants in Groundwater and Surface Water
	Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if

 Climate permits recreational use of waters for swimming. Climate permits exposure to groundwater during activities, such as construction. 	
o Groundwater or surface water is used for household purposes, such as bathing or c	
Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of dermal absorption is incorporated into the groundwater exposure equation for residential uses.	± •
Check the box if further evaluation of this pathway is needed:	X
Comments:	
According to the Alaska Department of Health and Social Services, PFOS and PFOA are not appreciably absorbed through the skin. However, Appendix B of the 2017 Guidance on Developing Conceptual Site Models lists both PFOS and PFOA. We consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.	
Inhalation of Volatile Compounds in Tap Water	
Inhalation of volatile compounds in tap water may be a complete pathway if: The contaminated water is used for indoor household purposes such as showering, washing.	laundering, and dish
The contaminants of concern are volatile (common volatile contaminants are listed guidance document.)	in Appendix D in the
DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway becau vapors during normal household activities is incorporated into the groundwater exposure equa	
Check the box if further evaluation of this pathway is needed:	
Comments:	_
PFAS are not included in Appendix D.	

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed:

\overline{X}

Comments:

No surface soil samples have been collected at the KTN. However, AFFF was likely released to the ground surface.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- O Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:



Comments:

No sediment samples have been collected at the KTN. However, AFFF was likely release to the ground surface in areas open to DOT&PF employees. If these area are used for subsistence practices (e.g., berry picking and fishing) that may expose them to sediment.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Ketchikan Airport Sitewide PFAS			ons or	engine)t	
Completed By: Shannon & Wilson, Inc. Date Completed: March 2023		use controls when describing pati				(5)		
(1) Check the media that could be directly affected by the release. For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.	(3) Check all exposure media identified in (2).	(4) Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.	expo "F" fi futui C	tify the receptors pathway or future receptors, current	eptors, or "I" fo	er "C" for "C/F" for for insigni uture	r current r both cu ificant ex	t receptors, urrent and exposure. eptors
Media Transport Mechanisms Direct release to surface soil check soil Surface Migration to subsurface check soil	Exposure Media	Exposure Pathway/Route	Residents (ad.i.ents	Commercial or industrial workers	ational user	Farmers or subsistence	Subsistence consumers	
Surface Soil (0-2 ft bgs) Surface V Migration to subsurface check soil V Migration to groundwater check groundwater V Olatilization check surface water V Runoff or erosion check surface water		Incidental Soil Ingestion	C/E	C/F C/E	C/F	C/F C	Subsiste	Other
Uptake by plants or animals check biota		Dermal Absorption of Contaminants from Soil	I	I I	I	I		
Other (list):		Inhalation of Fugitive Dust	C/F	C/F C/F	C/F			
Subsurface Soil Volatilization C-15 ft bgs) Direct release to subsurface soil Migration to groundwater check groundwater check groundwater check air check biota Other (list):	groundwater ✓	Ingestion of Groundwater Dermal Absorption of Contaminants in Groundwater Inhalation of Volatile Compounds in Tap Water	I		I	I I		
Ground- water Flow to sediment Uptake by plants or animals Other (list): Direct release to groundwater check groundwater check groundwater check groundwater check sediment check sediment check biota Check biota	air	Inhalation of Outdoor Air Inhalation of Indoor Air Inhalation of Fugitive Dust						
Surface Water Volatilization Check sediment Check biota	✓ surface water	Ingestion of Surface Water Dermal Absorption of Contaminants in Surface Water Inhalation of Volatile Compounds in Tap Water	I	l I	I	l l		
Direct release to sediment check sediment	sediment	Direct Contact with Sediment	C/F	C/F C/F	C/F	C/F C	;/F	
Sediment V Resuspension, runoff, or erosion Check surface water V Uptake by plants or animals Check biota Other (list):	▼ biota	Ingestion of Wild or Farmed Foods	C/F	C/F C/F	C/F	C/F C	;/F	

Appendix C

Kotzebue Airport Supporting Documents

CONTENTS

- Figure C1 Vicinity Map
- Figure C2 Site Map
- Figure C3 Analytical Results Summary
- Table C1 Kotzebue Monitoring Well Analytical Results December 2022
- Well Search Questionnaire Letter and PFAS Fact Sheet Mailing
- Well Search Questionnaire Responses
- Scanned Sampling Logs and Field Notes
- Analytical Laboratory Reports and Data Review Documentation
- DEC Conceptual Site Model Scoping and Graphic Forms

102219-014





June 2023

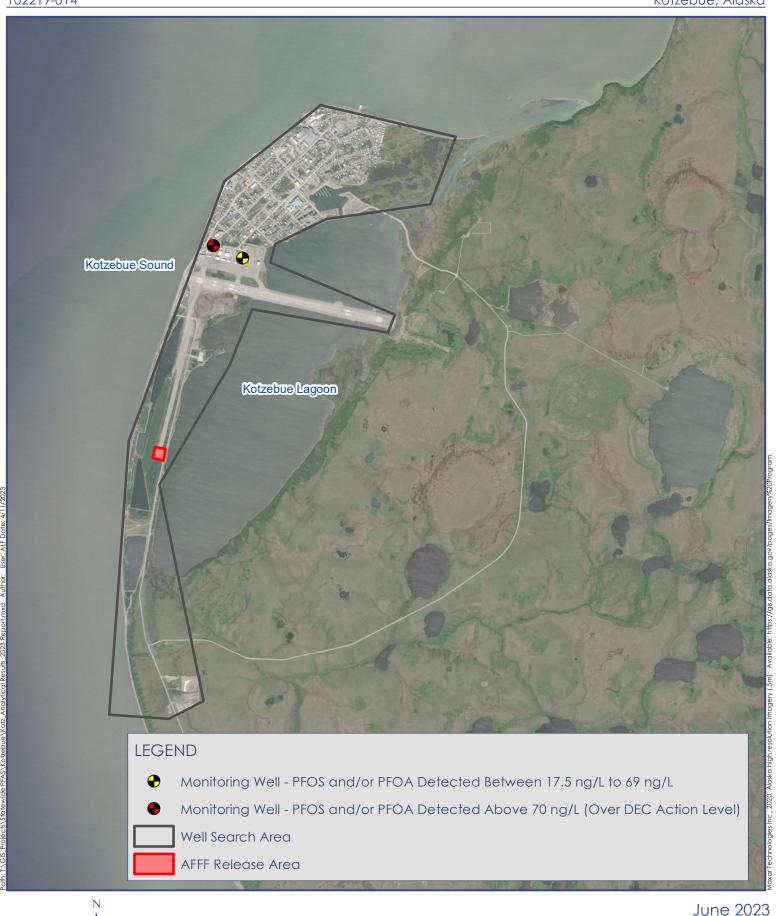
102219-014





June 2023

102219-014





Notes:

ANALYTICAL RESULTS SUMMARY

AFFF: Aqueous Film Foaming Foam
 Locations are approximate

3. Samples collected in November 2022

ng/L = nanograms per liter, equivalent to parts per trillion (ppt)

Figure C3



Table C1 - Kotzebue Monitoring Well Analytical Results - December 2022

Analytical				MW1	0-04	MW10-09	
Method	Analyte	Regulatory Limit	Units	12/3/2022	Duplicate	12/3/2022	
	Perfluorooctanesulfonic acid (PFOS)	400	ng/L	160	150	5.2	
	Perfluorooctanoic acid (PFOA)	400	ng/L	9.7	10	41	
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	N/A	ng/L	<4.2	<3.9	<4.4	
	Perfluorobutanesulfonic acid (PFBS)	N/A	ng/L	0.84 J	0.78 J	7.9	
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	2.6	2.3	<2.2	
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<2.1	<2.0	<2.2 J*	
	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	7.8	7.5	160	
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	9.6	9.5	43	
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	14	15	280	
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	24	24	1.2J	
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<2.1	<2.0	<2.2 J*	
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<2.1	<2.0	<2.2 J*	
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<2.1	<2.0	<2.2	
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	N/A	ng/L	<2.1	<2.0	<2.2	
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	N/A	ng/L	<2.1	<2.0	<2.2	
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<2.1	<2.0	<2.2	
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<5.3	<4.9	<5.5 J*	
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<5.3	<4.9	<5.5 J*	

Notes: Results reported from Eurofins Environmental Testing work order 320-94968-1.

Alaska Department of Environmental Conservation (DEC) Groundwater Cleanup Levels from 18 AAC 75.345 Table C.

DEC Alaska Department of Environmental Conservation

PFAS per- and poly-fluoroalkyl substances

QSM Quality Systems Manual

ng/L nanograms per liter

N/A No applicable regulatory limit exists for the associated analyte.

< Analyte not detected; listed as less than the reporting limit (RL) unless otherwise flagged due to quality-control failures.

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.

J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

November 2022

Dear Property Owner or Occupant:

The Department of Transportation and Public Facilities (DOT&PF) is conducting a comprehensive evaluation of per- and polyfluoroalkyl substances (PFAS) contamination at and near state-owned or state-operated airports. Due to requirements by the Federal Aviation Administration (FAA), firefighters at the Kotzebue Ralph Wien Memorial Airport (OTZ) have used aqueous film forming foam (AFFF), a standard firefighting agent that contains PFAS, to extinguish hydrocarbon fires during training exercises and emergency events.

This is an Issue Notice that only applies to Search Areas 1, 2 and 3 on the attached map. If you received this notice and do NOT reside in those areas, disregard this notice.

Out of an abundance of caution, the DOT&PF has contracted with environmental consulting firm, Shannon & Wilson, Inc., to sample water supply wells near airports across the state. We understand Kotzebue is primarily served by the City of Kotzebue Water Utility and that the surface water lakes used as the source for the municipal water supply are not impacted by AFFF use at the Kotzebue Airport. However, you are receiving this letter as part of our efforts to identify water supply wells that may be in use near the OTZ. For the City of Kotzebue, we have broken the areas around the airport into three search areas to assist with tracking responses. These areas are outlined on the enclosed map.

If water supply wells are identified, Shannon & Wilson will evaluate the need to conduct a water sampling effort in Kotzebue. If you have an active well in the three search areas, please call Shannon & Wilson at (907) 479-0600 or complete the enclosed Water Supply Well Survey and return to:

Shannon & Wilson c/o Kristen Freiburger 2355 Hill Road Fairbanks, AK 99712

Or email: kristen.freiburger@shanwil.com

Water supply well sample results will be compared to the Alaska Department of Conservation action level of 70 parts per trillion for the sum of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), two compounds within the PFAS family. PFAS are emerging contaminants, and the research into the health effects of exposure to PFAS is ongoing. Results of water samples will be shared with property owners and residents. If your drinking-water well

is found to have PFAS above the action level, DOT&PF will assist with access to alternative drinking water.

If you have any questions, please contact me, or see the enclosed contact list to identify the most appropriate person or agency for your inquiry. We appreciate your patience as we work through this process. As of the date of this mailing, DOT&PF and their representatives have informed the community leadership of our efforts.

Sincerely,

Sammy Cummings

Sammy Cummings

PFAS Program Manager, DOT&PF Statewide Aviation



Da	::	
Pa	el:	
Na	e (Owner):	
Na	e (Occupant):	
Ph	ical Address:	
Ma	ing Address:	
Em	il Address (optional):	
Со	act Phone Number: (owner) (occupant)	
	Adults (18 and over) Teenagers (13 to 17) Children (12 and under) s at this residence:Full-Time Seasonal	
1)	From where do you obtain your drinking water? a) Water Supply Utility b) Well Water c) Water Delivery d) Other	
2)	f you have a water well, please answer the following questions: a) Where is the well located on the property?	
3)	Do you have any treatment on your well (e.g. water softener)? Please describe	: your
	Signature Date	





Department of Transportation and **Public Facilities**

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

PFAS Fact Sheet – Kotzebue Airport

October 2022

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging, and firefighting foams.

The presumed source of potential PFAS groundwater contamination in your community is the use of a firefighting foam called aqueous film forming foam (AFFF). Airport firefighters used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

The Department of Environmental Conservation (DEC) has adopted the Environmental Protection Agency's former lifetime health advisory (LHA) level for drinking water of 70 parts per trillion for the sum of PFOS and PFOA. On June 15, 2022, the EPA adopted a revised interim LHA level. DOT&PF will continue to work with our state and federal partners to determine what this means for Alaska and will adjust as more information becomes available.

We advise residents with test results above the DEC Action Level not to use their water for drinking or

For questions about well testing:

Website: www.dot.alaska.gov/airportwater/

Shannon & Wilson, Inc.

Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program Phone:

907-269-3057

Email: bill.oconnell@alaska.gov

For questions about PFAS and health effects:

Alaska Dept. of Health

Sarah Yoder, Env. Public Health Program

Manager

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

For questions about fire training & other inquiries:

DOT&PF – Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC Action Level, DOT&PF will assist with access to an alternate source of drinking water.



Date: 12/15/22 Sourch area 3	
Date: Search area 3 Parcel:	
Name (Owner): Lva Baker	
Name (Occupant): Baker	
Physical Address:	ake Street
Mailing Address: Box 3/2	Kotzebne AK 9978
Email Address (optional):	
Contact Phone Number: (owner) (occupant	t)
Number of persons residing at this location: Add Tee	ults (18 and over) enagers (13 to 17) ildren (12 and under)
1) From where do you obtain your drinking water? a) Water Supply Utility b) Well Water C) Water Delivery d) Other	ater
2) If you have a water well, please answer the following questions: a) Where is the well located on the property?	ve the well log? Yes No Driven Unknown
3) Sample Permission Does the Alaska Department of Transportation & Public Facilities private water well? Yes No Signature	es (DOT&PF) have permission to sample your $\frac{12/45/22}{\text{Date}}$
Signature	Date



Signature

Lorrelove Date: 11 26.22 Parcel: ____ Name (Owner): VIII Name (Occupant): Zaw Q. Escobar Physical Address: Unit 29, Apt. 200, Kotzebue, AK. 99752 Mailing Address: PO Box 492, Kotzebue, AL 99752 Email Address (optional): ______ & Taul 3451 @ gmail. com Contact Phone Number: (owner) 442-3165 (occupant) Adults (18 and over) Number of persons residing at this location: Teenagers (13 to 17)_____ Children (12 and under) Years at this residence: Full-Time Seasonal 1) From where do you obtain your drinking water? a) Water Supply Utility b) Well Water c) Water Delivery d) Other 2) If you have a water well, please answer the following questions: a) Where is the well located on the property? b) Is the well in use? Yes No 🗌 c) If yes, please check all that apply regarding the usage of your well water: Drinking Cooking Gardening Pets Other d) If no, is the well usable, unusable, or properly abandoned? Usable Unusable Abandoned Method e) When was the well installed? _____ f) What is the well depth? Do you have the well log? Yes No g) What is the well diameter? _____ h) What is the well type? Dug Well Driven Drilled Unknown i) Do you have any treatment on your well (e.g. water softener)? Please describe. 3) Sample Permission Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permission to sample your private water well? Yes No

Date



Lotzelove Date: 11-26-22 Parcel: Name (Owner): Motthan F. Lazans Name (Occupant): Matthew F- Lozarus Physical Address: 817A Wanda 5t. Mailing Address: P.O. Box 258 Kotzebue, AK 99752 Email Address (optional): Matthew, Jazans @ yahoo.com Contact Phone Number: (owner) 907-412.0 % (occupant) Adults (18 and over) _____2 Number of persons residing at this location: Teenagers (13 to 17)_____ Children (12 and under) Years at this residence: The Full-Time Seasonal 1) From where do you obtain your drinking water? a) Water Supply Utility b) Well Water c) Water Delivery d) Other 2) If you have a water well, please answer the following questions: a) Where is the well located on the property? _____ b) Is the well in use? Yes No c) If yes, please check all that apply regarding the usage of your well water: Drinking Cooking Gardening Pets Other d) If <u>no</u>, is the well usable, unusable, or properly abandoned? Usable Unusable Abandoned Method e) When was the well installed? f) What is the well depth? Do you have the well log? Yes No g) What is the well diameter? _____ h) What is the well type? Dug Well Driven Drilled Unknown i) Do you have any treatment on your well (e.g. water softener)? Please describe. 3) Sample Permission Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permission to sample your private water well? Yes No I am the water plant supervisor for the city of kotzebue. I have worked at the water plant since merch 2005. I Am not aware of ANYBODY drinking From a Drivate well here. Signature Mathe F. Layarur Date 11-26-22



Date: 12-6-22 Parcel: Lot & Block 7 Trach Name (Owner): Kathleen in Daglass Name (Occupant): Kathleen in Daylass Physical Address: 127 B Kotzebue way Mailing Address: Po Box 95Ce Email Address (optional): KMDOUS 1955 O HOT MOLL COM Contact Phone Number: (owner) 107-442-3750 (occupant) Some Adults (18 and over) Number of persons residing at this location: Teenagers (13 to 17)_____ Children (12 and under) Years at this residence: <u>23</u> Full-Time Seasonal 1) From where do you obtain your drinking water? a) Water Supply Utility b) Well Water c) Water Delivery d) Other 2) If you have a water well, please answer the following questions: a) Where is the well located on the property?_____ b) Is the well in use? Yes No c) If <u>yes</u>, please check all that apply regarding the usage of your well water: Drinking Cooking Gardening Pets Other_____ d) If <u>no</u>, is the well usable, unusable, or properly abandoned? Usable Unusable Abandoned Method _____ e) When was the well installed? f) What is the well depth? _____ Do you have the well log? \(\subseteq\) Yes \(\subseteq\) No g) What is the well diameter? ☐ Dug Well h) What is the well type? Driven Drilled Unknown i) Do you have any treatment on your well (e.g. water softener)? Please describe. _____ 3) Sample Permission Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permission to sample your private water well? Yes No Theon M. Pylso

Latrebre



Date: $\frac{12/9/2}{2}$	
Parcel: 45 (
Name (Owner): $\angle EWS$ $PAGEL$ Name (Occupant): $\angle EWS$ $PAGEL$	
Name (Occupant): LEWIS PAGEL	
Physical Address: 451 SEVENTH AUE	
Mailing Address: P.O. Box 625, KotzeBue,	4K 99752
Email Address (optional):	
Contact Phone Number: (owner) $907-4/2-1705$ (occupant	SAME
Number of persons residing at this location: Adu Tee Chil Years at this residence: Full-Time Seasonal	Ilts (18 and over)
1) From where do you obtain your drinking water?	
a) Water Supply Utility b) Well Wa c) Water Delivery d) Other	ter
g) What is the well diameter? h) What is the well type? Dug Well Drilled i) Do you have any treatment on your well (e.g. water softene	r well water: Other e the well log? Yes No Driven Unknown
3) Sample Permission Does the Alaska Department of Transportation & Public Facilities private water well? Yes No	
Signature	12/09/2022 Date



Water Supply Well Inventory Survey Form Parcel: Name (Owner): Morris & Mary Ann Wilson Name (Occupant): Morris, Many, Connor, Chies, Physical Address: 6020 Email Address (optional): Contact Phone Number: (owner) 90744Z34ZZ (occupant) 90744Z34ZZ Adults (18 and over) Number of persons residing at this location: Teenagers (13 to 17)_____ Children (12 and under) __/___ Years at this residence: _____Full-Time Seasonal From where do you obtain your drinking water? a) Water Supply Utility b) Well Water c) Water Delivery d) Other If you have a water well, please answer the following questions: a) Where is the well located on the property? _____ b) Is the well in use? Yes No c) If yes, please check all that apply regarding the usage of your well water: Drinking Cooking Gardening Pets d) If no, is the well usable, unusable, or properly abandoned? usable Abandoned Method Unusable Usable | When was the well installed? Do you have the well log? Yes What is the well depth? _ What is the well diameter? Driven Dug Well What is the well type? Unknown Drilled Do you have any treatment on your well (e.g. water softener)? Please describe. Sample Permission Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permission to sample your private water well?

Signature

14/26/22 Date

				MW10-09			
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Depth	to water	C: 0.13	100	Gallons of Wester	r in Well:	0.102	
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### PREPARED FOR

Attn: Kristen Freiburger Shannon & Wilson, Inc 2355 Hill Rd. Fairbanks, Alaska 99709-5244

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### **JOB DESCRIPTION**

ADQT&PP Statewide

### **JOB NUMBER**

320-94968-1

Eurofins Sacramento 880 Riverside Parkway West Sacramento CA 95605

## **Eurofins Sacramento**

#### **Job Notes**

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

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### **Authorization**

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Authorized for release by David Alltucker, Project Manager I David.Alltucker@et.eurofinsus.com (916)374-4383

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12/19/2022

Client: Shannon & Wilson, Inc Project/Site: ADQT&PP Statewide Laboratory Job ID: 320-94968-1

# **Table of Contents**

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Isotope Dilution Summary	10
QC Sample Results	11
QC Association Summary	16
Lab Chronicle	17
Certification Summary	18
Method Summary	19
Sample Summary	20
Chain of Custody	21
Receipt Checklists	22

4

8

10

12

13

14

### **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-94968-1

Project/Site: ADQT&PP Statewide

#### **Qualifiers**

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	~	ΝЛ	ю
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NC

ND

NEG POS

PQL

QC

RL

RER

**RPD** 

TEF TEQ

TNTC

**PRES** 

Not Calculated

Negative / Absent

Positive / Present

Presumptive

**Quality Control** 

**Practical Quantitation Limit** 

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin)

Too Numerous To Count

Toxicity Equivalent Quotient (Dioxin)

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Not Detected at the reporting limit (or MDL or EDL if shown)

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit

**Eurofins Sacramento** 

Page 4 of 22 12/19/2022

#### **Case Narrative**

Client: Shannon & Wilson, Inc Project/Site: ADQT&PP Statewide Job ID: 320-94968-1

Job ID: 320-94968-1

**Laboratory: Eurofins Sacramento** 

**Narrative** 

Job Narrative 320-94968-1

#### Receipt

The samples were received on 12/6/2022 1:36 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.4° C.

#### LCMS

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: MW10-09 (320-94968-3). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method EPA 537(Mod): The matrix spike duplicate (MSD) recoveries for Perfluorobutanesulfonic acid (PFBS) of preparation batch 320-639072 and analytical batch 320-640016 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **Organic Prep**

Method 3535: The following samples in preparation batch 320-639072 were light brown in color prior to extraction. MW110-04 (320-94968-1) and MW10-04 (320-94968-2)

Method 3535: The following samples in preparation batch 320-639072 were observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction. MW110-04 (320-94968-1) and MW10-04 (320-94968-2)

Method 3535: Due to the thin layer of sediment present in the bottom of the bottle, the following samples were centrifuged and decanted into new 250 mL container: MW110-04 (320-94968-1) and MW10-04 (320-94968-2). After centrifuging and decanting, the samples were fortified with IDA and then extracted. 320-639072

Method 3535: The following sample in preparation batch 320-639072 was light brown in color and observed to have floating particulates present in the sample bottle. MW10-09 (320-94968-3)

Method 3535: During the solid phase extraction process, the following samples contained floating particulates which clogged the solid phase extraction column: MW10-09 (320-94968-3). 320-639072

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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### **Detection Summary**

Client: Shannon & Wilson, Inc Job ID: 320-94968-1 Project/Site: ADQT&PP Statewide

#### Client Sample ID: MW110-04 Lab Sample ID: 320-94968-1

Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	15	2.0	0.57	ng/L		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.5	2.0	0.25	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	10	2.0	0.84	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	24	2.0	0.27	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	2.3	2.0	0.31	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.78 J	2.0	0.20	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.5	2.0	0.56	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	150	2.0	0.53	ng/L	1	EPA 537(Mod)	Total/NA

#### Client Sample ID: MW10-04

## Lab Sample ID: 320-94968-2

Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	14	2.1	0.61	ng/L		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.8	2.1	0.26	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	9.7	2.1	0.90	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	24	2.1	0.28	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	2.6	2.1	0.33	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.84 J	2.1	0.21	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.6	2.1	0.60	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	160	2.1	0.57	ng/L	1	EPA 537(Mod)	Total/NA

#### Client Sample ID: MW10-09

Perfluorooctanesulfonic acid (PFOS)

#### Analyte Result Qualifier RL **MDL** Unit Dil Fac D Method **Prep Type** Perfluorohexanoic acid (PFHxA) 280 2.2 0.64 ng/L EPA 537(Mod) Total/NA Perfluoroheptanoic acid (PFHpA) 160 2.2 0.28 ng/L EPA 537(Mod) Total/NA 1 Perfluorooctanoic acid (PFOA) 41 2.2 0.94 ng/L EPA 537(Mod) Total/NA 1 Perfluorononanoic acid (PFNA) 1.2 J 2.2 0.30 ng/L EPA 537(Mod) Total/NA Perfluorobutanesulfonic acid (PFBS) 7.9 2.2 0.22 ng/L 1 EPA 537(Mod) Total/NA Perfluorohexanesulfonic acid (PFHxS) EPA 537(Mod) 43 2.2 0.63 ng/L Total/NA

2.2

0.60 ng/L

5.2

This Detection Summary does not include radiochemical test results.

Lab Sample ID: 320-94968-3

EPA 537(Mod)

Total/NA

### **Client Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-94968-1

Project/Site: ADQT&PP Statewide

Client Sample ID: MW110-04

Lab Sample ID: 320-94968-1

Date Collected: 12/03/22 18:30 Matrix: Water Date Received: 12/06/22 13:36

Analyte	Result Qu	ıalifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	15	2.0	0.57	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluoroheptanoic acid (PFHpA)	7.5	2.0	0.25	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluorooctanoic acid (PFOA)	10	2.0	0.84	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluorononanoic acid (PFNA)	24	2.0	0.27	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluorodecanoic acid (PFDA)	2.3	2.0	0.31	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluoroundecanoic acid (PFUnA)	ND	2.0	1.1	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluorododecanoic acid (PFDoA)	ND	2.0	0.54	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluorotridecanoic acid (PFTriA)	ND	2.0	1.3	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluorotetradecanoic acid (PFTeA)	ND	2.0	0.72	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluorobutanesulfonic acid (PFBS)	0.78 J	2.0	0.20	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluorohexanesulfonic acid (PFHxS)	9.5	2.0	0.56	ng/L		12/12/22 06:38	12/14/22 12:55	1
Perfluorooctanesulfonic acid (PFOS)	150	2.0	0.53	ng/L		12/12/22 06:38	12/14/22 12:55	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.9	1.2	ng/L		12/12/22 06:38	12/14/22 12:55	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.9	1.3	ng/L		12/12/22 06:38	12/14/22 12:55	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	2.0		ng/L		12/12/22 06:38	12/14/22 12:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	3.9		ng/L		12/12/22 06:38	12/14/22 12:55	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	2.0	0.32	ng/L		12/12/22 06:38	12/14/22 12:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	0.39	ng/L		12/12/22 06:38	12/14/22 12:55	,
Isotope Dilution	%Recovery Qu	ualifier Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	97	50 - 150				12/12/22 06:38	12/14/22 12:55	-
13C4 PFHpA	97	50 - 150				12/12/22 06:38	12/14/22 12:55	1
13C4 PFOA	94	50 - 150				12/12/22 06:38	12/14/22 12:55	1
13C5 PFNA	99	50 - 150				12/12/22 06:38	12/14/22 12:55	1
13C2 PFDA	91	50 - 150				12/12/22 06:38	12/14/22 12:55	1
13C2 PFUnA	97	50 - 150				12/12/22 06:38	12/14/22 12:55	1
13C2 PFDoA	85	50 - 150				12/12/22 06:38	12/14/22 12:55	
13C2 PFTeDA	96	50 ₋ 150				12/12/22 06:38	12/14/22 12:55	1
13C3 PFBS	101	50 ₋ 150				12/12/22 06:38	12/14/22 12:55	1
1802 PFHxS	98	50 ₋ 150				12/12/22 06:38	12/14/22 12:55	
13C4 PFOS	94	50 - 150					12/14/22 12:55	1
d3-NMeFOSAA	79	50 ₋ 150					12/14/22 12:55	1
d5-NEtFOSAA	75	50 - 150					12/14/22 12:55	
13C3 HFPO-DA	91	50 - 150					12/14/22 12:55	

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### **Client Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-94968-1 Project/Site: ADQT&PP Statewide

Client Sample ID: MW10-04

Lab Sample ID: 320-94968-2

Date Collected: 12/03/22 18:40 **Matrix: Water** Date Received: 12/06/22 13:36

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	14	2.1	0.61	ng/L		12/12/22 06:38	12/14/22 13:06	
Perfluoroheptanoic acid (PFHpA)	7.8	2.1	0.26	ng/L		12/12/22 06:38	12/14/22 13:06	
Perfluorooctanoic acid (PFOA)	9.7	2.1	0.90	ng/L		12/12/22 06:38	12/14/22 13:06	
Perfluorononanoic acid (PFNA)	24	2.1	0.28	ng/L		12/12/22 06:38	12/14/22 13:06	
Perfluorodecanoic acid (PFDA)	2.6	2.1	0.33	ng/L		12/12/22 06:38	12/14/22 13:06	
Perfluoroundecanoic acid (PFUnA)	ND	2.1	1.2	ng/L		12/12/22 06:38	12/14/22 13:06	•
Perfluorododecanoic acid (PFDoA)	ND	2.1	0.58	ng/L		12/12/22 06:38	12/14/22 13:06	
Perfluorotridecanoic acid (PFTriA)	ND	2.1	1.4	ng/L		12/12/22 06:38	12/14/22 13:06	
Perfluorotetradecanoic acid (PFTeA)	ND	2.1	0.77	ng/L		12/12/22 06:38	12/14/22 13:06	
Perfluorobutanesulfonic acid (PFBS)	0.84 J	2.1	0.21	ng/L		12/12/22 06:38	12/14/22 13:06	,
Perfluorohexanesulfonic acid (PFHxS)	9.6	2.1		ng/L		12/12/22 06:38	12/14/22 13:06	•
Perfluorooctanesulfonic acid (PFOS)	160	2.1		ng/L			12/14/22 13:06	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	5.3		ng/L			12/14/22 13:06	•
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	5.3		ng/L			12/14/22 13:06	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	2.1		ng/L			12/14/22 13:06	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	4.2		ng/L			12/14/22 13:06	•
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	2.1	0.34	ng/L		12/12/22 06:38	12/14/22 13:06	•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.1	0.42	ng/L		12/12/22 06:38	12/14/22 13:06	•
Isotope Dilution	%Recovery Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	96	50 - 150				12/12/22 06:38	12/14/22 13:06	
13C4 PFHpA	90	50 - 150				12/12/22 06:38	12/14/22 13:06	
13C4 PFOA	93	50 - 150				12/12/22 06:38	12/14/22 13:06	
13C5 PFNA	96	50 - 150				12/12/22 06:38	12/14/22 13:06	
13C2 PFDA	96	50 - 150				12/12/22 06:38	12/14/22 13:06	
13C2 PFUnA	100	50 - 150				12/12/22 06:38	12/14/22 13:06	
13C2 PFDoA	88	50 - 150				12/12/22 06:38	12/14/22 13:06	
13C2 PFTeDA	94	50 ₋ 150				12/12/22 06:38	12/14/22 13:06	
13C3 PFBS	92	50 ₋ 150				12/12/22 06:38	12/14/22 13:06	
1802 PFHxS	94	50 ₋ 150					12/14/22 13:06	
13C4 PFOS	89	50 - 150				12/12/22 06:38	12/14/22 13:06	
d3-NMeFOSAA	79	50 - 150					12/14/22 13:06	
d5-NEtFOSAA	79	50 - 150					12/14/22 13:06	
13C3 HFPO-DA	86	50 ₋ 150					12/14/22 13:06	

### **Client Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-94968-1

Project/Site: ADQT&PP Statewide

Client Sample ID: MW10-09 Lab Sample ID: 320-94968-3

Date Collected: 12/03/22 17:40 **Matrix: Water** Date Received: 12/06/22 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	280		2.2	0.64	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluoroheptanoic acid (PFHpA)	160		2.2	0.28	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluorooctanoic acid (PFOA)	41		2.2	0.94	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluorononanoic acid (PFNA)	1.2	J	2.2	0.30	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluorodecanoic acid (PFDA)	ND		2.2	0.34	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluoroundecanoic acid (PFUnA)	ND		2.2	1.2	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluorododecanoic acid (PFDoA)	ND		2.2	0.61	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluorotridecanoic acid (PFTriA)	ND		2.2	1.4	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.2	0.81	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluorobutanesulfonic acid (PFBS)	7.9		2.2	0.22	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluorohexanesulfonic acid (PFHxS)	43		2.2	0.63	ng/L		12/12/22 06:38	12/14/22 13:36	1
Perfluorooctanesulfonic acid (PFOS)	5.2		2.2		ng/L		12/12/22 06:38	12/14/22 13:36	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.5	1.3	ng/L		12/12/22 06:38	12/14/22 13:36	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.5	1.4	ng/L		12/12/22 06:38	12/14/22 13:36	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.2	0.27	ng/L		12/12/22 06:38	12/14/22 13:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.4		ng/L		12/12/22 06:38	12/14/22 13:36	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.2	0.35	ng/L		12/12/22 06:38	12/14/22 13:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.2	0.44	ng/L		12/12/22 06:38	12/14/22 13:36	,
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	58		50 - 150				12/12/22 06:38	12/14/22 13:36	
13C4 PFHpA	59		50 ₋ 150				12/12/22 06:38	12/14/22 13:36	1
13C4 PFOA	63		50 - 150				12/12/22 06:38	12/14/22 13:36	1
13C5 PFNA	66		50 - 150				12/12/22 06:38	12/14/22 13:36	1
13C2 PFDA	62		50 ₋ 150				12/12/22 06:38	12/14/22 13:36	1
13C2 PFUnA	59		50 - 150				12/12/22 06:38	12/14/22 13:36	1
13C2 PFDoA	48	*5-	50 - 150				12/12/22 06:38	12/14/22 13:36	
13C2 PFTeDA	39	*5-	50 - 150				12/12/22 06:38	12/14/22 13:36	1
13C3 PFBS	56		50 ₋ 150				12/12/22 06:38	12/14/22 13:36	1
1802 PFHxS	64		50 - 150				12/12/22 06:38	12/14/22 13:36	1
13C4 PFOS	62		50 - 150				12/12/22 06:38	12/14/22 13:36	1
d3-NMeFOSAA	43	*5-	50 ₋ 150				12/12/22 06:38	12/14/22 13:36	1
d5-NEtFOSAA	43	*5-	50 - 150				12/12/22 06:38	12/14/22 13:36	
13C3 HFPO-DA	54		50 ₋ 150				12/12/22 06:38	12/14/22 13:36	1

### **Isotope Dilution Summary**

Client: Shannon & Wilson, Inc
Project/Site: ADQT&PP Statewide

Job ID: 320-94968-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Control Sample

Method Blank

Lab Control Sample Dup

Matrix: Water Prep Type: Total/NA

_			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTDA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-94968-1	MW110-04	97	97	94	99	91	97	85	96
320-94968-2	MW10-04	96	90	93	96	96	100	88	94
320-94968-3	MW10-09	58	59	63	66	62	59	48 *5-	39 *5-
320-94998-A-1-B MS	Matrix Spike		93	95	90	86	93	81	92
320-94998-A-1-C MSD	Matrix Spike Duplicate		101	96	101	98	106	91	102
LCS 320-639072/2-A	Lab Control Sample	88	80	82	87	87	86	81	89
LCSD 320-639072/3-A	Lab Control Sample Dup	98	102	98	100	94	99	94	96
MB 320-639072/1-A	Method Blank	101	110	94	102	98	98	89	100
			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
320-94968-1	MW110-04	101	98	94	79	75	91		
320-94968-2	MW10-04	92	94	89	79	79	86		
320-94968-3	MW10-09	56	64	62	43 *5-	43 *5-	54		
320-94998-A-1-B MS	Matrix Spike	100	102	92	68	69	90		
320-94998-A-1-C MSD	Matrix Spike Duplicate	109	109	101	82	77	98		

98

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102

_	
Surrogate	Leaend

LCS 320-639072/2-A

MB 320-639072/1-A

LCSD 320-639072/3-A

PFHxA = 13C2 PFHxA

C4PFHA = 13C4 PFHpA

PFOA = 13C4 PFOA

PFNA = 13C5 PFNA

PFDA = 13C2 PFDA

PFUnA = 13C2 PFUnA

PFDoA = 13C2 PFDoA

PFTDA = 13C2 PFTeDA

C3PFBS = 13C3 PFBS

PFHxS = 18O2 PFHxS

PFOS = 13C4 PFOS

d3NMFOS = d3-NMeFOSAA

d5NEFOS = d5-NEtFOSAA

HFPODA = 13C3 HFPO-DA

**Eurofins Sacramento** 

Page 10 of 22

9

3

4

7

9

11

12

4.1

Client: Shannon & Wilson, Inc
Project/Site: ADQT&PP Statewide

Job ID: 320-94968-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-639072/1-A

**Matrix: Water** 

**Analysis Batch: 640016** 

Client Sample ID: Method Blank

Prep Type: Total/NA Prep Batch: 639072

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Analyte Perfluorohexanoic acid (PFHxA) ND 2.0 0.58 ng/L 12/12/22 06:38 12/14/22 11:34 Perfluoroheptanoic acid (PFHpA) ND 2.0 0.25 ng/L 12/12/22 06:38 12/14/22 11:34 Perfluorooctanoic acid (PFOA) 2.0 ND 0.85 ng/L 12/12/22 06:38 12/14/22 11:34 Perfluorononanoic acid (PFNA) ND 2.0 0.27 ng/L 12/12/22 06:38 12/14/22 11:34 0.31 ng/L Perfluorodecanoic acid (PFDA) ND 2.0 12/12/22 06:38 12/14/22 11:34 Perfluoroundecanoic acid (PFUnA) ND 2.0 12/12/22 06:38 12/14/22 11:34 1.1 ng/L Perfluorododecanoic acid (PFDoA) ND 2.0 12/12/22 06:38 12/14/22 11:34 0.55 ng/L Perfluorotridecanoic acid (PFTriA) ND 2.0 1.3 ng/L 12/12/22 06:38 12/14/22 11:34 Perfluorotetradecanoic acid (PFTeA) ND 2.0 0.73 ng/L 12/12/22 06:38 12/14/22 11:34 Perfluorobutanesulfonic acid (PFBS) ND 2.0 0.20 ng/L 12/12/22 06:38 12/14/22 11:34 Perfluorohexanesulfonic acid (PFHxS) ND 2.0 0.57 ng/L 12/12/22 06:38 12/14/22 11:34 Perfluorooctanesulfonic acid (PFOS) ND 2.0 0.54 ng/L 12/12/22 06:38 12/14/22 11:34 N-methylperfluorooctanesulfonamidoa ND 5.0 12/12/22 06:38 12/14/22 11:34 1.2 ng/L cetic acid (NMeFOSAA) ND 5.0 1.3 ng/L 12/12/22 06:38 12/14/22 11:34 N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan ND 2.0 0.24 ng/L 12/12/22 06:38 12/14/22 11:34 e-1-sulfonic acid ND 4.0 1.5 ng/L 12/12/22 06:38 12/14/22 11:34 Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) ND 2.0 0.32 ng/L 12/12/22 06:38 12/14/22 11:34 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 0.40 ng/L ND 2.0 12/12/22 06:38 12/14/22 11:34 4,8-Dioxa-3H-perfluorononanoic acid

MB MB

	IVIB IVIB				
Isotope Dilution	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	101	50 - 150	12/12/22 06:38	12/14/22 11:34	1
13C4 PFHpA	110	50 - 150	12/12/22 06:38	12/14/22 11:34	1
13C4 PFOA	94	50 - 150	12/12/22 06:38	12/14/22 11:34	1
13C5 PFNA	102	50 - 150	12/12/22 06:38	12/14/22 11:34	1
13C2 PFDA	98	50 - 150	12/12/22 06:38	12/14/22 11:34	1
13C2 PFUnA	98	50 - 150	12/12/22 06:38	12/14/22 11:34	1
13C2 PFDoA	89	50 - 150	12/12/22 06:38	12/14/22 11:34	1
13C2 PFTeDA	100	50 - 150	12/12/22 06:38	12/14/22 11:34	1
13C3 PFBS	102	50 - 150	12/12/22 06:38	12/14/22 11:34	1
1802 PFHxS	97	50 - 150	12/12/22 06:38	12/14/22 11:34	1
13C4 PFOS	99	50 - 150	12/12/22 06:38	12/14/22 11:34	1
d3-NMeFOSAA	80	50 - 150	12/12/22 06:38	12/14/22 11:34	1
d5-NEtFOSAA	78	50 - 150	12/12/22 06:38	12/14/22 11:34	1
13C3 HFPO-DA	91	50 - 150	12/12/22 06:38	12/14/22 11:34	1

Lab Sample ID: LCS 320-639072/2-A

**Matrix: Water** 

(ADONA)

**Analysis Batch: 640016** 

Client Sample ID:	Lab Control Sample
	Prep Type: Total/NA

Prep Batch: 639072

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	40.0	39.3		ng/L		98	72 - 129	
Perfluoroheptanoic acid (PFHpA)	40.0	43.9		ng/L		110	72 - 130	
Perfluorooctanoic acid (PFOA)	40.0	42.1		ng/L		105	71 - 133	
Perfluorononanoic acid (PFNA)	40.0	43.7		ng/L		109	69 - 130	

**Eurofins Sacramento** 

Page 11 of 22

2

3

4

6

8

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11

13

14

Client: Shannon & Wilson, Inc Job ID: 320-94968-1

Project/Site: ADQT&PP Statewide

#### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-639072/2-A

**Matrix: Water** 

**Analysis Batch: 640016** 

**Client Sample ID: Lab Control Sample** 

**Prep Type: Total/NA** Prep Batch: 639072

	Spike	LCS L	_CS		%Rec	
Analyte	Added	Result C	Qualifier Unit	D %Rec	Limits	
Perfluorodecanoic acid (PFDA)	40.0	40.7	ng/L		71 - 129	
Perfluoroundecanoic acid	40.0	42.8	ng/L	107	69 - 133	
(PFUnA)						
Perfluorododecanoic acid	40.0	43.8	ng/L	110	72 - 134	
(PFDoA)						
Perfluorotridecanoic acid	40.0	42.8	ng/L	107	65 - 144	
(PFTriA)						
Perfluorotetradecanoic acid	40.0	40.3	ng/L	101	71 - 132	
(PFTeA)						
Perfluorobutanesulfonic acid	35.5	35.7	ng/L	101	72 - 130	
(PFBS)						
Perfluorohexanesulfonic acid	36.5	35.6	ng/L	98	68 - 131	
(PFHxS)						
Perfluorooctanesulfonic acid	37.2	37.6	ng/L	101	65 - 140	
(PFOS)						
N-methylperfluorooctanesulfona	40.0	40.6	ng/L	102	65 - 136	
midoacetic acid (NMeFOSAA)						
N-ethylperfluorooctanesulfonami	40.0	38.8	ng/L	97	61 - 135	
doacetic acid (NEtFOSAA)	07.4	22.2	,,	22	77 407	
9-Chlorohexadecafluoro-3-oxan	37.4	36.8	ng/L	98	77 - 137	
onane-1-sulfonic acid					70.400	
Hexafluoropropylene Oxide	40.0	39.9	ng/L	100	72 - 132	
Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaund	27.0	27.0	/1	00	70 400	
	37.8	37.0	ng/L	98	76 - 136	
ecane-1-sulfonic acid	27.0	27.0	n a /l	100	04 444	
4,8-Dioxa-3H-perfluorononanoic	37.8	37.8	ng/L	100	81 - 141	
acid (ADONA)						

LCS LCS

	LUU	L03	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	88		50 - 150
13C4 PFHpA	80		50 - 150
13C4 PFOA	82		50 - 150
13C5 PFNA	87		50 - 150
13C2 PFDA	87		50 - 150
13C2 PFUnA	86		50 - 150
13C2 PFDoA	81		50 - 150
13C2 PFTeDA	89		50 - 150
13C3 PFBS	94		50 - 150
1802 PFHxS	98		50 - 150
13C4 PFOS	91		50 - 150
d3-NMeFOSAA	69		50 - 150
d5-NEtFOSAA	73		50 - 150
13C3 HFPO-DA	80		50 - 150

Lab Sample ID: LCSD 320-639072/3-A

**Matrix: Water** 

Analyte

**Analysis Batch: 640016** 

Perfluorohexanoic acid (PFHxA)

Perfluoroheptanoic acid (PFHpA)

Perfluorooctanoic acid (PFOA)

				Prep Ty Prep Ba		
LCSD				%Rec		RPD
Qualifier	Unit	D	%Rec	Limits	RPD	Limit
	ng/L		101	72 - 129	3	30
	ng/L		100	72 - 130	10	30
	ng/L		107	71 - 133	2	30

**Client Sample ID: Lab Control Sample Dup** 

**Eurofins Sacramento** 

Page 12 of 22

Spike

Added

40.0

40.0

40.0

LCSD

Result

40.4

39.9

42.9

### **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-94968-1 Project/Site: ADQT&PP Statewide

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-639072/3-A

**Matrix: Water** 

**Analysis Batch: 640016** 

**Client Sample ID: Lab Control Sample Dup** 

**Prep Type: Total/NA** 

**Prep Batch: 639072** 

Analyte	Spike Added		LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA)	40.0	42.1		ng/L		105	69 - 130	4	30
Perfluorodecanoic acid (PFDA)	40.0	41.7		ng/L		104	71 - 129	2	30
Perfluoroundecanoic acid (PFUnA)	40.0	43.1		ng/L		108	69 - 133	1	30
Perfluorododecanoic acid (PFDoA)	40.0	43.4		ng/L		109	72 - 134	1	30
Perfluorotridecanoic acid (PFTriA)	40.0	43.3		ng/L		108	65 - 144	1	30
Perfluorotetradecanoic acid (PFTeA)	40.0	42.6		ng/L		107	71 - 132	6	30
Perfluorobutanesulfonic acid (PFBS)	35.5	39.3		ng/L		111	72 - 130	10	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	36.0		ng/L		99	68 - 131	1	30
Perfluorooctanesulfonic acid (PFOS)	37.2	38.1		ng/L		102	65 - 140	1	30
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	42.0		ng/L		105	65 - 136	3	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	40.0	38.3		ng/L		96	61 - 135	1	30
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid	37.4	35.1		ng/L		94	77 - 137	5	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	40.2		ng/L		100	72 - 132	1	30
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid	37.8	37.7		ng/L		100	76 - 136	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	43.4		ng/L		115	81 - 141	14	30

LCSD LCSD

%Recovery	Qualifier	Limits
98		50 - 150
102		50 - 150
98		50 - 150
100		50 - 150
94		50 - 150
99		50 - 150
94		50 - 150
96		50 - 150
99		50 - 150
105		50 - 150
98		50 - 150
76		50 - 150
77		50 - 150
96		50 - 150
	98 102 98 100 94 99 94 96 99 105 98 76	102 98 100 94 99 94 96 99 105 98 76 77

Lab Sample ID: 320-94998-A-1-B MS

**Matrix: Water** 

**Analysis Batch: 640016** 

**Client Sample ID: Matrix Spike Prep Type: Total/NA** 

%Pac

Prep Batch: 639072

	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Perfluoroheptanoic acid (PFHpA)	34		36.1	77.4		ng/L		120	72 - 130
Perfluorooctanoic acid (PFOA)	70		36.1	112		ng/L		117	71 - 133

**Eurofins Sacramento** 

Page 13 of 22

Job ID: 320-94968-1

Client: Shannon & Wilson, Inc Project/Site: ADQT&PP Statewide

### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-94998-A-1-B MS

**Matrix: Water** 

**Analysis Batch: 640016** 

Client Sample ID: Matrix Spike

**Prep Type: Total/NA Prep Batch: 639072** 

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorononanoic acid (PFNA)	6.0		36.1	45.3		ng/L		109	69 - 130	
Perfluorodecanoic acid (PFDA)	2.7		36.1	43.0		ng/L		111	71 - 129	
Perfluoroundecanoic acid (PFUnA)	ND		36.1	36.4		ng/L		101	69 - 133	
Perfluorododecanoic acid (PFDoA)	ND		36.1	41.5		ng/L		115	72 - 134	
Perfluorotridecanoic acid (PFTriA)	ND		36.1	41.8		ng/L		116	65 - 144	
Perfluorotetradecanoic acid (PFTeA)	ND		36.1	35.7		ng/L		99	71 - 132	
Perfluorobutanesulfonic acid (PFBS)	71	F1	32.1	110		ng/L		121	72 - 130	
Perfluorohexanesulfonic acid (PFHxS)	28		33.0	60.5		ng/L		100	68 - 131	
Perfluorooctanesulfonic acid (PFOS)	120		33.6	161		ng/L		110	65 - 140	
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		36.1	37.7		ng/L		104	65 - 136	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		36.1	34.9		ng/L		97	61 - 135	
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid	ND		33.8	33.7		ng/L		100	77 - 137	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		36.1	38.5		ng/L		106	72 - 132	
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid	ND		34.1	34.0		ng/L		100	76 - 136	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		34.1	39.9		ng/L		117	81 - 141	

MS MS

Isotope Dilution	%Recovery	Qualifier	Limits
13C4 PFHpA	93		50 - 150
13C4 PFOA	95		50 - 150
13C5 PFNA	90		50 - 150
13C2 PFDA	86		50 - 150
13C2 PFUnA	93		50 - 150
13C2 PFDoA	81		50 - 150
13C2 PFTeDA	92		50 - 150
13C3 PFBS	100		50 - 150
1802 PFHxS	102		50 - 150
13C4 PFOS	92		50 - 150
d3-NMeFOSAA	68		50 - 150
d5-NEtFOSAA	69		50 - 150
13C3 HFPO-DA	90		50 - 150

Lab Sample ID: 320-94998-A-1-C MSD

**Matrix: Water** 

**Analysis Batch: 640016** 

				Prep E	atch: 63	39072
				%Rec		RPD
r	Unit	D	%Rec	Limits	RPD	Limit
_	/1		404	70 400		20

**Client Sample ID: Matrix Spike Duplicate** 

	Sample	Sample	<b>Бріке</b>	MISD	M2D				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Perfluoroheptanoic acid (PFHpA)	34		37.8	79.8		ng/L		121	72 - 130	3	30	
Perfluorooctanoic acid (PFOA)	70		37.8	112		ng/L		112	71 - 133	0	30	
Perfluorononanoic acid (PFNA)	6.0		37.8	45.3		ng/L		104	69 - 130	0	30	

**Eurofins Sacramento** 

Prep Type: Total/NA

Page 14 of 22

### **QC Sample Results**

Client: Shannon & Wilson, Inc
Project/Site: ADQT&PP Statewide

Job ID: 320-94968-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-94998-A-1-C MSD Matrix: Water

acid (ADONA)

13C4 PFOS

d3-NMeFOSAA

d5-NEtFOSAA

13C3 HFPO-DA

Analysis Batch: 640016

**Client Sample ID: Matrix Spike Duplicate** 

Prep Type: Total/NA Prep Batch: 639072

Analysis Batch: 640016									Prep Ba	itcn: 6	390/2
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorodecanoic acid (PFDA)	2.7		37.8	42.0		ng/L		104	71 - 129	2	30
Perfluoroundecanoic acid (PFUnA)	ND		37.8	38.1		ng/L		101	69 - 133	5	30
Perfluorododecanoic acid (PFDoA)	ND		37.8	42.8		ng/L		113	72 - 134	3	30
Perfluorotridecanoic acid (PFTriA)	ND		37.8	42.3		ng/L		112	65 - 144	1	30
Perfluorotetradecanoic acid (PFTeA)	ND		37.8	38.2		ng/L		101	71 - 132	7	30
Perfluorobutanesulfonic acid (PFBS)	71	F1	33.6	117	F1	ng/L		135	72 - 130	6	30
Perfluorohexanesulfonic acid (PFHxS)	28		34.5	62.0		ng/L		100	68 - 131	3	30
Perfluorooctanesulfonic acid (PFOS)	120		35.2	163		ng/L		110	65 - 140	1	30
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		37.8	37.7		ng/L		100	65 - 136	0	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		37.8	39.2		ng/L		103	61 - 135	11	30
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid	ND		35.3	34.6		ng/L		98	77 - 137	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		37.8	38.5		ng/L		102	72 - 132	0	30
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid	ND		35.7	34.2		ng/L		96	76 - 136	1	30
4,8-Dioxa-3H-perfluorononanoic	ND		35.7	39.9		ng/L		112	81 - 141	0	30

Isotope Dilution	%Recovery	Qualifier	Limits
13C4 PFHpA	101		50 - 150
13C4 PFOA	96		50 - 150
13C5 PFNA	101		50 - 150
13C2 PFDA	98		50 - 150
13C2 PFUnA	106		50 - 150
13C2 PFDoA	91		50 - 150
13C2 PFTeDA	102		50 - 150
13C3 PFBS	109		50 - 150
1802 PFHxS	109		50 - 150

MSD MSD

101

82

77

98

**Eurofins Sacramento** 

50 - 150

50 - 150

50 - 150

50 - 150

2

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6

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10

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13

14

### **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-94968-1 Project/Site: ADQT&PP Statewide

### LCMS

#### **Prep Batch: 639072**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-94968-1	MW110-04	Total/NA	Water	3535	
320-94968-2	MW10-04	Total/NA	Water	3535	
320-94968-3	MW10-09	Total/NA	Water	3535	
MB 320-639072/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-639072/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-639072/3-A	Lab Control Sample Dup	Total/NA	Water	3535	
320-94998-A-1-B MS	Matrix Spike	Total/NA	Water	3535	
320-94998-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	3535	

#### **Analysis Batch: 640016**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-94968-1	MW110-04	Total/NA	Water	EPA 537(Mod)	639072
320-94968-2	MW10-04	Total/NA	Water	EPA 537(Mod)	639072
320-94968-3	MW10-09	Total/NA	Water	EPA 537(Mod)	639072
MB 320-639072/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	639072
LCS 320-639072/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	639072
LCSD 320-639072/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	639072
320-94998-A-1-B MS	Matrix Spike	Total/NA	Water	EPA 537(Mod)	639072
320-94998-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 537(Mod)	639072

#### Lab Chronicle

Client: Shannon & Wilson, Inc Job ID: 320-94968-1 Project/Site: ADQT&PP Statewide

Client Sample ID: MW110-04

Lab Sample ID: 320-94968-1

Date Collected: 12/03/22 18:30 **Matrix: Water** Date Received: 12/06/22 13:36

Batch Batch Dil Initial Batch Final Prepared Method Number or Analyzed **Prep Type** Type Run **Factor Amount** Amount Analyst Total/NA 3535 253.3 mL 10.0 mL 639072 12/12/22 06:38 EET SAC Prep EJR Total/NA EPA 537(Mod) 640016 12/14/22 12:55 RS1 **EET SAC** Analysis 1 1 mL 1 mL

Lab Sample ID: 320-94968-2 Client Sample ID: MW10-04

Date Collected: 12/03/22 18:40 **Matrix: Water** Date Received: 12/06/22 13:36

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Method **Amount** Amount Number or Analyzed Type Run **Factor** Analyst Lab Total/NA Prep 3535 237 mL 10.0 mL 639072 12/12/22 06:38 EJR **EET SAC** Total/NA Analysis 1 mL 640016 12/14/22 13:06 RS1 EPA 537(Mod) 1 mL **EET SAC** 1

Client Sample ID: MW10-09 Lab Sample ID: 320-94968-3

Date Collected: 12/03/22 17:40 **Matrix: Water** 

Date Received: 12/06/22 13:36

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			225.7 mL	10.0 mL	639072	12/12/22 06:38	EJR	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640016	12/14/22 13:36	RS1	EET SAC

**Laboratory References:** 

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

### **Accreditation/Certification Summary**

Client: Shannon & Wilson, Inc Job ID: 320-94968-1

Project/Site: ADQT&PP Statewide

### **Laboratory: Eurofins Sacramento**

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	<b>Expiration Date</b>
Alaska (UST)	State	17-020	02-20-24

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### **Method Summary**

Client: Shannon & Wilson, Inc Project/Site: ADQT&PP Statewide Job ID: 320-94968-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	EET SAC
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC

#### **Protocol References:**

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

### **Sample Summary**

Water

Water

12/03/22 18:40 12/06/22 13:36

12/03/22 17:40 12/06/22 13:36

Client: Shannon & Wilson, Inc Project/Site: ADQT&PP Statewide

MW10-04

MW10-09

320-94968-2

320-94968-3

 Lab Sample ID
 Client Sample ID
 Matrix
 Collected
 Received

 320-94968-1
 MW110-04
 Water
 12/03/22 18:30
 12/06/22 13:36

Job ID: 320-94968-1

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SHANNON & WILSO  QUE OTECHNICAL AND ENVIRONMENTAL  2355 Hill Road  Fairbanks, AK 99709 (907) 479-0600  www.shannonwilson.com	0	IN-OF-C		RECOR	Attn		
Turn Around Time:  Normal Rush  Please Specify	Quote No:  J-Flags: Yes	No Date Sampled	S. S			Remarks/Matrix Composition/Grab? Sample Containers	
Sample Identity	Lab No. Time	Sampled				Composition/Grab? Sample Containers	
MW 110 - 04	1830	2/3/22 X			2	Groundwoter Grab Sample	
MW10-04	1840	X			5		
MW10-09	1740	1 ×			5	Y	
Project Information	Sample Receipt	Reliquish	hed By: 1.	Reliquishe	d By: 2.	Reliquished By: 3,	
Number: 102219	Total No. of Containers:	Signature:	Time: 1200	Signature:	Time:	Signature: Time:	
Name: ADOTAPP Statewide	COC Seals/Intact? Y/N/NA	adam w					
Contact: Kristen Freibunger	Received Good Cond./Cold	Printed Name:	Date: 12/5	Printed Name:	Date:	Printed Name: Date:	
Ongoing Project? Yes No Temp:			Adam Wyborny				
Sampler: APW / JKR Delivery Method: AK Air Corso		11 ' '	Company:  Shennon & Wilson, Inc.			Company:	
No	Receive	- Tarrestante - Control Control	Received	By: 2.	Received By: 3.		
		Signature:	Time: 13,36	Signature:	Time:	Signature: Time:	
		Printed Name:  N, (ahil)	Date: <u> 2 ∫ 5</u>	Printed Name:	Date:	Printed Name: Date:	
Distribution: White - w/shipment - returned Yellow - w/shipment - for con Pink - Shannon & Wilson - jo	signee files	eport Company: EETSAC		Company:		Company	
			3,4			No.	

# **Login Sample Receipt Checklist**

Client: Shannon & Wilson, Inc Job Number: 320-94968-1

Login Number: 94968 List Source: Eurofins Sacramento

List Number: 1

Creator: Cahill, Nicholas P

oroator. Gainii, Monoido i		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	1722671
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
s the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is 6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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# ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Mason Craker	CS Site Name:	N/A	Lab Name:	Eurofins Environment Testing
Title:	Geology Staff	ADEC File No.:	N/A	Lab Report No.:	320-94968-1
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	N/A	Lab Report Date:	December 19, 2022
Note: Any Nation		ed must have	an explanation in the	comments box.	
a.	approved laborat Yes ⊠ No □ ↑ Comments: The for the analysis o	ory receive ar N/A □ ADEC certified If PFAS. Thes	ites Laboratory Approvend perform all of the sured Eurofins Environment compounds were incompounds were incompounds.	bmitted sample	e analyses? t Sacramento
b.	to an alternate la approved? Yes □ No □ N	boratory, was I/A ⊠	d to another "network" the laboratory perform were not subcontracted	ing the analyse	es CS-LAP
2. Chair	of Custody (CoC	<del>;</del> )			
a.	Is the CoC inform released/received Yes ⊠ No □ No Comments:	d by)?	ted, signed, and dated	(including	
b.	the Department of	N/A □ ted: Per- and of Defense (De	uested? polyfluorinated substar oD) Quality Systems M ersion 5.3 Table B-15.	,	•

Revision 9/2022

CS Site Name: N/A

**Lab Report No.:** 320-94968-1

# 3. Laboratory Sample Receipt Documentation

	a.	Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?
		Yes ⊠ No □ N/A □
		Cooler temperature(s): Cooler temperature was not reported by the laboratory. Sample temperature(s): A temperature blank was included with the samples in the cooler and is used to assess sample temperature. The temperature blank was reported at 3.4°C upon arrival at the laboratory. Comments:
	b.	Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)? Yes $\boxtimes$ No $\square$ N/A $\square$
		Comments: PFAS does not require any additional preservation beyond temperature control.
	C.	Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.? Yes $\boxtimes$ No $\square$ N/A $\square$
		Comments: The laboratory notes that the samples arrived in good condition.
	d.	If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.? Yes $\square$ No $\square$ N/A $\boxtimes$
		Comments: The laboratory does not note any discrepancies.
	e.	Is the data quality or usability affected?  Yes □ No ☒ N/A □  Comments: See above.
4.	Case I	Narrative
	a.	Is the case narrative present and understandable? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	b.	Are there discrepancies, errors, or QC failures identified by the lab? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
		The isotope dilution analyte (IDA) recovery associated with the sample <i>MW10-09</i> is below the method recommended limit. Generally, data quality is not affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

CS Site Name: N/A

Lab Report No.: 320-94968-1

The matrix spike duplicate (MSD) recoveries for perfluorobutanesulfonic acid (PFBS) in preparation batch 320-639072 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

The samples *MW110-04* and *MW10-04* in preparation batch 320-639072 were light brown in color and were observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction.

The sample *MW10-09* in preparation batch 320-639072 was light brown in color and observed to have floating particulates present in the sample bottle.

During the solid phase extraction process, the sample *MW10-09* contained floating particulates which cloqued the solid phase extraction column.

	floating particulates which clogged the solid phase extraction column.
	Were all the corrective actions documented? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments: Due to the thin layer of sediment present in the bottom of the bottle the samples $MW110\text{-}04$ and $MW10\text{-}04$ were centrifuged and decanted into new 250mL containers. After centrifuging and decanting, the samples were fortified with IDA and then extracted
C.	What is the effect on data quality/usability according to the case narrative? Comments: The case narrative does not note an effect on data quality or usability.
Samp	e Results
a.	Are the correct analyses performed/reported as requested on CoC? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
b.	Are all applicable holding times met?  Yes ⊠ No □ N/A □  Comments:
C.	Are all soils reported on a dry weight basis?  Yes □ No □ N/A ⊠  Comments: Soils were not submitted with this work order.
d.	Are the reported limits of quantitation (LOQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	<b>Sampl</b> a. b.

	CS Site Name: N/A Lab Report No.: 320-94968-1				
		e.	Is the data quality or usability affected?  Yes □ No ☒ N/A □  Comments: See above.		
6.	QC	Sa	mples		
		a.	Method Blank		
			<ul> <li>i. Was one method blank reported per matrix, analysis, and 20 samples?</li> <li>Yes ⋈ No □ N/A □</li> <li>Comments:</li> </ul>		
			<ul><li>ii. Are all method blank results less than LOQ (or RL)?</li><li>Yes ⋈ No □</li><li>Comments:</li></ul>		
			iii. If above LOQ or RL, what samples are affected? Comments: There were no detections in the method blank associated with the project samples.		
			<ul><li>iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?</li><li>Yes □ No □ N/A ⊠</li><li>Comments: See above.</li></ul>		
			v. Data quality or usability affected?  Yes □ No ⋈ N/A □  Comments: See above.		
		b.	Laboratory Control Sample/Duplicate (LCS/LCSD)		
			<ul> <li>i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> <li>Yes ⋈ No □ N/A □</li> <li>Comments: LCS/LCSD were reported for method EPA 537(Mod).</li> </ul>		
			<ul> <li>ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?</li> <li>Yes □ No □ N/A ⋈</li> <li>Comments: Metals/Inorganics were not requested as a part of this work order.</li> </ul>		
			iii. Accuracy – Are all percent recoveries (%R) reported and within method or		

laboratory limits and project specified objectives, if applicable? (AK

CS Site Name: N/A

Lab Report No.: 320-94968-1

	Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)  Yes  No  N/A  Comments:
iv.	Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) $Yes \boxtimes No \square N/A \square$ Comments:
V.	If %R or RPD is outside of acceptable limits, what samples are affected? Comments: None. %R and RPD were within acceptable limits.
vi.	Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes $\square$ No $\square$ N/A $\boxtimes$ Comments: See above.
vii.	Is the data quality or usability affected?  Yes □ No ☒ N/A □  Comments: See above.
c. Matrix	Spike/Matrix Spike Duplicate (MS/MSD)
i.	Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?  Yes ⊠ No □ N/A □  Comments: MS/MSD samples were reported for EPA 537(Mod).
ii.	Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?  Yes □ No □ N/A ☒  Comments: Metals/Inorganics were not requested as a part of this work order.
iii.	Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?  Yes  No  N/A  Comments: The MSD associated with preparation batch 639072 exhibited elevated recovery for PFBS.
iv.	Precision – Are all relative percent differences (RPD) reported and less

than method or laboratory limits and project specified objectives, if

CS Site Name: N/A Lab Report No.: 320-94968-1 applicable? RPD reported from MS/MSD, and or sample/sample duplicate. Yes ⊠ No □ N/A □ Comments: v. If %R or RPD is outside of acceptable limits, what samples are affected? Comments: The field sample from which the MS/MSD were spiked is not included with this work order. Additionally, the PFBS spike added to the matrix was insufficient for accurate quantitation against the background PFBS concentration. The reported sample results are not affected. vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes □ No □ N/A ☒ Comments: Project samples were not affected. vii. Is the data quality or usability affected? Yes □ No ⋈ N/A □ Comments: See above. d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples? Yes ⊠ No □ N/A □ Comments: ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages) Yes □ No ⋈ N/A □ Comments: IDA recovery was below the acceptable range for 13C2-PFDoA, 13C2-PFTeDA, d3-NMeFOSAA, and d5-NEtFOSAA in sample MW10-09. iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? Yes ⊠ No □ N/A □

Comments: The analytes PFDoA, PFTriA, PFTeA, NMeFOSAA, and NEtFOSAA in sample *MW10-09* are considered estimated and have been

assigned the data flag 'UJ' for reporting purposes.

iv. Is the data quality or usability affected?

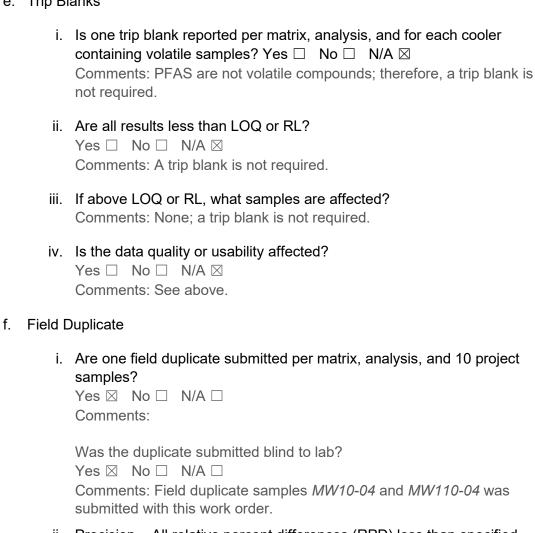
Yes ⊠ No □ N/A □

CS Site Name: N/A

Lab Report No.: 320-94968-1

Comments: The data quality is affected. The affected results are considered usable with the qualifiers detailed above.

	— .	_	
e.	I rın	Bla	anks



ii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD \ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X \ 100$$

Where  $R_1$  = Sample Concentration

R₂ = Field Duplicate Concentration

Yes ⊠ No □ N/A □

Comments: RPD are within project DQOs, where calculable.

iii. Is the data quality or usability affected? (Explain)

Lab Report No.: 320-9	4968-1
	Yes □ No ⊠ N/A □ Comments: See above.
g. Decon	tamination or Equipment Blanks
i.	Were decontamination or equipment blanks collected? Yes $\square$ No $\square$ N/A $\boxtimes$ Comments: Reusable equipment was not used; therefore, an equipment blank is not required.
ii.	Are all results less than LOQ or RL?  Yes □ No □ N/A ⊠  Comments: See above.
iii.	If above LOQ or RL, specify what samples are affected. Comments: N/A; see above.
iv.	Are data quality or usability affected?  Yes □ No □ N/A ⊠  Comments: See above.
7. Other Data Fl	ags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
Yes □	ey defined and appropriate? No □ N/A ⊠ ents: There are no other data flags/qualifiers.

CS Site Name: N/A

Print Form

# Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	Kotzebue Airport Sitewide PFAS			
File Number:	410.38.032			
Completed by:	Shannon & Wilson			
about which exposure summary text about about text abou	osure pathways should be further in out the CSM and a graphic depictin work plan and updated as needed in	vestigated du g exposure pa later reports.		
General Instruct	tions: Follow the italicized instruc	tions in each	section below.	
1. General In Sources (check	nformation: potential sources at the site)			
USTs	potential sources at the strey	☐ Vehicle	es	
☐ ASTs		☐ Landfill		
☐ Dispensers/fu	el loading racks	Transfor		
Drums		⊠ Other:	Aqueous Film Forming Foam (AFFF) releases	
Release Mechan	nisms (check potential release mech	anisms at the	e site)	
⊠ Spills		⊠ Direct d	lischarge	
⊠ Leaks		☐ Burning	- 5	
		☐ Other:		
Imnacted Media	a (check potentially-impacted medic	at the site)	,	
Surface soil (	, , ,		water	
Subsurface so	<u> </u>	Surface     Surface		
☐ Air	( = 1000 0 80)	⊠ Biota		
⊠ Sediment		☐ Other:		
Receptors (chec	k receptors that could be affected by	y contaminati	ion at the site)	
⊠ Residents (ad	ult or child)	⊠ Site visitor		
	or industrial worker	⊠ Trespasser		
▼ Construction	worker	⊠ Recreational user		
⊠ Subsistence h	arvester (i.e. gathers wild foods)	<b>⋉</b> Farmer		
⊠ Subsistence c	onsumer (i.e. eats wild foods)	☐ Other:		
			I .	

^{*} bgs - below ground surface

2.	<b>Exposure Pathways:</b> (The answers to the following exposure pathways at the site. Check each box when			-	)
a)	Direct Contact - 1. Incidental Soil Ingestion				
	Are contaminants present or potentially present in surface soil between 0 and 15 feet below (Contamination at deeper depths may require evaluation on a site-specific basis.)			_	surface? ⊠
	If the box is checked, label this pathway complete:		Complete		
	Comments:				
	PFAS has been detected in groundwater at the site, likely as a result of surface.	of AFFF rel	eases to the ground		
	2. Dermal Absorption of Contaminants from Soil				
	Are contaminants present or potentially present in surface so (Contamination at deeper depths may require evaluation on			•	surface? ⊠
	Can the soil contaminants permeate the skin (see Appendix	B in the	guidance document)?		X
	If both boxes are checked, label this pathway complete:		Complete		
	Comments:				
	According to the Alaska Department of Health and Social Services, Plabsorbed through the skin. However, Appendix B of the 2017 Guidal Models lists both PFOS and PFOA.				
b)	Ingestion -  1. Ingestion of Groundwater				
	Have contaminants been detected or are they expected to be or are contaminants expected to migrate to groundwater in the		×		
	Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350.				
	If both boxes are checked, label this pathway complete:		Incomplete		
	Comments:				
	Groundwater is not used for drinking water in Kotzebue.				

# 2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, $\overline{X}$ or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a $\overline{\times}$ drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Complete Comments: We don't anticipate potentially affected surface bodies in the airport vicinity are being used as a drinking water source. However, the potential exists and we consider this pathway potentially complete. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or $\overline{X}$ harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into $\overline{X}$ biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the $\overline{X}$ ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? If both boxes are checked, label this pathway complete: Incomplete Comments:

PFAS are not included in Appendix D.

2. Inhalation of Indoor Air		
Are occupied buildings on the site or reasonably expected to be the site in an area that could be affected by contaminant vapors or vertical feet of petroleum contaminated soil or groundwater; non-petroleum contaminted soil or groundwater; or subject to " which promote easy airflow like utility conduits or rock fracture	s? (within 30 horizontal within 100 feet of 'preferential pathways,"	×
Are volatile compounds present in soil or groundwater (see Ap document)?	pendix D in the guidance	
If both boxes are checked, label this pathway complete:	Incomplete	
Comments:		
PFAS are not included in Appendix D.		

3.	Additional Exposure Pathways: (Although there are no definitive questions provided in this section,
	these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)
De	ermal Exposure to Contaminants in Groundwater and Surface Water
	Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

<ul> <li>Climate permits recreational use of waters for swimming.</li> <li>Climate permits exposure to groundwater during activities, such as construction.</li> <li>Groundwater or surface water is used for household purposes, such as bathing or cleaning.</li> </ul>					
Generally, DEC groundwater c	leanup levels in 18 AAC 75, Table C, are deemed protective or ted into the groundwater exposure equation for residential uses	f this pathway because			
Check the box if further eva	aluation of this pathway is needed:	X			
Comments:					
absorbed through the skin. However	nt of Health and Social Services, PFOS and PFOA are not appreciably er, Appendix B of the 2017 Guidance on Developing Conceptual Site We consider dermal exposure to these compounds to be insignificant for	r			
Inhalation of Volatile Compo  Inhalation of volatile compo	ounds in Tap Water bunds in tap water may be a complete pathway if:				
o The contaminated w	vater is used for indoor household purposes such as showering,	, laundering, and dish			
washing.  The contaminants of guidance document.	f concern are volatile (common volatile contaminants are listed.)	d in Appendix D in the			
	els in 18 AAC 75, Table C are protective of this pathway becaud activities is incorporated into the groundwater exposure equations.				
Check the box if further eva	aluation of this pathway is needed:				
Comments:					
PFAS are not included in Appendix	D.				

#### **Inhalation of Fugitive Dust**

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathwa inhalation of particulates is incorporated into the soil exposure equation.	ly because the
Check the box if further evaluation of this pathway is needed:	$\overline{\times}$
Comments:	-
Direct Contact with Sediment	
This pathway involves people's hands being exposed to sediment, such as during some rec or industrial activity. People then incidentally ingest sediment from normal hand-to-moutl addition, dermal absorption of contaminants may be of concern if the the contaminants are skin (see Appendix B in the guidance document). This type of exposure should be investig	h activities. In able to permeate the

Climate permits recreational activities around sediment.

• The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Chack the	box if further	ovaluation	of this	nathway is	noodod.
Check the	DOX II TUTTILET	evaluation	OI IIIIS	Dainway is	пеецец.

Commen	ts:

Sediment has not been assessed at the site.

 $\overline{X}$ 

# **HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM**

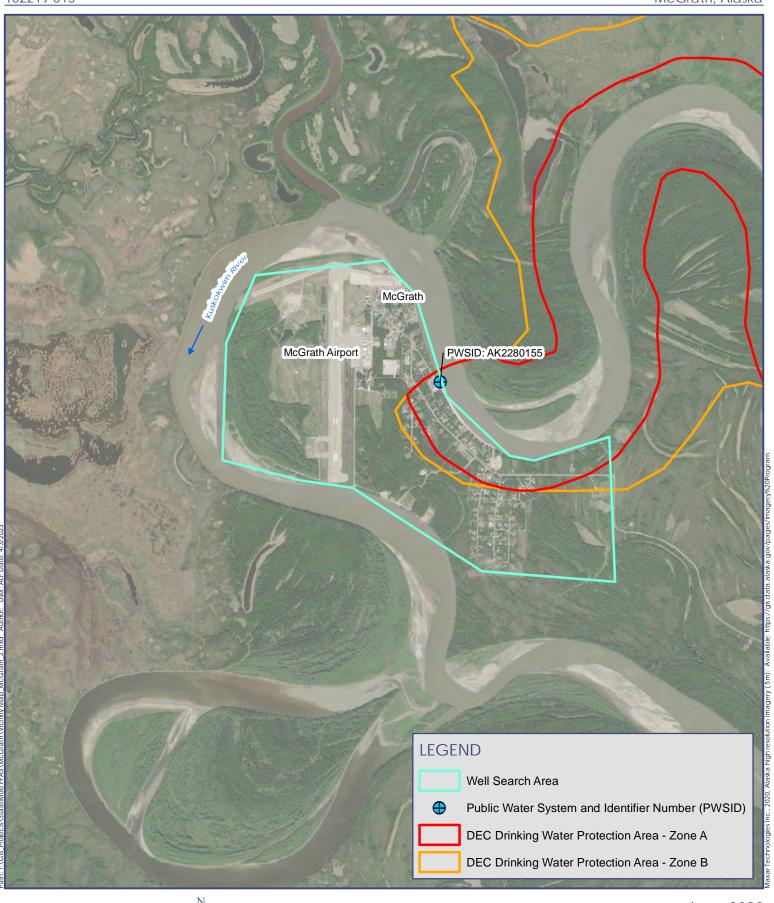
Site: ADOT&PF Kotzebue Airport Sitewide PFAS	<u>Instructions</u> : Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.								
Completed By: Shannon & Wilson			ways	•					
(1)  Check the media that could be directly affected by the release.  (2)  For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.	(3)  Check all exposure media identified in (2).	(4) Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.	expo "F" f futur <b>C</b>	tify the receptory pathway for future receptors, furrent	otors po ay: Ente eptors, or "I" fo & Fu	er "C" f "C/F" i for insig uture	for curre for both gnifican e Re	ent red n curre nt expo	ceptors, nt and sure.
Media Transport Mechanisms	Exposure Medi	a Exposure Pathway/Route	/	(ers	espa user	orke	Siste	nsur,	
Surface Soil  Soil  Volatilization  Direct release to surface soil  Check soil			Residents	Commercial or Site visitors	Construct:	Farmers or sub-	Subsistence	Other	
Runoff or erosion check surface water		Incidental Soil Ingestion	C/F	C/F C/F	C/F	C/F	C/F		
Uptake by plants or animals check biota	soil 🗸	Dermal Absorption of Contaminants from Soil	1	I I	ı	I	ı		
Other (list):		Inhalation of Fugitive Dust	C/F	C/F C/F	C/F	C/F	C/F		
Subsurface Soil  Volatilization C2-15 ft bgs)  Other (list):  Direct release to subsurface soil Check soil Check groundwater Check groundwater Check groundwater Check biota Check biota Check biota Check biota	✓ groundwater	Ingestion of Groundwater  Dermal Absorption of Contaminants in Groundwater  Inhalation of Volatile Compounds in Tap Water	I	1 1	I	I	I		
Ground- water  Volatilization  Volatilization  Flow to surface water body  Flow to sediment  Vuptake by plants or animals  Check groundwater  check surface water  check sediment  check biota	air	Inhalation of Outdoor Air Inhalation of Indoor Air Inhalation of Fugitive Dust							
Other (list):		In marking of Conference Western	0/5		- 0/5	- 0/5			]
Direct release to surface water check surface water  Volatilization check air		Ingestion of Surface Water	C/F	C/F C/F	C/F	C/F	C/F		
Surface Volatilization check air Volatilization check sediment	surface water	Dermal Absorption of Contaminants in Surface Water	-	1 1		<u> </u>	-		
Uptake by plants or animals check biota Other (list):		Inhalation of Volatile Compounds in Tap Water							
Direct release to sediment check sediment	sediment	Direct Contact with Sediment	C/F	C/F C/F	C/F	C/F	C/F		
Sediment    V   Resuspension, runoff, or erosion   check surface water     V   Uptake by plants or animals   check biota     Other (list):	<b>▼</b> biota	Ingestion of Wild or Farmed Foods	C/F	C/F C/F	C/F	C/F	C/F		

#### Appendix D

# McGrath Airport Supporting Documents

#### **CONTENTS**

- Figure D1 Vicinity Map
- Figure D2 Site Map
- Figure D3 Analytical Results Summary
- Table D1 McGrath Water Supply Well Analytical Results January 2023
- Table D2 McGrath Monitoring Well Analytical Results January 2023
- Well Search Questionnaire Letter and PFAS Fact Sheet Mailing
- Scanned Sampling Logs and Field Notes
- Analytical Laboratory Reports and Data Review Documentation
- Personalized Results Letter Template
- DEC Conceptual Site Model Scoping and Graphic Forms







Notes:

1. Search area is approximate





Notes:

1. Locations are approximate

Samples collected in January 2023

ng/L = nanograms per liter, equivalent to parts per trillion (ppt)

June 2023 ANALYTICAL RESULTS SUMMARY

Figure **D3** 



Table D1 - McGrath Water Supply Well Analytical Results - January 2023

Analytical				MCG-001	MCG-003	MCG-007	MCG-021	MCG	-024 [¥]
Method	Analyte	Regulatory Limit	Units	1/10/2023	1/10/2023	1/10/2023	1/10/2023	1/11/2023	Duplicate
	Perfluorooctanesulfonic acid (PFOS)	70+	ng/L	<1.6	<1.7	<1.7	6.7	<1.7	<1.7
	Perfluorooctanoic acid (PFOA)	<del></del> 70‡	ng/L	<1.6	5.5	<1.7	3.9	<1.7	<1.7
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	10†	ng/L	<3.3	<3.4	<3.3	<3.5	<3.4	<3.4
	Perfluorobutanesulfonic acid (PFBS)	2,000†	ng/L	2.7	<1.7	0.71J	1.1J	<1.7	<1.7
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.6	<1.7	<1.7	<1.8	<1.7	<1.7
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.6	<1.7	<1.7	<1.8	<1.7	<1.7
	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	0.26J	1.8	<1.7	1.3J	<1.7	<1.7
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	4.6	1.6J	<1.7	9.0	<1.7	<1.7
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	2.2	3.8	3.4	3.1	<1.7	<1.7
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.6	<1.7	<1.7	<1.8	<1.7	<1.7
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.6	<1.7	<1.7	<1.8	<1.7	<1.7
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.6	<1.7	<1.7	<1.8	<1.7	<1.7
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.6	<1.7	<1.7	<1.8	<1.7	<1.7
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	N/A	ng/L	<1.6	<1.7	<1.7	<1.8	<1.7	<1.7
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	N/A	ng/L	<1.6	<1.7	<1.7	<1.8	<1.7	<1.7
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.6	<1.7	<1.7	<1.8	<1.7	<1.7
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.1	<4.2	<4.1	<4.4	<4.3	<4.3
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.1	<4.2	<4.1	<4.4	<4.3	<4.3

Notes: Results reported from Eurofins Environment Testing work order 320-96053-1.

¥ Sample MCG-024 was collected at the McGrath Municipal Water Treatment Plant upstream of the treatment system.

† Final EPA PFAS LHAs (HFPO-DA/PFBS)

‡ DEC Drinking Water Action Level = 70 ng/L for sum of PFOS and PFOA

DEC Alaska Department of Environmental Conservation

EPA United States Environmental Protection Agency

LHA Lifetime Health Advisory

PFAS per- and poly-fluoroalkyl substances

QSM Quality Systems Manual

ng/L nanograms per liter

N/A No applicable regulatory limit exists for the associated analyte.

< Analyte not detected; listed as less than the limit of quantitation (LOQ) unless otherwise flagged due to quality-control failures.

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.



Table D2 - McGrath Monitoring Well Analytical Results - January 2023

Analytical				MCG-	MW-01	MCG-MW-02	MCG-MW-03	MCG-MW-04
Method	Analyte	Regulatory Limit	Units	1/11/2023	Duplicate	1/11/2023	1/11/2023	1/11/2023
	Perfluorooctanesulfonic acid (PFOS)	70+	ng/L	<1.9	<1.8	<1.8	<1.8	<1.9
	Perfluorooctanoic acid (PFOA)	<del></del> 70‡	ng/L	<1.9	<1.8	55	<1.8	<1.9
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	10†	ng/L	<3.8	<3.5	<3.5	<3.5	<3.7
	Perfluorobutanesulfonic acid (PFBS)	2,000†	ng/L	6.0	5.4	18	1.8	0.39J
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.9	<1.8	<1.8	<1.8	<1.9
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.9	<1.8	<1.8	<1.8	<1.9
	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	2.3	2.3	32	0.27J	<1.9
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	14	13	450	0.82 JH*	<1.9
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	25	24	65	2.6	0.64J
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.9	<1.8	<1.8	<1.8	<1.9
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.9	<1.8	<1.8	<1.8	<1.9
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.9	<1.8	<1.8	<1.8	<1.9
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.9	<1.8	<1.8	<1.8	<1.9
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	N/A	ng/L	<1.9	<1.8	<1.8	<1.8	<1.9
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	N/A	ng/L	<1.9	<1.8	<1.8	<1.8	<1.9
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.9	<1.8	<1.8	<1.8	<1.9
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.8	<4.4	<4.4	<4.4	<4.7
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.8	<4.4	<4.4	<4.4	<4.7

Notes: Results reported from Eurofins Environment Testing work order 320-96053-1.

† Final EPA PFAS LHAs (HFPO-DA/PFBS)

DEC Drinking Water Action Level = 70 ng/L for sum of PFOS and PFOA

DEC Alaska Department of Environmental Conservation

EPA United States Environmental Protection Agency

LHA Lifetime Health Advisory

PFAS per- and poly-fluoroalkyl substances

QSM Quality Systems Manual

ng/L nanograms per liter

N/A No applicable regulatory limit exists for the associated analyte.

Analyte not detected; listed as less than the limit of quantitation (LOQ) unless otherwise flagged due to quality-control failures.

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.

JH* Estimated concentration, biased high, due to quality control failure. Flag applied by Shannon & Wilson, Inc.



# Department of Transportation and Public Facilities

#### DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

November 2022

Dear Property Owner or Occupant:

The Department of Transportation and Public Facilities (DOT&PF) is conducting a comprehensive evaluation of per- and polyfluoroalkyl substances (PFAS) contamination at state owned airports across the state. Firefighters at the McGrath Airport may have used aqueous film forming foam (AFFF), a standard firefighting agent that contains PFAS, to extinguish hydrocarbon fires during training exercises and emergency events.

The DOT&PF has contracted with environmental consulting firm, Shannon & Wilson, Inc., to collect groundwater samples from water supply wells near the airport in McGrath. Prior to the sampling event, DOT&PF and their representatives will also reach out to the community leadership to discuss the project and address questions related to the upcoming event.

If you have an active well within the search areas (see attached map), please call (907) 458-3146 to schedule a sampling appointment during the dates listed below or discuss your availability with Shannon & Wilson.

#### December 13 to December 15

Water supply well sample results will be compared to the Alaska Department of Conservation (DEC) action level of 70 parts per trillion for the sum of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), two compounds within the PFAS family. PFAS are emerging contaminants, and the research into the health effects of exposure to PFAS is ongoing. Results for the water samples will be shared with property owners and residents. If your drinking-water well is found to have PFAS above the action level, DOT&PF will assist with access to alternative drinking water.

If you have any questions, please contact me, or see the enclosed contact list to identify the most appropriate person or agency for your inquiry. We appreciate your patience as we work through this process.

Sincerely,

Sammy Cummings

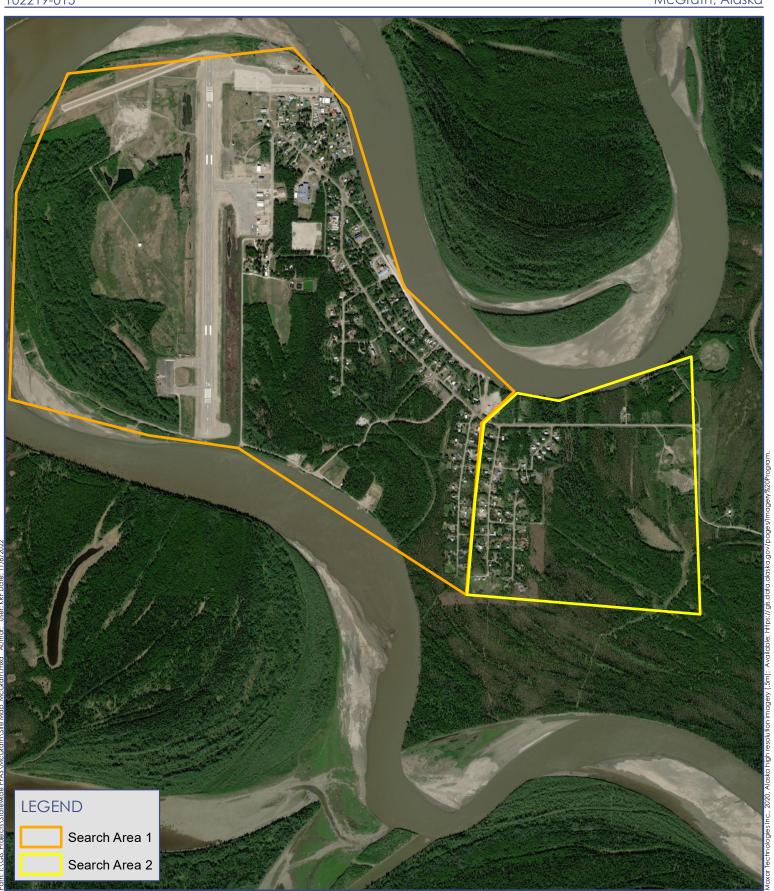
Sammy Cumming

PFAS Program Manager, DOT&PF Statewide Aviation



# **Water Supply Well Inventory Survey Form**

Da	::	
Pa	el:	
Na	e (Owner):	
Na	e (Occupant):	
Ph	ical Address:	
Ma	ing Address:	
Em	il Address (optional):	
Со	act Phone Number: (owner) (occupant)	
	Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)  s at this residence:Full-Time Seasonal	
1)	From where do you obtain your drinking water? a) Water Supply Utility  b) Well Water  c) Water Delivery d) Other	
2)	f you have a water well, please answer the following questions:  a) Where is the well located on the property?	
3)	Do you have any treatment on your well (e.g. water softener)? Please describe	: your
	Signature Date	





Notes:

1. Search area is approximate

November 2022

SITE MAP Figure 1



# Department of Transportation and Public Facilities

#### DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

# **PFAS Fact Sheet –McGrath Airport**

November 2022

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging, and firefighting foams.

The presumed source of potential PFAS in groundwater in your community is the use of a fire-fighting foam called aqueous film forming foam (AFFF). Airport firefighters may have used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

The Alaska Department of Environmental Conservation (DEC) has adopted the Environmental Protection Agency's former lifetime health advisory (LHA) level for drinking water of **70 parts per trillion** for the sum of PFOS and PFOA. On June 15, 2022, the EPA adopted a revised interim LHA level. DOT&PF will continue to work with our state and federal partners to determine what this means for Alaska and will adjust as more information becomes available.

Website: www.dot.alaska.gov/airportwater/

#### For questions about well testing:

Shannon & Wilson, Inc.

Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

#### For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program

Phone: 907-269-3057

Email: bill.oconnell@alaska.gov

#### For questions about PFAS and health effects:

Alaska Department of Health

Sarah Yoder, Env. Public Health Manager

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

# For questions about fire training & other inquiries:

DOT&PF - Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

We advise residents with test results above the DEC Action Level not to use their water for drinking or cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC Action Level, DOT&PF will assist with access to an alternate source of drinking water.

KRF



#### **Private Well Inventory Survey Form**

Date: 1/10/23 Parcel	ID#: MCG-001
Physical Address: MCG - 001	hopoit way
Name (Owner): Robert Magnuson	*
Name (Occupant): SOA ADEG	
Mailing Address (Owner):	
Mailing Address (Occupant): Po Box 23	O McGrath
	ant Email: Joshua, peirce @ alaska gou
Owner Phone: 907 - 574 - 033 Occup  Preferred method of contact (circle): Email Phon  Number of people residing at this location:	Pant Phone: 907 - 524 - 3325 (Josh)
	Community well
<ul> <li>2) If you have a private well, please answer the followin</li> <li>a) Where is the well located on the property?</li> <li>b) Is the well in use? Yes</li> </ul>	g questions: maybe under building follow up of manse;
3) If <u>no</u> , is the well usable, unusable, or properly abandous Usable Unusable Abandoned Usable Unusable Abandoned If <u>yes</u> , please check all that apply regarding the usage Drinking Cooking food preparation  Other Memory dumby	Method
a) When was the well installed? b) What is the well depth? c) What is the well diameter? d) What is the well type?  Dug Well	Pressure tank in bothwoom closet.  No treatment observed. Above ground pumps wilblue Pt. PEX PIPING  Driven
e) Do you have any treatment on your well (e.g. was	Unknown eer softener)? Please describe
4) Sample Permission	
Does the Shannon & Wilson, Inc. have permission to	sample your private well? Yes No
Ver boy	
Signature	Date

Entered

## RESIDENTIAL WELL SAMPLING LOG

Address _ Owner/Occupant _ Mailing Address _ Telephone _	PO Box	DENCE 130 4-3325	Date Time	01/10/23
Purge Location_	Offic	e bath-ool		
Sample Location	SAK	Pre tre	ed mont	
		00		1027
Pumping Start Time _ Pumping End Time _ Gallons per minute _ Purge Volume (gal.) _	1027 2gal/min 44.gal	Total	Analysis	Eurolins PFAS
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1007 1018 1015 1018 1027 1027	8,2 5,4 5,4 4,5 4,3 80mple	790 730 736 706 707 702	G. 45 G. 48 G. 52 G. 53	Clear Clear Clear Clear Clear
Notes:				



Dr. Eword



# **Private Well Inventory Survey Form**

Dat	e: 1/10/23 Parcel ID#: MCG - 003
Phy	sical Address: MCG-003
Nar	ne (Owner): DOT+PF DOT Shop/ BASKEB (New construction)
	ne (Occupant): Dot Contact Steffen Strick
	ling Address (Owner): DOT+PF
via	ner Email: 5te ffen, strick@ alaska.gov
	[124] 1 [144] 1 [1 ] N
Dw	ner Phone: 907 - 524 - 3276 Occupant Phone:
Nice	Preferred method of contact (circle): Email Phone mber of people residing at this location:  Adults (18 and over)   Perm employee
	New const.  Children (12 and under)
Yea	rs at this residence: 0.5 Full-Time Seasonal
2)	a) Residential (private) well
	Does the Shannon & Wilson, Inc. have permission to sample your private well?
	OK From Shawn
	Signature  Date  FAR (FISH WILLIER FROM BENNY MOSINGSOL TON OND PRO SERVE

#### WATER SUPPLY WELL SAMPLING LOG

Address Owner/Occupant Mailing address			Project Number 1 102219 - 015  Project Name Magnitus PFAS  Date 01/10/23			
7	907-524-3276		 Sampling	Time 108 Sampling Personnel C2H, R2W		
Sample Location	Bypass line in shop where sample was collected without filtration.					
Sample Number Duplicate		5-003		Time 1138		
Analysis	PFAS 29 5"	al/min	-7	Lab Eurofins		
Purge Volume	5"			ria]		
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)		
1111	18.77	758 578	6.71	Clear		
11 14	7.8	5' 89	6.96	Clear		
11 20	7.1	570	7.04	Clear		
1126	Ce. H.D	532	7.02	Clear		
1129	4.5	536	7.02	Clear		
1132	4.CO 4.3 Sample	5 25	7.03	Clear		
Notes:	P	rged from				
		Pressure and Q'	Italian syst	en upstairs. Breakroom on		
filter, Bypass the in shop.						
		Water had	orange that	punging first running Coucet,		
		then turned C	clarery after	punging		



#### **Private Well Inventory Survey Form**

Date: 1/10/23 Parcel ID#: MCG-007				
Physical Address: MCG-007 Airline Services Building				
Name (Owner):				
Name (Occupant): Ben Magnuson (Building Owner) Reeve Air + pricargo				
Mailing Address (Owner): (occupants are contractors for Airline serv. Ben is b				
Mailing Address (Occupant): PO Box 46 Communication				
Owner Email: bmag 45@ hotmail.com Occupant Email:				
Owner Phone: 907 - 444 - 3805 Occupant Phone:  Preferred method of contact (circle) Email Phone No preference  Number of people residing at this location:  Adults (18 and over) Mut employees  Teenagers (13 to 17)  Children (12 and under)  Years at this residence: Full-Time Seasonal				
1) From where do you obtain your drinking water?  a) Residential (private) well  b) Community well  c) Bottled water  d) Other  public building  public building				
2) If you have a private well, please answer the following questions:  a) Where is the well located on the property?				
3) If <u>no</u> , is the well usable, unusable, or properly abandoned?  Usable \( \text{V} \) Unusable \( \text{D} \) Abandoned \( \text{D} \) Method \( \text{L} \)				
If <u>yes</u> , please check all that apply regarding the usage of your well water:  Drinking Cooking food preparation Cooking food preparation Souther Cooking food preparation				
a) When was the well installed? 2000 5				
b) What is the well depth?				
e) Do you have any treatment on your well (e.g. water softener)? Please describe				
4) Sample Permission  Does the Shannon & Wilson, Inc. have permission to sample your private well? Yes No				
Verbal over thone				
Signature Date				

communication via phone. Airline employee stepped out to parmanent mail Extored

## RESIDENTIAL WELL SAMPLING LOG

Address	MCG.	-007	Project Number	102219-315
Owner/Occupant	Ben Mo		Project Name	MeGroth PFAS
Mailing Address	PO BOX	46	Date	
Telephone	907-444	-3805	Time	
		Sa	mpling Personnel	CZH IRLW
Purge Location	Airlin	e Services	Bathour sink	
Sample Location	MCB-	2 700	4A	
Sample No.	MCG-C	207	Time	1501
Duplicate			Time	
Pumping Start Time	1446		Bottled Water	
Pumping End Time	1561	Total		20-30 64.
Gallons per minute		•	Laboratory	20-30 (4. Eurofins
Purge Volume (gal.)			Analysis	PFAS
		/	1	
	/ FIELD P	PARAMETERS [stat	oilization criteria]	
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1446	5.1	597	6.27	Clear
1449	5.8	609	6.42	Clear
1452	5.9	607	G. 43	Clear
1455	5.7	Ce03	6.46	Clear
			0 11 6	A1 -
1458	6.2	612	6.46	Clear
	6.2	Q 12	0.70	Clear
14 58 Sample 1501	6.2	Q 12	6.76	Clear
	6.2	Q 12	0.70	Clear
	G.2	Q 12	0.70	Clear
	G.2	Q 12	0.70	Cleov
	G.2	CO 12	0.70	Clear
	G.2	Q 12	6.70	Cleor
	G.2	C 12	6.70	Cleov
	G.2	Q 12	0.70	Cleor
	G.2 \	C 12	(3.70	Cleor
	G.2	CO 12	(3.70	Cleor
	G.2	Q 12	6.70	Cleor
	6.2	CO 12	(3.70	Cleor
	G.2	CO 12	(3.70	Cleor
	G.2	Q 12	6.70	Cleor
Somple 1501	6.2		6.70	Cleor
	6.2		6.70	Cleor



	te Well Inventory Survey Form			
Date:	1/10/23 Parcel ID#: MCG-012 connected			
Physical Address: 1 DNR Road MCG 99627				
Vamo	e (Owner): Alaska DNR DOF Southwest Area Fire service			
Name	e (Occupant): _ winter contact is Dwane +Mel			
Mailing Address (Owner): PO Boy 130 MCG 99627				
Mailing Address (Occupant):				
	er Email: Occupant Email: DWAVE: 907-574-0452 er Phone: Mc			
	Preferred method of contact (circle): Email Phone			
	ber of people residing at this location:  Adults (18 and over)			
	Teenagers (13 to 17)			
	Seasonal Children (12 and under)			
Year	s at this residence: VIVV Full-Time Seasonal			
(	a) Residential (private) well b) Community well City Water  d) Other			
	f you have a private well, please answer the following questions:  a) Where is the well located on the property?			
í	f you have a private well, please answer the following questions:  a) Where is the well located on the property?  b) Is the well in use? Yes  No			
į	a) Where is the well located on the property?			
3) I	Mhere is the well located on the property?			
3) I	Mhere is the well located on the property?			
3) I	Mhere is the well located on the property?			
3) I	Mhere is the well located on the property?    No			
3) 1	Mhere is the well located on the property?			
3) 1	Mhere is the well located on the property?			
33) 1	Where is the well located on the property?			
33) 1	Mhere is the well located on the property?			
33) 1	Where is the well located on the property?    So   Is the well in use? Yes   No   No			
33) I	Where is the well located on the property?			

Bathhouse, kitchen, + other large structure connected to city water Everid



# **Private Well Inventory Survey Form**

Date: 1/13/23 Parcel ID#: MCG-018				
Physical Address: MCG-018 Log home front w/ yellow addition				
Name (Occupant): Unknown (former home of Sally To Collins, deceased)				
Mailing Address (Occupant): VNK-10WA				
Owner Email: Whenawn Occupant Email: Whenawn				
Occupant Phone: UNKNOWN  Preferred method of contact (circle): Email Phone  Number of people residing at this location:  Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)  Years at this residence: Full-Time Seasonal	nknow			
1) From where do you obtain your drinking water? a) Residential (private) well	ent-			
2) If you have a private well, please answer the following questions:  a) Where is the well located on the property?  b) Is the well in use? Yes No Solution No Solution No No Solution No				
4) Sample Permission  Does the Shannon & Wilson, Inc. have permission to sample your private well? Yes No				
Signature Date				





## **Private Well Inventory Survey Form**

	Date: 1/10/23	Parcel ID#: MCG- OZ					
	Physical Address:	Gas station (Northern Petroleum					
	Name (Owner): Matt Helmericks In priess of buying place  Name (Occupant): Northern Petroleum  Mailing Address (Owner): PO Bot 73						
		Occupant Email:					
J. Petro							
work cell	Owner Phone: 907-574-0767 Occupant Phone:						
	Number of people residing at this location:	Adults (18 and over) 2 4					
	5-6	Teenagers (13 to 17) Children (12 and under)					
	Years at this residence: Full-Time	Seasonal Seasonal					
	From where do you obtain your drinking water?	b) Community wall a Claims no one drinks					
	a) Residential (private) well c) Bottled water High potential	b) Community wen					
	2) If you have a private well, please answer the fol						
	a) Where is the well located on the property?	under building. No pressure tank					
	b) Is the well in use? Yes No 🗌	pump					
	3) If <u>no</u> , is the well usable, unusable, or properly al						
	Usable Unusable Abandoned If yes, please check all that apply regarding the						
	☐ Drinking	☐ Vegetable/grain Gardening					
	Cooking food preparation	-Size of Garden sq.feet/acres					
	Other tolets	<ul><li>-Average watering frequency using well water? (daily, weekly, etc.)</li></ul>					
	a) When was the well installed?						
	b) What is the well depth?	Unknam					
	c) What is the well diameter?						
	d) What is the well type? Dug W						
	e) Do you have any treatment on your well (e.	to the analysis of the state of the control of the state					
	4) Sample Permission						
	Does the Shannon & Wilson, Inc. have permission	on to sample your private well? Yes 🗌 No					
	Part of the second						
	Signature	Date					

KRF

N. Petro

Entered

#### WATER SUPPLY WELL SAMPLING LOG

Sample Number Duplicate	MC6-0  PFAS  2gal/mi	721		Time 1428 Time Lab EuroPins
Sample Number	MC6-0	721	Kitchen si	Time 1428
77/2/2				AV L
Analysis	PFAS 2gal/mi	'n	_	Lab Eurofins
Duran Valuran	40			
Purge Volume	1890	V		ria]
	emp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1404	13.1	825	Ce,36e	Clear
	8.3	785	G. 49	Clear
1413	7.1	701	6,54	Clear
	6.3	687	0.55	Clear
	5,8	679	6.56	Clear
1425	5.4	672	6.58	Clear
1428 5	somple			
Notes:	(	water sof	ther on	line, No fitter



* City drinking water source

# SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

#### **Private Well Inventory Survey Form**

e: 1/11/23 Parcel ID#: _	MCG-024
sical Address: 30 F Street	Cap'n Snow Center
me (Owner): City of McGrath	
(1) (1) (1)	(City Admin)
	McGrath
iling Address (Ossupant):	
ner Email: administrator@ city Forcgrath. or	nail:
ner Phone: 907-524-3825 Occupant Pl	Adults (18 and over)
quested we copy DEC compliance person  ars at this residence: Full-Time Seasonal	Teenagers (13 to 17) Children (12 and under)
From where do you obtain your drinking water?  a) Residential (private) well	unity well River Water  pre-treatment
If you have a private well, please answer the following ques  a) Where is the well located on the property?  b) Is the well in use? Yes No	stions: Sample
If <u>no</u> , is the well usable, unusable, or properly abandoned?  Usable Unusable Abandoned Meth  If yes, please check all that apply regarding the usage of yo	
	Vegetable/grain Gardening
□ Other	Size of Garden sq.feet/acres Average watering frequency using well vater? (daily, weekly, etc.)
a) When was the well installed?	A CONTRACTOR OF THE CONTRACTOR
b) What is the well depth?	
c) What is the well diameter?	
- 10 to 1 t	Driven Unknown
e) Do you have any treatment on your well (e.g. water sof	
Sample Permission	
Does the Shannon & Wilson, Inc. have permission to sample	e your private well? Yes No
Signature	Date
1	me (Owner):

155

Edered

+ City Admin / Laurary | State Trooper/Water Treatment Plant Building

7		194 (4.76.17 14	
city drinking water	RESIDENTIAL W	ELL SAMPLING LOG	
Address	Cap'n Snow Center	Project Number	102219-015
Owner/Occupant	30 F Street	Project Name	MCG PFAS
Mailing Address	PO BOX 30 MCG	Date	1/11/23
Telephone_	907-524-3825		1015
		Sampling Personnel	CEH, RLW
Purge Location	From a spigot		tment system
Sample Location	. "	N	n
Sample No.	MCG-024	Time	1032
Duplicate	MCG-124	Time	1022
Pumping Start Time	1015	Bottled Water	
			Pumped from river
			Eurofins
**			PFAS,
	Address Owner/Occupant Mailing Address Telephone Purge Location Sample Location Sample No. Duplicate Pumping Start Time Pumping End Time Gallons per minute	Address Cap'n Snow Centre Owner/Occupant 30 F Street  Mailing Address Po Box 30 McC  Telephone 907-524-3825  Purge Location From a Spigot  Tdentified by (  Sample Location N  Sample No. MCG-024  Duplicate MCG-124	Address Cap'n Snow Center  Owner/Occupant  Mailing Address  Po Box 30 McC  Date  Telephone  Purge Location  From a Spiget prior to treat  Telephone  Sample Location  Sample No.  MCG-024  Time  Duplicate  Pumping Start Time Pumping End Time  Gallons per minute  Address  Project Number  Project Number

#### FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1017	0.2	446,2	a.52	Clear
10 20	0.1	445,6	6.80	Clear
10 23	0.1	233,8	G. 84	Clear
10 26	0.1	233.6	G. 90	Clear
10 29	0.1	23316	Ce. 94	Clear
10 32	Sample			
+				
	-			
				1.50

Notes:	SPC	Conductivity	on tirst	TWO	par avereras	
Alternate Wa	ter:					





	Date: 1/12/23 Parcel ID#: MCG - 037  Physical Address: Lot 1-3
	Name (Owner): Squire Nelson
	Name (Occupant):
	Mailing Address (Owner): PO Box 18
	Mailing Address (Occupant):
	Owner Email: Occupant Email:
	Owner Phone: 907 - 574 - 9436 Occupant Phone:  Preferred method of contact (circle): Email Phone  Number of people residing at this location:  Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)  Years at this residence: Full-Time  Seasonal
	1) From where do you obtain your drinking water? a) Residential (private) well b) Community well c) Bottled water d) Other
	2) If you have a private well, please answer the following questions:  a) Where is the well located on the property?  b) Is the well in use? Yes   No   No   No   No   No   No   No   N
owner experience of the services of the servic	Detroit of the second of the s
	4) Sample Permission  Does the Shannon & Wilson, Inc. have permission to sample your private well?  Yes No
	Signature Date

KEF

Entered



Physical Address: St. Michael's Catholic Church  Name (Owner):	Date: 1/13/23 Parcel ID#: MCG - 038
Mailing Address (Oscupant):  Mailing Address (Oscupant):  Owner Baali:  Occupant Email:  Occupant Phone:  Preferred method of contact (circle): Email  Orectipant Phone:  Number of people residing at this location:  Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)  Years at this residence:  Full-Time  Seasonal  1) From where do you obtain your drinking water?  a) Residential (private) well  c) Bottled water  d) Other  Usable  Usable  Usable  Unusable, unusable, or properly abaudoned?  Usable  Usable  Unusable  Unusable  Unusable  Orinking  Cooking food preparation  Drinking  Cooking food preparation  Other  Water (daily, weekly, etc.)  a) When was the well installed?  When was the well diameter?  d) What is the well diameter?  Drilled  Propady  Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)  Yeand over)  Teenagers (13 to 17)  Children (12 and under)  Year ago a well a few of the property?  Propady  A well a few of the property abaudoned?  Very ago  Well of year ago  Do you have the well log?  Do you have the well log?  What is the well depth?  C) What is the well diameter?  Drilled  Driven  Unknown  e) Do you have any treatment on your well (e.g. water softener)? Please describe.	Physical Address: St. Michael's Catholic Church
Mailing Address (Oxcupant):  Mailing Address (Oxcupant):  Owner Phone:  Occupant Email:  Owner Phone:  Over Phone:  Number of people residing at this location:  Perferred method of contact (circle): Email  Oxcupant Phone:  Number of people residing at this location:  Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)  Years at this residence:  Full-Time  Seasonal  1) From where do you obtain your drinking water?  a) Residential (private) well  c) Bottled water  d) Other  Usable  Usable  Usable  Usable, unusable, or properly abaudoned?  Usable  Usable  Usable  Unusable  Unusable  Orinking  Cooking food preparation  Other  Other  Seasonal  VYS ago  YYS ago  YYS ago  YYS ago  YYS ago  YYS ago  Negetable/grain Gardening  Size of Garden  Sq. feet/acres  -Average watering frequency using well water? (daily, weekly, etc.)  a) When was the well installed?  What is the well diameter?  Dy you have any treatment on your well (e.g. water softener)? Please describe.	Name (Owner): " Mike Tierney is care tak
Mailing Address (Owner): Do Box 142 MCG 99077  Mailing Address (Occupant): Occupant Email: Occupant Phone: Preferred method of contact (circle): Email Phone  Number of people residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under)  Years at this residence: Full-Time Seasonal Seaso	Name (Occupant):
Mailing Address (Occupant):  Owner Email:  Owner Phone:  Over Phone:	Mailing Address (Owner): PO Box 142 MCG 99627
Owner Email:  Owner Phone: 907 - 524 - 3922  Orcupant Phone: 907 - 524 - 3922  Preferred method of contact (circle): Email Phone  Number of people residing at this location:  Years at this residence: Full-Time Seasonal Children (12 and under)  1) From where do you obtain your drinking water?  a) Residential (private) well	
Number of people residing at this location:    Adults (18 and over)	Owner Email: Occupant Email:
1) From where do you obtain your drinking water? a) Residential (private) well	Number of people residing at this location:  Adults (18 and over)  Teenagers (13 to 17)
a) Where is the well located on the property?	From where do you obtain your drinking water?     a) Residential (private) well
□ Drinking □ Vegetable/grain Gardening □ Cooking food preparation □ Size of Garden □ sq.feet/acres □ Average watering frequency using well water? (daily, weekly, etc.) □ Sample Permission □ Vegetable/grain Gardening □ Sq.feet/acres □ Average watering frequency using well water? (daily, weekly, etc.) □ Do you have the well log? □ Yes □ No □ Do you have the well log? □ Yes □ No □ Driven □ Drilled □ Driven □ Drilled □ Unknown □ Do you have any treatment on your well (e.g. water softener)? Please describe. □ Os you have any treatment on your well (e.g. water softener)? Please describe. □ Os you have any treatment on your well (e.g. water softener)? Please describe. □ Os you have any treatment on your well (e.g. water softener)? Please describe. □ Os you have any treatment on your well (e.g. water softener)? Please describe. □ Os you have any treatment on your well (e.g. water softener)? Please describe. □ Os you have the well log? □ Yes □ No Os you have any treatment on your well (e.g. water softener)? Please describe. □ Os you have the well have □ Os you have any treatment on your well (e.g. water softener)? Please describe. □ Os you have any treatment on your well (e.g. water softener)? Please describe. □ Os you have the well have □ Os you have the well have □ Os you have the well have □ Os you have any treatment on your well (e.g. water softener)? Please describe. □ Os you have Os you ha	a) Where is the well located on the property? Probably had a well a few
a) When was the well installed? When was the well installed? Do you have the well log? Yes No c) What is the well diameter? d) What is the well type? Dug Well Drilled Unknown e) Do you have any treatment on your well (e.g. water softener)? Please describe.	<ul> <li>□ Drinking</li> <li>□ Cooking food preparation</li> <li>□ Other</li> <li>□ Other</li> <li>□ Vegetable/grain Gardening</li> <li>-Size of Garden</li> <li>-Average watering frequency using well</li> </ul>
지역 이렇게 잘 잃었는 시간에 가는 이번 시간에 가는 그리고 있는데 이번 이번 그는 것이 있다면 하는데 그는 사람이 되었다면 그는데 되었다면 그는데 되었다면 그를 꾸는데 하다는 그를 꾸는데 하다는 그를 꾸는다면 하는데 그를 보다면 그렇다면 하는데 그렇다면 그렇다면 그렇다면 그렇다면 그렇다면 그렇다면 그렇다면 그렇다면	a) When was the well installed?

KCL

Response taped to back



Date: 1/12/23	Parcel ID#: MCG-047
Physical Address:	
Name (Owner): Jade + Andrew	Patterson
Name (Occupant):	Jaal Patterson / Hindrew RUNK
Mailing Address (Owner): PO Box	151 MCG 99627
Mailing Address (Occupant):	
Owner Email:	Occupant Email: Occupant Phone: Phone  Adults (18 and over) 2 + le.ds Teenagers (13 to 17) Children (12 and under) Seasonal
From where do you obtain your drinking water     a) Residential (private) well     c) Bottled water	r? b) Community well d d) Other
<ul> <li>2) If you have a private well, please answer the form</li> <li>a) Where is the well located on the property</li> <li>b) Is the well in use? Yes No</li> </ul>	: Garden well (trunt house)
3) If <u>no</u> , is the well usable, unusable, or properly  Usable ☐ Unusable ☐ Abandone  If <u>yes</u> , please check all that apply regarding the ☐ Drinking ☐ Cooking food preparation ☐ Other	ed Method VN NOW  e usage of your well water:  Vegetable/grain Gardening  -Size of Garden sq.feet/acres  -Average watering frequency using well
☐ Drille	Well Driven
4) Sample Permission Does the Shannon & Wilson, Inc. have permiss	sion to sample your private well? Yes No
Signature	Date

KRE

Emtrad



Date: 1 12 23 Parcel ID#: MCG-054
Physical Address: MCG-05H
Name (Owner): Nicholas Snow (Owner is very hard of hearing
Name (Occupant):
Mailing Address (Owner): PO Box 242 9967
Mailing Address (Occupant):
Owner Email: 907 - 524 - 3506 Occupant Email:
1) From where do you obtain your drinking water? a) Residential (private) well
2) If you have a private well, please answer the following questions:  a) Where is the well located on the property? <u>Fast</u> & house  b) Is the well in use? Yes No Summer only
If no, is the well usable, unusable, or properly abandoned?  Usable Unusable Abandoned Method  If yes, please check all that apply regarding the usage of your well water:  Drinking Cooking food preparation Other 10 10 15 10 Nughar  a) When was the well installed?  b) What is the well depth?  What is the well diameter?
c) What is the well diameter?  d) What is the well type?  Dug Well  Driven  Unknown  e) Do you have any treatment on your well (e.g. water softener)? Please describe.
4) Sample Permission  Does the Shannon & Wilson, Inc. have permission to sample your private well? Yes No
Signature
un man water to buckets for toilets for neighbor's



MCG-067

#### Water Supply Well Inventory Survey Form Parcel: Name (Occupant): Physical Address: Mailing Address: @ comai Email Address (optional): _ Contact Phone Number: (owner) ____ (occupant) Number of persons residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under) Full-Time Years at this residence: Seasonal 1) From where do you obtain your drinking water? a) Water Supply Utility \( \sqrt{} \) b) Well Water c) Water Delivery d) Other 2) If you have a water well, please answer the following questions: a) Where is the well located on the property? _ b) Is the well in use? Yes No c) If yes, please check all that apply regarding the usage of your well water: Cooking Gardening Drinking ___ Pets Other_ d) If no, is the well usable, unusable, or properly abandoned? Usable Unusable Abandoned Method e) When was the well installed? Do you have the well log? Yes No f) What is the well depth? g) What is the well diameter?_ h) What is the well type? Dug Well Driven Drilled Unknown i) Do you have any treatment on your well (e.g. water softener)? Please describe. Sample Permission Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permission to sample your private water well? Yes No ne O'Acce 12-9-22



Date: 1/12/23 Parcel ID#: MCG-0+2
Physical Address:
Name (Owner): Nester Norback Mond Norback
Name (Occupant): \top Contact Na om
Mailing Address (Owner):
Mailing Address (Occupant): 10 28 h MCG 93627
Owner Email: Occupant Email: Occupant Phone: Occupant Phone: Occupant Phone: Occupant Phone: Occupant Phone  Number of people residing at this location: Adults (18 and over) Adults (18 and over) Children (12 and under) Children (12 and under) Children (12 and under)
Years at this residence: Full-Time Seasonal
1) From where do you obtain your drinking water? a) Residential (private) well
2) If you have a private well, please answer the following questions:  a) Where is the well located on the property?
Usable   Unusable, or properly abandoned?   Wext   Wext   Usable   Unusable   Abandoned   Method   Wext   Wext
b) What is the well depth?
c) What is the well diameter?
d) What is the well type?
e) Do you have any treatment on your well (e.g. water softener)? Please describe.
4) Sample Permission
Does the Shannon & Wilson, Inc. have permission to sample your private well?
Signature Date

Ver



Date: 1 13 23 Parcel ID#: MCG - 080
Physical Address: Must structures Red house, but buildings + bove bouse tobin
Name (Owner): Ephrem Andrews Chin
Name (Occupant):
Mailing Address (Owner): PD Box 114 NGG 99627
Mailing Address (Occupant):
Owner Email: Occupant Email:
Owner Phone: 574 - 357   Occupant Phone: Preferred method of contact (circle): Email Phone  Number of people residing at this location:  Adults (18 and over)   Teenagers (13 to 17)   Children (12 and under)   Seasonal
1) From where do you obtain your drinking water? a) Residential (private) well
2) If you have a private well, please answer the following questions:  a) Where is the well located on the property? Whenown  b) Is the well in use? Yes No Sume
3) If no, is the well usable, unusable, or properly abandoned?  Usable Unusable Abandoned Method  If yes, please check all that apply regarding the usage of your well water:  Drinking Vegetable/grain Gardening Wood  Cooking food preparation -Size of Garden sq.feet/acres  Other
water? (daily, weekly, etc.)
None
4) Sample Permission Does the Shannon & Wilson, Inc. have permission to sample your private well?  No
Signature

ter Supply Well Inventory Survey Form	
te: 1/13/23	MCG-08)
rcel: MCG-081	
	erty transfer in progress)
mme (Occupant): Lows Mallette	
Buyer ailing Address: Lovis: Po Box 3367-	Gallup, NM 87305
nail Address (optional):	
entact Phone Number: (owner) 907-524 (oeee	ller (Lovis) 505-444-0490
ars at this residence:Full-Time Seasonal _	(Lovis) 505-444-0490   Adults (18 and over)
- IN NO. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	ell Water Unknown
c) Water Delivery	er'
	well provides " lots of
If you have a water well, please answer the following quest a) Where is the well located on the property?	4000 W W W W
b) Is the well in use? Yes No	Ephram
c) If yes, please check all that apply regarding the usage of	of your well water:
	ets Other <u>UNRIOWN</u>
d) If <u>no</u> , is the well usable, unusable, or properly abandon	ned?
Usable 🔲 Unusable 🗌 Abandoned 🗍 Meth	nod
e) When was the well installed? UNKNOWN  f) What is the well depth? 20 per Ephropoyo	by have the well log \( \sqrt{Vec} \sqrt{No}
1	od have the well log! res No
h) What is the well type? Dug Well	Driven Hand
Drilled	Unknown
i) Do you have any treatment on your well (e.g. water so	oftener)? Please describe
Sample Permission	
Sample Permission  Does the Alaska Department of Transportation & Public Fa	cilities (DOT&PF) have permission to sample your
Sample Permission  Does the Alaska Department of Transportation & Public Fa private water well?  Yes  No	ncilities (DOT&PF) have permission to sample your
Does the Alaska Department of Transportation & Public Fa	icilities (DOT&PF) have permission to sample your

127

Signature

Date

Details provided by Ephram Andrews. Ephram is in Process of Selling)



#### **Water Supply Well Inventory Survey Form**

	me (Occupant): Theresa Ollo Fox
	vsical Address: n/a MCG-085 (G street/Takotna Ave)
Ma	iling Address: n a
	ntact Phone Number: (owner) 907 - 574 - 0074 (occupant)
	mber of persons residing at this location:  Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)  Full-Time Seasonal
1)	From where do you obtain your drinking water?  a) Water Supply Utility   b) Well Water   c) Water Delivery   d) Other   Haws from city
2)	If you have a water well, please answer the following questions:  a) Where is the well located on the property?
	i) Do you have any treatment on your well (e.g. water softener)? Please describe
3)	Sample Permission  Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permission to private water well? Yes No



	Dat	te: 1/12/23 Parcel ID#: MCG - 201
	Phy	ysical Address: MCG-ZO\
15	Nai	me (Owner): Adam McKey (Girlfriend is Frin Norback)
ther is chris	Nai	me (Occupant):
JM1-	Ma	illing Address (Owner): PO Box 85 MCG
		iling Address (Occupant):
	Ow	oner Email: Occupant Email:
	Ow	vner Phone: 907 - 574 - 0448 Occupant Phone:
		Preferred method of contact (circle): Email Phone Imber of people residing at this location:  Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)  Ars at this residence:  Full-Time  Seasonal
	1)	From where do you obtain your drinking water?  a) Residential (private) well  b) Community well  c) Bottled water  d) Other
	2)	If you have a private well, please answer the following questions:  a) Where is the well located on the property? UNKNOWN  b) Is the well in use? Yes No
	3)	If no, is the well usable, unusable, or properly abandoned?  Usable Unusable Abandoned Method Summer on Usable Summ
		a) When was the well installed? within last yr
		b) What is the well depth? VALOUM  c) What is the well diameter? VALOUM  d) What is the well type?
		e) Do you have any treatment on your well (e.g. water softener)? Please describe
	41	Sample Permission
	4)	Does the Shannon & Wilson, Inc. have permission to sample your private well? Yes No
•		
jar alved to a pho		Does the Shannon & Wilson, Inc. have permission to sample your private well?  Signature  Date  Gary Egerts  Mike Herringt  Nick Snaw

Nick Snow Entered

# SHANNON & WILSON, INC.

### Associated Water Supply Well Inventory Survey Form Date: 12-14-22 Parcel: Name (Owner): Jellen Name (Occupant): (Rec' via mail in Holidan Physical Address: Mailing Address: POBOX 335, Mc Grath, alaska 90 Contact Phone Number: (owner) 907-574-0355 (occupant) & 907-524-3098-Land-line Adults (18 and over) 75 Number of persons residing at this location: Teenagers (13 to 17)_____ Children (12 and under) Years at this residence: 40+ Full-Time 🔀 Seasonal 1) From where do you obtain your drinking water? a) Water Supply Utility \ City of megrath b) Well Water c) Water Delivery d) Other 2) If you have a water well, please answer the following questions: a) Where is the well located on the property? ______ b) Is the well in use? Yes No 🗌 c) If yes, please check all that apply regarding the usage of your well water: Cooking Gardening Pets Other_ d) If no, is the well usable, unusable, or properly abandoned? Usable Unusable Abandoned Method e) When was the well installed? Do you have the well log? Yes No f) What is the well depth? ____ g) What is the well diameter? h) What is the well type? Dug Well Driven Drilled Unknown Do you have any treatment on your well (e.g. water softener)? Please describe. 3) Sample Permission Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permission to sample your private water well? Yes No

Owner/Client	Alaska	DO	T			Project No.	102219-019
	NR Propers	My Ad	jacent to	> kitches	1		1/11/23
	RLW (ZH	1					McG-mw-
Weather Conditions 0	vercust + sn	Ai Ai	r Temp. (°F)	10		Time started	
					Tir	me completed	1317
Sample No.	ICG-MW-1	201	Time	1312			
Duplicate M	CG-MW-1	0)	Time	1302			
Equipment Blank			Time				
Pump F	Pearpump						
	portable / dedicate	d numn		Di	ameter and T	upo of Casina	1 26"
Pumping Start		d pump	Approvin			ype of Casing Below MP (ft.)	
Purge Rate (gal./min.)			Measi	red Total D	epth of Well	Below MP (ft.)	VE 10
Pumping End 1			ivieasi	ned rotario	eptil of vveil i	Below MP (ft.)	12.10
Fullpling Lift	3/2						12.72
Pump Set Depth Below	MD (#1) 17 7			Depth to I		Below MP (ft.)	
	bing (ft.)					Water in Well	
A S TruBaly Tul	bing (ft.)						0.2 0.08
for pump TruPoly Tul	Jing (it.)						0,2
			D 14/-		2 2 2	Volume (gal.)	
Monument Condition	11a		ruige vva	ter Disposal	GIAC		
Casing Condition	acina o-l		71.				
Casing Condition	arry car	1	ok				
Wiring Condition	na						
(dedicated pumps)							
Measuring Point (MP)	op of Casing (TOC)		Monur	ment type:	Stickup	/ Flushmount	-
		N	/leasuremer	nt method:	Rod & level	Tape measu	ire
Top-of-casing to monum	nent (ft.)			Da	talogger type	n/a	
Monument to ground surf	ace (ft.)	2		Datalo	gger serial #	n/a	
casing	-		- Me		le length (ft.)		
Lock present a	and operational						
	ible on outside of w	ell					
	zot jaoking						
Notes Well view	y Stow to	rechar	ap A	Hemoti	na to	use 45	1 for
1/3/3/Y-		· corton	1) - 1	· (Olipi)		ameters	100
					PA		
		WELL C	ASING VOL	UMES			<u> </u>
Diameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

\$

6.88 7.15 7.27 7.26 7.28	218.2 202.9 198.5 197.5 196.8	clear clear clear
7.27	198.5	clear
7.26	197.5	clear
7,28	196,8	Clear
	***	
4		146
	nable to re	nable to reach tempe

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Owner/Client	* Al.,	Va No	T			40.00.11	107510 016
Owner/Client _ Location	D . A A D .	Ka Do	13 +	1201	9	10 mg	102219-019
Sampling Personnel	DNR From	DITY A	discent	to Kitche	٥.	Date	
Weather Conditions	-	KLW	Tomas (9F)		· 'Y	VVell	McG-MW-
vveatrier Conditions_	Direct	All	Temp. (°F)	16	-	Time started	
					iir	ne completed	1416
Sample No.	WCG-MW-0	2	Time	1407			
Duplicate			Time				
Equipment Blank _			Time	_=			
Pump	Peri-stathc						
	portable / dedica	ated pump		Dia	ameter and T	ype of Casing	1,75
Pumping Start			Approxim			Below MP (ft.)	
Purge Rate (gal./min.)						Below MP (ft.)	
Pumping End			100000	Der	oth to Water F	Below MP (ft.)	11.21
						Below MP (ft.)	
Pump Set Depth Belo	w MP (ft.) 13. 2			0.02000000		Water in Well	
Peripump Kuritec T						Ilons per foot	
TruPoly T	ubing (ft.)	_				allons in Well	
		_		1		Volume (gal.)	
	50.00		Purge Wa	er Disposal	0 00	voidino (gai.)	
Monument Condition _	N/A		3	31 715/1777	OIIIC		
Casing Condition _	Casing	only,	9000				
_		/ '	1111				
Wiring Condition	NA						
(dedicated pumps)	1077						
(dedicated pumps)_					-		
Measuring Point (MP)	Top of Casing (TOC	)	Monur	nent type: (	Stickup	/ Flushmount	
	Top or Casing (100	_	leasuremen	The second secon		Tape measu	
casing to grain	1 6.0.	IV	icasuremen	t method.	Rod & level	rape measu	ire
Top-of-casing to monu	mont (ft.)	12		D-4		200	
		1-			alogger type	n/a	
Monument to ground su	irrace (π.)		- 12		gger serial #_	n/a	
			Me	asured cabl	e length (ft.)	n/a	
144 11 11 11 11	t and operational	uP2					
	egible on outside of	well					
<u>□</u> Evidence of a	frost-jacking						
Notes							
-							
-		1.12.5.7	1,000				
4.0		1	SING VOL	JMES			
plameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08/	0.17	0.38	0.66	1.5	26

Well No. MCG-MW-DZ

Field			B Circle one:	e pammet	ors, unable >3 we	to seach ORP stabilize Il volumes purged.	entlor
ime	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)	
t Ce	2.9	3.77	G51 G59	5,96	241.2	Clear Subtle orange 4 int	
52	3,3	0.75	658	6.37	223,7	Clar	

[± 3%]	[±10%]	[± 3%]	[± 0.1]	[± 10 mV]	Water Clarity (visual)
2.9	3.77	C51	5,96	260.8	Clear
3.3	1,29	G59	6,25	241,2	Sebtle orange xing
3.3	0.75	658	6.37	223,7	Clear
3.4	0.60	661	6.47	268.5	Clear
3.3	0,50	660	6,50	196,0	Clear
3.3	6,50		6.49	190.0	Clear
3.4	0.50	C61	6.52	181.0	Chear
Sample			/		
7					
				/8	*
	3.3	2.9 3.77 3.3 1.29 3.3 0.75 3.4 0.60 3.3 0.50 3.3 0.50	2.9 3.77 Q51 3.3 1.29 G59 3.3 0.75 G58 3.4 0.60 GG1 3.3 0.50 GG0 3.3 0.50 GG0 3.4 0.50 GG1	2.9     3.77     651     5,96       3.3     1.29     659     6,25       3.3     0.75     658     6,37       3.4     0.60     661     6.47       3.3     0.50     660     6,56       3.3     0.50     660     6.49       3.4     0.50     661     6.52	2.9     3.77     651     5.96     260.8       3.3     1.29     659     6.25     241.2       3.3     6.75     658     6.37     223.7       3.4     6.60     6.47     268.5       3.3     6.50     660     6.56     196.0       3.3     6.50     660     6.49     149.0       3.4     6.50     661     6.52     181.0

Eurofins Laboratory SGS Dup Sample Containers Analysis Preservatives PFAS A 旦 

Owner/Client	Alask	n Do	T			Project No.	102219-015
Location	· McGrath	ANR	Complex		_		11/11/23
Sampling Personnel	CZH/RL	n	- Pi		_		MCG-MW-0
Weather Conditions	Overest		ir Temp. (°F)	10° F	- 6	Time started	1500
2.149 states (1.242/5.14814) -					_ т	ime completed	1610
Sample No. Duplicate	MCG-MW-0	13	Time	1604			
Equipment Blank			Time	-	=		
Pump	Peri - pump	-					1 0 - 11
Purging Method		ted pump				Type of Casing	1.25
Pumping Start						Below MP (ft.)	
Purge Rate (gal./min.)			Measu			Below MP (ft.)	
Pumping End	1607					Below MP (ft.)	9.76
	THE STATE OF THE S			Depth to		Below MP (ft.)	~
Pump Set Depth Bel		_			Feet o	f Water in Well	5.42
	Tubing (ft.) 3.0	_				Sallons per foot	0.08
Peripump TruPoly	Tubing (ft.) 30.0	7				Gallons in Well	0.43
						r Volume (gal.)	30
	NI /A		Purge Wat	er Dispos	alGA	<u>C</u>	
Monument Condition	NA		33.44	- 1911077			
Casing Condition	Coising or	nly,	good				
		1					
Wiring Condition	NA						
(dedicated pumps)					1		
Measuring Point (MP)	Top of Casing (TOC)	-		nent type:		/ Flushmount	
1 11 7 1	*		Measuremen	metnoa:	Roa & level	Tape measu	re
Grand to Cash	79			1 2	الماعات الماكنية		
Top-of-casing to mon	nument (ft.)	/۵	2		atalogger type		
Monument to ground s	surface (ft.)				logger serial #		
			Me	asured ca	able length (ft.)	)n/a	
	nt and operational						
	legible on outside of v	vell					
Evidence of	f frost-jacking					4	
Notes	eled as in	W-3"	on co	sing			
13 700/1				,			
		WELLO	ASING VOL	IMES			
Diameter of Well (ID !=====1	CMT					1 . 1	
Diameter of Well [ID-inches]		11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0,38	0.66	1.5	2.6

to

Field Parameter Instrument	YSI	B	Circle one:	Parameters	stabilize	d or >3 well volumes purged
Sample Observations					_	
Notes						
	0.000	Water	~	~	AT ITSUI	

~	✓ FIEL	D PARAIVIE I ERS [SI	abilization ci	illeriaj V	
Temp.	Dissolved Oxygen (mg/L) [± 0.1 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1.1	11.70	479.2	5.88	250,7	Clear
1.1	11,03	478.5	6.35	215.8	Clear
1,2	10.61	479.3	6.51	203	clear
-1.1	10.56	479.5	Q.37	196.6	Clear
1,2	10.28	479.3	6.65	189,6	Clear
1.2	10,16	478.9	6.69	185.4	Clear
1,2	10.16	478.4	6.68		Clear
1.2	10,16	478.0	6.69	180.3	Clear
Sample			W 179 15		
				/	
				1	×
					*
	Temp. (°C)  1.1  1.2  1.1  1.2  1.2  1.2	Dissolved Oxygen (mg/L) [± 0.1 mg/L]  1. [ 11.76 1. [ 11.76 1. [ 10.3 1.2 [ ]0.6] 1.2 [ 10.28 1.2 [ 10.16 1.2 [ 10.16 1.2 [ 10.16	Dissolved Oxygen (mg/L) [± Conductivity (μS/cm) (°C) 0.1 mg/L] [± 3%]  1. [ 11.70	Temp. Oxygen (mg/L) [± Conductivity (μS/cm) pH (± 0.1]    (°C)	Temp. (°C)         Dissolved Oxygen (mg/L) [± Conductivity (μS/cm) pH (± 0.1]         pH (± 0.1]         ORP (mV) [± 10 mV]           i. [ 1/76         479.2         5.88         250.7           i. [ 1/76         479.5         6.35         2.15.8           i. [ 1/76         479.5         6.35         2.15.8           i. [ 1/76         479.5         6.35         2.03.1           i. [ 1/76         479.5         6.37         196.6           i. [ 1/76         479.5         6.37         196.6           i. [ 2/76         479.3         6.65         189.6           i. [ 2/76         478.9         6.69         185.4           i. [ 2/76         478.9         6.69         185.4           i. [ 2/76         478.0         6.69         180.3

Analysis	Sample Containers	Preservatives	Dup
PEAS			旦
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Owner/Client		Alask	6 D	OT			Project No.	102215-015
Location	P	deset	MAR	Complex		<del>-</del>	Date	
Sampling Personnel		CZH/R	LW				F 27 27 37 1	MEG - MW-C
Weather Conditions	Ov	iorcast	Air	Temp. (°F)	10°F	=	Time started	1646
A STATE OF THE STA						Ti	me completed	1725
Communa Na	MC	G-MW	-OH		Shie			
Sample No. Duplicate		0		Time	1715	_		
				Time		_		
Equipment Blank				_ Time				
	Peri-	- 0uM -						
Pump Purging Method			ed numn			Diameter and T	ype of Casing	1 25"
Pumping Start		, dedicate	d pump	Approvim		Depth of Well		~
Purge Rate (gal./min.)		-				Depth of Well		15,18
Pumping End		-		Measu		epth to Water		
r diriping Life	1/16	-				Ice (if frozen)	Control of the Contro	12.14
Pump Set Depth Belo	ow MP (ft	14.0			Dehrii ro		Water in Well	3.04
	Tubing (ft.)						allons per foot	
Paripump TruPoly							Ballons in Well	0.08
ter purp truit dry	doing (it.,	_ 72,0					Volume (gal.)	2.3
	144			Purge Wate	r Dienoe			213
Monument Condition	Ŋ	A		r argo vvak	л Біороз	ш ВД		
0 . 0		C1 \	0.1					
Casing Condition		Casing 1	Only.	OKAY				
		N. I.						
Wiring Condition		N/A						
(dedicated pumps)								
Measuring Point (MD)	Top of C	saina (TOC)		1.40		Olistan	V-KOKO OMA	
Measuring Point (MP)	rop or Ca	asing (TOC)			ent type:		/ Flushmount	
Easing to grand	SulCaro		IV	leasurement	metnoa:	Roa & level	Tape measu	re
		~ 1	2		_		M. T.	
Top-of-casing to mon			3	_		atalogger type		
Monument to ground s	urface (ft.)			<ul> <li>1.32</li> </ul>		logger serial #		
The Section		5.4.503.5		Mea	asured ca	able length (ft.)	n/a	
Lock preser			2					
		outside of w	ell					
Evidence of	frost-jack	ing						
Notes								
1								
			WELL CA	SING VOLU	IMES			
Diameter of Well [ID-inches]		СМТ	(11/4	2	3	4	6	8
Gallons per lineal foot		0.000253	0.08	0.17	0.38	0.66	1.5	2.6

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Well No. MCG-MW-34

Field		Instrument 131 oservations	Circle one:	Parameters	s stabilized or	>3 well volumes purgea
	· Cumpic Ci	Notes				
	1	√ FIE	LD PARAMETERS [st	abilization o	criteria] 🗸	
Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1700	-0.1	10,1	621	6.76	190,1	Clear
1703	-0.1	G113	Ca15	17.50	179.9	Clear
1706	-0.1	5.36	G10	6.77	179.5	Clear
1709	-0.1	5.25	608	6.76	178,6	Clear
1715	Somple	211/	600	Ce. 10	. 7.0 10	Cien
. 113	Don't C					
					V	
					-	
					(	

Laboratory <del>SGS</del>	Lower		
Analysis	Sample Containers	Preservatives	Dup
PFAS		-	旦
			旦
			므
			므

#### RESIDENTIAL WELL SAMPLING LOG

Address	MCG - C	001	Project Number	102219-015
Owner/Occupant	ADFG (	office		McGroth MEA
Mailing Address	PO Box	230	Date	01/10/23
Telephone		4-3325	Time	
	1013			CZH, RLW
		0,	ampining i diddimidi	
Purge Location	Office	e both-ool	М	
E 24 3 7 7 7 1 2 2				
Comple Legation	CAA	Pre tre	100 A	
Sample Location_	7410	tre tre	SOU LANGUA	
Sample No.	MCG-	00	Time	1027
Duplicate _			Time	
				,
umping Start Time_	1005			
Pumping End Time		Total	Depth of Well (ft.)	
Gallons per minute	2 gal/min			Eurolins
urge Volume (gal.)	44 901			PFAS
- 1900	7		/	
	/ FIELD P	ARAMETERS [stal	oilization criteria]	
	Temp. (°C)	Conductivity	pH (std. units)	124000000000000000000000000000000000000
Time	[± 0.5]	(µS/cm) [± 3%]	[± 0.1]	Water Clarity (visual)
1007	8.2	790	G.38	Clar
10 10	5.4	730	6.45	Clear
1015	5.8	736	G.48	Clear
1010	4.4	706	0.52	Clear
15 29	4.5	707	G. 52	Clear
10 24	43	702	6.53	Clear
1027		70 00	0.33	Cicro
10 07	sample			
Notes:				

#### WATER SUPPLY WELL SAMPLING LOG

Address Owner/Occupant Mailing address	DOT+	- PF		ject Number 1 102219 - 015 roject Name
Telephone	907-	524-3276	Samplin	g Personnel CZH, RZW
Sample Location	659	Bypass 1: collected	ne in short for	op where sample was Itration.
Sample Number Duplicate	MC	6-003		Time 1138
Analysis	PFAS 25	gal/min 1 gal.	<u>-1</u> 0	Lab Eurofins
Purge Volume	5°	~	[stabilization crite	eria]
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
11 11	18,77	758	6.71	Clear
11 14	7.8	5 78 5 89	6.96	Clear
1123	7.1	571	7.04	Clear
1123	Ce.	570	7.02	Clear
1126	4.0	532	7.02	Clear
1129	4.6	536	7.02	Clear
1138	4,3 Sample	5 13	7.03	Clear
Notes	D	irged from	box K	ela V
Notes:		Pressure and Ci	tholon syst	ten upstoins Break nom on le in shop.

#### WATER SUPPLY WELL SAMPLING LOG

Address Owner/Occupant Mailing address Telephone Sample Location	Maty Po Box McGrat 907-	574-0767	Pr - - Sampling		Mc Groth PPAS
Sample Number Duplicate	MC6	-021	-	Time _ Time _	1478
Analysis	29al/ 48	min	-	Lab	Eurofins
Purge Volume	48	PARAMETERS [		eria]	
Time 1404 1407 1410 1413 1416 1419 1422 1428	Temp. (°C) [± 0.5]   3.1  1.1  8.3  7.1  6.3  5.8  5.5  5.4	Conductivity (µS/cm) [± 3%]  8 + 5  78 5  70    Carre Carre Carre Carre Carre	pH (std. units) [± 0.1] 6,34 6,49 6,59 6,59 6,59 6,59 6,59 6,59 6,59 6,59	Water Clear Clear Clear Clear Clear Clear Clear Clear Clear	
Notes:		war soft	iner on	line,	No filter

# RESIDENTIAL WELL SAMPLING LOG

Address	MCG.	-007	Project Number	102219-015
Owner/Occupant		ignuson	Project Name	
Mailing Address		46	Date	01/10/23
Telephone	907-444	-3805	Time	1445
_		Sa	ampling Personnel	CZH IRLW
	. 11		0.1	,
Purge Location _	Arlin	e Services	Bathroom strik	
Openius I postini	ALCA	2007	4.4	
Sample Location_	1166-	007	4/-6	
-				
Sample No.	MCG-C	つんり	Time	1501
Sample No.	7100			100
Duplicate			Time	
Bapiloato_				
Pumping Start Time	1446		<b>Bottled Water</b>	
Pumping End Time	1561	Total	Depth of Well (ft.)	
Gallons per minute		•	Laboratory	Eurofins
Purge Volume (gal.)			Analysis	PFAS
, ,		/	1	
	/ FIELD F	ARAMETERS [stat	oilization criteria]	
	Temp. (°C)	Conductivity	pH (std. units)	
Time	[± 0.5]	(µS/cm) [± 3%]	[± 0.1]	Water Clarity (visual)
144/2	5.1	5917	627	Clear
1449	5.8	7,09	C 42	Clear
1452	5.9	607	G. 43	Clear
1455	5.7	Ce03	6,46	Clear
1458	6.2	G 12	Co. 46	Clear
Somple 1501	4.5			
	(			
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Notes:				
Notes:				

# + City Admin / Laundry | State Trooper/Water Treatment Plant Building

		9	or tyris 190° Martin 191	EL STATE STA
ample is	city drinkin water	RESIDENTIAL V	WELL SAMPLING LO	G
	Address	lap'n Snow Cen	Project Number	er 102219-015
	Owner/Occupant	30 F Street	Project Nam	e MCG PFAS
	Mailing Address	20 Box 30 MCC	n Dat	e 1/11/23
	Telephone	907-524-382	5 Tim	e 1015
			Sampling Personne	el CEH, RLW
		From a spigot	city of Michrath	atment system employees
	Sample Location_	N //		n
	Sample No	MCG-024	Tim	e 1032
	Duplicate_	MCG-124	Tim	e   022
	Pumping Start Time_	1015	Bottled Water	
	Pumping End Time_		Total Depth of Well (ft	
	Gallons per minute_			Y Eurofins is PFAS
1	Purge Volume (gal.) _	~ 51	Arialys	15 1113

## FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1017	0.2	446.2	a.52	Clear
10 20	0.1	445, G	6-80	Clear
10 23	0.1	233,8	G. 84	Clear
10 26	Oil	233.6	Ce. 90	Clear
10 29	0.1	233, 6	G. 94	Clear
10 32	Sample			
		11		

Notes:	SPC	conductivity	on	Cirst	two	parameters	
Alternate W	ater:						

Owner/Client		Alaska	NOT	2			Project No.	102219-015
Location	DUR	Propert	v. Adi	acent to	Ritcher			1/11/23
Sampling Personnel			7					Mcg-mw-
Weather Conditions			Air	Temp. (°F)	10		Time started	
- And a second s						Tin	ne completed	1317
7. 200 J. Oktober 1								
Sample No. Duplicate	ncg-	- MW-3	(0)	Time	1312			
Duplicate_	MCG-	MW-10		7.16.0.49	1302			
Equipment Blank _	-			Time				
Duman	Peak	Oumo						
Purging Method			d numn		Dia	meter and Ty	pe of Casing	1.25"
Pumping Start		/ dedicated	и ритр	Annroxim		THE RESIDENCE OF STREET	Below MP (ft.)	
Purge Rate (gal./min.)		-					selow MP (ft.)	
Pumping End		-		Wicasa			selow MP (ft.)	
rumping Lifu_	13/2					e (if frozen) E		12112
Pump Set Depth Beld	MP (ft )	12.7			Depth to to		Nater in Well	2.46
		3.0						0.00
A ' TruPoly	Tubing (ft.)	350					allons in Well	
for pump TruPoly	ubing (it.)	023.0					Volume (gal.)	
				Purae Wat	er Disposal	The state of the s	V	Q. J
Monument Condition_	nla			r digo vvac	Ci Diopodai	Ciric		
Casing Condition	casir	id paly	. 0	اد				
		)						
Wiring Condition (dedicated pumps)	nla							
Measuring Point (MP)	Top of Ca	asing (TOC)	М	Monun easuremen			/ Flushmount Tape measu	
Top-of-casing to mon	ument (ft.)				Data	alogger type	n/a	
Monument to ground s						gger serial #	n/a	
casing				Me		e length (ft.)	n/a	
Lock preser	t and one	rational				- 1-13-1 (117)		
T (4.0000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		outside of we	II.					
□ Well name I □ Evidence of								
Evidence of	moor jack	9						
Notes Well 4	ery st	ow to v	echar	ge A	Hemoti	ra to	ise YS	1 for
				)		Dan	ameters	
7						1		
V								
-			Salar and	Jakkal	ALL 0			
Annual State of the State of th			WELL CA	SING VOL	UMES			
Diameter of Well [ID-inches]		CMT	11/4	2	3	4	6	8
Gallons per lineal foot		0.000253	0.08	0.17	0.38	0.66	1.5	2.6

		Notes Lot	s of air in li	ne We	11 slowly r	echarging causing pump to purge as
	×	√ FIE	LD PARAMETERS [st	abilization c	riteria]	pump to purge as
ne	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
F	2.2	21.69	643	6.88	218.2	clear
0	119	19.23	637	7.15	202.9	clear
3	1.7	18 34	625	7.77	198.5	clear
6	1.5	18 68	626	7.26	197.5	clear
2	1.5	18,62	629	7,28	196,8	Clear
2	Somple					
_						
	-					
_						
			<del>                                     </del>			
					-61	
_						
						>I
ites;	Allema Volume Laboratory	sted Stable so purged.	parangeters, unal	ile to re	each tempe	raure Stabilization. >
	Analysis		Sample Containers		Preservatives	Dup
	PEAS					<u>M</u>
						旦
						_
						<u></u>
						<u>_</u>

Owner/Client	- Alas	Ka 05	T			Project No.	102219-015
Location	DNIR Prop	A vtro	dincent 4	o Kitch	<u></u>	Date	1/11/23
Sampling Personnel	(H5)	8/1/	0	17 17 12 1	7/6.	Well	MCG-MW-
Weather Conditions	Durchet	Air	Temp. (°F)	113	5	Time started	
				-10	Tim	ne completed	1410
Sample No.	MCG-MW-02	_	Time	1407	29		
Duplicate	I Water China		Time	_			
Equipment Blank			Time	_			
Pump	Peri-staltic						
	portable / dedica	ted pump		Di	ameter and Ty	pe of Casing	1.25
Pumping Start			Approxim		epth of Well B	선물 보고 그렇게 되지 않는 나는 그리고 없다.	
Purge Rate (gal./min.)					epth of Well B		
Pumping End					pth to Water B		
Fullipling Lift_	1709				ce (if frozen) E		11:6
Dump Cat Donth Bold	OW MD (ft ) 13 3			Deptil to I		Nater in Well	3.97
Pump Set Depth Bek		_				llons per foot	
Tru Poly	Tubing (ft.) 40,0 Tubing (ft.)	-				allons in Well	
TruPoly	rubing (it.)	_			Purge Water \		
			D \\/at		A CONTRACT NOT THE REAL PROPERTY.	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	9. )
Monument Condition	N/A		ruige vvai	л ызроза	I_GAC		
Casing Condition	Casing	only,	good				
Wiring Condition	NA						
(dedicated pumps)							
Measuring Point (MP)	Top of Casing (TOC)			ent type:	V	/ Flushmount / Tape measu	
and I	1	IV	leasuremen	method.	Rod & level	rape meast	li e
casing to grow	nd screace	12				3.40	
Top-of-casing to mon		12	-		talogger type		
Monument to ground s	urface (ft.)		3		ogger serial#_		
			Me	asured cal	ole length (ft.)_	n/a	
	nt and operational						
	legible on outside of	well					
Evidence of	f frost-jacking	100					
Notes							
	4	WELL CA	ASING VOL	JMES			
Diameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

Field Parameter Instrument Sample Observations	Y51 & Circle one: Parameters stabilized of > well volumes purged
Notes	Attempted stable parameters unable to seach ORP stabilization
/ /	FIELD PARAMETERS [stabilization criteria] >3 well volumes purged.

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
134 Ce	2.9	3.77	451	5.96	2608	Clear
1349	3.3	1,29	659	6,25	241,2	Subtle orange +In?
352	3.3	0.75	658	6.37	223,7	Clear
1355	3.4	0.60	661	6.47	268.5	Clear
358	3.3	0.50	660	6,58	196,0	Clear
401	3.3	6,50	660	6.49	190.0	Clear
404	3.4	0.50	Ce 61	6.52	181.0	Chear
407	Sample					
	7 7 7 7 7					
		· ·				

Laboratory -SGS Euro Cins

	Analysis	Sample Containers	Preservatives	Dup
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Owner/Client	Alack	a No	T			Project No.	102219-014
Location	Magazata	NAIP	Complex		-	T. P. L. P. S. S. M. J. S. S. S. S. S. S. S.	1/11/23
	CZH /R	Lu	Compre	200	_	Well	
Sampling Personnel			Temp. (°F)	In F		Time started	1500
Weather Conditions_	Overenst	All	Temp. (1)	10	Ti	me completed	1610
Sample No.	MCG-MW-T	03	Time	1604			
Duplicate -	MCG-MW-C		Time	-			
Equipment Blank			Time	-			
Pump	Peri - pump						
					iameter and T	ype of Casing	1.25
Pumping Start			Approxima			Below MP (ft.)	
Purge Rate (gal./min.)						Below MP (ft.)	15.18
			Wicdou			Below MP (ft.)	
Pumping End_	100.1					Below MP (ft.)	1.10
D O.t Dth Delt	MD (#1) 17 A			Depurto		Water in Well	5.42
Pump Set Depth Belo		_				allons per foot	
	Tubing (ft.) 3.0	_				Ballons in Well	
Peri pump TTUPOLY	Tubing (ft.) 30.0	_				Volume (gal.)	
The state of the s			D 14/-4	D:			510
	N/ /A		Purge vvate	er Dispos	al GAC		
Monument Condition	NA						
Casing Condition	Coising o	nly,	good				
Wiring Condition (dedicated pumps)	NA						
(acquaited parties)							
Measuring Point (MP)	Top of Casing (TOC,		Monum leasurement	ent type: method:		/ Flushmount /Tape measu	re
Grand to Casi	ng 1/11 0 1	77		D	atalogger type	n/a	
Top-of-easing to mon	iument (it.)	70	<del>-</del>		logger serial #		
Monument to ground s	surface (ft.)						
	4.0 8.0 1.0 8.0 6		ivie	asured ca	ble length (ft.)	n/a	
	nt and operational						
	legible on outside of	well					
Evidence of	f frost-jacking	1					
Notes 0	cled as in	NW-3"	on ca	Sing			
A							
		MELLO	ASING VOLL	IMES			
			ASING VOLU		1	6	8
Diameter of Well [ID-inches]		11/4	2	3	4		
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

Field Parameter Instrument	YSI	B	Circle one:	Parameters stabilized or >3 well volumes purged
Sample Observations	TYL			
Notes				
			./	

	<b>/</b>	✓ FIE	LD PARAMETERS [st	tabilization c	riteria] 🗸	
Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.1 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1540	1.1	11.70	479.2	5.88	250,7	Clear
1543	1.1	11,03	478.5	6.35	215.8	Clear
1546	1.2	10.61	479.3	6.5	203.1	clear
1549	(.)	10.56	479.5	Q.37	196,6	Clear
1352	1.2	10.28	479.3	6.65	189,6	Clear
1555	1.2	10,16	478.9	6.69	185,4	Clear
1558	1,2	10.16	478.4	6.68	182,2	Clear
1601	1.2	10,16	478.0	6.69	180.3	Clear
1604	Sample	7				
						*

Laboratory <del>SGS</del>	Eurotins		
Analysis	Sample Containers	Preservatives	Dup
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			旦
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			므

Owner/Client	Alask	a be	T		_	Project No.	102215-015
Location	McGrath	DNR	Complex				01/11/23
Sampling Personnel	CZH /KI					NAME OF THE PERSON OF STREET	MEG-MW-0
Weather Conditions	Overcast	Air	Temp. (°F)	1001	_	Time started	1646
					Tim	e completed	1725
Sample No. Duplicate Equipment Blank	MCG-MW	-OH	Time _ Time _ Time _	1715			
Monument Condition	0.1 1718 ow MP (ft.) 17.0 Tubing (ft.) 2.0 Tubing (ft.) 25.6		Measur Purge Wate	ate Total ed Total D Depth to	Gal Ga Purge Water V	elow MP (ft.) elow MP (ft.) elow MP (ft.) elow MP (ft.) Vater in Well lons per foot llons in Well Volume (gal.)	1,25" 15,18 12,14 3,04 0,08 0,24 2,3
Casing Condition	Casing C	Daly.	OKAL				
	7		1				
Wiring Condition (dedicated pumps)	N/A						
Measuring Point (MP)		Me	Monume easurement	ent type: method:	Stickup / Rod & level /	Flushmount Tape measu	re
	ument (ft.) ~ 1.	3		D	atalogger type	n/a	
Monument to ground s	surface (ft.)				logger serial #	n/a	
□ Lock preser	nt and operational	2	Mea		ble length (ft.)		
	legible on outside of we f frost-jacking	ell .					
Notes							
		WELLOA	SING VOLU	MES			
Diameter of Well IID in the	CMT		SING VOLU	TT-1	1 7 1	e I	0
Diameter of Well [ID-inches]		11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

/	Notes	LD PARAMETERS [st	rabilization of	eritorial /	
Temp. (°C) Time [± 3%]	Dissolved Oxygen (mg/L)	Conductivity (µS/cm) [± 3%]		ORP (mV) [± 10 mV]	Water Clarity (visual)
100 -0.1	10,1	Co 21	6.76	180,1	Clear
103 -0.1	G113	G15	7.50	179.9	Clear
06 -0.1	5.36	610	6.77	179.5	Clean
09 -0,1	5,25	Q08	6.76	179,1	Clean
12 -0:1	5.17	6060	6.76	178,6	Clear
15 Sample	e				

Laboratory	ees-	Eurofins

	Analysis	Sample Containers	Preservatives	Dup
25	PFAS		•	므
므				므
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#### FIELD ACTIVITIES DAILY LOG

	Date 1/10/23 Sheet of
	Project No. 102219-015
Project Name: McGrath DOT+PF PFAS	
Field activity subject: PW Search	
Description of daily activities and events:	
0.830 Prep field equipment	
0930 RLW + CZH depart for Hotel today to discuss Toured. Unable to connect	sampling w/
0950 Arrive @ ADF+G building, Sampled	
1045 Called Jared to connect wil DOT. Steffan is	on varation
Shawn Lea from Bethel is filling in Ri	
DOT new construction has well plumbed to be	ulding
CZH purge + sample well	
Visit AC Store + Health center. No wells	
RLW+CZH Visit gas station (Northern Petroles	um Services)
sample well. Riw chous we power about 0.	s tother wells
called City Administrator Sarah to sche	
sample city water in (pre-treatment) R	
aropped off paperwork/into handouts to	city,
	ISCUSS DURY BLM
	and spils.
3 MWs present on aim property 2-in PUC	wells.
RLW + CZH will attempt sampling following day	<del></del>
1600 Return to lodging. Begin paperwor	ke
Visitors on site:	
Changes from plans/specifications and other special orders and important decisions:	
Weather conditions: OPF Overcast	
Important telephone calls:	
Personnel on site: QIWI. CZH	
Personnel on site: RLW, CZH Signature:	Date:
oignature.	Date.



## FIELD ACTIVITIES DAILY LOG

Date 1/11/23 Sheet v of 1
Project No. 102219-015
Project Name: McGrath DOT PFAS
Field activity subject: DW / MW Sampling
Description of daily activities and events:
0830 Calibrate 481 B+F
0900 MRW - CZH called KRF to update sampling
Prepipack equipment
0950 Arrive o city admin building (Cap'n Snow Center)
to meet Sarah Anderson, city administrator to go
RW+ CZH meet # Teddy + Chris (water treatment
plant operators for brief plant tour.
Purge - sample from pre-treatment location.
1100 Return to lodging to pack Monitoring well sampling.
1130 Arrive @ DNR property to sample MWs. Unable to
power mws w truck battery. Visit DOT station to navin
about extra battery. Called Jerod,
1230 Meet Jerod to pick up battery
Return to site. Begin purginar MMCG-MW-01 + Sampled
Purge and sample MCG-MW-002 (Wells near Ritchen house)
1430 CZH returns to lodging to pick up sted to have gear
Sample MW-03 + MW-04. RIW treats surge water of GAC
with GAC. Purge water freezing.
VBW TOO Pack Up equipment.
1830 Return to lodging Unpack.
The state of the s
Visitors on site:
Changes from plans (an edification and other contillation and the contil
Changes from plans/specifications and other special orders and important decisions:  Batteries   Sled
Weather conditions: 5-10°F, Snow in AM, Overcast in PM
Important telephone calls:
Personnel on site: PLW, CZH AD Date: 1/11/23

YLP

## FIELD ACTIVITIES DAILY LOG

Project Name: McCrath PFAS  Field activity subject:  Description of dally activities and events:  0830 Prepare equipment Callibrate YSL F  0915 & PLW + CPH Isray Speevings sampling of KRF  0915 Left ladging to About continue well exarch  KSKO radio statum staff Paul walker wanted PLW + CPH  to introduce ourselves in air  PLW called KRF to discuss State Som PR team would prefer  KSKA to read a statement to adhere to guidelinest  RLW informed Paul that way to adhere to guidelinest  RLW informed Paul that way to adhere to guidelinest  RLW informed Paul that way to adhere the guidelinest  RLW informed Paul that way to the for info to City Admir  Togged home by post office sheneina to Dagna  1800 Return to ladging to way a overast cloudy  Important telephone calls:  Personnel on site: PLW (2H) A CHI		Date $1/12/23$ Sheet of 1
Project Name: Michael PAS  Field activity subject:  Description of daily activities and events:  0830 Prepare equipment Calibrate Yolf  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  0915 Se PLW - Czet discuss previous Sampling of KRF  09		Project No. 102 219 -01
Description of daily activities and events:  0830 Prepare Equipment Calibrate YSLE  0945 See Elw Cert discuss previous sampling wil KRE  0945 Left lodging to Abart continue well rearch  KSKO radio statum stoff faul Walker wanted Elw+C2H  to introduce ourselves on air  RIW called KRE to discuss state son per team would prefer  KSKA to read a statement to adhere to guidelines  RLW informed faul that my fault well well entered for son son and the able to the son of the calle to the state of the st	The second second second	me: McGrath PLAS
0830 Prepare equipment Calibrate YSI F 0915 SELLE + CZH dISCUSS previous sampling w/ KRF 0945 Left lodging to that continue well grarch KSKO radio station state continue well grarch KSKO radio station state all walker wanted ELW+CZH to introduce ourselves on air ELW called KRF to discuss Son DR team would prefer KSKA to read a statement to adhere to guidelines RLW informed Paul that impredicted we would not be able for the structures present left multidoor tags. Attempted to visit school district office for info + CityAdmir Togged home by post office whenever to Doging 1800 Return to lodging y unpack  Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions: 15°F Snowy + overcast cloudy  Important telephone calls:  REF  Personnel on site:  Personnel		the state of the s
0915 St. PLW + Czt discuss previous sampling with KRE 0945 Left lodging to the continue well pearch KSKO radio statuen staff Paul Walker wanted PLW+Cztt to introduce currectives on air RLW culled KRE to discuss, the son pe team would prefer KSKA to read a statement to adhere to guidelines. RLW informed Paul that wantedpassed we would not be able to the sons. Continued well search in neighborhood by AC store. Multiple structures present Left multi-door tags. Attempted to visit school district office for info + CityAdmir Tagged home by post office schenena + Traguen 1800 Return to lodging + unpack.  Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions: 15° E snowy + overast cloudy  Important telephone calls:  REF  Personnel on site:  Personnel on s	a series at the series of	
D945 Left lodging to stand continue well reach  KSKO radio station staff Paul Walker wanted PLW + C2+H  to introduce ourselves on air  RIW called KRF to discuss, the son PR team would prefer  KSKA to read a statement to adule to guidelines  RLW informed Paul that manufactures and we would not be able to the son of the structures present Left multi-donr tags.  Attempted to visit school district office for info + City Admir  Tagged home by post office schenena + Tragun  1800 Return to lodging + unpack  Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  Is F snowy + overast cloudy  Important telephone calls:  KRF  Personnel on site:  Personnel on		
KSKO radio statem staff Paul Walker wanted PLW+C7+H to introduce ourselves on air PLW called KRF to discuss the SOA DR team would prefer KSKA to read a Statement to adher to guidelines RLW informed Paul that wanted association we would not be able to this. Continued well starch in neighborhood by AC store. Multiple structures present left multi-door tags. Attempted to visit school district office for info of CityAdmir Tagged home by post office sheneina to Tragium Toes Par 1800 Return to lodging to unpack  Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  15° F Snowy to vertast cloudy  Important telephone calls:  KRF  Personnel on site:  Perso	N. 1	
to introduce ourselves on air  RIW actied KRF to discuss the son PR team would prefer  KSKA to read a statement to adhere to guidelines  RLW informed Paul that wayned accepted we would not be able to the ons.  Continued well starch in neighborhood by AC store.  Multiple structures present Left multi-door tags.  Altempted to visit school district office for info of City Admir  Togged home by post office scheneine to Toegun  1800 Return to lodging to unpack  Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  15° F Snowy to overcast cloudy  Important telephone calls:  KRF  Personnel on site:  Personnel on si	0945	
RIW called KRF to discuss the son PR team would prefer KSKA to read a statement to adjuse to guidelines.  RLW informed Paul that improvement we would not be able to the constitute of the const		
KSKA to read a statement to adhere to guidelines RLW informed Paul that waynessed we would not be able to the Continued well search in neighborhood by AC store. Multiple structures present Left multi-dopr trags.  Altempted to visit school district office for info t City Admir  Tagged home by post office abeneva t Traguer  1800 Return to lodging t unpack  Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  Iso F snowy to overast cloudy  Important telephone calls:  REF  Personnel on site:  REF		
Continued well search in neighborhood by AC store.  Multiple structures present left multi-door tags.  Altempted to visit school district office for info of City Admir  Tagged home by post office abending to Doagua.  1800 Return to ladging t unpack  Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  15° F Snowy to overcast cloudy  Important telephone calls:  REF  Personnel on site:  Person		LEVA 1 - 1 - Chileran - 1 1
Continued well search in neighborhood by AC store.  Multiple structures present left multidoor tags.  Attempted to visit school district office for info + CityAdmir Tagged home by post office cheneina + Toagian Toe's Bar 1800 Return to lodging + unpack.  Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  Iso F snowy + overcast/cloudy  Important telephone calls:  REF  Personnel on site:  REF		RLW informed paul that way regression we would not be able to tall
Aftempted to visit school district office for info + CityAdmir  Tagged home by post office chenana + Joaquan  1800 Return to lodging + unpack  Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  Iso F snowy + overast cloudy  Important telephone calls:  REF  Personnel on site:  REF  Personnel on site:  REF		Continued well search in neighborhood by AC store.
Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  Iso F snowy + overast/cloudy  Important telephone calls:  REF  Personnel on site:  RW, CRH  REF  Personnel on site:  RW, CRH  REF  REF  REF  REF  REF  REF  REF  R		Multiple structures present left multiple door tags.
Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  Iso F snowy toverast cloudy  Important telephone calls:  KRF  Personnel on site:  Pew, CAT M. C.		Attempted to visit school district office for info of City Admin
Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  Iso F snowy + overcast cloudy  Important telephone calls:  KRF  Personnel on site:  RW CAT M. C. C.		Tagged home by post office, wheneve + Joaquest
Visitors on site:  Changes from plans/specifications and other special orders and important decisions:  Weather conditions:  I 5° F Snowy + overast   cloudy  Important telephone calls:    KRF     Personnel on site:   RW CAT   M C	1800	
Changes from plans/specifications and other special orders and important decisions:  Weather conditions:		
Changes from plans/specifications and other special orders and important decisions:  Weather conditions:		v v v v v v v v v v v v v v v v v v v
Changes from plans/specifications and other special orders and important decisions:  Weather conditions:		
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Changes from plans/specifications and other special orders and important decisions:  Weather conditions:	70.0	
Weather conditions: 15° F Snowy + overcast cloudy  Important telephone calls: KRF  Personnel on site: RW CH M	Visitors or	n site:
Weather conditions: 15° F Snowy + overcast cloudy  Important telephone calls: KRF  Personnel on site: RW CH M	Changes fr	rom plans/specifications and other special orders and important decisions:
Important telephone calls: KRF  Personnel on site: RW (XY)	C. C	san planty speciments and other special orders and important decisions.
Important telephone calls: KRF  Personnel on site: RW (XY)		
Important telephone calls: KRF  Personnel on site: RW (XY)		
Personnel on site: RW (XY)	Weather o	conditions: 15°F snowy + overcast/cloudy
	Important	telephone calls:
	Personnel	on site: RLW CAH
TOTAL CONTRACTOR OF THE PARTY O	Signature:	



## FIELD ACTIVITIES DAILY LOG

	Date 1/13/23
	heet ofl
Project Name: McGrath DOT+PF PFAS	et No. 102219-015
Field activity subject: PW Search  Description of daily activities and events:	
0830- Pack equipment Cal. YSI F	
0915 - ALW - CZH depart lodging.	
Continue well search on Joaquin / Hub Rd	
Visit Ephram Andrews, wells on current + sold prof	perties.
Meet Adam Mckeey's Father - Chris Mckee. Lived in Me	Grath for
30 yrs or had a lot of knowledge of wells. Said his Very friendly + would be willing to give addtl follows a	s was silted in.
1200 Visit by Village Council community center to a	nat w/ Adam
and pick up list of people w/ wells.	
Adam says garden wells were installed by Joe	Collins
1230 RLW + CZH chatted w/ Joel in his home	
Per Juel's knowledge, the only person who may	be consuming
water is Mike Harrington (In Search Area 2)	J.
1300 Visit muslum + pack equipment	
1400 Arrive a Magrath terminal,	*
\$2100 Arrive back to fairbanks	
	,e'
Visitors on site:	
Changes from plans/specifications and other special orders and important decisions:	
Weather conditions: 5-10° F, Overcast	
Important telephone calls:	la
Personnel on site: RLW, CAH	
	Date: 1/13/73
	11.0/63

RW Lord 907-799-5582 Achley + Tim JOB NAME LIST of Parcels MCG JOB NO. 102219 - 0165 SUBJECT Statewide PFAS DATE 1/9-1/13/23 SHANNON & WILSON, INC. Geotechnical and Environmental Consultants BY RLW/CZH CHK'D SHEET____ MCG-001 ADFG Building (Owned by Mansly) (See Well-form) Hangar adjacent to ADF+G Building MCG-002 Owner: Robert Alany 574-0337. Magnuson "Mansey" No well per ADFOG, confirme wy Mansey MCG-003 New DOT Main shop (SREB) Well connected to system Steffan Strick is contact (see well form) DOT+PF Sand building. No well MCG-004 McGrath Regional Attenth center 10 (99627) MCG-005 Tenishia (Reception) AVADES NAVOUSES Airport building/hangar. Metal Structure my for sale sign. Not plowed MCG-006 andansa hangor/ hut. (HAMA) (Cloud be FAA - Tanana Air Service) Ben Magnison - V MCG-007 Airport building McGrath Air Terminal (Reeve/NAC) 907-444-3805 Has a well (see 69) Airline Services MCG-008 Airport building leased to Wildlife troper. Looked in building No sink MCG - 009 Small brown building in white trim. Not plowed shoreled ONR Forestry info sheet on building. In front of -odo Wooden / cabin looking building next to cop, In front of ook MCG-010 Not plowed No shareling/ Footpath. Missing door. MCG-OIL 3 small structures up DOF vehicles. Not placed. No current occupants Old loung. Only used for smoke sumpers in summer/storage. No well per Duane Olive-green house building. Windows borded up, fartially plowed for other MCG-01Z property access. Footputh in snow, appears unoccupied. Leads to small cabin village. (BLM/ONR Fire village for seasonal emp) This is main state building for Dof. See notes on well log. March - Oct. * Nocheck Duane & MCG-013 Five-plex owned by Hotel McGrath, City water PO BOY 173 MCG 99627. Jerad 907-744-447) Hotel # 907- 524- 3051 MCG-014- moderate foot path grant ran briding Didn't drop tag Next to Freplex on Chenana Doesn't appear occipied for winter thater Address same -awned by hotel MCB per Jerad as + 013

SHANNON & \ Geotechnical and	VILSON, INC.	JOB NAME MCG P SUBJECT STATEMIN BY RUW / CZY	de PFAS	JOB NO. 102215-01#5 DATE 1/9-1/13/2 SHEET 2 of
- MCG-015	Church - McGra	ith Communit	y Church	No well per - 04
McG- 016	Mc Grath School Idiatars of Arce	Building Cochool Distr	nct. Maint.	ahan (Red) Tim Simh
	PO BOX 90	MCG 99627	(Rontact	info from IASD website
Ta	McGrath Native 1 1Ked to kimberley W	ortman x 102	Tribal Adn	rin
E	in might know more	(105) No we	11 per their k	nowedge
MCG-018	Prettylog home uj 4. Former home of Sall	ellow siding Sus ly Jo Collins (d	pect well per eceased)	r community. Left teg
- MCG+ 019	Wooden structur	e house. Na	- ploured Isnav	eled. Not tag attempt
McG-OZO	Contact steve &	m for in	fo. (907) 52	nool Dist Office 4-1217. Tried to call didn't work
		braham		91011000
-V MCG-021	Gas Station (Gan Has awell, Loc PHSO is coffee	ated under s	tore only	cent 2 garages in Front. B one in area blc permatrost (See well log)
MCG-02Z	AC Store To Mgr's knowled	unya (Store Mgr dge 175 M	) No well,	city water only per 07-524-3688
- MCG-023	Hotel McGrath PO Box 173			<del>(6) 91</del> 6
	City Admin Build Location of City			
- WCG-025	Clothing Excha	nge Store	'Used Clot	thing Distribution Center
- MCG-026	McGuire's Tave	ern + Liquer	Store	
- MCG-027	Mustard Yellon No tac	, while trum athempt	(Near liquor sto	-e)

SHANNON & W	II SON INC		nde PSAS	JOB NO. 102219-015 DATE 1/9-1/13/23
Geotechnical and F	Environmental Consultants	BY RUN COST	CHK'D	SHEET of
MCG-028	Blue-Gray	structure (N	ext to Iditarod 1	Roadhouse)
MEG-029	907-538-5	5550	2 Iditarod Nave a well	Trail Roadhouse
MCG-030	While structure	behind Warcho		
- MCG-031	Next to 030. 16	Broken Window (	Storage?)	
- 1 MCG-032	KSKO Radio St No well Paul Street 70 Ch	ration Red b Walker 524 enana Are	ulding -3001 POE om. Ksko	1236 30x 70 29 mail.com
MCG-033	i i i i i i i i i i i i i i i i i i i	garooge (1 Per Squ US outside	likely FAA) line taulding.	Not located dur
_ MCG-034	Green buildin	g. White trim		VIS#
MCG-035	Gray-white of		7	da
-1mcg-036	Log cabin be Sturage for		tron olumbing/well	
- MCG-0307	Squire's		arp on side, weath	near er service

<b>I</b> ≡W		JOB NAME MCG	_ JOB NO. 102219-015
SHANNON &	WILSON, INC.	SUBJECT Statewide PFAS	_ DATE
Geotechnical an	d Environmental Consultants	BY RUN CON CHK'D	SHEET of
MCG-038	Log mane wh	nite tram. St. Michael's 907-9524-3922 See form	Catholic Church
/MCG-039	907-524-30 Five Common	gut + Power, Louis Eg Dog Poblox 52 Spill Expanded Water Is abandoned.	rass v service 1980s
- MCG - 040	log home. 3	Kids home Parents working @ 3	school or green building
/ MCG-041	Not placed	nouse (in front of 40) or shoreld. Appears unoc TNT complex. House 4)	cupie
1 MCG-042	McGrath local of Shir	(Z-story) www MTNT fice - 907-BOTH	Native corp (McGrath) 1 524-3009/ -3391
1 and 11 CB - 043	Mult. houses , No wells left	story Red house next	TO MAYO
40+473 WS	Mike Tierney.	907. 524-3922 PO & while returning from groceries.	community center
McG-044 8		t want to provide any other it kids. No men 1711.	
-1 MCG-045	Tan wooden h Talked to occupi	nouse. ant. No well	
- VMCG-046	Novell Clinton	spafford. Said theek w	inlaws next do
-/ or mcca - pr	17 Log home See Well	next to 46. Unsure. left	contact info

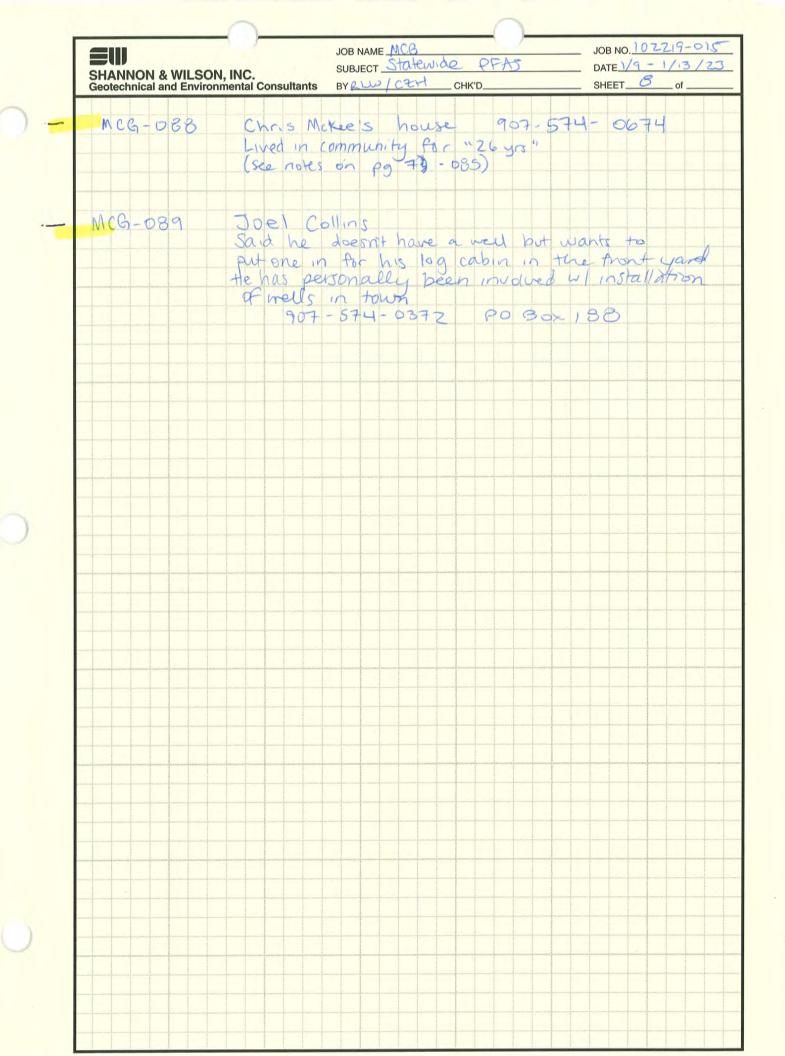
SHANNON & WIL	SON INC	JOB NAME MCG SUBJECT Statewide PFAS	JOB NO. 10221 9 - 0  DATE
Geotechnical and En	vironmental Consultants	BY RLW (CZH CHKD	SHEET of
MCG-048	Mo	rgie (M) Morgan te house W/ 113ht	
MCG-049	che gra very nie	Schne derheinze en house mut shed	s. No wells
MCG-050	Inoko W Left ta	North Wildlife Refuge.	
McG-051	Old shop/g	arage minot ploved	1/shoveled
MCG-052		Alice Magnuson. 90 ser tender	
MCG-053	Innoko Lo.	dge Mansey Magni o remployee) o remed Re	us on Lucy's knowled
MCG-05H	City	(See Well Log) than	Has parden w
MCG-055	Post offi	ce No Wellper e	mployee
MCG-056	Egrass	(Not home) May have	e a well per post
MCq-057	Rosaline have a	Egrass. No vey. Also	claims -056 doesn'
MCG-058		No well	
MCG1 - 059 MCG + 068		dost. Left tag	
MCG+068	Tosh Peire	rce house (labeled c	obler outside)

	<b>SU</b>	J	OB NAME M.CG	JOB NO. 102219-015 DATE 1/9-1/13/23		
	SHANNON & WILSON, II	VC.	SUBJECT Statewide		SHEET 6	
	Geotechnical and Environme	ntal Consultants B	SY CHK	70	SHEET	01
-	MCG-061. Ken	-Barbi	Danidor (K'	City Water		
-		il and thr	n's Coriel	toonager pres		unknown
-		eft a door				
-			1, No tog			
-			Stellen stice	t. Outof	Hown	
-	MCG-066 N	at planed,	No tag			
_		No well, s				
-	1000		-uch friend	of Deane	H	Batt
		No well	907-574	-0272	6	as a well
_	MCG-069	Not planed	, No tag			
·	M(G-070	Nowell Glaie's r	per person nouse confin	mad no re	er er	
-	mcG-071	Andrew 7	albot C. Store c	uners how	se	
- 4	MCG-072	Noomi on	No well, a Nester Note well survey	one K		
-	MCG-073	Robert House	"Mansey" t snop.	Callin		0337
-	MCG-074	Green h	iouse Misting	undout u	nder co	nstructor
-	MCG-075	Oraneje left	brown ho	orge +/ po	reendin	poon
-	MCG-OH	Light 61	re nouse with	ark blue to	m	
)_	MCG-077	Mystard brown	on-yellow house	minimal down	ng Not an	ccess.ble
-	MCG-678	real how	Left tag			

JOB NAME MCG JOB NO. 102219-015 SUBJECT Statewide PFAS DATE 1/9-1/13/23 SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants BY PLUNICATE CHK'D_ Leonard MC6-079 Red house parant moreus No well. Explained survey Ephrem Andrews Garden Well See Log. Also Selling grop, on River wy Mc01-080 No vehicle tracks Bue house Notag. MCG-081 Wooded capinal white paint missing window 14 horneling to Nell Dark shre home CEH talked to owners & presume city water MCG-082 MCG-083 No tracks. Plowed a while ago No try real-green house on river. Door snowed in MCG-084 City water. Unfriendly. No name Dry Theresa Fox Had well cared in MCG- 085 No casing Abandoned Sc 574-6674 Compound we Red law log home + other MCG-086 Manseys rental Log home ul Red rout Compound of mult. structures across red from this Ackeep house. No well Lady Cashier@

AC Store lives in green house

Owned by Grace Holmberg MCG-087 More noves from - 085 on 1/19/23 phone call Grace Holmbers old lady living in ANC. Might be old well - Chris haul from city Soel has well likely on his property. On city water 1984 or 1988 People who were upset in water bill had connection removed + Use disterns or haw wells. - Plant is designed for 1000 people.



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# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Kristen Freiburger Shannon & Wilson, Inc 2355 Hill Rd. Fairbanks, Alaska 99709-5244

Generated 2/13/2023 2:08:07 PM

# **JOB DESCRIPTION**

McGrath PFAS

# **JOB NUMBER**

320-96053-1

Eurofins Sacramento 880 Riverside Parkway West Sacramento CA 95605



# **Eurofins Sacramento**

#### **Job Notes**

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northern California, LLC Project Manager.

#### **Authorization**

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Authorized for release by David Alltucker, Project Manager I David.Alltucker@et.eurofinsus.com (916)374-4383

Client: Shannon & Wilson, Inc Project/Site: McGrath PFAS Laboratory Job ID: 320-96053-1

# **Table of Contents**

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	8
Isotope Dilution Summary	19
QC Sample Results	20
QC Association Summary	23
Lab Chronicle	24
Certification Summary	26
Method Summary	27
Sample Summary	28
Chain of Custody	29
Receipt Checklists	31

### **Definitions/Glossary**

Client: Shannon & Wilson, Inc
Project/Site: McGrath PFAS

Job ID: 320-96053-1

Qualifiers

**LCMS** 

Qualifier Description

Value is EMPC (estimated maximum possible concentration).

J Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

**Glossary** 

Abbreviation These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

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#### **Case Narrative**

Client: Shannon & Wilson, Inc
Project/Site: McGrath PFAS

Job ID: 320-96053-1

Job ID: 320-96053-1

**Laboratory: Eurofins Sacramento** 

Narrative

Job Narrative 320-96053-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 1/17/2023 6:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.6° C.

#### **LCMS**

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte.

MCG-MW-03 (320-96053-4)

Method EPA 537(Mod): Results for sample MCG-MW-02 (320-96053-3) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **Organic Prep**

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-648221.

320-648221

Method: PFC_IDA_B15

Matrix: Water

Method 3535: The following sample in preparation batch 320-648221 was observed to be yellow and contain a thin layer of sediment present in the bottom of the bottle prior to extraction. MCG-003 (320-96053-7)

320-648221

Method: PFC_IDA_B15

Matrix: Water

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Client: Shannon & Wilson, Inc
Project/Site: McGrath PFAS

Job ID: 320-96053-1

Client Sample ID: MCG-MW-01 Lab Sample ID: 320-96053-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	25		1.9	0.55	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.3		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	6.0		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	14		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: MCG-MW-101

Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	24	1.8	0.51	ng/L		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.3	1.8	0.22	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.4	1.8	0.18	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	13	1.8	0.50	ng/l	1	FPA 537(Mod)	Total/NA

**Client Sample ID: MCG-MW-02** 

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	65		1.8	0.51	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	32		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	55		1.8	0.75	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	18		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	450		8.8	2.5	ng/L	5		EPA 537(Mod)	Total/NA

Client Sample ID: MCG-MW-03

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.6		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.27	J	1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.8		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.82	JI	1.8	0.50	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: MCG-MW-04

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.64	J	1.9	0.54	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.39	J	1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: MCG-001

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.2		1.6	0.48	ng/L		_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.26	J	1.6	0.21	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.7		1.6	0.16	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.6		1.6	0.47	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: MCG-003

Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.8	1.7	0.49	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.8	1.7	0.21	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	5.5	1.7	0.72	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.6 J	1.7	0.48	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

**Eurofins Sacramento** 

Page 6 of 31 2/13/2023

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Lab Sample ID: 320-96053-2

Lab Sample ID: 320-96053-3

Lab Sample ID: 320-96053-4

Lab Sample ID: 320-96053-5

Lab Sample ID: 320-96053-6

Lab Sample ID: 320-96053-7

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# **Detection Summary**

Client: Shannon & Wilson, Inc Job ID: 320-96053-1

Project/Site: McGrath PFAS

**Client Sample ID: MCG-007** Lab Sample ID: 320-96053-8

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.4	1.7	0.48 ng/L		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.71 J	1.7	0.17 ng/L	1	EPA 537(Mod)	Total/NA

**Client Sample ID: MCG-021** Lab Sample ID: 320-96053-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.1		1.8	0.51	ng/L	1	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.3	J	1.8	0.22	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	3.9		1.8	0.74	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J	1.8	0.18	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.0		1.8	0.50	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.7		1.8	0.47	ng/L	1	EPA 537(Mod)	Total/NA

**Client Sample ID: MCG-024** Lab Sample ID: 320-96053-10

No Detections.

Client Sample ID: MCG-124 Lab Sample ID: 320-96053-11

No Detections.

Client: Shannon & Wilson, Inc Job ID: 320-96053-1 Project/Site: McGrath PFAS

Client Sample ID: MCG-MW-01

Date Received: 01/17/23 18:30

13C3 HFPO-DA

Lab Sample ID: 320-96053-1 Date Collected: 01/11/23 13:12

**Matrix: Water** 

Analyte	Result Q	ualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	25	1.9	0.55	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluoroheptanoic acid (PFHpA)	2.3	1.9	0.24	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluorooctanoic acid (PFOA)	ND	1.9	0.81	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluorononanoic acid (PFNA)	ND	1.9	0.26	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluorodecanoic acid (PFDA)	ND	1.9	0.30	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluoroundecanoic acid (PFUnA)	ND	1.9	1.0	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluorododecanoic acid (PFDoA)	ND	1.9	0.52	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluorotridecanoic acid (PFTriA)	ND	1.9	1.2	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluorotetradecanoic acid (PFTeA)	ND	1.9	0.70	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluorobutanesulfonic acid (PFBS)	6.0	1.9	0.19	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluorohexanesulfonic acid (PFHxS)	14	1.9	0.54	ng/L		01/19/23 20:22	02/03/23 19:12	1
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	0.51	ng/L		01/19/23 20:22	02/03/23 19:12	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.8	1.1	ng/L		01/19/23 20:22	02/03/23 19:12	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.8	1.2	ng/L		01/19/23 20:22	02/03/23 19:12	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	1.9	0.23	ng/L		01/19/23 20:22	02/03/23 19:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	3.8	1.4	ng/L		01/19/23 20:22	02/03/23 19:12	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	1.9	0.31	ng/L		01/19/23 20:22	02/03/23 19:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	0.38	ng/L		01/19/23 20:22	02/03/23 19:12	1
Isotope Dilution	%Recovery Q	ualifier Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	86	50 - 150				01/19/23 20:22	02/03/23 19:12	1
13C4 PFHpA	95	50 - 150				01/19/23 20:22	02/03/23 19:12	1
13C4 PFOA	87	50 - 150				01/19/23 20:22	02/03/23 19:12	1
13C5 PFNA	90	50 - 150				01/19/23 20:22	02/03/23 19:12	1
13C2 PFDA	87	50 - 150				01/19/23 20:22	02/03/23 19:12	1
13C2 PFUnA	87	50 ₋ 150				01/19/23 20:22	02/03/23 19:12	1
13C2 PFDoA	77	50 - 150				01/19/23 20:22	02/03/23 19:12	1
13C2 PFTeDA	76	50 ₋ 150				01/19/23 20:22	02/03/23 19:12	1
13C3 PFBS	62	50 ₋ 150					02/03/23 19:12	1
18O2 PFHxS	84	50 - 150				01/19/23 20:22	02/03/23 19:12	1
13C4 PFOS	79	50 ₋ 150				01/19/23 20:22	02/03/23 19:12	1
d3-NMeFOSAA	77	50 - 150					02/03/23 19:12	1
d5-NEtFOSAA	83	50 - 150				01/19/23 20:22	02/03/23 19:12	1
4202 UEDO DA	400	50 450				04/40/02 00:00		

01/19/23 20:22 02/03/23 19:12

50 - 150

Client: Shannon & Wilson, Inc Job ID: 320-96053-1 Project/Site: McGrath PFAS

Client Sample ID: MCG-MW-101

Date Received: 01/17/23 18:30

13C3 HFPO-DA

Lab Sample ID: 320-96053-2 Date Collected: 01/11/23 13:02

**Matrix: Water** 

Analyte	Result (	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	24		1.8	0.51	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluoroheptanoic acid (PFHpA)	2.3		1.8	0.22	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.75	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.27	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.1	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluorobutanesulfonic acid (PFBS)	5.4		1.8	0.18	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluorohexanesulfonic acid (PFHxS)	13		1.8	0.50	ng/L		01/19/23 20:22	02/03/23 19:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		01/19/23 20:22	02/03/23 19:22	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		01/19/23 20:22	02/03/23 19:22	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.4	1.1	ng/L		01/19/23 20:22	02/03/23 19:22	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.21	ng/L		01/19/23 20:22	02/03/23 19:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		01/19/23 20:22	02/03/23 19:22	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.28	ng/L		01/19/23 20:22	02/03/23 19:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		01/19/23 20:22	02/03/23 19:22	1
Isotope Dilution	%Recovery (	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	84		50 - 150				01/19/23 20:22	02/03/23 19:22	1
13C4 PFHpA	95		50 - 150				01/19/23 20:22	02/03/23 19:22	1
13C4 PFOA	88		50 ₋ 150				01/19/23 20:22	02/03/23 19:22	1
13C5 PFNA	88		50 ₋ 150				01/19/23 20:22	02/03/23 19:22	1
13C2 PFDA	90		50 ₋ 150				01/19/23 20:22	02/03/23 19:22	1
13C2 PFUnA	88		50 ₋ 150				01/19/23 20:22	02/03/23 19:22	1
13C2 PFDoA	81		50 - 150				01/19/23 20:22	02/03/23 19:22	1
13C2 PFTeDA	82		50 ₋ 150				01/19/23 20:22	02/03/23 19:22	1
13C3 PFBS	61		50 ₋ 150				01/19/23 20:22	02/03/23 19:22	1
1802 PFHxS	87		50 ₋ 150				01/19/23 20:22	02/03/23 19:22	1
13C4 PFOS	80		50 ₋ 150				01/19/23 20:22	02/03/23 19:22	1
d3-NMeFOSAA	84		50 - 150				01/19/23 20:22	02/03/23 19:22	1
d5-NEtFOSAA	87		50 ₋ 150				01/19/23 20:22	02/03/23 19:22	1

Page 9 of 31

50 - 150

102

01/19/23 20:22 02/03/23 19:22

Client: Shannon & Wilson, Inc Job ID: 320-96053-1

Client Sample ID: MCG-MW-02

Project/Site: McGrath PFAS

1802 PFHxS

Date Received: 01/17/23 18:30

Lab Sample ID: 320-96053-3 Date Collected: 01/11/23 14:07

**Matrix: Water** 

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 Analyte Result Qualifier RL **MDL** Unit D Prepared Analyzed Dil Fac Perfluorohexanoic acid (PFHxA) 1.8 0.51 ng/L 01/19/23 20:22 02/03/23 19:33 65 Perfluoroheptanoic acid (PFHpA) 32 1.8 0.22 ng/L 01/19/23 20:22 02/03/23 19:33 Perfluorooctanoic acid (PFOA) **55** 1.8 0.75 ng/L 01/19/23 20:22 02/03/23 19:33 ND Perfluorononanoic acid (PFNA) 1.8 0.24 ng/L 01/19/23 20:22 02/03/23 19:33 Perfluorodecanoic acid (PFDA) ND 0.27 ng/L 01/19/23 20:22 02/03/23 19:33 1.8 Perfluoroundecanoic acid (PFUnA) NΠ 18 0.97 ng/L 01/19/23 20:22 02/03/23 19:33 Perfluorododecanoic acid (PFDoA) ND 1.8 0.48 ng/L 01/19/23 20:22 02/03/23 19:33 Perfluorotridecanoic acid (PFTriA) ND 1.8 01/19/23 20:22 02/03/23 19:33 1.1 ng/L Perfluorotetradecanoic acid (PFTeA) ND 1.8 0.64 ng/L 01/19/23 20:22 02/03/23 19:33 Perfluorobutanesulfonic acid 1.8 0.18 ng/L 01/19/23 20:22 02/03/23 19:33 18 (PFBS) Perfluorooctanesulfonic acid (PFOS) ND 01/19/23 20:22 02/03/23 19:33 1.8 0.47 ng/L 01/19/23 20:22 02/03/23 19:33 N-methylperfluorooctanesulfonamidoa ND 1.1 ng/L 4.4 cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac ND 44 01/19/23 20:22 02/03/23 19:33 1.1 ng/L etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan ND 1.8 0.21 ng/L 01/19/23 20:22 02/03/23 19:33 e-1-sulfonic acid ND 3.5 1.3 ng/L 01/19/23 20:22 02/03/23 19:33 Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 01/19/23 20:22 02/03/23 19:33 11-Chloroeicosafluoro-3-oxaundecan ND 1.8 0.28 ng/L e-1-sulfonic acid ND 1.8 0.35 ng/L 01/19/23 20:22 02/03/23 19:33 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) Isotope Dilution %Recovery Qualifier Limits Prepared Dil Fac Analyzed 13C2 PFHxA 90 50 - 150 01/19/23 20:22 02/03/23 19:33 13C4 PFHpA 93 50 - 150 01/19/23 20:22 02/03/23 19:33 13C4 PFOA 90 50 - 150 01/19/23 20:22 02/03/23 19:33 13C5 PFNA 91 50 - 150 01/19/23 20:22 02/03/23 19:33 13C2 PFDA 89 50 - 150 01/19/23 20:22 02/03/23 19:33 13C2 PFUnA 94 50 - 150 01/19/23 20:22 02/03/23 19:33 13C2 PFDoA 86 50 - 150 01/19/23 20:22 02/03/23 19:33 13C2 PFTeDA 79 50 - 150 01/19/23 20:22 02/03/23 19:33 13C3 PFBS 61 50 - 150 01/19/23 20:22 02/03/23 19:33 1802 PFHxS 88 50 - 150 01/19/23 20:22 02/03/23 19:33 13C4 PFOS 82 50 - 150 01/19/23 20:22 02/03/23 19:33 d3-NMeFOSAA 88 50 - 150 01/19/23 20:22 02/03/23 19:33 d5-NEtFOSAA 93 50 - 150 01/19/23 20:22 02/03/23 19:33 107 01/19/23 20:22 02/03/23 19:33 13C3 HFPO-DA 50 - 150 Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL Analyte Result Qualifier RL **MDL** Unit **Prepared** Analyzed Dil Fac Perfluorohexanesulfonic acid 88 2.5 ng/L 01/19/23 20:22 02/08/23 20:16 450 (PFHxS) Isotope Dilution %Recovery Qualifier Limits Prepared Analyzed Dil Fac

**Eurofins Sacramento** 

01/19/23 20:22 02/08/23 20:16

Page 10 of 31

50 - 150

119

6

Client: Shannon & Wilson, Inc Job ID: 320-96053-1 Project/Site: McGrath PFAS

Client Sample ID: MCG-MW-03

Lab Sample ID: 320-96053-4

Date Collected: 01/11/23 16:04 **Matrix: Water** Date Received: 01/17/23 18:30

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	2.6		1.8	0.51	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluoroheptanoic acid (PFHpA)	0.27	J	1.8	0.22	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.75	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.27	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.1	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluorobutanesulfonic acid (PFBS)	1.8		1.8	0.18	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluorohexanesulfonic acid (PFHxS)	0.82	JI	1.8	0.50	ng/L		01/19/23 20:22	02/03/23 19:43	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		01/19/23 20:22	02/03/23 19:43	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.4		ng/L		01/19/23 20:22	02/03/23 19:43	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.4	1.1	ng/L			02/03/23 19:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8		ng/L		01/19/23 20:22	02/03/23 19:43	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		01/19/23 20:22	02/03/23 19:43	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.28	ng/L		01/19/23 20:22	02/03/23 19:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		01/19/23 20:22	02/03/23 19:43	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		50 - 150				01/19/23 20:22	02/03/23 19:43	1
13C4 PFHpA	97		50 - 150				01/19/23 20:22	02/03/23 19:43	1
13C4 PFOA	94		50 - 150				01/19/23 20:22	02/03/23 19:43	1
13C5 PFNA	96		50 - 150				01/19/23 20:22	02/03/23 19:43	1
13C2 PFDA	89		50 - 150				01/19/23 20:22	02/03/23 19:43	1
13C2 PFUnA	92		50 - 150				01/19/23 20:22	02/03/23 19:43	1
13C2 PFDoA	82		50 - 150				01/19/23 20:22	02/03/23 19:43	1
13C2 PFTeDA	85		50 - 150				01/19/23 20:22	02/03/23 19:43	1
13C3 PFBS	63		50 - 150				01/19/23 20:22	02/03/23 19:43	1
1802 PFHxS	90		50 - 150				01/19/23 20:22	02/03/23 19:43	1
13C4 PFOS	82		50 ₋ 150				01/19/23 20:22	02/03/23 19:43	1
d3-NMeFOSAA	82		50 - 150				01/19/23 20:22	02/03/23 19:43	1
d5-NEtFOSAA	85		50 ₋ 150				01/19/23 20:22	02/03/23 19:43	1
13C3 HFPO-DA	112		50 ₋ 150				01/19/23 20:22	02/03/23 19:43	1

Client: Shannon & Wilson, Inc Job ID: 320-96053-1

Project/Site: McGrath PFAS

Client Sample ID: MCG-MW-04 Lab Sample ID: 320-96053-5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.64	J	1.9	0.54	ng/L		01/19/23 20:22	02/03/23 19:53	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		01/19/23 20:22	02/03/23 19:53	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.80	ng/L		01/19/23 20:22	02/03/23 19:53	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		01/19/23 20:22	02/03/23 19:53	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		01/19/23 20:22	02/03/23 19:53	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		01/19/23 20:22	02/03/23 19:53	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		01/19/23 20:22	02/03/23 19:53	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		01/19/23 20:22	02/03/23 19:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		01/19/23 20:22	02/03/23 19:53	1
Perfluorobutanesulfonic acid	0.39	J	1.9	0.19	ng/L		01/19/23 20:22	02/03/23 19:53	1
(PFBS)									
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L			02/03/23 19:53	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L			02/03/23 19:53	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.7		ng/L		01/19/23 20:22	02/03/23 19:53	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		01/19/23 20:22	02/03/23 19:53	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.22	ng/L		01/19/23 20:22	02/03/23 19:53	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		01/19/23 20:22	02/03/23 19:53	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.30	ng/L		01/19/23 20:22	02/03/23 19:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		01/19/23 20:22	02/03/23 19:53	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	86		50 - 150				01/19/23 20:22	02/03/23 19:53	1
13C4 PFHpA	90		50 ₋ 150				01/19/23 20:22	02/03/23 19:53	1
13C4 PFOA	85		50 ₋ 150				01/19/23 20:22	02/03/23 19:53	1
13C5 PFNA	82		50 - 150				01/19/23 20:22	02/03/23 19:53	1
13C2 PFDA	80		50 ₋ 150				01/19/23 20:22	02/03/23 19:53	1
13C2 PFUnA	79		50 - 150				01/19/23 20:22	02/03/23 19:53	1
13C2 PFDoA	68		50 - 150				01/19/23 20:22	02/03/23 19:53	1
13C2 PFTeDA	68		50 ₋ 150				01/19/23 20:22	02/03/23 19:53	1
13C3 PFBS	58		50 ₋ 150				01/19/23 20:22	02/03/23 19:53	1
1802 PFHxS	77		50 - 150				01/19/23 20:22	02/03/23 19:53	1
13C4 PFOS	70		50 - 150					02/03/23 19:53	1
d3-NMeFOSAA	71		50 ₋ 150					02/03/23 19:53	1
US-NIVIER USAA									
d5-NEtFOSAA	74		50 - 150					02/03/23 19:53	

2

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5

7

9

11

16

Client: Shannon & Wilson, Inc Job ID: 320-96053-1 Project/Site: McGrath PFAS

**Client Sample ID: MCG-001** 

Lab Sample ID: 320-96053-6 Date Collected: 01/10/23 10:27

**Matrix: Water** 

Date Received: 01/17/23 18:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	2.2		1.6	0.48	ng/L		01/19/23 20:22	02/03/23 20:03	
Perfluoroheptanoic acid (PFHpA)	0.26	J	1.6	0.21	ng/L		01/19/23 20:22	02/03/23 20:03	
Perfluorooctanoic acid (PFOA)	ND		1.6	0.70	ng/L		01/19/23 20:22	02/03/23 20:03	
Perfluorononanoic acid (PFNA)	ND		1.6	0.22	ng/L		01/19/23 20:22	02/03/23 20:03	
Perfluorodecanoic acid (PFDA)	ND		1.6	0.26	ng/L		01/19/23 20:22	02/03/23 20:03	
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.91	ng/L		01/19/23 20:22	02/03/23 20:03	
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.45	ng/L		01/19/23 20:22	02/03/23 20:03	· · · · · · · · · ·
Perfluorotridecanoic acid (PFTriA)	ND		1.6		ng/L		01/19/23 20:22	02/03/23 20:03	
Perfluorotetradecanoic acid (PFTeA)	ND		1.6	0.60	ng/L		01/19/23 20:22	02/03/23 20:03	
Perfluorobutanesulfonic acid (PFBS)	2.7		1.6	0.16	ng/L		01/19/23 20:22	02/03/23 20:03	
Perfluorohexanesulfonic acid (PFHxS)	4.6		1.6	0.47	ng/L		01/19/23 20:22	02/03/23 20:03	•
Perfluorooctanesulfonic acid (PFOS)	ND		1.6	0.44	ng/L		01/19/23 20:22	02/03/23 20:03	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.1	0.99	ng/L		01/19/23 20:22	02/03/23 20:03	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.1	1.1	ng/L		01/19/23 20:22	02/03/23 20:03	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.6		ng/L			02/03/23 20:03	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.3		ng/L			02/03/23 20:03	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.6	0.26	ng/L		01/19/23 20:22	02/03/23 20:03	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.6	0.33	ng/L		01/19/23 20:22	02/03/23 20:03	
sotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	94		50 - 150				01/19/23 20:22	02/03/23 20:03	
13C4 PFHpA	99		50 - 150				01/19/23 20:22	02/03/23 20:03	
13C4 PFOA	92		50 ₋ 150				01/19/23 20:22	02/03/23 20:03	
13C5 PFNA	95		50 ₋ 150				01/19/23 20:22	02/03/23 20:03	
13C2 PFDA	92		50 ₋ 150				01/19/23 20:22	02/03/23 20:03	
13C2 PFUnA	95		50 ₋ 150				01/19/23 20:22	02/03/23 20:03	
13C2 PFDoA	91		50 - 150					02/03/23 20:03	
13C2 PFTeDA	90		50 - 150					02/03/23 20:03	
ISCZ FFIEDA			50 - 150					02/03/23 20:03	
	61								
13C3 PFBS	61						01/19/23 20:22	02/03/23 20:03	
13C3 PFBS 18O2 PFHxS	90		50 - 150					02/03/23 20:03	
13C3 PFBS 18O2 PFHxS 13C4 PFOS	90 80		50 - 150 50 - 150				01/19/23 20:22	02/03/23 20:03	
13C3 PFBS 18O2 PFHxS	90		50 - 150				01/19/23 20:22 01/19/23 20:22		

Client: Shannon & Wilson, Inc Job ID: 320-96053-1

Project/Site: McGrath PFAS

Client Sample ID: MCG-003

Lab Sample ID: 320-96053-7

Date Collected: 01/10/23 11:38 Matrix: Water Date Received: 01/17/23 18:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	3.8		1.7	0.49	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluoroheptanoic acid (PFHpA)	1.8		1.7	0.21	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluorooctanoic acid (PFOA)	5.5		1.7	0.72	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.93	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.62	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	1.7	0.48	ng/L		01/19/23 20:22	02/03/23 20:24	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.46	ng/L		01/19/23 20:22	02/03/23 20:24	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.2		ng/L			02/03/23 20:24	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.2	1.1	ng/L		01/19/23 20:22	02/03/23 20:24	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.7	0.20	ng/L		01/19/23 20:22	02/03/23 20:24	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.4	1.3	ng/L		01/19/23 20:22	02/03/23 20:24	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.7	0.27	ng/L		01/19/23 20:22	02/03/23 20:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		01/19/23 20:22	02/03/23 20:24	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	83		50 - 150				01/19/23 20:22	02/03/23 20:24	1
13C4 PFHpA	92		50 ₋ 150					02/03/23 20:24	1
13C4 PFOA	89		50 ₋ 150				01/19/23 20:22	02/03/23 20:24	1
13C5 PFNA	89		50 - 150				01/19/23 20:22	02/03/23 20:24	1
13C2 PFDA	87		50 ₋ 150				01/19/23 20:22	02/03/23 20:24	1
13C2 PFUnA	88		50 - 150				01/19/23 20:22	02/03/23 20:24	1
13C2 PFDoA	83		50 - 150				01/19/23 20:22	02/03/23 20:24	1
13C2 PFTeDA	76		50 ₋ 150				01/19/23 20:22	02/03/23 20:24	1
13C3 PFBS	60		50 ₋ 150				01/19/23 20:22	02/03/23 20:24	1
1802 PFHxS	84		50 - 150				01/19/23 20:22	02/03/23 20:24	1
13C4 PFOS	73		50 - 150				01/19/23 20:22	02/03/23 20:24	1
d3-NMeFOSAA	81		50 ₋ 150					02/03/23 20:24	1
d5-NEtFOSAA	84		50 - 150					02/03/23 20:24	
13C3 HFPO-DA	104		50 - 150					02/03/23 20:24	1

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Client: Shannon & Wilson, Inc Job ID: 320-96053-1

Project/Site: McGrath PFAS

Date Received: 01/17/23 18:30

**Client Sample ID: MCG-007** Lab Sample ID: 320-96053-8 Date Collected: 01/10/23 15:01

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	3.4		1.7	0.48	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.21	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.70	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.22	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.91	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.46	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.60	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluorobutanesulfonic acid (PFBS)	0.71	J	1.7	0.17	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.47	ng/L		01/19/23 20:22	02/08/23 20:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.45	ng/L		01/19/23 20:22	02/08/23 20:46	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.1		ng/L		01/19/23 20:22	02/08/23 20:46	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.1	1.1	ng/L		01/19/23 20:22	02/08/23 20:46	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.7	0.20	ng/L		01/19/23 20:22	02/08/23 20:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.3	1.2	ng/L		01/19/23 20:22	02/08/23 20:46	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.7	0.27	ng/L		01/19/23 20:22	02/08/23 20:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.33	ng/L		01/19/23 20:22	02/08/23 20:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	124		50 - 150				01/19/23 20:22	02/08/23 20:46	1
13C4 PFHpA	117		50 - 150				01/19/23 20:22	02/08/23 20:46	1
13C4 PFOA	110		50 - 150				01/19/23 20:22	02/08/23 20:46	1
13C5 PFNA	113		50 - 150				01/19/23 20:22	02/08/23 20:46	1
13C2 PFDA	106		50 ₋ 150				01/19/23 20:22	02/08/23 20:46	1
13C2 PFUnA	114		50 - 150				01/19/23 20:22	02/08/23 20:46	1
13C2 PFDoA	101		50 - 150					02/08/23 20:46	1
13C2 PFTeDA	106		50 - 150					02/08/23 20:46	1
13C3 PFBS	110		50 ₋ 150				01/19/23 20:22	02/08/23 20:46	1
1802 PFHxS	113		50 ₋ 150					02/08/23 20:46	1
13C4 PFOS	105		50 - 150					02/08/23 20:46	. 1
d3-NMeFOSAA	108		50 - 150					02/08/23 20:46	1
d5-NEtFOSAA	105		50 - 150					02/08/23 20:46	1
13C3 HFPO-DA	111		50 - 150 50 - 150					02/08/23 20:46	1

Client: Shannon & Wilson, Inc Job ID: 320-96053-1 Project/Site: McGrath PFAS

**Client Sample ID: MCG-021** 

13C3 HFPO-DA

Lab Sample ID: 320-96053-9 Date Collected: 01/10/23 14:28

**Matrix: Water** Date Received: 01/17/23 18:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	3.1		1.8	0.51	ng/L		01/19/23 20:22	02/03/23 20:45	
Perfluoroheptanoic acid (PFHpA)	1.3	J	1.8	0.22	ng/L		01/19/23 20:22	02/03/23 20:45	
Perfluorooctanoic acid (PFOA)	3.9		1.8	0.74	ng/L		01/19/23 20:22	02/03/23 20:45	
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		01/19/23 20:22	02/03/23 20:45	
Perfluorodecanoic acid (PFDA)	ND		1.8	0.27	ng/L		01/19/23 20:22	02/03/23 20:45	
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.96	ng/L		01/19/23 20:22	02/03/23 20:45	
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		01/19/23 20:22	02/03/23 20:45	
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.1	ng/L		01/19/23 20:22	02/03/23 20:45	
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		01/19/23 20:22	02/03/23 20:45	
Perfluorobutanesulfonic acid	1.1		1.8		ng/L			02/03/23 20:45	
(PFBS)					•				
Perfluorohexanesulfonic acid (PFHxS)	9.0		1.8	0.50	ng/L		01/19/23 20:22	02/03/23 20:45	
Perfluorooctanesulfonic acid (PFOS)	6.7		1.8	0.47	ng/L		01/19/23 20:22	02/03/23 20:45	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.4		ng/L		01/19/23 20:22	02/03/23 20:45	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.4		ng/L		01/19/23 20:22	02/03/23 20:45	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8		ng/L		01/19/23 20:22	02/03/23 20:45	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		01/19/23 20:22	02/03/23 20:45	
1-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.28	ng/L		01/19/23 20:22	02/03/23 20:45	
I,8-Dioxa-3H-perfluorononanoic acid ADONA)	ND		1.8	0.35	ng/L		01/19/23 20:22	02/03/23 20:45	
sotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	95		50 - 150				01/19/23 20:22	02/03/23 20:45	
13C4 PFHpA	96		50 - 150				01/19/23 20:22	02/03/23 20:45	
13C4 PFOA	94		50 - 150				01/19/23 20:22	02/03/23 20:45	
13C5 PFNA	100		50 - 150				01/19/23 20:22	02/03/23 20:45	
13C2 PFDA	95		50 ₋ 150				01/19/23 20:22	02/03/23 20:45	
13C2 PFUnA	106		50 - 150				01/19/23 20:22	02/03/23 20:45	
13C2 PFDoA	90		50 - 150					02/03/23 20:45	
13C2 PFTeDA	88		50 ₋ 150					02/03/23 20:45	
13C3 PFBS	66		50 ₋ 150					02/03/23 20:45	
1802 PFHxS	88		50 - 150					02/03/23 20:45	
13C4 PFOS	88		50 - 150					02/03/23 20:45	
d3-NMeFOSAA	94		50 - 150 50 - 150					02/03/23 20:45	
d5-NEtFOSAA	95		50 - 150					02/03/23 20:45	
JU-INLIF USAM	95		50 - 150				01/13/23 20.22	02/03/23 20.43	

01/19/23 20:22 02/03/23 20:45

50 - 150

Client: Shannon & Wilson, Inc Job ID: 320-96053-1

Project/Site: McGrath PFAS

Client Sample ID: MCG-024 Lab Sample ID: 320-96053-10

Date Collected: 01/11/23 10:32 **Matrix: Water** Date Received: 01/17/23 18:30

Analyte	Result Qualific	er RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND	1.7	0.50	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluoroheptanoic acid (PFHpA)	ND	1.7	0.21	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluorooctanoic acid (PFOA)	ND	1.7	0.73	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluorononanoic acid (PFNA)	ND	1.7	0.23	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluorodecanoic acid (PFDA)	ND	1.7	0.26	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluoroundecanoic acid (PFUnA)	ND	1.7	0.94	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluorododecanoic acid (PFDoA)	ND	1.7	0.47	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluorotridecanoic acid (PFTriA)	ND	1.7	1.1	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluorotetradecanoic acid (PFTeA)	ND	1.7	0.62	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.17	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	0.49	ng/L		01/19/23 20:22	02/03/23 20:55	1
Perfluorooctanesulfonic acid (PFOS)	ND	1.7	0.46	ng/L		01/19/23 20:22	02/03/23 20:55	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.3	1.0	ng/L		01/19/23 20:22	02/03/23 20:55	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.3	1.1	ng/L		01/19/23 20:22	02/03/23 20:55	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	1.7	0.20	ng/L		01/19/23 20:22	02/03/23 20:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	3.4	1.3	ng/L		01/19/23 20:22	02/03/23 20:55	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	1.7	0.27	ng/L		01/19/23 20:22	02/03/23 20:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	0.34	ng/L		01/19/23 20:22	02/03/23 20:55	1
Isotope Dilution	%Recovery Qualific	er Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	92	50 - 150				01/19/23 20:22	02/03/23 20:55	1
13C4 PFHpA	98	50 - 150				01/19/23 20:22	02/03/23 20:55	1
13C4 PFOA	93	50 ₋ 150				01/19/23 20:22	02/03/23 20:55	1
13C5 PFNA	96	50 ₋ 150				01/19/23 20:22	02/03/23 20:55	1
13C2 PFDA	95	50 - 150				01/19/23 20:22	02/03/23 20:55	1
13C2 PFUnA	96	50 ₋ 150				01/19/23 20:22	02/03/23 20:55	1
13C2 PFDoA	80	50 - 150				01/19/23 20:22	02/03/23 20:55	1
13C2 PFTeDA	75	50 ₋ 150				01/19/23 20:22	02/03/23 20:55	1
13C3 PFBS	71	50 ₋ 150				01/19/23 20:22	02/03/23 20:55	1
1802 PFHxS	88	50 ₋ 150				01/19/23 20:22	02/03/23 20:55	1
13C4 PFOS	84	50 ₋ 150				01/19/23 20:22	02/03/23 20:55	1
d3-NMeFOSAA	86	50 ₋ 150					02/03/23 20:55	1
d5-NEtFOSAA	88	50 - 150					02/03/23 20:55	1
13C3 HFPO-DA	108	50 - 150					02/03/23 20:55	1

Client: Shannon & Wilson, Inc Job ID: 320-96053-1

Project/Site: McGrath PFAS

Client Sample ID: MCG-124 Lab Sample ID: 320-96053-11

Date Collected: 01/11/23 10:22 Matrix: Water Date Received: 01/17/23 18:30

Analyte	Result Qu	ualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND	1.7	0.49	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluoroheptanoic acid (PFHpA)	ND	1.7	0.21	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluorooctanoic acid (PFOA)	ND	1.7	0.73	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluorononanoic acid (PFNA)	ND	1.7	0.23	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluorodecanoic acid (PFDA)	ND	1.7	0.26	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluoroundecanoic acid (PFUnA)	ND	1.7	0.94	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluorododecanoic acid (PFDoA)	ND	1.7	0.47	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluorotridecanoic acid (PFTriA)	ND	1.7	1.1	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluorotetradecanoic acid (PFTeA)	ND	1.7	0.62	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.17	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	0.49	ng/L		01/19/23 20:22	02/08/23 20:57	1
Perfluorooctanesulfonic acid (PFOS)	ND	1.7	0.46	ng/L		01/19/23 20:22	02/08/23 20:57	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.3	1.0	ng/L		01/19/23 20:22	02/08/23 20:57	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.3	1.1	ng/L		01/19/23 20:22	02/08/23 20:57	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	1.7	0.20	ng/L		01/19/23 20:22	02/08/23 20:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	3.4	1.3	ng/L		01/19/23 20:22	02/08/23 20:57	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	1.7	0.27	ng/L		01/19/23 20:22	02/08/23 20:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	0.34	ng/L		01/19/23 20:22	02/08/23 20:57	1
Isotope Dilution	%Recovery Qu	ualifier Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	125	50 - 150				01/19/23 20:22	02/08/23 20:57	1
13C4 PFHpA	120	50 - 150				01/19/23 20:22	02/08/23 20:57	1
13C4 PFOA	115	50 - 150				01/19/23 20:22	02/08/23 20:57	1
13C5 PFNA	115	50 - 150				01/19/23 20:22	02/08/23 20:57	1
13C2 PFDA	114	50 - 150				01/19/23 20:22	02/08/23 20:57	1
13C2 PFUnA	114	50 ₋ 150				01/19/23 20:22	02/08/23 20:57	1
13C2 PFDoA	97	50 - 150				01/19/23 20:22	02/08/23 20:57	1
13C2 PFTeDA	100	50 ₋ 150				01/19/23 20:22	02/08/23 20:57	1
13C3 PFBS	112	50 ₋ 150				01/19/23 20:22	02/08/23 20:57	1
1802 PFHxS	119	50 ₋ 150				01/19/23 20:22	02/08/23 20:57	1
13C4 PFOS	111	50 ₋ 150				01/19/23 20:22	02/08/23 20:57	1
d3-NMeFOSAA	104	50 ₋ 150					02/08/23 20:57	1
d5-NEtFOSAA	102	50 ₋ 150					02/08/23 20:57	1
13C3 HFPO-DA	116	50 ₋ 150					02/08/23 20:57	1

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## **Isotope Dilution Summary**

Client: Shannon & Wilson, Inc Job ID: 320-96053-1 Project/Site: McGrath PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

**Matrix: Water Prep Type: Total/NA** 

		PFHxA	C4PFHA	PFOA	Dilution Re	PFDA	PFUnA	PFDoA	PFTDA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150
320-96053-1	MCG-MW-01	86	95	87	90	87	87	77	76
320-96053-1	MCG-MW-101	84	95 95	88	88	90	88	81	82
320-96053-2 320-96053-3	MCG-MW-02	90	93	90	91	89	94	86	79
320-96053-3 - DL	MCG-MW-02						34		
320-96053-4	MCG-MW-03	93	97	94	96	89	92	82	85
320-96053-5	MCG-MW-04	93 86	90	94 85	90 82	80	92 79	68	68
320-96053-6	MCG-001	94	99	92	95	92	95	91	90
320-96053-7	MCG-003	83	92	89	89	87	88	83	76
320-96053-8	MCG-007	124	117	110	113	106	114	101	106
320-96053-9	MCG-021	95	96	94	100	95	106	90	88
320-96053-10	MCG-024	92	98	93	96	95	96	80	75
320-96053-11	MCG-124	125	120	115	115	114	114	97	100
LCS 320-648221/2-A	Lab Control Sample	98	96	95	101	99	103	92	93
LCSD 320-648221/3-A	Lab Control Sample Dup	94	95	92	99	98	104	95	83
MB 320-648221/1-A	Method Blank	94	96	93	97	97	107	88	87
			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
<b>Lab Sample ID</b> 320-96053-1	Client Sample ID MCG-MW-01	<u>(50-150)</u>	(50-150) 84	<b>(50-150)</b> 79	<del>(50-150)</del> <del>77</del>	( <b>50-150</b> ) 83	(50-150) 108		
320-96053-1	MCG-MW-01	62	84	79	77	83	108		
320-96053-1 320-96053-2	MCG-MW-01 MCG-MW-101	62 61	84 87	79 80	77 84	83 87	108 102		
320-96053-1 320-96053-2 320-96053-3 320-96053-3 - DL	MCG-MW-01 MCG-MW-101 MCG-MW-02	62 61	84 87 88	79 80	77 84	83 87	108 102		
320-96053-1 320-96053-2 320-96053-3 320-96053-3 - DL 320-96053-4	MCG-MW-01 MCG-MW-101 MCG-MW-02 MCG-MW-02	62 61 61	84 87 88 119	79 80 82	77 84 88	83 87 93	108 102 107		
320-96053-1 320-96053-2 320-96053-3	MCG-MW-01 MCG-MW-101 MCG-MW-02 MCG-MW-02 MCG-MW-03	62 61 61	84 87 88 119 90	79 80 82	77 84 88 82	83 87 93	108 102 107		
320-96053-1 320-96053-2 320-96053-3 320-96053-3 - DL 320-96053-4 320-96053-5	MCG-MW-01 MCG-MW-101 MCG-MW-02 MCG-MW-03 MCG-MW-04	62 61 61 63 58	84 87 88 119 90 77	79 80 82 82 70 80	77 84 88 88 82 71	83 87 93 85 74	108 102 107 112 99		
320-96053-1 320-96053-2 320-96053-3 320-96053-3 - DL 320-96053-4 320-96053-5 320-96053-6 320-96053-7	MCG-MW-01 MCG-MW-101 MCG-MW-02 MCG-MW-02 MCG-MW-03 MCG-MW-04 MCG-001 MCG-003	62 61 61 63 58 61 60	84 87 88 119 90 77 90 84	79 80 82 82 70 80 73	77 84 88 82 71 88 81	83 87 93 85 74 91 84	108 102 107 112 99 116		
320-96053-1 320-96053-2 320-96053-3 320-96053-3 - DL 320-96053-4 320-96053-5 320-96053-6 320-96053-7 320-96053-8	MCG-MW-01 MCG-MW-101 MCG-MW-02 MCG-MW-03 MCG-MW-04 MCG-001 MCG-003 MCG-007	62 61 61 63 58 61	84 87 88 119 90 77 90 84 113	79 80 82 82 70 80 73 105	77 84 88 82 71 88 81 108	83 87 93 85 74 91	108 102 107 112 99 116 104		
320-96053-1 320-96053-2 320-96053-3 320-96053-3 - DL 320-96053-4 320-96053-5 320-96053-6 320-96053-7 320-96053-8 320-96053-9	MCG-MW-01 MCG-MW-101 MCG-MW-02 MCG-MW-03 MCG-MW-04 MCG-001 MCG-003 MCG-007 MCG-021	62 61 61 63 58 61 60 110 66	84 87 88 119 90 77 90 84 113	79 80 82 82 70 80 73 105 88	77 84 88 82 71 88 81 108	83 87 93 85 74 91 84 105	108 102 107 112 99 116 104 111 108		
320-96053-1 320-96053-2 320-96053-3 320-96053-3 - DL 320-96053-4 320-96053-5 320-96053-6 320-96053-7 320-96053-8 320-96053-9 320-96053-10	MCG-MW-01 MCG-MW-101 MCG-MW-02 MCG-MW-02 MCG-MW-03 MCG-MW-04 MCG-001 MCG-003 MCG-007 MCG-021 MCG-024	62 61 61 63 58 61 60 110 66 71	84 87 88 119 90 77 90 84 113 88	79 80 82 82 70 80 73 105 88 84	77 84 88 82 71 88 81 108 94	83 87 93 85 74 91 84 105 95 88	108 102 107 112 99 116 104 111 108 108		
320-96053-1 320-96053-2 320-96053-3 320-96053-3 - DL 320-96053-4 320-96053-5 320-96053-6 320-96053-7 320-96053-8 320-96053-9 320-96053-10 320-96053-11	MCG-MW-01 MCG-MW-101 MCG-MW-02 MCG-MW-02 MCG-MW-03 MCG-MW-04 MCG-001 MCG-003 MCG-007 MCG-021 MCG-024 MCG-124	62 61 61 63 58 61 60 110 66 71	84 87 88 119 90 77 90 84 113 88 88	79 80 82 82 70 80 73 105 88 84 111	77 84 88 82 71 88 81 108 94 86 104	83 87 93 85 74 91 84 105 95 88 102	108 102 107 112 99 116 104 111 108 108 116		
320-96053-1 320-96053-2 320-96053-3 320-96053-3 - DL 320-96053-4 320-96053-5 320-96053-6	MCG-MW-01 MCG-MW-101 MCG-MW-02 MCG-MW-02 MCG-MW-03 MCG-MW-04 MCG-001 MCG-003 MCG-007 MCG-021 MCG-024	62 61 61 63 58 61 60 110 66 71	84 87 88 119 90 77 90 84 113 88	79 80 82 82 70 80 73 105 88 84	77 84 88 82 71 88 81 108 94	83 87 93 85 74 91 84 105 95 88	108 102 107 112 99 116 104 111 108 108		

**Surrogate Legend** 

PFHxA = 13C2 PFHxA

C4PFHA = 13C4 PFHpA

PFOA = 13C4 PFOA

PFNA = 13C5 PFNA

PFDA = 13C2 PFDA

PFUnA = 13C2 PFUnA

PFDoA = 13C2 PFDoA PFTDA = 13C2 PFTeDA

C3PFBS = 13C3 PFBS

PFHxS = 18O2 PFHxS

PFOS = 13C4 PFOS

d3NMFOS = d3-NMeFOSAA

d5NEFOS = d5-NEtFOSAA

HFPODA = 13C3 HFPO-DA

**Eurofins Sacramento** 

Page 19 of 31

Client: Shannon & Wilson, Inc
Project/Site: McGrath PFAS

Job ID: 320-96053-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-648221/1-A

**Matrix: Water** 

**Analysis Batch: 651742** 

Client Sample ID: Method Blank

Prep Type: Total/NA Prep Batch: 648221

7 <b>.,</b> 0.10 = 0.11										
	MB	MB								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		01/19/23 20:22	02/03/23 18:31	1	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		01/19/23 20:22	02/03/23 18:31	1	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		01/19/23 20:22	02/03/23 18:31	1	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.0	0.24	ng/L		01/19/23 20:22	02/03/23 18:31	1	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		01/19/23 20:22	02/03/23 18:31	1	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.0	0.32	ng/L		01/19/23 20:22	02/03/23 18:31	1	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		01/19/23 20:22	02/03/23 18:31	1	

MB	MR
IVIB	

	IVI D IV	(ID			
Isotope Dilution	%Recovery G	Qualifier Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94	50 - 150	01/19/23 20:22	02/03/23 18:31	1
13C4 PFHpA	96	50 ₋ 150	01/19/23 20:22	02/03/23 18:31	1
13C4 PFOA	93	50 - 150	01/19/23 20:22	02/03/23 18:31	1
13C5 PFNA	97	50 - 150	01/19/23 20:22	02/03/23 18:31	1
13C2 PFDA	97	50 ₋ 150	01/19/23 20:22	02/03/23 18:31	1
13C2 PFUnA	107	50 - 150	01/19/23 20:22	02/03/23 18:31	1
13C2 PFDoA	88	50 - 150	01/19/23 20:22	02/03/23 18:31	1
13C2 PFTeDA	87	50 - 150	01/19/23 20:22	02/03/23 18:31	1
13C3 PFBS	81	50 - 150	01/19/23 20:22	02/03/23 18:31	1
18O2 PFHxS	88	50 - 150	01/19/23 20:22	02/03/23 18:31	1
13C4 PFOS	88	50 - 150	01/19/23 20:22	02/03/23 18:31	1
d3-NMeFOSAA	96	50 - 150	01/19/23 20:22	02/03/23 18:31	1
d5-NEtFOSAA	97	50 - 150	01/19/23 20:22	02/03/23 18:31	1
13C3 HFPO-DA	108	50 - 150	01/19/23 20:22	02/03/23 18:31	1

Lab Sample ID: LCS 320-648221/2-A

**Matrix: Water** 

**Analysis Batch: 651742** 

Client Sample ID:	Lab Control Sample	
	Pren Type: Total/NA	

Prep Batch: 648221

١		Spike	LCS	LCS				%Rec	
	Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
	Perfluorohexanoic acid (PFHxA)	40.0	40.8		ng/L		102	72 - 129	
	Perfluoroheptanoic acid (PFHpA)	40.0	44.9		ng/L		112	72 - 130	
	Perfluorooctanoic acid (PFOA)	40.0	45.0		ng/L		112	71 - 133	
	Perfluorononanoic acid (PFNA)	40.0	42.7		ng/L		107	69 - 130	

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Page 20 of 31 2/13/2023

Client: Shannon & Wilson, Inc Job ID: 320-96053-1 Project/Site: McGrath PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-648221/2-A

**Matrix: Water** 

Analysis Batch: 651742

**Client Sample ID: Lab Control Sample** 

**Prep Type: Total/NA** 

**Prep Batch: 648221** 

Analysis Baton: 001742					1 Top Daton: 04022
	Spike	LCS L	.CS		%Rec
Analyte	Added	Result C	Qualifier Unit	D %Rec	Limits
Perfluorodecanoic acid (PFDA)	40.0	43.3	ng/L	108	71 - 129
Perfluoroundecanoic acid	40.0	41.0	ng/L	103	69 - 133
(PFUnA)					
Perfluorododecanoic acid	40.0	43.6	ng/L	109	72 - 134
(PFDoA)					
Perfluorotridecanoic acid	40.0	44.0	ng/L	110	65 - 144
(PFTriA)					
Perfluorotetradecanoic acid	40.0	42.3	ng/L	106	71 - 132
(PFTeA)					
Perfluorobutanesulfonic acid	35.5	38.1	ng/L	107	72 - 130
(PFBS)					
Perfluorohexanesulfonic acid	36.5	38.7	ng/L	106	68 - 131
(PFHxS)					
Perfluorooctanesulfonic acid	37.2	42.1	ng/L	113	65 - 140
(PFOS)					
N-methylperfluorooctanesulfona	40.0	41.3	ng/L	103	65 - 136
midoacetic acid (NMeFOSAA)					
N-ethylperfluorooctanesulfonami	40.0	40.6	ng/L	101	61 ₋ 135
doacetic acid (NEtFOSAA)					
9-Chlorohexadecafluoro-3-oxan	37.4	43.6	ng/L	117	77 - 137
onane-1-sulfonic acid					
Hexafluoropropylene Oxide	40.0	41.3	ng/L	103	72 - 132
Dimer Acid (HFPO-DA)	a= a	40.0		400	70 400
11-Chloroeicosafluoro-3-oxaund	37.8	40.8	ng/L	108	76 - 136
ecane-1-sulfonic acid	07.0	45.0		404	04 444
4,8-Dioxa-3H-perfluorononanoic	37.8	45.8	ng/L	121	81 - 141
acid (ADONA)					

LCS LCS

	LUS	LUS	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	98		50 - 150
13C4 PFHpA	96		50 - 150
13C4 PFOA	95		50 - 150
13C5 PFNA	101		50 - 150
13C2 PFDA	99		50 - 150
13C2 PFUnA	103		50 - 150
13C2 PFDoA	92		50 - 150
13C2 PFTeDA	93		50 - 150
13C3 PFBS	87		50 - 150
1802 PFHxS	91		50 - 150
13C4 PFOS	89		50 - 150
d3-NMeFOSAA	96		50 - 150
d5-NEtFOSAA	99		50 - 150
13C3 HFPO-DA	112		50 - 150
_			

Lab Sample ID: LCSD 320-648221/3-A

**Matrix: Water** 

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA

Analysis Batch: 651742								Prep Ba	itch: 64	8221
		Spike	LCSD	LCSD				%Rec		RPD
	Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
	Perfluorohexanoic acid (PFHxA)	40.0	43.0		ng/L		107	72 - 129	5	30
	Perfluoroheptanoic acid (PFHpA)	40.0	43.6		ng/L		109	72 - 130	3	30
	Perfluorooctanoic acid (PFOA)	40.0	43.7		ng/L		109	71 - 133	3	30

**Eurofins Sacramento** 

Page 21 of 31 2/13/2023

# **QC Sample Results**

Client: Shannon & Wilson, Inc
Project/Site: McGrath PFAS

Job ID: 320-96053-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-648221/3-A

Matrix: Water

**Analysis Batch: 651742** 

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA Prep Batch: 648221 %Rec RPD

Analysis Baton: 001742							i icp b	Atom. 0-	
-	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorononanoic acid (PFNA)	40.0	44.5		ng/L		111	69 - 130	4	30
Perfluorodecanoic acid (PFDA)	40.0	44.7		ng/L		112	71 - 129	3	30
Perfluoroundecanoic acid (PFUnA)	40.0	42.9		ng/L		107	69 - 133	4	30
Perfluorododecanoic acid (PFDoA)	40.0	44.6		ng/L		111	72 - 134	2	30
Perfluorotridecanoic acid (PFTriA)	40.0	41.0		ng/L		103	65 - 144	7	30
Perfluorotetradecanoic acid (PFTeA)	40.0	43.3		ng/L		108	71 - 132	2	30
Perfluorobutanesulfonic acid (PFBS)	35.5	40.0		ng/L		113	72 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	38.0		ng/L		104	68 - 131	2	30
Perfluorooctanesulfonic acid (PFOS)	37.2	41.8		ng/L		112	65 - 140	1	30
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	42.7		ng/L		107	65 - 136	3	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	40.0	42.2		ng/L		105	61 - 135	4	30
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid	37.4	43.9		ng/L		118	77 - 137	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	40.4		ng/L		101	72 - 132	2	30
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid	37.8	38.9		ng/L		103	76 - 136	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	44.6		ng/L		118	81 - 141	3	30
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic				Ü					

LCSD LCSD

	LCJD	LUJD	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	94		50 - 150
13C4 PFHpA	95		50 - 150
13C4 PFOA	92		50 - 150
13C5 PFNA	99		50 - 150
13C2 PFDA	98		50 - 150
13C2 PFUnA	104		50 - 150
13C2 PFDoA	95		50 - 150
13C2 PFTeDA	83		50 - 150
13C3 PFBS	80		50 - 150
1802 PFHxS	88		50 - 150
13C4 PFOS	87		50 - 150
d3-NMeFOSAA	92		50 - 150
d5-NEtFOSAA	96		50 - 150
13C3 HFPO-DA	108		50 - 150

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# **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-96053-1 Project/Site: McGrath PFAS

#### LCMS

#### **Prep Batch: 648221**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-96053-1	MCG-MW-01	Total/NA	Water	3535	
320-96053-2	MCG-MW-101	Total/NA	Water	3535	
320-96053-3 - DL	MCG-MW-02	Total/NA	Water	3535	
320-96053-3	MCG-MW-02	Total/NA	Water	3535	
320-96053-4	MCG-MW-03	Total/NA	Water	3535	
320-96053-5	MCG-MW-04	Total/NA	Water	3535	
320-96053-6	MCG-001	Total/NA	Water	3535	
320-96053-7	MCG-003	Total/NA	Water	3535	
320-96053-8	MCG-007	Total/NA	Water	3535	
320-96053-9	MCG-021	Total/NA	Water	3535	
320-96053-10	MCG-024	Total/NA	Water	3535	
320-96053-11	MCG-124	Total/NA	Water	3535	
MB 320-648221/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-648221/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-648221/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

#### **Analysis Batch: 651742**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-96053-1	MCG-MW-01	Total/NA	Water	EPA 537(Mod)	648221
320-96053-2	MCG-MW-101	Total/NA	Water	EPA 537(Mod)	648221
320-96053-3	MCG-MW-02	Total/NA	Water	EPA 537(Mod)	648221
320-96053-4	MCG-MW-03	Total/NA	Water	EPA 537(Mod)	648221
320-96053-5	MCG-MW-04	Total/NA	Water	EPA 537(Mod)	648221
320-96053-6	MCG-001	Total/NA	Water	EPA 537(Mod)	648221
320-96053-7	MCG-003	Total/NA	Water	EPA 537(Mod)	648221
320-96053-9	MCG-021	Total/NA	Water	EPA 537(Mod)	648221
320-96053-10	MCG-024	Total/NA	Water	EPA 537(Mod)	648221
MB 320-648221/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	648221
LCS 320-648221/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	648221
LCSD 320-648221/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	648221

#### **Analysis Batch: 652807**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-96053-3 - DL	MCG-MW-02	Total/NA	Water	EPA 537(Mod)	648221
320-96053-8	MCG-007	Total/NA	Water	EPA 537(Mod)	648221
320-96053-11	MCG-124	Total/NA	Water	EPA 537(Mod)	648221

Job ID: 320-96053-1

Client: Shannon & Wilson, Inc Project/Site: McGrath PFAS

Date Received: 01/17/23 18:30

Client Sample ID: MCG-MW-01

Date Collected: 01/11/23 13:12

Lab Sample ID: 320-96053-1 **Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262.2 mL	10.0 mL	648221	01/19/23 20:22	PV	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	651742	02/03/23 19:12	K1S	EET SAC

Client Sample ID: MCG-MW-101 Lab Sample ID: 320-96053-2

Date Collected: 01/11/23 13:02 **Matrix: Water** 

Date Received: 01/17/23 18:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			283.8 mL	10.0 mL	648221	01/19/23 20:22	PV	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	651742	02/03/23 19:22	K1S	EET SAC

Lab Sample ID: 320-96053-3 Client Sample ID: MCG-MW-02

Date Collected: 01/11/23 14:07 **Matrix: Water** 

Date Received: 01/17/23 18:30

Prep Type Total/NA Total/NA	Batch Type Prep Analysis	Batch Method 3535 EPA 537(Mod)	Run DL DL	Dil Factor	Initial Amount 284.7 mL 1 mL	Final Amount 10.0 mL 1 mL	Batch Number 648221 652807	Prepared or Analyzed 01/19/23 20:22 02/08/23 20:16	 Lab EET SAC EET SAC
Total/NA Total/NA	Prep Analysis	3535 EPA 537(Mod)		1	284.7 mL 1 mL	10.0 mL 1 mL	648221 651742	01/19/23 20:22 02/03/23 19:33	 EET SAC EET SAC

Client Sample ID: MCG-MW-03 Lab Sample ID: 320-96053-4 **Matrix: Water** 

Date Collected: 01/11/23 16:04

Date Received: 01/17/23 18:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			284.1 mL	10.0 mL	648221	01/19/23 20:22	PV	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	651742	02/03/23 19:43	K1S	EET SAC

Client Sample ID: MCG-MW-04 Lab Sample ID: 320-96053-5

Date Collected: 01/11/23 17:15 Date Received: 01/17/23 18:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			267.2 mL	10.0 mL	648221	01/19/23 20:22	PV	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	651742	02/03/23 19:53	K1S	EET SAC

Lab Sample ID: 320-96053-6 Client Sample ID: MCG-001 Date Collected: 01/10/23 10:27

Date Received: 01/17/23 18:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			303.6 mL	10.0 mL	648221	01/19/23 20:22	PV	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	651742	02/03/23 20:03	K1S	EET SAC

**Eurofins Sacramento** 

Page 24 of 31

**Matrix: Water** 

**Matrix: Water** 

2/13/2023

Job ID: 320-96053-1

Client: Shannon & Wilson, Inc Project/Site: McGrath PFAS

**Client Sample ID: MCG-003** 

Date Collected: 01/10/23 11:38 Date Received: 01/17/23 18:30 Lab Sample ID: 320-96053-7

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			294.3 mL	10.0 mL	648221	01/19/23 20:22	PV	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	651742	02/03/23 20:24	K1S	EET SAC

Lab Sample ID: 320-96053-8 **Client Sample ID: MCG-007 Matrix: Water** 

Date Collected: 01/10/23 15:01 Date Received: 01/17/23 18:30

	_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
	Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
	Total/NA	Prep	3535			301.8 mL	10.0 mL	648221	01/19/23 20:22	PV	EET SAC
l	Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	652807	02/08/23 20:46	K1S	EET SAC

**Client Sample ID: MCG-021** Lab Sample ID: 320-96053-9 **Matrix: Water** 

Date Collected: 01/10/23 14:28 Date Received: 01/17/23 18:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			285.4 mL	10.0 mL	648221	01/19/23 20:22		EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	651742	02/03/23 20:45	K1S	EET SAC

Client Sample ID: MCG-024 Lab Sample ID: 320-96053-10 Date Collected: 01/11/23 10:32 **Matrix: Water** 

Date Received: 01/17/23 18:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			292.9 mL	10.0 mL	648221	01/19/23 20:22	PV	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	651742	02/03/23 20:55	K1S	EET SAC

Client Sample ID: MCG-124 Lab Sample ID: 320-96053-11 Date Collected: 01/11/23 10:22 **Matrix: Water** 

Date Received: 01/17/23 18:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			293 mL	10.0 mL	648221	01/19/23 20:22	PV	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	652807	02/08/23 20:57	K1S	EET SAC

#### **Laboratory References:**

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Page 25 of 31

### **Accreditation/Certification Summary**

Client: Shannon & Wilson, Inc Job ID: 320-96053-1 Project/Site: McGrath PFAS

### **Laboratory: Eurofins Sacramento**

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

### **Method Summary**

Client: Shannon & Wilson, Inc Project/Site: McGrath PFAS

 Method Description
 Protocol
 Laboratory

 PFAS for QSM 5.3, Table B-15
 EPA
 EET SAC

4

Job ID: 320-96053-1

**EET SAC** 

SW846

### **Protocol References:**

Method

3535

EPA 537(Mod)

EPA = US Environmental Protection Agency

Solid-Phase Extraction (SPE)

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### **Laboratory References:**

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

## **Sample Summary**

Project/Site: McGrath PFAS

Job ID: 320-96053-1 Client: Shannon & Wilson, Inc

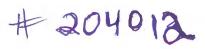
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-96053-1	MCG-MW-01	Water	01/11/23 13:12	01/17/23 18:30
320-96053-2	MCG-MW-101	Water	01/11/23 13:02	01/17/23 18:30
320-96053-3	MCG-MW-02	Water	01/11/23 14:07	01/17/23 18:30
320-96053-4	MCG-MW-03	Water	01/11/23 16:04	01/17/23 18:30
320-96053-5	MCG-MW-04	Water	01/11/23 17:15	01/17/23 18:30
320-96053-6	MCG-001	Water	01/10/23 10:27	01/17/23 18:30
320-96053-7	MCG-003	Water	01/10/23 11:38	01/17/23 18:30
320-96053-8	MCG-007	Water	01/10/23 15:01	01/17/23 18:30
320-96053-9	MCG-021	Water	01/10/23 14:28	01/17/23 18:30
320-96053-10	MCG-024	Water	01/11/23 10:32	01/17/23 18:30
320-96053-11	MCG-124	Water	01/11/23 10:22	01/17/23 18:30

#	2	04	0	10
71	d	0-1		

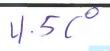
SHANNON & WILSON, IN  2355 Hill Road  Fairbanks, AK 99709  (907) 479-0600	CHAIN	N-OF-CUST		RECORD	Attn:		of 2
www.shannonwilson.com			6	/ / /	7 /		7
Turn Around Time: Qu	uote No:		3			/ Jings	
Normal Rush	Flags: Yes No	ate poled	<u> </u>		/ /	da kunta da Containa es Sample	
Please Specify		15	/ /			Remar	ks/Matrix
Sample Identity L		ate QV	12 <b>11</b> 44112141141414	1840 (18 <b>4</b> 0) 884 88 <b>8</b> 24 84 84 84 84 84 84 84 84 84 84 84 84 84	/ /	Compos Sample	tion/Grab? Containers
MCG-MW-01	1312 01/1	1/23 X			a	Groundwa	Jer
MCG-MW-101	1302 01/	1/23				1	
MCG-MW- OZ	1407 01/1	1/23	320-96053 Ch	ain of Custody	_		
MC6-MW-03	1604 01/1	1/23	1				
MCG-MW-04	1715 01/1	1/23					
MCG - 001	1027 01/1	0/23					
MCG-003	1138 01/1						
MCG-007	1501 01/1						
MC6 - 021	1428 01/1	0/3					
MCG-024	1032 01/1	1/23					
Project Information	Sample Receipt	Reliquished By:	1.	Reliquished By:	2.	Reliquished	By: 3.
1000	No. of Containers: Seals/Intact? Y/N/NA	Signature	ime: 1215	Signature A	Time:	Signature:	Time:
	ed Good Cond./Cold	Printer Name:	Date: 61/16/23	Printed Name:	Date: // // // // // // // // // // // // //	Printed Name:	Date:
Ongoing Project? Yes No Temp:		Christopher Ha	11	AJosh	707		
Sampler: C2H, RLW Deliver	ry Method:	Company:		Company:		Company:	
Notes:		Shannon + Wilson					
		Received By:	1.	Received By:	2.	Received I	3y: 3.
		( )	//	in WW	rime: <u>√8,3</u>		Time:
		Printed Name: A CRY	Date: 17/73	Printed Name: \\ Cah\\\	Date: 1/11/72	Printed Name:	Date:
Distribution: White - w/shipment - returned to Shar Yellow - w/shipment - for consignee f Pink - Shannon & Wilson - job file		Company:		EETSAC	0.40	Company:	







SHANNON & WILSO  BEOTECHNICAL AND ENVIRONMENTAL  2355 Hill Road Fairbanks, AK 99709 (907) 479-0600  www.shannonwilson.co	CONBULTANTS	HAIN	-OF-C	USTOD			Attn:	ve ii useu)	age 2 of 2
Turn Around Time:  Normal Rush  Please Specify  Sample Identity  MCG - 124	Quote No:  J-Flags: Yes  Lab No. Tin		ed /	+ OSH OS	/		2	Comp	
Project Information  Number: 102219 - 015  Name: McGah DFAS  Contact: Knisten Freibung  Ongoing Project? Yes No  Sampler: C2H, RLW	Sample Recei Total No. of Containers: COC Seals/Intact? Y/N/NA Received Good Cond./Cold Temp: Delivery Method:	S	ignature!  Interest Name: 1  Christophompany:  Shann on	Ler Hall wilson, Inc	Printe Comp	ad Name:  Fisher  Dany:	Date (17/2)	Reliquish Signature: Printed Name: Company:	Time:
Distribution: White - w/shipment - returne Yellow - w/shipment - for cor Pink - Shannon & Wilson - jo	d to Shannon & Wilson w/ laborsisignee files	Pi	ignature:	Time:    A Commerce   Date:    MY	Printe // Comp	ed Name:	Date: 17/23	Receive Signature: Printed Name: Company:	d By: 3.  Time:















### **Login Sample Receipt Checklist**

Client: Shannon & Wilson, Inc Job Number: 320-96053-1

Login Number: 96053 List Source: Eurofins Sacramento

List Number: 1

Creator: Cahill, Nicholas P

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
s the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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# ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Mason Craker	CS Site Name:	N/A	Lab Name:	Eurofins Environment Testing
Title:	Geology Staff	ADEC File No.:	N/A	Lab Report No.:	320-96053-1
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	N/A	Lab Report Date:	February 13, 2022
Note: Any N/.	'A or No box check	ed must have	an explanation in the	comments box.	
1. Labor	ratory				
a.	approved laborate Yes ⊠ No □ No Comments: The A for the analysis of	ory receive ar N/A □ ADEC certified f PFAS. Thes	ites Laboratory Approved the sure of the s	bmitted sample	e analyses? t Sacramento
b.	to an alternate la approved? Yes □ No □ N	boratory, was I/A ⊠	to another "network" the laboratory perform	ning the analyse	es CS-LAP
2. Chain	of Custody (CoC	<b>;</b> )			
a.	Is the CoC inform released/received Yes ⊠ No □ No Comments:	d by)?	ted, signed, and dated	(including	
b.	the Department of	N/A □ ted: Per- and p of Defense (Do	uested? polyfluorinated substan pD) Quality Systems M rsion 5.3 Table B-15.		

Revision 9/2022

**Lab Report No.:** 320-96053-1

### 3. Laboratory Sample Receipt Documentation

	a.	Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)? Yes $\boxtimes$ No $\square$ N/A $\square$
		Cooler temperature(s): Cooler temperature was not reported by the laboratory. Sample temperature(s): A temperature blank was included with the samples in the cooler and is used to assess sample temperature. The temperature blank was reported at 0.6°C upon arrival at the laboratory. Comments:
	b.	Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)? Yes $\boxtimes$ No $\square$ N/A $\square$
		Comments: PFAS does not require any additional preservation beyond temperature control.
	C.	Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.? Yes $\boxtimes$ No $\square$ N/A $\square$
		Comments: The laboratory notes that the samples arrived in good condition.
	d.	If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.? Yes $\square$ No $\square$ N/A $\boxtimes$
		Comments: The laboratory does not note any discrepancies.
	e.	Is the data quality or usability affected?  Yes □ No ⋈ N/A □
		Comments: See above.
4.	Case I	Narrative
	a.	Is the case narrative present and understandable? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	b.	Are there discrepancies, errors, or QC failures identified by the lab? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
		The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. This is associated with PFHxS for sample <i>MCG-MW-03</i> .

Lab Report No.: 320-96053-1

Results for sample *MCG-MW-02* were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts are within acceptance limits.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-648221.

Sample *MCG-003* was observed to be yellow and contain a thin layer of sediment present in the bottom of the bottle prior to extraction.

		Were all the corrective actions documented? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments: The dilution factor was applied to <i>MCG-MW-02</i> and area counts were in acceptable limits.
	C.	What is the effect on data quality/usability according to the case narrative? Comments: The case narrative does not note an effect on data quality or usability.
5.	Samp	le Results
	a.	Are the correct analyses performed/reported as requested on CoC? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	b.	Are all applicable holding times met?  Yes ⊠ No □ N/A □  Comments:
	C.	Are all soils reported on a dry weight basis?  Yes □ No □ N/A ☒  Comments: Soils were not submitted with this work order.
	d.	Are the reported limits of quantitation (LOQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	e.	Is the data quality or usability affected?  Yes □ No ☒ N/A □  Comments: See above.

Lab Report No.: 320-96053-1

### 6. QC Samples

a. Method Blank

i.	Was one method blank reported per matrix, analysis, and 20 samples? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
ii.	Are all method blank results less than LOQ (or RL)? Yes $\boxtimes$ No $\square$ Comments:
iii.	If above LOQ or RL, what samples are affected?  Comments: There were no detections in the method blank associated with the project samples.
iv.	Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes $\square$ No $\square$ N/A $\boxtimes$ Comments: See above.
V.	Data quality or usability affected?  Yes □ No ⋈ N/A □  Comments: See above.
b. Labora	atory Control Sample/Duplicate (LCS/LCSD)
i.	Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)  Yes ⊠ No □ N/A □  Comments: LCS/LCSD were reported for the method.
ii.	Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples? Yes $\square$ No $\square$ N/A $\boxtimes$ Comments: Metals/Inorganics were not requested as a part of this work order.
iii.	Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:

Lab Report No.: 320-96053-1

	iv.	Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	V.	If %R or RPD is outside of acceptable limits, what samples are affected? Comments: None. %R and RPD were within acceptable limits.
	vi.	Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes $\square$ No $\square$ N/A $\boxtimes$ Comments: See above.
	vii.	Is the data quality or usability affected?  Yes □ No ☒ N/A □  Comments: See above.
C.	Matrix	Spike/Matrix Spike Duplicate (MS/MSD)
	i.	Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?  Yes  No  N/A  Comments: MS/MSD samples were not reported; however, precision can be assessed with the LCS/LCSD.
	ii.	Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?  Yes □ No □ N/A ☒  Comments: Metals/Inorganics were not requested as a part of this work order.
	iii.	Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? Yes $\square$ No $\square$ N/A $\boxtimes$ Comments: See above.
	iv.	Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:

Lab Report No.: 320-96053-1

	٧.	If %R or RPD is outside of acceptable limits, what samples are affected? Comments: See above.
	vi.	Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes $\square$ No $\square$ N/A $\boxtimes$ Comments: See above.
	vii.	Is the data quality or usability affected?  Yes □ No ☒ N/A □  Comments: See above.
d.	_	gates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution ds Only
	i.	Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	ii.	Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages) Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	iii.	Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?  Yes  No  N/A  Comments: See above.
	iv.	Is the data quality or usability affected?  Yes □ No ☒ N/A □  Comments:
e.	Trip Bl	anks
	i.	Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes $\square$ No $\square$ N/A $\boxtimes$ Comments: PFAS are not volatile compounds; therefore, a trip blank is not required.
	ii.	Are all results less than LOQ or RL?  Yes □ No □ N/A ⊠  Comments: A trip blank is not required.

Lab Report No.: 320-96053-1

	iii.	If above LOQ or RL, what samples are affected? Comments: None; a trip blank is not required.
	iv.	Is the data quality or usability affected?  Yes □ No □ N/A ☒  Comments: See above.
f.	Field [	Duplicate
	i.	Are one field duplicate submitted per matrix, analysis, and 10 project samples? Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
		Was the duplicate submitted blind to lab?
		Yes $\boxtimes$ No $\square$ N/A $\square$ Comments: Field duplicate sample pairs $MCG-MW-01/MCG-MW-101$ and $MCG-024/MCG-124$ were submitted with this work order.
	ii.	Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)
		$RPD \ (\%) = \left  \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right  X \ 100$
		Where R₁ = Sample Concentration
		R ₂ = Field Duplicate Concentration
		Yes $\boxtimes$ No $\square$ N/A $\square$ Comments: RPD are within project DQOs, where calculable.
	iii.	Is the data quality or usability affected? (Explain) Yes □ No ⋈ N/A □ Comments: See above.
g.	Decon	tamination or Equipment Blanks
	i.	Were decontamination or equipment blanks collected?  Yes □ No □ N/A ☒  Comments: Reusable equipment was not used; therefore, an equipment blank is not required.
	ii.	Are all results less than LOQ or RL?  Yes □ No □ N/A ☒  Comments: See above.

Lab Report No.: 320-96053-1

iii. If above LOQ or RL, specify what samples are affected.

Comments: N/A; see above.

iv. Are data quality or usability affected?

Yes  $\square$  No  $\square$  N/A  $\boxtimes$  Comments: See above.

### 7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Are they defined and appropriate?

Yes □ No □ N/A ⊠

Comments: The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. This is associated with PFHxS for sample *MCG-MW-03*. We consider this result to be estimated, biased high, and have flagged the datum with a "JH" in the analytical database.



February 15, 2023

Name General Delivery McGrath, AK 99627

# RE: RESULTS OF 2023 PFAS WATER SUPPLY WELL SAMPLING, MCGRATH AIRPORT

Thank you for participating in our water supply well sampling program to evaluate the presence of per- and polyfluoroalkyl substances (PFAS) in groundwater near the McGrath Airport (MCG). Shannon & Wilson, Inc. collected a water sample from your water supply well at address on date. We have also sent a copy of this letter to your tenant.

The water sample was analyzed for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and several other PFAS compounds. We compare these concentrations to the Alaska Department of Environmental Conservation (DEC) drinking water action level of 70 parts per trillion (ppt) for the sum of PFOS and PFOA. Please note that these units are equivalent to nanograms per liter (ng/L).

Results of the analysis conducted by Eurofins Environment Testing indicate that PFOS was not detected, and PFOA was not detected in the groundwater sample from your well. Based on the laboratory results from this sampling event the sum of PFOS and PFOA for your water sample is XX ppt, which is above/below the DEC drinking water action level. (*Insert other detected PFAS*) were also detected in the sample; however, DEC has not promulgated groundwater or drinking water standards for this/these compounds. The portions of the original laboratory report that apply to your well (sample number *PW-039*) are enclosed for your records.

Shannon & Wilson has conducted this sampling event on behalf of the Alaska Department of Transportation and Public Facilities (DOT&PF). Please see the enclosed PFAS fact sheet for a link to the DOT&PF project website.

Name February 15, 2023 Page 2

If you have any questions regarding your results, please feel free to contact us.

Sincerely,

SHANNON & WILSON, INC.



Enc: Select Pages of Test America Laboratory Report No. 320-96053-1

PFAS Fact Sheet – McGrath Airport

Print Form

# Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	ADOT&PF McGrath Airport Sitewide PF	AS	
File Number:	2612.38.012		
Completed by:	Shannon & Wilson, Inc.		
about which expo summary text abo	osure pathways should be further in	vestigated dur g exposure pa	artment of Environmental Conservation (DEC) ring site characterization. From this information thways should be submitted with the site
General Instruct	tions: Follow the italicized instruc	tions in each	section below.
1. General In Sources (check)	nformation: potential sources at the site)		
☐ USTs		☐ Vehicles	
☐ ASTs		☐ Landfills	S
☐ Dispensers/fu	el loading racks	☐ Transfor	mers
☐ Drums			Aqueous Film Forming Foam (AFFF) releases
Release Mechan	nisms (check potential release mech	nanisms at the	site)
⊠ Spills		⊠ Direct d	scharge
⊠ Leaks		☐ Burning	
		☐ Other:	
Impacted Media	a (check potentially-impacted medic	a at the site)	
<ul><li>✓ Surface soil (</li></ul>	, , ,	⊠ Groundy	vater
Subsurface so     Sub	<u> </u>	Surface	water
☐ Air		⊠ Biota	
⊠ Sediment		☐ Other:	
Receptors (check	k receptors that could be affected b	y contaminatio	on at the site)
⊠ Residents (ad	ult or child)	⊠ Site visi	tor
	or industrial worker	▼ Trespass	er
▼ Construction	worker	⊠ Recreati	onal user
⊠ Subsistence h	arvester (i.e. gathers wild foods)	<b>区</b> Farmer	
Subsistence c	onsumer (i.e. eats wild foods)	☐ Other:	

etween 0 and 15 feet below the ge-specific basis.)  Complete  FF releases to the ground	ground surface
e-specific basis.)  Complete	_
FF releases to the ground	
FF releases to the ground	
	ground surface:
the guidance document)?	X
Complete	
	X
etermined the ground-	X
Complete	
	ected in the groundwater, uture? or future drinking water letermined the ground-drinking water according

## 2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, $\overline{X}$ or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a $\overline{\times}$ drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Complete Comments: We don't anticipate potentially affected surface bodies in the airport vicinity are being used as a drinking water source. However, the potential exists and we consider this pathway potentially complete. The Kuskokwim River is used as a water source for McGrath's municipal water system. PFAS were not detected in samples collected from the municipal water system in January 2023. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or $\overline{X}$ harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into $\overline{X}$ biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the $\overline{X}$ ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? If both boxes are checked, label this pathway complete: Incomplete Comments: PFAS are not included in Appendix D.

2. Inhalation of Indoor Air		
Are occupied buildings on the site or reasonably expected to be the site in an area that could be affected by contaminant vapors or vertical feet of petroleum contaminated soil or groundwater; non-petroleum contaminted soil or groundwater; or subject to " which promote easy airflow like utility conduits or rock fracture	s? (within 30 horizontal within 100 feet of 'preferential pathways,"	×
Are volatile compounds present in soil or groundwater (see Ap document)?	pendix D in the guidance	
If both boxes are checked, label this pathway complete:	Incomplete	
Comments:		
PFAS are not included in Appendix D.		

3.	Additional Exposure Pathways: (Although there are no definitive questions provided in this section,
	these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)
De	ermal Exposure to Contaminants in Groundwater and Surface Water
	Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

o Climate permits exp	reational use of waters for swimming.  bosure to groundwater during activities, such as construction.  face water is used for household purposes, such as bathing or c	alaguin a
Generally, DEC groundwater c	leanup levels in 18 AAC 75, Table C, are deemed protective or ted into the groundwater exposure equation for residential uses	f this pathway because
Check the box if further eva	aluation of this pathway is needed:	X
Comments:		
absorbed through the skin. However	nt of Health and Social Services, PFOS and PFOA are not appreciably er, Appendix B of the 2017 Guidance on Developing Conceptual Site We consider dermal exposure to these compounds to be insignificant for	r
Inhalation of Volatile Compo  Inhalation of volatile compo	ounds in Tap Water bunds in tap water may be a complete pathway if:	
o The contaminated w	vater is used for indoor household purposes such as showering,	, laundering, and dish
washing.  The contaminants of guidance document.	f concern are volatile (common volatile contaminants are listed.)	d in Appendix D in the
	els in 18 AAC 75, Table C are protective of this pathway becaud activities is incorporated into the groundwater exposure equations.	
Check the box if further eva	aluation of this pathway is needed:	
Comments:		
PFAS are not included in Appendix	D.	

### **Inhalation of Fugitive Dust**

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the
inhalation of particulates is incorporated into the soil exposure equation.

nhalation of particulates is incorporated into the soil exposure equation.	
Check the box if further evaluation of this pathway is needed:	$ \overline{X} $
Comments:	_
However, AFFF was likely released to the ground surface that may be dusty in the summertime. To our knowledge, no soil samples from the site have been analyzed for PFAS.	

### **Direct Contact with Sediment**

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- o Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:							
Comments:							

### **HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM**

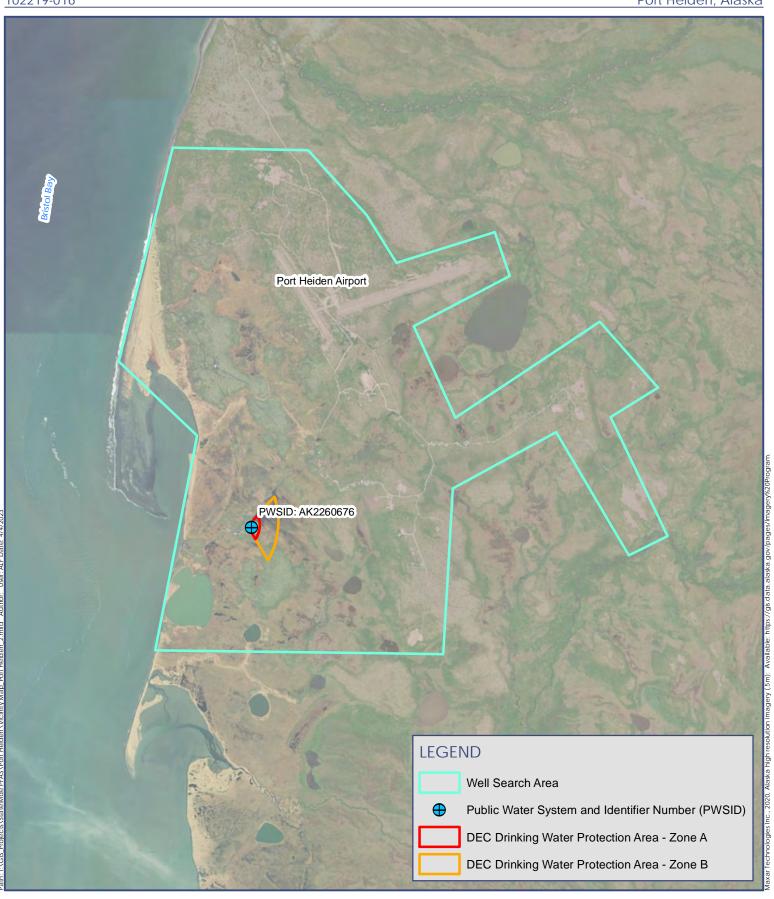
Site: ADOT&PF McGrath Airport Sitewide PFAS		<u>Instructions</u> : Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.								
Completed By: Shannon & Wilson, Inc.		use controls when describing pati	iways	•						
Date Completed: March 2023						(5)				
(1)  Check the media that could be directly affected by the release.  For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.	(3) Check all exposure media identified in (2).	(4) Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.	Identify the receptors potentially affer exposure pathway: Enter "C" for cur "F" for future receptors, "C/F" for bo future receptors, or "I" for insignifica  Current & Future Re					rrent receptors, th current and ant exposure. eceptors		
Media Transport Mechanisms	Exposure Media	Exposure Pathway/Route	en) ers spass userg				siste, nsun			
✓     Direct release to surface soil     check soil       Surface     ✓ Migration to subsurface     check soil       Soil     ✓ Migration to groundwater     check groundwater       (0-2 ft bgs)     Volatilization     check air	Exposure mount		Residents	Commercial or Site visitors	Construct:	Farmers or Sub-	Subsistence	Other		
Runoff or erosion check surface water	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	ncidental Soil Ingestion	C/F	C/F C/F	C/F	C/F	C/F			
Uptake by plants or animals check biota	soil V	Dermal Absorption of Contaminants from Soil	I	l l	I	ı	ı			
Other (list):		nhalation of Fugitive Dust	C/F	C/F C/F	C/F					
Direct release to subsurface soil   Check soil	groundwater V D	ngestion of Groundwater  Dermal Absorption of Contaminants in Groundwater  Phalation of Volatile Compounds in Tap Water	C/F	C/F C/F	C/F	C/F	C/F			
Ground- water  Direct release to groundwater  Check groundwater  Check air  Check air  Check surface water  Check surface water  Check sediment  Check sediment	air Ir	nhalation of Outdoor Air nhalation of Indoor Air								
Uptake by plants or animals check biota	' <u>    I</u>	nhalation of Fugitive Dust								
Other (list):  Direct release to surface water check surface water  Surface Water  Volatilization check sediment  Check surface water  check surface water	surface water	ngestion of Surface Water Dermal Absorption of Contaminants in Surface Water	C/F	C/F C/F	C/F	C/F	C/F			
✓ Uptake by plants or animals check biota		nhalation of Volatile Compounds in Tap Water								
Other (list):  Direct release to sediment	sediment / D	Direct Contact with Sediment	C/F	C/F C/F	C/F	C/F	C/F			
Uptake by plants or animals check biota Other (list):	✓ biota ✓ II	ngestion of Wild or Farmed Foods	C/F	C/F C/F	C/F	C/F	C/F			

### Appendix E

# Port Heiden Airport Supporting Documents

### **CONTENTS**

- Figure E1 Vicinity Map
- Figure E2 Site Map
- Figure E3 Analytical Results Summary
- Table E1 Port Heiden Water Supply Well Analytical Results November 2022
- Well Search Questionnaire Letter and PFAS Fact Sheet Mailing
- Scanned Sampling Logs and Field Notes
- Analytical Laboratory Reports and Data Review Documentation
- Personalized Results Letter Template
- DEC Conceptual Site Model Scoping and Graphic Forms

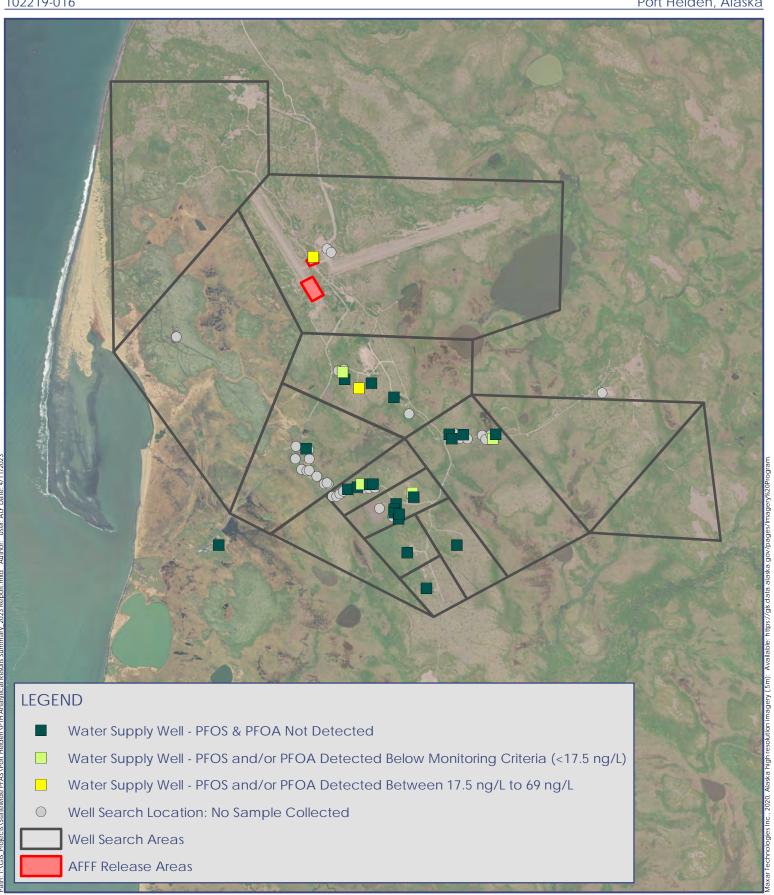








June 2023 SITE MAP Figure E2





### Notes:

- 1. AFFF: Aqueous Film Foarming Foam
- 2. Locations are approximate

3. Samples collected in November 2022 ng/L = nanograms per liter, equivalent to parts per trillion (ppt)

June 2023

ANALYTICAL RESULTS SUMMARY

Figure **E3** 



Table E1 — Port Heiden Water Supply Well Analytical Results - November 2022

Analytical				PTH-013	PTH-015	PTH	-016	PTH-020	PTH-022	PTH-025	PTH-026	PTH-027	PTH-029
Method	Analyte	Regulatory Limit	Units	11/11/2022	11/11/2022	11/10/2022	Duplicate	11/10/2022	11/10/2022	11/9/2022	11/9/2022	11/10/2022	11/10/2022
	Perfluorooctanesulfonic acid (PFOS)	70+	ng/L	<1.7	<2.0	0.50J	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
	Perfluorooctanoic acid (PFOA)	<del></del>	ng/L	<1.7	<2.0	<1.8	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	10†	ng/L	<3.5	<3.9	<3.6	<4.2	<3.6J*	<3.7J*	<3.7	<3.9	<3.6	<3.7
	Perfluorobutanesulfonic acid (PFBS)	2,000†	ng/L	0.34J	<2.0	<1.8	<2.1	1.7J*	<1.8J*	9.9	<2.0	<1.8	<1.8
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.7	<2.0	<1.8	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.7	<2.0	<1.8	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	<1.7	<2.0	<1.8	<2.1	0.47J*	<1.8J*	1.1J	<2.0	<1.8	<1.8
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	0.70J	<2.0	<1.8	<2.1	5.8J*	<1.8J*	35	<2.0	<1.8	<1.8
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	0.65J	<2.0	<1.8	<2.1	1.3J*	<1.8J*	4.8	<2.0	<1.8	<1.8
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.7	<2.0	<1.8	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.7	<2.0	<1.8	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.7	<2.0	<1.8	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.7	<2.0	<1.8	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	N/A	ng/L	<1.7	<2.0	<1.8	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	N/A	ng/L	<1.7	<2.0	<1.8	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.7	<2.0	<1.8	<2.1	<1.8J*	<1.8J*	<1.8	<2.0	<1.8	<1.8
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.3	<4.9	<4.5	<5.2	<4.6J*	<4.6J*	<4.6	<4.9	<4.5	<4.6
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.3	<4.9	<4.5	<5.2	<4.6J*	<4.6J*	<4.6	<4.9	<4.5	<4.6



Table E1 — Port Heiden Water Supply Well Analytical Results - November 2022

Analytical				PTH-030	PTH-031	PTH-032	PTH-033	PTH-037	PTH-042	PTH-043	PTH	-045
Method	Analyte	Regulatory Limit	Units	11/9/2022	11/9/2022	11/9/2022	11/10/2022	11/11/2022	11/10/2022	11/9/2022	11/10/2022	Duplicate
	Perfluorooctanesulfonic acid (PFOS)	70+	ng/L	<1.8	1.3J	<1.8	<1.8	<1.7	0.64J	<1.9	<1.8	<1.9
	Perfluorooctanoic acid (PFOA)	<del></del> 70‡	ng/L	<1.8	2.0	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	10†	ng/L	<3.6	<3.6	<3.6	<3.6	<3.4	<3.7	<3.8	<3.6	<3.7
	Perfluorobutanesulfonic acid (PFBS)	2,000†	ng/L	<1.8	<1.8	1.2J	0.22J	<1.7	<1.9	<1.9	<1.8	<1.9
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.8	<1.8	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.8	<1.8	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
EPA 537(Mod)	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	<1.8	0.24J	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	<1.8	<1.8	0.60J	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	<1.8	<1.8	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.8	<1.8	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.8	<1.8	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.8	<1.8	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.8	<1.8	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	N/A	ng/L	<1.8	<1.8	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	N/A	ng/L	<1.8	<1.8	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.8	<1.8	<1.8	<1.8	<1.7	<1.9	<1.9	<1.8	<1.9
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.5	<4.5	<4.5	<4.5	<4.3	<4.6	<4.8	<4.5	<4.6
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.5	<4.5	<4.5	<4.5	<4.3	<4.6	<4.8	<4.5	<4.6



Table E1 — Port Heiden Water Supply Well Analytical Results - November 2022

Analytical				PTH	-046	PTH-049	PTH-201	PTH-202	PTH-205	PTH-206	PTH-207	PTH-211	PTH-212
Method	Analyte	Regulatory Limit	Units	11/10/2022	Duplicate	11/9/2022	11/11/2022	11/11/2022	11/11/2022	11/11/2022	11/11/2022	11/9/2022	11/10/2022
	Perfluorooctanesulfonic acid (PFOS)	70+	ng/L	36	32	<1.8	<1.8J*	<2.1	2.9JH*	<1.8	<1.7	<1.8	<1.9J*
	Perfluorooctanoic acid (PFOA)	70‡	ng/L	22	17	<1.8	<1.8J*	3.1	15	<1.8	<1.7	<1.8	<1.9J*
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	10†	ng/L	<3.6	<4.0	<3.6	<3.6J*	<4.2	<3.6	<3.5	<3.5	<3.6	<3.8J*
	Perfluorobutanesulfonic acid (PFBS)	2,000†	ng/L	110	110	<1.8	0.33J*	2.3	9.9	0.74J	<1.7	<1.8	<1.9J*
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.8	<2.0	<1.8	<1.8J*	<2.1	<1.8	<1.8	<1.7	<1.8	<1.9J*
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.8	<2.0	<1.8	<1.8J*	<2.1	<1.8	<1.8	<1.7	<1.8	<1.9J*
	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	21	20	<1.8	<1.8J*	1.0J	4.0	<1.8	<1.7	<1.8	<1.9J*
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	250	220	<1.8	<1.8J*	4.9	7.1	<1.8	<1.7	<1.8	<1.9J*
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	88	89	<1.8	<1.8J*	1.7J	9.1	<1.8	<1.7	<1.8	<1.9J*
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.8	<2.0	<1.8	<1.8J*	<2.1	<1.8	<1.8	<1.7	<1.8	<1.9J*
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.8	<2.0	<1.8	<1.8J*	<2.1	<1.8	<1.8	<1.7	<1.8	<1.9J*
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.8	<2.0	<1.8	<1.8J*	<2.1	<1.8	<1.8	<1.7	<1.8	<1.9J*
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.8	<2.0	<1.8	<1.8J*	<2.1	<1.8	<1.8	<1.7	<1.8	<1.9J*
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	N/A	ng/L	<1.8	<2.0	<1.8	<1.8J*	<2.1	<1.8	<1.8	<1.7	<1.8	<1.9J*
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	N/A	ng/L	<1.8	<2.0	<1.8	<1.8J*	<2.1	<1.8	<1.8	<1.7	<1.8	<1.9J*
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.8	<2.0	<1.8	<1.8J*	<2.1	<1.8	<1.8	<1.7	<1.8	<1.9J*
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.5	<5.0	<4.5	<4.5J*	<5.2	<4.5	<4.4	<4.3	<4.5	<4.7J*
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.5	<5.0	<4.5	<4.5J*	<5.2	<4.5	<4.4	<4.3	<4.5	<4.7J*



Table E1 — Port Heiden Water Supply Well Analytical Results - November 2022

Analytical Method	Analyte	Regulatory Limit	Units	<b>PTH-213</b> 11/10/2022	<b>PTH-214</b> 11/10/2022
	Perfluorooctanesulfonic acid (PFOS)	<del></del> 70‡	ng/L	<1.8	<1.8
	Perfluorooctanoic acid (PFOA)	704	ng/L	<1.8	<1.8
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	10†	ng/L	<3.6	<3.6
	Perfluorobutanesulfonic acid (PFBS)	2,000†	ng/L	0.41J	<1.8
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.8	<1.8
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.8	<1.8
	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	<1.8	<1.8
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	<1.8	<1.8
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	<1.8	<1.8
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.8	<1.8
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.8	<1.8
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.8	<1.8
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.8	<1.8
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	N/A	ng/L	<1.8	<1.8
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	N/A	ng/L	<1.8	<1.8
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.8	<1.8
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.5	<4.5
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.5	<4.5

Notes: Results reported from Eurofins Environment Testing work order 320-94388-1.

† Final EPA PFAS LHAs (HFPO/PFBS)

DEC Drinking Water Action Level = 70 ng/L for sum of PFOS and PFOA

DEC Alaska Department of Environmental Conservation

EPA United States Environmental Protection Agency

LHA Lifetime Health Advisory

PFAS per- and poly-fluoroalkyl substances

QSM Quality Systems Manual

ng/L nanograms per liter

N/A No applicable regulatory limit exists for the associated analyte.

< Analyte not detected; listed as less than the limit of detection (LOQ) unless otherwise flagged due to quality-control failures.

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.

J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

JH* Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

102219-016 4 of 4



# Department of Transportation and Public Facilities

### DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

October 2022

### Dear Property Owner or Occupant:

The Department of Transportation and Public Facilities (DOT&PF) is conducting a comprehensive evaluation of per- and polyfluoroalkyl substances (PFAS) contamination at state owned airports across the state. Firefighters at the Port Heiden Airport have used aqueous film forming foam (AFFF), a standard firefighting agent that contains PFAS, to extinguish hydrocarbon fires during training exercises and emergency events.

The DOT&PF has contracted with environmental consulting firm, Shannon & Wilson, Inc., to collect groundwater samples from water supply wells in Port Heiden. Prior to the sampling event, DOT&PF and their representatives will also reach out to the community leadership to discuss the project and address questions related to the upcoming event.

If you have an active well, please call (907) 458-3147 to schedule a sampling appointment during the dates listed below or discuss your availability with Shannon & Wilson.

### November 7 through November 11

Water supply well sample results will be compared to the Alaska Department of Conservation (DEC) action level of 70 parts per trillion for the sum of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), two compounds within the PFAS family. PFAS are emerging contaminants, and the research into the health effects of exposure to PFAS is ongoing. Results of water samples will be shared with property owners and residents. If your drinking-water well is found to have PFAS above the action level, DOT&PF will assist with access to alternative drinking water.

If you have any questions, please contact me, or see the enclosed contact list to identify the most appropriate person or agency for your inquiry. We appreciate your patience as we work through this process.

Sincerely,

Sammy Cummings

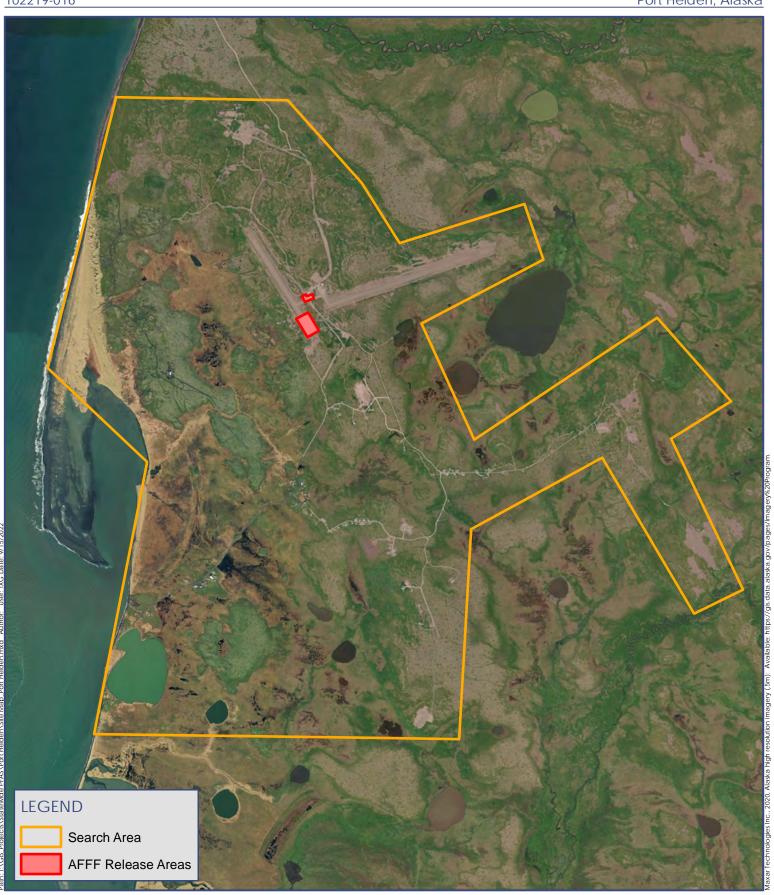
Sammy Cummung

PFAS Program Manager, DOT&PF Statewide Aviation



### **Water Supply Well Inventory Survey Form**

Da	::	
Pa	el:	
Na	e (Owner):	
Na	e (Occupant):	
Ph	ical Address:	
Ma	ing Address:	
Em	il Address (optional):	
Со	act Phone Number: (owner) (occupant)	
	Adults (18 and over) Teenagers (13 to 17) S at this residence:Full-Time Seasonal	
1)	From where do you obtain your drinking water?  a) Water Supply Utility	
2)	f you have a water well, please answer the following questions:  a) Where is the well located on the property?	
3)	Do you have any treatment on your well (e.g. water softener)? Please describe	your
	Signature — — — — — — — — — — — — — — — — — — —	





- AFFF: Aqueous Film Foarming Foam
   Search area is approximate



# Department of Transportation and Public Facilities

### DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

## PFAS Fact Sheet -Port Heiden Airport

October 2022

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging and firefighting foams.

The presumed source of potential PFAS in groundwater in your community is the use of a fire-fighting foam called aqueous film forming foam (AFFF). Airport firefighters used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

The Alaska Department of Environmental Conservation (DEC) has adopted the Environmental Protection Agency's former lifetime health advisory (LHA) level for drinking water of **70 parts per trillion** for the sum of PFOS and PFOA. On June 15, 2022, the EPA adopted a revised interim LHA level. DOT&PF will continue to work with our state and federal partners to determine what this means for Alaska and will make adjustments as more information becomes available.

Website: www.dot.alaska.gov/airportwater/

### For questions about well testing:

Shannon & Wilson, Inc. Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

### For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program

Phone: 907-269-3057

Email: bill.oconnell@alaska.gov

### For questions about PFAS and health effects:

Alaska Department of Health

Sarah Yoder, Env. Public Health Manager

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

# For questions about fire training & other inquiries:

DOT&PF - Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

We advise residents with test results above the DEC Action Level not to use their water for drinking or cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC Action Level, DOT&PF will assist with access to an alternate source of drinking water.



Date: 11/11/22	Parcel ID#:
Physical Address: Gray - blve	house of Metal roof
Name (Owner): Sarah Ande	erson (assumed owner)
Name (Occupant): 距	
Mailing Address (Owner): General	Delivery Port Heiden, AK 99549
Mailing Address (Occupant): 🏪	
Owner Email:	Occupant Email: Se anderson 29.11@gmail
Owner Phone: Preferred method of contact (circle): Number of people residing at this location: Years at this residence: Full-Time	Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)
1) From where do you obtain your drinking a) Residential (private) well c) Bottled water	b) Community well   Filtering w) brita
<ul><li>2) If you have a private well, please answ</li><li>a) Where is the well located on the p</li><li>b) Is the well in use? Yes No</li></ul>	roperty? front on hov
3) If <u>no</u> , is the well usable, unusable, or p  Usable Unusable Ab  If <u>yes</u> , please check all that apply regar  Orinking  Cooking food preparation  Other	pandoned Method
a) When was the well installed?	KNOWH
b) What is the well depth? c) What is the well diameter? d) What is the well type?	Do you have the well log?  Yes No Dug Well Driven
e) Do you have any treatment on you Sedimen-	Drilled Unknown  Ir well (e.g. water softener)? Please describe.  Softener removed
3) Sample Permission	
Does the Shannon & Wilson, Inc. have	permission to sample your private well? Yes No
Signature	Date
2	The state of the s

Entered-RLW

		WATER SUPPLY V	WELL SAMPLIN	IG LOG		
Address	ATH-	013	Pro	oject Number 102219-016		
	Owner/Occupant Sarah Anderson					
		delivery		Date 1) / \ / 22		
INCAS CONTRACTOR		0		Time 1741		
Telephone	907-8	54-7781	Sampli	ng Personnel RW		
Sample Location	P	0				
Sample Location	Samp	from Ritche	extre tou	nk spigot (pre-trint)		
				4		
Sample Number Duplicate	PTH-	013		Time 1821		
Duplicate				Time		
				/		
Analysis	PFAS	×18		Lab Exofins		
A 200 July			_			
Purge Volume	~ 62	gal (2)	gal/min			
		PARAMETERS	[stabilization crit	teria]		
	9 Jan 100	Conductivity	pH			
	Temp. (°C)	(µS/cm)	(std. units)	The state of the s		
Time	[± 0.5]	[± 3%]	[± 0.1]	Water Clarity (visual)		
1750	Purge 5					
1753	6.4	119.8	6.25	clear		
1756	6.5	120.5	6.51	clean		
1759	5.0	114.7	6.70	ciear		
1802	5.0	15.3	6,80	clear		
1805	5,1	115.7	6.95	clear		
1808	4,6	114.0	7.00	clear		
1812	\$ 5.0	115.0	7.10	clear		
18135	4.9	114,5	7.12	crear		
1015	LA	1111.0	7 17	Ox 20		

Votes:	Next	door	John	Holm	cuns	house	next door	
	This	Was	grand fat	her's how	oe .			
								_





PTH-015

## **Water Supply Well Inventory Survey Form**

Da	te:_	11-9-22 Green	house w/ brown trim. Mult Alders	
		PTH-015	in front of house + large sitka spruce	2 +
Na	me	(Owner): Kristian K.	Carlson	
Na	me	(Occupant):saml	ad Port Heiden, AK 995.	40
		A	74 Port Heiden AK 995.	,,,
		A	. 1	7
		Address (optional): <u>meshik</u> w		
Со	ntac	t Phone Number: (owner) <u>907- 837- 4</u>	1041 (occupant)	
Nu	mbe	er of persons residing at this location:	Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)	
Yea	ars a	at this residence: <u>39405</u> Full-Time	Seasonal Lodge-has ques	ts
2)	a) c) If y a) b) c) d)	wou have a water well, please answer the follow where is the well located on the property? Is the well in use? Yes No Distriction of the well in use? Yes No Drinking Cooking Gardening of the well usable, unusable, or property usable Unusable Abandoned When was the well installed?	b) Well Water d) Other  owing questions: on side of driveway the usage of your well water: g Pets Other erly abandoned?  Method	
	g) h)	What is the well diameter?  What is the well type?  Dug W  Drilled	think) Unknown	
	i)	Do you have any treatment on your well (e.	.g. water softener)? Please describe.	
3)	Do	mple Permission es the Alaska Department of Transportation a vate water well?  Yes  No	& Public Facilities (DOT&PF) have permission to sample your	
	Sign	Vistian / Carls	11-9-22 Date	
	0	77.7.7.4.5	Y24/200	

Sample	from Pressur		pigot on after sediment
etil s			Biter
umber PTH-C	is .		Time 1910
nalysis PFAS	3		Lab Euro Fins
ime [± 0.5]	[± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
46 8.7			clear
49 6.9	108.3	6.69	clear
		6.72	clear
			clear
01 5.4	103.5	6.92	clear
04 5.3	103.4	6.96	clear
	103.3	7.00	clear
Surie			
	Temp. (°C [± 0.5] 39 Poge 9 43 9.3 46 8.7 49 6.9 552 6.2 558 5.7 58 5.7 01 5.4 04 5.3	PARAMETERS    Temp. (°C)   Conductivity (µS/cm)	Folume $\begin{array}{ c c c c c c c c c c c c c c c c c c c$

11/20 May 20



Date: 11/10 22 Parcel ID#:							
Physical Address: Bright blue house white trim							
Name (Owner): Maxine Matson (I was in Anchorage)							
Name (Occupant): Constantine Gumlickpok							
Mailing Address (Owner): Warnes 4601 Garfield St. No 3 Anchoras	99503						
Mailing Address (Occupant): Do 49033 Port Howard AK 99549	ì						
Owner Phone: 907-575-0008  Occupant Phone: 907-693-6492  Preferred method of contact (circle): Email Phone	on						
Occupant Ellian. (c-cen)	1907-581						
Preferred method of contact (circle): Email Phone	6105						
Children (12 and under)							
Years at this residence: Full-Time Seasonal							
From where do you obtain your drinking water?							
a) Residential (private) well b) Community well Brita fill c) Bottled water d) Other	er						
2) If you have a private well, please answer the following questions:							
a) Where is the well located on the property? Which was the adjacent to	horse						
b) Is the well in use? Yes No \( \sigma \) Side of property							
3) If <u>no</u> , is the well usable, unusable, or properly abandoned?  Usable Unusable Abandoned Method							
If yes, please check all that apply regarding the usage of your well water:							
☑ Drinking □ Vegetable/grain Gardening							
Cooking food preparation -Size of Gardensq.feet/act							
OtherAverage watering frequency using w	ell						
a) When was the well installed? Unknown water? (daily, weekly, etc.)	=7.3						
b) What is the well depth? Vakawa Dug by Alaska Hausing	3 Authority						
c) What is the well diameter?							
d) What is the well type?							
Drilled Unknown							
e) Do you have any treatment on your well (e.g. water softener)? Pléase describe.							
No. 20 To 20							
4) Sample Permission	7						
Does the Shannon & Wilson, Inc. have permission to sample your private well? Yes	No						
Signature Date	_						

Entered RLW

pm

ng addres	s po Box			Project Name Port Heiden  Date 11/10/22  Time 1240		
Telephon	e 907 - 57	5-0008	Samplin	ng Personnel RLW		
le Locatio	n Purge for	om Kitchen	Sink			
		from filter		Removed hope to fifte		
		(pre-trut)				
	7711	1 \		17.1		
le Numbe			_	Time 13\\\ Time \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
Duplicat	e PTH -	116	_	Time 1.301		
A 1	DEAC			TestA		
Analysi	s PFAS		_	Lab Eurofins TestAm		
as Valum	357 00	(2-3)	gallmin)			
ge volum	e <u>&gt;52 ga</u>	(2 0	9-5/11/11/			
			[stabilization crite	eria]		
			- M			
	Temp (°C)	Conductivity	pH (etd_unite)			
Time	Temp. (°C) [± 0.5]	(µS/cm)	(std. units) [± 0.1]	Water Clarity (visual)		
Time		(µS/cm) [± 3%]	(std. units)	Water Clarity (visual)		
1245 12500	Purge stay	(µS/cm) [± 3%]	(std. units) [± 0.1]	cleal		
1245 125 100 10316 125	[± 0.5]  Runge Star	(μS/cm) [± 3%] 7- 130.3	(std. units) [± 0.1]	clear		
1245 1250 11306 125 1256	[± 0.5]  Runge star	(μS/cm) [± 3%] 7- 130.3 128.9	(std. units) [± 0.1]	clear Clear		
1245 125 mg 1256 1259	[± 0.5]  Runge stary  10 6.5  13 6.6  16.1  16.2	(µS/cm) [± 3%] 7- 130.3 128.9	(std. units) [± 0.1]	clear Clear clear		
1245 1250 1256 1259 1259	[± 0.5]  Runge Stay  10 6.5  13 6.6  16.1	(μS/cm) [± 3%] 7- 130.3 128.9	(std. units) [± 0.1]   b.12   b.37   b.54   b.65   b.74	clear Clear clear		
1245 1250 1250 1259 1205	[± 0.5]  Runge stay  10 6.5  10 10  10.2  10.1  10.0	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		
1245 1256 1256 1259 1259 1205 1305 1308	[± 0.5]  Rung star  10 6.5  10 6.1  10.2  10.1  10.0  10.0	(µS/cm) [± 3%] 7- 130.3 128.9	(std. units) [± 0.1]   b.12   b.37   b.54   b.65   b.74	clear Clear clear		
1245 1250 1250 1259 1205	[± 0.5]  Runge stay  10 6.5  10 10  10.2  10.1  10.0	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		
1245 1250 1250 1259 1259 1205 1305 1308	[± 0.5]  Rung star  10 6.5  10 6.1  10.2  10.1  10.0  10.0	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		
1245 1256 1256 1259 1259 1305 1305	[± 0.5]  Rung star  10 6.5  10 6.1  10.2  10.1  10.0  10.0	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		
1245 1256 1256 1259 1259 1305 1305	[± 0.5]  Rung star  10 6.5  10 6.1  10.2  10.1  10.0  10.0	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		
1245 1250 1250 1259 1259 1205 1305 1308	[± 0.5]  Rung star  10 6.5  10 6.1  10.2  10.1  10.0  10.0	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		
1245 1250 1250 1259 1259 1205 1305 1308	[± 0.5]  Rung star  10 6.5  10 6.1  10.2  10.1  10.0  10.0	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		
1245 1256 1256 1259 1259 1305 1305	[± 0.5]  Rung star  10 6.5  10 6.1  10.2  10.1  10.0  10.0	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		
1245 1256 1256 1259 1259 1205 1305 1308	[± 0.5]  Ring star  10 6.5  10 10  10.1  10.2  10.1  10.0  10.0  2 ample	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		
1250 1250 1250 1259 1305 1305 1311	[± 0.5]  Ring star  10 6.5  10 10  10.1  10.2  10.1  10.0  10.0  2 ample	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		
1250 1250 1250 1259 1305 1305 1311	[± 0.5]  Ring star  10 6.5  10 10  10.1  10.2  10.1  10.0  10.0  2 ample	(µS/cm) [± 3%] 7- 130.3 128.9 129.2 128.5 127.7	(std. units) [± 0.1]   ± 12   0.37   0.54   10.165   6.74   6.80	clear Clear clear clear		





Date: 11/10/22	Parcel ID#: PTH-020							
Physical Address: NSIde of Rd	HUD Red house up boats in yard							
Name (Owner): Christensen								
Name (Occupant):								
Mailing Address (Owner): <u>General</u> <u>de</u>	livery PTH							
Mailing Address (Occupant):								
Owner Email:	Occupant Email: 907 - 843 17 44							
Owner Phone: Preferred method of contact (circle): Email Number of people residing at this location:  Years at this residence: Full-Time	Occupant Phone: 907 - 843 - 174  Phone # doesn+ work. Directory lists  Adults (18 and over)  Teenagers (13 to 17)  Children (12 and under)  Seasonal							
From where do you obtain your drinking water     a) Residential (private) well     c) Bottled water	b) Community well d) Other							
<ul> <li>2) If you have a private well, please answer the form</li> <li>a) Where is the well located on the property</li> <li>b) Is the well in use? Yes No</li> </ul>								
3) If <u>no</u> , is the well usable, unusable, or properly  Usable Unusable Abandone  If <u>yes</u> , please check all that apply regarding the  Drinking  Cooking food preparation  Other	ed Method							
a) When was the well installed? Monor b) What is the well depth? C) What is the well diameter? Dug Drille b) Do you have any treatment on your well (e)	Same time ac other house  Do you have the well log? Yes No  Well  Driven  Unknown							
4) Sample Permission Does the Shannon & Wilson, Inc. have permiss  Permission  From								
Signature	Date							

Entered

walling address	Address PTH-020 Occupant address			ect Number 102219-016 oject Name Port Heiden PFAJ Date 11/10/22 Time 1730 g Personnel RW
ample Location	Purped	from letter	- + bett.	room Sink
		from spig base of press		
Sample Number Duplicate	PTH-C	070		Time 1807 Time
Analysis	PFAS			Lab Eurofins
Purge Volume	~93 g	PARAMETERS Conductivity	stabilization crite	ria]
Time	Temp. (°C)	(µS/cm)	(std. units) [± 0.1]	Water Clarity (visual)
1736	purge s	tar+	6.47	clear
1746	12.7	140.7	6.68	clear
1749	9.5	128.9	6.82	clear
1752	8.2	123.0	6-86	crear
1755	7.0	121.3	6.88	Clear
1368	5.9	118.2	6.88	clear
1804	5.5	11512	(0.89	Clear
1807	Samo		0.0	O I Casa
	Owner	fathers how out of fown		us via Tisha's kidlteenag

* Parameters not stabilized. However sampled bic teenagers wanted to go home



Purple house community eider

## **Private Well Inventory Survey Form**

	D#: PTH-022						
Physical Address: N. Side of HUD Rd. Purple house							
Name (Owner):							
Mailing Address (Occupant):							
Owner Email: Phone Occupa	nt Email: 907 - 837 - 4014						
	nt Phone:						
Preferred method of contact (circle): Email Phone							
Number of people residing at this location:	Adults (18 and over)						
A Section of the Sect	Teenagers (13 to 17)						
Years at this residence: 39 Full-Time Season	Children (12 and under)						
Years at this residence: Full-Time \( \text{N} \) Season	nal 🗌						
From where do you obtain your drinking water?							
	ommunity well						
c) Bottled water	ther						
2) If you have a private well, please answer the following	questions:						
a) Where is the well located on the property? Bet	ween two house						
b) Is the well in use? Yes 🔀 No 🗌							
3) If <u>no</u> , is the well usable, unusable, or properly abandon							
Usable Unusable Abandoned N							
If <u>yes</u> , please check all that apply regarding the usage of							
Drinking	Vegetable/grain Gardening						
Cooking food preparation  Other	-Size of Garden sq.feet/acres -Average watering frequency using well						
1983-1984	water? (daily, weekly, etc.)						
a) When was the well installed?	wells in before house						
b) What is the well depth?	Wells WI DEFORE MOUSE						
c) What is the well diameter?							
d) What is the well type? Dug Well	Driven						
☐ Drilled	Unknown						
e) Do you have any treatment on your well (e.g. water	r softener)? Please describe						
Worter coffener + Filter							
4) Sample Permission	(-,						
Does the Shannon & Wilson, Inc. have permission to sa	imple your private well? Yes No						
Mardan	/						
Siensteine NEY VIII	Data						
Signature	Date						

Mend

Address	PTH-022 (Purpl	e house) Project Number	102214-016
Owner/Occupant		Project Name	Port Heiden
Mailing address	PO BOX 75012 490Z	3 Date	11/10/22
	Port Heiden		1200
Telephone	907-837-4014	Sampling Personnel	RW
Sample Location	Purge from Ritchen s	ink	
		got with 1 ft of washer hook up I me	owner's hose
Sample Number	PTH -022	Time	1234
Duplicate		Time	_
Analysis	PFAS	Lab	Eurofing TestAmerica
Purge Volume		2 gal/min	

PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1201	Purge St			
1204	11.00	202-7 151.2	6.00	clear
1707	11.1	148.8	6.28	clear
1210	10.1	144,7	6.37	clear
1213	7.8	136.3	6.45	erear
1216	7.3	134.8	6.53	clear
1219	7.6	1354	6.60	clear
1222	6.8	132.5	6.60	clear
1225	6.2	130.5	6.64	ciear
1228	6.2	130.6	10.66	dear
1231	6.3	130.8	6.67	ciear
1234	Samol	2		

33min

Quiner did	not want water spilled on floor is
requested	Buy sample thru small washer hose

MM30



	sical Address: Large Green duplex (HUD) Little
Van	ne (Owner): Notive Village of PTH
Van	ne (Occupant): Richard Zimmerman (Best Poc)
Vlai	ling Address (Owner):
Mai	ing Address (Occupant): 70 Box 49070 PTH
Owi	ner Email: Occupant Email: Rzimmerman 415@
Owi	ner Phone: Occupant Phone: 469-2505
	Preferred method of contact (circle): Email Phone  nber of people residing at this location:  Teenagers (13 to 17)  Children (12 and under) 2  rs at this residence: Full-Time Seasonal 2 d > 55
1)	From where do you obtain your drinking water?  a) Residential (private) well
2)	If you have a private well, please answer the following questions:  a) Where is the well located on the property? <u>facing farm on TZ</u>
	b) Is the well in use? Yes No 🗌
3)	b) Is the well in use? Yes No
3)	b) Is the well in use? Yes No  If no, is the well usable, unusable, or properly abandoned?  Usable Unusable Abandoned Method
3)	b) Is the well in use? Yes No

ailing	address	20 Bo 20 Bo		1	Date	Port Heiden PFAS 11/9/22 1230 RLW
nple	Location	Collected	from Ritche sample from	n sink Kitchen	Sink, 7	Pre-treatment
mple [	Number Duplicate	PTH-	025		Time Time	1319
	Analysis	PFAS	>	<u> </u>	Lab	Eurobins TestAm
Purae	Volume	~ 64 ga	0 (2	gallmin)		
	Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	1	ater Clarity (visual)
	Time	[± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Wa	ater Clarity (visual)
	Time 2.47 2.50 2.53	[± 0.5]  Pugge s 15.7 7.8	Conductivity (µS/cm) [± 3%]  +	pH (std. units) [± 0.1]	clear	
	Time 247 150 253	[± 0.5]  Puge 5 15.7 7.8 10.2	Conductivity (µS/cm) [± 3%]  ++++++ 172 .1 101.7 107.3	pH (std. units) [± 0.1]	Clear Clear	
	Time 247 250 253 256 301	[± 0.5]  Puge 5 15.7  7.8 10.2 3.7	Conductivity (µS/cm) [± 3%]  ++++++ 122 .1 101.2 107.3	pH (std. units) [± 0.1]	Clear Clear Clear	
	Time 2.47 2.50 2.53 2.56 3.01 3.04	[± 0.5]  Puge 5 15.7 7.8 10.2 8.7 7.0	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Clear Clear Clear Clear Clear Clear	
	Time 247 250 253 250 304 307 310	[± 0.5]  Pugge s 15.7  7.8  10.2  8.7  7.0  7.0	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Clear Clear Clear Clear Clear Clear	
	Time 247 250 253 256 301 304 307 310	[± 0.5]  \$\frac{7}{9}                                                                                                                                                                                                                                                                                                                                                  \q	Conductivity (µS/cm) [± 3%]  +++++  121 101.2 107.3 101.2 97.5 97.8 91.2	pH (std. units) [± 0.1]	Clear Clear Clear Clear Clear Clear	
	Time 247 250 253 250 304 307 310	[± 0.5]  Pugge s 15.7  7.8  10.2  8.7  7.0  7.0	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Clear Clear Clear Clear Clear Clear	
	Time 247 250 253 256 301 304 307 310 313	[± 0.5]  Pugge s  15.7  7.8  10.2  3.7  7.0  7.0  6.5	Conductivity (µS/cm) [± 3%]  +++++  121 101.2 107.3 101.2 97.5 97.8 91.2	pH (std. units) [± 0.1]	Clear Clear Clear Clear Clear Clear	
	Time 247 250 253 256 301 304 307 310 313	[± 0.5]  Pugge s  15.7  7.8  10.2  3.7  7.0  7.0  6.5	Conductivity (µS/cm) [± 3%]  +++++  121 101.2 107.3 101.2 97.5 97.8 91.2	pH (std. units) [± 0.1]	Clear Clear Clear Clear Clear Clear	
	Time 2.47 2.50 2.53 2.56 3.01 3.04 3.07 3.10 3.13 3.16	[±0.5]  Puge 5 15.7 7.8 10.2 8.7 7.0 7.0 6.5 6.3 5ample	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Clear Clear Clear Clear Clear Clear Clear	
	Time 2.47 2.50 2.53 2.56 3.01 3.04 3.07 3.10 3.13 3.16	[±0.5]  Puge 5 15.7 7.8 10.2 8.7 7.0 7.0 6.5 6.3 5ample	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Clear Clear Clear Clear Clear Clear Clear	



Date: 11/9/22 Parcel ID#: PTH - 02% b						
Physical Address: 1/a Vacant Unit awned by Bristol Bay Housing Authority						
Name (Owner): BBHA POC: Emil Larson (BBHA)						
Name (Occupant): currently un occupied, BBHA employess temp.						
Mailing Address (Owner): BBHA: PO Box 50 Staying white Working						
Mailing Address (Occupant): Dillingham, Ak 99576						
Owner Email: elarson @ bbha. org Occupant Email:						
Owner Phone: 907 - 842 - 6568 Occupant Phone:						
Preferred method of contact (circle): Email Phone						
Number of people residing at this location:  Adults (18 and over)						
Teenagers (13 to 17)						
Children (12 and under)						
Years at this residence: Full-Time Seasonal Temp Residents						
1) From where do you obtain your drinking water?  a) Residential (private) well  c) Bottled water  d) Other  d) Other  waybe drinking water for  d) Other  waybe drinking water for  d) Other  lif you have a private well, please answer the following questions:  a) Where is the well located on the property? In front of house. Visible well head  b) Is the well in use? Yes No  Usable Unusable, or properly abandoned?  Usable Unusable Abandoned Method						
If yes, please check all that apply regarding the usage of your well water:						
□ Vegetable/grain Gardening						
Cooking food preparation -Size of Gardensq.feet/acres						
Other <u>Construction</u> -Average watering frequency using well water? (daily, weekly, etc.)						
a) When was the well installed? 10 405 000						
b) What is the well depth?						
c) What is the well diameter? <u>Standard</u>						
d) What is the well type?						
Drilled tss uned Unknown						
e) Do you have any treatment on your well (e.g. water softener)? Please describe. Yes						
Sample location @ Pressure Tank or @ Filter housing						
Does the Shannon & Wilson, Inc. have permission to sample your private well?  Yerbal permission Don WIBRHA  Yes No						
Signature Date						

Don familiar of water testing in Dillingham Entered

Ma	Address Owner/Occupant Mailing address Po Box 50  Dillingheem, AK Telephone 907-842-6568  Sample Location Proged from Kitchen  Sampled from filter			Sampli	oject Number 10221 9-016 Project Name Port Heiden Project Name 1330 Time 1330 ng Personnel RLW
Sar	nple Location	0			re-trut)
Sal	mple Number Duplicate	PTH-0	26	=	Time 1404
	Analysis	DFAS		-	Lab The Eurofins Test
F	^o urge Volume	~58	gal (~7		torial
			Conductivity	stabilization cri	teriaj
		Temp. (°C)	(µS/cm)	(std. units)	1000 200 2400
	Time	[± 0.5]	[± 3%]	[± 0.1]	Water Clarity (visual)
	1335	15.5 S	487.1	11.25	clear
			343.5	11.05	Clear
	1340	13-62			
	1343	13-6		10:49	
	1343	13-6 6.0 5.3	155.8	10,49	clear
	1343 1346 1349 1352	5.3 5.0	155.8 148.0 142.8	10,49	Clear Clear
	1343 1346 1349 1352 1355	5.0 5.0	155.6 148.0 142.6 139.0	10.49	clear clear
~~~	1343 1346 1349 1352 1355	5.0 5.0 5.0 4.9	155.6 148.0 142.6 139.0	10.49	Clear Clear Clear Clear
min	1343 1349 1352 1355 1358	5.0 5.0 5.0 4.9	155.6 148.0 142.6 139.0	10.49	clear clear
min	1343 1346 1349 1352 1355	5.0 5.0 5.0 4.9	155.6 148.0 142.6 139.0	10.49	Clear Clear Clear Clear
min	1343 1349 1352 1355 1358	5.0 5.0 5.0 4.9	155.6 148.0 142.6 139.0	10.49	Clear Clear Clear Clear
min	1343 1349 1352 1355 1358	5.0 5.0 5.0 4.9	155.6 148.0 142.6 139.0	10.49	Clear Clear Clear Clear
min	1343 1349 1352 1355 1358	5.0 5.0 5.0 4.9	155.6 148.0 142.6 139.0	10.49	Clear Clear Clear Clear
min	1343 1346 1349 1352 1355 1358 140(6.0 5.3 5.0 5.0 4.9 5.0 Sample	155.6 148.0 142.6 139.0	10.49 10.46 10.44 10.40 10.40	Clear Clear Clear Clear
min	1343 1346 1349 1352 1355 1358 140(6.0 5.3 5.0 5.0 4.9 5.0 Sample	155.6 148.0 142.6 139.0 138.6 137.5	10.49 10.46 10.44 10.40 10.40	Clear Clear Clear Clear

Tish, Jon, Amber

BBHA + PIPES CURENTY Prozen



Date:	1) /10/22 Parcel ID#: PTH-027						
Physic	Physical Address: 11He HUD Cut-de-Sac White house, gray moderne (Owner): Amber Christiansen-Fox Mailing Address (Owner):						
Name							
Name							
Mailin	g Address (Occupant): POBOX 49064 Port Heiden						
Owne	Email: achristensen for a gnail						
Owne P Numb	referred method of contact (circle): Email Phone er of people residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under) at this residence: Full-Time Seasonal						
a)	om where do you obtain your drinking water? Residential (private) well						
a)	you have a private well, please answer the following questions: Where is the well located on the property? Is the well in use? Yes No						
If	Usable Unusable, or properly abandoned? Usable Unusable Abandoned Method yes, please check all that apply regarding the usage of your well water: Drinking Vegetable/grain Gardening Cooking food preparation -Size of Garden sq.feet/acres -Average watering frequency using well water? (daily, weekly, etc.)						
a) b) c) d)	When was the well installed? What is the well depth? What is the well diameter? What is the well type? Dug Well Driven Do you have any treatment on your well (e.g. water softener)? Please describe.						
4.5	mple Permission pes the Shannon & Wilson, Inc. have permission to sample your private well? Yes No Permission via Sister Liliona						
Si	gnature Date						

Xm

		WATER SUPPLY	WELL SAMPLIN	IG LOG
Owner/Occupant Mailing address	Amber PO Box 49	OZZ Christensen-Fox 064 PTH	Ξ	Project Number 102219 - 016 Project Name Pert Heiden Date 11/10/22 Time 1545
relephone	907-4	44-4437	Samplii	ng Personnel Ruw
Sample Location	Purge f Sampled	from Eitchen : From Alter K	sink novsing, pr	re-treatment
Sample Number Duplicate	PTH-	D27		Time 1614 Time
	PFAS	0 (2 a	al Imin	Lab Eurofins Test America
Purge Volume	10 48			reria]
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1580	Purge s	tart	N = 1	A SECURITY OF SECU
1556	9.9	94.4	6.27	clear
1559	8.4	90.8	6.46	Clear
1602	8.7	91.4	6.69	clear
1608	919	89.5	6.66	clear
1611	7.7	98.6	6.6071	crear
1614	Sample			

Notes:		provided	access	
Ξ				7-4
/2				
- 1				





Date: 11/9/22 Parcel ID#: PTH - 07 8
Physical Address: Little HUD (Cul-de-sac)
Name (Owner): BBHA contact 6mil Larson
Name (Occupant): Currently unoccupied sympassicents
Mailing Address (Owner): BBHA PO Box 50 Dillingham AK
Mailing Address (Occupant): None - Vacant
Owner Email: elarson e bbha.org Occupant Email: NONE
Owner Phone: 907 - 842 - 6568 Occupant Phone: NONE Preferred method of contact (circle): Email Phone Number of people residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under) Years at this residence: Full-Time Seasonal None
1) From where do you obtain your drinking water? a) Residential (private) well
2) If you have a private well, please answer the following questions: a) Where is the well located on the property? In Front of hovse. Visible well head b) Is the well in use? Yes \(\sum \) No \(\sum \)
3) If no, is the well usable, unusable, or properly abandoned? Usable Unusable Abandoned Method Pipes Frozen If yes, please check all that apply regarding the usage of your well water: Drinking Vegetable/grain Gardening Cooking food preparation Size of Garden sq.feet/acres Average watering frequency using well water? (daily, weekly, etc.)
a) When was the well installed? b) What is the well depth? Do you have the well log? Yes No c) What is the well diameter? d) What is the well type? Dug Well Driven Drilled Unknown
e) Do you have any treatment on your well (e.g. water softener)? Please describe.
4) Sample Permission
Does the Shannon & Wilson, Inc. have permission to sample your private well? Yes No
Signature Date

Entered



Date: 11/10/22	Parcel ID#:					
Physical Address: Gray siding w/ green roof						
Name (Owner): Dohn Chri	Stensen					
Name (Occupant): Who Lillionna Kosbother						
Mailing Address (Owner):						
Mailing Address (Occupant): Po Sox 8213	(Tundra Dr. PTH) (UNKAOWA)					
Owner Email:	Occupant Email: 11 Kosbruk@hotmail.com					
Owner Phone: 907 - 444 - 5976 Preferred method of contact (circle): Email Number of people residing at this location: Not specified Years at this residence: Full-Time	Occupant Phone: 907-717-3236 (Li)					
From where do you obtain your drinking wate a) Residential (private) well Bottled water	r? b) Community well d) Other					
2) If you have a private well, please answer the fa) Where is the well located on the propertyb) Is the well in use? Yes No 	ollowing questions: Pront of property near Tishas house					
3) If <u>no</u> , is the well usable, unusable, or properly Usable ☐ Unusable ☐ Abandone If <u>yes</u> , please check all that apply regarding th ☐ Drinking ☐ Cooking food preparation ☐ Other	ed Method					
b) What is the well depth? per c) What is the well diameter? Dug Drille	Well Well Unknown e.g. water softener)? Please describe.					
4) Sample Permission Does the Shannon & Wilson, Inc. have permiss	sion to sample your private well? Yes No					
Signature	Date					

Lillionna needed to get back to work

Enterd

Owner/Occupant Mailing address	PTH-029 Lilliona Kosbrook UNKNOWN	Project Name Date	102219-016 Port Heiden PFAT 1/10/22 42 1430 RLW
	Purge from Kitchen sink		
	Sampled from kitcher	sink **	*
Sample Number Duplicate	PTH-029	Time Time	1504
Analysis	PFAS	. Lab	Eurofins TestAmerica
Purge Volume	~ 54 gal (2	sal/min)	4

PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1437	Purge 51	art	N. V. Y.	
1440	16.9	160.4	6.49	clear
1443	13.5	149.3	10.79	clear
1446	11.7	142.5	6-96	clear
1449	10.7	137.7	7.13	clear
1452	9.8	134,4	7.42	clear
1455	9,7	(33-7	7. 141	clear
1458	9,4	132.8	7.40	clear
1501	9.3	132.3	7,43	clear
1504	Sample			

N) SOF	tener	oresent	howev	er se	dimen	_ filter	in-line
11	rable +	o acces	utility	Room	crawl	space o	lue to	anner's
S	toraca	2 needs						
	0							



42/30



Date: 11/9/22 Parcel ID#: PTH 10 - 0.50							
Physical Address: Little HUD							
Name (Owner):							
Name (Owner): Tisha Kalmakoff Mailing Address (Owner): Po Box 49025 PTH							
							Owner Email: Spikedlady @ gmail. co.
							Owner Phone: Occupant Phone: 907 - 312 - 8341 Preferred method of contact (circle): Email Phone ei Huc
Number of people residing at this location: Adults (18 and over)							
Teenagers (13 to 17) 3 Children (12 and under)							
Children (12 and under)							
Years at this residence: ~ VO YO Full-Time \(\backslash \) Seasonal \(\backslash \)							
1) From where do you obtain your drinking water? a) Residential (private) well b) Community well c) Bottled water d) Other d) Other							
2) If you have a private well, please answer the following questions:							
a) Where is the well located on the property? In front of property b) Is the well in use? Yes No							
3) If <u>no</u> , is the well usable, unusable, or properly abandoned?							
Usable Unusable Abandoned Method							
If <u>yes</u> , please check all that apply regarding the usage of your well water:							
Drinking							
☐ Cooking food preparation —Size of Garden sq.feet/acres —Average watering frequency using well							
water? (daily, weekly, etc.)							
a) When was the well installed?							
b) What is the well depth? (standard)							
c) What is the well diameter? Bruch (Standard) d) What is the well type? Dug Well Driven							
Drilled Assumed Unknown							
e) Do you have any treatment on your well (e.g. water softener)? Please describe							
4) Sample Permission (Sediment)							
Does the Shannon & Wilson, Inc. have permission to sample your private well? Yes No							
distro Via Cecelle 1/19/22							
Signature							

ner/Occupan ailing address	TISHA KA S PO BOX MI PTH 907-31	49025	_	Project Name Date	102219-016 Port Heiden PF, 11/9/12 1610 RLW
mple Locatior		from press		in Crau	NISPACE (pre-tru
mple Numbe Duplicate	r PTH-63	0		Time_ Time_	1654
Analysis	PFAS		_	Lab	PFAS
Time	Temp. (°C) [± 0.5]	PARAMETERS Conductivity (µS/cm) [± 3%]	[stabilization cri		ater Clarity (visual)
II Time	[± 0.5]		[2.0.1]	VVa	der Clarity (visual)
	Dilana de				
1624	Purge St		6.47	clear	
	12.3 12.5	113.9	6.42	clear	
1627 1630 1633		113.9		clear	
1627 1630 1633 1636	17.3	113.9 103.5 108.4	6.45	clear	
1627 1630 1633 1636 1639	12.3 12.5 8.8 9.0	113.4 103.5 108.4 108.2	6:32	clear clear clear	
1627 1630 1633 1636	12.3 12.5 8.8 9.0 7.5	113.5 108.4 108.2 109.0	6.32 6.45 6.65 6.82	clear clear clear clear	
1627 1630 1633 1636 1639 1642	12.3 12.5 8.8 9.0	113.5 108.4 108.2 109.0	6:32	clear clear clear clear	
1627 1630 1633 1636 1639 1642 1645	12.3 12.5 8.8 9.0 7.5 7.4	103.5 108.4 108.2 109.0 103.2	6.45	clear clear clear clear	
1627 1630 1633 1636 1639 1642 1645 1648	12.3 17.5 8.8 9. D 7. J	113.4 103.5 108.4 108.2 109.0 103.1	6.82	clear clear clear clear	
1627 1630 1633 1636 1639 1642 1645 1648	12.3 12.5 8.8 9.0 7.5 7.4	113.4 103.5 108.4 108.2 109.0 103.1	6.82	clear clear clear clear	
1627 1630 1633 1636 1639 1642 1645 1648	12.3 12.5 8.8 9.0 7.5 7.4	113.4 103.5 108.4 108.2 109.0 103.1	6.82	clear clear clear clear	
1627 1630 1633 1636 1639 1642 1645 1648	12.3 12.5 8.8 9.0 7.5 7.4	113.4 103.5 108.4 108.2 109.0 103.1	6.82	clear clear clear clear	
1627 1630 1633 1636 1639 1642 1642 1645 1648 16481	12.3 12.5 8.8 7.0 7.4 14.3 7.1 Sample	113.4 103.5 108.4 108.2 109.0 103.1	6.82	clear clear clear clear	
1627 1630 1633 1636 1639 1642 1645 1648	12.3 12.5 8.8 7.0 7.4 14.3 7.1 Sample	113.4 103.5 108.4 108.2 109.0 103.1	6.82	clear clear clear clear	
1627 1630 1633 1636 1639 1642 1642 1645 1648 16481	12.3 12.5 8.8 7.0 7.4 14.3 7.1 Sample	113.4 103.5 108.4 108.2 109.0 103.1	6.82	clear clear clear clear	
1627 1630 1633 1636 1639 1642 1642 1645 1648 16481	12.3 12.5 8.8 7.0 7.4 14.3 7.1 Sample	113.4 103.5 108.4 108.2 109.0 103.1	6.82	clear clear clear clear	





Date: Nov, 9, 22	Parcel ID#: PTH -031
Physical Address: 2200 James	
Name (Owner): Village of	Port Heiden
Name (Occupant):	
	nesst Bort Heiden AK 99549
	messi war ligati fil 1-17-11
Mailing Address (Occupant):	com
Owner Email: Homin @Port Heider	Coodpant Email: Ad min & Port Heiden Alaska.
Owner Phone: 907 437-2296 Preferred method of contact (circle): Email Number of people residing at this location: Years at this residence: 2000 Full-Time	
 From where do you obtain your drinking water Residential (private) well Bottled water 	er? b) Community well d) Other
 If you have a private well, please answer the fall a) Where is the well located on the property b) Is the well in use? Yes . No . 	following questions: y? 100 Foot East of Building
3) If <u>no</u> , is the well usable, unusable, or properly	
Usable Unusable Abandone If <u>yes</u> , please check all that apply regarding th	
✓ Drinking	✓-Vegetable/grain Gardening
☐ Other	-Size of Garden 4805 sq.feet/acres -Average watering frequency using well water? (daily, weekly, etc.)
a) When was the well installed? 2000	
b) What is the well depth? 68 64	Do you have the well log? Yes No
c) What is the well diameter? 6 inch	
d) What is the well type?	g Well Driven
	led Unknown (e.g. water softener)? Please describe. None
4) Sample Permission	
Does the Shannon & Wilson, Inc. have permis	ssion to sample your private well?
1 11-	는 보통하다는 사람들이 보면 함께 되면 함께 보는 사람들이 되었다. 이번 보고 있는 사람들은 사람들이 아니라 이 사람들이 되었다. 그는 사람들이 되었다. 그런 함께 보다는 사람들이 되었다. 그는 사람들이 되었다.
you I (h)	Nov, 9,22
Signature	Date

42/1/30

	RESID	ENTIAL WELL	SAMPLING LO	G	
Address Owner/Occupant Mailing Address Telephone	POB 2200		Project Number Project Name U1 Date Time ampling Personnel	1000 ,022	
Purge Location	bathroom	sint			
Sample Location	pressure +	ank spiget	in will ty re	oon in basement /do	unstairs re-trut
Sample No.	DIL A	4		1058	
Duplicate			Time		
Pumping Start Time Pumping End Time Gallons per minute Purge Volume (gal.)	105		Depth of Well (ft.) _ Laboratory _ Analysis _		
	FIELD	PARAMETERS [stabilization criteria]		
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)	
10 16	15.9	140.4	6.24	Clear	
1019	15.0	137.9	6.63	clear	
1022	14.8	137.2	6.78	Clew	
1026	13.9	134.2	6.94	Clas	

Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
10 16	15.9	140.4	6.24	Class
1019	15.0	137.9	6.63	clear
1022	14.8	137.2	6.78	Clew
1026	13.9	134.2	6.94	Clas
1031	11.9	127.2	7.09	Clea
10 37	10.6	124.0	722	clear
1042	9.3	120.4	7.29	clica
1049	8.6.	118.4.	7.38	lear
1052	8.7	118-1	7.41	ilia
1055	8.8	118.6	7.43	clier
	1 1 1			
			Charles and Charles	
		the second second second second		

	large windows	roof;	green	W	shuttere	while of	notes:
	17.0	-	J				

M9730



Date	: 11 - 9 - 2022 Parcel ID#: PTH -032
Phys	ical Address: 101 New had Rd
Nam	e (Owner): Henry + Holly Matson
	e (Occupant): Hothy's daughter also lives here
Mail	ing Address (Owner): P.O. Box 49004 Port Heiden Ak 99549
	ing Address (Occupant):
	er Email: hh_ Matson what muil com Occupant Email: Style
Own	er Phone: 907-837-4036 Occupant Phone: Accupant Phone: Adults (18 and over) 2 Teenagers (13 to 17) Children (12 and under) Seasonal
	From where do you obtain your drinking water? a) Residential (private) well
	If you have a private well, please answer the following questions: a) Where is the well located on the property? <u>FOR Side for hosse</u> b) Is the well in use? Yes No
3)	If <u>no</u> , is the well usable, unusable, or properly abandoned? UsableUnusable Abandoned Method NA
	If <u>yes</u> , please check all that apply regarding the usage of your well water: Drinking Vegetable/grain Gardening Cooking food preparation -Size of Garden sq.feet/acres Other Other watering frequency using well water? ((daily,) weekly, etc.)
	a) When was the well installed? 1989
	b) What is the well depth? 27 90 feet Do you have the well log? Yes No
	c) What is the well diameter? d) What is the well type?
	e) Do you have any treatment on your well (e.g. water softener)? Please describe
4)	Sample Permission
	Does the Shannon & Wilson, Inc. have permission to sample your private well?
	Holy neals Nov 9-2022
	Signature Date

40,00

Owner/Occupar Mailing addres Telephon	e 907-8	49004	Sampling	poject Number D16 poject Name Date Time 1400 Personnel Personnel D16 Port Heiden PM S PM
Duplicat			-	Time 1421 Time
Analysi Purge Volum	e PFAS	>20 gellon	S	Lab <u>Eurofins</u>
	Temp. (°C)	Conductivity (µS/cm)	pH (std. units)	The second second second
Time	[± 0.5]	[± 3%]	[± 0.1]	Water Clarity (visual)
1350	6.6	168.2	6.18	dear
1402	6.4	166.1	6.48	clia
1408	6.0	165.6	6.324	Clear
1411	6.2	164.9	6.72	Clear
1419	6.0	164.4	6.77	Cleer
1418	6.0	164.3	6.79	elier
	-			
-				
Notes	3:			
	-			

45430

V



Date: 11/10/2022 Parcel ID#: 171-055
Physical Address: New Hyp
Name (Owner): Kate Mike
Name (Occupant):
Mailing Address (Owner): Pa Box 49084 Port Heidon All 99549
Mailing Address (Occupant):
Owner Email: Kate@ Portheidenalaska.Com Ccupant Email:
Owner Phone: 907596 Cell 8 Occupant Phone:
Preferred method of contact (circle): Email Phone
Number of people residing at this location: Adults (18 and over) Teenagers (13 to 17)
Years at this residence: Full-Time Seasonal Seasonal
From where do you obtain your drinking water?
a) Residential (private) well
 2) If you have a private well, please answer the following questions: a) Where is the well located on the property? b) Is the well in use? Yes \(\subseteq \text{No} \subseteq \)
3) If <u>no</u> , is the well usable, unusable, or properly abandoned? Usable Unusable Abandoned Method
If <u>yes</u> , please check all that apply regarding the usage of your well water:
□ Drinking □ Vegetable/grain Gardening
☐ Cooking food preparation ☐ Other sq.feet/acres -Average watering frequency using well water? (daily, weekly, etc.)
a) When was the well installed?
b) What is the well depth? Do you have the well log? Yes No
c) What is the well diameter? d) What is the well type? Dug Well Driven
Drilled Unknown
e) Do you have any treatment on your well (e.g. water softener)? Please describe.
4) Sample Permission Does the Shannon & Wilson, Inc. have permission to sample your private well? Yes No
G 1010 Valle VIII
Signature

agijan

RESIDENTIAL WELL SAMPLING LOG

Address Owner/Occupant		1) Rd	Project Number	-016 Port Leiden PFA)
	POB 4908	Ч		11/10/22
Telephone	907 596 8	118		1444
		Sa	ampling Personnel	
Purge Location	pressure t			se to yard *
Sample Location	pressure	tank spige	ot; hose (c)	moved (pre-trut)
Sample No.	PTH-0	33	Time	1659
Duplicate			Time	
Pumping Start Time Pumping End Time Gallons per minute Purge Volume (gal.)	16	Total	Depth of Well (ft.) Laboratory Analysis	Test America
		PARAMETERS [s		
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1644	6.4	88.4	5.47	- Obaco Uncertain
1644	5.8	90.0	6.02	
1650	5-6	88.3	6.25)
1653	5.5	89.1	6.26	
1656	5.6	89.1	6.26	
			-7.1	
Notes: * homes tenk to t	he yard.	rea(9) have		0 5' of f the grown
	1111	During p	urge, Strong	1
Off water s	shift in a	out of	purique cup	making readings &
Stabiliza	tion dissi	cult.	1	J

MD430



Date: _	11-11-22	12 11	011111 11
Physica	Al Address: P.O. Box 4	9095	Port Heiden, AK
	(Owner):		
	□ Legal owner		Trust or Estate
Name	(Occupant): Eunice Kal	makott	
Mailing	g Address (owner):	nore	
Mailing	g address (occupant):	-	
Email:	Owner:	Occupant:Occupant:	
Pre: Numbe	Ferred method of contact(circle): Email Pler of persons residing at this location: T	hone Adults (18 and o Teenagers (13 t Children (12 and ur	ver)
Years a	t this residence: /Full-Time 💢	Seasonal	
2)	From where do you obtain your drinking wa a) Residential (private) Well c) Bottled water If you have a private well, please answer th a) Where is the well located on the prope b) Is the well in use? Yes No If no, is the well usable, unusable, or prope Usable Unusable Abando	b) Commu d) Other ne following questi erty? Soft erly abandoned? oned Method	from house
	If yes, please check all that apply regarding Drinking Cooking/ food preparation Other a) When was the well installed? b) What is the well depth? C) What is the well diameter?	□V -Siz -Av	well water: egetable/grain Gardening e of Garden sq.feet/acres erage watering frequency using well ter? (daily, weekly, etc.)
			Driven Unknown Please describe.
4)	Sample Permission		
	Does Shannon & Wilson, Inc. have permissing Yes No No Signature	ion to sample your	private water well? //- //- Z Z Date
	Signature		Date

Owner/Occupa Mailing addre Telephor	ne 837-40	an Kalmakof 1904s Dou	Pr — — Sampling	ect Number oject Name Date 1/11/2022 Time 15.30 Personnel Am
Sample Numb Duplica	er PTH - C	>37		Time 1556
Analys Purge Volum	ne PFAs X	>~249	all [stabilization crite	Lab <u>Euro Fins</u>
Time 15 29 1535 1536 154 154 154 1550 1550	2 6.7 6.3 4 6.4 6.0	Conductivity (µS/cm) [± 3%] [0%-4] [0%-4] [0%-1] [0%-5] [0%-5] [0%-7] [0%-7] [0%-7] [0%-7] [0%-7] [0%-7] [0%-7] [0%-7]	pH (std. units) [± 0.1] 6 60 7 987 7 987 8 997	Water Clarity (visual) Lew Lica/ Clica/
Note	s:			

402,130

1



Date: 11 110, 22	Parcel ID#:
Physical Address: 211 MOSNUK	Wolves #1
Name (Owner): Shannon M	04500
	at50n
Mailing Address (Owner): POBOVA9	0021
Mailing Address (Occupant):	
Owner Email: Motson-Price 21 @ ho	Occupant Email:
Owner Phone: 907-837-4010 Preferred method of contact (circle): Email Number of people residing at this location: Years at this residence: Full-Time	Occupant Phone:
1) From where do you obtain your drinking water a) Residential (private) well c) Bottled water	er? b) Community well d) Other
 2) If you have a private well, please answer the a) Where is the well located on the property b) Is the well in use? Yes \(\omega \) No \(\omega \) 	
3) If <u>no</u> , is the well usable, unusable, or properly Usable ☑ Unusable ☐ Abandon If <u>yes</u> , please check all that apply regarding the Drinking □ Cooking food preparation □ Other	ned Method
₽ Dril	Do you have the well log? Yes No g Well Driven Unknown
e) Do you have any treatment on your well Filtration unit solvens	(e.g. water softener)? Please describe
4) Sample Permission Does the Shannon & Wilson, Inc. have permis	ssion to sample your private well? Yes No
Signature	Date



R	FS	DEN	ILITI	_ WEL	1 5	AMPI	ING	10	C
г			MILL	_ VV = L	_L 3	AIVILI		LU	U

Address Owner/Occupant Mailing Address Telephone		Matson	Project Number Project Name Date Time ampling Personnel	11/10/2027
Purge Location	Kitchen	sinK		
Sample Location	Presuret	ank spige	ot; pre-tra	eatment
Sample No.	PTH-C)4a	Time	1430
Duplicate	_	_	Time	
Pumping Start Time Pumping End Time Gallons per minute Purge Volume (gal.)	/ 142			Test America x18 PFAS (EPA 537.1)
	FIELD	PARAMETERS [stabilization criteria]	
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1408	9,1	118-1	6.03	Clear
1411	9,5	118-4	6.44	clica
1414	1.3	110.8	6.67	clear
1428	7.3	115,6	6.83	(0,5/
1424	7.5	112.9	6.96	Chec
1427	7.2	1(10.5	7.04	dur
Notes:				

MDH 30

1



Date: 11/9/22	Parcel ID#: YTH - 643							
Physical Address: Old HUD (last house on Road)								
Name (Owner): Scott Anderson Name (Occupant): PO Box 49089 PT4								
							Mailing Address (Occupant):	1
							Owner Email:	Occupant Email: Scott 5025 @ yahoo co
Owner Phone: Preferred method of contact (circle): Number of people residing at this location: Years at this residence: Full-Time	Occupant Phone: 907 - 4081 837 - 4032							
From where do you obtain your drinking wa a) Residential (private) well c) Bottled water	ter? b) Community well d) Other							
2) If you have a private well, please answer thea) Where is the well located on the properb) Is the well in use? Yes No 	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
3) If <u>no</u> , is the well usable, unusable, or proper Usable Unusable Abando If <u>yes</u> , please check all that apply regarding Drinking Cooking food preparation Other	ned Method the usage of your well water: Vegetable/grain Gardening -Size of Garden sq.feet/acres -Average watering frequency using well							
b) What is the well depth? ~47 c) What is the well diameter?	g Well Driven Unknown							
4) Sample Permission Does the Shannon & Wilson, Inc. have perm Verbal Agre								
Signature	Date							

+n

Entered

Address vner/Occupant failing address Telephone	PO BOX	Anderson 49039 837-4039	P	roject Number 102219 - 016 roject Name Port Heiden Date 11/9/22 Time 1715 g Personnel RLW
ample Location		From Kitchen's		(pre-tout)
Duplicate	PTH	1-043		Time 1753 Time Lab Fungins TestAr
Purge Volume	~ 49	b gal (2 ga	The state of the s	
Time	Temp. (°C)	Conductivity (µS/cm)	[stabilization crite pH (std. units)	- 30 30 30 30 M. A
Time 172 9	[± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
Time 1729 1732 1735	[± 0.5]	Conductivity (µS/cm) [± 3%] Start 95.0 87.7	pH (std. units)	- 30 30 30 30 M. A
1729 1732 1735 1738 1741	[± 0.5]	Conductivity (µS/cm) [± 3%] Hart 95.0 87.7 82.7 82.5 80.9	pH (std. units) [± 0.1]	Water Clarity (visual) Clear Clear Clear Clear
1729 1732 1735 1738 1741 1744 1747 1750	[± 0.5] PURE 10.8 \$.8 7.0 7.0 6.1	Conductivity (µS/cm) [± 3%] HZV/1 95.0 87.7 82.7 82.5 80.9 80.3	pH (std. units) [± 0.1]	Water Clarity (visual) Clear clear clear
1729 1732 1735 1738 1741 1744	[± 0.5] Purge 10.8 \$ 8.8 \$ 4.0 7.0 6.3	Conductivity (µS/cm) [± 3%] HZV/1 95.0 87.7 82.7 82.5 80.9 80.3	pH (std. units) [± 0.1]	Water Clarity (visual) Clear Clear Clear Clear Clear Clear
1729 1732 1735 1738 1741 1744 1747 1750	[± 0.5] PURE 10.8 \$.8 7.0 7.0 6.1	Conductivity (µS/cm) [± 3%] HZV/1 95.0 87.7 82.7 82.5 80.9 80.3	pH (std. units) [± 0.1]	Water Clarity (visual) Clear Clear Clear Clear Clear Clear
1729 1732 1735 1738 1741 1744 1747 1750	[± 0.5] PURE 10.8 \$.8 7.0 7.0 6.1	Conductivity (µS/cm) [± 3%] HZV/1 95.0 87.7 82.7 82.5 80.9 80.3	pH (std. units) [± 0.1]	Water Clarity (visual) Clear Clear Clear Clear Clear Clear

1/30 Sarah 2 down -> right hers is on 2

orthin

Private Well Inventory Survey Form	0.41
Date: 11/10/27	Parcel ID#: - 045
Physical Address: 123 Swan Lake Rd	
Name (Owner): Kistain Carlso	
Name (Occupant): Natalya Shelli	
Mailing Address (Owner): See - 019	
Mailing Address (Occupant): DO Box 4	
Owner Email:	BULT NEVER STEEL
	Occupant Phone: 907 - 837 - 4008 (Natal)
 1) From where do you obtain your drinking wate a) Residential (private) well c) Bottled water 	er? w britta well was solfw sn b) Community well d) Other
If you have a private well, please answer the fall of the propertyb) Is the well in use? Yes No	
If <u>no</u> , is the well usable, unusable, or properly Usable Unusable Abandone If <u>yes</u> , please check all that apply regarding the Drinking Cooking food preparation Other	ed Method
☐ Drill	Do you have the well log? Yes No Well Driven Unknown
e) Do you have any treatment on your well (
4) Sample Permission Does the Shannon & Wilson, Inc. have permiss Adalya Ahella	sion to sample your private well? Yes No
Signature	Date

	Reneval PO BOX 4 907-83	9035 7-400B		Date 11/10/22 Time 1825 ng Personnel RLW
le Location	No	treatment	per owne	rea spre
	PTH-04			Time 1950
Duplicate PTH-145				Time 1940
Analysis	s PFAS		-	Lab Eurofins TestA
ge Volume	~ 42-1	63 gall (2-	3 gal/mi	n)
		PARAMETERS	stabilization crit	157
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1829	The second of th	(μS/cm) [± 3%]	(std. units)	Water Clarity (visual)
1829	[± 0.5]	(μS/cm) [± 3%] wr ± log. 0 \ 107, 8	(std. units) [± 0.1]	clear
1829	[± 0.5]	(µS/cm) [± 3%]	(std. units) [± 0.1]	clear
1829 1832 1835 1838 1941 1944	[± 0.5]	(µS/cm) [± 3%] wr 1 108.0 107. 0 107. 4 107. 4	(std. units) [± 0.1] 5 -91 6 - 56 6 - 59 7 - 61	clear clear clear clear
1829 1932 1835 1838	[± 0.5]	(µS/cm) [± 3%] wr + log. 0 107. b 107. 4	(std. units) [± 0.1] 5 -91 4 - 56 6 - 39	clear clear clear
1869 1832 1835 1838 1841 1844 1847	[± 0.5]	(µS/cm) [± 3%] wr 1 108.0 107. 0 107. 4 107. 4	(std. units) [± 0.1] 5 -91 6 - 56 6 - 59 7 - 61	clear clear clear clear
1869 1832 1835 1838 1841 1844 1847	[± 0.5]	(µS/cm) [± 3%] wr 1 108.0 107. 0 107. 4 107. 4	(std. units) [± 0.1] 5 -91 6 - 56 6 - 59 7 - 61	clear clear clear clear
1869 1832 1835 1838 1841 1844 1847	[± 0.5]	(µS/cm) [± 3%] wr 1 108.0 107. 0 107. 4 107. 4	(std. units) [± 0.1] 5 -91 6 - 56 6 - 59 7 - 61	clear clear clear clear
1869 1832 1835 1838 1841 1844 1847	[± 0.5]	(µS/cm) [± 3%] wr 1 108.0 107. 0 107. 4 107. 4	(std. units) [± 0.1] 5 -91 6 - 56 6 - 59 7 - 61	clear clear clear clear
1829 1832 1835 1838 1841 1844 1847	[± 0.5]	(µS/cm) [± 3%] wr 1 108.0 107. 0 107. 4 107. 4	(std. units) [± 0.1] 5 -91 6 - 56 6 - 59 7 - 61	clear clear clear clear
1829 1832 1835 1838 1841 1847 1850	Proper State	(µS/cm) [± 3%] W + 108.0 107. 0 107. 4 107.5 107.3	(std. units) [± 0.1] 5 -91 6 -86 6 -89 7 -18	clear clear clear clear
1829 1832 1835 1838 1841 1847 1850	Proper State	(µS/cm) [± 3%] wr 1 108.0 107. 0 107. 4 107. 4	(std. units) [± 0.1] 5 -91 6 -86 6 -89 7 -18	clear clear clear clear





Water Supply Well Inventory Survey Form

Dat	Pate: 11/17/2022	
Par	arcel: PTH-046	
Na	lame (Owner): State Of Alaska DOT	
Na	lame (Occupant):	
Phy	hysical Address: # 1 Airport Way	
Ma	Mailing Address: PO BOX 65 King Salmon, AK 99613	
Em	mail Address (optional):	
Coı	ontact Phone Number: (owner) <u>907-246-3325</u> (occupant) _	
	Teena	s (18 and over) ngers (13 to 17) en (12 and under)
1)	.) From where do you obtain your drinking water?	
	a) Water Supply Utility	, -
2)	a) Where is the well located on the property? Northwest of the b) Is the well in use? Yes \(\sqrt{N} \) No \(\) c) If yes, please check all that apply regarding the usage of your working \(\) Cooking \(\) Gardening \(\) Pets \(\) d) If no, is the well usable, unusable, or properly abandoned? Usable \(\) Unusable \(\) Abandoned \(\) Method e) When was the well installed? f) What is the well depth? \(\frac{30 \text{ feet}}{20 \text{ location}} \) Do you have to g) What is the well diameter? \(\frac{8 \text{ inch}}{20 \text{ location}} \) Dug Well \(\) Drilled	vell water: Other Fill ARFF Truck the well log? Yes No Driven Unknown
	 i) Do you have any treatment on your well (e.g. water softener)? Water softener 	Please describe
3)) Sample Permission Does the Alaska Department of Transportation & Public Facilities (private water well? Yes No	DOT&PF) have permission to sample your
	Floyd Wilson	11/17/22
	Signature	Date

RESIDENTIAL WELL SAMPLING LOG

Address Owner/Occupant Mailing Address Telephone		3) Joy Toyd	Project Name Date	11/10/2020
Purge Location	both room	sin		
Sample Location	Filter he	ousing, pru	-treatmer	1 4
	PTH-04			1257
Duplicate	PTH-14	16	Time_	12847
umping Start Time Pumping End Time Gallons per minute urge Volume (gal.)	12	54 Total		Test America x18 PFAS (EPA 537.1)
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1237 1244 1244 1248 1251 1254	7.0	240.1 240.3 241.0 240.6 240.6	6.96 7.17 7.33 7.35	Clar Clar Clar Clar Clar
Notes: Sa	mylid Tilamona SUIJEY	y Texic Notice	K(sp?)	Anelon (related to

M2/30



Other side unoccupied

Date: 11/9/22	Parcel ID#: 174 - 1049						
Physical Address: Same lot as	Pay's Place						
Name (Owner): Village Council Dupleye							
Name (Occupant): Mary Apokerdar Mailing Address (Owner):							
							Mailing Address (Occupant): PO BOX 4
wner Email:Occupant Email: apokedak @ hotmail, com							
Owner Phone: Occupant Phone: 907-596-6060 Preferred method of contact (circle): Email Phone Number of people residing at this location: Adults (18 and over) 1 Teenagers (13 to 17) 1 Children (12 and under) 1							
Years at this residence: O Full-Time							
From where do you obtain your drinkin a) Residential (private) well c) Bottled water	and the second of the second o						
 2) If you have a private well, please answer a) Where is the well located on the private b) Is the well in use? Yes \(\overline{\text{NO}} \) 	operty?						
If <u>yes</u> , please check all that apply regard Drinking Cooking food preparation ☐ Other	andoned Method						
a) When was the well installed?	De very house the well leed. D Mee						
b) What is the well depth? c) What is the well diameter? d) What is the well type?	Do you have the well log? Yes No Dug Well Driven Drilled Unknown						
e) Do you have any treatment on you Village installed tre	well (e.g. water softener)? Please describe						
4) Sample Permission Does the Shannon & Wilson, Inc. have p	permission to sample your private well? Yes No						
Signature	Date						

40/194

WATER SUPPLY WELL SAMPLING LOG

Address Village Council Dupley Owner/Occupant Mary Apokevdak Mailing address Po Box 49054			Proje	Project Number 102219 - 016 Project Name Date 11/9/22		
Telephone 907 - 596 - 6060			Sampling	Personnel Ruo		
Sample Location Purged from Kitchen			2 SILIT			
	Removed	filter	housing	3		
Sample Number Duplicate	PTH-04	9		Time		
Analysis	PFAS			Lab Test America		
Purge Volume	~42 go	11 2 g al	[stabilization crite	rial		
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)		
1052	Purge St	84.9	6.02	clear		
1101	5.8	85.6	6.32	clear		
1104	6.0	85.8	6,44	clear		
1107	6.0	85.8	6.49	clear		
1110	5.7 Sample	85.1	6.53	clear		
				·		
Notes:		ank in craw		ely) has village covocil installe		



		11	0	3
83	7 -	4	0	1

WATER SUPPLY WELL SAMPLING LOG

Owne Mail	ing address			Pro	poet Number Olb poject Name Fort Heiden PFMS Date 1111/22 Time 16 45 Personnel FMS
Samı	ole Location	Presson	2 tank spigo	t via hose	to sink
				or Sampl	pre-treatment
Sam	ple Number Duplicate		10/		Time 1717
	Analysis	PFAs	x18	4	Lab Eurofins
Pu	rge Volume	> ~ ?	27 gall PARAMETERS [S	tabilization criter	ia]
		Tomp (%C)	Conductivity	рН	
1	Time	Temp. (°C) [± 0.5]	(µS/cm) [± 3%]	(std. units) [± 0.1]	Water Clarity (visual)
	1645	4.8	130.5	7.23	clow yellowish.
	157	7.0	116.0	5-18-	clear sulfre
Ma	1700	5.1	111.9	8.603	
ris	1706	4.8	08.0	8.95	
000	1712	4.8	107.7	9.00	4
continus)		1.4			
to (
ap up.					
Y					
Collected	-11				
Samptalor	Notes:	temp	cycling of pu	imp on/o	64
MIOSIL	enror.	MOTE:	Occupants	Not at	home Than Friends
collected Sample Wlo Stabi Wlo Stabi	X	Pla	Aded Jook	plid by	an pressure tant
5051 YS		1,010	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	

5

unsure exact ownership but assumed same as 201

Private Well Inventory Survey Form

Northwind installed nells

Date: 1/11/22 Parcel ID#: PTH - 202												
Physical Address: Mitchell Seybert Green should												
Name (Owner):												
						Mailing Address (Occupant):						
						Owner Email: Occupant Email:						
Owner Phone: Occupant Phone: 837 - 4002 (Brandon) Preferred method of contact (circle): Email Phone Number of people residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under) Years at this residence: Full-Time Seasonal												
1) From where do you obtain your drinking water? a) Residential (private) well b) Community well c) Bottled water d) Other												
 2) If you have a private well, please answer the following questions: a) Where is the well located on the property? b) Is the well in use? Yes No 3) If no, is the well usable, unusable, or properly abandoned? 												
Usable Unusable Abandoned Method												
a) When was the well installed? b) What is the well depth? Do you have the well log? Yes No c) What is the well diameter? Dug Well Driven Drilled Unknown e) Do you have any treatment on your well (e.g. water softener)? Please describe												
4) Sample Permission Does the Shannon & Wilson, Inc. have permission to sample your private well? Yes No												
Signature Date												

WATER SUPPLY WELL SAMPLING LOG

Address PTH - 202 Winer/Occupant Mitchell Seybert / Brando Mailing address General Delivery Telephone 907-744-5350			don is occupant	Date 1/11/22 Time 1350		
			Samplin	g Personnel ew		
mple Location	Purge An	on kitchen ment	sink. Sam	pled from sink		
mple Number Duplicate	# PTH-	-202	<u> </u>	Time 1413 Time		
Analysis	PFAS		-	Lab Eurofing TestAm		
Purge Volume	~ 46	gal (2)	gallmin) [stabilization crite	eria]		
		0 1 1 1				
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)		
1350	[± 0.5]	(μS/cm) [± 3%]	(std. units) [± 0.1]			
1350	[± 0.5]	(µS/cm) [± 3%]	(std. units) [± 0.1]	clear		
1350 1352 1355	[± 0.5]	(μS/cm) [± 3%] irt 120. ω	(std. units) [± 0.1] 5.73 6.02	clear		
1350	[± 0.5]	(µS/cm) [± 3%]	(std. units) [± 0.1]	clear		
1350 1352 1355 1358	[± 0.5] Pure Sto 6.2 6.2 6.2 6.2	(µS/cm) [± 3%] 120.6 110.0 170.0 120.1	(std. units) [± 0.1] 5.73 6.02 6.37	Clear Clear		
1350 1352 1355 1358 181401 1404 1407	[± 0.5] Purex State 10.2 10.2 10.2 10.0 5.9	(µS/cm) [± 3%] 120.6 110.0 170.0 120.1 120.7 120.3	(std. units) [± 0.1] 5.73 6.02 6.37 6.47 9.61 6.63	clear clear clear clear clear		
1350 1352 1355 1358 181401 1404 1407	[± 0.5] Puresc State (e. 2) (e. 2) (e. 2) (e. 2) (e. 2) (e. 3) (e. 4) (e. 2) (e. 5) (e. 6) (e. 6) (e. 7) (e. 8)	(µS/cm) [± 3%] 120.6 110.0 170.0 120.1	(std. units) [± 0.1] 5.73 6.02 6.37 6.41	Clear Clear Clear Clear		
1350 1352 1355 1358 181401 1404 1407	[± 0.5] Purex State 10.2 10.2 10.2 10.0 5.9	(µS/cm) [± 3%] 120.6 110.0 170.0 120.1 120.7 120.3	(std. units) [± 0.1] 5.73 6.02 6.37 6.47 9.61 6.63	clear clear clear clear clear		
1350 1352 1355 1358 181401 1404 1407	[± 0.5] Puresc State (e. 2) (e. 2) (e. 2) (e. 2) (e. 2) (e. 3) (e. 4) (e. 2) (e. 5) (e. 6) (e. 6) (e. 7) (e. 8)	(µS/cm) [± 3%] 120.6 110.0 170.0 120.1 120.7 120.3	(std. units) [± 0.1] 5.73 6.02 6.37 6.47 9.61 6.63	clear clear clear clear clear		
1350 1352 1355 1358 181401 1404 1407	[± 0.5] Puresc State (e. 2) (e. 2) (e. 2) (e. 2) (e. 2) (e. 3) (e. 4) (e. 2) (e. 5) (e. 6) (e. 6) (e. 7) (e. 8)	(µS/cm) [± 3%] 120.6 110.0 170.0 120.1 120.7 120.3	(std. units) [± 0.1] 5.73 6.02 6.37 6.47 9.61 6.63	clear clear clear clear clear		
1350 1352 1355 1358 181401 1404 1407	[± 0.5] Puresc State (e. 2) (e. 2) (e. 2) (e. 2) (e. 2) (e. 3) (e. 4) (e. 2) (e. 5) (e. 6) (e. 6) (e. 7) (e. 8)	(µS/cm) [± 3%] 120.6 110.0 170.0 120.1 120.7 120.3	(std. units) [± 0.1] 5.73 6.02 6.37 6.47 9.61 6.63	clear clear clear clear clear		
1350 1352 1355 1358 181401 1404 1407	[± 0.5] Puresc State (e. 2) (e. 2) (e. 2) (e. 2) (e. 2) (e. 3) (e. 4) (e. 2) (e. 5) (e. 6) (e. 6) (e. 7) (e. 8)	(µS/cm) [± 3%] 120.6 110.0 170.0 120.1 120.7 120.3	(std. units) [± 0.1] 5.73 6.02 6.37 6.47 9.61 6.63	clear clear clear clear clear		

203 is Barn (green) adjacent to 202)

40H30



Date: 11/11/22	Parcel ID#: PTH- 205						
Physical Address: PTH-205 Blve-green house							
Name (Owner): Kirsten Seyb	ert						
Name (Occupant): 45							
Mailing Address (Owner): PO Box 49	055						
Mailing Address (Occupant):							
Owner Email:	Occupant Email: Kirsty 662010 @gmail.com						
Owner Phone: Preferred method of contact (circle): Ema Number of people residing at this location: Whole life Since 2000 Years at this residence: Full-Time	Occupant Phone: 837 4044 il Phone Adults (18 and over) Teenagers (13 to 17) Children (12 and under) Seasonal Visitors/grandkyd						
1) From where do you obtain your drinking wat a) Residential (private) well c) Bottled water	date						
 2) If you have a private well, please answer the a) Where is the well located on the propert b) Is the well in use? Yes \(\sqrt{N} \) No \(\sqrt{\sq}\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\syn{\sqrt{\sq}\sq}\sqrt{\sqrt{\sqrt{\sq}}\sq}\signt{\sqrt{\sq}\sq}\sq\sint{\sq}\sq}\signt{\sq}\signt{\sq}\sin							
3) If <u>no</u> , is the well usable, unusable, or properl Usable Unusable Abandor If <u>yes</u> , please check all that apply regarding to Drinking Cooking food preparation Other	ned Method the usage of your well water: Vegetable/grain Gardening -Size of Garden sq.feet/acres -Average watering frequency using well						
a) When was the well installed? b) What is the well depth?	Do you have the well log? Yes No g Well Driven lled Unknown (e.g. water softener)? Please describe.						
4) Sample Permission Does the Shannon & Wilson, Inc. have permi							
Signature	Date						

Entered

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WATER SUPPLY WELL SAMPLING LOG

Address PTH-205 Owner/Occupant Kirsten Seybert Mailing address Po Box 49055 Telephone 907-837-4044 Sample Location Purge from Ritchen			Project Number 107291-016 Project Name Post Herden Date 11/11/22 Time 1310 Sampling Personnel Prud		
Sample Number Duplicate Analysis	PTH-20	5		Time 1340 Time Lab <u>Eurofins</u> TestAmen	
Purge Volume	> ~25 Temp. (°C) [± 0.5]		[stabilization crit	teria] Water Clarity (visual)	
1315 1319 1327 1325 1332 1335 1337	5.2° 5.3 5.3 5.3 5.2 5.2 5.2 5.2 5.2 5.2 5.2		5.51 6.02 6.39 6.59 6.67	crear crear crear crear	
Notes:	Softener	off line.	No filter i	n filter housing	

PT4-202



Dat	re: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Parcel ID#: PTH-206
Phy	vsical Address:	
Nar	me (Owner): Billie Schraff	enbarge
Nar	me (Occupant): Poille Source	atten Derger
		051 Port Heiden, Al 995
Ma	iling Address (Occupant):	
	ner Email: bothrafferberger 6 bb	Occupant Email: Scry
	ner Phone: 907-444-4779 Preferred method of contact (circle): Emai mber of people residing at this location:	
		Children (12 and under)
Yea	ars at this residence: 15 Full-Time	Seasonal
1)	From where do you obtain your drinking water a) Residential (private) well c) Bottled water	er? b) Community well d) Other
2)	a) Where is the well located on the property b) Is the well in use? Yes No	
3)	If no, is the well usable, unusable, or properly Usable ☐ Unusable ☐ Abandon If yes, please check all that apply regarding the ☐ Drinking ☐ Cooking food preparation ☐ Other ☐ When was the well installed? ☐ What is the well depth? ☐ What is the well diameter? ☐ What is the we	ed Method ne usage of your well water: Vegetable/grain Gardening -Size of Garden sq.feet/acres -Average watering frequency using well water? (daily, weekly, etc.)
4)	e) Do you have any treatment on your well when the well type? Do you have any treatment on your well when the well type?	25 P. C. Land C. La La H. M. All La Land Black Marks and Artificial Conference of the Conference of th
4)	Sample Permission Does the Shannon & Wilson, Inc. have permis Signature	Ssion to sample your private well? Yes No No Date

WATER SUPPLY WELL SAMPLING LOG

Mail	ing address Telephone	907-444		Sampling	pet Number 102219 016 Diject Name Port Heiden Date 11/11/22 Time 1450 Personnel Rw grm
Sam		PTH- 201	<i>S</i>		Time 1516 Time —
Pu	rge Volume	~ 30 ga	PARAMETERS Conductivity (µS/cm)	[stabilization criter	ia]
	Time	[± 0.5]	[± 3%]	[± 0.1]	Water Clarity (visual)
in	1501 1501 1507 1507 1513	5.5 5.1 5.2	164. 4 160.5 157. 7 156.2 156.8	7.15 7.15 7.25 × 7.39 × 7.44 7.44	Clear Clear Clear Clear
	Notes:	Sampled	outside w/ +	tenago son	

NON



Water Supply Well Inventory Survey Form

Dat	te: 11 00 27	= PTH-208 (nome)					
Par	rcel: PTH-207; Also Selve	5 (10.12)					
Naı	Name (Owner): Alevt trading aka Jack's Store						
	me (Occupant): Tonichistens	en (see (everse)					
Phy	ysical Address: WONE 914 Caribo	ov lane					
Ma	ailing Address: PO BOX 49090 T	Portheiden, Ak 99349					
Em	nail Address (optional):						
Cor	ntact Phone Number: (owner)907-727-3722	(occupant)					
	imber of persons residing at this location: ars at this residence:Full-Time Seaso	Adults (18 and over) Teenagers (13 to 17) Children (12 and under) nal					
1)	a) Water Supply Utility b)	ALCOTTENAL IN					
	Drinking Cooking Gardening Cooking Gardening G						
	i) Do you have any treatment on your well (e.g. water	er softener)? Please describe. 🖊 🖰					
3)	Sample Permission Does the Alaska Department of Transportation & Publiprivate water well? Yes No	lic Facilities (DOT&PF) have permission to sample you					
	B-C-	11/11/22					
	Signature	Date					

RESIDENTIAL WELL SAMPLING LOG

Address	914 Caribou	Cane	Project Number	-016
Owner/Occupant	Aleut Tra	ding Toni	Project Name	Port Weiden PTAS
Mailing Address	POB 4909	0	Date	11/11/22
Telephone	727-37	22	Time	1323
F. W. Lond. 1-101-101		Sa	ampling Personnel	Ann
Purge Location	Utility s	ine in 60	throomm	
Sample Location	Pressure	tanke s	pigot (pre	-trut)
Sample No.	PTH -	207	Time_	1344
Duplicate			Time_	
Pumping Start Time Pumping End Time Gallons per minute Purge Volume (gal.)) 13 > N	zogall	Analysis	Test America x18 PFAS (EPA 537.1)
		PARAMETERS [s		U.,
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
11322	8.3	153.8	752	Clic
1326	8.8	225 155.9		llice
1329	8,3	153.4	8.04	Clice
1232	600 65	149.9	8.28	Clier
1335	5.4	142.9	8.47.	cliar,
1338	5.6	142.5	8.51.	10.01
1241	5.6	142.4	8.55.	Cha
1511	0.6	110.	0.00	CC CC
Notes: Se	rvices.	the Store	(PTH-20) + the trail



		WATER SUPPLY WE	ELL SAMPLIN	G LOG
Address Owner/Occupant Mailing address	7	school	Proj	roject Number Date Time Date 11/9/2072 1630
Telephone			Samplin	g Personnel ARM
Sample Location	School School	peed in 60	Gasines HORIS	n (disconnected from a saw water texp.
Sample Number Duplicate	PTH-2			Time 1703 Time
Analysis	PFAS 1	18		Lab Ewiosis
Purge Volume	> ~2	7 gall PARAMETERS [s	- tabilization crite	eria]
1	Temp. (°C)	(µS/cm)	(std. units)	Motor Clarity (vicual)
Time	[± 0.5]	[± 3%]	[± 0.1]	Water Clarity (visual)
1638	13.8	343. 3	9.17	J H
1642	10.5 8. U	313.3	9.48	0
1653	8.1	297.5	955	0
1357	8.0	297.2	9.54	
1700	8.0	297.6	9.56	t.
Notes:	Noted "high has Tead	to be very tanins" caus reenic treatmers go to	sing water	nultiple reports of U to Fail clanity tests. nultiple pressure tenks.

MDN 130

1



Dat	e: Nov, 9,22	Parcel ID#:
Phy	sical Address: 1012 Trappe	er Hill Rd
Nar	me (Owner): James Chr	istensen
	me (Occupant):	
		- Hill Road Port Heiden AK9954
	iling Address (Occupant):	
		Output Filled
Ow	ner Email: Jimmy & Port Heiden Ataska	Occupant Email:
Nu	Preferred method of contact (circle): Email mber of people residing at this location: ars at this residence: 31 Years	Occupant Phone: Phone Adults (18 and over) Teenagers (13 to 17) Children (12 and under) Seasonal
1)	From where do you obtain your drinking water a) Residential (private) well c) Bottled water	r? b) Community well d) Other
2)	If you have a private well, please answer the fea) Where is the well located on the property b) Is the well in use? Yes \ No \	ollowing questions: 10 Ft South South of Home
3)	If <u>no</u> , is the well usable, unusable, or properly Usable	and the same of th
	If yes, please check all that apply regarding th	
	™ Drinking	✓ Vegetable/grain Gardening Size of Carden 700 Sf. og foot/acros
	Cooking food preparation ☐ Other	-Size of Garden <u>えのら</u> sq.feet/acres -Average watering frequency using well water? (daily, weekly, etc.) <u>da./</u> y
	a) When was the well installed? / 991	
	b) What is the well depth? 64	Do you have the well log? Yes No
	c) What is the well diameter? 6 rac 4 d) What is the well type? Dug	Well Driven ed Unknown
	e) Do you have any treatment on your well (Pellet	e.g. water softener)? Please describe. Fi Her
4)	Sample Permission	
	Does the Shannon & Wilson, Inc. have permiss	
	Signature / //	$\frac{Nov_19,22}{\text{Date}}$



Date: 11/0/2022 Parcel ID#: +W-21
Physical Address: Market 1012 Trapper Hill Co
Name (Owner): Jimmy + Toni Christensen
Name (Occupant): Constitution to the Constitution of the Constitut
Mailing Address (Owner): P.O. Box 49090
Mailing Address (Occupant):
Owner Email: ton _ Christensen @ MSN-rom Occupant Email:
Owner Phone: $(907)727 - 3722$ Occupant Phone: Preferred method of contact (circle): Email Phone Number of people residing at this location: Adults (18 and over) 4 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 +
1) From where do you obtain your drinking water? a) Residential (private) well b) Community well c) Bottled water d) Other
2) If you have a private well, please answer the following questions: a) Where is the well located on the property? b) Is the well in use? Yes No
3) If <u>no</u> , is the well usable, unusable, or properly abandoned? Usable ☑ Unusable ☐ Abandoned ☐ Method If <u>yes</u> , please check all that apply regarding the usage of your well water: ☑ Drinking ☐ Vegetable/grain Gardening ☑ Cooking food preparation sq.feet/acres ☐ Other Other watering frequency using well water? (daily, weekly, etc.)
a) When was the well installed? 1988 ish b) What is the well depth? 64 Do you have the well log? Yes No c) What is the well diameter? d) What is the well type? Dug Well Driven Drilled Unknown e) Do you have any treatment on your well (e.g. water softener)? Please describe.
4) Sample Permission Does the Shannon & Wilson, Inc. have permission to sample your private well? Yes No No Signature Date Cocentry degrened, Charcoal Connistry Filter
(evently degrened, chareout Counster Filter

RESIDENTIAL WELL SAMPLING LOG

Address	1012 T	appentreet	Project Number	-016
Owner/Occupant				Port Heiden PPAS
Mailing Address		090	Date	
Telephone		7-3722	Time	
relephone	10/- 12	Sa	ampling Personnel	
	4		ampling releasing.	
Purge Location	Kitchen	SINC		
1 1 9				
and the world	0	X11 +		
Sample Location	Dauna -	- Hose to	not remove	red
		2		
Committee No	PTH-21	7	Time	1754 <u> </u>
Sample No.	111-01	27-1	Time_	175
Dunlingto			Time	
Duplicate	/		Time_	-
Pumping Start Time	142/3			
Pumping Start Time Pumping End Time	1751	. Total	Depth of Well (ft.)	~ 64
Callens per minute			Laboratory	
Purge Volume (gal.)	1 >424	- 411	Analysis	
ruige volume (gal.)	1 200	3	Allalysis	XIOTI AC (EL A COT. I)
	FIELD	PARAMETERS	stabilization criteria]	
		PROTECT STATE THE NUMBER		
Time	Temp. (°C)	Conductivity	pH (std. units)	Water Clarity (visual)
	[± 0.5]	(μS/cm) [± 3%]	[± 0.1]	LIPER TRANSPORT
1725	5:3	85.3	6.34	Cligs
1730	6.2	Ma 885	6.75	Cliev
17.33	6.2	88.3	6.89	Cloal
1736	5, 1	83.5	7.05	Char
1739	5. 9	876	7.09	Cuc
1743	5 9	87.4	7.16 x	Clia
17-43	5.6	86.	7.26	Clear
1748	5.9	87.2	7.27	clier
1751	5.7	86.9	7,29	lie
			1	
		C=		
Notes:				
WW. 6.				





Date: 11/10/2027	Parcel ID#: PTH-213
Physical Address: 23 Tunday Orive	
Name (Owner): Garda Kosbruk	
Name (Occupant):	
Mailing Address (Owner):	
Mailing Address (Occupant):	
Owner Email: phant@ Hot mail com	Occupant Email:
Owner Phone: Preferred method of contact (circle): Email Number of people residing at this location: Years at this residence: Full-Time	Occupant Phone:
From where do you obtain your drinking wate a) Residential (private) well C) Bottled water	b) Community well d) Other d
2) If you have a private well, please answer the fa) Where is the well located on the propertyb) Is the well in use? Yes No 	
3) If <u>no</u> , is the well usable, unusable, or properly Usable ☐ Unusable ☐ Abandone If <u>yes</u> , please check all that apply regarding th ☐ Drinking ☐ Cooking food preparation ☐ Other	ed Method
Drill	Do you have the well log? Yes No Well Driven
4) Sample Permission Does the Shannon & Wilson, Inc. have permis.	sion to sample your private well?
Signature	Date

RESIDENTIAL WELL SAMPLING LOG

Address Owner/Occupant Mailing Address Telephone	Gerda K	pper Hill Cosbouk Contact Contact Contact	Project Name	PoltHeiden PTAS	
Purge Location	Kitchen	SINK			
Sample Location	04000	or spigot	, + 1 icely+	Pre-tractment	
Sample No.	PTH-21-	3	Time	1835	
Duplicate			Time		
Pumping Start Time Pumping End Time Gallons per minute Purge Volume (gal.)	1832 >~20		Laboratory Analysis	Test America x18 PFAS (EPA 537.1)	Jimmy's?
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)	
8008 1810	5.7	163.	6.41	(lius	
1813	5.4	162.4	6.84 x	clical	
1814	5.4	1624	6.95	lecel	
1820	5.5	161.8	7.06 %	Clas	
1823	5.5	161-8	7.12	clica	
1826	5.5	162.	7.20	(lieu	
1829	0,5	161.5	7.24	cliev	
1832	315	161,0	f · d · t	Clea	
	1 /	C 111	1 1	1	
Notes: Samp	100 W/	Gerda's	daughter.	Unaware of	
protreati	rueri+ 10	scanon, be	H mdi	control the outdoor	
- Sticket					

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J



Date: 10 Nov22	Parcel ID#: 14 - 214
Physical Address: 1001 Trapper 4.11	RD .
Name (Owner): John Christenson	In
Name (Occupant):	
Mailing Address (Owner): Po Box 490	
Mailing Address (Occupant):	
Owner Email: John wan ze gmal.con	
Owner Phone: 907 444 5976	
Preferred method of contact (circle): Email	
Number of people residing at this location:	Adults (18 and over)
Manuaci di people resiang at tine istation	Teenagers (13 to 17)
	Children (12 and under)
Years at this residence: 30 Full-Time	Seasonal
From where do you obtain your drinking water	r?
a) Residential (private) well	b) Community well
c) Bottled water	d) Other
2) If you have a private well, please answer the fo	ollowing questions:
a) Where is the well located on the property	? cast of main door
b) Is the well in use? Yes No	
3) If <u>no</u> , is the well usable, unusable, or properly	
Usable Unusable Abandone	
If yes, please check all that apply regarding the	
Drinking	☐ Vegetable/grain Gardening
☐ Cooking food preparation	-Size of Garden sq.feet/acres-Average watering frequency using well
□ Other	water? (daily, weekly, etc.)
a) When was the well installed? 1985	70 00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
b) What is the well depth? 40	Do you have the well log? Yes No
c) What is the well diameter?6	
d) What is the well type?	Well Driven
Drille	ed Unknown
e) Do you have any treatment on your well (e.g. water softener)? Please describe.
4) Sample Permission	
Does the Shannon & Wilson, Inc. have permiss	sion to sample your private well? Yes No
6/1016	100022
Signature	Date
Signature	Date

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M. Sug

RESIDENTIAL WELL SAMPLING LOG

		76	Project Number Project Name Date Time ampling Personnel	1/10/2022 1845
Purge Location	Kitchen :	sin/C		
Sample Location	Same, no	treatmen	- per our	ser
Sample No.	PTH-214		Time_	1911
Duplicate			Time	
Pumping Start Time Pumping End Time Gallons per minute Purge Volume (gal.)	1908	Total	Depth of Well (ft.) _ Laboratory _ Analysis _	Test America
	FIELD	PARAMETERS [s	tabilization criteria]	
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1846	6.7	1250	6.50	Clia
1849	5,2	119.8	6.99	Clia
1852	6.8	125.3	7.06	Clia
1855	7.0	1262	7.15	clia
190002	6.	123 7	non a fine	Clear
	-0.8	120	7.3	cliar
1905	6.8	124.7	7.34	Clear
1908	6.8	124.+	70 33	dic
Notes:				
AND THE				

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be when

=111		JOB NAME		JOB NO. 102219-016
SHANNON & WILS	ON, INC.	SUBJECT	CHK'D	SHEET of
SHANNON & WILS Geotechnical and Env	ironmental Consu	Itants BY	OHR D_	
			6 86	
PW-IB	Search	Status		Photo
PTH-001	5	Abandoned	1-1-1-1	I Red structure. 2 Holldings
x -002	5			I Blue-gray single structure
-003	5	*	1 1 4	White string Red Roof (Zstrut
4 -004	5	Active	++++	Cream siding, Blue-groy roof
-X -005	5	Active	- V	Church
- OO6	5	Active	1	Light blue pecling pt
F00- 4	5	Abandoned	01 5 5 4 5 5 5	
- wr - 008	5	Active- Vil	lage Pub Safety off.	white street ease
- 6-009	7	Abandaned		Green sid/ silver roof
- 010	7	Active		Cute light blue uldark 8 tru
- 6 -011	7	Active	T () A A	Volland of allite tome
-012		the state of the s	maged (likely Activ	Gray-HIR side, stree rost
- 013		Active		Periwinille of Furting shed
10-014		Active	1-1 2-1-1-1-0	
-015		Active (Ca	rd's Legacy Lodge	Teal
-016		Active		Burgandy Siding
-017		Active	27	Black/ indigo while from
-018		Active (:)	white house Blue trim
-019		Active		Brick red, mult fishing boats ~
- ozo		Active		Tiffany blue, white frim
-8 -021		Active	bllow up about behi	nd) Purne side, White thim
-41-022			DIOOD OP STORE	Gray-blue side. Small house
- 023	V	Active		Farm. Long Drive way
7-024	8	Active		2-story large sage green . Dg.
- 1-025		AA	1	Crey ride, Blue Roof
1 / 026				LILLE SIDE arey Roof
-027		4	+ All in same	I what blue wid blue Root
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- 2 / - 029				Caray side wil blue 1000 00
- 030		9 3	istol Bay trea Health	I would be a larger than the second of the s
-2x - 031	d		DIV PAGE TO SELECT	Gray side gray roof
-× 1 -032	7	A		Gray side I gray
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		A		Brite green side
- 45 - 036		A		Ciraly
- 300 - 037		AV		Corony, lots of cold
And the state of t		Abando.	ned	Wood - Old . of Killer
-039		Active		Tan
- 040		Active		Blue-gray Dark trim
- 2041		Activo		cream of wood-yellow trim
- 4 - 042	41	Active	(Scottshouse)	Cocay side Miked Shed
-043	- Y	Adtive		White 2 story blue post
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JOB NO. JOB NAME DATE SUBJECT_ SHANNON & WILSON, INC. Geotechnical and Environmental Consultants CHK'D_ SHEET Ray's Place Main well Public White duplex 596-6060 mary 842- 9596 Main office BBHA 2 props in Mini HUD under construction PTH- 026 Operable PTH - 020 - inoperable - 022 is dark purple house in elders 200 x Briefly talked to resident. Will sample 11/10 @ Noon per their request Houses in min had knocked on doors + no one home yet Wells installed 10 yrs ago BBHA elarson@bbha.org emil Larson 907-842-6568 PO Box 50 Dill 99576 (to BBHA) 7 Next to Tishe wana (works a farm) John owns how-Amber Lilling nna 907-717-10003236 30 ft well lots on sediment from earthquake 11/10 Checked on PT4-014 Appears & unoccupied Periwinkle blue house. Notes Door booted up Well hand in front you busty block gray house PTH- 013 Door deadbotted Sage green house. Appears unoccupied well nead out front PTH -010 PTH-DIV Unoccupied tight blue is olvering well out front Yellow house. Lots of debrs. Unoccupied PTH-012 Knocked on door left tag white a blue from -019 -021 left rolg Well wast in Aiders lots of japanese floats - 020

PREPARED FOR

Attn: Kristen Freiburger Shannon & Wilson, Inc 2355 Hill Rd. Fairbanks, Alaska 99709-5244

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JOB DESCRIPTION

Port Heiden (PTH) PFAS

JOB NUMBER

320-94388-1

Eurofins Sacramento 880 Riverside Parkway West Sacramento CA 95605

Eurofins Sacramento

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northern California, LLC Project Manager.

Authorization

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Authorized for release by David Alltucker, Project Manager I David.Alltucker@et.eurofinsus.com (916)374-4383 Client: Shannon & Wilson, Inc Project/Site: Port Heiden (PTH) PFAS Laboratory Job ID: 320-94388-1

Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	9
Isotope Dilution Summary	40
QC Sample Results	42
QC Association Summary	48
Lab Chronicle	50
Certification Summary	56
Method Summary	57
Sample Summary	58
Chain of Custody	59
Receipt Checklists	63

Definitions/Glossary

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Qualifiers

-	_		_
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		w	
_	J		v

Qualifier Qualifier Description

Value is EMPC (estimated maximum possible concentration).

J Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly	y used abbreviations may	or may	v not be	present in this report.

Example 2 Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

Eurofins Sacramento

Page 4 of 63 12/22/2022

Case Narrative

Client: Shannon & Wilson, Inc

Project/Site: Port Heiden (PTH) PFAS

Job ID: 320-94388-1

Job ID: 320-94388-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-94388-1

Receipt

The samples were received on 11/15/2022 3:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.9° C and 4.3° C.

LCMS

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. PTH-205 (320-94388-27)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-634641.

Method 3535: The following samples in preparation batch 320-634641 were observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction. PTH-027 (320-94388-13), PTH-033 (320-94388-14) and PTH-032 (320-94388-19)

Method 3535: The following sample in preparation batch 320-634641 was light orange in color prior to extraction. PTH-211 (320-94388-5)

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-635091.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-212 Lab Sample ID: 320-94388-1

No Detections.

Client Sample ID: PTH-046 Lab Sample ID: 320-94388-2

Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	88	1.8	0.52	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	21	1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	22	1.8	0.77	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	110	1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	250	1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	36	1.8	0.49	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: PTH-042 Lab Sample ID: 320-94388-3

Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.64 J	1.9	0.50	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: PTH-214 Lab Sample ID: 320-94388-4

No Detections.

Client Sample ID: PTH-211 Lab Sample ID: 320-94388-5

No Detections.

Client Sample ID: PTH-043 Lab Sample ID: 320-94388-6

No Detections.

Client Sample ID: PTH-049 Lab Sample ID: 320-94388-7

No Detections.

Client Sample ID: PTH-022 Lab Sample ID: 320-94388-8

No Detections.

Client Sample ID: PTH-029 Lab Sample ID: 320-94388-9

No Detections.

Client Sample ID: PTH-045 Lab Sample ID: 320-94388-10

No Detections.

Client Sample ID: PTH-213 Lab Sample ID: 320-94388-11

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.41 J	1.8	0.18 ng/L	1 EPA 537(Mod)	Total/NA

Client Sample ID: PTH-020 Lab Sample ID: 320-94388-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.3	J	1.8	0.53	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.47	J	1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.7	J	1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.8		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

12/22/2022

Detection Summary Client: Shannon & Wilson, Inc Job ID: 320-94388-1 Project/Site: Port Heiden (PTH) PFAS Client Sample ID: PTH-027 Lab Sample ID: 320-94388-13 No Detections. Client Sample ID: PTH-033 Lab Sample ID: 320-94388-14 Analyte Dil Fac D Method Result Qualifier RL MDL Unit **Prep Type** Perfluorobutanesulfonic acid (PFBS) 0.22 J 1.8 0.18 ng/L EPA 537(Mod) Total/NA Lab Sample ID: 320-94388-15 Client Sample ID: PTH-030 No Detections. Client Sample ID: PTH-016 Lab Sample ID: 320-94388-16 Dil Fac D Method Analyte Result Qualifier RL MDL Unit **Prep Type** Perfluorooctanesulfonic acid (PFOS) 0.50 J EPA 537(Mod) Total/NA 1.8 0.48 ng/L Client Sample ID: PTH-026 Lab Sample ID: 320-94388-17 No Detections. Client Sample ID: PTH-025 Lab Sample ID: 320-94388-18 Analyte Result Qualifier Dil Fac D Method RL MDL Unit **Prep Type** 1.8 Perfluorohexanoic acid (PFHxA) 4.8 0.53 ng/L EPA 537(Mod) Total/NA Perfluoroheptanoic acid (PFHpA) 1.1 J 1.8 0.23 ng/L EPA 537(Mod) Total/NA Perfluorobutanesulfonic acid (PFBS) 9.9 1.8 EPA 537(Mod) Total/NA 0.18 ng/L EPA 537(Mod) Perfluorohexanesulfonic acid (PFHxS) 35 1.8 0.52 ng/L Total/NA Client Sample ID: PTH-032 Lab Sample ID: 320-94388-19 Analyte Result Qualifier RL MDL Unit Dil Fac D Method **Prep Type** Perfluorobutanesulfonic acid (PFBS) 1.2 J 1.8 0.18 ng/L EPA 537(Mod) Total/NA Perfluorohexanesulfonic acid (PFHxS) 0.60 J EPA 537(Mod) Total/NA 1.8 0.51 ng/L Client Sample ID: PTH-031 Lab Sample ID: 320-94388-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.24	J	1.8	0.23	ng/L		_	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		1.8	0.77	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.3	J	1.8	0.49	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: PTH-037	Lab Sample ID: 320-94388-21				
No Detections.					

Client Sample ID: PTH-015	Lab Sample ID: 320-94388-22

NO Detections.	
_	

Client Sample ID: PTH-207	Lab Sample ID: 320-94388-23

Client Sample	ID: F	PTH-206

No Detections.

_					
Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.74 J	1.8	0.18 ng/L	1 EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

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Lab Sample ID: 320-94388-24

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Job ID: 320-94388-1

Client: Shannon & Wilson, Inc Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-013 Lab Sample ID: 320-94388-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.65	J	1.7	0.50	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.34	J	1.7	0.17	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.70	J	1.7	0.49	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: PTH-201 Lab Sample ID: 320-94388-26

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.33 J	1.8	0.18 ng/L	1 EPA 537(Mod)	Total/NA

Client Sample ID: PTH-205 Lab Sample ID: 320-94388-27

Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	9.1	1.8	0.52	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.0	1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	15	1.8	0.77	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	9.9	1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.1	1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.9	1.8	0.49	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: PTH-202 Lab Sample ID: 320-94388-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.7	J	2.1	0.61	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.0	J	2.1	0.26	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	3.1		2.1	0.89	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.3		2.1	0.21	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.9		2.1	0.60	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: PTH-145 Lab Sample ID: 320-94388-29

No Detections.

Client Sample ID: PTH-116 Lab Sample ID: 320-94388-30

No Detections.

Client Sample ID: PTH-146 Lab Sample ID: 320-94388-31

Analyte	Result (Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	89		2.0	0.58	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	20		2.0	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	17		2.0	0.85	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	110		2.0	0.20	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	220		2.0	0.57	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	32		2.0	0.54	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

12/22/2022

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Lab Sample ID: 320-94388-1 **Client Sample ID: PTH-212**

Date Collected: 11/10/22 17:54 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.80	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		11/22/22 05:30	12/17/22 01:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		11/22/22 05:30	12/17/22 01:14	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		11/22/22 05:30	12/17/22 01:14	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		11/22/22 05:30	12/17/22 01:14	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.23	ng/L		11/22/22 05:30	12/17/22 01:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		11/22/22 05:30	12/17/22 01:14	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.30	ng/L		11/22/22 05:30	12/17/22 01:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		11/22/22 05:30	12/17/22 01:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		50 - 150				11/22/22 05:30	12/17/22 01:14	1
13C4 PFHpA	97		50 - 150				11/22/22 05:30	12/17/22 01:14	1
13C4 PFOA	97		50 - 150				11/22/22 05:30	12/17/22 01:14	1
13C5 PFNA	93		50 - 150				11/22/22 05:30	12/17/22 01:14	1
13C2 PFDA	95		50 - 150				11/22/22 05:30	12/17/22 01:14	1
13C2 PFUnA	95		50 ₋ 150				11/22/22 05:30	12/17/22 01:14	1
13C2 PFDoA	83		50 - 150				11/22/22 05:30	12/17/22 01:14	1
13C2 PFTeDA	91		50 ₋ 150					12/17/22 01:14	1
13C3 PFBS	97		50 ₋ 150				11/22/22 05:30	12/17/22 01:14	1
1802 PFHxS	93		50 - 150				11/22/22 05:30	12/17/22 01:14	
13C4 PFOS	91		50 - 150					12/17/22 01:14	1
d3-NMeFOSAA	92		50 ₋ 150					12/17/22 01:14	1
d5-NEtFOSAA	87		50 - 150					12/17/22 01:14	
	92		50 ₋ 150					12/17/22 01:14	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-046 Lab Sample ID: 320-94388-2

Date Collected: 11/10/22 12:57 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	88		1.8		ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluoroheptanoic acid (PFHpA)	21		1.8	0.23	ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluorooctanoic acid (PFOA)	22		1.8	0.77	ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluorobutanesulfonic acid (PFBS)	110		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluorohexanesulfonic acid (PFHxS)	250		1.8		ng/L		11/22/22 05:30	12/17/22 01:24	
Perfluorooctanesulfonic acid (PFOS)	36		1.8		ng/L			12/17/22 01:24	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/22/22 05:30	12/17/22 01:24	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/22/22 05:30	12/17/22 01:24	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 01:24	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		11/22/22 05:30	12/17/22 01:24	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 01:24	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 01:24	
lsotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	100		50 - 150				11/22/22 05:30	12/17/22 01:24	
13C4 PFHpA	94		50 - 150				11/22/22 05:30	12/17/22 01:24	
13C4 PFOA	97		50 - 150				11/22/22 05:30	12/17/22 01:24	
13C5 PFNA	96		50 - 150				11/22/22 05:30	12/17/22 01:24	
13C2 PFDA	95		50 - 150				11/22/22 05:30	12/17/22 01:24	
13C2 PFUnA	94		50 - 150				11/22/22 05:30	12/17/22 01:24	
13C2 PFDoA	91		50 - 150				11/22/22 05:30	12/17/22 01:24	
13C2 PFTeDA	101		50 - 150				11/22/22 05:30	12/17/22 01:24	
13C3 PFBS	93		50 - 150				11/22/22 05:30	12/17/22 01:24	
1802 PFHxS	98		50 - 150					12/17/22 01:24	
13C4 PFOS	91		50 - 150					12/17/22 01:24	
d3-NMeFOSAA	94		50 ₋ 150					12/17/22 01:24	
d5-NEtFOSAA	93		50 - 150					12/17/22 01:24	
13C3 HFPO-DA	91		50 - 150					12/17/22 01:24	

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-042 Lab Sample ID: 320-94388-3

Date Collected: 11/10/22 14:30 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		11/22/22 05:30	12/17/22 01:35	1
Perfluorooctanesulfonic acid (PFOS)	0.64	J	1.9	0.50	ng/L		11/22/22 05:30	12/17/22 01:35	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		11/22/22 05:30	12/17/22 01:35	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		11/22/22 05:30	12/17/22 01:35	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.22	ng/L		11/22/22 05:30	12/17/22 01:35	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		11/22/22 05:30	12/17/22 01:35	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.30	ng/L		11/22/22 05:30	12/17/22 01:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		11/22/22 05:30	12/17/22 01:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		50 - 150				11/22/22 05:30	12/17/22 01:35	1
13C4 PFHpA	90		50 ₋ 150				11/22/22 05:30	12/17/22 01:35	1
13C4 PFOA	94		50 - 150				11/22/22 05:30	12/17/22 01:35	1
13C5 PFNA	92		50 ₋ 150				11/22/22 05:30	12/17/22 01:35	1
13C2 PFDA	89		50 ₋ 150				11/22/22 05:30	12/17/22 01:35	1
13C2 PFUnA	110		50 - 150				11/22/22 05:30	12/17/22 01:35	1
13C2 PFDoA	102		50 ₋ 150				11/22/22 05:30	12/17/22 01:35	1
13C2 PFTeDA	99		50 ₋ 150				11/22/22 05:30	12/17/22 01:35	1
13C3 PFBS	92		50 ₋ 150				11/22/22 05:30	12/17/22 01:35	1
18O2 PFHxS	97		50 ₋ 150				11/22/22 05:30	12/17/22 01:35	1
13C4 PFOS	93		50 - 150					12/17/22 01:35	1
d3-NMeFOSAA	102		50 ₋ 150					12/17/22 01:35	1
d5-NEtFOSAA	114		50 - 150					12/17/22 01:35	1
13C3 HFPO-DA	88		50 - 150					12/17/22 01:35	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-214

Lab Sample ID: 320-94388-4

Date Collected: 11/10/22 19:11 Matrix: Water Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.77	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 01:45	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 01:45	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/22/22 05:30	12/17/22 01:45	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/22/22 05:30	12/17/22 01:45	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 01:45	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		11/22/22 05:30	12/17/22 01:45	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 01:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 01:45	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		50 - 150				11/22/22 05:30	12/17/22 01:45	1
13C4 PFHpA	99		50 - 150				11/22/22 05:30	12/17/22 01:45	1
13C4 PFOA	96		50 - 150				11/22/22 05:30	12/17/22 01:45	1
13C5 PFNA	96		50 - 150				11/22/22 05:30	12/17/22 01:45	1
13C2 PFDA	97		50 - 150				11/22/22 05:30	12/17/22 01:45	1
13C2 PFUnA	94		50 ₋ 150				11/22/22 05:30	12/17/22 01:45	1
13C2 PFDoA	81		50 - 150				11/22/22 05:30	12/17/22 01:45	1
13C2 PFTeDA	90		50 ₋ 150				11/22/22 05:30	12/17/22 01:45	1
13C3 PFBS	95		50 ₋ 150				11/22/22 05:30	12/17/22 01:45	1
1802 PFHxS	101		50 - 150				11/22/22 05:30	12/17/22 01:45	1
13C4 PFOS	88		50 - 150				11/22/22 05:30	12/17/22 01:45	1
d3-NMeFOSAA	89		50 - 150				11/22/22 05:30	12/17/22 01:45	1
d5-NEtFOSAA	87		50 - 150				11/22/22 05:30	12/17/22 01:45	1
13C3 HFPO-DA	93		50 ₋ 150				44/00/00 05 00	12/17/22 01:45	1

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-211 Lab Sample ID: 320-94388-5

Date Collected: 11/09/22 17:03 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 01:55	
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 01:55	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		11/22/22 05:30	12/17/22 01:55	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 01:55	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 01:55	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		11/22/22 05:30	12/17/22 01:55	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 01:55	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 01:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		11/22/22 05:30	12/17/22 01:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 01:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		11/22/22 05:30	12/17/22 01:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		11/22/22 05:30	12/17/22 01:55	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/22/22 05:30	12/17/22 01:55	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5		ng/L		11/22/22 05:30	12/17/22 01:55	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 01:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6		ng/L		11/22/22 05:30	12/17/22 01:55	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	-		11/22/22 05:30	12/17/22 01:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 01:55	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		50 - 150				11/22/22 05:30	12/17/22 01:55	
13C4 PFHpA	95		50 - 150				11/22/22 05:30	12/17/22 01:55	1
13C4 PFOA	92		50 - 150				11/22/22 05:30	12/17/22 01:55	1
13C5 PFNA	96		50 - 150				11/22/22 05:30	12/17/22 01:55	
13C2 PFDA	96		50 - 150				11/22/22 05:30	12/17/22 01:55	1
13C2 PFUnA	94		50 - 150				11/22/22 05:30	12/17/22 01:55	1
13C2 PFDoA	80		50 - 150				11/22/22 05:30	12/17/22 01:55	
13C2 PFTeDA	86		50 - 150				11/22/22 05:30	12/17/22 01:55	1
13C3 PFBS	94		50 - 150				11/22/22 05:30	12/17/22 01:55	
1802 PFHxS	93		50 - 150				11/22/22 05:30	12/17/22 01:55	
13C4 PFOS	87		50 ₋ 150					12/17/22 01:55	
d3-NMeFOSAA	93		50 ₋ 150				11/22/22 05:30	12/17/22 01:55	1
d5-NEtFOSAA	92		50 - 150					12/17/22 01:55	
13C3 HFPO-DA	86		50 - 150				11/22/22 05:30		1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-043 Lab Sample ID: 320-94388-6

Date Collected: 11/09/22 17:53 Matrix: Water Date Received: 11/15/22 15:05

Analyte	Result Q	ualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND	1.9	0.55	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluoroheptanoic acid (PFHpA)	ND	1.9	0.24	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluorooctanoic acid (PFOA)	ND	1.9	0.81	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluorononanoic acid (PFNA)	ND	1.9	0.26	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluorodecanoic acid (PFDA)	ND	1.9	0.30	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluoroundecanoic acid (PFUnA)	ND	1.9	1.0	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluorododecanoic acid (PFDoA)	ND	1.9	0.52	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluorotridecanoic acid (PFTriA)	ND	1.9	1.2	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluorotetradecanoic acid (PFTeA)	ND	1.9	0.69	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	0.19	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	0.54	ng/L		11/22/22 05:30	12/17/22 02:05	1
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	0.51	ng/L		11/22/22 05:30	12/17/22 02:05	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.8	1.1	ng/L		11/22/22 05:30	12/17/22 02:05	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.8	1.2	ng/L		11/22/22 05:30	12/17/22 02:05	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	1.9	0.23	ng/L		11/22/22 05:30	12/17/22 02:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	3.8	1.4	ng/L		11/22/22 05:30	12/17/22 02:05	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	1.9	0.30	ng/L		11/22/22 05:30	12/17/22 02:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	0.38	ng/L		11/22/22 05:30	12/17/22 02:05	1
Isotope Dilution	%Recovery Q	Qualifier Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	97	50 - 150				11/22/22 05:30	12/17/22 02:05	1
13C4 PFHpA	96	50 - 150				11/22/22 05:30	12/17/22 02:05	1
13C4 PFOA	95	50 ₋ 150				11/22/22 05:30	12/17/22 02:05	1
13C5 PFNA	92	50 - 150				11/22/22 05:30	12/17/22 02:05	1
13C2 PFDA	92	50 - 150				11/22/22 05:30	12/17/22 02:05	1
13C2 PFUnA	90	50 ₋ 150				11/22/22 05:30	12/17/22 02:05	1
13C2 PFDoA	83	50 - 150				11/22/22 05:30	12/17/22 02:05	1
13C2 PFTeDA	86	50 - 150					12/17/22 02:05	1
13C3 PFBS	97	50 - 150					12/17/22 02:05	1
1802 PFHxS	97	50 - 150				11/22/22 05:30	12/17/22 02:05	1
13C4 PFOS	87	50 ₋ 150					12/17/22 02:05	1
d3-NMeFOSAA	90	50 ₋ 150					12/17/22 02:05	1
d5-NEtFOSAA	91	50 - 150					12/17/22 02:05	
13C3 HFPO-DA	91	50 ₋ 150					12/17/22 02:05	1

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Lab Sample ID: 320-94388-7 **Client Sample ID: PTH-049**

Date Collected: 11/09/22 11:13 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.77	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		11/22/22 05:30	12/17/22 02:15	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 02:15	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/22/22 05:30	12/17/22 02:15	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/22/22 05:30	12/17/22 02:15	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 02:15	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		11/22/22 05:30	12/17/22 02:15	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 02:15	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 02:15	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		50 - 150				11/22/22 05:30	12/17/22 02:15	1
13C4 PFHpA	96		50 - 150				11/22/22 05:30	12/17/22 02:15	1
13C4 PFOA	93		50 - 150				11/22/22 05:30	12/17/22 02:15	1
13C5 PFNA	94		50 - 150				11/22/22 05:30	12/17/22 02:15	1
13C2 PFDA	93		50 - 150				11/22/22 05:30	12/17/22 02:15	1
13C2 PFUnA	101		50 ₋ 150				11/22/22 05:30	12/17/22 02:15	1
13C2 PFDoA	82		50 - 150				11/22/22 05:30	12/17/22 02:15	1
13C2 PFTeDA	99		50 ₋ 150				11/22/22 05:30	12/17/22 02:15	1
13C3 PFBS	95		50 ₋ 150				11/22/22 05:30	12/17/22 02:15	1
1802 PFHxS	98		50 - 150				11/22/22 05:30	12/17/22 02:15	1
13C4 PFOS	94		50 - 150				11/22/22 05:30	12/17/22 02:15	1
d3-NMeFOSAA	92		50 - 150				11/22/22 05:30	12/17/22 02:15	1
d5-NEtFOSAA	94		50 - 150				11/22/22 05:30	12/17/22 02:15	1
13C3 HFPO-DA	88		50 ₋ 150				11/00/00 05:00	12/17/22 02:15	1

Client: Shannon & Wilson, Inc
Project/Site: Port Heiden (PTH) PFAS

Job ID: 320-94388-1

Client Sample ID: PTH-022 Lab Sample ID: 320-94388-8

Date Collected: 11/10/22 12:34 Matrix: Water Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.78	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.51	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.53	ng/L		11/22/22 05:30	12/17/22 23:00	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 23:00	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		11/22/22 05:30	12/17/22 23:00	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		11/22/22 05:30	12/17/22 23:00	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 23:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		11/22/22 05:30	12/17/22 23:00	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.30	ng/L		11/22/22 05:30	12/17/22 23:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		11/22/22 05:30	12/17/22 23:00	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	97	-	50 - 150				11/22/22 05:30	12/17/22 23:00	1
13C4 PFHpA	94		50 - 150				11/22/22 05:30	12/17/22 23:00	1
13C4 PFOA	94		50 ₋ 150				11/22/22 05:30	12/17/22 23:00	1
13C5 PFNA	95		50 - 150				11/22/22 05:30	12/17/22 23:00	1
13C2 PFDA	93		50 - 150				11/22/22 05:30	12/17/22 23:00	1
13C2 PFUnA	92		50 ₋ 150				11/22/22 05:30	12/17/22 23:00	1
13C2 PFDoA	84		50 - 150				11/22/22 05:30	12/17/22 23:00	1
13C2 PFTeDA	90		50 ₋ 150				11/22/22 05:30	12/17/22 23:00	1
13C3 PFBS	93		50 ₋ 150				11/22/22 05:30	12/17/22 23:00	1
1802 PFHxS	94		50 ₋ 150					12/17/22 23:00	1
13C4 PFOS	87		50 ₋ 150					12/17/22 23:00	1
d3-NMeFOSAA	91		50 ₋ 150				11/22/22 05:30	12/17/22 23:00	1
d5-NEtFOSAA	89		50 ₋ 150				11/22/22 05:30	12/17/22 23:00	1
13C3 HFPO-DA	91		50 - 150				11/22/22 05:30		1

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Lab Sample ID: 320-94388-9 **Client Sample ID: PTH-029**

Date Collected: 11/10/22 15:04 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.78	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 02:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 02:55	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		11/22/22 05:30	12/17/22 02:55	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		11/22/22 05:30	12/17/22 02:55	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 02:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		11/22/22 05:30	12/17/22 02:55	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 02:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		11/22/22 05:30	12/17/22 02:55	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		50 - 150				11/22/22 05:30	12/17/22 02:55	1
13C4 PFHpA	104		50 - 150				11/22/22 05:30	12/17/22 02:55	1
13C4 PFOA	99		50 - 150				11/22/22 05:30	12/17/22 02:55	1
13C5 PFNA	100		50 - 150				11/22/22 05:30	12/17/22 02:55	1
13C2 PFDA	99		50 - 150				11/22/22 05:30	12/17/22 02:55	1
13C2 PFUnA	101		50 ₋ 150				11/22/22 05:30	12/17/22 02:55	1
13C2 PFDoA	91		50 - 150				11/22/22 05:30	12/17/22 02:55	1
13C2 PFTeDA	89		50 ₋ 150					12/17/22 02:55	1
13C3 PFBS	97		50 ₋ 150				11/22/22 05:30	12/17/22 02:55	1
1802 PFHxS	99		50 - 150				11/22/22 05:30	12/17/22 02:55	1
13C4 PFOS	99		50 - 150					12/17/22 02:55	1
d3-NMeFOSAA	96		50 ₋ 150					12/17/22 02:55	. 1
d5-NEtFOSAA	99		50 - 150					12/17/22 02:55	
13C3 HFPO-DA	98		50 ₋ 150					12/17/22 02:55	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-045 Lab Sample ID: 320-94388-10

Date Collected: 11/10/22 18:50 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		11/22/22 05:30	12/17/22 03:05	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		11/22/22 05:30	12/17/22 03:05	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/22/22 05:30	12/17/22 03:05	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/22/22 05:30	12/17/22 03:05	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.21	ng/L		11/22/22 05:30	12/17/22 03:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		11/22/22 05:30	12/17/22 03:05	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 03:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 03:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		50 - 150				11/22/22 05:30	12/17/22 03:05	1
13C4 PFHpA	88		50 - 150				11/22/22 05:30	12/17/22 03:05	1
13C4 PFOA	93		50 - 150				11/22/22 05:30	12/17/22 03:05	1
13C5 PFNA	90		50 - 150				11/22/22 05:30	12/17/22 03:05	1
13C2 PFDA	85		50 - 150				11/22/22 05:30	12/17/22 03:05	1
13C2 PFUnA	92		50 ₋ 150				11/22/22 05:30	12/17/22 03:05	1
13C2 PFDoA	82		50 - 150				11/22/22 05:30	12/17/22 03:05	1
13C2 PFTeDA	85		50 ₋ 150				11/22/22 05:30	12/17/22 03:05	1
13C3 PFBS	91		50 ₋ 150				11/22/22 05:30	12/17/22 03:05	1
1802 PFHxS	89		50 - 150				11/22/22 05:30	12/17/22 03:05	1
13C4 PFOS	83		50 ₋ 150					12/17/22 03:05	1
d3-NMeFOSAA	85		50 ₋ 150					12/17/22 03:05	1
d5-NEtFOSAA	90		50 - 150					12/17/22 03:05	1
13C3 HFPO-DA	85		50 ₋ 150					12/17/22 03:05	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-213 Lab Sample ID: 320-94388-11

Date Collected: 11/10/22 18:35 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.77	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluorobutanesulfonic acid (PFBS)	0.41	J	1.8	0.18	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		11/22/22 05:30	12/17/22 03:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		11/22/22 05:30	12/17/22 03:16	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/22/22 05:30	12/17/22 03:16	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/22/22 05:30	12/17/22 03:16	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 03:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		11/22/22 05:30	12/17/22 03:16	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 03:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 03:16	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	98		50 - 150				11/22/22 05:30	12/17/22 03:16	1
13C4 PFHpA	100		50 ₋ 150				11/22/22 05:30	12/17/22 03:16	1
13C4 PFOA	98		50 ₋ 150				11/22/22 05:30	12/17/22 03:16	1
13C5 PFNA	91		50 ₋ 150				11/22/22 05:30	12/17/22 03:16	1
13C2 PFDA	89		50 ₋ 150				11/22/22 05:30	12/17/22 03:16	1
13C2 PFUnA	97		50 - 150				11/22/22 05:30	12/17/22 03:16	1
13C2 PFDoA	85		50 ₋ 150				11/22/22 05:30	12/17/22 03:16	1
13C2 PFTeDA	88		50 ₋ 150				11/22/22 05:30	12/17/22 03:16	1
13C3 PFBS	99		50 ₋ 150				11/22/22 05:30	12/17/22 03:16	1
1802 PFHxS	107		50 - 150					12/17/22 03:16	1
13C4 PFOS	93		50 - 150					12/17/22 03:16	1
d3-NMeFOSAA	84		50 ₋ 150					12/17/22 03:16	1
d5-NEtFOSAA	90		50 - 150					12/17/22 03:16	1
13C3 HFPO-DA	97		50 - 150					12/17/22 03:16	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Date Received: 11/15/22 15:05

13C3 HFPO-DA

Client Sample ID: PTH-020 Lab Sample ID: 320-94388-12 Date Collected: 11/10/22 18:07

Matrix: Water

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	1.3	J	1.8	0.53	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluoroheptanoic acid (PFHpA)	0.47	J	1.8	0.23	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.78	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluorobutanesulfonic acid (PFBS)	1.7	J	1.8	0.18	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluorohexanesulfonic acid (PFHxS)	5.8		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 03:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 03:26	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		11/22/22 05:30	12/17/22 03:26	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		11/22/22 05:30	12/17/22 03:26	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 03:26	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		11/22/22 05:30	12/17/22 03:26	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 03:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 03:26	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	98		50 - 150				11/22/22 05:30	12/17/22 03:26	1
13C4 PFHpA	96		50 - 150				11/22/22 05:30	12/17/22 03:26	1
13C4 PFOA	95		50 - 150				11/22/22 05:30	12/17/22 03:26	1
13C5 PFNA	92		50 - 150				11/22/22 05:30	12/17/22 03:26	1
13C2 PFDA	94		50 - 150				11/22/22 05:30	12/17/22 03:26	1
13C2 PFUnA	97		50 - 150				11/22/22 05:30	12/17/22 03:26	1
13C2 PFDoA	88		50 - 150				11/22/22 05:30	12/17/22 03:26	1
13C2 PFTeDA	88		50 - 150				11/22/22 05:30	12/17/22 03:26	1
13C3 PFBS	97		50 - 150				11/22/22 05:30	12/17/22 03:26	1
1802 PFHxS	99		50 - 150				11/22/22 05:30	12/17/22 03:26	1
13C4 PFOS	92		50 ₋ 150				11/22/22 05:30	12/17/22 03:26	1
d3-NMeFOSAA	95		50 - 150				11/22/22 05:30	12/17/22 03:26	1
d5-NEtFOSAA	89		50 ₋ 150				11/22/22 05:30	12/17/22 03:26	1
4000 UEDO DA	<u>.</u> .		E0 4E0				44/00/00 05 55	40/47/00 00 00	

11/22/22 05:30 12/17/22 03:26

50 - 150

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Lab Sample ID: 320-94388-13 **Client Sample ID: PTH-027**

Date Collected: 11/10/22 16:14 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		11/22/22 05:30	12/17/22 03:36	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		11/22/22 05:30	12/17/22 03:36	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/22/22 05:30	12/17/22 03:36	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/22/22 05:30	12/17/22 03:36	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 03:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		11/22/22 05:30	12/17/22 03:36	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 03:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 03:36	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	92		50 - 150				11/22/22 05:30	12/17/22 03:36	1
13C4 PFHpA	97		50 - 150				11/22/22 05:30	12/17/22 03:36	1
13C4 PFOA	99		50 - 150				11/22/22 05:30	12/17/22 03:36	1
13C5 PFNA	94		50 - 150				11/22/22 05:30	12/17/22 03:36	1
13C2 PFDA	95		50 - 150				11/22/22 05:30	12/17/22 03:36	1
13C2 PFUnA	95		50 ₋ 150				11/22/22 05:30	12/17/22 03:36	1
13C2 PFDoA	81		50 - 150				11/22/22 05:30	12/17/22 03:36	1
13C2 PFTeDA	91		50 ₋ 150				11/22/22 05:30	12/17/22 03:36	1
13C3 PFBS	91		50 ₋ 150				11/22/22 05:30	12/17/22 03:36	1
1802 PFHxS	93		50 - 150				11/22/22 05:30	12/17/22 03:36	1
13C4 PFOS	89		50 ₋ 150				11/22/22 05:30	12/17/22 03:36	1
d3-NMeFOSAA	95		50 ₋ 150					12/17/22 03:36	1
d5-NEtFOSAA	94		50 - 150					12/17/22 03:36	1
13C3 HFPO-DA	88		50 ₋ 150					12/17/22 03:36	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-033 Lab Sample ID: 320-94388-14

Date Collected: 11/10/22 16:59

Date Received: 11/15/22 15:05

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluorooctanoic acid (PFOA)	ND		1.8		ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluorobutanesulfonic acid (PFBS)	0.22	J	1.8	0.18	ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		11/22/22 05:30	12/17/22 03:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		11/22/22 05:30	12/17/22 03:46	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5		ng/L		11/22/22 05:30	12/17/22 03:46	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5		ng/L		11/22/22 05:30	12/17/22 03:46	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.21	ng/L		11/22/22 05:30	12/17/22 03:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		11/22/22 05:30	12/17/22 03:46	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 03:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 03:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		50 - 150				11/22/22 05:30	12/17/22 03:46	1
13C4 PFHpA	95		50 - 150				11/22/22 05:30	12/17/22 03:46	1
13C4 PFOA	93		50 - 150				11/22/22 05:30	12/17/22 03:46	1
13C5 PFNA	93		50 - 150				11/22/22 05:30	12/17/22 03:46	1
13C2 PFDA	91		50 - 150				11/22/22 05:30	12/17/22 03:46	1
13C2 PFUnA	93		50 - 150				11/22/22 05:30	12/17/22 03:46	1
13C2 PFDoA	83		50 ₋ 150				11/22/22 05:30	12/17/22 03:46	1
13C2 PFTeDA	96		50 ₋ 150				11/22/22 05:30	12/17/22 03:46	1
13C3 PFBS	104		50 ₋ 150				11/22/22 05:30	12/17/22 03:46	1
1802 PFHxS	104		50 - 150				11/22/22 05:30	12/17/22 03:46	1
13C4 PFOS	94		50 - 150				11/22/22 05:30	12/17/22 03:46	1
d3-NMeFOSAA	90		50 ₋ 150				11/22/22 05:30	12/17/22 03:46	1
d5-NEtFOSAA	95		50 - 150				11/22/22 05:30	12/17/22 03:46	1
13C3 HFPO-DA	91		50 - 150					12/17/22 03:46	1

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Date Received: 11/15/22 15:05

Client Sample ID: PTH-030 Lab Sample ID: 320-94388-15 Date Collected: 11/09/22 16:54

Matrix: Water

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.77	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		11/22/22 05:30	12/17/22 03:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 03:56	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/22/22 05:30	12/17/22 03:56	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/22/22 05:30	12/17/22 03:56	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 03:56	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		11/22/22 05:30	12/17/22 03:56	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 03:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 03:56	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		50 - 150				11/22/22 05:30	12/17/22 03:56	1
13C4 PFHpA	98		50 - 150				11/22/22 05:30	12/17/22 03:56	1
13C4 PFOA	96		50 - 150				11/22/22 05:30	12/17/22 03:56	1
13C5 PFNA	94		50 - 150				11/22/22 05:30	12/17/22 03:56	1
13C2 PFDA	95		50 - 150				11/22/22 05:30	12/17/22 03:56	1
13C2 PFUnA	100		50 ₋ 150					12/17/22 03:56	1
13C2 PFDoA	85		50 - 150				11/22/22 05:30	12/17/22 03:56	1
13C2 PFTeDA	87		50 ₋ 150					12/17/22 03:56	1
13C3 PFBS	97		50 ₋ 150				11/22/22 05:30	12/17/22 03:56	1
1802 PFHxS	103		50 - 150				11/22/22 05:30	12/17/22 03:56	
13C4 PFOS	94		50 ₋ 150					12/17/22 03:56	1
d3-NMeFOSAA	91		50 ₋ 150					12/17/22 03:56	1
d5-NEtFOSAA	93		50 - 150					12/17/22 03:56	
13C3 HFPO-DA	96		50 ₋ 150					12/17/22 03:56	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-016 Lab Sample ID: 320-94388-16

Matrix: Water

Date Collected: 11/10/22 13:11 Date Received: 11/15/22 15:05 Mothod: EDA 537/Mod) - PEAS for OSM 5.3 Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		11/22/22 05:30	12/17/22 04:06	1
Perfluorooctanesulfonic acid (PFOS)	0.50	J	1.8	0.48	ng/L		11/22/22 05:30	12/17/22 04:06	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/22/22 05:30	12/17/22 04:06	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/22/22 05:30	12/17/22 04:06	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.21	ng/L		11/22/22 05:30	12/17/22 04:06	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		11/22/22 05:30	12/17/22 04:06	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 04:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 04:06	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHγΔ	95		50 - 150				11/22/22 05:30	12/17/22 04:06	

Isotope Dilution	%Recovery G	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		50 - 150	11/22/22 05:30	12/17/22 04:06	1
13C4 PFHpA	99		50 - 150	11/22/22 05:30	12/17/22 04:06	1
13C4 PFOA	94		50 - 150	11/22/22 05:30	12/17/22 04:06	1
13C5 PFNA	95		50 - 150	11/22/22 05:30	12/17/22 04:06	1
13C2 PFDA	92	,	50 - 150	11/22/22 05:30	12/17/22 04:06	1
13C2 PFUnA	93		50 - 150	11/22/22 05:30	12/17/22 04:06	1
13C2 PFDoA	85		50 - 150	11/22/22 05:30	12/17/22 04:06	1
13C2 PFTeDA	94		50 - 150	11/22/22 05:30	12/17/22 04:06	1
13C3 PFBS	96		50 - 150	11/22/22 05:30	12/17/22 04:06	1
18O2 PFHxS	101		50 - 150	11/22/22 05:30	12/17/22 04:06	1
13C4 PFOS	89		50 - 150	11/22/22 05:30	12/17/22 04:06	1
d3-NMeFOSAA	89		50 - 150	11/22/22 05:30	12/17/22 04:06	1
d5-NEtFOSAA	89		50 - 150	11/22/22 05:30	12/17/22 04:06	1
13C3 HFPO-DA	89		50 - 150	11/22/22 05:30	12/17/22 04:06	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-026

Lab Sample ID: 320-94388-17

Matrix: Water

Date Collected: 11/09/22 14:04 Date Received: 11/15/22 15:05

13C3 HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.57	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.24	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.83	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.26	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.30	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.71	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.56	ng/L		11/22/22 05:30	12/17/22 04:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.53	ng/L		11/22/22 05:30	12/17/22 04:16	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.9	1.2	ng/L		11/22/22 05:30	12/17/22 04:16	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.9	1.3	ng/L		11/22/22 05:30	12/17/22 04:16	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.0	0.23	ng/L		11/22/22 05:30	12/17/22 04:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.5	ng/L		11/22/22 05:30	12/17/22 04:16	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.0	0.31	ng/L		11/22/22 05:30	12/17/22 04:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.39	ng/L		11/22/22 05:30	12/17/22 04:16	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		50 - 150				11/22/22 05:30	12/17/22 04:16	1
13C4 PFHpA	95		50 - 150				11/22/22 05:30	12/17/22 04:16	1
13C4 PFOA	96		50 ₋ 150				11/22/22 05:30	12/17/22 04:16	1
13C5 PFNA	98		50 - 150				11/22/22 05:30	12/17/22 04:16	1
13C2 PFDA	94		50 - 150				11/22/22 05:30	12/17/22 04:16	1
13C2 PFUnA	91		50 ₋ 150				11/22/22 05:30	12/17/22 04:16	1
13C2 PFDoA	81		50 - 150				11/22/22 05:30	12/17/22 04:16	1
13C2 PFTeDA	91		50 ₋ 150				11/22/22 05:30	12/17/22 04:16	1
13C3 PFBS	101		50 ₋ 150					12/17/22 04:16	1
1802 PFHxS	102		50 ₋ 150				11/22/22 05:30	12/17/22 04:16	1
13C4 PFOS	92		50 - 150					12/17/22 04:16	1
d3-NMeFOSAA	85		50 - 150					12/17/22 04:16	1
d5-NEtFOSAA	94		50 - 150					12/17/22 04:16	1

11/22/22 05:30 12/17/22 04:16

50 - 150

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-025 Lab Sample ID: 320-94388-18

Date Collected: 11/09/22 13:19 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	4.8		1.8	0.53	ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluoroheptanoic acid (PFHpA)	1.1	J	1.8		ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.78	ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluorobutanesulfonic acid (PFBS)	9.9		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluorohexanesulfonic acid (PFHxS)	35		1.8		ng/L		11/22/22 05:30	12/17/22 04:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 04:46	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		11/22/22 05:30	12/17/22 04:46	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		11/22/22 05:30	12/17/22 04:46	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 04:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		11/22/22 05:30	12/17/22 04:46	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 04:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		11/22/22 05:30	12/17/22 04:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		50 - 150				11/22/22 05:30	12/17/22 04:46	1
13C4 PFHpA	95		50 - 150				11/22/22 05:30	12/17/22 04:46	1
13C4 PFOA	92		50 ₋ 150				11/22/22 05:30	12/17/22 04:46	1
13C5 PFNA	93		50 ₋ 150				11/22/22 05:30	12/17/22 04:46	1
13C2 PFDA	91		50 ₋ 150				11/22/22 05:30	12/17/22 04:46	1
13C2 PFUnA	95		50 ₋ 150				11/22/22 05:30	12/17/22 04:46	1
13C2 PFDoA	80		50 - 150				11/22/22 05:30	12/17/22 04:46	1
13C2 PFTeDA	86		50 ₋ 150				11/22/22 05:30	12/17/22 04:46	1
13C3 PFBS	96		50 ₋ 150				11/22/22 05:30	12/17/22 04:46	1
1802 PFHxS	96		50 - 150					12/17/22 04:46	1
13C4 PFOS	94		50 ₋ 150					12/17/22 04:46	1
d3-NMeFOSAA	87		50 - 150					12/17/22 04:46	1
d5-NEtFOSAA	90		50 - 150					12/17/22 04:46	
13C3 HFPO-DA	89		50 - 150					12/17/22 04:46	. 1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-032 Lab Sample ID: 320-94388-19

Date Collected: 11/09/22 14:21 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 04:57	
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 04:57	•
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		11/22/22 05:30	12/17/22 04:57	•
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 04:57	· · · · · · · · ·
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 04:57	•
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		11/22/22 05:30	12/17/22 04:57	
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		11/22/22 05:30	12/17/22 04:57	
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 04:57	
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		11/22/22 05:30	12/17/22 04:57	
Perfluorobutanesulfonic acid (PFBS)	1.2	J	1.8	0.18	ng/L		11/22/22 05:30	12/17/22 04:57	
Perfluorohexanesulfonic acid (PFHxS)	0.60	J	1.8	0.51	ng/L		11/22/22 05:30	12/17/22 04:57	
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		11/22/22 05:30	12/17/22 04:57	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L			12/17/22 04:57	•
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/22/22 05:30	12/17/22 04:57	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8		ng/L			12/17/22 04:57	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6		ng/L		11/22/22 05:30	12/17/22 04:57	•
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 04:57	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 04:57	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	96		50 - 150				11/22/22 05:30	12/17/22 04:57	
13C4 PFHpA	96		50 - 150				11/22/22 05:30	12/17/22 04:57	
13C4 PFOA	93		50 ₋ 150				11/22/22 05:30	12/17/22 04:57	
13C5 PFNA	97		50 ₋ 150				11/22/22 05:30	12/17/22 04:57	
13C2 PFDA	96		50 ₋ 150				11/22/22 05:30	12/17/22 04:57	
13C2 PFUnA	95		50 ₋ 150				11/22/22 05:30	12/17/22 04:57	
13C2 PFDoA	88		50 - 150				11/22/22 05:30	12/17/22 04:57	
13C2 PFTeDA	96		50 ₋ 150				11/22/22 05:30	12/17/22 04:57	
13C3 PFBS	98		50 - 150					12/17/22 04:57	
1802 PFHxS	97		50 ₋ 150				11/22/22 05:30	12/17/22 04:57	
13C4 PFOS	93		50 ₋ 150					12/17/22 04:57	
d3-NMeFOSAA	87		50 - 150 50 - 150					12/17/22 04:57	
d5-NEtFOSAA	91		50 - 150 50 - 150					12/17/22 04:57	
13C3 HFPO-DA	91		50 - 150 50 - 150					12/17/22 04:57	

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-031 Lab Sample ID: 320-94388-20

Date Collected: 11/09/22 10:58 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluoroheptanoic acid (PFHpA)	0.24	J	1.8	0.23	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluorooctanoic acid (PFOA)	2.0		1.8	0.77	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		11/22/22 05:30	12/17/22 05:07	1
Perfluorooctanesulfonic acid (PFOS)	1.3	J	1.8	0.49	ng/L		11/22/22 05:30	12/17/22 05:07	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/22/22 05:30	12/17/22 05:07	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/22/22 05:30	12/17/22 05:07	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/22/22 05:30	12/17/22 05:07	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		11/22/22 05:30	12/17/22 05:07	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/22/22 05:30	12/17/22 05:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/22/22 05:30	12/17/22 05:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		50 - 150				11/22/22 05:30	12/17/22 05:07	1
13C4 PFHpA	94		50 - 150				11/22/22 05:30	12/17/22 05:07	1
13C4 PFOA	95		50 - 150				11/22/22 05:30	12/17/22 05:07	1
13C5 PFNA	94		50 - 150				11/22/22 05:30	12/17/22 05:07	1
13C2 PFDA	88		50 - 150				11/22/22 05:30	12/17/22 05:07	1
13C2 PFUnA	93		50 - 150				11/22/22 05:30	12/17/22 05:07	1
13C2 PFDoA	83		50 - 150				11/22/22 05:30	12/17/22 05:07	1
13C2 PFTeDA	87		50 ₋ 150				11/22/22 05:30	12/17/22 05:07	1
13C3 PFBS	93		50 ₋ 150				11/22/22 05:30	12/17/22 05:07	1
1802 PFHxS	100		50 - 150				11/22/22 05:30	12/17/22 05:07	1
13C4 PFOS	95		50 - 150				11/22/22 05:30	12/17/22 05:07	1
d3-NMeFOSAA	92		50 ₋ 150					12/17/22 05:07	1
d5-NEtFOSAA	91		50 - 150					12/17/22 05:07	1
13C3 HFPO-DA	89		50 ₋ 150				11/22/22 05:30	12/17/22 05:07	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-037 Lab Sample ID: 320-94388-21

Date Collected: 11/11/22 15:56 Matrix: Water Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.50	ng/L		11/23/22 12:39	12/17/22 12:42	
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.22	ng/L		11/23/22 12:39	12/17/22 12:42	•
Perfluorooctanoic acid (PFOA)	ND		1.7	0.73	ng/L		11/23/22 12:39	12/17/22 12:42	•
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		11/23/22 12:39	12/17/22 12:42	
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		11/23/22 12:39	12/17/22 12:42	•
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		11/23/22 12:39	12/17/22 12:42	•
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		11/23/22 12:39	12/17/22 12:42	
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		11/23/22 12:39	12/17/22 12:42	•
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		11/23/22 12:39	12/17/22 12:42	
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		11/23/22 12:39	12/17/22 12:42	
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.49	ng/L		11/23/22 12:39	12/17/22 12:42	
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.47	ng/L		11/23/22 12:39	12/17/22 12:42	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.3	1.0	ng/L		11/23/22 12:39	12/17/22 12:42	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.3	1.1	ng/L		11/23/22 12:39	12/17/22 12:42	,
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.7	0.21	ng/L		11/23/22 12:39	12/17/22 12:42	,
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.4	1.3	ng/L		11/23/22 12:39	12/17/22 12:42	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.7	0.28	ng/L		11/23/22 12:39	12/17/22 12:42	,
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		11/23/22 12:39	12/17/22 12:42	,
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	77		50 - 150				11/23/22 12:39	12/17/22 12:42	
13C4 PFHpA	79		50 - 150				11/23/22 12:39	12/17/22 12:42	
13C4 PFOA	83		50 - 150				11/23/22 12:39	12/17/22 12:42	
13C5 PFNA	79		50 - 150				11/23/22 12:39	12/17/22 12:42	
13C2 PFDA	77		50 - 150				11/23/22 12:39	12/17/22 12:42	
13C2 PFUnA	83		50 ₋ 150				11/23/22 12:39	12/17/22 12:42	
13C2 PFDoA	69		50 - 150					12/17/22 12:42	
13C2 PFTeDA	65		50 ₋ 150				11/23/22 12:39	12/17/22 12:42	
13C3 PFBS	79		50 ₋ 150				11/23/22 12:39	12/17/22 12:42	
1802 PFHxS	87		50 - 150				11/23/22 12:39	12/17/22 12:42	
13C4 PFOS	78		50 - 150					12/17/22 12:42	
d3-NMeFOSAA	65		50 - 150					12/17/22 12:42	
d5-NEtFOSAA	66		50 - 150					12/17/22 12:42	
13C3 HFPO-DA	74		50 - 150					12/17/22 12:42	

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-015 Lab Sample ID: 320-94388-22

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.57	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.83	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.26	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.30	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.72	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.56	ng/L		11/23/22 12:39	12/17/22 12:52	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.53	ng/L		11/23/22 12:39	12/17/22 12:52	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.9	1.2	ng/L		11/23/22 12:39	12/17/22 12:52	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.9	1.3	ng/L		11/23/22 12:39	12/17/22 12:52	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.0	0.24	ng/L			12/17/22 12:52	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.5	ng/L		11/23/22 12:39	12/17/22 12:52	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.0	0.31	ng/L		11/23/22 12:39	12/17/22 12:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.39	ng/L		11/23/22 12:39	12/17/22 12:52	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		50 - 150				11/23/22 12:39	12/17/22 12:52	1
13C4 PFHpA	92		50 - 150				11/23/22 12:39	12/17/22 12:52	1
13C4 PFOA	89		50 - 150				11/23/22 12:39	12/17/22 12:52	1
13C5 PFNA	95		50 - 150				11/23/22 12:39	12/17/22 12:52	1
13C2 PFDA	88		50 - 150				11/23/22 12:39	12/17/22 12:52	1
13C2 PFUnA	98		50 - 150				11/23/22 12:39	12/17/22 12:52	1
13C2 PFDoA	87		50 - 150				11/23/22 12:39	12/17/22 12:52	1
13C2 PFTeDA	90		50 ₋ 150				11/23/22 12:39	12/17/22 12:52	1
13C3 PFBS	89		50 - 150				11/23/22 12:39	12/17/22 12:52	1
1802 PFHxS	98		50 - 150				11/23/22 12:39	12/17/22 12:52	1
13C4 PFOS	89		50 - 150				11/23/22 12:39	12/17/22 12:52	1
d3-NMeFOSAA	75		50 ₋ 150				11/23/22 12:39	12/17/22 12:52	1
d5-NEtFOSAA	80		50 ₋ 150				11/23/22 12:39	12/17/22 12:52	1
13C3 HFPO-DA	86		50 ₋ 150				11/22/22 12:20	12/17/22 12:52	1

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-207 Lab Sample ID: 320-94388-23 Date Collected: 11/11/22 13:44

Matrix: Water

Date Received: 11/15/22 15:05 Method: EPA 537(Mod) - PEAS for OSM 5.3 Table B-15

Method: EPA 537(Mod) - PFAS	5 for QSM 5.3, Table B	i-15						
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND	1.7	0.50	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluoroheptanoic acid (PFHpA)	ND	1.7	0.22	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluorooctanoic acid (PFOA)	ND	1.7	0.73	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluorononanoic acid (PFNA)	ND	1.7	0.23	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluorodecanoic acid (PFDA)	ND	1.7	0.27	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluoroundecanoic acid (PFUnA)	ND	1.7	0.95	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluorododecanoic acid (PFDoA)	ND	1.7	0.48	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluorotridecanoic acid (PFTriA)	ND	1.7	1.1	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluorotetradecanoic acid (PFTeA)	ND	1.7	0.63	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.17	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	0.49	ng/L		11/23/22 12:39	12/17/22 13:03	
Perfluorooctanesulfonic acid (PFOS)	ND	1.7	0.47	ng/L		11/23/22 12:39	12/17/22 13:03	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.3	1.0	ng/L		11/23/22 12:39	12/17/22 13:03	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.3	1.1	ng/L		11/23/22 12:39	12/17/22 13:03	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	1.7	0.21	ng/L		11/23/22 12:39	12/17/22 13:03	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	3.5	1.3	ng/L		11/23/22 12:39	12/17/22 13:03	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	1.7	0.28	ng/L		11/23/22 12:39	12/17/22 13:03	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	0.35	ng/L		11/23/22 12:39	12/17/22 13:03	
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Isotope Dilution	%Recovery Qualifie	er Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	78	50 - 150	11/23/22 12:39	12/17/22 13:03	1
13C4 PFHpA	75	50 - 150	11/23/22 12:39	12/17/22 13:03	1
13C4 PFOA	79	50 ₋ 150	11/23/22 12:39	12/17/22 13:03	1
13C5 PFNA	77	50 - 150	11/23/22 12:39	12/17/22 13:03	1
13C2 PFDA	77	50 - 150	11/23/22 12:39	12/17/22 13:03	1
13C2 PFUnA	74	50 ₋ 150	11/23/22 12:39	12/17/22 13:03	1
13C2 PFDoA	62	50 - 150	11/23/22 12:39	12/17/22 13:03	1
13C2 PFTeDA	64	50 ₋ 150	11/23/22 12:39	12/17/22 13:03	1
13C3 PFBS	77	50 ₋ 150	11/23/22 12:39	12/17/22 13:03	1
1802 PFHxS	79	50 ₋ 150	11/23/22 12:39	12/17/22 13:03	1
13C4 PFOS	75	50 ₋ 150	11/23/22 12:39	12/17/22 13:03	1
d3-NMeFOSAA	60	50 ₋ 150	11/23/22 12:39	12/17/22 13:03	1
d5-NEtFOSAA	59	50 ₋ 150	11/23/22 12:39	12/17/22 13:03	1
13C3 HFPO-DA	72	50 ₋ 150	11/23/22 12:39	12/17/22 13:03	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-206 Lab Sample ID: 320-94388-24

Date Collected: 11/11/22 15:16 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.51	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.75	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.27	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluorobutanesulfonic acid (PFBS)	0.74	J	1.8	0.18	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.50	ng/L		11/23/22 12:39	12/17/22 13:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		11/23/22 12:39	12/17/22 13:13	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		11/23/22 12:39	12/17/22 13:13	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.4	1.2	ng/L		11/23/22 12:39	12/17/22 13:13	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.21	ng/L		11/23/22 12:39	12/17/22 13:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		11/23/22 12:39	12/17/22 13:13	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.28	ng/L		11/23/22 12:39	12/17/22 13:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		11/23/22 12:39	12/17/22 13:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	82		50 - 150				11/23/22 12:39	12/17/22 13:13	1
13C4 PFHpA	82		50 - 150				11/23/22 12:39	12/17/22 13:13	1
13C4 PFOA	82		50 - 150				11/23/22 12:39	12/17/22 13:13	1
13C5 PFNA	90		50 - 150				11/23/22 12:39	12/17/22 13:13	1
13C2 PFDA	80		50 - 150				11/23/22 12:39	12/17/22 13:13	1
13C2 PFUnA	79		50 - 150				11/23/22 12:39	12/17/22 13:13	1
13C2 PFDoA	70		50 - 150				11/23/22 12:39	12/17/22 13:13	1
13C2 PFTeDA	72		50 - 150				11/23/22 12:39	12/17/22 13:13	1
13C3 PFBS	84		50 ₋ 150				11/23/22 12:39	12/17/22 13:13	1
1802 PFHxS	87		50 - 150				11/23/22 12:39	12/17/22 13:13	1
13C4 PFOS	79		50 - 150				11/23/22 12:39	12/17/22 13:13	1
d3-NMeFOSAA	65		50 ₋ 150					12/17/22 13:13	1
d5-NEtFOSAA	59		50 - 150				11/23/22 12:39	12/17/22 13:13	1
13C3 HFPO-DA	78		50 ₋ 150					12/17/22 13:13	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-013 Lab Sample ID: 320-94388-25

Matrix: Water

Date Collected: 11/11/22 18:21 Date Received: 11/15/22 15:05

Method: EPA 537(Mod) - PFAS Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.65	J	1.7	0.50	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.22	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.74	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluorobutanesulfonic acid (PFBS)	0.34	J	1.7	0.17	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluorohexanesulfonic acid (PFHxS)	0.70	J	1.7	0.49	ng/L		11/23/22 12:39	12/17/22 13:23	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.47	ng/L		11/23/22 12:39	12/17/22 13:23	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.3	1.0	ng/L		11/23/22 12:39	12/17/22 13:23	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.3	1.1	ng/L		11/23/22 12:39	12/17/22 13:23	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.7		ng/L		11/23/22 12:39	12/17/22 13:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5		ng/L		11/23/22 12:39	12/17/22 13:23	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.7	0.28	-		11/23/22 12:39	12/17/22 13:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		11/23/22 12:39	12/17/22 13:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		50 - 150				11/23/22 12:39	12/17/22 13:23	1
13C4 PFHpA	90		50 - 150				11/23/22 12:39	12/17/22 13:23	1
13C4 PFOA	90		50 ₋ 150				11/23/22 12:39	12/17/22 13:23	1
13C5 PFNA	95		50 - 150				11/23/22 12:39	12/17/22 13:23	
13C2 PFDA	90		50 ₋ 150				11/23/22 12:39	12/17/22 13:23	1
13C2 PFUnA	96		50 ₋ 150				11/23/22 12:39	12/17/22 13:23	1
13C2 PFDoA	83		50 - 150				11/23/22 12:39	12/17/22 13:23	
13C2 PFTeDA	89		50 ₋ 150					12/17/22 13:23	1
13C3 PFBS	89		50 ₋ 150				11/23/22 12:39	12/17/22 13:23	1
1802 PFHxS	94		50 - 150					12/17/22 13:23	
13C4 PFOS	91		50 ₋ 150					12/17/22 13:23	1
d3-NMeFOSAA	77		50 - 150					12/17/22 13:23	1
d5-NEtFOSAA			50 - 150					12/17/22 13:23	· · · · · · · · · · · · · · · · · · ·

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Date Received: 11/15/22 15:05

13C3 HFPO-DA

Client Sample ID: PTH-201 Lab Sample ID: 320-94388-26 Date Collected: 11/11/22 17:17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.77	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluorobutanesulfonic acid (PFBS)	0.33	J	1.8	0.18	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		11/23/22 12:39	12/17/22 13:33	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		11/23/22 12:39	12/17/22 13:33	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		11/23/22 12:39	12/17/22 13:33	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		11/23/22 12:39	12/17/22 13:33	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		11/23/22 12:39	12/17/22 13:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		11/23/22 12:39	12/17/22 13:33	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		11/23/22 12:39	12/17/22 13:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		11/23/22 12:39	12/17/22 13:33	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	85		50 - 150				11/23/22 12:39	12/17/22 13:33	1
13C4 PFHpA	86		50 - 150				11/23/22 12:39	12/17/22 13:33	1
13C4 PFOA	80		50 - 150				11/23/22 12:39	12/17/22 13:33	1
13C5 PFNA	86		50 - 150				11/23/22 12:39	12/17/22 13:33	1
13C2 PFDA	83		50 - 150				11/23/22 12:39	12/17/22 13:33	1
13C2 PFUnA	83		50 - 150				11/23/22 12:39	12/17/22 13:33	1
13C2 PFDoA	77		50 - 150				11/23/22 12:39	12/17/22 13:33	1
13C2 PFTeDA	80		50 ₋ 150				11/23/22 12:39	12/17/22 13:33	1
13C3 PFBS	86		50 ₋ 150				11/23/22 12:39	12/17/22 13:33	1
1802 PFHxS	91		50 ₋ 150					12/17/22 13:33	1
13C4 PFOS	87		50 - 150				11/23/22 12:39	12/17/22 13:33	1
d3-NMeFOSAA	65		50 ₋ 150					12/17/22 13:33	1
									-

11/23/22 12:39 12/17/22 13:33

50 - 150

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-205 Lab Sample ID: 320-94388-27

Date Collected: 11/11/22 13:40 Matrix: Water Date Received: 11/15/22 15:05

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	9.1	1.8	0.52	ng/L		11/23/22 12:40	12/17/22 13:43	
Perfluoroheptanoic acid (PFHpA)	4.0	1.8	0.23	ng/L		11/23/22 12:40	12/17/22 13:43	
Perfluorooctanoic acid (PFOA)	15	1.8	0.77	ng/L		11/23/22 12:40	12/17/22 13:43	
Perfluorononanoic acid (PFNA)	ND	1.8	0.24	ng/L		11/23/22 12:40	12/17/22 13:43	
Perfluorodecanoic acid (PFDA)	ND	1.8	0.28	ng/L		11/23/22 12:40	12/17/22 13:43	
Perfluoroundecanoic acid (PFUnA)	ND	1.8	1.0	ng/L		11/23/22 12:40	12/17/22 13:43	
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.50	ng/L		11/23/22 12:40	12/17/22 13:43	
Perfluorotridecanoic acid (PFTriA)	ND	1.8	1.2	ng/L		11/23/22 12:40	12/17/22 13:43	
Perfluorotetradecanoic acid (PFTeA)	ND	1.8	0.66	ng/L		11/23/22 12:40	12/17/22 13:43	
Perfluorobutanesulfonic acid (PFBS)	9.9	1.8	0.18	ng/L		11/23/22 12:40	12/17/22 13:43	,
Perfluorohexanesulfonic acid (PFHxS)	7.1	1.8	0.52	ng/L		11/23/22 12:40	12/17/22 13:43	•
Perfluorooctanesulfonic acid (PFOS)	2.9 I	1.8		ng/L			12/17/22 13:43	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.5		ng/L		11/23/22 12:40	12/17/22 13:43	•
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.5		ng/L			12/17/22 13:43	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	1.8	0.22	ng/L			12/17/22 13:43	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	3.6	1.4	ng/L		11/23/22 12:40	12/17/22 13:43	•
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	1.8		ng/L		11/23/22 12:40	12/17/22 13:43	•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.36	ng/L		11/23/22 12:40	12/17/22 13:43	,
Isotope Dilution	%Recovery Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	88	50 - 150				11/23/22 12:40	12/17/22 13:43	-
13C4 PFHpA	85	50 - 150				11/23/22 12:40	12/17/22 13:43	
13C4 PFOA	87	50 - 150				11/23/22 12:40	12/17/22 13:43	
13C5 PFNA	90	50 - 150				11/23/22 12:40	12/17/22 13:43	
13C2 PFDA	84	50 - 150				11/23/22 12:40	12/17/22 13:43	
13C2 PFUnA	85	50 - 150				11/23/22 12:40	12/17/22 13:43	
13C2 PFDoA	78	50 - 150				11/23/22 12:40	12/17/22 13:43	
13C2 PFTeDA	81	50 ₋ 150				11/23/22 12:40	12/17/22 13:43	
13C3 PFBS	91	50 ₋ 150				11/23/22 12:40	12/17/22 13:43	
1802 PFHxS	90	50 ₋ 150				11/23/22 12:40	12/17/22 13:43	
13C4 PFOS	85	50 - 150					12/17/22 13:43	
d3-NMeFOSAA	66	50 ₋ 150					12/17/22 13:43	
d5-NEtFOSAA	69	50 - 150					12/17/22 13:43	
13C3 HFPO-DA	79	50 ₋ 150					12/17/22 13:43	

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12/22/2022

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

1802 PFHxS

13C4 PFOS

d3-NMeFOSAA

d5-NEtFOSAA

13C3 HFPO-DA

Client Sample ID: PTH-202 Lab Sample ID: 320-94388-28

Matrix: Water

Date Collected: 11/11/22 14:13
Date Received: 11/15/22 15:05

Method: EPA 537(Mod) - PEAS for OSM 5.3 Table

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	1.7	J	2.1	0.61	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluoroheptanoic acid (PFHpA)	1.0	J	2.1	0.26	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluorooctanoic acid (PFOA)	3.1		2.1	0.89	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluorononanoic acid (PFNA)	ND		2.1	0.28	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.2	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.58	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluorotridecanoic acid (PFTriA)	ND		2.1	1.4	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.76	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluorobutanesulfonic acid (PFBS)	2.3		2.1	0.21	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluorohexanesulfonic acid (PFHxS)	4.9		2.1	0.60	ng/L		11/23/22 12:40	12/17/22 14:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.1	0.56	ng/L		11/23/22 12:40	12/17/22 14:13	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.2	1.3	ng/L		11/23/22 12:40	12/17/22 14:13	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.2	1.4	ng/L		11/23/22 12:40	12/17/22 14:13	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.1	0.25	ng/L		11/23/22 12:40	12/17/22 14:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.2	1.6	ng/L		11/23/22 12:40	12/17/22 14:13	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.1	0.33	ng/L		11/23/22 12:40	12/17/22 14:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.1	0.42	ng/L		11/23/22 12:40	12/17/22 14:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	82		50 - 150				11/23/22 12:40	12/17/22 14:13	1
13C4 PFHpA	82		50 - 150				11/23/22 12:40	12/17/22 14:13	1
13C4 PFOA	84		50 ₋ 150				11/23/22 12:40	12/17/22 14:13	1
13C5 PFNA	83		50 - 150				11/23/22 12:40	12/17/22 14:13	1
13C2 PFDA	81		50 ₋ 150				11/23/22 12:40	12/17/22 14:13	1
13C2 PFUnA	83		50 ₋ 150				11/23/22 12:40	12/17/22 14:13	1
13C2 PFDoA	75		50 - 150				11/23/22 12:40	12/17/22 14:13	1
13C2 PFTeDA	82		50 ₋ 150				11/23/22 12:40	12/17/22 14:13	1
13C3 PFBS	89		50 ₋ 150				11/23/22 12:40	12/17/22 14:13	1

11/23/22 12:40 12/17/22 14:13

11/23/22 12:40 12/17/22 14:13

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11/23/22 12:40 12/17/22 14:13 11/23/22 12:40 12/17/22 14:13

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-145 Lab Sample ID: 320-94388-29

Date Collected: 11/10/22 18:40 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		11/23/22 12:40	12/17/22 14:24	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		11/23/22 12:40	12/17/22 14:24	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		11/23/22 12:40	12/17/22 14:24	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		11/23/22 12:40	12/17/22 14:24	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.22	ng/L		11/23/22 12:40	12/17/22 14:24	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7		ng/L		11/23/22 12:40	12/17/22 14:24	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.30	ng/L		11/23/22 12:40	12/17/22 14:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		11/23/22 12:40	12/17/22 14:24	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	83		50 - 150				11/23/22 12:40	12/17/22 14:24	1
13C4 PFHpA	83		50 - 150				11/23/22 12:40	12/17/22 14:24	1
13C4 PFOA	80		50 - 150				11/23/22 12:40	12/17/22 14:24	1
13C5 PFNA	84		50 - 150				11/23/22 12:40	12/17/22 14:24	1
13C2 PFDA	82		50 - 150				11/23/22 12:40	12/17/22 14:24	1
13C2 PFUnA	82		50 ₋ 150				11/23/22 12:40	12/17/22 14:24	1
13C2 PFDoA	69		50 - 150				11/23/22 12:40	12/17/22 14:24	1
13C2 PFTeDA	66		50 ₋ 150				11/23/22 12:40	12/17/22 14:24	1
13C3 PFBS	80		50 ₋ 150				11/23/22 12:40	12/17/22 14:24	1
1802 PFHxS	87		50 - 150				11/23/22 12:40	12/17/22 14:24	1
13C4 PFOS	81		50 ₋ 150				11/23/22 12:40	12/17/22 14:24	1
d3-NMeFOSAA	66		50 ₋ 150				11/23/22 12:40	12/17/22 14:24	1
d5-NEtFOSAA	62		50 ₋ 150				11/23/22 12:40	12/17/22 14:24	1
13C3 HFPO-DA	74		50 ₋ 150					12/17/22 14:24	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-116 Lab Sample ID: 320-94388-30

Date Collected: 11/10/22 13:01 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result C	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.1	0.60	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluoroheptanoic acid (PFHpA)	ND		2.1	0.26	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluorooctanoic acid (PFOA)	ND		2.1	0.88	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluorononanoic acid (PFNA)	ND		2.1	0.28	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluorotridecanoic acid (PFTriA)	ND		2.1	1.3	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.76	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.1	0.21	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.1	0.59	ng/L		11/23/22 12:40	12/17/22 14:34	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.1	0.56	ng/L		11/23/22 12:40	12/17/22 14:34	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.2	1.2	ng/L		11/23/22 12:40	12/17/22 14:34	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.2	1.3	ng/L		11/23/22 12:40	12/17/22 14:34	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.1	0.25	ng/L		11/23/22 12:40	12/17/22 14:34	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.2	1.6	ng/L		11/23/22 12:40	12/17/22 14:34	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.1	0.33	ng/L		11/23/22 12:40	12/17/22 14:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.1	0.42	ng/L		11/23/22 12:40	12/17/22 14:34	1
Isotope Dilution	%Recovery 0	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	73		50 - 150				11/23/22 12:40	12/17/22 14:34	1
13C4 PFHpA	73		50 - 150				11/23/22 12:40	12/17/22 14:34	1
13C4 PFOA	71		50 - 150				11/23/22 12:40	12/17/22 14:34	1
13C5 PFNA	72		50 - 150				11/23/22 12:40	12/17/22 14:34	1
13C2 PFDA	72		50 - 150				11/23/22 12:40	12/17/22 14:34	1
13C2 PFUnA	72		50 - 150				11/23/22 12:40	12/17/22 14:34	1
13C2 PFDoA	62		50 - 150				11/23/22 12:40	12/17/22 14:34	1
13C2 PFTeDA	66		50 - 150				11/23/22 12:40	12/17/22 14:34	1
13C3 PFBS	75		50 - 150				11/23/22 12:40	12/17/22 14:34	1
1802 PFHxS	82		50 - 150				11/23/22 12:40	12/17/22 14:34	1
13C4 PFOS	76		50 - 150				11/23/22 12:40	12/17/22 14:34	1
d3-NMeFOSAA	54		50 - 150				11/23/22 12:40	12/17/22 14:34	1
d5-NEtFOSAA	56		50 - 150				11/23/22 12:40	12/17/22 14:34	1
13C3 HFPO-DA	68		50 - 150				11/23/22 12:40	12/17/22 14:34	1

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-146 Lab Sample ID: 320-94388-31

Date Collected: 11/10/22 12:47 **Matrix: Water** Date Received: 11/15/22 15:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	89		2.0		ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluoroheptanoic acid (PFHpA)	20		2.0	0.25	ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluorooctanoic acid (PFOA)	17		2.0	0.85	ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluorobutanesulfonic acid (PFBS)	110		2.0	0.20	ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluorohexanesulfonic acid (PFHxS)	220		2.0	0.57	ng/L		11/23/22 12:40	12/17/22 14:44	1
Perfluorooctanesulfonic acid (PFOS)	32		2.0		ng/L		11/23/22 12:40	12/17/22 14:44	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		11/23/22 12:40	12/17/22 14:44	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		11/23/22 12:40	12/17/22 14:44	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.0	0.24	ng/L		11/23/22 12:40	12/17/22 14:44	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		11/23/22 12:40	12/17/22 14:44	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.0	0.32	ng/L		11/23/22 12:40	12/17/22 14:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		11/23/22 12:40	12/17/22 14:44	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	85		50 - 150				11/23/22 12:40	12/17/22 14:44	1
13C4 PFHpA	83		50 - 150				11/23/22 12:40	12/17/22 14:44	1
13C4 PFOA	86		50 - 150				11/23/22 12:40	12/17/22 14:44	1
13C5 PFNA	94		50 - 150				11/23/22 12:40	12/17/22 14:44	1
13C2 PFDA	86		50 - 150				11/23/22 12:40	12/17/22 14:44	1
13C2 PFUnA	87		50 - 150				11/23/22 12:40	12/17/22 14:44	1
13C2 PFDoA	76		50 - 150				11/23/22 12:40	12/17/22 14:44	1
13C2 PFTeDA	79		50 - 150				11/23/22 12:40	12/17/22 14:44	1
13C3 PFBS	88		50 - 150				11/23/22 12:40	12/17/22 14:44	1
1802 PFHxS	87		50 - 150				11/23/22 12:40	12/17/22 14:44	1
13C4 PFOS	87		50 - 150				11/23/22 12:40	12/17/22 14:44	1
d3-NMeFOSAA	67		50 - 150				11/23/22 12:40	12/17/22 14:44	1
d5-NEtFOSAA	69		50 - 150				11/23/22 12:40	12/17/22 14:44	1
13C3 HFPO-DA	82		50 - 150				11/23/22 12:40	12/17/22 14:44	1

Isotope Dilution Summary

Client: Shannon & Wilson, Inc

Project/Site: Port Heiden (PTH) PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)								
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTDA	
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	
320-94388-1	PTH-212	95	97	97	93	95	95	83	91	
320-94388-2	PTH-046	100	94	97	96	95	94	91	101	
320-94388-3	PTH-042	90	90	94	92	89	110	102	99	
320-94388-4	PTH-214	100	99	96	96	97	94	81	90	
320-94388-5	PTH-211	93	95	92	96	96	94	80	86	
320-94388-6	PTH-043	97	96	95	92	92	90	83	86	
320-94388-7	PTH-049	95	96	93	94	93	101	82	99	
320-94388-8	PTH-022	97	94	94	95	93	92	84	90	
320-94388-9	PTH-029	101	104	99	100	99	101	91	89	
320-94388-10	PTH-045	89	88	93	90	85	92	82	85	
320-94388-11	PTH-213	98	100	98	91	89	97	85	88	
320-94388-12	PTH-020	98	96	95	92	94	97	88	88	
320-94388-13	PTH-027	92	97	99	94	95	95	81	91	
320-94388-14	PTH-033	99	95	93	93	91	93	83	96	
320-94388-15	PTH-030	101	98	96	94	95	100	85	87	
320-94388-16	PTH-016	95	99	94	95	92	93	85	94	
320-94388-17	PTH-026	96	95	96	98	94	91	81	91	
320-94388-18	PTH-025	90	95	92	93	91	95	80	86	
320-94388-19	PTH-032	96	96	93	97	96	95	88	96	
320-94388-20	PTH-031	97	94	95	94	88	93	83	87	
320-94388-21	PTH-037	77	79	83	79	77	83	69	65	
320-94388-22	PTH-015	91	92	89	95	88	98	87	90	
320-94388-23	PTH-207	78	75	79	77	77	74	62	64	
320-94388-24	PTH-206	82	82	82	90	80	79	70	72	
320-94388-25	PTH-013	94	90	90	95	90	96	83	89	
320-94388-26	PTH-201	85	86	80	86	83	83	77	80	
320-94388-27	PTH-205	88	85	87	90	84	85	78	81	
320-94388-28	PTH-202	82	82	84	83	81	83	75	82	
320-94388-29	PTH-145	83	83	80	84	82	82	69	66	
320-94388-30	PTH-116	73	73	71	72	72	72	62	66	
320-94388-31	PTH-146	85	83	86	94	86	87	76	79	
LCS 320-634641/2-A	Lab Control Sample	94	91	97	92	95	99	82	91	
LCS 320-635091/2-A	Lab Control Sample	88	85	88	91	85	87	82	88	
LCSD 320-634641/3-A	Lab Control Sample Dup	94	97	99	96	96	99	89	94	
LCSD 320-635091/3-A	Lab Control Sample Dup	90	87	88	86	86	91	82	87	
MB 320-634641/1-A	Method Blank	92	94	95	94	90	90	84	91	
MB 320-635091/1-A	Method Blank	91	87	89	90	91	92	84	89	

		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA
ab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
20-94388-1	PTH-212	97	93	91	92	87	92
20-94388-2	PTH-046	93	98	91	94	93	91
20-94388-3	PTH-042	92	97	93	102	114	88
20-94388-4	PTH-214	95	101	88	89	87	93
20-94388-5	PTH-211	94	93	87	93	92	86
20-94388-6	PTH-043	97	97	87	90	91	91
20-94388-7	PTH-049	95	98	94	92	94	88
20-94388-8	PTH-022	93	94	87	91	89	91
320-94388-9	PTH-029	97	99	99	96	99	98

Eurofins Sacramento

Page 40 of 63

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Job ID: 320-94388-1

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12/22/2022

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: Port Heiden (PTH) PFAS

Job ID: 320-94388-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Water Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)						
		C3PFBS	PFHxS	PFOS		d5NEFOS		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	
320-94388-10	PTH-045	91	89	83	85	90	85	
320-94388-11	PTH-213	99	107	93	84	90	97	
320-94388-12	PTH-020	97	99	92	95	89	94	
320-94388-13	PTH-027	91	93	89	95	94	88	
320-94388-14	PTH-033	104	104	94	90	95	91	
320-94388-15	PTH-030	97	103	94	91	93	96	
320-94388-16	PTH-016	96	101	89	89	89	89	
320-94388-17	PTH-026	101	102	92	85	94	93	
320-94388-18	PTH-025	96	96	94	87	90	89	
320-94388-19	PTH-032	98	97	93	87	91	91	
320-94388-20	PTH-031	93	100	95	92	91	89	
320-94388-21	PTH-037	79	87	78	65	66	74	
320-94388-22	PTH-015	89	98	89	75	80	86	
320-94388-23	PTH-207	77	79	75	60	59	72	
320-94388-24	PTH-206	84	87	79	65	59	78	
320-94388-25	PTH-013	89	94	91	77	71	89	
320-94388-26	PTH-201	86	91	87	65	68	77	
320-94388-27	PTH-205	91	90	85	66	69	79	
320-94388-28	PTH-202	89	83	81	69	71	79	
320-94388-29	PTH-145	80	87	81	66	62	74	
320-94388-30	PTH-116	75	82	76	54	56	68	
320-94388-31	PTH-146	88	87	87	67	69	82	
LCS 320-634641/2-A	Lab Control Sample	89	96	94	92	92	89	
LCS 320-635091/2-A	Lab Control Sample	88	93	84	72	68	80	
LCSD 320-634641/3-A	Lab Control Sample Dup	97	98	96	98	99	93	
LCSD 320-635091/3-A	Lab Control Sample Dup	94	96	84	70	73	84	
MB 320-634641/1-A	Method Blank	93	93	92	92	92	90	
MB 320-635091/1-A	Method Blank	95	93	89	73	73	87	

Surrogate Legend

PFHxA = 13C2 PFHxA

C4PFHA = 13C4 PFHpA

PFOA = 13C4 PFOA

PFNA = 13C5 PFNA

PFDA = 13C2 PFDA

PFUnA = 13C2 PFUnA

PFDoA = 13C2 PFDoA

PFTDA = 13C2 PFTeDA C3PFBS = 13C3 PFBS

PFHxS = 18O2 PFHxS

PFOS = 13C4 PFOS

d3NMFOS = d3-NMeFOSAA

d5NEFOS = d5-NEtFOSAA

HFPODA = 13C3 HFPO-DA

Eurofins Sacramento

Page 41 of 63

9

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-634641/1-A **Matrix: Water**

Analysis Batch: 640674

Client Sample ID: Method Blank **Prep Type: Total/NA**

Prep Batch: 634641

Tananyono Battoni o 1001 .									•• •• • • •
	MB								
Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		11/22/22 04:38	12/17/22 00:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		11/22/22 04:38	12/17/22 00:44	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		11/22/22 04:38	12/17/22 00:44	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		11/22/22 04:38	12/17/22 00:44	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.0	0.24	ng/L		11/22/22 04:38	12/17/22 00:44	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		11/22/22 04:38	12/17/22 00:44	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.0	0.32	ng/L		11/22/22 04:38	12/17/22 00:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		11/22/22 04:38	12/17/22 00:44	1

MB N	1B
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	IVI D IVI	ID			
Isotope Dilution	%Recovery Q	Qualifier Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	92	50 - 150	11/22/22 04:38	12/17/22 00:44	1
13C4 PFHpA	94	50 - 150	11/22/22 04:38	12/17/22 00:44	1
13C4 PFOA	95	50 - 150	11/22/22 04:38	12/17/22 00:44	1
13C5 PFNA	94	50 - 150	11/22/22 04:38	12/17/22 00:44	1
13C2 PFDA	90	50 - 150	11/22/22 04:38	12/17/22 00:44	1
13C2 PFUnA	90	50 - 150	11/22/22 04:38	12/17/22 00:44	1
13C2 PFDoA	84	50 - 150	11/22/22 04:38	12/17/22 00:44	1
13C2 PFTeDA	91	50 - 150	11/22/22 04:38	12/17/22 00:44	1
13C3 PFBS	93	50 - 150	11/22/22 04:38	12/17/22 00:44	1
1802 PFHxS	93	50 - 150	11/22/22 04:38	12/17/22 00:44	1
13C4 PFOS	92	50 - 150	11/22/22 04:38	12/17/22 00:44	1
d3-NMeFOSAA	92	50 - 150	11/22/22 04:38	12/17/22 00:44	1
d5-NEtFOSAA	92	50 - 150	11/22/22 04:38	12/17/22 00:44	1
13C3 HFPO-DA	90	50 - 150	11/22/22 04:38	12/17/22 00:44	1

Lab Sample ID: LCS 320-634641/2-A

Matrix: Water

Analysis Batch: 640674

Client Sample ID:	Lab Control Sample
	Prep Type: Total/NA

Prep Batch: 634641

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	40.0	41.2		ng/L		103	72 - 129	
Perfluoroheptanoic acid (PFHpA)	40.0	44.0		ng/L		110	72 - 130	
Perfluorooctanoic acid (PFOA)	40.0	39.6		ng/L		99	71 - 133	
Perfluorononanoic acid (PFNA)	40.0	41.5		ng/L		104	69 - 130	

Eurofins Sacramento

Page 42 of 63

Client: Shannon & Wilson, Inc

Job ID: 320-94388-1 Project/Site: Port Heiden (PTH) PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-634641/2-A

Matrix: Water

Analysis Batch: 640674

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 634641

	Spike	LCS LCS	3		%Rec	
Analyte	Added	Result Qua	alifier Unit	D %Rec	Limits	
Perfluorodecanoic acid (PFDA)	40.0	39.4	ng/L	99	71 - 129	
Perfluoroundecanoic acid	40.0	40.6	ng/L	102	69 - 133	
(PFUnA)						
Perfluorododecanoic acid	40.0	48.6	ng/L	121	72 - 134	
(PFDoA)						
Perfluorotridecanoic acid	40.0	49.1	ng/L	123	65 - 144	
(PFTriA)						
Perfluorotetradecanoic acid	40.0	41.0	ng/L	103	71 - 132	
(PFTeA)						
Perfluorobutanesulfonic acid	35.5	37.8	ng/L	106	72 - 130	
(PFBS)						
Perfluorohexanesulfonic acid	36.5	34.9	ng/L	96	68 - 131	
(PFHxS)	07.0	07.4		100	05 440	
Perfluorooctanesulfonic acid	37.2	37.1	ng/L	100	65 - 140	
(PFOS)		40.0		400	OF 400	
N-methylperfluorooctanesulfona	40.0	40.0	ng/L	100	65 - 136	
midoacetic acid (NMeFOSAA)	40.0	40.2	m er /1	101	61 - 135	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	40.0	40.2	ng/L	101	01-133	
9-Chlorohexadecafluoro-3-oxan	37.4	35.7	ng/L	95	77 - 137	
onane-1-sulfonic acid	37.4	33.1	⊓g/L	93	11 - 131	
Hexafluoropropylene Oxide	40.0	38.1	ng/L	95	72 - 132	
Dimer Acid (HFPO-DA)	40.0	30.1	rig/L	33	72 - 102	
11-Chloroeicosafluoro-3-oxaund	37.8	42.5	ng/L	112	76 - 136	
ecane-1-sulfonic acid	01.0	12.0	119/2		70-100	
4,8-Dioxa-3H-perfluorononanoic	37.8	41.2	ng/L	109	81 - 141	
acid (ADONA)	31.0		· · · · · ·			
` ,	109					

LCS LCS

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Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	94		50 - 150
13C4 PFHpA	91		50 - 150
13C4 PFOA	97		50 - 150
13C5 PFNA	92		50 - 150
13C2 PFDA	95		50 - 150
13C2 PFUnA	99		50 - 150
13C2 PFDoA	82		50 - 150
13C2 PFTeDA	91		50 - 150
13C3 PFBS	89		50 - 150
1802 PFHxS	96		50 - 150
13C4 PFOS	94		50 - 150
d3-NMeFOSAA	92		50 - 150
d5-NEtFOSAA	92		50 - 150
13C3 HFPO-DA	89		50 - 150

Lab Sample ID: LCSD 320-634641/3-A

Matrix: Water

Analyte

Analysis Batch: 640674

Perfluorohexanoic acid (PFHxA)

Perfluoroheptanoic acid (PFHpA)

Perfluorooctanoic acid (PFOA)

					Prep Type: Total/NA Prep Batch: 634641				
LCSD	LCSD				%Rec		RPD		
Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit		
42.9		ng/L	_	107	72 - 129	4	30		

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71 - 133

Client Sample ID: Lab Control Sample Dup

Eurofins Sacramento

Page 43 of 63

41.6

ng/L

Spike

Added

40.0

40.0

40.0

12/22/2022

Job ID: 320-94388-1

Client: Shannon & Wilson, Inc Project/Site: Port Heiden (PTH) PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-634641/3-A

Matrix: Water

Analysis Batch: 640674

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 634641

LCSD LCSD **RPD** Spike %Rec Added Result Qualifier Unit %Rec Limits RPD Limit Perfluorononanoic acid (PFNA) 40.0 39.8 ng/L 99 69 - 130 4 30 Perfluorodecanoic acid (PFDA) 40.0 42.1 ng/L 105 71 - 12930 40.0 30 Perfluoroundecanoic acid 41.3 ng/L 103 69 - 133 2 (PFUnA) Perfluorododecanoic acid 40.0 45.5 ng/L 114 72 - 13430 (PFDoA) 40.0 45.8 114 65 - 144 30 Perfluorotridecanoic acid ng/L (PFTriA) Perfluorotetradecanoic acid 40.0 39.9 ng/L 100 71 - 132 3 30 (PFTeA) Perfluorobutanesulfonic acid 35.5 38.8 109 72 - 130 30 ng/L (PFBS) 36.5 36.9 Perfluorohexanesulfonic acid ng/L 101 68 - 131 5 30 (PFHxS) 37.2 36.8 Perfluorooctanesulfonic acid ng/L 99 65 - 140 30 (PFOS) 40.0 40.0 100 65 - 136 30 N-methylperfluorooctanesulfona ng/L midoacetic acid (NMeFOSAA) 2 30 N-ethylperfluorooctanesulfonami 40.0 39.3 ng/L 98 61 - 135 doacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxan 37.4 38.6 ng/L 103 77 - 1378 30 onane-1-sulfonic acid 37.5 94 72 - 132 2 40.0 Hexafluoropropylene Oxide ng/L Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaund 37.8 39.3 104 76 - 136 8 30 ng/L ecane-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic 37.8 43.1 114 81 - 141 30 ng/L

LCSD LCSD

MR MR

Recovery Qualifie 94 97 90	Limits 50 - 150 50 - 150
97	
	50 - 150
aa	
33	50 - 150
96	50 - 150
96	50 ₋ 150
99	50 - 150
89	50 ₋ 150
94	50 - 150
97	50 ₋ 150
98	50 ₋ 150
96	50 - 150
98	50 ₋ 150
99	50 ₋ 150
93	50 ₋ 150
	96 99 89 94 97 98 96 98

Lab Sample ID: MB 320-635091/1-A

Matrix: Water

acid (ADONA)

Analysis Batch: 640982

Client Sample ID: Method Blank
Prep Type: Total/NA

Prep Batch: 635091

Analyte	Result Qualifier	RL	MDL Unit	D Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND -	2.0	0.58 ng/L	11/23/22 12:39	12/17/22 12:12	1
Perfluoroheptanoic acid (PFHpA)	ND	2.0	0.25 ng/L	11/23/22 12:39	12/17/22 12:12	1

Eurofins Sacramento

Page 44 of 63

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Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

MB MB

Lab Sample ID: MB 320-635091/1-A

Matrix: Water

Analysis Batch: 640982

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 635091

	IVID	IVID							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		11/23/22 12:39	12/17/22 12:12	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		11/23/22 12:39	12/17/22 12:12	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		11/23/22 12:39	12/17/22 12:12	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/23/22 12:39	12/17/22 12:12	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		11/23/22 12:39	12/17/22 12:12	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/23/22 12:39	12/17/22 12:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		11/23/22 12:39	12/17/22 12:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/23/22 12:39	12/17/22 12:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		11/23/22 12:39	12/17/22 12:12	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		11/23/22 12:39	12/17/22 12:12	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		11/23/22 12:39	12/17/22 12:12	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		11/23/22 12:39	12/17/22 12:12	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.0	0.24	ng/L		11/23/22 12:39	12/17/22 12:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		11/23/22 12:39	12/17/22 12:12	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.0	0.32	ng/L		11/23/22 12:39	12/17/22 12:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		11/23/22 12:39	12/17/22 12:12	1
	MB	MB							

	MB	МВ				
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		50 - 150	11/23/22 12:39	12/17/22 12:12	1
13C4 PFHpA	87		50 - 150	11/23/22 12:39	12/17/22 12:12	1
13C4 PFOA	89		50 - 150	11/23/22 12:39	12/17/22 12:12	1
13C5 PFNA	90		50 - 150	11/23/22 12:39	12/17/22 12:12	1
13C2 PFDA	91		50 - 150	11/23/22 12:39	12/17/22 12:12	1
13C2 PFUnA	92		50 - 150	11/23/22 12:39	12/17/22 12:12	1
13C2 PFDoA	84		50 - 150	11/23/22 12:39	12/17/22 12:12	1
13C2 PFTeDA	89		50 - 150	11/23/22 12:39	12/17/22 12:12	1
13C3 PFBS	95		50 - 150	11/23/22 12:39	12/17/22 12:12	1
18O2 PFHxS	93		50 - 150	11/23/22 12:39	12/17/22 12:12	1
13C4 PFOS	89		50 - 150	11/23/22 12:39	12/17/22 12:12	1
d3-NMeFOSAA	73		50 - 150	11/23/22 12:39	12/17/22 12:12	1
d5-NEtFOSAA	73		50 - 150	11/23/22 12:39	12/17/22 12:12	1
13C3 HFPO-DA	87		50 - 150	11/23/22 12:39	12/17/22 12:12	1

Lab Sample ID: LCS 320-635091/2-A

Matrix: Water

Analysis Batch: 640982

Client	Sample ID	Lab Control Sample	e
		Pren Type: Total/N	Δ

Prep Type: Total/NA **Prep Batch: 635091**

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	40.0	42.8		ng/L		107	72 - 129	
Perfluoroheptanoic acid (PFHpA)	40.0	42.3		ng/L		106	72 - 130	
Perfluorooctanoic acid (PFOA)	40.0	41.4		ng/L		103	71 - 133	
Perfluorononanoic acid (PFNA)	40.0	41.0		ng/L		103	69 - 130	
Perfluorodecanoic acid (PFDA)	40.0	40.9		ng/L		102	71 - 129	
Perfluoroundecanoic acid (PFUnA)	40.0	42.4		ng/L		106	69 - 133	

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Page 45 of 63

Client: Shannon & Wilson, Inc

Project/Site: Port Heiden (PTH) PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Water

Analysis Batch: 640982

Lab Sample ID: LCS 320-635091/2-A

Client Sample ID: Lab Control Sample

Prep Type: Total/NA Prep Batch: 635091 %Rec

Job ID: 320-94388-1

Amaryolo Batom 040002	Spike	LCS	LCS			%Rec	
Analyte	Added		Qualifier	Unit	D	%Rec	Limits
Perfluorododecanoic acid	40.0	43.7		ng/L		109	72 - 134
(PFDoA)				Ü			
Perfluorotridecanoic acid	40.0	42.1		ng/L		105	65 - 144
(PFTriA)							
Perfluorotetradecanoic acid	40.0	41.9		ng/L		105	71 - 132
(PFTeA)							
Perfluorobutanesulfonic acid (PFBS)	35.5	39.3		ng/L		111	72 - 130
Perfluorohexanesulfonic acid	36.5	38.6		ng/L		106	68 - 131
(PFHxS)							
Perfluorooctanesulfonic acid	37.2	38.8		ng/L		104	65 - 140
(PFOS)							
N-methylperfluorooctanesulfona	40.0	38.8		ng/L		97	65 - 136
midoacetic acid (NMeFOSAA)							
N-ethylperfluorooctanesulfonami	40.0	43.4		ng/L		108	61 - 135
doacetic acid (NEtFOSAA)							
9-Chlorohexadecafluoro-3-oxan	37.4	38.7		ng/L		104	77 - 137
onane-1-sulfonic acid							
Hexafluoropropylene Oxide	40.0	43.7		ng/L		109	72 - 132
Dimer Acid (HFPO-DA)							
11-Chloroeicosafluoro-3-oxaund	37.8	42.6		ng/L		113	76 - 136
ecane-1-sulfonic acid							
4,8-Dioxa-3H-perfluorononanoic	37.8	44.8		ng/L		119	81 - 141
acid (ADONA)							

LCS LCS

Isotope Dilution	%Recovery Qualifier	Limits
13C2 PFHxA	88	50 - 150
13C4 PFHpA	85	50 - 150
13C4 PFOA	88	50 - 150
13C5 PFNA	91	50 - 150
13C2 PFDA	85	50 ₋ 150
13C2 PFUnA	87	50 - 150
13C2 PFDoA	82	50 ₋ 150
13C2 PFTeDA	88	50 - 150
13C3 PFBS	88	50 ₋ 150
1802 PFHxS	93	50 - 150
13C4 PFOS	84	50 ₋ 150
d3-NMeFOSAA	72	50 - 150
d5-NEtFOSAA	68	50 - 150
13C3 HFPO-DA	80	50 - 150

Lab Sample ID: LCSD 320-635091/3-A Client Sample ID: Lab Control Sample Dup

Matrix: Water

Analysis Batch: 640982

Prep Type: Total/NA
Prep Batch: 635091
%Rec RPD

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	40.0	41.7		ng/L		104	72 - 129	3	30
Perfluoroheptanoic acid (PFHpA)	40.0	41.0		ng/L		103	72 - 130	3	30
Perfluorooctanoic acid (PFOA)	40.0	40.9		ng/L		102	71 - 133	1	30
Perfluorononanoic acid (PFNA)	40.0	43.4		ng/L		109	69 - 130	6	30
Perfluorodecanoic acid (PFDA)	40.0	39.9		ng/L		100	71 - 129	2	30

Eurofins Sacramento

Page 46 of 63

6

3

6

8

10

12

13

QC Sample Results

Client: Shannon & Wilson, Inc

Project/Site: Port Heiden (PTH) PFAS

Job ID: 320-94388-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-635091/3-A

Matrix: Water

Analysis Batch: 640982

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 635091

Analysis Batch. 040302	Spike	LCSD	LCSD	CSD			%Rec		RPD
Analyte	Added	_	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluoroundecanoic acid	40.0	40.6		ng/L		101	69 - 133	4	30
(PFUnA)				J					
Perfluorododecanoic acid	40.0	42.8		ng/L		107	72 - 134	2	30
(PFDoA)									
Perfluorotridecanoic acid	40.0	41.1		ng/L		103	65 - 144	2	30
(PFTriA)									
Perfluorotetradecanoic acid	40.0	38.1		ng/L		95	71 - 132	9	30
(PFTeA)									
Perfluorobutanesulfonic acid	35.5	34.6		ng/L		98	72 - 130	13	30
(PFBS)									
Perfluorohexanesulfonic acid	36.5	34.5		ng/L		95	68 - 131	11	30
(PFHxS)									
Perfluorooctanesulfonic acid	37.2	38.8		ng/L		104	65 - 140	0	30
(PFOS)									
N-methylperfluorooctanesulfona	40.0	40.0		ng/L		100	65 - 136	3	30
midoacetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonami	40.0	40.3		ng/L		101	61 - 135	7	30
doacetic acid (NEtFOSAA)									
9-Chlorohexadecafluoro-3-oxan	37.4	38.4		ng/L		103	77 - 137	1	30
onane-1-sulfonic acid									
Hexafluoropropylene Oxide	40.0	39.1		ng/L		98	72 - 132	11	30
Dimer Acid (HFPO-DA)									
11-Chloroeicosafluoro-3-oxaund	37.8	40.6		ng/L		108	76 - 136	5	30
ecane-1-sulfonic acid									
4,8-Dioxa-3H-perfluorononanoic	37.8	42.5		ng/L		113	81 - 141	5	30
acid (ADONA)									

LCSD LCSD

	LOOD	LUUD	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	90		50 - 150
13C4 PFHpA	87		50 - 150
13C4 PFOA	88		50 - 150
13C5 PFNA	86		50 - 150
13C2 PFDA	86		50 - 150
13C2 PFUnA	91		50 - 150
13C2 PFDoA	82		50 - 150
13C2 PFTeDA	87		50 - 150
13C3 PFBS	94		50 - 150
1802 PFHxS	96		50 - 150
13C4 PFOS	84		50 - 150
d3-NMeFOSAA	70		50 - 150
d5-NEtFOSAA	73		50 - 150
13C3 HFPO-DA	84		50 - 150

QC Association Summary

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

LCMS

Prep Batch: 634641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-94388-1	PTH-212	Total/NA	Water	3535	
320-94388-2	PTH-046	Total/NA	Water	3535	
320-94388-3	PTH-042	Total/NA	Water	3535	
320-94388-4	PTH-214	Total/NA	Water	3535	
320-94388-5	PTH-211	Total/NA	Water	3535	
320-94388-6	PTH-043	Total/NA	Water	3535	
320-94388-7	PTH-049	Total/NA	Water	3535	
320-94388-8	PTH-022	Total/NA	Water	3535	
320-94388-9	PTH-029	Total/NA	Water	3535	
320-94388-10	PTH-045	Total/NA	Water	3535	
320-94388-11	PTH-213	Total/NA	Water	3535	
320-94388-12	PTH-020	Total/NA	Water	3535	
320-94388-13	PTH-027	Total/NA	Water	3535	
320-94388-14	PTH-033	Total/NA	Water	3535	
320-94388-15	PTH-030	Total/NA	Water	3535	
320-94388-16	PTH-016	Total/NA	Water	3535	
320-94388-17	PTH-026	Total/NA	Water	3535	
320-94388-18	PTH-025	Total/NA	Water	3535	
320-94388-19	PTH-032	Total/NA	Water	3535	
320-94388-20	PTH-031	Total/NA	Water	3535	
MB 320-634641/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-634641/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-634641/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 635091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-94388-21	PTH-037	Total/NA	Water	3535	_
320-94388-22	PTH-015	Total/NA	Water	3535	
320-94388-23	PTH-207	Total/NA	Water	3535	
320-94388-24	PTH-206	Total/NA	Water	3535	
320-94388-25	PTH-013	Total/NA	Water	3535	
320-94388-26	PTH-201	Total/NA	Water	3535	
320-94388-27	PTH-205	Total/NA	Water	3535	
320-94388-28	PTH-202	Total/NA	Water	3535	
320-94388-29	PTH-145	Total/NA	Water	3535	
320-94388-30	PTH-116	Total/NA	Water	3535	
320-94388-31	PTH-146	Total/NA	Water	3535	
ИВ 320-635091/1-A	Method Blank	Total/NA	Water	3535	
CS 320-635091/2-A	Lab Control Sample	Total/NA	Water	3535	
CSD 320-635091/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 640674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-94388-1	PTH-212	Total/NA	Water	EPA 537(Mod)	634641
320-94388-2	PTH-046	Total/NA	Water	EPA 537(Mod)	634641
320-94388-3	PTH-042	Total/NA	Water	EPA 537(Mod)	634641
320-94388-4	PTH-214	Total/NA	Water	EPA 537(Mod)	634641
320-94388-5	PTH-211	Total/NA	Water	EPA 537(Mod)	634641
320-94388-6	PTH-043	Total/NA	Water	EPA 537(Mod)	634641
320-94388-7	PTH-049	Total/NA	Water	EPA 537(Mod)	634641
320-94388-9	PTH-029	Total/NA	Water	EPA 537(Mod)	634641

Page 48 of 63

Eurofins Sacramento

12/22/2022

QC Association Summary

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

LCMS (Continued)

Analysis Batch: 640674 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-94388-10	PTH-045	Total/NA	Water	EPA 537(Mod)	634641
320-94388-11	PTH-213	Total/NA	Water	EPA 537(Mod)	634641
320-94388-12	PTH-020	Total/NA	Water	EPA 537(Mod)	634641
320-94388-13	PTH-027	Total/NA	Water	EPA 537(Mod)	634641
320-94388-14	PTH-033	Total/NA	Water	EPA 537(Mod)	634641
320-94388-15	PTH-030	Total/NA	Water	EPA 537(Mod)	634641
320-94388-16	PTH-016	Total/NA	Water	EPA 537(Mod)	634641
320-94388-17	PTH-026	Total/NA	Water	EPA 537(Mod)	634641
320-94388-18	PTH-025	Total/NA	Water	EPA 537(Mod)	634641
320-94388-19	PTH-032	Total/NA	Water	EPA 537(Mod)	634641
320-94388-20	PTH-031	Total/NA	Water	EPA 537(Mod)	634641
MB 320-634641/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	634641
LCS 320-634641/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	634641
LCSD 320-634641/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	634641

Analysis Batch: 640982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-94388-21	PTH-037	Total/NA	Water	EPA 537(Mod)	635091
320-94388-22	PTH-015	Total/NA	Water	EPA 537(Mod)	635091
320-94388-23	PTH-207	Total/NA	Water	EPA 537(Mod)	635091
320-94388-24	PTH-206	Total/NA	Water	EPA 537(Mod)	635091
320-94388-25	PTH-013	Total/NA	Water	EPA 537(Mod)	635091
320-94388-26	PTH-201	Total/NA	Water	EPA 537(Mod)	635091
320-94388-27	PTH-205	Total/NA	Water	EPA 537(Mod)	635091
320-94388-28	PTH-202	Total/NA	Water	EPA 537(Mod)	635091
320-94388-29	PTH-145	Total/NA	Water	EPA 537(Mod)	635091
320-94388-30	PTH-116	Total/NA	Water	EPA 537(Mod)	635091
320-94388-31	PTH-146	Total/NA	Water	EPA 537(Mod)	635091
MB 320-635091/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	635091
LCS 320-635091/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	635091
LCSD 320-635091/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	635091

Analysis Batch: 641087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-94388-8	PTH-022	Total/NA	Water	EPA 537(Mod)	634641

Eurofins Sacramento

Page 49 of 63

2

3

8

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11

12

14

10

Client: Shannon & Wilson, Inc Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-212

Lab Sample ID: 320-94388-1

Matrix: Water

Matrix: Water

Date Collected: 11/10/22 17:54 Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			266.3 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 01:14	K1S	EET SAC

Client Sample ID: PTH-046 Lab Sample ID: 320-94388-2

Date Collected: 11/10/22 12:57 **Matrix: Water**

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			276.2 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 01:24	K1S	EET SAC

Lab Sample ID: 320-94388-3 Client Sample ID: PTH-042

Date Collected: 11/10/22 14:30 Date Received: 11/15/22 15:05

Batch Batch Dil Initial Final Batch **Prepared** Number Method or Analyzed **Prep Type** Type Run **Factor Amount** Amount Analyst Lab

Total/NA Prep 3535 269.2 mL 10.0 mL 634641 11/22/22 05:30 RLT **EET SAC** Total/NA Analysis EPA 537(Mod) 1 mL 640674 12/17/22 01:35 K1S **EET SAC** 1 ml 1

Client Sample ID: PTH-214 Lab Sample ID: 320-94388-4 Date Collected: 11/10/22 19:11 **Matrix: Water**

Date Received: 11/15/22 15:05

Batch Batch Dil Initial Final Batch Prepared Method Amount Amount Number **Prep Type** Type Run Factor or Analyzed Analyst Lab Total/NA 634641 Prep 3535 275.3 mL 10.0 mL 11/22/22 05:30 **RLT EET SAC** Total/NA Analysis EPA 537(Mod) 1 1 mL 1 mL 640674 12/17/22 01:45 K1S **EET SAC**

Client Sample ID: PTH-211 Lab Sample ID: 320-94388-5 Date Collected: 11/09/22 17:03 **Matrix: Water**

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			278.2 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 01:55	K1S	EET SAC

Client Sample ID: PTH-043 Lab Sample ID: 320-94388-6 Date Collected: 11/09/22 17:53 **Matrix: Water**

Date Received: 11/15/22 15:05

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA Prep 3535 262.7 mL 10.0 mL 634641 11/22/22 05:30 RLT EET SAC Total/NA Analysis EPA 537(Mod) 1 mL 1 mL 640674 12/17/22 02:05 K1S **EET SAC**

Client: Shannon & Wilson, Inc Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-049 Lab Sample ID: 320-94388-7 Date Collected: 11/09/22 11:13

Matrix: Water

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			276.8 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 02:15	K1S	EET SAC

Lab Sample ID: 320-94388-8 **Client Sample ID: PTH-022**

Date Collected: 11/10/22 12:34 **Matrix: Water**

Date Received: 11/15/22 15:05

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			271.1 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	641087	12/17/22 23:00	AF	EET SAC

Client Sample ID: PTH-029 Lab Sample ID: 320-94388-9

Date Collected: 11/10/22 15:04 **Matrix: Water**

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			272.7 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 02:55	K1S	EET SAC

Client Sample ID: PTH-045 Lab Sample ID: 320-94388-10 Date Collected: 11/10/22 18:50 **Matrix: Water**

Date Received: 11/15/22 15:05

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.8 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 03:05	K1S	EET SAC

Client Sample ID: PTH-213 Lab Sample ID: 320-94388-11 Date Collected: 11/10/22 18:35 **Matrix: Water**

Date Received: 11/15/22 15:05

	E	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep	Type 1	Гуре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/	NA F	Prep	3535			277.4 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/	NA A	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 03:16	K1S	EET SAC

Lab Sample ID: 320-94388-12 **Client Sample ID: PTH-020 Matrix: Water**

Date Collected: 11/10/22 18:07 Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			274 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 03:26	K1S	EET SAC

10

Client Sample ID: PTH-027 Lab Sample ID: 320-94388-13 Date Collected: 11/10/22 16:14

Matrix: Water

Batch Batch Dil Initial Batch Final Prepared Method Number or Analyzed **Prep Type** Type Run **Factor** Amount Amount Analyst Lab Total/NA 3535 278.7 mL 10.0 mL 634641 11/22/22 05:30 RLT EET SAC Prep 12/17/22 03:36 K1S Total/NA 640674 Analysis EPA 537(Mod) **EET SAC** 1 1 ml 1 mL

Client Sample ID: PTH-033 Lab Sample ID: 320-94388-14 Date Collected: 11/10/22 16:59

Matrix: Water

Date Received: 11/15/22 15:05

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.7 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 03:46	K1S	EET SAC

Client Sample ID: PTH-030 Lab Sample ID: 320-94388-15

Date Collected: 11/09/22 16:54 **Matrix: Water**

Date Received: 11/15/22 15:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			276.9 mL	10.0 mL	634641	11/22/22 05:30		EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 03:56	K1S	EET SAC

Client Sample ID: PTH-016 Lab Sample ID: 320-94388-16 Date Collected: 11/10/22 13:11 **Matrix: Water**

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			280.4 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 04:06	K1S	EET SAC

Client Sample ID: PTH-026 Lab Sample ID: 320-94388-17 Date Collected: 11/09/22 14:04 **Matrix: Water**

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			256.2 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 04:16	K1S	EET SAC

Client Sample ID: PTH-025 Lab Sample ID: 320-94388-18 Date Collected: 11/09/22 13:19 **Matrix: Water**

Date Received: 11/15/22 15:05

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			273.1 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 04:46	K1S	EET SAC

Client: Shannon & Wilson, Inc Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-032 Lab Sample ID: 320-94388-19 Date Collected: 11/09/22 14:21

Matrix: Water

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.4 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 04:57	K1S	EET SAC

Lab Sample ID: 320-94388-20 **Client Sample ID: PTH-031**

Date Collected: 11/09/22 10:58 **Matrix: Water**

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			275.8 mL	10.0 mL	634641	11/22/22 05:30	RLT	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640674	12/17/22 05:07	K1S	EET SAC

Lab Sample ID: 320-94388-21 Client Sample ID: PTH-037 **Matrix: Water**

Date Collected: 11/11/22 15:56

Date Received: 11/15/22 15:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			289.9 mL	10.0 mL	635091	11/23/22 12:39	VP	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640982	12/17/22 12:42	D1R	EET SAC

Client Sample ID: PTH-015 Lab Sample ID: 320-94388-22 Date Collected: 11/11/22 19:10 **Matrix: Water**

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			254.8 mL	10.0 mL	635091	11/23/22 12:39	VP	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640982	12/17/22 12:52	D1R	EET SAC

Client Sample ID: PTH-207 Lab Sample ID: 320-94388-23 **Matrix: Water**

Date Collected: 11/11/22 13:44 Date Received: 11/15/22 15:05

	T	Batch	Batch	Dom	Dil	Initial	Final	Batch	Prepared	Amalust	Lab
P	гер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
To	otal/NA	Prep	3535			289.2 mL	10.0 mL	635091	11/23/22 12:39	VP	EET SAC
To	otal/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640982	12/17/22 13:03	D1R	EET SAC

Lab Sample ID: 320-94388-24 **Client Sample ID: PTH-206** Date Collected: 11/11/22 15:16 **Matrix: Water**

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			282.6 mL	10.0 mL	635091	11/23/22 12:39	VP	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640982	12/17/22 13:13	D1R	EET SAC

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Matrix: Water

Client: Shannon & Wilson, Inc Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-013 Lab Sample ID: 320-94388-25 Date Collected: 11/11/22 18:21

Matrix: Water

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			288.2 mL	10.0 mL	635091	11/23/22 12:39	VP	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640982	12/17/22 13:23	D1R	EET SAC

Lab Sample ID: 320-94388-26 Client Sample ID: PTH-201

Date Collected: 11/11/22 17:17 **Matrix: Water**

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			274.8 mL	10.0 mL	635091	11/23/22 12:39	VP	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640982	12/17/22 13:33	D1R	EET SAC

Client Sample ID: PTH-205 Lab Sample ID: 320-94388-27

Date Collected: 11/11/22 13:40 Date Received: 11/15/22 15:05

Batch Batch Dil Initial Final Batch Prepared Method Amount Number or Analyzed **Prep Type** Type Run **Factor** Amount Analyst Lab Total/NA Prep 3535 276.3 mL 10.0 mL 635091 11/23/22 12:40 VP EET SAC Total/NA Analysis EPA 537(Mod) 1 mL 1 mL 640982 12/17/22 13:43 D1R **EET SAC** 1

Client Sample ID: PTH-202 Lab Sample ID: 320-94388-28 Date Collected: 11/11/22 14:13 **Matrix: Water**

Date Received: 11/15/22 15:05

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			239.1 mL	10.0 mL	635091	11/23/22 12:40	VP	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640982	12/17/22 14:13	D1R	EET SAC

Client Sample ID: PTH-145 Lab Sample ID: 320-94388-29 Date Collected: 11/10/22 18:40 **Matrix: Water**

Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.7 mL	10.0 mL	635091	11/23/22 12:40	VP	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640982	12/17/22 14:24	D1R	EET SAC

Client Sample ID: PTH-116 Lab Sample ID: 320-94388-30 **Matrix: Water**

Date Collected: 11/10/22 13:01 Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			240.8 mL	10.0 mL	635091	11/23/22 12:40	VP	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640982	12/17/22 14:34	D1R	EET SAC

Lab Chronicle

Job ID: 320-94388-1 Client: Shannon & Wilson, Inc

Project/Site: Port Heiden (PTH) PFAS

Client Sample ID: PTH-146 Lab Sample ID: 320-94388-31

Date Collected: 11/10/22 12:47 **Matrix: Water** Date Received: 11/15/22 15:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.6 mL	10.0 mL	635091	11/23/22 12:40	VP	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	640982	12/17/22 14:44	D1R	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc Job ID: 320-94388-1

Project/Site: Port Heiden (PTH) PFAS

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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Method Summary

Client: Shannon & Wilson, Inc

Project/Site: Port Heiden (PTH) PFAS

Method **Method Description** Protocol Laboratory EPA 537(Mod) PFAS for QSM 5.3, Table B-15 EPA **EET SAC** 3535 Solid-Phase Extraction (SPE) SW846 **EET SAC**

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Job ID: 320-94388-1

Sample Summary

Client: Shannon & Wilson, Inc

320-94388-31

PTH-146

Project/Site: Port Heiden (PTH) PFAS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-94388-1	PTH-212	Water	11/10/22 17:54	11/15/22 15:05
320-94388-2	PTH-046	Water	11/10/22 12:57	11/15/22 15:05
320-94388-3	PTH-042	Water	11/10/22 14:30	11/15/22 15:05
320-94388-4	PTH-214	Water	11/10/22 19:11	11/15/22 15:05
320-94388-5	PTH-211	Water	11/09/22 17:03	11/15/22 15:05
320-94388-6	PTH-043	Water	11/09/22 17:53	11/15/22 15:05
320-94388-7	PTH-049	Water	11/09/22 11:13	11/15/22 15:05
320-94388-8	PTH-022	Water	11/10/22 12:34	11/15/22 15:05
320-94388-9	PTH-029	Water	11/10/22 15:04	11/15/22 15:05
320-94388-10	PTH-045	Water	11/10/22 18:50	11/15/22 15:05
320-94388-11	PTH-213	Water	11/10/22 18:35	11/15/22 15:05
320-94388-12	PTH-020	Water	11/10/22 18:07	11/15/22 15:05
320-94388-13	PTH-027	Water	11/10/22 16:14	11/15/22 15:05
320-94388-14	PTH-033	Water	11/10/22 16:59	11/15/22 15:05
320-94388-15	PTH-030	Water	11/09/22 16:54	11/15/22 15:05
320-94388-16	PTH-016	Water	11/10/22 13:11	11/15/22 15:05
320-94388-17	PTH-026	Water	11/09/22 14:04	11/15/22 15:05
320-94388-18	PTH-025	Water	11/09/22 13:19	11/15/22 15:05
320-94388-19	PTH-032	Water	11/09/22 14:21	11/15/22 15:05
320-94388-20	PTH-031	Water	11/09/22 10:58	11/15/22 15:05
320-94388-21	PTH-037	Water	11/11/22 15:56	11/15/22 15:05
320-94388-22	PTH-015	Water	11/11/22 19:10	11/15/22 15:05
320-94388-23	PTH-207	Water	11/11/22 13:44	11/15/22 15:05
320-94388-24	PTH-206	Water	11/11/22 15:16	11/15/22 15:05
320-94388-25	PTH-013	Water	11/11/22 18:21	11/15/22 15:05
320-94388-26	PTH-201	Water	11/11/22 17:17	11/15/22 15:05
320-94388-27	PTH-205	Water	11/11/22 13:40	11/15/22 15:05
320-94388-28	PTH-202	Water	11/11/22 14:13	11/15/22 15:05
320-94388-29	PTH-145	Water	11/10/22 18:40	11/15/22 15:05
320-94388-30	PTH-116	Water	11/10/22 13:01	11/15/22 15:05

Water

11/10/22 12:47 11/15/22 15:05

Job ID: 320-94388-1

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SHANNON & WILSO GEOTECHNICAL AND ENVIRONMENTAL 2355 Hill Road Fairbanks, AK 99709 (907) 479-0600	DN, INC. CHAI	N-OF-CUS		RECORD	Labo Attn:	Pag pratory Euro Gin D. All NCK	e of
www.shannonwilson.cor	n	_	13/	////	7 /		7
Turn Around Time:	Quote No:		W S		/ / .	Tritaine!	,
Normal Rush	J-Flags: Yes No	Data				Adid Multiple of Compois Sample	
Please Specify		0	4	/ / /		Augrid Rema	irks/Matrix
Sample Identity	Lab No. Time S	Date ampled				Compos Sample	sition/Grab? Containers
PTH-212	1754 11	10/22 1			2	Grandw	
PTH-046	1257 11	/10/22 X					541
PTH-042 V	143041	110/3/					
PTH - 214 V	2 mml an	10/23					
PTH-013 ×	1763	9/12					
P 14-043	11/2	19/22					
PT4-022 /	1234	1424 1042					
DTH-029	1504 11	10122					
PTH-045 V	1850 11	110/21					
Project Information	Sample Receipt	Reliquished	By: 1.	Reliquished E	By: 2.	Reliquished	d By: 3.
Number: 102219 - 016	Total No. of Containers:	Signature:	Time: 1530	Signature:	Time: /505	Signature:	Time:
Name: Port Heiden (PTH) PFAS	COC Seals/Intact? Y/N/NA		- Illusta	300	1		
Ongoing Project? Yes No	Received Good Cond./Cold	Printed Name: Masters	Date: 1/14/22	Printed Name: SANY PRATA	Date: 111500	Printed Name:	Date:
Sampler: RW, ARM	Delivery Method:	Company:	1	Company		Company:	
11.000 (11)	NA CANADA	Shannon + Wi	Son, Inc.		c 4.3c		
		Received B	y: 1.	Received By	<i>i</i> : 2.	Received	By: 3.
		Signature:	Time:	Signature:	Time:	Signature:	Time:
320-94388 Chain of Custo		Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:
Distribution: White - w/shipment - returned Yellow - w/shipment - for cons Pink - Shannon & Wilson - job	signee files	rt Company:		Company:		.Company:	













SHANNON & WILSO 2355 Hill Road Fairbanks, AK 99709 (907) 479-0600	ON INC. CH	AIN-OF-CUS			Labo Attn:	Page pratory Eurofins D. Alltucke	2 of 4
www.shannonwilson.com	m		An	alytical Methods (in	nclude preservativ	ve if used)	$\overline{}$
Turn Around Time: Normal Rush	Quote No:	No No	No. 10			Composing Sample	
Please Specify		Date 5				Remar	ks/Matrix
Sample Identity	Lab No. Time	Date Sampled				Composi Sample	tion/Grab? Containers
PTH-213	1835	11/10/22 K			2	Groundu	
PTH -0201	1807	11/10/22					
PTH-027-V	1614	11/10/22					
PTH -033 V	1659	11/10/28					
PTH-030	1654	1/9/32					
PTH-016V	1311	(1/1022					
PTH-026V	1404~	11/9/22					
PTH-025 /	13 19	11/0/20					
DTH-032	1421	11/9/22/					
PTH-031V	1058	(1/9/22/					
Project information	Sample Receipt	Reliquished B	/: 1. I	Reliquished E	By: 2.	Reliquished	By: 3.
Number:	Total No. of Containers:	Signature:	Time: 1530 S	ignature:	Time: 1505	Signature:	Time:
Name:	COC Seals/Intact? Y/N/NA						
Contact:	Received Good Cond./Cold	Printed Name:	Date: 1/14/27P	/ \	Date: 11.15-72	Printed Name:	Date:
Ongoing Project? Yes	Temp:	Masters Company:		SANNAPUTALI Ompany: O Ga			
Sampler:	Delivery Method:	1 41 1 1 1	son, Inc	EETGA 0.90	4.3c	Company:	
Not	tes:	Received By:		Received By	/: 2.	Received E	By: 3.
		Signature:	Time:Si	ignature:	Time:	Signature:	Time:
		Printed Name:	Date:P	rinted Name:	Date:	Printed Name:	Date:
Distribution: White - w/shipment - returned Yellow - w/shipment - for con Pink - Shannon & Wilson - job	signee files	report Company:	C	ompany:		Company:	













SHANNON & WILSO acotechnical and environmental 2355 Hill Road Fairbanks, AK 99709 (907) 479-0600	ON, INC.	AIN-OF-C	CUSTODY	RECORD Analytical Methods (in	Attn:	D. Allivo	3 of 4
www.shannonwilson.com	m		25/		///	///	7
Turn Around Time:	Quote No:			/ / /		righter.	
Normal Rush	J-Flags: Yes	No				da hunder de Composition Sample Composition	
Please Specify			20/			Remarks	
Sample Identity	Lab No. Time	Date Sampled	33///			Compositi Sample C	
PTH-037	1556	11/11/22 X			2	Grandwater	r
PTH-015	1910	1			1)	
PTH - 207	1344						
PTH-206	1516						
PTH-013	1821						
PTH-201	1717						
PTH - 205	1340						
PTH- 202	1413	V					
PTH- 145	1840	11/10/22					
PTH-116	1301	11/10/22			V	V	-
Project Information	Sample Receipt	Reliqu	ished By: 1.	Reliquished B	ly: 2.	Reliquished	By: 3.
Number:	Total No. of Containers:	Signature:	Time: 1520	Signature:	Time: 1505	Signature:	Time:
Name:	COC Seals/Intact? Y/N/NA						
Contact:	Received Good Cond./Cold	Printed Name:	Date: 1//4/2	Printed Name:	Date: 11-15-72	Printed Name:	Date:
Ongoing Refect? Yes No	Temp:	Company:	sters	Company: 090		C	
Sampler:	Delivery Method:	Shanno	n+Wikon, nc	EETCA 0.7C	4.3c	Company:	
No	tes:		ived By: 1.	Received By	: 2.	Received B	y: 3.
		Signature:	Time:	Signature:	Time:	Signature:	Time:
		Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:
Distribution: White - w/shipment - returne Yellow - w/shipment - for cor Pink - Shannon & Wilson - jo	nsignee files	ry report Company:		Company:		Company:	









SHANNON & WILSO GEOTECHNICAL AND ENVIRONMENTAL 2355 Hill Road Fairbanks, AK 99709 (907) 479-0600 www.shannonwilson.coi		СНА	IN-(OF-(cus.	ΓOD		RECC		L A clude presen	aboratory ttn: DA vative if used	Page	of 4
Turn Around Time: Normal Rush Please Specify Sample Identity	Quote No: J-Flags: Lab No.		No Date Sampled	Jan	ST. ST.] 				Told Hurrige	Composi	ks/Matrix Ition/Grab? Containers
PTH - 146		1247	1/10/22								- (0	undwater	
Project Information	Sample I	Receipt		Reliqu	ished By	<i>y</i> : 1.		Reliqu	ished B	Sy: 2.	R	eliquished	By: 3.
Number: Name: Contact: Contact: Ves No Sampler:	Total No. of Containe COC Seals/Intact? Y Received Good Cond Temp: Delivery Method:	//N/NA	Com	ed Name:	tess	Time S	14/2	Signature: Printed Name: Company:	PATALI	Time: 15C	Signature Printed Na	: ame:	Time:
No	tes:		5	Rece	eived By:	1.			0.9 c			Received E	Ву: 3.
			Signa	ed Name:		Time:		Signature: Printed Name:		Time:	Signature Printed Na		Time:
Distribution: White - w/shipment - returned Yellow - w/shipment - for con Pink - Shannon & Wilson - jol	signee files	w/ laboratory re	port Comp	pany:			(Company:			Company		









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Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc Job Number: 320-94388-1

Login Number: 94388 List Source: Eurofins Sacramento

List Number: 1

Creator: Pratali, Sandra A

Creator. Frataii, Saliura A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	SEAL
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By	Completed By: Amber CS Site Masters Name:			DOT&PF Statewide PFAS: Port Heiden	Lab Name:	Eurofins Environment Testing				
Title:		ironment cientist	ADEC File No.:		Lab Report No.:	320-943881				
Consulting Fi	rm'	nnon & son, Inc.	Hazard ID No.:		Lab Report Date:	December 22, 2022				
•	Note: Any N/A or No box checked must have an explanation in the comments box. 1. Laboratory									
 a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses? Yes No N/A Comments: The ADEC certified Eurofins Environment Testing, West Sacramento for the analysis of PFAS. These compounds were included in the ADEC's Contaminated Sites Laboratory Approval 17-020. b. If the samples were transferred to another "network" laboratory or sub-contracted 										
2 Chain	approved? Yes □ N Comments laboratory	? lo □ N/A [s: Samples ′.	\boxtimes	oratory performing	,					
2. Chain	of Custod	iy (CoC)								
 a. Is the CoC information completed, signed, and dated (including released/received by)? Yes ⋈ No □ N/A □ Comments: 										
b.	 b. Were the correct analyses requested? Yes ⋈ No □ N/A □ Analyses requested: Per- and polyfluorinated substances (PFAS) compliant wire QSM 5.3 Table B-15. Comments: 									

Revision 9/2022

CS Site Name: DOT&PF Statewide PFAS: Port Heiden

Lab Report No.: 320-943881

3. Laboratory Sample Receipt Documentation

	a.	Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)? Yes \boxtimes No \square N/A \square
		Cooler temperature(s): Cooler temperature was not reported by the laboratory. Sample temperature(s): A temperature blank was included with the samples in the cooler and is used to access temperature preservation. The temperature blanks were reported at 0.9°C and 4.3°C upon arrival at the laboratory. Comments:
	b.	Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)? Yes \boxtimes No \square N/A \square Comments: PFAS does not require any additional preservation beyond temperature.
	C.	Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.? Yes \boxtimes No \square N/A \square Comments: The laboratory notes that the samples arrived in good condition.
	d.	If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.? Yes \square No \square N/A \boxtimes Comments: The laboratory does not note any discrepancies.
	e.	Is the data quality or usability affected? Yes □ No ☒ N/A □ Comments: See above.
4.	Case I	Narrative
	a.	Is the case narrative present and understandable? Yes \boxtimes No \square N/A \square Comments:
	b.	Are there discrepancies, errors, or QC failures identified by the lab? Yes \boxtimes No \square N/A \square Comments: The laboratory applied an "I" to the PFOS results of <i>PTH-205</i> to indicate the transition mass ratio was outside of establish limits. The reported value may have some high bias. However, analyst judgment was used to positively identify the analyte.

CS Site Name: DOT&PF Statewide PFAS: Port Heiden Lab Report No.: 320-943881 Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batches 320-635091 and 320-634641. The laboratory noted the following about samples in preparation batch 320-634641 were observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction: PTH-027, PTH-033, and PTH-032. PTH-211 was light orange in color prior to extraction. Were all the corrective actions documented? Yes □ No □ N/A ⋈ Comments: Corrective actions were not needed. c. What is the effect on data quality/usability according to the case narrative? Comments: The case narrative does not note an effect on data quality or usability. 5. Sample Results a. Are the correct analyses performed/reported as requested on CoC? Yes ⊠ No □ N/A □ Comments: b. Are all applicable holding times met? Yes ⊠ No □ N/A □ Comments: c. Are all soils reported on a dry weight basis? Yes □ No □ N/A ⋈ Comments: Soils were not submitted with this work order. d. Are the reported limits of quantitation (LOQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project? Yes ⊠ No □ N/A □

Comments:

e. Is the data quality or usability affected?

Yes □ No ☒ N/A □ Comments: See above.

CS Site Name: DOT&PF Statewide PFAS: Port Heiden

Comments:

Lab Report No.: 320-943881

6. QC Samples

a. Method Blank i. Was one method blank reported per matrix, analysis, and 20 samples? Yes ⊠ No □ N/A □ Comments: ii. Are all method blank results less than LOQ (or RL)? Yes ⊠ No □ Comments: iii. If above LOQ or RL, what samples are affected? Comments: There were no detections in the method blanks associated with the project samples. iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes □ No □ N/A ⊠ Comments: See above. v. Data quality or usability affected? Yes □ No ⋈ N/A □ Comments: See above. b. Laboratory Control Sample/Duplicate (LCS/LCSD) i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846) Yes ⊠ No □ N/A □ Comments: LCS/LCSD were reported for method EPA 537(Mod). ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples? Yes □ No □ N/A ⊠ Comments: Metals/Inorganics were not requested as a part of this work order. iii. Accuracy - Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) Yes ⊠ No □ N/A □

CS Site Name: DOT&PF Statewide PFAS: Port Heiden Lab Report No.: 320-943881 iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) Yes ⊠ No □ N/A □ Comments: v. If %R or RPD is outside of acceptable limits, what samples are affected? Comments: None. %R and RPD were within acceptable limits. vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes □ No □ N/A ⊠ Comments: See above. vii. Is the data quality or usability affected? Yes □ No ⋈ N/A □ Comments: See above. c. Matrix Spike/Matrix Spike Duplicate (MS/MSD) i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples? Yes □ No ⋈ N/A □ Comments: MS/MSD samples were not analyzed as a part of this work order; the laboratory analyzed LCS/LCSD samples to assess laboratory accuracy and precision. ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples? Yes □ No □ N/A ⊠ Comments: Metals/Inorganics were not requested as a part of this work order. iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? Yes □ No □ N/A ⊠ Comments: See above iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if

applicable? RPD reported from MS/MSD, and or sample/sample

duplicate.

Yes □ No □ N/A ☒ Comments: See above.

CS Site Name: DOT&PF Statewide PFAS: Port Heiden Lab Report No.: 320-943881 v. If %R or RPD is outside of acceptable limits, what samples are affected? Comments: Not applicable, see above. vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes □ No □ N/A ⊠ Comments: Project samples were not affected. vii. Is the data quality or usability affected? Yes □ No ⋈ N/A □ Comments: See above. d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples? Yes ⊠ No □ N/A □ Comments: ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages) Yes ⊠ No □ N/A □ Comments: iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? Yes □ No □ N/A ⊠ Comments: See above. iv. Is the data quality or usability affected? Yes □ No ⋈ N/A □ Comments: See above. e. Trip Blanks i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes \square No \square N/A \boxtimes Comments: PFAS are not volatile compounds; therefore, a trip blank is not required.

ii. Are all results less than LOQ or RL?

Comments: A trip blank is not required.

Yes □ No □ N/A ⊠

iii. If above LOQ or RL, what samples are affected? Comments: None; a trip blank is not required. iv. Is the data quality or usability affected? Yes □ No □ N/A ⊠ Comments: See above. f. Field Duplicate i. Are one field duplicate submitted per matrix, analysis, and 10 project samples? Yes ⊠ No □ N/A □ Comments: Was the duplicate submitted blind to lab? Yes ⊠ No □ N/A □ Comments: Field duplicate pairs PTH-046/PTH-146, PTH-045/PTH-145, and PTH-016/PTH-116 were submitted with this work order. ii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil) $RPD \ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X \ 100$ Where R_1 = Sample Concentration R_2 = Field Duplicate Concentration Yes ⊠ No □ N/A □ Comments: RPD are within project objectives, where calculable. iii. Is the data quality or usability affected? (Explain) Yes □ No ⋈ N/A □ Comments: See above. g. Decontamination or Equipment Blanks i. Were decontamination or equipment blanks collected? Yes □ No □ N/A ⊠ Comments: Reusable equipment was not used; therefore, an equipment blank is not required. ii. Are all results less than LOQ or RL? Yes □ No □ N/A ⊠ Comments: See above. iii. If above LOQ or RL, specify what samples are affected.

CS Site Name: DOT&PF Statewide PFAS: Port Heiden

Lab Report No.: 320-943881

CS Site Name: DOT&PF Statewide PFAS: Port Heiden
Lab Report No.: 320-943881

Comments: N/A; see above.

iv. Are data quality or usability affected?

Yes \(\subseteq \text{No} \subseteq \text{N/A} \text{ \subseteq}

Comments: See above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a.	Are they	defined and	appropriate?
----	----------	-------------	--------------

Yes ⊠ No □ N/A □ Comments:

The PFOS results for sample *PTH-205* was affected by a transition mass ratio failure and quantified manually. These results are considered estimated, biased high, and have been flagged 'JH' in the analytical tables.

Detectable results have been flagged 'J' and non-detect results have been flagged 'UJ' in the analytical tables for the following samples that were collected outside of standard sampling procedure. These results are considered estimates.

- Stabilization criteria were not met for PTH-020 and PTH-201.
- Samples *PTH-022* and *PTH-212* were sampled through a hose



January 3, 2023

Name General Delivery Port Heiden, AK 99549

RE: RESULTS OF 2022 PFAS WATER SUPPLY WELL SAMPLING, PORT HEIDEN AIRPORT

Thank you for participating in our water supply well sampling program to evaluate the presence of per- and polyfluoroalkyl substances (PFAS) in groundwater near the Port Heiden Airport (PTH). Shannon & Wilson, Inc. collected a water sample from your water supply well at address on date. We have also sent a copy of this letter to your tenant.

The water sample was analyzed for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and several other PFAS compounds. We compare these concentrations to the Alaska Department of Environmental Conservation (DEC) drinking water action level of 70 parts per trillion (ppt) for the sum of PFOS and PFOA. Please note that these units are equivalent to nanograms per liter (ng/L).

Results of the analysis conducted by Eurofins Environment Testing indicate that PFOS was not detected, and PFOA was not detected in the groundwater sample from your well. (Insert detected PFAS) were detected in the sample; however, DEC has not promulgated groundwater or drinking water standards for this/these compounds. The portions of the original laboratory report that apply to your well (sample number PW-039) are enclosed for your records.

Shannon & Wilson has conducted this sampling event on behalf of the Alaska Department of Transportation and Public Facilities (DOT&PF). Please see the enclosed PFAS fact sheet for a link to the DOT&PF project website.

Marilyn Agee January 3, 2023 Page 2

If you have any questions regarding your results, please feel free to contact us.

Sincerely,

SHANNON & WILSON, INC.



Enc: Select Pages of Test America Laboratory Report No. 320-94388-1

PFAS Fact Sheet – Port Heiden Airport

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	ADOT&PF Port Heiden Airport Sitewide	PFAS						
File Number:	er: 2637.38.008							
Completed by:	Shannon & Wilson, Inc.							
about which expo summary text abo	osure pathways should be further in	vestigated dur g exposure pa	partment of Environmental Conservation (DEC) uring site characterization. From this information athways should be submitted with the site					
General Instruct	tions: Follow the italicized instruc	tions in each	section below.					
1. General In Sources (check)	nformation: potential sources at the site)							
☐ USTs		☐ Vehicles	S					
☐ ASTs		☐ Landfill:	ls					
☐ Dispensers/fu	el loading racks	☐ Transfor	rmers					
☐ Drums			Aqueous Film Forming Foam (AFFF) releases					
Release Mechan	nisms (check potential release mech	nanisms at the	e site)					
⊠ Spills		⊠ Direct d	lischarge					
⊠ Leaks		☐ Burning						
		☐ Other:						
Impacted Media	a (check potentially-impacted medic	a at the site)						
✓ Surface soil (, -	⊠ Groundy	water					
Subsurface so Sub	<u> </u>	⊠ Surface	water					
☐ Air		⊠ Biota						
⊠ Sediment		☐ Other:						
Receptors (check	k receptors that could be affected b	y contaminatio	ion at the site)					
⊠ Residents (ad	ult or child)	⊠ Site visi	itor					
	or industrial worker	⊠ Trespass	ser					
▼ Construction	worker	⊠ Recreati	ional user					
⊠ Subsistence h	arvester (i.e. gathers wild foods)	⊠ Farmer						
Subsistence c	onsumer (i.e. eats wild foods)	☐ Other:						

Direct Contact - 1. Incidental Soil Ingestion		
Are contaminants present or potentially present in surface soi (Contamination at deeper depths may require evaluation on a		ne ground surface
If the box is checked, label this pathway complete:	Complete	
Comments:		
PFAS has been detected in groundwater at the site, likely as a result of surface. PFAS affected soil is likely present.	AFFF releases to the ground	
2. Dermal Absorption of Contaminants from Soil		
Are contaminants present or potentially present in surface soi (Contamination at deeper depths may require evaluation on a		ne ground surface
Can the soil contaminants permeate the skin (see Appendix B	×	
If both boxes are checked, label this pathway complete:	Complete	
Comments:		
AFFF releases to the ground surface could cause soil contamination. As Department of Health and Social Services, PFOS and PFOA are not app skin. However, Appendix B of the 2017 Guidance on Developing Conc PFOS and PFOA.	reciably absorbed through the	
Ingestion - 1. Ingestion of Groundwater		
Have contaminants been detected or are they expected to be do or are contaminants expected to migrate to groundwater in the		X
Could the potentially affected groundwater be used as a curre source? Please note, only leave the box unchecked if DEC has water is not a currently or reasonably expected future source to 18 AAC 75.350.	s determined the ground-	X
If both boxes are checked, label this pathway complete:	Complete	
Comments:		
PFAS was detected in groundwater at the site, including residential wa	iter supply wells.	

2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, \overline{X} or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a $\overline{\times}$ drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Complete Comments: We don't anticipate potentially affected surface bodies in the airport vicinity are being used as a drinking water source. However, the potential exists and we consider this pathway potentially complete. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or \overline{X} harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into \overline{X} biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the \overline{X} ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? If both boxes are checked, label this pathway complete: Incomplete Comments:

PFAS are not included in Appendix D.

2. Inhalation of Indoor Air					
Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)					
Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)?					
If both boxes are checked, label this pathway complete:	Incomplete				
Comments:					
PFAS are not included in Appendix D.					

3.	Additional Exposure Pathways: (Although there are no definitive questions provided in this section,
	these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)
De	ermal Exposure to Contaminants in Groundwater and Surface Water
	Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if

 Climate permits recreational use of waters for swimming. Climate permits exposure to groundwater during activities, such as construction. 							
o Groundwater or surface water is used for household purposes, such as bathing or c							
Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of dermal absorption is incorporated into the groundwater exposure equation for residential uses.	± •						
Check the box if further evaluation of this pathway is needed:	X						
Comments:							
According to the Alaska Department of Health and Social Services, PFOS and PFOA are not appreciably absorbed through the skin. However, Appendix B of the 2017 Guidance on Developing Conceptual Site Models lists both PFOS and PFOA. We consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.							
Inhalation of Volatile Compounds in Tap Water							
Inhalation of volatile compounds in tap water may be a complete pathway if: The contaminated water is used for indoor household purposes such as showering, washing.	laundering, and dish						
The contaminants of concern are volatile (common volatile contaminants are listed guidance document.)	in Appendix D in the						
DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway becau vapors during normal household activities is incorporated into the groundwater exposure equa							
Check the box if further evaluation of this pathway is needed:							
Comments:	_						
PFAS are not included in Appendix D.							

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed:

\overline{X}

Comments:

No surface soil samples have been collected at the PTH. However, AFFF was likely released to the ground surface on the lightly graveled runways that can be dusty in the summertime.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- o Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:



Comments:

No sediment samples have been collected at the PTH. However, AFFF was likely release to the ground surface in unpaved and/or lightly graveled areas open to DOT&PF employees and the public. Additionally, local residents use subsistence practices (e.g., berry picking and fishing) that may expose them to sediment.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: ADOT&PF Port Heiden Airport Sitewide PFAS										
Completed By: Shannon & Wilson, Inc.			use controls when describing patr	iways	•					
Date Completed: March 2023							(5)			
(1) (2) Check the media that could be directly affected by the release. For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.	(3) Check all exposure media identified in (2). Exposure Media		(4) Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.	Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure. Current & Future Receptors Courrent & Future Receptors Courrent & Future Receptors Courrent & Future Receptors						
Media Transport Mechanisms			Exposure Pathway/Route							
Surface Soil (0-2 ft bgs) Direct release to surface soil Check soil Alignation to subsurface Check soil Check soil	Exposure in	Jaia		Residents	Commercial or industrial workers	or recreations, trespasser	Farmers or Control	Subsistence Sub	Other	
Runoff or erosion check surface water		✓ Incide	ental Soil Ingestion	C/F	C/F C/	F C/F	C/F	C/F		
Uptake by plants or animals check biota	soil soil	✓ Derm	al Absorption of Contaminants from Soil	I	l l	ı	ı	I		
Other (list):		✓ Inhala	ation of Fugitive Dust	C/F	C/F C/	F C/F	=			
Subsurface Soil Volatilization Check groundwater Check groundwater Check groundwater Check groundwater Check groundwater Check groundwater Check air Check biota Other (list):	groundwater	✓ Derm	ation of Groundwater al Absorption of Contaminants in Groundwater ation of Volatile Compounds in Tap Water	C/F	C/F C	/F C/F	- C/F	C/F		
Ground- water Volatilization	air air	Inhala	ation of Outdoor Air ation of Indoor Air ation of Fugitive Dust							
Surface Water Direct release to surface water Check surface water Check sair Check sair Check sair Check sediment Check sediment Check sediment Check biota	surface water	✓ Derm	tion of Surface Water al Absorption of Contaminants in Surface Water ation of Volatile Compounds in Tap Water	I	l I	I	I	I		
Other (list): J	sediment	V ✓ Direct	t Contact with Sediment	C/F	C/F C/	F C/F	C/F	C/F		
Sediment V Resuspension, runoff, or erosion Check surface water V Uptake by plants or animals Check biota Other (list):	✓ biota	Inges	stion of Wild or Farmed Foods	C/F	C/F C/	F C/F	C/F	C/F		

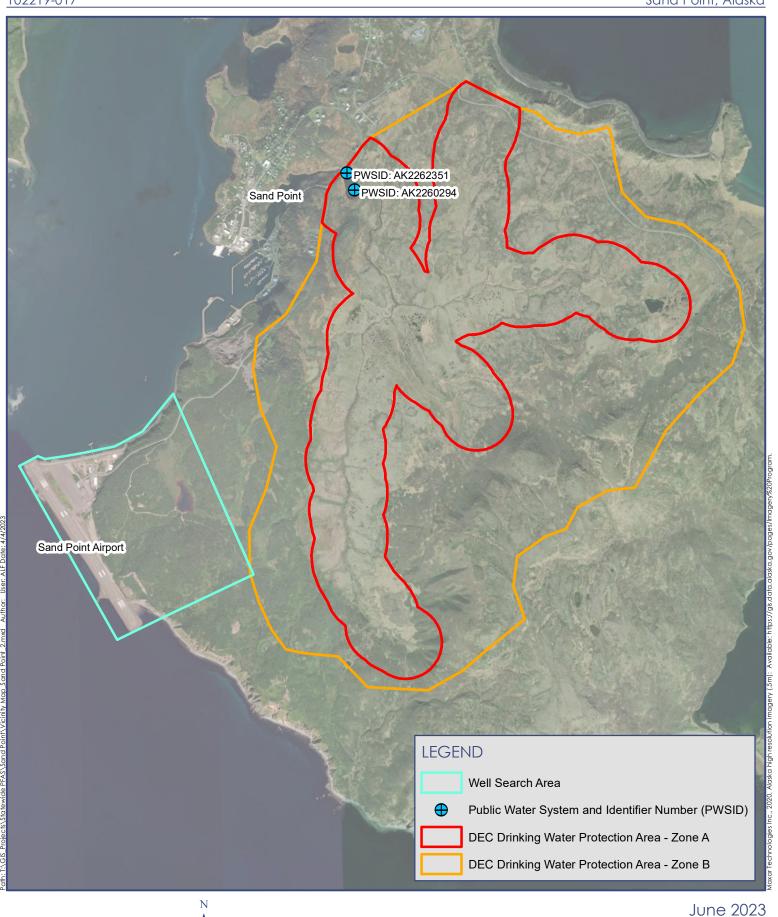
Appendix F

Sand Point Airport Supporting Documents

CONTENTS

- Figure F1 Vicinity Map
- Figure F2 Site Map
- Figure F3 Analytical Sample Results
- Table F1 Sand Point Water Supply Well Analytical Results February 2023
- PFAS Fact Sheet Mailing
- Scanned Sampling Logs and Field Notes
- Analytical Laboratory Reports and Data Review Documentation
- Personalized Results Letter Template
- DEC Conceptual Site Model Scoping and Graphic Forms

102219-017



102219-017





2,000

Notes:

1. AFFF: Aqueous Film Foarming Foam

2. Locations are approximate

3. Samples collected in February 2023 ng/L = nanograms per liter, equivalent to parts per trillion (ppt)

ANALYTICAL RESULTS SUMMARY

Figure F3



Table F1 — Sand Point Water Supply Well Analytical Results - February 2023

Analytical				SDP-001	SDF	P-002	SDP-003
Method	Analyte	Regulatory Limit	Units	2/8/2023	2/8/2023	Duplicate	2/9/2023
	Perfluorooctanesulfonic acid (PFOS)	70+	ng/L	<1.7	18	20	<1.8
	Perfluorooctanoic acid (PFOA)		ng/L	<1.7	4.0	4.4	<1.8
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	10†	ng/L	<3.4	<3.5	<3.5	<3.5
	Perfluorobutanesulfonic acid (PFBS)	2,000†	ng/L	<1.7	1.6J	1.7J	<1.8
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.7	0.41J	0.50JH*	<1.8
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.7	<1.7	<1.8	<1.8
	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	<1.7	22	24	<1.8
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	0.86J	14	16	<1.8
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	<1.7	70	76	<1.8
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.7	1.7	1.8	<1.8
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.7	<1.7	<1.8	<1.8
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.7	<1.7	<1.8	<1.8
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.7	<1.7	<1.8	<1.8
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	N/A	ng/L	<1.7	<1.7	<1.8	<1.8
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	N/A	ng/L	<1.7	<1.7	<1.8	<1.8
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.7	<1.7	<1.8	<1.8
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.2	<4.3	<4.4	<4.4
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.2	<4.3	<4.4	<4.4

Notes: Results reported from Eurofins Environment Testing work order 320-96818-1.

† Final EPA PFAS LHAs (HFPO-DA/PFBS)

‡ DEC Drinking Water Action Level = 70 ng/L for sum of PFOS and PFOA

DEC Alaska Department of Environmental Conservation

EPA United States Environmental Protection Agency

LHA Lifetime Health Advisory

QSM Quality Systems Manual

ng/L nanograms per liter

N/A No applicable regulatory limit exists for the associated analyte.

< Analyte not detected; listed as less than the limit of quanittation (LOQ) unless otherwise flagged due to quality-control failures.</p>

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.

JH* Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

PFAS Fact Sheet –Sand Point Airport

February 2023

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging, and firefighting foams.

The presumed source of potential PFAS in groundwater in your community is the use of a fire-fighting foam called aqueous film forming foam (AFFF). Airport firefighters used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

The Alaska Department of Environmental Conservation (DEC) has adopted the Environmental Protection Agency's former lifetime health advisory (LHA) level for drinking water of **70 parts per trillion** for the sum of PFOS and PFOA. On June 15, 2022, the EPA adopted a revised interim LHA level. DOT&PF will continue to work with our state and federal partners to determine what this means for Alaska and will adjust as more information becomes available.

Website: www.dot.alaska.gov/airportwater/

For questions about well testing:

Shannon & Wilson, Inc.

Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program

Phone: 907-269-3057

Email: bill.oconnell@alaska.gov

For questions about PFAS and health effects:

Alaska Department of Health

Sarah Yoder, Env. Public Health Manager

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

For questions about fire training & other inquiries:

DOT&PF - Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

We advise residents/businesses with test results above the DEC Action Level not to use their water for drinking or cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC Action Level, DOT&PF will assist with access to an alternate source of drinking water.



Private Well Inventory Survey Form
Date:
Physical Address:
Name (Owner): tribe buildly
Name (Occupant):
Mailing Address (Owner): Po 447 99661
Mailing Address (Occupant):
Owner Email: Occupant Email: Precident(a) Shumagin. Gom
Owner Phone: 907 - 383 - 561 6 Occupant Phone: 907 - 386 - 1/64 Tribe Preferred method of contact (circle): Email Phone Phone Cell Glenn Gardns. Number of people residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under) Years at this residence: Full-Time Seasonal
From where do you obtain your drinking water? a) Residential (private) well
2) If you have a private well, please answer the following questions: a) Where is the well located on the property? b) Is the well in use? Yes No
3) If <u>no</u> , is the well usable, unusable, or properly abandoned? Usable Unusable Abandoned Method
If <u>yes</u> , please check all that apply regarding the usage of your well water:
☐ Drinking ☐ Vegetable/grain Gardening
□ Cooking food preparation Size of Garden sq.feet/acres Average watering frequency using well
water? (daily, weekly, etc.)
a) When was the well installed? <u>early 1000s</u> b) What is the well depth? 75 ft.
c) What is the well diameter?
d) What is the well type?
e) Do you have any treatment on your well (e.g. water softener)? Please describe. and there is a way to sample fre there
4) Sample Permission
Does the Shannon & Wilson, Inc. have permission to sample your private well? X Yes No
Signature Date



Water Supply Well Sampling Log				
Owner/Occupant Mailing Address	SDP-00 OTT PO Box 907 383-	× 447 996	Project Number Project Name Date Time ampling Personnel	2/8/23 14 3 0
Purge Location _.	Bathoo	m sint	_	
Sample Location	Battro	on sink		
	SNP-0		Time	1447
Duplicate _.		~	Time	
Pumping Start Time Pumping End Time Gallons per minute Purge Volume (gal.)	1430	Total	Depth of Well (ft.) Laboratory Analysis	~75' EUROLINS PFAS
	FIELD	PARAMETERS [s	tabilization criteria]	1
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1432	16.7	362,1	8188	Clear
1435	9,9	356.9	8.85	Clear
1438	9.4	358,5	8,85	Clear
1444	8.9	359.0	8.86	Clear

Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
1432	16.17	362,1	8188	Clear
1435	9,9	356.9	8.85	Clear
1438	9.4	357.6	8.85	Clear
1441	9.0	358.5	8,85	Clear
1444	8.9	359.0	8.86	Clear
14.47	Sample			
,	ı			
	·			

Notes:	



Private Well Inventory Survey Form	
Date: $\frac{2/8}{23}$	Parcel ID#: 507-062
Physical Address:	
Name (Owner):	(q
Name (Occupant):	
Mailing Address (Owner):	d point Box 4/2
Mailing Address (Occupant):	,
Owner Email:	Occupant Email:
 1) From where do you obtain your drinking water? a) Residential (private) well c) Bottled water 2) If you have a private well, please answer the fol a) Where is the well located on the property? b) Is the well in use? 	b) Community well
3) If no, is the well usable, unusable, or properly al Usable Unusable Abandoned If yes, please check all that apply regarding the Drinking Cooking food preparation Other to less maintaunce de.	bandoned? Method
a) When was the well installed? b) What is the well depth? c) What is the well diameter? d) What is the well type? Dug W	ZCOS SCH Zell Driven
e) Do you have any treatment on your well (e.	N/ C
4) Sample Permission Does the Shannon & Wilson, Inc. have permission	on to sample your private well? Yes No
Signature	 Date



(Water	Supply Well Sa	ampling Log		
Address Owner/Occupant Mailing Address	DOT	Sand Point 412 5000	Project Number	1350	W
Purge Location	SR		by pass	2	
Sample Location	5.	DP-002	SREB sh	op bypass	spigot
	SDP-0		Time	1400)
Duplicate	SDP-10	2	Time	1400	
Pumping Start Time Pumping End Time Gallons per minute Purge Volume (gal.)	14 16	Total	Depth of Well (ft.) Laboratory Analysis	Maybe 7 Eurotins PLAS	5A.
	FIELD	PARAMETERS [stabilization criteria]		
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity	(visual)
1350 1359 1402 1405 1408 1410	13. 1 13. 2 12. 1 12. 1 12. 2 Sample	331. 3 331. 4 313. 5 313. 7 314. 4	7.07 7.17 7.22 7.26 7.27 7.28	Clear Clear Clear Clear Clear	
Notes:					



Private Well Inventory Survey Form Physical Address: _____ Name (Owner): Peter Pan Sea Goods Name (Occupant): Mailing Address (Owner): ____ Mailing Address (Occupant): ___ Occupant Email: __ Owner Email: Owner Phone: Colby Occupant Phone: Preferred method of contact (circle): Email Phone Number of people residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under) Years at this residence: _____ Full-Time Seasonal 1) From where do you obtain your drinking water? a) Residential (private) well b) Community well c) Bottled water d) Other 2) If you have a private well, please answer the following questions: a) Where is the well located on the property?_____ b) Is the well in use? Yes No No 3) If <u>no</u>, is the well usable, unusable, or properly abandoned? Usable Unusable Abandoned Method If yes, please check all that apply regarding the usage of your well water: □ Drinking ☐ Vegetable/grain Gardening -Size of Garden sq.feet/acres □ Cooking food preparation Other Showers, Jounday, toilet -Average watering frequency using well Brita filter for Coffee water? (daily, weekly, etc.) _____ a) When was the well installed? b) What is the well depth? _____ In Known c) What is the well diameter? d) What is the well type? Dug Well Driven Drilled ' e) Do you have any treatment on your well (e.g. water softener)? Please describe. Filtrallow System 4) Sample Permission Does the Shannon & Wilson, Inc. have permission to sample your private well? Signature Date

Water Supply Well Sampling Log

Address Owner/Occupant Mailing Address Telephone	16 BO) 907-38	Pan Sentods 1 168 996 3 - 2822 Se	Date_ Time_ ampling Personnel_	5DP P/AS D/9/23 845 CZH
Purge Location		у .	Bunkhouse	
Sample Location	Pot.	er Pan	Bunkhouse	dypass spigat
Sample No.	SDP-	003	Time _	4
Duplicate			Time_	
Pumping Start Time Pumping End Time Gallons per minute Purge Volume (gal.)	89 09 34		Depth of Well (ft.) _ Laboratory _ Analysis _ stabilization criteria]	
Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
0854	9,	1479	8,41	Clear
0851	11.3	1491	8,61	Clear
B 0900	7/3	1462	8.65	Clear
0905	7, 3	1499	8,65	Clear
0909	Sample	1502	8.61	Clear
0104	Sample			
				· ·
		·····		
N				
Notes:				
			Market Residence	

Geotechnical and Environmental Consultants BY CHRO SHEET of E V. SDP-COIT QTT terminal building, See well log white building with adjust shop although on south end. V. SDP-COI - DOT facility See well log longe blue building adjusted to airport fence South end of naway V. SDP-COI - Peter Pan Seafoods bunkhouse to building teal roof, see well log V. SDP-COI - Rayn terminal building. No well New Tan building white hauls in water, trim and blue roof and of building white hauls in water, trim and blue roof. V. SDP-COI - Two boy red building for stonge. V. SDP-COI - DOIT Sand building see DOT well Survey form. Two boy blue building	SHANNON & WILSON, INC.	JOB NAMESUBJECT	JOB NO. DATE 21812623
white building with addied that although on South and. SDP-002. Dot facility see well log large blue building adjusted to airport fence south and of naway Tence south and of naway Tence south and of naway To support the building teal root, soe well log To support the building teal root, soe well log The building teal root, soe well log The building while hauts in water, thin and blue root The building while hauts in water, thin and blue root The bay red building for stonge, No well SDP-005 - Two boy red building for stonge. The support form. Two boy blue building SDP-006 - One boy blue building for stonge. SDP-008 - Peter Pan house for employees where some building screens see pater from well form. Has water Rumbed from same well as Building, has maker Rumbed from same well as Building, has maker Rumbed from same well as Building, has maker Rumbed from same well as Building. SDP-009 SMILIT TAN - Peter Pan Stonge No wall Pale Green one building SDP-010 - Peter Pan Stonge No wall lange, long stop		CHK'D	SHEET of
longe blue building adjacent to airport fonce South and of runway V. SDP-003- Peter Pan Seafoods bunkhouse tun building teal roof, Soe well loy V. SDP-004- Raven terminal building. No well New Tan building while hauls in water trim and blue roof 9077-383-6000 Garase door south end of building V. SDP-005- Two boy red building for stonge, No well V. SDP-005- Two boy red building for stonge, No well SDP-006- One has blue building for stonge. V. SDP-008- Peter Pan house for employees where Ton building Scott I was while working here. See pater from well form, Has water Plumbed from same well as Bunkhouse. V. SDP-009- Peter Pan afflice building, has made water building plumbed from same well as Bunkhouse. V. SDP-010- Peter Pan Stonge No well lange, long shop	v. SDP-col	- QTT terminal building, with adjustered.	See well log
tun building teal roof, soe well log 1	V. SAP - 002 -	large blue building adj	acent to airport
hauls in water, trim and blue roof 907-383-GOOD Garage door south end of building 1. SDP-005-Two boy red building for stonge. No well SDP-006-One has blue building for stonge. SDP-008-Peter Pan house for employees where Tun building Scott lives while working have. See Green roof Peter Pan house for employees where Tun building Scott lives while working have. See Green roof Peter Pan well form. Has water Rumbed from same well as Building, has well working building Peter Pan affice building, has seen building SDP-009 Smaller Tan - Peter Pan affice building. has seen one bay building Power Pan Storage No well Pale Green one bay SDP-010-Peter Pan Storage No well linge, long shop			
SDP-006 - One bay blue building for storage. SDP-007 - DOT Sand building, see DOT well Survey form. Two bay blue building SDP-008 - Peter Pan house for employees, where Tun building Scott I ves while working have. See Green rook poter Pan well form. Has water Rumbed from same well as Bunkhouse, SMAILLE Tan - Peter Pan Affice building, has made water building plumbed from same well as Bunkhouse. SDP-010 - Peter Pan Storage No well large, long shop		hauls in water tim a	Tan building white and blue roof bouth
SDP-007 - DOT Sand building, see DOT well Survey form. Two boys blue building SDP-008 - Peter Pan house for employees, where Ton building Scott lives while working here. See green roof peter Pan well form. Has worder Plumbed from same well as Bunkhouse, SDP-009 Smaller Tan - Peter Pan Office building, has most water building plumbed from same well as Bunkhouse. SDP-010 - Peter Pan Storage No well Pale Green one boy SDP-011 - Peter Pan Storage No well lange, long shop			
SDP-008 - Peter Pan house for employees where Jan building Scott I was while working hare. See green roof Peter Pan well form. Has motor plumbed from same well as Bunkhouse. Smaller Tan - Peter Pan office building has motor building plumbed from same well as Bunkhouse. green of Peter Pan office building has motor building plumbed from same well as Bunkhouse. green of Peter Pan Storage No well Pale Green one bank SDP-010 - Peter Pan Storage No well large, long shop	V SAP - 006 -	- One bay blue buildly fo	or stonge
Jan bildhy Scott I ves while working here. See green roof fear fam well form. Has woder Plumbed from same well as Bunkhouse, SMAILLE Tan - Peter fan affice building, has woder building plumbed from same well as Bunkhouse. from SAP-010 - Peter fan Storage No well Pale Green one ba CAP-011 - Peter fan Storage No well lage, long shop	SAP - 007 -	- DOT Sand building Survey form. Two boy k	, see bot well stue building
Smaller Tan Teter for office building, has more work word building plumbed from some well as Bunkthouse. SDP-010 + Peter fan Storage No well Pale Green one bay SDP-011 + Peter fan Storage No well large, long shop	Jan buildhy green roof	Peter Pan well form.	Has moder Plumbed
SAP-011 + Peter Pan Storage No well large, long shop 10 SAP-012 - Peter Pan Storage No well large, long shop 10 SAP-012 - Peter Pan Storage No well 10 large long shop across the street, Pale	Smaller Tan +	Peter Pan affice build! plumbed from some well as	Bonkhouse.
	. CDP-011 +	Peter Pan Storage No in Peter Pan Storage No in Peter Pan Storage No in large long Stop across the	ell large, long shop ell street, Pale

Peter fan SDP-013 - Two buildings adjacent to each other, Blue on the North side, ton on the South, No well. 1. SDP-014 - Peter fan Storage, No well

Tan building Northeast end of facility

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kristen Freiburger Shannon & Wilson, Inc 2355 Hill Rd. Fairbanks, Alaska 99709-5244

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JOB DESCRIPTION

Sand Point DOT PFAS

JOB NUMBER

320-96818-1

Eurofins Sacramento 880 Riverside Parkway West Sacramento CA 95605



Eurofins Sacramento

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northern California, LLC Project Manager.

Authorization

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Authorized for release by David Alltucker, Project Manager I David.Alltucker@et.eurofinsus.com (916)374-4383

Client: Shannon & Wilson, Inc Project/Site: Sand Point DOT PFAS Laboratory Job ID: 320-96818-1

Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Isotope Dilution Summary	11
QC Sample Results	12
QC Association Summary	15
Lab Chronicle	16
Certification Summary	17
Method Summary	18
Sample Summary	19
Chain of Custody	20
Receipt Checklists	21

8

9

11

12

14

15

Definitions/Glossary

Client: Shannon & Wilson, Inc Job ID: 320-96818-1

Project/Site: Sand Point DOT PFAS

Qualifiers

LCMS

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin) LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" Minimum Detectable Activity (Radiochemistry) MDA MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit Minimum Level (Dioxin) ML Most Probable Number MPN MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

Practical Quantitation Limit PQL

PRES Presumptive **Quality Control** QC

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) Toxicity Equivalent Quotient (Dioxin) **TEQ**

TNTC Too Numerous To Count

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Page 4 of 21 3/3/2023

Case Narrative

Client: Shannon & Wilson, Inc
Project/Site: Sand Point DOT PFAS

Job ID: 320-96818-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-96818-1

Receipt

The samples were received on 2/15/2023 12:41 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.4° C.

LCMS

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte: SDP-102 (320-96818-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-654144.

Method 3535: The following samples contained a thin layer of sediment at the bottom of the bottle prior to extraction: SDP-002 (320-96818-2) and SDP-102 (320-96818-3). preparation batch 320-654144

Method 3535: The following samples were light yellow prior to extraction: SDP-001 (320-96818-1) and SDP-003 (320-96818-4). preparation batch 320-654144

Method 3535: During the solid phase extraction process, the following samples contained non-settable particulates which clogged the solid phase extraction column: SDP-002 (320-96818-2) and SDP-102 (320-96818-3). preparation batch 320-654144

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 320-96818-1

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Detection Summary

Client: Shannon & Wilson, Inc Project/Site: Sand Point DOT PFAS Job ID: 320-96818-1

Client Sample ID: SDP-001	Lab Sample ID: 320-96818-1
_	

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (F	PFHxS) 0.86	J	1.7	0.48	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: SDP-002 Lab Sample ID: 320-96818-2

Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	70	1.7	0.50	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	22	1.7	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	4.0	1.7	0.74	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	1.7	1.7	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.41 J	1.7	0.27	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.6 J	1.7	0.17	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	14	1.7	0.49	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	18	1.7	0.47	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: SDP-102 Lab Sample ID: 320-96818-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	76		1.8	0.51	ng/L	1	_	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	24		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	4.4		1.8	0.75	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	1.8		1.8	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.50	JI	1.8	0.27	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.7	J	1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	16		1.8	0.50	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	20		1.8	0.48	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: SDP-003

Lab Sample ID: 320-96818-4

No Detections.

This Detection Summary does not include radiochemical test results.

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3/3/2023

Page 6 of 21

2

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1:

Client: Shannon & Wilson, Inc Job ID: 320-96818-1 Project/Site: Sand Point DOT PFAS

Client Sample ID: SDP-001

Lab Sample ID: 320-96818-1

Date Collected: 02/08/23 14:47 **Matrix: Water** Date Received: 02/15/23 12:41

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.49	ng/L		02/16/23 11:37	03/01/23 09:02	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.21	ng/L		02/16/23 11:37	03/01/23 09:02	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.72	ng/L		02/16/23 11:37	03/01/23 09:02	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		02/16/23 11:37	03/01/23 09:02	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		02/16/23 11:37	03/01/23 09:02	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.93	ng/L		02/16/23 11:37	03/01/23 09:02	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		02/16/23 11:37	03/01/23 09:02	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		02/16/23 11:37	03/01/23 09:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.62	ng/L		02/16/23 11:37	03/01/23 09:02	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		02/16/23 11:37	03/01/23 09:02	1
Perfluorohexanesulfonic acid	0.86	J	1.7	0.48	ng/L		02/16/23 11:37	03/01/23 09:02	1
(PFHxS)					· ·				
Perfluorooctanesulfonic acid (PFOS)	ND		1.7		ng/L		02/16/23 11:37	03/01/23 09:02	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.2	1.0	ng/L		02/16/23 11:37	03/01/23 09:02	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.2	1.1	ng/L		02/16/23 11:37	03/01/23 09:02	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.7	0.20	ng/L		02/16/23 11:37	03/01/23 09:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.4	1.3	ng/L		02/16/23 11:37	03/01/23 09:02	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.7	0.27	ng/L		02/16/23 11:37	03/01/23 09:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		02/16/23 11:37	03/01/23 09:02	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		50 - 150				•	03/01/23 09:02	1
13C4 PFHpA	101		50 ₋ 150					03/01/23 09:02	1
13C4 PFOA	105		50 ₋ 150				02/16/23 11:37	03/01/23 09:02	1
13C5 PFNA	102		50 ₋ 150				02/16/23 11:37	03/01/23 09:02	1
13C2 PFDA	104		50 - 150					03/01/23 09:02	1
13C2 PFUnA	110		50 - 150					03/01/23 09:02	1
13C2 PFDoA	104		50 ₋ 150					03/01/23 09:02	1
13C2 PFTeDA	97		50 - 150 50 - 150					03/01/23 09:02	. 1
10021110011	103		50 - 150 50 - 150					03/01/23 09:02	. 1
13C3 PEBS	1113						02, 10, 20 11.01	33,01,20 00.02	'
13C3 PFBS 18O2 PFHxS			50 - 150				02/16/23 11:37	03/01/23 09:02	1
1802 PFHxS	104		50 - 150 50 - 150					03/01/23 09:02	
18O2 PFHxS 13C4 PFOS	104 105		50 - 150				02/16/23 11:37	03/01/23 09:02	
1802 PFHxS	104						02/16/23 11:37 02/16/23 11:37		1 1 1

Client: Shannon & Wilson, Inc Job ID: 320-96818-1 Project/Site: Sand Point DOT PFAS

Client Sample ID: SDP-002

Lab Sample ID: 320-96818-2

Date Collected: 02/08/23 14:10 **Matrix: Water** Date Received: 02/15/23 12:41

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	70		1.7	0.50	ng/L		02/16/23 11:37	03/01/23 09:12	
Perfluoroheptanoic acid (PFHpA)	22		1.7	0.22	ng/L		02/16/23 11:37	03/01/23 09:12	•
Perfluorooctanoic acid (PFOA)	4.0		1.7	0.74	ng/L		02/16/23 11:37	03/01/23 09:12	•
Perfluorononanoic acid (PFNA)	1.7		1.7	0.23	ng/L		02/16/23 11:37	03/01/23 09:12	
Perfluorodecanoic acid (PFDA)	0.41	J	1.7	0.27	ng/L		02/16/23 11:37	03/01/23 09:12	•
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		02/16/23 11:37	03/01/23 09:12	•
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		02/16/23 11:37	03/01/23 09:12	
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		02/16/23 11:37	03/01/23 09:12	•
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		02/16/23 11:37	03/01/23 09:12	
Perfluorobutanesulfonic acid (PFBS)	1.6	J	1.7	0.17	ng/L		02/16/23 11:37	03/01/23 09:12	
Perfluorohexanesulfonic acid (PFHxS)	14		1.7	0.49	ng/L		02/16/23 11:37	03/01/23 09:12	•
Perfluorooctanesulfonic acid (PFOS)	18		1.7	0.47	ng/L		02/16/23 11:37	03/01/23 09:12	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.3	1.0	ng/L		02/16/23 11:37	03/01/23 09:12	,
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.3	1.1	ng/L		02/16/23 11:37	03/01/23 09:12	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.7	0.21	ng/L		02/16/23 11:37	03/01/23 09:12	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5		ng/L		02/16/23 11:37	03/01/23 09:12	,
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.7		ng/L		02/16/23 11:37	03/01/23 09:12	•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		02/16/23 11:37	03/01/23 09:12	•
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	97		50 - 150				02/16/23 11:37	03/01/23 09:12	
13C4 PFHpA	86		50 - 150				02/16/23 11:37	03/01/23 09:12	
13C4 PFOA	88		50 - 150				02/16/23 11:37	03/01/23 09:12	7
13C5 PFNA	84		50 - 150				02/16/23 11:37	03/01/23 09:12	
13C2 PFDA	80		50 - 150				02/16/23 11:37	03/01/23 09:12	
13C2 PFUnA	79		50 - 150				02/16/23 11:37	03/01/23 09:12	
13C2 PFDoA	72		50 - 150				02/16/23 11:37	03/01/23 09:12	
13C2 PFTeDA	65		50 - 150				02/16/23 11:37	03/01/23 09:12	
13C3 PFBS	88		50 - 150				02/16/23 11:37	03/01/23 09:12	
1802 PFHxS	86		50 - 150				02/16/23 11:37	03/01/23 09:12	
13C4 PFOS	82		50 - 150				02/16/23 11:37	03/01/23 09:12	
d3-NMeFOSAA	85		50 - 150				02/16/23 11:37	03/01/23 09:12	-
d5-NEtFOSAA	84		50 - 150				02/16/23 11:37	03/01/23 09:12	
13C3 HFPO-DA	83		50 ₋ 150				02/16/23 11:37	03/01/23 09:12	

Client: Shannon & Wilson, Inc Job ID: 320-96818-1 Project/Site: Sand Point DOT PFAS

Client Sample ID: SDP-102 Lab Sample ID: 320-96818-3 Date Collected: 02/08/23 14:00 **Matrix: Water**

Date Received: 02/15/23 12:41

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	76		1.8	0.51	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluoroheptanoic acid (PFHpA)	24		1.8	0.22	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluorooctanoic acid (PFOA)	4.4		1.8	0.75	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluorononanoic acid (PFNA)	1.8		1.8	0.24	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluorodecanoic acid (PFDA)	0.50	JI	1.8	0.27	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluorobutanesulfonic acid (PFBS)	1.7	J	1.8	0.18	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluorohexanesulfonic acid (PFHxS)	16		1.8	0.50	ng/L		02/16/23 11:37	03/01/23 09:22	1
Perfluorooctanesulfonic acid (PFOS)	20		1.8		ng/L		02/16/23 11:37	03/01/23 09:22	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		02/16/23 11:37	03/01/23 09:22	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.4		ng/L		02/16/23 11:37	03/01/23 09:22	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.21	ng/L		02/16/23 11:37	03/01/23 09:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5		ng/L		02/16/23 11:37	03/01/23 09:22	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.28	ng/L		02/16/23 11:37	03/01/23 09:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		02/16/23 11:37	03/01/23 09:22	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	88		50 - 150				02/16/23 11:37	03/01/23 09:22	1
13C4 PFHpA	78		50 - 150				02/16/23 11:37	03/01/23 09:22	1
13C4 PFOA	85		50 - 150				02/16/23 11:37	03/01/23 09:22	1
13C5 PFNA	76		50 - 150				02/16/23 11:37	03/01/23 09:22	1
13C2 PFDA	76		50 - 150				02/16/23 11:37	03/01/23 09:22	1
13C2 PFUnA	74		50 - 150				02/16/23 11:37	03/01/23 09:22	1
13C2 PFDoA	66		50 - 150				02/16/23 11:37	03/01/23 09:22	1
13C2 PFTeDA	61		50 - 150				02/16/23 11:37	03/01/23 09:22	1
13C3 PFBS	79		50 - 150				02/16/23 11:37	03/01/23 09:22	1
1802 PFHxS	77		50 - 150				02/16/23 11:37	03/01/23 09:22	1
13C4 PFOS	76		50 - 150				02/16/23 11:37	03/01/23 09:22	1
d3-NMeFOSAA	79		50 - 150				02/16/23 11:37	03/01/23 09:22	1
d5-NEtFOSAA	81		50 - 150				02/16/23 11:37	03/01/23 09:22	1
13C3 HFPO-DA	77		50 ₋ 150				00/16/00 11:07	03/01/23 09:22	1

Client: Shannon & Wilson, Inc Job ID: 320-96818-1 Project/Site: Sand Point DOT PFAS

Client Sample ID: SDP-003

Lab Sample ID: 320-96818-4 Date Collected: 02/09/23 09:09

Matrix: Water Date Received: 02/15/23 12:41

Analyte	Result (Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.51	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.75	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		02/16/23 11:37	03/01/23 09:32	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		02/16/23 11:37	03/01/23 09:32	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		02/16/23 11:37	03/01/23 09:32	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.4	1.2	ng/L		02/16/23 11:37	03/01/23 09:32	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.21	ng/L		02/16/23 11:37	03/01/23 09:32	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		02/16/23 11:37	03/01/23 09:32	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.28	ng/L		02/16/23 11:37	03/01/23 09:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		02/16/23 11:37	03/01/23 09:32	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	111		50 - 150				02/16/23 11:37	03/01/23 09:32	1
13C4 PFHpA	106		50 - 150				02/16/23 11:37	03/01/23 09:32	1
13C4 PFOA	107		50 - 150				02/16/23 11:37	03/01/23 09:32	1
13C5 PFNA	106		50 - 150				02/16/23 11:37	03/01/23 09:32	1
13C2 PFDA	108		50 - 150				02/16/23 11:37	03/01/23 09:32	1
13C2 PFUnA	109		50 - 150				02/16/23 11:37	03/01/23 09:32	1
13C2 PFDoA	104		50 - 150				02/16/23 11:37	03/01/23 09:32	1
13C2 PFTeDA	81		50 - 150				02/16/23 11:37	03/01/23 09:32	1
13C3 PFBS	104		50 - 150				02/16/23 11:37	03/01/23 09:32	1
1802 PFHxS	101		50 - 150				02/16/23 11:37	03/01/23 09:32	1
13C4 PFOS	100		50 - 150				02/16/23 11:37	03/01/23 09:32	1
d3-NMeFOSAA	112		50 - 150					03/01/23 09:32	1
d5-NEtFOSAA	120		50 - 150					03/01/23 09:32	1
13C3 HFPO-DA	106		50 - 150					03/01/23 09:32	1

Isotope Dilution Summary

Client: Shannon & Wilson, Inc Project/Site: Sand Point DOT PFAS Job ID: 320-96818-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Control Sample

Method Blank

Lab Control Sample Dup

Matrix: Water Prep Type: Total/NA

			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTDA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-96818-1	SDP-001	108	101	105	102	104	110	104	97
320-96818-2	SDP-002	97	86	88	84	80	79	72	65
320-96818-3	SDP-102	88	78	85	76	76	74	66	61
320-96818-4	SDP-003	111	106	107	106	108	109	104	81
LCS 320-654144/2-A	Lab Control Sample	107	105	108	104	109	104	106	109
LCSD 320-654144/3-A	Lab Control Sample Dup	104	102	108	102	107	106	101	104
MB 320-654144/1-A	Method Blank	104	102	107	107	107	110	102	107
			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
320-96818-1	SDP-001	103	104	105	125	127	100		
320-96818-2	SDP-002	88	86	82	85	84	83		
320-96818-3	SDP-102	79	77	76	79	81	77		
320-96818-4	SDP-003	104	101	100	112	120	106		

102

105

98

103

106

103

113

111

118

121

117

128

101

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105

107

103

101

Surrogate	hnana I

LCS 320-654144/2-A

MB 320-654144/1-A

LCSD 320-654144/3-A

PFHxA = 13C2 PFHxA

C4PFHA = 13C4 PFHpA

PFOA = 13C4 PFOA

PFNA = 13C5 PFNA

PFDA = 13C2 PFDA

PFUnA = 13C2 PFUnA

PFDoA = 13C2 PFDoA

PFTDA = 13C2 PFTeDA

C3PFBS = 13C3 PFBS

PFHxS = 18O2 PFHxS

PFOS = 13C4 PFOS

d3NMFOS = d3-NMeFOSAA

d5NEFOS = d5-NEtFOSAA

HFPODA = 13C3 HFPO-DA

Client: Shannon & Wilson, Inc Job ID: 320-96818-1 Project/Site: Sand Point DOT PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-654144/1-A

Matrix: Water

Analysis Batch: 657267

Hexafluoropropylene Oxide Dimer

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 654144

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Analyte Perfluorohexanoic acid (PFHxA) ND 2.0 0.58 ng/L 02/16/23 11:37 03/01/23 08:11 Perfluoroheptanoic acid (PFHpA) ND 2.0 0.25 ng/L 02/16/23 11:37 03/01/23 08:11 Perfluorooctanoic acid (PFOA) 2.0 ND 0.85 ng/L 02/16/23 11:37 03/01/23 08:11 Perfluorononanoic acid (PFNA) ND 2.0 0.27 ng/L 02/16/23 11:37 03/01/23 08:11 0.31 ng/L 02/16/23 11:37 03/01/23 08:11 Perfluorodecanoic acid (PFDA) ND 2.0 Perfluoroundecanoic acid (PFUnA) ND 2.0 02/16/23 11:37 03/01/23 08:11 1.1 ng/L Perfluorododecanoic acid (PFDoA) ND 2.0 02/16/23 11:37 03/01/23 08:11 0.55 ng/L Perfluorotridecanoic acid (PFTriA) ND 2.0 1.3 ng/L 02/16/23 11:37 03/01/23 08:11 02/16/23 11:37 03/01/23 08:11 Perfluorotetradecanoic acid (PFTeA) ND 20 0.73 ng/L Perfluorobutanesulfonic acid (PFBS) ND 2.0 0.20 ng/L 02/16/23 11:37 03/01/23 08:11

02/16/23 11:37 03/01/23 08:11 Perfluorohexanesulfonic acid (PFHxS) ND 2.0 0.57 ng/L Perfluorooctanesulfonic acid (PFOS) ND 2.0 0.54 ng/L 02/16/23 11:37 03/01/23 08:11 N-methylperfluorooctanesulfonamidoa ND 5.0 1.2 ng/L 02/16/23 11:37 03/01/23 08:11 cetic acid (NMeFOSAA)

ND 5.0 1.3 ng/L 02/16/23 11:37 03/01/23 08:11 N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 02/16/23 11:37 03/01/23 08:11 9-Chlorohexadecafluoro-3-oxanonan ND 2.0 0.24 ng/L e-1-sulfonic acid

4.0

2.0

1.5 ng/L

ND

ND

Acid (HFPO-DA) ND 2.0 0.32 ng/L 02/16/23 11:37 03/01/23 08:11 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 0.40 ng/L 4,8-Dioxa-3H-perfluorononanoic acid 02/16/23 11:37 03/01/23 08:11

(ADONA)

	MB	MB				
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		50 - 150	02/16/23 11:37	03/01/23 08:11	1
13C4 PFHpA	102		50 - 150	02/16/23 11:37	03/01/23 08:11	1
13C4 PFOA	107		50 - 150	02/16/23 11:37	03/01/23 08:11	1
13C5 PFNA	107		50 - 150	02/16/23 11:37	03/01/23 08:11	1
13C2 PFDA	107		50 - 150	02/16/23 11:37	03/01/23 08:11	1
13C2 PFUnA	110		50 - 150	02/16/23 11:37	03/01/23 08:11	1
13C2 PFDoA	102		50 - 150	02/16/23 11:37	03/01/23 08:11	1
13C2 PFTeDA	107		50 - 150	02/16/23 11:37	03/01/23 08:11	1
13C3 PFBS	101		50 - 150	02/16/23 11:37	03/01/23 08:11	1
1802 PFHxS	98		50 - 150	02/16/23 11:37	03/01/23 08:11	1
13C4 PFOS	103		50 - 150	02/16/23 11:37	03/01/23 08:11	1
d3-NMeFOSAA	118		50 - 150	02/16/23 11:37	03/01/23 08:11	1
d5-NEtFOSAA	128		50 - 150	02/16/23 11:37	03/01/23 08:11	1
13C3 HFPO-DA	105		50 - 150	02/16/23 11:37	03/01/23 08:11	1

Lab Sample ID: LCS 320-654144/2-A

Matrix: Water

Analysis Batch: 657267

Client Sample ID: Lab Control Sample Prep Type: Total/NA

02/16/23 11:37 03/01/23 08:11

Prep Batch: 654144

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	40.0	38.5		ng/L		96	72 - 129	
Perfluoroheptanoic acid (PFHpA)	40.0	41.1		ng/L		103	72 - 130	
Perfluorooctanoic acid (PFOA)	40.0	39.5		ng/L		99	71 - 133	
Perfluorononanoic acid (PFNA)	40.0	42.2		ng/L		105	69 - 130	

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Page 12 of 21

Client: Shannon & Wilson, Inc Project/Site: Sand Point DOT PFAS Job ID: 320-96818-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-654144/2-A

Matrix: Water

Analysis Batch: 657267

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 654144

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorodecanoic acid (PFDA)	40.0	41.9		ng/L		105	71 - 129	
Perfluoroundecanoic acid	40.0	43.0		ng/L		107	69 - 133	
(PFUnA)								
Perfluorododecanoic acid	40.0	41.8		ng/L		105	72 - 134	
(PFDoA)								
Perfluorotridecanoic acid	40.0	40.8		ng/L		102	65 - 144	
(PFTriA)								
Perfluorotetradecanoic acid	40.0	41.8		ng/L		105	71 - 132	
(PFTeA)								
Perfluorobutanesulfonic acid	35.5	36.9		ng/L		104	72 - 130	
(PFBS)								
Perfluorohexanesulfonic acid	36.5	35.9		ng/L		98	68 - 131	
(PFHxS)								
Perfluorooctanesulfonic acid	37.2	37.0		ng/L		99	65 - 140	
(PFOS)								
N-methylperfluorooctanesulfona	40.0	41.1		ng/L		103	65 - 136	
midoacetic acid (NMeFOSAA)								
N-ethylperfluorooctanesulfonami	40.0	40.3		ng/L		101	61 - 135	
doacetic acid (NEtFOSAA)	07.4	07.0		,,		404	77 407	
9-Chlorohexadecafluoro-3-oxan	37.4	37.8		ng/L		101	77 - 137	
onane-1-sulfonic acid	40.0						70 400	
Hexafluoropropylene Oxide	40.0	39.5		ng/L		99	72 - 132	
Dimer Acid (HFPO-DA)	07.0	00.5				400	70 400	
11-Chloroeicosafluoro-3-oxaund	37.8	38.5		ng/L		102	76 - 136	
ecane-1-sulfonic acid	27.0	44.7		/1		440	04 444	
4,8-Dioxa-3H-perfluorononanoic	37.8	41.7		ng/L		110	81 - 141	
acid (ADONA)								

LCS LCS

	LUU	L03	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	107		50 - 150
13C4 PFHpA	105		50 - 150
13C4 PFOA	108		50 - 150
13C5 PFNA	104		50 - 150
13C2 PFDA	109		50 - 150
13C2 PFUnA	104		50 - 150
13C2 PFDoA	106		50 - 150
13C2 PFTeDA	109		50 - 150
13C3 PFBS	107		50 - 150
1802 PFHxS	102		50 - 150
13C4 PFOS	103		50 - 150
d3-NMeFOSAA	113		50 - 150
d5-NEtFOSAA	121		50 - 150
13C3 HFPO-DA	101		50 - 150
<u></u>			

Lab Sample ID: LCSD 320-654144/3-A

Matrix: Water

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA **Prep Batch: 654144**

%Rec **RPD** Limits RPD Limit 72 - 129 8 30

Analysis Batch: 657267 Spike LCSD LCSD Analyte Added Result Qualifier Unit D %Rec Perfluorohexanoic acid (PFHxA) 40.0 104 41.6 ng/L Perfluoroheptanoic acid (PFHpA) 40.0 41.4 ng/L 104 72 - 130 30 Perfluorooctanoic acid (PFOA) 40.0 39.6 ng/L 99 71 - 133 0 30

Eurofins Sacramento

Page 13 of 21

QC Sample Results

Client: Shannon & Wilson, Inc Job ID: 320-96818-1

Project/Site: Sand Point DOT PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-654144/3-A	
------------------------------------	--

Matrix: Water

Analysis Batch: 657267

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 654144

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorononanoic acid (PFNA)	40.0	44.1		ng/L		110	69 - 130	5	30
Perfluorodecanoic acid (PFDA)	40.0	41.5		ng/L		104	71 - 129	1	30
Perfluoroundecanoic acid (PFUnA)	40.0	41.8		ng/L		104	69 - 133	3	30
Perfluorododecanoic acid (PFDoA)	40.0	43.1		ng/L		108	72 - 134	3	30
Perfluorotridecanoic acid (PFTriA)	40.0	44.5		ng/L		111	65 - 144	9	30
Perfluorotetradecanoic acid (PFTeA)	40.0	42.5		ng/L		106	71 - 132	2	30
Perfluorobutanesulfonic acid (PFBS)	35.5	37.0		ng/L		104	72 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.2		ng/L		97	68 - 131	2	30
Perfluorooctanesulfonic acid (PFOS)	37.2	37.3		ng/L		100	65 - 140	1	30
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	40.8		ng/L		102	65 - 136	1	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	40.0	41.4		ng/L		104	61 - 135	3	30
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid	37.4	37.9		ng/L		101	77 - 137	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	41.6		ng/L		104	72 - 132	5	30
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid	37.8	37.7		ng/L		100	76 - 136	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	40.3		ng/L		107	81 - 141	3	30

LCSD LCSD

_005	_002	
%Recovery	Qualifier	Limits
104		50 - 150
102		50 - 150
108		50 - 150
102		50 - 150
107		50 - 150
106		50 - 150
101		50 - 150
104		50 - 150
103		50 - 150
105		50 - 150
106		50 - 150
111		50 - 150
117		50 - 150
95		50 - 150
	104 102 108 102 107 106 101 104 103 105 106 111	102 108 102 107 106 101 104 103 105 106 111

QC Association Summary

Client: Shannon & Wilson, Inc
Project/Site: Sand Point DOT PFAS

Job ID: 320-96818-1

LCMS

Prep Batch: 654144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-96818-1	SDP-001	Total/NA	Water	3535	
320-96818-2	SDP-002	Total/NA	Water	3535	
320-96818-3	SDP-102	Total/NA	Water	3535	
320-96818-4	SDP-003	Total/NA	Water	3535	
MB 320-654144/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-654144/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-654144/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 657267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-96818-1	SDP-001	Total/NA	Water	EPA 537(Mod)	654144
320-96818-2	SDP-002	Total/NA	Water	EPA 537(Mod)	654144
320-96818-3	SDP-102	Total/NA	Water	EPA 537(Mod)	654144
320-96818-4	SDP-003	Total/NA	Water	EPA 537(Mod)	654144
MB 320-654144/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	654144
LCS 320-654144/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	654144
LCSD 320-654144/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	654144

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Lab Chronicle

Client: Shannon & Wilson, Inc Project/Site: Sand Point DOT PFAS

Lab Sample ID: 320-96818-1

Matrix: Water

Matrix: Water

Job ID: 320-96818-1

Date Collected: 02/08/23 14:47 Date Received: 02/15/23 12:41

Client Sample ID: SDP-001

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			295.2 mL	10.0 mL	654144	02/16/23 11:37	SEY	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	657267	03/01/23 09:02	K1S	EET SAC

Client Sample ID: SDP-002 Lab Sample ID: 320-96818-2 Date Collected: 02/08/23 14:10 **Matrix: Water**

Date Received: 02/15/23 12:41

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			288.6 mL	10.0 mL	654144	02/16/23 11:37	SEY	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	657267	03/01/23 09:12	K1S	EET SAC

Lab Sample ID: 320-96818-3 **Client Sample ID: SDP-102**

Date Collected: 02/08/23 14:00

Date Received: 02/15/23 12:41

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			282.3 mL	10.0 mL	654144	02/16/23 11:37	SEY	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	657267	03/01/23 09:22	K1S	EET SAC

Client Sample ID: SDP-003 Lab Sample ID: 320-96818-4 Date Collected: 02/09/23 09:09 **Matrix: Water**

Date Received: 02/15/23 12:41

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			281.8 mL	10.0 mL	654144	02/16/23 11:37	SEY	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	657267	03/01/23 09:32	K1S	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Page 16 of 21

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc Job ID: 320-96818-1

Project/Site: Sand Point DOT PFAS

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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Method Summary

Client: Shannon & Wilson, Inc Project/Site: Sand Point DOT PFAS Job ID: 320-96818-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	EET SAC
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Eurofins Sacramento

Sample Summary

Client: Shannon & Wilson, Inc Project/Site: Sand Point DOT PFAS Job ID: 320-96818-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-96818-1	SDP-001	Water	02/08/23 14:47	02/15/23 12:41
320-96818-2	SDP-002	Water	02/08/23 14:10	02/15/23 12:41
320-96818-3	SDP-102	Water	02/08/23 14:00	02/15/23 12:41
320-96818-4	SDP-003	Water	02/09/23 09:09	02/15/23 12:41

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SHANNON & WLSC 2355 Hill Road Fairbanks, AK 99709	ON, INC.	CHA	AIN-C	F-C	CUSTO					Attn: _		ge 1 of 1
(907) 479-0600 www.shannonwilson.com	n					$\stackrel{A}{\longrightarrow}$	nalytical Me	thods (in	nclude pre			\rightarrow
Turn Around Time: Normal Rush	Quote No:	Yes	No		Contraction of the second	5/					Rema Compo Sample	
Please Specify Sample Identity	Lab No.	Time	Date Sampled	A. S.	Tade	//					Rema Compo Sample	arks/Matrix sition/Grab? e Containers
SDP -001		1447	2/8/23	×						2		Samples
SM -002		1400	2/8/33	,								
3DP-002		1410	2/8/23	X						2	í	
SDP-102		1400	2/8/23	×						2		
SNP-003		0909	2/9/23	X	, .,				 	2		
					-							
					320-96	818 Chain o	f Custody	i	U		_	
Project Information	Sample	Receipt		-	ished By:	1.		uished E		-	Reliquishe	
Number: 162219 - 017	Total No. of Contain		Signa	ture:	Tim	e:1400	Signature:		Time:	s	ignature:	Time:
Name: Sand Point DOT PEAS	COC Seals/Intact?	+	Printe	d Name:	Dat	e-2/14/23	Printed Name:		Date:	P	rinted Name:	Date:
Contact: Kristen Freiburger Ongoing Project? Yes No	Temp:	a./Cola	.7 .	ristopl	5.1							
Sampler: CZH	Delivery Method:		Comp	1	1 /0 0	1.0	Company:			C	Company:	
Not	tes:		Sh		ived By:	1. C	Rece	eived By	y: 2.		Received	By: 3.
Kristen, Freiburger@shanwil.com		Signa			e:124/	Signature:		Time:	S	ignature:	Time:	
				d Name: Lycelly	Day Day	e: <u>2./5</u> .73	Printed Name:		Date:	Р	rinted Name:	Date:
Distribution: White - w/shipment - returned Yellow - w/shipment - for con Pink - Shannon & Wilson - jol	signee files	w/ laboratory	report Comp		•		Company:			C	Company:	

3/3/2023

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No.









Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc Job Number: 320-96818-1

Login Number: 96818 List Source: Eurofins Sacramento

List Number: 1

Creator: Oropeza, Salvador

Creator: Oropeza, Salvador		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	SEALS
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	GEL PACKS
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Christopher Hall	•		Lab Name:	Eurofins Environment Testing		
Title:	Environmental Scientist	ADEC File No.:	N/A	Lab Report No.:	320-96818-1		
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	N/A	Lab Report Date:	3/3/2023		
Note: Any N/A or 1. Laborator	Note: Any N/A or No box checked must have an explanation in the comments box.						
 a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses? Yes ⋈ No ⋈ N/A ⋈ Comments: The samples were submitted to the DEC certified Eurofins Environment Testing laboratory in West Sacramento for the analysis of PFAS. These compounds were included in the DEC's contaminated sites laboratory approval 17-020. b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved? Yes ⋈ No ⋈ N/A ⋈ Comments: Sample analyses were not subcontracted or transferred to another laboratory. 							
2. Chain of C	Custody (CoC)						
rele Yes	 a. Is the CoC information completed, signed, and dated (including released/received by)? Yes ⋈ No □ N/A □ Comments: 						
Yes Ana the Env	*	Per- and polyflud fense (DoD) Qu	orinated substance ality Systems Man	,	pliant with		

Revision 9/2022

Lab Report No.: 320-96818-1

3. Laboratory Sample Receipt Documentation

	a.	Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?
		Yes \boxtimes No \square N/A \square Cooler temperature(s): The cooler temperature was reported 5.4° C. Sample temperature(s): A temperature blank was included with the samples in the cooler however, a temperature was not recorded.
	b.	Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)? Yes ⊠ No □ N/A □ Comments: PFAS does not require any additional preservation beyond temperature control.
	C.	Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.? Yes \boxtimes No \square N/A \square Comments: The laboratory noted that the samples arrived in good condition within the case narrative.
	d.	If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.? Yes \square No \square N/A \boxtimes Comments: The laboratory did not note any discrepancies.
	e.	Is the data quality or usability affected? Yes □ No ☒ N/A □ Comments: See above.
4. C	ase	Narrative
	a.	Is the case narrative present and understandable? Yes \boxtimes No \square N/A \square Comments:
	b.	Are there discrepancies, errors, or QC failures identified by the lab? Yes No N/A Comments: The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. This is associated with PFDA for sample SDP-102.

Lab Report No.: 320-96818-1

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-654144.

Method 3535: The following samples contained a thin layer of sediment at the bottom of the bottle prior to extraction with samples SDP-002 and SDP-102 preparation batch 320-654144.

Method 3535: The following samples were light yellow prior to extraction: SDP-001 and SDP-003 for preparation batch 320-654144.

Method 3535: During the solid phase extraction process, the following samples contained non-settable particulates which clogged the solid phase extraction column: SDP-002 and SDP-102 preparation batch 320-654144.

	C.	Were all the corrective actions documented? Yes ⊠ No □ N/A □ Comments:
	d.	What is the effect on data quality/usability according to the case narrative? Comments: The case narrative does not note an effect on data quality or usability. See the following sections for our assessment.
5.	Sampl	le Results
	a.	Are the correct analyses performed/reported as requested on CoC? Yes \boxtimes No \square N/A \square Comments:
	b.	Are all applicable holding times met? Yes ⊠ No □ N/A □ Comments:
	C.	Are all soils reported on a dry weight basis? Yes □ No □ N/A ☒ Comments: Soils were not submitted with this work order.
	d.	Are the reported limits of quantitation (LOQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project? Yes \boxtimes No \square N/A \square Comments:
	e.	Is the data quality or usability affected? Yes \square No \boxtimes N/A \square

Comments: See above.

Lab Report No.: 320-96818-1

6. QC Samples

a. Method Blank i. Was one method blank reported per matrix, analysis, and 20 samples? Yes ⊠ No □ N/A □ Comments: ii. Are all method blank results less than LOQ (or RL)? Yes ⊠ No □ Comments: iii. If above LOQ or RL, what samples are affected? Comments: There are no detections in the method blank associated with the project samples. iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes □ No □ N/A ⊠ Comments: See above v. Data quality or usability affected? Yes □ No ⋈ N/A □ Comments: See above b. Labo

ora	atory Control Sample/Duplicate (LCS/LCSD)
i.	Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846) Yes ⊠ No □ N/A □ Comments:
ii.	Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples? Yes \square No \square N/A \boxtimes Comments: Metals/Inorganics were not requested as a part of this work order.
iii.	Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) Yes \boxtimes No \square N/A \square Comments:

Lab Report No.: 320-96818-1

	iv.	Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) $ \begin{tabular}{ll} Yes & \boxtimes & No & \square & N/A & \square \\ Comments: \end{tabular} $
	٧.	If %R or RPD is outside of acceptable limits, what samples are affected? Comments: N/A; the %R and RPD were within acceptable limits.
	vi.	Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes \square No \square N/A \boxtimes Comments: See above.
	vii.	Is the data quality or usability affected? Yes □ No ☒ N/A □ Comments: See above.
c. I	Matrix	Spike/Matrix Spike Duplicate (MS/MSD)
	i.	Organics – Are one MS/MSD reported per matrix, analysis and 20 samples? Yes No N/A Comments: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate. Precision can be assessed with the LCS/LCSD.
	ii.	Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples? Yes \square No \square N/A \boxtimes Comments:
	iii.	Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? Yes \square No \square N/A \boxtimes Comments: See above.
	iv.	Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. Yes \square No \square N/A \boxtimes Comments: See above.

CS Site Name: N/A

Lab Report No.: 320-96818-1

	V.	If %R or RPD is outside of acceptable limits, what samples are affected? Comments: See above.
	vi.	Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes \square No \square N/A \boxtimes Comments: See above.
	vii.	Is the data quality or usability affected? Yes □ No ⋈ N/A □ Comments: See above.
d.	_	ates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution ds Only
	i.	Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples? Yes \boxtimes No \square N/A \square Comments:
	ii.	Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages) Yes \boxtimes No \square N/A \square Comments:
	iii.	Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? Yes No N/A Comments: See above.
	iv.	Is the data quality or usability affected? Yes □ No ⋈ N/A □ Comments: Data quality or usability are not affected.
e.	Trip Bl	anks
	i.	Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes □ No □ N/A ⊠ Comments: A trip blank is not required for PFAS analysis.
	ii.	Are all results less than LOQ or RL? Yes □ No □ N/A ⊠ Comments: A trip blank is not required.

CS Site Name: N/A

Lab Report No.: 320-96818-1

	iii.	If above LOQ or RL, what samples are affected? Comments: N/A; a trip blank is not required.
	iv.	Is the data quality or usability affected? Yes □ No □ N/A ⊠ Comments: See above.
f.	Field D	Ouplicate
	i.	Are one field duplicate submitted per matrix, analysis, and 10 project samples? Yes \boxtimes No \square N/A \square Comments:
	ii.	Was the duplicate submitted blind to lab?
		Yes \boxtimes No \square N/A \square Comments: Field duplicate sample pair <i>SDP-002/SDP-102</i> was submitted with this work order.
	iii.	Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)
		$RPD \ (\%) = \left \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right X \ 100$
		Where R_1 = Sample Concentration
		R ₂ = Field Duplicate Concentration
		Yes \boxtimes No \square N/A \square Comments: RPD are within project DQOs, where calculable.
	iv.	Is the data quality or usability affected? (Explain) Yes □ No ☒ N/A □ Comments: Data quality or usability are not affected.
g.	Decon	tamination or Equipment Blanks
	i.	Were decontamination or equipment blanks collected? Yes □ No □ N/A ☒ Comments: Reusable equipment was not used; therefore, an equipment blank is not required.
	ii.	Are all results less than LOQ or RL? Yes □ No □ N/A ☑ Comments: See above.

Lab Report No.: 320-9	96818-1
iii.	If above LOQ or RL, specify what samples are affected. Comments: N/A; see above.
iv.	Are data quality or usability affected? Yes □ No □ N/A □

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a.	Are they define	d and appropriate?
	Yes □ No □	N/A ⊠

Comments:

CS Site Name: N/A

Comments: The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. This is associated with PFDA for sample *SDP-102*. We consider this result to be estimated, biased high, and have flagged the datum with a "JH" in the analytical database.



February 15, 2023

Name Address Sand Point, AK 83864

RE: RESULTS OF 2023 PFAS WATER SUPPLY WELL SAMPLING, SAND POINT AIRPORT

Thank you for participating in our water supply well sampling program to evaluate the presence of per- and polyfluoroalkyl substances (PFAS) in groundwater near the Sand Point Airport (SDP). Shannon & Wilson, Inc. collected a water sample from your water supply well at address on date. We have also sent a copy of this letter to your tenant.

The water sample was analyzed for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and several other PFAS compounds. We compare these concentrations to the Alaska Department of Environmental Conservation (DEC) drinking water action level of 70 parts per trillion (ppt) for the sum of PFOS and PFOA. Please note that these units are equivalent to nanograms per liter (ng/L).

Results of the analysis conducted by Eurofins Environment Testing indicate that PFOS was not detected, and PFOA was not detected in the groundwater sample from your well. Based on the laboratory results from this sampling event the sum of PFOS and PFOA for your water sample is XX ppt, which is above/below the DEC drinking water action level. (*Insert other detected PFAS*) were also detected in the sample; however, DEC has not promulgated groundwater or drinking water standards for this/these compounds. The portions of the original laboratory report that apply to your well (sample number *PW-039*) are enclosed for your records.

Shannon & Wilson has conducted this sampling event on behalf of the Alaska Department of Transportation and Public Facilities (DOT&PF). Please see the enclosed PFAS fact sheet for a link to the DOT&PF project website.

Name February 15, 2023 Page 2

If you have any questions regarding your results, please feel free to contact us.

Sincerely,

SHANNON & WILSON, INC.



Enc: Select Pages of Test America Laboratory Report No. 320-96818-1

PFAS Fact Sheet – Sand Point Airport

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	ADOT&PF Sand Point Airport Sitewide I	PFAS	
File Number:	2646.38.008		
Completed by:	Shannon & Wilson, Inc.		
about which expo summary text abo	osure pathways should be further in	vestigated dur g exposure pa	artment of Environmental Conservation (DEC) ring site characterization. From this information athways should be submitted with the site
General Instruct	tions: Follow the italicized instruc	tions in each	section below.
1. General In Sources (check)	nformation: potential sources at the site)		
☐ USTs		☐ Vehicles	S
☐ ASTs		☐ Landfill	s
☐ Dispensers/fu	el loading racks	☐ Transfor	rmers
☐ Drums		⊠ Other:	Aqueous Film Forming Foam (AFFF) releases
Release Mechan	nisms (check potential release mech	nanisms at the	site)
⊠ Spills		⊠ Direct d	lischarge
⊠ Leaks		☐ Burning	
		☐ Other:	
Impacted Media	a (check potentially-impacted media	a at the site)	
✓ Surface soil (, -	⊠ Groundy	water
Subsurface so Sub	<u> </u>	Surface Surface	
☐ Air		⊠ Biota	
⊠ Sediment		☐ Other:	
Receptors (check	k receptors that could be affected b	y contaminati	on at the site)
⊠ Residents (ad	ult or child)	⊠ Site visi	tor
	or industrial worker	⊠ Trespass	ser
▼ Construction	worker	⊠ Recreati	ional user
⊠ Subsistence h	arvester (i.e. gathers wild foods)	⊠ Farmer	
Subsistence c	onsumer (i.e. eats wild foods)	☐ Other:	

Direct Contact - 1. Incidental Soil Ingestion							
Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface (Contamination at deeper depths may require evaluation on a site-specific basis.)							
If the box is checked, label this pathway complete:	Complete						
Comments:							
PFAS has been detected in groundwater at the site, likely as a result of surface. PFAS affected soil is likely present.	of AFFF releases to the ground						
2. Dermal Absorption of Contaminants from Soil							
Are contaminants present or potentially present in surface so (Contamination at deeper depths may require evaluation on		ground surface?					
Can the soil contaminants permeate the skin (see Appendix	B in the guidance document)?	X					
If both boxes are checked, label this pathway complete:	Complete						
Comments:							
To our knowledge, no surface soil samples have been analyzed for Pl However, AFFF releases to the ground surface could cause soil conta Department of Health and Social Services, PFOS and PFOA are not ap skin. However, Appendix B of the 2017 Guidance on Developing Con	mination. According to the Alaska opreciably absorbed through the						
Ingestion - 1. Ingestion of Groundwater							
Have contaminants been detected or are they expected to be or are contaminants expected to migrate to groundwater in t		$\overline{\times}$					
Could the potentially affected groundwater be used as a cursource? Please note, only leave the box unchecked if DEC I water is not a currently or reasonably expected future source to 18 AAC 75.350.	nas determined the ground-						
If both boxes are checked, label this pathway complete:	Complete						
Comments:							

2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, \overline{X} or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Incomplete Comments: Surface bodies in the airport vicinity are being used as a drinking water source. However, the potential exists and we consider this pathway potentially complete. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or \overline{X} harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into \overline{X} biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the \overline{X} ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? If both boxes are checked, label this pathway complete: Incomplete

revised January 2017

Comments:

PFAS are not included in Appendix D.

2. Inhalation of Indoor Air					
Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)					
Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)?					
If both boxes are checked, label this pathway complete:	Incomplete				
Comments:					
PFAS are not included in Appendix D.					

3.	Additional Exposure Pathways: (Although there are no definitive questions provided in this section,					
	these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)					
Dermal Exposure to Contaminants in Groundwater and Surface Water						
	Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if					

 Climate permits recreational use of waters for swimming. Climate permits exposure to groundwater during activities, such as construction. 						
o Groundwater or surface water is used for household purposes, such as bathing or cl						
Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of dermal absorption is incorporated into the groundwater exposure equation for residential uses.						
Check the box if further evaluation of this pathway is needed:	X					
Comments:						
According to the Alaska Department of Health and Social Services, PFOS and PFOA are not appreciably absorbed through the skin. However, Appendix B of the 2017 Guidance on Developing Conceptual Site Models lists both PFOS and PFOA. We consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.						
Inhalation of Volatile Compounds in Tap Water						
Inhalation of volatile compounds in tap water may be a complete pathway if: The contaminated water is used for indoor household purposes such as showering, washing.	laundering, and dish					
 The contaminants of concern are volatile (common volatile contaminants are listed guidance document.) 	in Appendix D in the					
DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because vapors during normal household activities is incorporated into the groundwater exposure equations of the pathway because vapors during normal household activities is incorporated into the groundwater exposure equations.						
Check the box if further evaluation of this pathway is needed:						
Comments:	_					
PFAS are not included in Appendix D.						

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed:

\overline{X}

Comments:

No surface soil samples have been collected at the SDP. However, AFFF was likely released to the ground surface on the lightly graveled runways that can be dusty in the summertime.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- O Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:



Comments:

No sediment samples have been collected at the SDP. However, AFFF was likely release to the ground surface in unpaved and/or lightly graveled areas open to DOT&PF employees and the public. Additionally, local residents use subsistence practices (e.g., berry picking and fishing) that may expose them to sediment.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

	&PF Sand Point Airport Sitewide PFAS			Instructions: Follow the numbered consider contaminant concentrations use controls when describing pate	ons o	engir						
	Sy: Shannon & Wilson, Inc.											
Date Comple	eted: March 2023 (2)				(5) Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.							
Check the media		(3) Check all exposure		(4) Check all pathways that could be complete.								
could be directly a by the release.		media identified in (2	2).	The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.		urrer / /					-	ors: /
Media	Transport Mechanisms	Exposure Mo	edia	Exposure Pathway/Route	Residents	Commercial or industrial World	respa	Construction	Farmers or subsister	Subsistence	นกรูเก.	
	Direct release to surface soil check soil				/ 6	chil	J's,		20 S	ر م کرو ر		/
Surface	✓ Migration to subsurface				dent	merc Stria	visit Cre	struc /	hers este	siste	/ 5	
Soil (0-2 ft bgs)	✓ Migration to groundwater check groundwater Volatilization check air				Resi	100	otte or _{Te}	/ 8	hary	gnps /	Other	/
(0-2 it bg3)	✓ Runoff or erosion		✓ Incide	ntal Soil Ingestion	C/F	C/F C	/F (C/F	C/F	C/F	\neg	
	✓ Uptake by plants or animals <u>check biota</u>	soil	Derma	al Absorption of Contaminants from Soil		1					-	
	Other (list):	/	/	tion of Fugitive Dust	C/E	C/F C	/F (^/F (C/F (7/F	-	
	Direct release to subsurface soil check soil		V IIIIIaia	tition of a district district of a district	0/1	C/I	'''	J/1 (5/1			
Subsurface	✓ Migration to groundwater check groundwater				- I - I -			- <i>i</i> - 1	0/5	 _		
Soil	Volatilization check air			tion of Groundwater	C/F	C/F	;/F (C/F	C/F	<i>3/</i> ⊦		
(2-15 ft bgs)	Spranie al pranie and an annie and an annie and an	groundwater	✓ Derma	al Absorption of Contaminants in Groundwater	I	l l		I	<u> </u>			
	Other (list):		Inhala	tion of Volatile Compounds in Tap Water					.			
	Direct release to groundwater check groundwater				'							
Ground-	Volatilization check air		Inhala	tion of Outdoor Air								
water	Flow to surface water body check surface water	air	☐ Inhala	tion of Indoor Air					-	\rightarrow	-	
	Flow to sediment check sediment		/	tion of Fugitive Dust			-		\rightarrow	\rightarrow	\dashv	
	Uptake by plants or animals check biota Other (list):		Піпаіа	illori oi Fugitive Dust								
	Outer (list).											
	Direct release to surface water check surface water			ion of Surface Water								
Surface	Volatilization check air	surface water	✓ Derma	al Absorption of Contaminants in Surface Water	I	l	l		j			
Water	✓ Sedimentation check sediment ✓ Uptake by plants or animals check biota		Inhala	tion of Volatile Compounds in Tap Water								
	✓ Uptake by plants or animals check biota Other (list):											
		sediment	✓ Direct	Contact with Sediment	C/F	C/F C	/F	:/F (C/F (?/F		
	Direct release to sediment check sediment		/ 2300	S Sodimon	0/1	J., I	,,	J/1	5/1	2/1		
Sediment	Resuspension, runoff, or erosion check surface water							1				
	✓ Uptake by plants or animals check biota Other (list):	biota	✓ Ingest	tion of Wild or Farmed Foods	C/F	C/F C	/F (C/F (C/F C	C/F		
] [

Appendix G

Sitka Airport Supporting Documents

CONTENTS

- Figure G1 Vicinity Map
- Figure G2 Site Map
- Well Search Questionnaire Letter and PFAS Fact Sheet Mailing
- Well Search Questionnaire Responses
- DEC Conceptual Site Model Scoping and Graphic Forms

102219-018





June 2023

Miles

102219-018



June 2023

SITE MAP Figure G2



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

December 2022

Dear Property Owner or Occupant:

The Department of Transportation and Public Facilities (DOT&PF) is conducting a comprehensive evaluation of for per- and polyfluoroalkyl substances (PFAS) contamination at and near state-owned or state-operated airports. Due to requirements by the Federal Aviation Administration (FAA), firefighters at the Sitka Rocky Gutierrez Airport (SIT) have used aqueous film forming foam (AFFF), a standard firefighting agent that contains PFAS, to extinguish hydrocarbon fires during training exercises and emergency events.

Out of an abundance of caution, the DOT&PF has contracted with environmental consulting firm, Shannon & Wilson, Inc. to sample water supply wells near airports across the state. We understand Sitka is primarily served by the City of Sitka Water Utility and that the surface water lake/s used as the source for the municipal water supply are not impacted by AFFF use at the Sitka Airport. However, you are receiving this letter as part of our efforts to identify water supply wells that may be in use near the SIT. For the City of Sitka, we have identified an area near the SIT where we are searching for water supply wells. This area is outlined on the enclosed map.

If you have an active well within the search area, please call Shannon & Wilson at (907) 458-3156 or complete the enclosed Water Supply Well Survey and return to:

Shannon & Wilson c/o Kristen Freiburger 2355 Hill Road Fairbanks, AK 99712

Or email: kristen.freiburger@shanwil.com

Water supply well sample results will be compared to the Alaska Department of Conservation drinking water action level of 70 parts per trillion for the sum of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), two compounds within the PFAS family.

PFAS are emerging contaminants, and the research into the health effects of exposure to PFAS is ongoing. Results of water samples will be shared with property owners and residents. If your drinking-water well is found to have PFAS above the action level, DOT&PF will assist with access to alternative drinking water.

If you have any questions, please contact me, or see the enclosed contact list to identify the most appropriate person or agency for your inquiry. We appreciate your patience as we work through this process.

Sincerely,

Sammy Cummings

Sanning Cummings

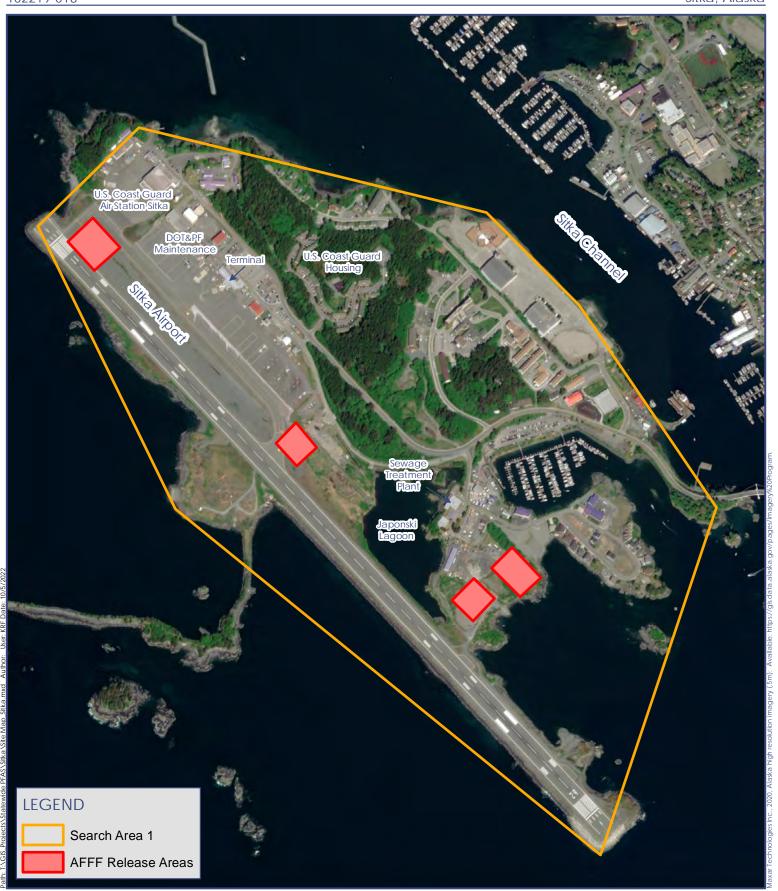
PFAS Program Manager, DOT&PF Statewide Aviation



Water Supply Well Inventory Survey Form

Da	::	
Pa	el:	
Na	e (Owner):	
Na	e (Occupant):	
Ph	ical Address:	
Ma	ing Address:	
Em	il Address (optional):	
Со	act Phone Number: (owner) (occupant)	
	Adults (18 and over) Teenagers (13 to 17) Children (12 and under) s at this residence:Full-Time Seasonal	
1)	From where do you obtain your drinking water? a) Water Supply Utility b) Well Water c) Water Delivery d) Other	
2)	f you have a water well, please answer the following questions: a) Where is the well located on the property?	
3)	Do you have any treatment on your well (e.g. water softener)? Please describe	: your
	Signature Date	

102219-018





Notes:

- 1. AFFF: Aqueous Film Foarming Foam
- 2. Search area is approximate



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

PFAS Fact Sheet – Sitka Airport

November 2022

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging, and firefighting foams.

The presumed source of potential PFAS groundwater contamination in your community is the use of a fire-fighting foam called aqueous film forming foam (AFFF). Airport firefighters used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

The Department of Environmental Conservation (DEC) adopted the Environmental Protection Agency's former lifetime health advisory (LHA) level for drinking water of **70 parts per trillion** for the sum of PFOS and PFOA. On June 15, 2022, the EPA adopted a revised interim LHA level. DOT&PF will continue to work with our state and federal partners to determine what this means for Alaska and will adjust as more information becomes available.

We advise residents with test results above the DEC drinking water action level not to use their water for

Website: www.dot.alaska.gov/airportwater/

For questions about well testing:

Shannon & Wilson, Inc.

Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program

Phone: 907-269-3057

Email: bill.oconnell@alaska.gov

For questions about PFAS and health effects:

Alaska Dept. of Health

Sarah Yoder, Env. Public Health Program

Manager

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

For questions about fire training & other inquiries:

DOT&PF – Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

drinking or cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC drinking water action level, DOT&PF will assist with access to an alternate source of drinking water.



5.+ Xa

Water Supply Well Inventory Survey Form

Da	te: 11/15/2022
Par	rcel:
Na	me (Owner): LOBGRT AND KINBERLEY HUNTER
	me (Occupant):
Phy	ysical Address: 721 AUCE COOP
Ma	illing Address:
Em	ail Address (optional): Pathyhunter @ hotmail. can
Coi	ntact Phone Number: (owner) 907-738-9362 (occupant) SAME
Nu	mber of persons residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under) Seasonal
1)	From where do you obtain your drinking water? a) Water Supply Utility b) Well Water c) Water Delivery d) Other
2)	If you have a water well, please answer the following questions: a) Where is the well located on the property?
3)	i) Do you have any treatment on your well (e.g. water softener)? Please describe Sample Permission
	Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permission to sample your private water well? Yes No
	Router 11-15-2022
	Signature Date



Water Supply Well Inventory Survey Form

17-73,77

Signature

ame (Occupant):	VACANT LOT	
ysical Address:	717 ALICE	LOOP SITKA ALASKA 98835
ailing Address:	P.O. BOX 114	12 MONROE WA. 48672
nail Address (opt	onali: 2011HAN	SON HOMES AD GMAIL COM
ontact Phone Nur	mber: (owner) 425-32	28 - 5 2 2 (occupant)
lumber of person	s residing at this location:	VACANT Adults (18 and over) Teenagers (13 to 17) Children (12 and under)
c) Water Del	vater well, please answer t	he following questions:
a) If you have a w a) Where is t b) Is the well	rater well, please answer to the well located on the pro- in use? Yes No	perty?
a) If you have a w a) Where is t b) Is the well c) If yes, plea	rater well, please answer the well located on the projin use? Yes No se check all that apply reg.	perty?
a) Where is to b) Is the well c) If yes, plea Drinking d) If no, is the	rater well, please answer the well located on the projin use? Yes No se check all that apply regard well usable, unusable, or	perty?
a) Where is to b) Is the well c) If yes, plea Drinking d) If no, is the Usable [e) When was	rater well, please answer to the well located on the pro- in use? Yes No se check all that apply rega- cooking Gar well usable, unusable, or Unusable Aban the well installed?	perty?
a) Where is to b) Is the well c) If yes, plea Drinking d) If no, is the Usable e) When was f) What is the g) What is the	rater well, please answer to the well located on the pro- in use? Yes No se check all that apply rega- ce well usable, unusable, or Unusable Aban the well installed? well depth? well diameter?	perty?
a) If you have a w a) Where is t b) Is the well c) If yes, plea Drinking d) If no, is the Usable e) When was f) What is the	rater well, please answer to the well located on the pro- in use? Yes No se check all that apply rega- ce well usable, unusable, or Unusable Aban the well installed? well depth? well diameter?	perty?
a) If you have a w a) Where is t b) Is the well c) If yes, plea Drinking d) If no, is the Usable [e) When was f) What is the g) What is the	rater well, please answer to the well located on the project in use? Yes No see check all that apply regards well usable, unusable, or Unusable Aban the well installed? well depth? well diameter? well type?	perty? arding the usage of your well water: rdening Pets Other properly abandoned? doned Method Do you have the well log? Yes No

Date

KRF: Rewritten from mailed response



Water Supply Well Inventory Survey Form

Date: 12/20/22	
Parcel:	
Name (Owner): Casey Demmert	
Name (Occupant):	
Physical Address: 416 Alice Loop (Lot 2	1), Sitka
Mailing Address: 101 Thomas Young Circle	e, 5:+kg
Email Address (optional): Demmert (907@	
Contact Phone Number: (owner) 907-752-0352 (occupan	
	lults (18 and over)
Te	enagers (13 to 17)
Years at this residence: Full-Time Seasonal	ildren (12 and under) 0
a) Where is the well located on the property? b) Is the well in use? Yes No Cooking Gardening Pets Cooking Gardening Pets Usable Unusable, unusable, or properly abandoned? Usable Unusable Abandoned Method Pets When was the well installed?	Plas to live have full time.
i) Do you have any treatment on your well (e.g. water soften	er)? Please describe
3) Sample Permission Does the Alaska Department of Transportation & Public Facilities private water well? Yes No	es (DOT&PF) have permission to sample your
Signature	Date

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	ADOT&PF Sitka Airport Sitewide PFAS			
File Number:	1525.38.061			
Completed by:	Shannon & Wilson, Inc.			
about which exposummary text about which about the summary text abou	be used to reach agreement with the osure pathways should be further in out the CSM and a graphic depiction work plan and updated as needed in	vestigated during exposure path later reports.	ng site charact nways should l	erization. From this information
1. General In	tions: Follow the italicized instruc iformation: potential sources at the site)	tions in each se	ection below.	
USTs		☐ Vehicles		
☐ ASTs		Landfills		
☐ Dispensers/fu	el loading racks	☐ Transform	ners	
Drums		⊠ Other: A	queous Film For	ming Foam (AFFF) releases
Release Mechan	isms (check potential release mech	anisms at the si	ite)	
⊠ Spills		⊠ Direct dis	charge	
⊠ Leaks		☐ Burning		
		☐ Other:		
Impacted Media	(check potentially-impacted medic	u at the site)		
Surface soil (i ai ine siie) ⊠ Groundwa	otor	
Subsurface son (<u> </u>	✓ Surface w		
Air Air	11 (> 2 1eet 0g3)	⊠ Biota	atci	
⊠ Sediment		Other:		
		other.		
Receptors (checi	k receptors that could be affected b	y contamination	at the site)	
Residents (ad	ult or child)	⊠ Site visito	r	
区 Commercial o	or industrial worker		r	
	worker	⊠ Recreation	nal user	
Subsistence h	arvester (i.e. gathers wild foods)	⊠ Farmer		
Subsistence co	onsumer (i.e. eats wild foods)	☐ Other:		
		I		

Direct Contact -		
1. Incidental Soil Ingestion		
Are contaminants present or potentially present in surface soil (Contamination at deeper depths may require evaluation on a s		e ground surface'
If the box is checked, label this pathway complete:	Complete	
Comments:		
To our knowledge, no surface soil samples have been analyzed at the sireleases to the ground surface could cause soil contamination.	te for PFAS. However, AFFF	
2. Dermal Absorption of Contaminants from Soil		
Are contaminants present or potentially present in surface soil (Contamination at deeper depths may require evaluation on a s		e ground surface
Can the soil contaminants permeate the skin (see Appendix B	in the guidance document)?	X
If both boxes are checked, label this pathway complete:	Complete	
Comments:		
AFFF releases to the ground surface could cause soil contamination. According to the Berlin and Social Services, PFOS and PFOA are not appropriately appendix B of the 2017 Guidance on Developing ConceptOS and PFOA.	eciably absorbed through the	
Ingestion - 1. Ingestion of Groundwater		
Have contaminants been detected or are they expected to be de or are contaminants expected to migrate to groundwater in the	X	
Could the potentially affected groundwater be used as a current source? Please note, only leave the box unchecked if DEC has water is not a currently or reasonably expected future source of to 18 AAC 75.350.	determined the ground-	
If both boxes are checked, label this pathway complete:	Incomplete	
Comments:		
Site assessment activities indicated there aren't any water supply wells of installation of water wells is prohibited.	on Japonski Island and	

2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, \overline{X} or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Incomplete Comments: It is unlikely the surface water near SIT would be used as a drinking water source. If our investigative efforts determine this to be false, we will update this CSM. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or \overline{X} harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into \overline{X} biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the \overline{X} ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? If both boxes are checked, label this pathway complete: Incomplete

Comments:

PFAS are not included in Appendix D.

2. Inhalation of Indoor Air				
Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)				
Are volatile compounds present in soil or groundwater (see Ap document)?	pendix D in the guidance			
If both boxes are checked, label this pathway complete:	Incomplete			
Comments:				
PFAS are not included in Appendix D.				

3.	Additional Exposure Pathways: (Although there are no definitive questions provided in this section,
	these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)
De	ermal Exposure to Contaminants in Groundwater and Surface Water
	Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if

 Climate permits recreational use of waters for swimming. Climate permits exposure to groundwater during activities, such as construction. 							
o Groundwater or surface water is used for household purposes, such as bathing or c							
Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of dermal absorption is incorporated into the groundwater exposure equation for residential uses.	± •						
Check the box if further evaluation of this pathway is needed:	X						
Comments:							
According to the Alaska Department of Health and Social Services, PFOS and PFOA are not appreciably absorbed through the skin. However, Appendix B of the 2017 Guidance on Developing Conceptual Site Models lists both PFOS and PFOA. We consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.							
Inhalation of Volatile Compounds in Tap Water							
Inhalation of volatile compounds in tap water may be a complete pathway if: The contaminated water is used for indoor household purposes such as showering, washing.	laundering, and dish						
The contaminants of concern are volatile (common volatile contaminants are listed guidance document.)	in Appendix D in the						
DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway becau vapors during normal household activities is incorporated into the groundwater exposure equa							
Check the box if further evaluation of this pathway is needed:							
Comments:	_						
PFAS are not included in Appendix D.							

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed:

\overline{X}

Comments:

No surface soil samples have been collected at the SIT. However, AFFF was likely released to the ground surface on the lightly graveled runways that can be dusty in the summertime.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- O Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:



Comments:

No sediment samples have been collected at the SIT. Due to the potential for residents to access potentially contaminated surface water bodies, this has been marked as a pathway in need of further evaluation.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: ADOT&PF Sitka Airport - Statewide PFAS	Instructions: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.							
Completed By: Shannon & Wilson, Inc.		use controls when describing pad	ways	'-				
(1) Check the media that could be directly affected by the release. (2) For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.	(3) Check all exposure media identified in (2).	(4) Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.	expo "F" f futui	ntify the rece posure pathw for future rec re receptors current	ptors po ay: Ente eeptors, or "I" fo & Fu	er "C" for "C/F" for for insign uture	current both cu ificant e	t receptors, urrent and xposure.
Media Transport Mechanisms	Exposure Media	Exposure Pathway/Route	/	(ers	espa l'usel	orke, bsiste	insuc	
Surface Soil Soil (0-2 ft bgs) Direct release to surface soil check soil c			Residents	Commercial or Site visite.	Construct:	Farmers or subsistence	Subsistence consumer.	Other
✓ Runoff or erosion check surface water	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	ncidental Soil Ingestion	C/F	C/F C/F	C/F	C/F	C/F	
Uptake by plants or animals check biota	soil [Dermal Absorption of Contaminants from Soil	ı	l l	ı	l l		
Other (list):		nhalation of Fugitive Dust	C/F	C/F C/F	C/F			
Subsurface Soil Volatilization C2-15 ft bgs) Other (list): Direct release to subsurface soil Check soil Check groundwater Check groundwater Check groundwater Check biota Check biota Check biota Check biota	☑ groundwater ☑ □	ngestion of Groundwater Dermal Absorption of Contaminants in Groundwater nhalation of Volatile Compounds in Tap Water	l		l	1 1		
Ground- Direct release to groundwater check groundwater Check air Check air		nhalation of Outdoor Air						
water Flow to surface water body check surface water Flow to sediment check sediment	air I	nhalation of Indoor Air						
Uptake by plants or animals check biota		nhalation of Fugitive Dust						
Other (list):		ngestion of Surface Water						
Surface Volatilization check air	surface water	Dermal Absorption of Contaminants in Surface Water	I	l l	ı			
Water ✓ Sedimentation check sediment ✓ Uptake by plants or animals check biota Other (list):		nhalation of Volatile Compounds in Tap Water						
Direct release to sediment check sediment	sediment / C	Direct Contact with Sediment	C/F	C/F C/F	C/F	C/F C	;/F	
Sediment V Resuspension, runoff, or erosion check surface water V Uptake by plants or animals check biota Other (list):	▼ biota ✓ I	Ingestion of Wild or Farmed Foods	C/F	C/F C/F	C/F	C/F	;/F	

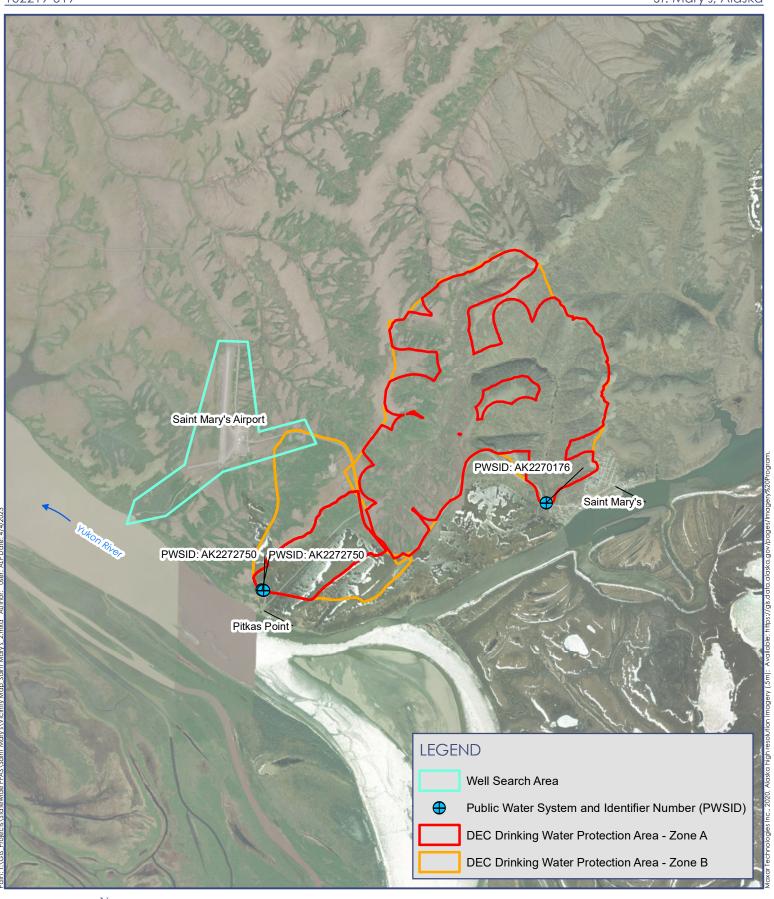
Appendix H

St. Mary's Airport Supporting Documents

CONTENTS

- Figure H1 Vicinity Map
- Figure H2 Site Map
- Figure H3 Analytical Results Summary
- Table H1 St. Mary's Water Supply Well Analytical Results February 2023
- Table H2 St. Mary's Monitoring Well Analytical Results February 2023
- PFAS Fact Sheet Mailing
- Scanned Sampling Logs and Field Notes
- MW22-1 and MW22-02 Boring Logs
- Analytical Laboratory Reports and Data Review Documentation
- Personalized Results Letter Template
- DEC Conceptual Site Model Scoping and Graphic Forms

102219-019





June 2023

102219-019





June 2023 **SITE MAP**



1,000 Feet

Notes:

1. AFFF: Aqueous Film Foaming Foam

2. Locations are approximate

3. Samples collected in February 2023 ng/L = nanograms per liter, equivalent to parts per trillion (ppt)

ANALYTICAL RESULTS SUMMARY

Figure H3

June 2023



Table H1 — St. Mary's Water Supply Well Analytical Results - February 2023

				KSM-005	
Analytical Method	Analyte	Regulatory Limit	Units	2/24/2023	Duplicate
	Perfluorooctanesulfonic acid (PFOS)	70‡	ng/L	4.2	4.4
	Perfluorooctanoic acid (PFOA)	704	ng/L	<1.8	<1.8
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	10†	ng/L	<3.6	<3.6
	Perfluorobutanesulfonic acid (PFBS)	2,000†	ng/L	<1.8	<1.8
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.8	<1.8
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.8	<1.8
	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	<1.8	<1.8
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	1.5J	1.6J
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	1.4J	1.5J
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.8	<1.8
able B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.8	<1.8
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.8	<1.8
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.8	<1.8
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	N/A	ng/L	<1.8	<1.8
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	N/A	ng/L	<1.8	<1.8
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.8	<1.8
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.5	<4.5
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.5	<4.5

Notes: Results reported from Eurofins Environment Testing work order 320-97213-1.

† Final EPA PFAS LHAs (HFPO-DA/PFBS)

DEC Drinking Water Action Level = 70 ng/L for sum of PFOS and PFOA

DEC Alaska Department of Environmental Conservation

EPA United States Environmental Protection Agency

LHA Lifetime Health Advisory

PFAS per- and poly-fluoroalkyl substances

QSM Quality Systems Manual

ng/L nanograms per liter

N/A No applicable regulatory limit exists for the associated analyte.

< Analyte not detected; listed as less than the limit of quanitation (LOQ) unless otherwise flagged due to quality-control failures.

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.



Table H1 — St. Mary's Monitoring Well Analytical Results - February 2023

				SM-M	SM-MW22-1	
Analytical Method	Analyte	DEC Regulatory Limit	Units	2/24/2023	Duplicate	2/24/2023
	Perfluorooctanesulfonic acid (PFOS)	400	ng/L	8.4	9.2	250
	Perfluorooctanoic acid (PFOA)	400	ng/L	<1.9	0.94J	7.9
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	N/A	ng/L	<3.8	<3.8	<3.8
	Perfluorobutanesulfonic acid (PFBS)	N/A	ng/L	0.63J	0.58J	13
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.9	<1.9	<1.9
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.9	<1.9	<1.9
	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	0.35J	0.70J	2.9
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	5.0	5.0	120
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	4.7JH*	5.1	47
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.9	<1.9	<1.9
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.9	<1.9	<1.9
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.9	<1.9	<1.9
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.9	<1.9	<1.9
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	N/A	ng/L	<1.9	<1.9	<1.9
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	N/A	ng/L	<1.9	<1.9	<1.9
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.9	<1.9	<1.9
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.8	<4.7	<4.8
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.8	<4.7	<4.8

Notes: Results reported from Eurofins Environment Testing work order 320-97213-1.

† Final EPA PFAS LHAs (HFPO-DA/PFBS)

‡ DEC Drinking Water Action Level = 70 ng/L for sum of PFOS and PFOA

DEC Alaska Department of Environmental Conservation

EPA United States Environmental Protection Agency

LHA Lifetime Health Advisory

PFAS per- and poly-fluoroalkyl substances

QSM Quality Systems Manual

ng/L nanograms per liter

N/A No applicable regulatory limit exists for the associated analyte.

< Analyte not detected; listed as less than the limit of quanittation (LOQ) unless otherwise flagged due to quality-control failures.

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.

JH* Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

PFAS Fact Sheet -St. Mary's Airport

March 2023

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging, and firefighting foams.

The presumed source of potential PFAS in groundwater in your community is the use of a fire-fighting foam called aqueous film forming foam (AFFF). Airport firefighters used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

The Alaska Department of Environmental Conservation (DEC) has adopted the Environmental Protection Agency's former lifetime health advisory (LHA) level for drinking water of **70 parts per trillion** for the sum of PFOS and PFOA. On June 15, 2022, the EPA adopted a revised interim LHA level. DOT&PF will continue to work with our state and federal partners to determine what this means for Alaska and will adjust as more information becomes available.

Website: www.dot.alaska.gov/airportwater/

For questions about well testing:

Shannon & Wilson, Inc. Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program

Phone: 907-269-3057

Email: bill.oconnell@alaska.gov

For questions about PFAS and health effects:

Alaska Department of Health

Sarah Yoder, Env. Public Health Manager

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

For questions about fire training & other inquiries:

DOT&PF - Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

We advise residents/businesses with test results above the DEC Action Level not to use their water for drinking or cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC Action Level, DOT&PF will assist with access to an alternate source of drinking water.

Water Supply Well Sampling Log

	Erik Weingerth Pr	roject Number
Purge Location	Sinc	
Sample Location	Sink	
Sample No.	KSM-005	Time <u>694/</u>
Duplicate	KSM-105	Time <u>093 (</u>
Pumping Start Time Pumping End Time Social Gallons per minute Purge Volume (gal.)	0922 & always running 0941 Total Depth	Laboratory Ewolins Analysis PFAs

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Clarity (visual)
0923	6.0	1800 301.9	6.88	Car
0926	5.6	299.8	7.15	Clour
0929	5,5	298,8	7,27	Cyar
0932	5.5	298.5	7,38	clear
0935	5.6	299.7	7.40	Cylor
0938	5.6	300.1	7.47	Clor
0941	Sample		* 1	

Notes:			



Water Supply Well Inventory Survey Form

Date: 2-24-23	Parcel ID#:
Physical Address:	
Name (Owner): DoT	
Name (Occupant): Erk Weingart	h
Mailing Address (Owner):	
Mailing Address (Occupant):	
Owner Email:	Occupant Email: Crik. Weingorth @ alaska.
Owner Phone: Preferred method of contact (circle): Ema Number of people residing at this location: Years at this residence: Full-Time	Occupant Phone: 90 7-438-6050
1) From where do you obtain your drinking war a) Residential (private) well c) Bottled water	b) Community well Brought to Wildly d) Other
 2) If you have a private well, please answer the a) Where is the well located on the proper b) Is the well in use? Yes No 	
3) If <u>no</u> , is the well usable, unusable, or proper Usable ☑ Unusable ☐ Abando If <u>yes</u> , please check all that apply regarding ☐ Drinking ☐ Cooking food preparation ☑ Other ☑ lumbing	ned Method
D	ug Well Driven rilled Unknown ell (e.g. water softener)? Please describe.
4) Sample Permission Does the Shannon & Wilson, Inc. have pern	nission to sample your private well?
Signature	Date



Location	Notes
KSM-001	RAVN Air building, no well. They use water from the DOT well for plumbing, but all consumed water comes from the water plant in town.
KSM-002	Owned by Yute, no well, building not in use. Old Grant Asiation Building, Por Erik
KSM-003	Lydnen Transport building, no well. They use water from the DOT well for plumbing, but consumed water either comes from in town, or bottled water from Anchorage
KSM-004	DOT Fleet repair building, no well. Per File
KSM-005	DOT SREB building, ~300ft well. Water used for plumbing, consumable water comes from in town. *Erik (DOT) did express concern about a fuel tank
KSM-006	that was at one point near the well. DOT 3-bay building, no well. Per Fr. Y
KSM-007	Yellow Building, no well (per Erik). Building will be demolished in the future.
KSM-008	Yute Aviation, no well. They get water delivered from in town but that is only used for plumbing. Otherwise bottled water brought from home is used for everything else.
KSM-009	Owned by Yute, no well. Building not in use.
KSM-010	Building with satallites. No one present when visited and it looked like it had been a little while since people had been there. Potentially FAA building?
KSM-011	Grey-brown building. No one present when visited. I believe this is a DOT bunkhouse.
KSM-012	Long building with blue roof. Not accessible.
KSM-013	Fish Plant. Per Erik, they do have a well. Not accessible Feb, 2023.
KSM-014	Red building. Appears abandoned. I believe this was the case when I was there in the summer as well.
KSM-015	Small yellow building, no well. Owned by DOT.

	0 -						hadia
Owner/Client							102219-019
Location					_	1.70 °C 7.41.6 •	2-24-23
Sampling Personnel			- 100	25"	_	The state of the s	MW-1
Weather Conditions	Snewsing	Aii	r Temp. (°F)	23		Time started	
	,				Lir	ne completed	1130
Cample No	M11-1		Time	1104			
Dunlicate	MW-101	_	- Time	1054	_		
Equipment Blank			_		-		
Equipment Blank		_	- Time	_	-		
Dump	Peri						
Purging Method		d numn		D	ameter and T	ype of Casing	21
Pumping Start		ı pump	Approvim			Below MP (ft.)	26
Purge Rate (gal./min.)						Below MP (ft.)	
Pumping End			ivieasu			Below MP (ft.)	
Fullipling End.	1109						dd.12
Dumm Cot Donth Del	OW MD (ft) OC			Depth to I		Below MP (ft.)	2
Pump Set Depth Bel	Tubing (ft.)					Water in Well	
Kuriiec	Tubing (ft.)					allons per foot	
TruPoly	Tubing (ft.) 35					allons in Well	
	5.11 0.5		d balanda			Volume (gal.)	0
	4. 1		Purge Wat	er Disposa	GAC		
Monument Condition	9000						
	V						
Casing Condition	9000						
F. 30.00	V						
Wiring Condition							
(dedicated pumps)							
Measuring Point (MP)	Top of Casing (TOC)		Monum	ent type:	Stickup	/ Flushmount	
,		٨	/leasuremen	CONTRACTOR AND A STATE OF THE ACT AND ADDRESS		/ Tape measu	re
			nododi ciricii	mounou.	riod d lover	, rape measu	, 0
Ton of casing to mor	nument (ft.) $-D.2$	0		De	talogger tune	2/2	
Top-or-casing to mor	runient (it.)		-		talogger type		
Monument to ground s	surface (π.)		4 65		ogger serial #		
2.00				asured cal	ole length (ft.)	n/a	
Lock prese	nt and ope ration al legible on outside of we f frost-iacking	500	photo				
Well name	legible on outside of we	110	1				
Evidence o	f frost-jacking	NO					
Notes							
<u> </u>							
		N.C.T.	1 11	3017			
	4 2 2 2 4	WELL C	ASING VOL	JMES			
iameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

Well No. MW-/

Field Parameter Instrument	YSI	D	Circle one: Parameters stabilized or >3 well volumes purged
Sample Observations			
Notes			
Control of			

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1049	1.9	6.44	336,0	5,05	314,4	Cher
052	1,8	9,41	318-3	5.78	293.8	Clear
055	1.8	3.22	322,3	6.67	2830	Cler
058	1.8	2.93	325, 3	6131	265,1	Clarky &
101	Sampre	2,13	321,3	6.55	265,1	(Tond)
104	July !					

Laboratory_	SGS	

Analysis	Sample Containers	Preservatives	Dup
7FAS			旦
			므
			므
			므
			므



Well No.

MW-/

Owner/Client	DOT	-					Project No.	102219-019
Location		hep, nor	Ladle	a				2-24-23
Sampling Personnel		up, rec.	an it is	1			Well	MW-2
Weather Conditions		1.	Air	Temp. (°F)	25	•		1140
· V.	OV-FOCK - 1	1	7.11			Tin	ne completed	
Sample No. Duplicate Equipment Blank	Mu	1-2		Time Time Time	13/5			
Purging Method Pumping Start Purge Rate (gal./min.) Pumping End Pump Set Depth Bel KuriTec TruPoly Monument Condition Casing Condition	D. 2 1315 ow MP (ft.) Tubing (ft.) Tubing (ft.) Sol:	0,8	7 N -4 . 10	Measur	ate Total D red Total D De Depth to I	epth of Well E epth of Well E pth to Water E ce (if frozen) E Feet of Ga Purge Water	ype of Casing Below MP (ft.) Below MP (ft.) Below MP (ft.) Below MP (ft.) Water in Well allons per foot allons in Well Volume (gal.)	24.86 23.19 2.17 0.17 0.18
Wiring Condition (dedicated pumps)								
(dealoated parripo)								
Measuring Point (MP)	Top of Ca		N	Monum leasurement	ent type: method:		/ Flushmount / Tape measu	re
Top-of-casing to mor	nument (ft.)	-0,4	8		Da	talogger type	n/a	
Monument to ground s	surface (ft.)	_	14		Datalo	ogger serial#	n/a	
				Me	asured cab	ole length (ft.)	n/a	
Lock prese Well name Evidence o	legible on o	outside of we	" No					
Notes								
Notes								
+								
-								
-					(C)			
30/27/06/30/16/20/20/20/20				ASING VOLU				
Diameter of Well [ID-inches]		CMT	11/4	(2)	3	4	6	8
Gallons per lineal foot		0.000253	0.08	(0.17	0.38	0.66	1.5	2.6

Well No.

Field Parameter Instrument _ Sample Observations	KID	Circle one: Parameters stabilized of >3 well volumes purged
Notes		

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
210	2.4	19.10	422,3	6.75	250.9	Cloudy
1213 1221	2.4	2.58	409,2	6.79	138.1	Cloudy
219			1,2,0	V · O.S	12011	Le Carely y

Market Strategy and the Control of t		
Laboratory	SGS	

Analysis	Sample Containers	Preservatives	Dup
PF45			旦
			므
			旦
			므
			므
			旦

Kar

Well No.

MW-2

FIELD ACTIVITIES DAILY LOG

		Date 2/23/2023
		Sheet / of / Project No. /022/9-0/9
Project N	Jame: St. Mary's WSW	rojectivo. 702017 UNT
	vity subject: MW Sampling	
Descripti	on of daily activities and events:	
14:15	arrive in St. Mary's touched lose with Evil	(DOT)
15:00	leave lodge to locate wells for sampling, in	et with Erik
	briefly and then chiseled out wells, Wells	under nd-3" of
10100	The followed by 2-3" of frozen ground	0/
18100	meeting Exik at DOT at gam.	Olanning on
	ar jam.	
-		
Visitors o	on site:	
Changes	from plans/specifications and other special orders and important decisions:	
Weather	conditions: 29°F, Cloudy, Windy	
Importar	nt telephone calls: Initial call with Exik to	o make plan
for	tomorrow	- Fred
	el on site: 0 MSC	
Signature		Date: 7-03-23



FIELD ACTIVITIES DAILY LOG

	Date 2-24-23
	Sheet / of /
Project Name: St. Mary's WSW	Project No. 1022 17-019
Field activity subject: Water Sampling & Well Sorah	
Description of daily activities and events:	
Bils calibrate YSI and pack truck	
9:00 arrive at DOT and Sample PW	
talked with Erik Rava builting docsa't him	re a well.
They we water from this well to flush	teilets and
USC Water from treatment plant for coffee and	dwarking. This is
the Same for all of the buildings around	I the exogent
1130 Firsh Sampling MW-1, Dup taken	
1336 First Sampling MW-2	
	A
1430 Frish GACing, I have to head back to the lodge	to redown/sal
155 hend back to Ariggest for Well Scorch	
10 p very free to prouggly for very starth	
1700 return to page	
Visitors on site: Frik	
VISITOR DE L'IL	
Changes from plans/specifications and other special orders and important decisions:	
Slow recharge on Wells	
0	
Weather conditions: Snowing	
Important telephone calls:	
Personnel on site: 5 MSC	
Signature: Mus & Au	Date: 2-24-23
	Date: [5 00]



									LOG	OF B	ORI	NG							
Date	Sta	rtec	I	7/19/22	Ī	Location	Approx	imately	8.5 feet E	ast from t			Grour	nd El	levati	on:	323.6		
Date	Cor	npl	eted	7/19/22		,	SM-IW-	2 Locati	on				Гуріс	al Ru	ın Le	ngt	h 5 feet		
Tota	De	pth	(ft)	22.0	Ī	Drilling C	Compar	ny: GeoTe	k Alaska			H	lole [Diam	eter:		2 inches		
	2							scripti								tion			
Depth (ft)	Probe Run		ma repres	aterials and sent the app	pr	port text fo obing met eximate bo	r a prope hods. Th undaries	er underst ne stratific between	anding of th ation lines in soil types.	ne subsurfac ndicated bel Actual boun ng extraction	low idaries	Depth, ft.	Symbol	PID, ppm	Well	Construc	Desc	Number, ription, Results	Depth (ft)
- - - - - - - -			Oliv	re-gray, <i>Si</i> i	ilty	Gravel (<i>GM)</i> ; m	oist.						0.2					
—5 -			Yell	ow-brown	۱, ۵	Silt with S	and (Mi	L); moist	i			5.0 5.6							5-
E			Oliv	e-brown, 🤅	Si	lty Grave	I (GM);	moist.				5.0		0.3					_
														0.2					
10		$\frac{1}{2}$	Ligh	nt gray-bro	ow	n, <i>Poorly</i>	Gradeo	d Gravel	with Sand	<i>(GP</i>); mo	ist.	10.0							10
F	1	3		FUSAL AT								11.5	60	0.6			SM22-SB02-	2 (10' to 11.5')	-
E				t Macroco			rval: 17'	to 22'										(13
_ _ _ _ 15 _ _ _																			15—
E	F	7	Dar	k gray, <i>Sil</i> i	lty	Gravel w	ith San	d (GM);	moist.			17.0		0			SM22-SB02-	3 (17' to 17.6')	_
E													Į.					,	=
- 20																			20-
																			-
	Т	_				BORING	COMP	LETED 7	7/19/2022			22.0							
25 25			Mor	nitoring We	ell	SM-MW	22-1 Co	mpleted	7/26/2022	2									25-
E				struction [
Ė.				sh-mount I of Casing			323 35	feet											-
-				ch Diamet															-
—30 –				40 Gradati				•											30 —
				een Interva al Depth of			_												1 =
_			100	аг Борит о	/I V	WCII. 27.1	reet by	,3											_
						NC	TES												
1.	In so	me	cases v	where recov	ver	y was low	in the up	per part o	of the run, th	ne soil samp	ole 🗔	DOT8	PF S	Saint	Man	v's	Airport Mair	ntenance St	ation
2.	Grou cons	indw ider	ater le ed app	vel, if indica roximate.	ate	d above, w	as estim	ated durir		and should b	- 1	20.0		22 S	Site C	ha	racterizatior ary's, Alask	n Report	auom
4.	CT = sam _l	cor ole;	rosion GE = g	eotechnical	e; T I sa	R = therm ample; AR <u>LEG</u>	al resisti = arched <u>END</u>	vity sampl ological sa			Eilto	L	OG	OF	БВ	ЭF	RING SN	/122-SB0)2
	2"	Plas	stic Tu	be - No Soi be with Soi		•	ن⊞ن	Piezome	eter Screer	n and Sand	riitei	Marc	h 20	23			3	1-1-11729-1	10
	– Ru	ın N	0.									SHA	NN(ON and Er	& WI	LS enta	ON, INC. Consultants	Figure	7

					L	OG OF BORI	NG							
Date	Starte	d	7/18/22	Location	1	of the 3-Bay Building			und	Eleva	tion:	325.5		
Date	Comp	leted	7/18/22	1				Тур	ical F	Run L	.engt			
Total	Depth	ı (ft)	21.0	Drilling (Company: GeoTek Ala	aska		Hole	Dia	mete	r:	2 inches		
					oil Description	iona -	Τ'	Т	T		ion	- c		
Depth (ft)	Probe Run	repre	naterials and pesent the app	report text fo probing metl proximate bo	or a proper understandin hods. The stratification	lines indicated below pes. Actual boundaries	Depth, ft.		Symbol	Well	Construction	Descr	Number, ription, lesults	Depth (ft)
- - - - - - -		Gra	ay, Poorly (⊋raded Gra	avel with Silt and San	d (GP-GM); moist.				5				-
—5 - - -			ay, <i>Silty Gra</i> ers.	avel (GM);	moist; with dark red-	brown organic	5.0 6.2		0.	4				5
- - - -		Oliv	ve-brown, S	Silty Grave	el with Sand (GM); mo	oist.			0.	4				- -
—10 - - -	G	Dai	rk gray, <i>Po</i>	orly Grade	ed Gravel with Sand (<i>GP</i>) ; wet.	10.0		J. 0.	. ≧8		SM22-SB06-1	(10' to 11.5')	10
_ _ _ _ _ _ 15							- 15.5) () ° 22) (Durrir		SM22-SB06-2 13.5')	? (12.5' to	15
	, '		FUSAL AT					' [_
 		`			rval: 17' to 21' ed Gravel with Sand (CPI: wet	17.0	0	~ 1 1.	3				-
 20 			TR gray, 7 S	Jily Grade	O Graver with Garia [<i>Ji y</i> , wot.	21.0	0000	7000			SM22-SB06-3	3 (17' to 18.6')	20 —
				BORING	COMPLETED 7/18/	2022								_
 _ _ _ 25			J		22-2 Completed 7/25	/2022								25
F-	1		nstruction [sh-mount N											
	1				: 324.93 feet									-
	1	2-ir	nch Diamet	ter PVC Ris	ser Pipe									-
F	l I				and Pre-pack									
—30 - - - -			reen Interva tal Depth of											30 —
														-
	1													-
				<u>NC</u>	OTES .									
1.	In some	cases	where recov	ery was low	in the upper part of the removal from the ground	run, the soil sample	DOT	₹PF	Sair	nt Ma	rv's	Airport Mair	itenance Sta	ation
2.	Ground\ conside	lwater le ered app	evel, if indicat proximate.	ted above, w	vas estimated during pro ation of symbols.	I				Site	Cha	racterizatior ary's, Alask	Report	
4.	CT = co sample;	orrosion ; GE = g	test sample;	; TR = therm sample; AR <u>LEG</u>	nal resistivity sample; EN E = archeological sample END		L	00	G 0	FΒ	SOF	RING SN	122-SB0	6
			ube - No Soi ube with Soil	•	✓ Ground Water		Mar	ch 2	023			3	1-1-11729-1	10
	– Run N	Vo.					SH/ Geote	ANN chnica	ION al and	& V Environ	VILS menta	ON, INC.	Figure 1	11

ANALYTICAL REPORT

PREPARED FOR

Attn: Kristen Freiburger Shannon & Wilson, Inc 2355 Hill Rd. Fairbanks, Alaska 99709-5244

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JOB DESCRIPTION

St. Mary's WSW

JOB NUMBER

320-97213-1

Eurofins Sacramento 880 Riverside Parkway West Sacramento CA 95605



Eurofins Sacramento

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northern California, LLC Project Manager.

Authorization

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Authorized for release by David Alltucker, Project Manager I David.Alltucker@et.eurofinsus.com (916)374-4383

Client: Shannon & Wilson, Inc Project/Site: St. Mary's WSW Laboratory Job ID: 320-97213-1

Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Isotope Dilution Summary	13
QC Sample Results	14
QC Association Summary	20
Lab Chronicle	21
Certification Summary	22
Method Summary	23
Sample Summary	24
Chain of Custody	25
Receipt Checklists	26

11

13

14

Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: St. Mary's WSW

Job ID: 320-97213-1

0 116

Qualifiers

NEG

POS

PQL PRES

QC

RER

RPD

TEF

TEQ

TNTC

RL

Negative / Absent

Positive / Present

Presumptive

Quality Control

Practical Quantitation Limit

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin)
Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

LCMS	
Qualifier	Qualifier Description
В	Compound was found in the blank and sample.
1	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Abbreviation These commonly used abbreviations may or may not be present in this report. Listed under the "D" column to designate that the result is reported on a dry weight basis Percent Recovery CFL Contains Free Liquid
%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid
DER Duplicate Error Ratio (normalized absolute difference)
Dil Fac Dilution Factor
DL Detection Limit (DoD/DOE)
DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC Decision Level Concentration (Radiochemistry)
EDL Estimated Detection Limit (Dioxin)
LOD Limit of Detection (DoD/DOE)
LOQ Limit of Quantitation (DoD/DOE)
MCL EPA recommended "Maximum Contaminant Level"
MDA Minimum Detectable Activity (Radiochemistry)
MDC Minimum Detectable Concentration (Radiochemistry)
MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit
NC Not Calculated
ND Not Detected at the reporting limit (or MDL or EDL if shown)

Eurofins Sacramento

3/19/2023

Page 4 of 26

7

9

12

13

14

Case Narrative

Client: Shannon & Wilson, Inc Project/Site: St. Mary's WSW

Job ID: 320-97213-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-97213-1

Receipt

The samples were received on 2/28/2023 3:55 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.4° C.

LCMS

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. MW-1 (320-97213-1)

Method EPA 537(Mod): The low level continuing calibration verification (CCVL) associated with batch 320-660487 recovered above the upper control limit for Perfluorohexanesulfonic acid (PFHxS). The samples associated with this CCVL are bracketed by continuing calibration verifications (CCVs) which are in control for this analyte. (CCVL 320-660487/5)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 320-658365.

Method 3535: The following samples were brown and contained a thin layer of sediment at the bottom of the bottle prior to extraction: MW-1 (320-97213-1) and MW-2 (320-97213-3). preparation batch 320-658365

Method 3535: Due to the thin layer of sediment at the bottom of the bottle, the following samples were centrifuged and decanted into new 250 mL container: MW-1 (320-97213-1) and MW-2 (320-97213-3). After centrifuging and decanting, the samples were fortified with IDA and then extracted. preparation batch 320-658365

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-659712.

Method 3535: The following samples in preparation batch 320-659712 were observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction. GAC (320-97213-6)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

3

Job ID: 320-97213-1

4

8

11

13

14

Detection Summary

Client: Shannon & Wilson, Inc

Project/Site: St. Mary's WSW

Job ID: 320-97213-1

Client Sample ID: MW-1						Lab Sa	mple ID: 32	0-97213-
-							•	
Analyte		Qualifier	RL _	MDL		Dil Fac D		Prep Type
Perfluorohexanoic acid (PFHxA)	4.7		1.9	0.55		1	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.35		1.9	0.24		1	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.63	J	1.9	0.19			EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.0		1.9	0.54	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.4		1.9	0.51	ng/L	1	EPA 537(Mod)	Total/NA
Client Sample ID: MW-101						Lab Sa	mple ID: 32	0-97213
_ Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	5.1		1.9	0.55	ng/L		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.70	J	1.9	0.24		1	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.94	J	1.9	0.80		1	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.58	J	1.9	0.19		1	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.0		1.9	0.54		1	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	9.2		1.9	0.51	•	1	EPA 537(Mod)	Total/NA
Client Sample ID: MW-2						Lab Sa	mple ID: 32	0-97213
- Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	47		1.9	0.55	ng/L		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.9		1.9	0.24	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	7.9		1.9	0.81	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	13		1.9	0.19	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	120		1.9	0.54	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	250		1.9	0.52	ng/L	1	EPA 537(Mod)	Total/NA
Client Sample ID: KSM-005						Lab Sa	mple ID: 32	0-97213
- Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.4	J	1.8	0.52	ng/L		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	1.8	0.51	ng/L	1	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.2		1.8	0.48	ng/L	1	EPA 537(Mod)	Total/NA
Client Sample ID: KSM-105						Lab Sa	mple ID: 32	0-97213
_ Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.5	J	1.8	0.52	ng/L		EPA 537(Mod)	Total/NA
Terridororiexariolo dola (TTTIXT)								
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	1.8	0.51	ng/L	1	EPA 537(Mod)	Total/NA

Perfluorohexanesulfonic acid (PFHxS)1.5 J B1.80.51 ng/L1 EPA 537(Mod)Total/NAPerfluorooctanesulfonic acid (PFOS)111.80.49 ng/L1 EPA 537(Mod)Total/NA

RL

MDL Unit

Result Qualifier

This Detection Summary does not include radiochemical test results.

Client Sample ID: GAC

Analyte

3/19/2023

Prep Type

Lab Sample ID: 320-97213-6

Dil Fac D Method

Client: Shannon & Wilson, Inc
Project/Site: St. Mary's WSW

Job ID: 320-97213-1

Client Sample ID: MW-1 Lab Sample ID: 320-97213-1

Date Collected: 02/24/23 11:04 Matrix: Water Date Received: 02/28/23 15:55

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	4.7	Ī	1.9	0.55	ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluoroheptanoic acid (PFHpA)	0.35	J	1.9	0.24	ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.81	ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluorobutanesulfonic acid (PFBS)	0.63	J	1.9	0.19	ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluorohexanesulfonic acid (PFHxS)	5.0		1.9		ng/L		03/06/23 06:36	03/08/23 20:43	1
Perfluorooctanesulfonic acid (PFOS)	8.4		1.9	0.51	ng/L		03/06/23 06:36	03/08/23 20:43	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.8		ng/L		03/06/23 06:36	03/08/23 20:43	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.8	1.2	ng/L		03/06/23 06:36	03/08/23 20:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9		ng/L		03/06/23 06:36	03/08/23 20:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		03/06/23 06:36	03/08/23 20:43	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.30	ng/L		03/06/23 06:36	03/08/23 20:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		03/06/23 06:36	03/08/23 20:43	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		50 - 150				03/06/23 06:36	03/08/23 20:43	1
13C4 PFHpA	106		50 - 150				03/06/23 06:36	03/08/23 20:43	1
13C4 PFOA	104		50 - 150				03/06/23 06:36	03/08/23 20:43	1
13C5 PFNA	107		50 - 150				03/06/23 06:36	03/08/23 20:43	1
13C2 PFDA	105		50 - 150				03/06/23 06:36	03/08/23 20:43	1
13C2 PFUnA	103		50 - 150				03/06/23 06:36	03/08/23 20:43	1
13C2 PFDoA	102		50 - 150				03/06/23 06:36	03/08/23 20:43	1
13C2 PFTeDA	101		50 - 150				03/06/23 06:36	03/08/23 20:43	1
13C3 PFBS	97		50 - 150				03/06/23 06:36	03/08/23 20:43	1
1802 PFHxS	103		50 - 150				03/06/23 06:36	03/08/23 20:43	1
13C4 PFOS	103		50 - 150				03/06/23 06:36	03/08/23 20:43	1
d3-NMeFOSAA	97		50 - 150				03/06/23 06:36	03/08/23 20:43	1
d5-NEtFOSAA	103		50 - 150				03/06/23 06:36	03/08/23 20:43	1
13C3 HFPO-DA	95		50 ₋ 150				03/06/23 06:36	03/08/23 20:43	1

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Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

Client Sample ID: MW-101

Lab Sample ID: 320-97213-2

Date Collected: 02/24/23 10:54 **Matrix: Water** Date Received: 02/28/23 15:55

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	5.1		1.9	0.55	ng/L		03/06/23 06:36	03/08/23 20:53	-
Perfluoroheptanoic acid (PFHpA)	0.70	J	1.9	0.24	ng/L		03/06/23 06:36	03/08/23 20:53	
Perfluorooctanoic acid (PFOA)	0.94	J	1.9	0.80	ng/L		03/06/23 06:36	03/08/23 20:53	
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		03/06/23 06:36	03/08/23 20:53	
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		03/06/23 06:36	03/08/23 20:53	•
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		03/06/23 06:36	03/08/23 20:53	
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		03/06/23 06:36	03/08/23 20:53	
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		03/06/23 06:36	03/08/23 20:53	•
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		03/06/23 06:36	03/08/23 20:53	
Perfluorobutanesulfonic acid (PFBS)	0.58	J	1.9	0.19	ng/L		03/06/23 06:36	03/08/23 20:53	,
Perfluorohexanesulfonic acid (PFHxS)	5.0		1.9	0.54	ng/L		03/06/23 06:36	03/08/23 20:53	•
Perfluorooctanesulfonic acid (PFOS)	9.2		1.9		ng/L		03/06/23 06:36	03/08/23 20:53	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		03/06/23 06:36	03/08/23 20:53	•
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.7		ng/L		03/06/23 06:36	03/08/23 20:53	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.23	ng/L		03/06/23 06:36	03/08/23 20:53	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8		ng/L		03/06/23 06:36	03/08/23 20:53	•
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9		ng/L		03/06/23 06:36	03/08/23 20:53	•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		03/06/23 06:36	03/08/23 20:53	,
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	102		50 - 150				03/06/23 06:36	03/08/23 20:53	
13C4 PFHpA	101		50 - 150				03/06/23 06:36	03/08/23 20:53	
13C4 PFOA	105		50 - 150				03/06/23 06:36	03/08/23 20:53	
13C5 PFNA	100		50 - 150				03/06/23 06:36	03/08/23 20:53	
13C2 PFDA	95		50 - 150				03/06/23 06:36	03/08/23 20:53	
13C2 PFUnA	89		50 - 150				03/06/23 06:36	03/08/23 20:53	
13C2 PFDoA	78		50 - 150				03/06/23 06:36	03/08/23 20:53	
13C2 PFTeDA	75		50 - 150				03/06/23 06:36	03/08/23 20:53	
13C3 PFBS	89		50 - 150				03/06/23 06:36	03/08/23 20:53	
1802 PFHxS	97		50 - 150				03/06/23 06:36	03/08/23 20:53	
13C4 PFOS	91		50 - 150				03/06/23 06:36	03/08/23 20:53	
d3-NMeFOSAA	84		50 - 150				03/06/23 06:36	03/08/23 20:53	
d5-NEtFOSAA	83		50 - 150				03/06/23 06:36	03/08/23 20:53	
13C3 HFPO-DA	92		50 ₋ 150				03/06/33 06:36	03/08/23 20:53	

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

Client Sample ID: MW-2

Lab Sample ID: 320-97213-3 Date Collected: 02/24/23 13:15 **Matrix: Water**

Date Received: 02/28/23 15:55

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	47		1.9	0.55	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluoroheptanoic acid (PFHpA)	2.9		1.9	0.24	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluorooctanoic acid (PFOA)	7.9		1.9	0.81	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluorobutanesulfonic acid (PFBS)	13		1.9	0.19	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluorohexanesulfonic acid (PFHxS)	120		1.9	0.54	ng/L		03/06/23 06:36	03/08/23 21:03	1
Perfluorooctanesulfonic acid (PFOS)	250		1.9		ng/L		03/06/23 06:36	03/08/23 21:03	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.8	1.1	ng/L		03/06/23 06:36	03/08/23 21:03	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.8		ng/L		03/06/23 06:36	03/08/23 21:03	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.23	ng/L		03/06/23 06:36	03/08/23 21:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		03/06/23 06:36	03/08/23 21:03	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.31	ng/L		03/06/23 06:36	03/08/23 21:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		03/06/23 06:36	03/08/23 21:03	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	102		50 - 150				03/06/23 06:36	03/08/23 21:03	1
13C4 PFHpA	107		50 - 150				03/06/23 06:36	03/08/23 21:03	1
13C4 PFOA	102		50 - 150				03/06/23 06:36	03/08/23 21:03	1
13C5 PFNA	101		50 - 150				03/06/23 06:36	03/08/23 21:03	1
13C2 PFDA	101		50 - 150				03/06/23 06:36	03/08/23 21:03	1
13C2 PFUnA	104		50 - 150				03/06/23 06:36	03/08/23 21:03	1
13C2 PFDoA	100		50 - 150				03/06/23 06:36	03/08/23 21:03	1
13C2 PFTeDA	96		50 - 150				03/06/23 06:36	03/08/23 21:03	1
13C3 PFBS	91		50 - 150				03/06/23 06:36	03/08/23 21:03	1
1802 PFHxS	97		50 - 150				03/06/23 06:36	03/08/23 21:03	1
13C4 PFOS	92		50 - 150				03/06/23 06:36	03/08/23 21:03	1
d3-NMeFOSAA	89		50 - 150					03/08/23 21:03	1
d5-NEtFOSAA	98		50 - 150					03/08/23 21:03	1
13C3 HFPO-DA	91		50 ₋ 150				03/06/23 06:36	03/08/23 21:03	1

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

Client Sample ID: KSM-005

Lab Sample ID: 320-97213-4

Date Collected: 02/24/23 09:41 **Matrix: Water** Date Received: 02/28/23 15:55

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	1.4	J	1.8	0.52	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	1.8	0.51	ng/L		03/06/23 06:36	03/08/23 21:13	1
Perfluorooctanesulfonic acid (PFOS)	4.2		1.8	0.48	ng/L		03/06/23 06:36	03/08/23 21:13	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		03/06/23 06:36	03/08/23 21:13	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		03/06/23 06:36	03/08/23 21:13	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.21	ng/L		03/06/23 06:36	03/08/23 21:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		03/06/23 06:36	03/08/23 21:13	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		03/06/23 06:36	03/08/23 21:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/06/23 06:36	03/08/23 21:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		50 - 150				03/06/23 06:36	03/08/23 21:13	1
13C4 PFHpA	104		50 - 150				03/06/23 06:36	03/08/23 21:13	1
13C4 PFOA	106		50 ₋ 150				03/06/23 06:36	03/08/23 21:13	1
13C5 PFNA	104		50 - 150				03/06/23 06:36	03/08/23 21:13	1
13C2 PFDA	102		50 ₋ 150				03/06/23 06:36	03/08/23 21:13	1
13C2 PFUnA	101		50 ₋ 150				03/06/23 06:36	03/08/23 21:13	1
13C2 PFDoA	100		50 - 150				03/06/23 06:36	03/08/23 21:13	1
13C2 PFTeDA	101		50 ₋ 150					03/08/23 21:13	1
13C3 PFBS	94		50 ₋ 150					03/08/23 21:13	1
1802 PFHxS	100		50 - 150				03/06/23 06:36	03/08/23 21:13	1
13C4 PFOS	98		50 ₋ 150					03/08/23 21:13	1
d3-NMeFOSAA	96		50 - 150					03/08/23 21:13	1
d5-NEtFOSAA	97		50 - 150					03/08/23 21:13	
	37		00 - 100				2 2. 2 3. 20 00.00	- 5 5 5 - 1. 10	,

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

Client Sample ID: KSM-105

Date Received: 02/28/23 15:55

Lab Sample ID: 320-97213-5 Date Collected: 02/24/23 09:31

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	1.5	J	1.8	0.52	ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.77	ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	1.8		ng/L		03/06/23 06:36	03/08/23 21:23	1
Perfluorooctanesulfonic acid (PFOS)	4.4		1.8	0.49	ng/L		03/06/23 06:36	03/08/23 21:23	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		03/06/23 06:36	03/08/23 21:23	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		03/06/23 06:36	03/08/23 21:23	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		03/06/23 06:36	03/08/23 21:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		03/06/23 06:36	03/08/23 21:23	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		03/06/23 06:36	03/08/23 21:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/06/23 06:36	03/08/23 21:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		50 - 150				03/06/23 06:36	03/08/23 21:23	1
13C4 PFHpA	103		50 - 150				03/06/23 06:36	03/08/23 21:23	1
13C4 PFOA	106		50 ₋ 150				03/06/23 06:36	03/08/23 21:23	1
13C5 PFNA	107		50 - 150				03/06/23 06:36	03/08/23 21:23	1
13C2 PFDA	102		50 ₋ 150				03/06/23 06:36	03/08/23 21:23	1
13C2 PFUnA	100		50 ₋ 150					03/08/23 21:23	1
13C2 PFDoA	99		50 - 150					03/08/23 21:23	1
13C2 PFTeDA	101		50 ₋ 150					03/08/23 21:23	1
13C3 PFBS	101		50 ₋ 150					03/08/23 21:23	1
1802 PFHxS	103		50 ₋ 150					03/08/23 21:23	
13C4 PFOS	99		50 ₋ 150					03/08/23 21:23	1
d3-NMeFOSAA	95		50 - 150					03/08/23 21:23	1
d5-NEtFOSAA	101		50 - 150					03/08/23 21:23	
13C3 HFPO-DA	96		50 - 150					03/08/23 21:23	1

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

Client Sample ID: GAC

Date Collected: 02/24/23 14:15 Date Received: 02/28/23 15:55

Lab Sample ID: 320-97213-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluorohexanesulfonic acid (PFHxS)	1.5	J B	1.8	0.51	ng/L		03/09/23 19:11	03/13/23 22:02	1
Perfluorooctanesulfonic acid (PFOS)	11		1.8	0.49	ng/L		03/09/23 19:11	03/13/23 22:02	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		03/09/23 19:11	03/13/23 22:02	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		03/09/23 19:11	03/13/23 22:02	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		03/09/23 19:11	03/13/23 22:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		03/09/23 19:11	03/13/23 22:02	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		03/09/23 19:11	03/13/23 22:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/09/23 19:11	03/13/23 22:02	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		50 - 150					03/13/23 22:02	1
13C4 PFHpA	86		50 - 150				03/09/23 19:11	03/13/23 22:02	1
13C4 PFOA	86		50 ₋ 150				03/09/23 19:11	03/13/23 22:02	1
13C5 PFNA	86		50 - 150				03/09/23 19:11	03/13/23 22:02	1
13C2 PFDA	83		50 ₋ 150				03/09/23 19:11	03/13/23 22:02	1
13C2 PFUnA	81		50 ₋ 150					03/13/23 22:02	1
13C2 PFDoA	72		50 - 150				03/09/23 19:11	03/13/23 22:02	1
13C2 PFTeDA	69		50 ₋ 150				03/09/23 19:11	03/13/23 22:02	1
13C3 PFBS	84		50 - 150					03/13/23 22:02	1
1802 PFHxS	81		50 - 150				03/09/23 19:11	03/13/23 22:02	1
13C4 PFOS	78		50 ₋ 150					03/13/23 22:02	1
d3-NMeFOSAA	72		50 - 150					03/13/23 22:02	. 1
d5-NEtFOSAA	71		50 - 150					03/13/23 22:02	
13C3 HFPO-DA	87		50 - 150					03/13/23 22:02	1

Isotope Dilution Summary

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTDA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-97213-1	MW-1	104	106	104	107	105	103	102	101
320-97213-2	MW-101	102	101	105	100	95	89	78	75
320-97213-3	MW-2	102	107	102	101	101	104	100	96
320-97213-4	KSM-005	103	104	106	104	102	101	100	101
320-97213-5	KSM-105	104	103	106	107	102	100	99	101
320-97213-6	GAC	90	86	86	86	83	81	72	69
LCS 320-658365/2-A	Lab Control Sample	105	108	103	105	106	102	102	98
LCS 320-659712/2-A	Lab Control Sample	109	111	106	110	110	107	102	101
LCSD 320-658365/3-A	Lab Control Sample Dup	105	109	106	105	104	106	101	95
LCSD 320-659712/3-A	Lab Control Sample Dup	108	106	103	104	106	100	99	93
MB 320-658365/1-A	Method Blank	100	104	105	102	107	102	99	91
MB 320-659712/1-A	Method Blank	110	106	106	108	107	110	100	95
			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
320-97213-1	MW-1	97	103	103	97	103	95		
320-97213-2	MW-101	89	97	91	84	83	92		
320-97213-3	MW-2	91	97	92	89	98	91		
320-97213-4	KSM-005	94	100	98	96	97	94		
320-97213-5	KSM-105	101	103	99	95	101	96		
320-97213-6	GAC	84	81	78	72	71	87		
LCS 320-658365/2-A	Lab Control Sample	101	101	97	98	96	101		
LCS 320-659712/2-A	Lab Control Sample	106	106	104	98	100	112		
LCSD 320-658365/3-A	Lab Control Sample Dup	98	103	98	96	98	99		
LCSD 320-659712/3-A	Lab Control Sample Dup	96	100	97	92	93	104		
MB 320-658365/1-A	Method Blank	94	101	95	91	90	96		
MB 320-659712/1-A	Method Blank	102	102	104	105	101	109		

Surrogate Legend

PFHxA = 13C2 PFHxA

C4PFHA = 13C4 PFHpA

PFOA = 13C4 PFOA

PFNA = 13C5 PFNA

PFDA = 13C2 PFDA

PFUnA = 13C2 PFUnA

PFDoA = 13C2 PFDoA

PFTDA = 13C2 PFTeDA

C3PFBS = 13C3 PFBS

PFHxS = 18O2 PFHxS PFOS = 13C4 PFOS

d3NMFOS = d3-NMeFOSAA

d5NEFOS = d5-NEtFOSAA

HFPODA = 13C3 HFPO-DA

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Page 13 of 26

Client: Shannon & Wilson, Inc Job ID: 320-97213-1

Project/Site: St. Mary's WSW

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-658365/1-A

Matrix: Water

Analysis Batch: 659314

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 658365

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		03/06/23 06:36	03/08/23 20:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		03/06/23 06:36	03/08/23 20:13	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		03/06/23 06:36	03/08/23 20:13	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		03/06/23 06:36	03/08/23 20:13	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.0	0.24	ng/L		03/06/23 06:36	03/08/23 20:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		03/06/23 06:36	03/08/23 20:13	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.0	0.32	ng/L		03/06/23 06:36	03/08/23 20:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		03/06/23 06:36	03/08/23 20:13	1

мв мв

	IVID IVID			
Isotope Dilution	%Recovery Qualifier	Limits	Prepared Analyzed	Dil Fac
13C2 PFHxA	100	50 - 150	03/06/23 06:36 03/08/23 20:13	<u>3</u> 1
13C4 PFHpA	104	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
13C4 PFOA	105	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
13C5 PFNA	102	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
13C2 PFDA	107	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
13C2 PFUnA	102	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
13C2 PFDoA	99	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
13C2 PFTeDA	91	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
13C3 PFBS	94	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
1802 PFHxS	101	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
13C4 PFOS	95	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
d3-NMeFOSAA	91	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
d5-NEtFOSAA	90	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1
13C3 HFPO-DA	96	50 - 150	03/06/23 06:36 03/08/23 20:13	3 1

Lab Sample ID: LCS 320-658365/2-A

Matrix: Water

Analysis Batch: 659314

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Prep Batch: 658365

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	40.0	41.0		ng/L		102	72 - 129	
Perfluoroheptanoic acid (PFHpA)	40.0	39.6		ng/L		99	72 - 130	
Perfluorooctanoic acid (PFOA)	40.0	42.8		ng/L		107	71 - 133	
Perfluorononanoic acid (PFNA)	40.0	41.5		ng/L		104	69 - 130	

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Page 14 of 26

Spike

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

LCS LCS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-658365/2-A

Matrix: Water

Analysis Batch: 659314

Client Sample ID: Lab Control Sample

%Rec

Prep Type: Total/NA

Prep Batch: 658365

	Opine	LOO	LOG			/01 10 0	
Analyte	Added	Result	Qualifier Un	it D	%Rec	Limits	
Perfluorodecanoic acid (PFDA)	40.0	38.9	ng/		97	71 - 129	
Perfluoroundecanoic acid	40.0	45.7	ng/	L	114	69 - 133	
(PFUnA)							
Perfluorododecanoic acid	40.0	41.8	ng/	L	105	72 - 134	
(PFDoA)							
Perfluorotridecanoic acid	40.0	40.5	ng/	L	101	65 - 144	
(PFTriA)							
Perfluorotetradecanoic acid	40.0	40.3	ng/	L	101	71 - 132	
(PFTeA)							
Perfluorobutanesulfonic acid	35.5	37.0	ng/	L	104	72 - 130	
(PFBS)							
Perfluorohexanesulfonic acid	36.5	35.3	ng/	L	97	68 - 131	
(PFHxS)				_			
Perfluorooctanesulfonic acid	37.2	39.5	ng/	L	106	65 - 140	
(PFOS)							
N-methylperfluorooctanesulfona	40.0	39.1	ng/	L	98	65 - 136	
midoacetic acid (NMeFOSAA)	40.0	42.0	n ar l	ı	100	61 - 135	
N-ethylperfluorooctanesulfonami	40.0	43.2	ng/	L	108	01-133	
doacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxan	37.4	38.5	ng/		103	77 - 137	
onane-1-sulfonic acid	37.4	36.5	rig/	L	103	11 - 131	
Hexafluoropropylene Oxide	40.0	39.0	ng/		98	72 - 132	
Dimer Acid (HFPO-DA)	40.0	33.0	rig/	L	30	72 - 132	
11-Chloroeicosafluoro-3-oxaund	37.8	38.2	ng/	l	101	76 - 136	
ecane-1-sulfonic acid	37.0	00.2	119/	_	101	.0-100	
4,8-Dioxa-3H-perfluorononanoic	37.8	44.9	ng/	I	119	81 - 141	
acid (ADONA)	31.0	. 1.0	119/	_			
,	1.00						

LCS LCS

	LUU	L03	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	105		50 - 150
13C4 PFHpA	108		50 - 150
13C4 PFOA	103		50 - 150
13C5 PFNA	105		50 - 150
13C2 PFDA	106		50 - 150
13C2 PFUnA	102		50 - 150
13C2 PFDoA	102		50 - 150
13C2 PFTeDA	98		50 - 150
13C3 PFBS	101		50 - 150
1802 PFHxS	101		50 - 150
13C4 PFOS	97		50 - 150
d3-NMeFOSAA	98		50 - 150
d5-NEtFOSAA	96		50 - 150
13C3 HFPO-DA	101		50 - 150
13C3 HFPO-DA	101		50 -

Lab Sample ID: LCSD 320-658365/3-A **Client Sample ID: Lab Control Sample Dup**

Analysis Batch: 659314

Matrix: Water

Prep Batch: 658365 Spike LCSD LCSD %Rec **RPD** Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit Perfluorohexanoic acid (PFHxA) 40.0 40.4 101 72 - 129 30 ng/L 1 Perfluoroheptanoic acid (PFHpA) 40.0 39.7 ng/L 99 72 - 130 30 Perfluorooctanoic acid (PFOA) 40.0 41.1 ng/L 103 71 - 133 30

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Prep Type: Total/NA

Page 15 of 26

3/19/2023

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-658365/3-A

Matrix: Water

Analysis Batch: 659314

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 658365

Analysis Batom 600014	Spike LCSD LCS						%Rec		RPD
Auralista	•	_		11	_	0/ D		DDD	
Analyte	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorononanoic acid (PFNA)	40.0	41.5		ng/L		104	69 - 130	0	30
Perfluorodecanoic acid (PFDA)	40.0	39.8		ng/L		100	71 - 129	2	30
Perfluoroundecanoic acid (PFUnA)	40.0	42.9		ng/L		107	69 - 133	6	30
Perfluorododecanoic acid (PFDoA)	40.0	42.4		ng/L		106	72 - 134	1	30
Perfluorotridecanoic acid (PFTriA)	40.0	39.7		ng/L		99	65 - 144	2	30
Perfluorotetradecanoic acid (PFTeA)	40.0	42.3		ng/L		106	71 - 132	5	30
Perfluorobutanesulfonic acid (PFBS)	35.5	36.9		ng/L		104	72 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.4		ng/L		94	68 - 131	2	30
Perfluorooctanesulfonic acid (PFOS)	37.2	39.7		ng/L		107	65 - 140	1	30
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	39.6		ng/L		99	65 - 136	1	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	40.0	41.6		ng/L		104	61 - 135	4	30
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid	37.4	38.9		ng/L		104	77 - 137	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	39.8		ng/L		100	72 - 132	2	30
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid	37.8	38.8		ng/L		103	76 - 136	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	42.2		ng/L		112	81 - 141	6	30

LCSD LCSD

Isotope Dilution	%Recovery Qualifier	Limits
13C2 PFHxA	105	50 - 150
13C4 PFHpA	109	50 - 150
13C4 PFOA	106	50 ₋ 150
13C5 PFNA	105	50 - 150
13C2 PFDA	104	50 - 150
13C2 PFUnA	106	50 - 150
13C2 PFDoA	101	50 - 150
13C2 PFTeDA	95	50 ₋ 150
13C3 PFBS	98	50 - 150
18O2 PFHxS	103	50 ₋ 150
13C4 PFOS	98	50 - 150
d3-NMeFOSAA	96	50 ₋ 150
d5-NEtFOSAA	98	50 ₋ 150
13C3 HFPO-DA	99	50 - 150

Lab Sample ID: MB 320-659712/1-A

Matrix: Water

Analysis Batch: 660487

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 659712

_	MB	MB						•	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		03/09/23 19:11	03/13/23 20:51	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		03/09/23 19:11	03/13/23 20:51	1

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Page 16 of 26

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-659712/1-A

Matrix: Water

Analysis Batch: 660487

Client Sample ID: Method Blank

Prep Type: Total/NA **Prep Batch: 659712**

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Perfluorooctanoic acid (PFOA) ND 2.0 0.85 ng/L 03/09/23 19:11 03/13/23 20:51 Perfluorononanoic acid (PFNA) ND 2.0 0.27 ng/L 03/09/23 19:11 03/13/23 20:51 Perfluorodecanoic acid (PFDA) ND 2.0 03/09/23 19:11 03/13/23 20:51 0.31 ng/L Perfluoroundecanoic acid (PFUnA) ND 2.0 1.1 ng/L 03/09/23 19:11 03/13/23 20:51 Perfluorododecanoic acid (PFDoA) ND 2.0 03/09/23 19:11 03/13/23 20:51 0.55 ng/L Perfluorotridecanoic acid (PFTriA) ND 2.0 1.3 ng/L 03/09/23 19:11 03/13/23 20:51 Perfluorotetradecanoic acid (PFTeA) ND 2.0 0.73 ng/L 03/09/23 19:11 03/13/23 20:51 Perfluorobutanesulfonic acid (PFBS) ND 0.20 ng/L 2.0 03/09/23 19:11 03/13/23 20:51 0.603 J Perfluorohexanesulfonic acid (PFHxS) 2.0 0.57 ng/L 03/09/23 19:11 03/13/23 20:51 Perfluorooctanesulfonic acid (PFOS) ND 2.0 0.54 ng/L 03/09/23 19:11 03/13/23 20:51 03/09/23 19:11 03/13/23 20:51 N-methylperfluorooctanesulfonamidoa ND 5.0 1.2 ng/L cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac ND 5.0 1.3 ng/L 03/09/23 19:11 03/13/23 20:51 etic acid (NEtFOSAA) ND 2.0 03/09/23 19:11 03/13/23 20:51 9-Chlorohexadecafluoro-3-oxanonan 0.24 ng/L e-1-sulfonic acid Hexafluoropropylene Oxide Dimer ND 4.0 1.5 ng/L 03/09/23 19:11 03/13/23 20:51 Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan ND 2.0 0.32 ng/L 03/09/23 19:11 03/13/23 20:51 e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid ND 2.0 0.40 ng/L 03/09/23 19:11 03/13/23 20:51 (ADONA)

	MB	MB				
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		50 - 150	03/09/23 19:11	03/13/23 20:51	1
13C4 PFHpA	106		50 - 150	03/09/23 19:11	03/13/23 20:51	1
13C4 PFOA	106		50 - 150	03/09/23 19:11	03/13/23 20:51	1
13C5 PFNA	108		50 - 150	03/09/23 19:11	03/13/23 20:51	1
13C2 PFDA	107		50 - 150	03/09/23 19:11	03/13/23 20:51	1
13C2 PFUnA	110		50 - 150	03/09/23 19:11	03/13/23 20:51	1
13C2 PFDoA	100		50 - 150	03/09/23 19:11	03/13/23 20:51	1
13C2 PFTeDA	95		50 - 150	03/09/23 19:11	03/13/23 20:51	1
13C3 PFBS	102		50 - 150	03/09/23 19:11	03/13/23 20:51	1
1802 PFHxS	102		50 - 150	03/09/23 19:11	03/13/23 20:51	1
13C4 PFOS	104		50 - 150	03/09/23 19:11	03/13/23 20:51	1
d3-NMeFOSAA	105		50 - 150	03/09/23 19:11	03/13/23 20:51	1
d5-NEtFOSAA	101		50 - 150	03/09/23 19:11	03/13/23 20:51	1
13C3 HFPO-DA	109		50 - 150	03/09/23 19:11	03/13/23 20:51	1

Lab Sample ID: LCS 320-659712/2-A

Matrix: Water

Analysis Batch: 660487

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Prep Batch: 659712

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	40.0	38.5		ng/L		96	72 - 129	
Perfluoroheptanoic acid (PFHpA)	40.0	40.7		ng/L		102	72 - 130	
Perfluorooctanoic acid (PFOA)	40.0	40.2		ng/L		100	71 - 133	
Perfluorononanoic acid (PFNA)	40.0	41.0		ng/L		102	69 - 130	
Perfluorodecanoic acid (PFDA)	40.0	40.2		ng/L		101	71 - 129	
Perfluoroundecanoic acid	40.0	41.7		ng/L		104	69 - 133	
(PFUnA)								

Page 17 of 26

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-659712/2-A

Matrix: Water

Analysis Batch: 660487

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Prep Batch: 659712

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit %Rec Limits Perfluorododecanoic acid 40.0 41.8 ng/L 104 72 - 134 (PFDoA) Perfluorotridecanoic acid 40.0 42.5 106 65 - 144 ng/L (PFTriA) Perfluorotetradecanoic acid 40.0 38.8 ng/L 71 - 132 (PFTeA) Perfluorobutanesulfonic acid 35.5 36.0 ng/L 101 72 - 130 (PFBS) 36.5 36.4 100 Perfluorohexanesulfonic acid ng/L 68 - 131 (PFHxS) 37.2 38.3 103 65 - 140 Perfluorooctanesulfonic acid ng/L (PFOS) N-methylperfluorooctanesulfona 40.0 37.1 ng/L 93 65 - 136 midoacetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonami 40.0 38.1 ng/L 95 61 - 135 doacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxan 37.4 39.4 ng/L 105 77 - 137 onane-1-sulfonic acid Hexafluoropropylene Oxide 40.0 40.9 ng/L 102 72 - 132 Dimer Acid (HFPO-DA) 37.1 11-Chloroeicosafluoro-3-oxaund 37.8 ng/L 98 76 - 136 ecane-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic 42.4 37.8 ng/L 112 81 - 141 acid (ADONA)

LCS LCS

Isotope Dilution	%Recovery Qualifie	er Limits
13C2 PFHxA	109	50 - 150
13C4 PFHpA	111	50 - 150
13C4 PFOA	106	50 - 150
13C5 PFNA	110	50 - 150
13C2 PFDA	110	50 - 150
13C2 PFUnA	107	50 - 150
13C2 PFDoA	102	50 - 150
13C2 PFTeDA	101	50 - 150
13C3 PFBS	106	50 - 150
1802 PFHxS	106	50 - 150
13C4 PFOS	104	50 - 150
d3-NMeFOSAA	98	50 - 150
d5-NEtFOSAA	100	50 - 150
13C3 HFPO-DA	112	50 ₋ 150

Lab Sample ID: LCSD 320-659712/3-A **Client Sample ID: Lab Control Sample Dup**

Matrix: Water Analysis Batch: 660487

Analysis Batch: 660487							Prep Ba	•	59712
	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	40.0	39.9		ng/L		100	72 - 129	4	30
Perfluoroheptanoic acid (PFHpA)	40.0	44.1		ng/L		110	72 - 130	8	30
Perfluorooctanoic acid (PFOA)	40.0	43.9		ng/L		110	71 - 133	9	30
Perfluorononanoic acid (PFNA)	40.0	44.2		ng/L		111	69 - 130	8	30
Perfluorodecanoic acid (PFDA)	40.0	43.4		ng/L		108	71 - 129	7	30

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Prep Type: Total/NA

Page 18 of 26

QC Sample Results

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab	Sample	ID: LCSD	320-659712/3	3-A

Matrix: Water

Analysis Batch: 660487

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 659712 %Rec

Analysis Baton. 600407	Spike LCS		LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluoroundecanoic acid	40.0	46.4		ng/L		116	69 - 133	11	30
(PFUnA)									
Perfluorododecanoic acid	40.0	41.3		ng/L		103	72 - 134	1	30
(PFDoA)									
Perfluorotridecanoic acid	40.0	43.2		ng/L		108	65 - 144	1	30
(PFTriA)									
Perfluorotetradecanoic acid	40.0	43.9		ng/L		110	71 - 132	12	30
(PFTeA)									
Perfluorobutanesulfonic acid	35.5	41.2		ng/L		116	72 - 130	13	30
(PFBS)									
Perfluorohexanesulfonic acid	36.5	38.9		ng/L		107	68 - 131	7	30
(PFHxS)								_	
Perfluorooctanesulfonic acid	37.2	38.9		ng/L		105	65 - 140	2	30
(PFOS)								<u></u> -	
N-methylperfluorooctanesulfona	40.0	41.9		ng/L		105	65 - 136	12	30
midoacetic acid (NMeFOSAA)	40.0	40.4				400	04 405	40	00
N-ethylperfluorooctanesulfonami	40.0	43.1		ng/L		108	61 - 135	12	30
doacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxan	37.4	42.8		na/l		114	77 - 137	8	30
onane-1-sulfonic acid	37.4	42.0		ng/L		114	11 - 131	0	30
Hexafluoropropylene Oxide	40.0	44.2		ng/L		110	72 - 132	8	30
Dimer Acid (HFPO-DA)	40.0	44.2		iig/L		110	72 - 132	O	30
11-Chloroeicosafluoro-3-oxaund	37.8	41.9		ng/L		111	76 - 136	12	30
ecane-1-sulfonic acid	07.0	71.5		119/1			70-100	12	50
4,8-Dioxa-3H-perfluorononanoic	37.8	45.0		ng/L		119	81 - 141	6	30
acid (ADONA)	07.0	40.0		.19/-		113	31-171	0	50
adia (1 DOTAT)									

LCSD LCSD

	LUSD	LUSD	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	108		50 - 150
13C4 PFHpA	106		50 - 150
13C4 PFOA	103		50 - 150
13C5 PFNA	104		50 - 150
13C2 PFDA	106		50 - 150
13C2 PFUnA	100		50 - 150
13C2 PFDoA	99		50 - 150
13C2 PFTeDA	93		50 - 150
13C3 PFBS	96		50 - 150
1802 PFHxS	100		50 - 150
13C4 PFOS	97		50 - 150
d3-NMeFOSAA	92		50 - 150
d5-NEtFOSAA	93		50 - 150
13C3 HFPO-DA	104		50 - 150

QC Association Summary

Client: Shannon & Wilson, Inc Job ID: 320-97213-1 Project/Site: St. Mary's WSW

LCMS

Prep Batch: 658365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-97213-1	MW-1	Total/NA	Water	3535	
320-97213-2	MW-101	Total/NA	Water	3535	
320-97213-3	MW-2	Total/NA	Water	3535	
320-97213-4	KSM-005	Total/NA	Water	3535	
320-97213-5	KSM-105	Total/NA	Water	3535	
MB 320-658365/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-658365/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-658365/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 659314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-97213-1	MW-1	Total/NA	Water	EPA 537(Mod)	658365
320-97213-2	MW-101	Total/NA	Water	EPA 537(Mod)	658365
320-97213-3	MW-2	Total/NA	Water	EPA 537(Mod)	658365
320-97213-4	KSM-005	Total/NA	Water	EPA 537(Mod)	658365
320-97213-5	KSM-105	Total/NA	Water	EPA 537(Mod)	658365
MB 320-658365/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	658365
LCS 320-658365/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	658365
LCSD 320-658365/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	658365

Prep Batch: 659712

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-97213-6	GAC	Total/NA	Water	3535	
MB 320-659712/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-659712/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-659712/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 660487

Lab Sample ID 320-97213-6	GAC	Prep Type Total/NA	Matrix Water	Method EPA 537(Mod)	Prep Batch 659712
MB 320-659712/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	659712
LCS 320-659712/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	659712
LCSD 320-659712/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	659712

Job ID: 320-97213-1

Client: Shannon & Wilson, Inc

Project/Site: St. Mary's WSW

Client Sample ID: MW-1 Lab Sample ID: 320-97213-1 Date Collected: 02/24/23 11:04

Matrix: Water

Matrix: Water

Date Received: 02/28/23 15:55

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262.6 mL	10.0 mL	658365	03/06/23 06:36	EJR	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	659314	03/08/23 20:43	D1R	EET SAC

Client Sample ID: MW-101 Lab Sample ID: 320-97213-2

Date Collected: 02/24/23 10:54 **Matrix: Water**

Date Received: 02/28/23 15:55

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			264.9 mL	10.0 mL	658365	03/06/23 06:36	EJR	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	659314	03/08/23 20:53	D1R	EET SAC

Client Sample ID: MW-2 Lab Sample ID: 320-97213-3

Date Collected: 02/24/23 13:15

Date Received: 02/28/23 15:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262.1 mL	10.0 mL	658365	03/06/23 06:36	EJR	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	659314	03/08/23 21:03	D1R	EET SAC

Client Sample ID: KSM-005 Lab Sample ID: 320-97213-4 Date Collected: 02/24/23 09:41 **Matrix: Water**

Date Received: 02/28/23 15:55

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Method Amount Amount Number or Analyzed Analyst Type Run Factor Lab Total/NA 3535 658365 03/06/23 06:36 EJR Prep 279.6 mL 10.0 mL EET SAC Total/NA Analysis EPA 537(Mod) 1 1 mL 1 mL 659314 03/08/23 21:13 D1R **EET SAC**

Client Sample ID: KSM-105 Lab Sample ID: 320-97213-5 Date Collected: 02/24/23 09:31 **Matrix: Water**

Date Received: 02/28/23 15:55

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			277.7 mL	10.0 mL	658365	03/06/23 06:36	EJR	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	659314	03/08/23 21:23	D1R	EET SAC

Client Sample ID: GAC Lab Sample ID: 320-97213-6 Date Collected: 02/24/23 14:15

Date Received: 02/28/23 15:55

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			278.1 mL	10.0 mL	659712	03/09/23 19:11	PV	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	660487	03/13/23 22:02	K1S	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Eurofins Sacramento

Page 21 of 26

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc Job ID: 320-97213-1

Project/Site: St. Mary's WSW

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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Method Summary

Client: Shannon & Wilson, Inc Project/Site: St. Mary's WSW

Job ID: 320-97213-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	EET SAC
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Shannon & Wilson, Inc Project/Site: St. Mary's WSW Job ID: 320-97213-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-97213-1	MW-1	Water	02/24/23 11:04	02/28/23 15:55
320-97213-2	MW-101	Water	02/24/23 10:54	02/28/23 15:55
320-97213-3	MW-2	Water	02/24/23 13:15	02/28/23 15:55
320-97213-4	KSM-005	Water	02/24/23 09:41	02/28/23 15:55
320-97213-5	KSM-105	Water	02/24/23 09:31	02/28/23 15:55
320-97213-6	GAC	Water	02/24/23 14:15	02/28/23 15:55

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2355 Hill Road Fairbanks, AK 99709 (907) 479-0600 www.shannonwilson.co		N-OF-CUSTODY	RECORD Analytical Methods (include pres	Page of Laboratory Eurofins Attn: David Allfucter servative if used)
Turn Around Time: Normal Rush	Quote No: J-Flags: Yes No] July 3,15		Remarks/Matrix Composition/Grab? Sample Containers
Please Specify Sample Identity	Lab No. Time Sa	Date ampled		
MW-101 MW-201	1104 2-	24-23 X X X		2 Groundwater
KSM-005 KSM-105	0941	X X		
GAC	1415	320-97213 CI	nain of Custody	
Project Information	Sample Receipt	Reliquished By: 1.	Reliquished By: 2	. Reliquished By: 3.
Number: 102219-019 Name: St. Mary's WSW	Total No. of Containers: /2 COC Seals/Intact? Y/N/NA	Signature: Time: 12.32 Mushub Chame: Date: 2-2.7		Signature: Time:
Contact: KRF Ongoing Project? Yes No No No No No No No No No N	Received Good Cond./Cold Temp:	Mason Craker	Printed Name: Date:	Printed Name: Date:
Sampler: MSC	Delivery Method:	Company:	Company:	Company:
No	otes:	Shannon & Wilson Received By: 1.	Received By: 2.	Received By: 3.
		Signature Time 454	Signature: Time:	Signature: Time:
		Printed Name: Date: 7-78-7	Printed Name: Date:	Printed Name: Date:
Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report Yellow - w/shipment - for consignee files Pink - Shannon & Wilson - job file Company: U.4.2 Company: Company: Company:				Company:

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Client: Shannon & Wilson, Inc Job Number: 320-97213-1

Login Number: 97213 List Source: Eurofins Sacramento

List Number: 1

Creator: Pratali, Sandra A

oreator. Frataii, Sanura A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	SEAL
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Andrew Frick	CS Site Name:	N/A	Lab Name:	Eurofins Environment Testing
Title:	Environmental Scientist	ADEC File No.:	N/A	Lab Report No.:	320-97213-1
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	N/A	Lab Report Date:	3/19/2023
Note: Any N/A or I		nust have an exp	olanation in the con	nments box.	
app Yes Cor Env The app b. If th	roved laboratory r No No N/A I nments: The samp ironment Testing se compounds we roval 17-020. e samples were tr	eceive and performance bles were submit laboratory in We ere included in the	boratory Approval Form all of the submitted to the DEC celest Sacramento for the DEC's contamination of the metwork and poratory performing	rtified Eurofins the analysis o ated sites laboratory or sub-	inalyses? If PFAS. Pratory -contracted
app Yes Cor	roved? □ No □ N/A ▷	3	ot subcontracted or	•	
2. Chain of C	ustody (CoC)				
rele Yes	ne CoC information ased/received by) No No N/A Comments:	?	gned, and dated (in	cluding	
Yes Ana the Env	•	Per- and polyfluo fense (DoD) Qu	orinated substance ality Systems Man	` ,	pliant with

Revision 9/2022

Lab Report No.: 320-97213-1

3. Laboratory Sample Receipt Documentation

	a.	Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)? Yes \boxtimes No \square N/A \square Cooler temperature(s): The cooler temperature was reported 4.4° C. Sample temperature(s): A temperature blank was included with the samples in
		the cooler however, a temperature was not recorded.
	b.	Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)? Yes No N/A Comments: PFAS does not require any additional preservation beyond temperature control.
	C.	Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.? Yes No N/A
		Comments: The laboratory noted that the samples arrived in good condition within the case narrative.
	d.	If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.? Yes \square No \square N/A \boxtimes
		Comments: The laboratory did not note any discrepancies.
	e.	Is the data quality or usability affected? Yes □ No ☒ N/A □ Comments: See above.
4.	Case I	Narrative
	a.	Is the case narrative present and understandable? Yes ☑ No □ N/A □ Comments:
	b.	Are there discrepancies, errors, or QC failures identified by the lab? Yes \boxtimes No \square N/A \square Comments:
		The laboratory applied an "I" qualifier to the PFHxA result for sample <i>MW-1</i> to indicate the transition mass ratio was outside of establish limits. The reported value may have some high bias. However, analyst judgment was used to positively identify the analyte.

Lab Report No.: 320-97213-1

The low-level continuing calibration verification (CCVL) associated with batch 320-660487 recovered above the upper control limit for perfluorohexanesulfonic acid (PFHxS). The samples associated with this CCVL are bracketed by continuing calibration verifications (CCVs) which are in control for this analyte. (CCVL 320-660487/5)

Insufficient sample volume was available to perform matrix spike/matrix spike duplicates (MS/MSD) associated with preparation batches 320-658365 and 320-659712.

The laboratory noted the following samples in preparation batch 320-658365 were observed to be brown in color and have a thin layer of sediment present in the bottom of the bottle prior to extraction: *MW-1* and *MW-2*. A thin layer of sediment was observed in sample *GAC* in preparation batch 320-97213. Due to the thin layer of sediment at the bottom of the bottles, samples *MW-1* and *MW-2* were centrifuged and decanted into new 250 mL containers. After centrifuging and decanting, the samples were fortified with IDA and then extracted.

	C.	Were all the corrective actions documented? Yes \boxtimes No \square N/A \square Comments:
	d.	What is the effect on data quality/usability according to the case narrative? Comments: The case narrative does not note an effect on data quality or usability. See the following sections for our assessment.
5.	Sampl	le Results
	a.	Are the correct analyses performed/reported as requested on CoC? Yes \boxtimes No \square N/A \square Comments:
	b.	Are all applicable holding times met? Yes ⊠ No □ N/A □ Comments:
	C.	Are all soils reported on a dry weight basis? Yes □ No □ N/A ☒ Comments: Soils were not submitted with this work order.
	d.	Are the reported limits of quantitation (LOQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project? Yes \boxtimes No \square N/A \square Comments:

	Comm	ents: See above.				
QC Sa	QC Samples					
a.	Method	d Blank				
	i.	Was one method blank reported per matrix, analysis, and 20 samples? Yes \boxtimes No \square N/A \square Comments:				
	ii.	Are all method blank results less than LOQ (or RL)? Yes \boxtimes No \square Comments: However, PFHxS was detected in MB 320-659712/1-A associated with preparation batch 659712 at a concentration less than the RL but greater than the MDL.				
	iii.	If above LOQ or RL, what samples are affected? Comments: Sample <i>GAC</i> was the only project sample included in preparation batch 659712. PFHxS was detected in sample <i>GAC</i> at concentrations less than the RL but greater than the MDL. The PFHxS result for sample <i>GAC</i> is considered not-detected at the RL due to the PFHxS contamination identified in MB 320-659712/1-A.				
	iv.	Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes \square No \square N/A \boxtimes Comments: Sample results for GAC are not included in the analytical data tables; sampling was performed to assess the effectiveness of the granular activated carbon filtration used for field disposal of purge water.				
	V.	Data quality or usability affected? Yes □ No ⋈ N/A □ Comments: See above.				
b.	Labora	atory Control Sample/Duplicate (LCS/LCSD)				
	i.	Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846) Yes ☑ No □ N/A □ Comments:				
	ii.	Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?				

6.

Lab Report No.: 320-97213-1

e. Is the data quality or usability affected?

Yes □ No ⊠ N/A □

CS Site Name: N/A Lab Report No.: 320-97213-1 Yes □ No □ N/A ⋈ Comments: Metals/Inorganics were not requested as a part of this work order. iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) Yes ⊠ No □ N/A □ Comments: iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) Yes ⊠ No □ N/A □ Comments: v. If %R or RPD is outside of acceptable limits, what samples are affected? Comments: N/A; the %R and RPD were within acceptable limits. vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes □ No □ N/A ⊠ Comments: See above. vii. Is the data quality or usability affected? Yes □ No ⋈ N/A □ Comments: See above. c. Matrix Spike/Matrix Spike Duplicate (MS/MSD) i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples? Yes □ No ⋈ N/A □ Comments: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate. Precision can be assessed with the

ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and

LCS/LCSD.

20 samples?

Comments:

Yes □ No □ N/A ⋈

Lab Report No.: 320-97213-1

	iii.	Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? Yes \square No \square N/A \boxtimes Comments: See above.
	iv.	Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. Yes \square No \square N/A \boxtimes Comments: See above.
	V.	If %R or RPD is outside of acceptable limits, what samples are affected? Comments: See above.
	vi.	Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes \square No \square N/A \boxtimes Comments: See above.
	vii.	Is the data quality or usability affected? Yes □ No ☒ N/A □ Comments: See above.
d.	_	gates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution ds Only
	i.	Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples? Yes \boxtimes No \square N/A \square Comments:
	ii.	Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages) Yes \boxtimes No \square N/A \square Comments:
	iii.	Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? Yes \square No \square N/A \boxtimes Comments: See above.
	iv.	Is the data quality or usability affected? Yes □ No ⊠ N/A □

Lab Report No.: 320-97213-1

Comments: Data quality or usability are not affected.

e.	Trip B	lanks
	i.	Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes □ No □ N/A ⊠ Comments: A trip blank is not required for PFAS analysis.
	ii.	Are all results less than LOQ or RL? Yes □ No □ N/A ⊠ Comments: A trip blank is not required.
	iii.	If above LOQ or RL, what samples are affected? Comments: N/A; a trip blank is not required.
	iv.	Is the data quality or usability affected? Yes □ No □ N/A ⊠ Comments: See above.
f.	Field [Duplicate
	i.	Are one field duplicate submitted per matrix, analysis, and 10 project samples? Yes \boxtimes No \square N/A \square Comments:
	ii.	Was the duplicate submitted blind to lab? Yes ⊠ No □ N/A □ Comments: Field duplicate sample pairs MW-1 / MW-101 and KSM-005 KSM-105 were submitted with this work order.
	iii.	Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)
		$RPD \ (\%) = \left \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2} \right)} \right X \ 100$
		Where R ₁ = Sample Concentration
		R ₂ = Field Duplicate Concentration
		Yes \boxtimes No \square N/A \square Comments: RPD are within project DQOs, where calculable (detectable results above the RL for both samples in the duplicate pair).
	iv.	Is the data quality or usability affected? (Explain)

Yes □ No ⊠ N/A □

Lab Report No.: 320-97213-1

Comments: Data quality or usability are not affected.

g. Decontamination or Equipment Blanks

i.	Were decontamination or equipment blanks collected?
	Yes □ No □ N/A ⊠
	Comments: Reusable equipment was not used; therefore, an equipment
	blank is not required.
ii.	Are all results less than LOQ or RL?
	Yes □ No □ N/A ⊠
	Comments: See above.
iii.	If above LOQ or RL, specify what samples are affected.
	Comments: N/A; see above.
iv.	Are data quality or usability affected?
	Yes □ No □ N/A □
	Comments:

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Are they defined and appropriate?

Yes □ No □ N/A ⊠

Comments: The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. This is associated with PFHxA for sample *MW-1*. We consider this result to be estimated, biased high, and have flagged the datum with a "JH" in the analytical database.



February 15, 2023

Name Address St. Marys, AK 99658

RE: RESULTS OF 2023 PFAS WATER SUPPLY WELL SAMPLING, ST. MARYS AIRPORT

Thank you for participating in our water supply well sampling program to evaluate the presence of per- and polyfluoroalkyl substances (PFAS) in groundwater near the Saint Mary's Airport (KSM). Shannon & Wilson, Inc. collected a water sample from your water supply well at address on date. We have also sent a copy of this letter to your tenant.

The water sample was analyzed for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and several other PFAS compounds. We compare these concentrations to the Alaska Department of Environmental Conservation (DEC) drinking water action level of 70 parts per trillion (ppt) for the sum of PFOS and PFOA. Please note that these units are equivalent to nanograms per liter (ng/L).

Results of the analysis conducted by Eurofins Environment Testing indicate that PFOS was not detected, and PFOA was not detected in the groundwater sample from your well. Based on the laboratory results from this sampling event the sum of PFOS and PFOA for your water sample is XX ppt, which is above/below the DEC drinking water action level. (*Insert other detected PFAS*) were also detected in the sample; however, DEC has not promulgated groundwater or drinking water standards for this/these compounds. The portions of the original laboratory report that apply to your well (sample number *PW-039*) are enclosed for your records.

Shannon & Wilson has conducted this sampling event on behalf of the Alaska Department of Transportation and Public Facilities (DOT&PF). Please see the enclosed PFAS fact sheet for a link to the DOT&PF project website.

Name February 15, 2023 Page 2

If you have any questions regarding your results, please feel free to contact us.

Sincerely,

SHANNON & WILSON, INC.



Enc: Select Pages of Test America Laboratory Report No. 320-97213-1

PFAS Fact Sheet – Sand Point Airport

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	ADOT&PF Saint Mary's Airport Sitewide	PFAS		
File Number:	2444.38.011			
Completed by:	Shannon & Wilson, Inc.			
about which exposure summary text about about text about the characterization of the characterization	be used to reach agreement with the osure pathways should be further in out the CSM and a graphic depiction work plan and updated as needed in	vestigated dung exposure pan later reports.	ring site character thways should be	rization. From this information
<i>General Instruct</i> 1. General II	tions: Follow the italicized instructors nformation:	tions in each	section below.	
Sources (check)	potential sources at the site)			
☐ USTs		☐ Vehicles	S	
☐ ASTs		☐ Landfill	S	
☐ Dispensers/fu	el loading racks	☐ Transfor	mers	
☐ Drums		⊠ Other:	Aqueous Film Form	ning Foam (AFFF) releases
Release Mechan	isms (check potential release mech	nanisms at the	site)	
⊠ Spills		⊠ Direct d	ischarge	
⊠ Leaks		☐ Burning		
		☐ Other:		
Imnacted Media	a (check potentially-impacted medic	a at the site)	1	
Surface soil (,	☐ Groundy ☐ Groundy	vater	
Subsurface so	G ,	□ Surface		
☐ Air	(2 1000 0 50)	⊠ Biota		
⊠ Sediment		☐ Other:		
Receptors (chec	k receptors that could be affected b	y contaminatio	on at the site)	
□ Residents (ad	ult or child)	⊠ Site visi	tor	
	or industrial worker	▼ Trespass	ser	
	worker	⊠ Recreati		
⊠ Subsistence h	arvester (i.e. gathers wild foods)	⋉ Farmer		
⊠ Subsistence c	onsumer (i.e. eats wild foods)	Other:		

2.	Exposure Pathways: (The answers to the following exposure pathways at the site. Check each box when	•	• • • •	•
a)	Direct Contact - 1. Incidental Soil Ingestion			
	Are contaminants present or potentially present in surface so (Contamination at deeper depths may require evaluation on a			he ground surface?
	If the box is checked, label this pathway complete:	Complete	9	
	Comments:			
	PFAS has been detected in groundwater at the site, likely as a result c surface. PFAS affected soil is likely present.	of AFFF releases to the	e ground	
	2. Dermal Absorption of Contaminants from Soil			
	Are contaminants present or potentially present in surface so (Contamination at deeper depths may require evaluation on a			he ground surface?
	Can the soil contaminants permeate the skin (see Appendix)	B in the guidance	document)?	X
	If both boxes are checked, label this pathway complete:	Complete	9	
	Comments:			
	AFFF releases to the ground surface could cause soil contamination. Department of Health and Social Services, PFOS and PFOA are not ap skin. However, Appendix B of the 2017 Guidance on Developing Con PFOS and PFOA.	preciably absorbed t	hrough the	
b)	Ingestion - 1. Ingestion of Groundwater			
	Have contaminants been detected or are they expected to be or are contaminants expected to migrate to groundwater in the	_	oundwater,	\boxtimes
	Could the potentially affected groundwater be used as a curr source? Please note, only leave the box unchecked if DEC h water is not a currently or reasonably expected future source to 18 AAC 75.350.	as determined the	ground-	
	If both boxes are checked, label this pathway complete:	Complete	9	
	Comments:			

2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, \overline{X} or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Incomplete Comments: We don't anticipate potentially affected surface bodies in the airport vicinity to be used as a drinking water source. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or \overline{X} harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into \overline{X} biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the \overline{X} ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? If both boxes are checked, label this pathway complete:

PFAS are not included in Appendix D.

Comments:

Incomplete

2. Inhalation of Indoor Air		
Are occupied buildings on the site or reasonably expected to be the site in an area that could be affected by contaminant vapors or vertical feet of petroleum contaminated soil or groundwater; non-petroleum contaminted soil or groundwater; or subject to " which promote easy airflow like utility conduits or rock fracture	s? (within 30 horizontal within 100 feet of 'preferential pathways,"	×
Are volatile compounds present in soil or groundwater (see Ap document)?	pendix D in the guidance	
If both boxes are checked, label this pathway complete:	Incomplete	
Comments:		
PFAS are not included in Appendix D.		

3.	Additional Exposure Pathways: (Although there are no definitive questions provided in this section,
	these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)
De	ermal Exposure to Contaminants in Groundwater and Surface Water
	Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if

 Climate permits recreational use of waters for swimming. Climate permits exposure to groundwater during activities, such as construction. 	
o Groundwater or surface water is used for household purposes, such as bathing or cl	
Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of dermal absorption is incorporated into the groundwater exposure equation for residential uses.	
Check the box if further evaluation of this pathway is needed:	X
Comments:	
According to the Alaska Department of Health and Social Services, PFOS and PFOA are not appreciably absorbed through the skin. However, Appendix B of the 2017 Guidance on Developing Conceptual Site Models lists both PFOS and PFOA. We consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.	
Inhalation of Volatile Compounds in Tap Water	
Inhalation of volatile compounds in tap water may be a complete pathway if: The contaminated water is used for indoor household purposes such as showering, washing.	laundering, and dish
 The contaminants of concern are volatile (common volatile contaminants are listed guidance document.) 	in Appendix D in the
DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because vapors during normal household activities is incorporated into the groundwater exposure equations of the pathway because vapors during normal household activities is incorporated into the groundwater exposure equations.	
Check the box if further evaluation of this pathway is needed:	
Comments:	_
PFAS are not included in Appendix D.	

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed:

\overline{X}

Comments:

No surface soil samples have been collected at the KSM. However, AFFF was likely released to the ground surface on the lightly graveled runways that can be dusty in the summertime.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- O Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:



Comments:

No sediment samples have been collected at the KSM. However, AFFF was likely release to the ground surface in unpaved and/or lightly graveled areas open to DOT&PF employees and the public. Additionally, local residents use subsistence practices (e.g., berry picking and fishing) that may expose them to sediment.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: ADOT&PF Saint Mary's Airport Sitewide PFAS		Instructions: Follow the numbered consider contaminant concentrations use controls when describing path	ons or	engine					
Completed By: Shannon & Wilson, Inc.			ways	•					
(1) Check the media that could be directly affected by the release. (2) For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under	(3) Check all exposure media identified in (2).	(4) Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human	expo "F" f futur	tify the receptorsure pathwa for future receptors, current	otors po ay: Ente eptors, or "I" fo & Fu	er "C" fo "C/F" fo for insign	or curre for both inificant	ent rec current expos cept	eptors, nt and sure.
(1) if the media acts as a secondary source. Media Transport Mechanisms V	Exposure Media	Health CSM Scoping Form. Exposure Pathway/Route	Residents (adjus	Commercial or Site visitors	Construct:	Farmers or subsi	Subsistence	Other	
Runoff or erosion check surface water		ncidental Soil Ingestion	C/F	C/F C/F	C/F	C/F	C/F		
✓ Uptake by plants or animals check biota	soil V	Dermal Absorption of Contaminants from Soil	I	l I	1	l l	ı		
Other (list):		nhalation of Fugitive Dust	C/F	C/F C/F	C/F	C/F	C/F		
Subsurface Soil Volatilization Check groundwater Check groundwater Check groundwater Check groundwater Check groundwater Check biota Check biota Other (list):	☑ groundwater ☑ □	ngestion of Groundwater Dermal Absorption of Contaminants in Groundwater nhalation of Volatile Compounds in Tap Water	C/F	C/F C/F	C/F	C/F	C/F		
Groundwater Volatilization	air II	nhalation of Outdoor Air nhalation of Indoor Air nhalation of Fugitive Dust							
Surface Water Direct release to surface water Check surface water Check air Check sediment	✓ surface water	Dermal Absorption of Contaminants in Surface Water	I	l l	I	I	ı		
Uptake by plants or animals check biota Other (list):		nhalation of Volatile Compounds in Tap Water	0/5	0/5 0/5	Б /Г		0/5		
Direct release to sediment check sediment Sediment Resuspension, runoff, or erosion check surface water	sediment V D	Direct Contact with Sediment	C/F	C/F C/F	C/F	C/F	C/F		
✓ Uptake by plants or animals check biota Other (list):	✓ biota	ngestion of Wild or Farmed Foods	C/F	C/F C/F	C/F	C/F	C/F		

Appendix I

St. Paul Airport Supporting Documents

CONTENTS

- Figure I1 Vicinity Map
- Figure I2 Site Map
- Figure I3 Analytical Results Summary
- Table I1 St. Paul Island Water Supply Well Analytical Results January 2023
- Table I2 St. Paul Island Monitoring Well Analytical Results January 2023
- PFAS Fact Sheet Mailing
- Scanned Sampling Logs and Field Notes
- Analytical Laboratory Reports and Data Review Documentation
- Personalized Results Letter Template
- DEC Conceptual Site Model Scoping and Graphic Forms

Miles

102219-020



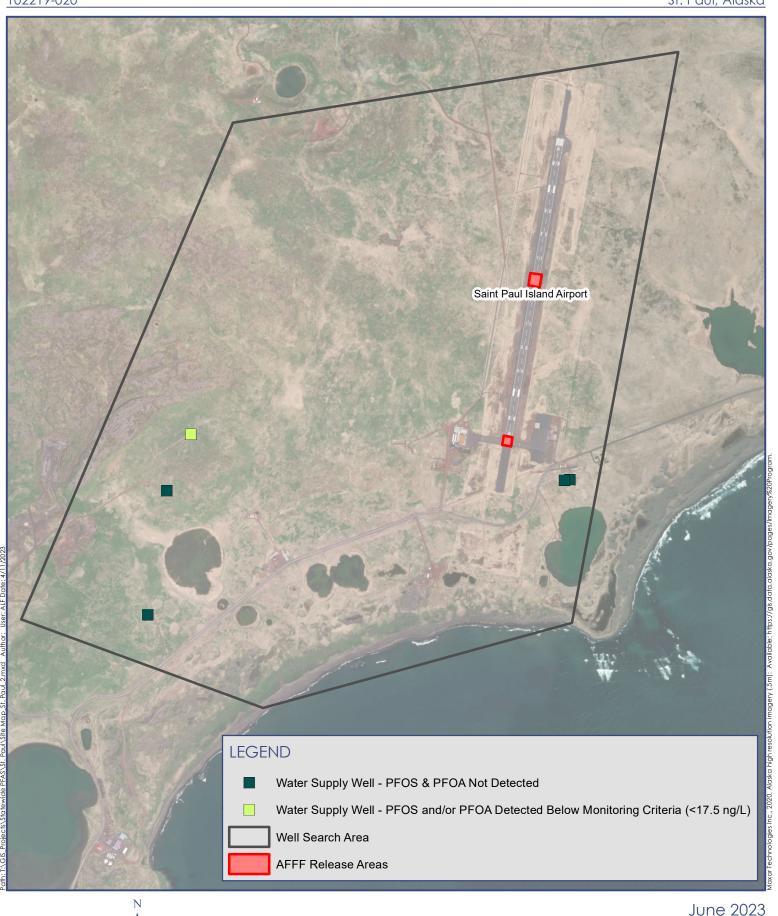






June 2023

102219-020





Notes:

1. AFFF: Aqueous Film Foaming Foam

 Locations are approximate
 Samples collected in November 2022 ng/L = nanograms per liter, equivalent to parts per trillion (ppt)

ANALYTICAL RESULTS SUMMARY

Figure 13



Table I1 — St. Paul Island Water Supply Well Analytical Results - January 2023

Analytical				SNP-NWell	SNP-V	WellF2	SNP-WellF5
Method	Analyte	Regulatory Limit	Units	1/17/2023	1/17/2023	Duplicate	1/17/2023
	Perfluorooctanesulfonic acid (PFOS)		ng/L	<1.9	1.2 J	<1.9	0.83 J
•	Perfluorooctanoic acid (PFOA)	70+	ng/L	<1.9	<1.9	<1.9	<1.8
•	Hexafluoropropylene oxide dimer acid (HFPO-DA)	10†	ng/L	<3.9	<3.7	<3.7	<3.7
•	Perfluorobutanesulfonic acid (PFBS)	2,000†	ng/L	<1.9	<1.9	<1.9	<1.8
·	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
•	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
•	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
•	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
•	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
•	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
•	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
•	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.9	<1.9	<1.9	<1.8
•	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.9	<4.6	<4.6	<4.6
•	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.9	<4.6	<4.6	<4.6

Notes: Results reported from Eurofins TestAmerica work order 320-96242-1.

† Final EPA PFAS LHAs (HFPO/PFBS)

‡ DEC Drinking Water Action Level = 70 ng/L for sum of PFOS and PFOA

DEC Alaska Department of Environmental Conservation

EPA United States Environmental Protection Agency

LHA Lifetime Health Advisory

PFAS per- and poly-fluoroalkyl substances

QSM Quality Systems Manual

ng/L nanograms per liter

N/A No applicable regulatory limit exists for the associated analyte.

Analyte not detected; listed as less than the limit of quanittation (LOQ) unless otherwise flagged due to quality-control failures.

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.



Table I2 - St. Paul Island Monitoring Well Analytical Results - January 2023

Analytical				SNP-MWNW512	SNP-MWNW513
Method	Analyte	Regulatory Limit	Units	1/18/2023	1/18/2023
	Perfluorooctanesulfonic acid (PFOS)	 70‡	ng/L	<1.90	<1.80
	Perfluorooctanoic acid (PFOA)	70+	ng/L	<1.90	<1.80
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	10†	ng/L	<3.70	<3.70
	Perfluorobutanesulfonic acid (PFBS)	2,000†	ng/L	<1.90	<1.80
	Perfluorodecanoic acid (PFDA)	N/A	ng/L	<1.90	<1.80
	Perfluorododecanoic acid (PFDoA)	N/A	ng/L	<1.90	<1.80
	Perfluoroheptanoic acid (PFHpA)	N/A	ng/L	0.28 J	<1.80
EPA	Perfluorohexanesulfonic acid (PFHxS)	N/A	ng/L	<1.90	<1.80
537(Mod)	Perfluorohexanoic acid (PFHxA)	N/A	ng/L	<1.90	<1.80
QSM 5.3,	Perfluorononanoic acid (PFNA)	N/A	ng/L	<1.90	<1.80
Table B-15	Perfluorotetradecanoic acid (PFTeA)	N/A	ng/L	<1.90	<1.80
	Perfluorotridecanoic acid (PFTrDA)	N/A	ng/L	<1.90	<1.80
	Perfluoroundecanoic acid (PFUnA)	N/A	ng/L	<1.90	<1.80
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	N/A	ng/L	<1.90	<1.80
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	N/A	ng/L	<1.90	<1.80
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	N/A	ng/L	<1.90	<1.80
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	N/A	ng/L	<4.60	<4.60
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	N/A	ng/L	<4.60	<4.60

Notes: Results reported from Eurofins TestAmerica work order 320-96242-1.

† Final EPA PFAS LHAs (HFPO/PFBS)

‡ DEC Drinking Water Action Level = 70 ng/L for sum of PFOS and PFOA

DEC Alaska Department of Environmental Conservation

EPA United States Environmental Protection Agency

LHA Lifetime Health Advisory

PFAS per- and poly-fluoroalkyl substances

QSM Quality Systems Manual

ng/L nanograms per liter

N/A No applicable regulatory limit exists for the associated analyte.

- < Analyte not detected; listed as less than the limit of quanittation (LOQ) unless otherwise flagged due to quality-control failures.</p>
- J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

PFAS Fact Sheet -St. Paul Island Airport

December 2022

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging and firefighting foams.

A potential source of PFAS in groundwater near the airport is the use of a fire-fighting foam called aqueous film forming foam (AFFF). Airport firefighters used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to identify and test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

The Alaska Department of Environmental Conservation (DEC) has adopted the Environmental Protection Agency's (EPA's) former lifetime health advisory (LHA) level for drinking water of **70 parts per trillion** for the sum of PFOS and PFOA. On June 15, 2022, the EPA adopted a revised interim LHA level. DOT&PF will continue to work with our state and federal partners to determine what this means for Alaska and will adjust as more information becomes available.

We advise well users with test results above the DEC Action Level not to use their water for drinking or

Website: www.dot.alaska.gov/airportwater/

For questions about well testing:

Shannon & Wilson, Inc.

Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program

Phone: 907-269-3057

Email: bill.oconnell@alaska.gov

For questions about PFAS and health effects:

Alaska Department of Health

Sarah Yoder, Env. Public Health Manager

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

For questions about fire training & other inquiries:

DOT&PF – Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC Action Level, DOT&PF will assist with access to an alternate source of drinking water.



Water Supply Well Inventory Survey Form

Date: 1-17-23
Parcel:
Name (Owner): Barbara LestenKof - [TOX Hotel manger)
Name (Occupant):
Physical Address: 985 N. Point Rd.
Mailing Address: P.O. Box 88 St. Paul Island. AK 9966
Email Address (optional): Barbaral & tdx corp. com
Contact Phone Number: (owner) 907-546-2411 (occupant)
Number of persons residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under)
Years at this residence:
 1) From where do you obtain your drinking water? a) Water Supply Utility
2) If you have a water well, please answer the following questions: a) Where is the well located on the property? b) Is the well in use? Yes No CO No So No No No No No No No No
i) Do you have any treatment on your well (e.g. water softener)? Please describe
Sample Permission Does the Alaska Department of Transportation & Public Facilities (DOT&PF) have permission to sample you private water well? Yes No
Signature Date



Water Supply Well Inventory Survey Form

Date: 1/17/23						
Parcel:						
Name (Owner):	National V	Veather S	pervice			
Name (Occupant):	Same					
Physical Address:	980 NE	Point 1	Rd Si	Paul	AK 99	64 99660
Mailing Address:	PO Box	175	St.	Paul A	K 996	60_
Email Address (option	onal):		MD AND AND AND AND AND AND AND AND AND AN			
Contact Phone Num	ber: (owner) <u>907</u>	271.5125 ·安藤 世紀七	(occupant)	907-5	46-524	<u> 1211 </u>
Number of persons			Teena Childi	agers (13 to 1	r) <u> </u>	
Years at this residen			asonal			
 From where do Water Supp Water Delive 	ly Utility	nking water?	b) Well Wate d) Other	r 🗌		
a) Where is the b) Is the well in c) If <u>yes</u> , please Drinking [d) If <u>no</u> , is the vusable e) When was the well what is the well what is the well what is the velocity when well are the velocity when we will are the velocity when we will are the velocity when we will are the velocity will be a velocity when we will are the velocity will be a velocity with the velocity when we will are the velocity will be a velocity with the velocity when we will be a velocity with the velocity when we will be a velocity with the velocity when we will be a velocity with the velocity when we will be a velocity with the velocity will be a velocity with the velocity when we will be a velocity with the velocity will be a velocity will be a velocity with the velocity will be a velocity will be a velocity will be a velocity with the velocity will be a velo	vell usable, unusabl Unusable e well installed? rell depth? rell diameter?	e property? lo / regarding the Gardening e, or properly a Abandoned Dug Well Drilled	usage of your value of your value of your value of your value of you have to you have you	vell water: Other :he well log? Driven Unkno	Yes 🗌	No
	,			Trease deser		-
3) Sample Permissi Does the Alaska private water we	Department of Tran		ublic Facilities (I	OOT&PF) have	e permission [.]	to sample your
<u>Niewa</u> Signature	el RCouch	· · · · · · · · · · · · · · · · · · ·		1/17/2 Date	23_	

Water Well Data

Saint Paul Alaska Water Utility

		,	,			, and the second second		Eureka
Well	North Well	South Well	Fredreka Well 1	Fredreka Well 2	Fredreka Well 3	Fredreka Well 4	Fredreka Well 5	Monitoring
Latitude	57d08'51.8"	57d08'51.1"	57d09'17.4"	57d09'16.3"	57d09'14.2"	57d09'26.9"	57d09'27.8"	57d09'16.5"
Longitude	170d15'46.9"	170d15'45.7"	170d15'45.8"	170d15'39.0"	170d16'09.1"	170d15'48.2"	170d15'29.5"	170d15'43.8"
Surface Elevation			,		39.98	42.2	83.2	:
Date Developed	Pre 1955	Pre 1955	1987	1987	1994	1994	1994	1987
Casing Length (ft)	91.75	86.00	71	80	69	72	111.4	72
Casing Diameter (inch)	6" Steel	6" Steel	8" Steel	8" Steel	8" Steel	8" Steel	8" Steel	6" PVC
Well Screen Length (ft)			18	17.9	19.3	18.45	19	20
Well Screen Diameter			8" SS	8" SS	8" SS	8" SS	8" SS	6" PVC
Well Screen Size			.030" slot	.060" slot	.060" slot	.060" slot	.060" slot	.060" slot
Pump Piping Size (inch)	ယ	3	4 7 6		The Property	3	4 2 4 3	N/A
Pump Piping Length (ft)	94	88	55.	64	52	56	94	N/A
Date Pump Installed	1993	1993	1993	1993	1993	Out of Svc	1993	N/A
Pump Manufacturer	Red Jacket	Red Jacket	Red Jacket	Red Jacket	Red Jacket	Red Jacket	Red Jacket	N/A
Pump Model	10EC	10EC	6D250 40	10EC	6D250 40	10EC	6D250 40	N/A
Nominal Flow Rate (gpm)	80	80	200	80	200	80	200	N/A
Pump Head (feet)	100-150 ft	100-150 ft	100-150 ft	100-150 ft	100-150 ft	100-150 ft	100-150 ft	N/A
Motor Manufacturer	Franklin Elec	Franklin Elec	Franklin Elec	Franklin Elec	Franklin Elec	Franklin Elec	Franklin Elec	N/A
Motor Model	2343175202	2343175202	2366129020	2343175202	2366129020	2343175202	2366129020	N/A
Power	230v 3 ph	230v 3 ph	480v 3 ph	230v 3 ph	480v 3 ph	230v 3 ph	480v 3 ph	N/A
Horsepower	CT CT	Cī	10	σ,	10	S.	10	A/N

Notes:

Original well insatallation dates shown. Replacement well installation dates not current. North and South Wells, and Fredreka 1 and 2 Wells may not be operated at the same time. Fredreka 3 Well currently out of service.





SHANNON & WILSON

02219-020

Statewide PFAS Alaska DOT&PF Saint Paul, Alaska





AFFF: Aqueous Film Foarming Foam
 Search area is approximate

December 2022

Ext3

Statewide PFAS Alaska DOT&PF Saint Paul, Alaska



Notes:
1. AFFF: Aqueous Film Foarming Foam
2. Search area is approximate

December 2022

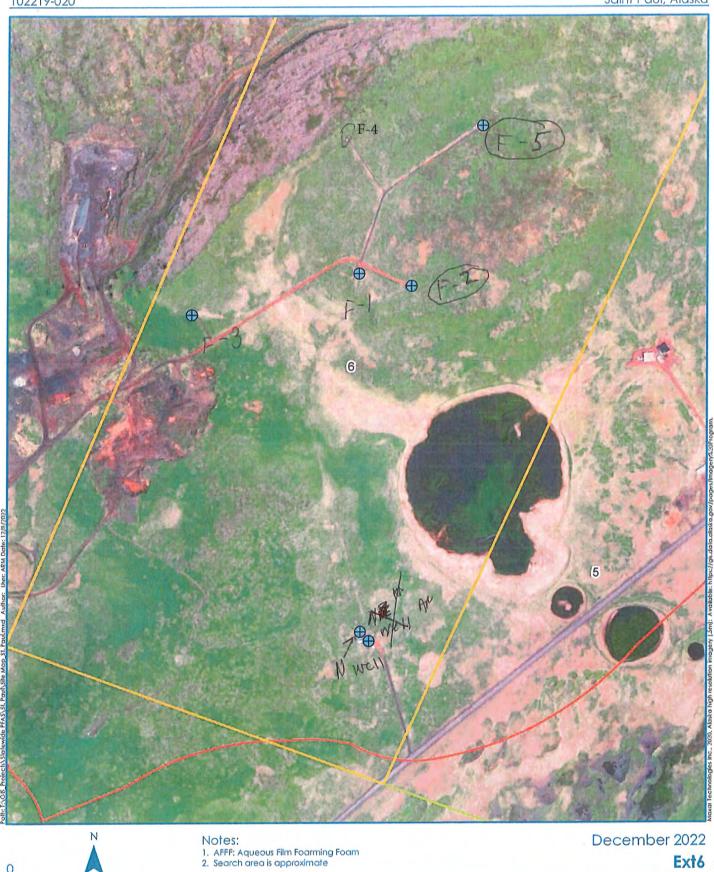
Ext4



AFFF: Aqueous Film Foarming Foam
 Search area is approximate

Ext5

Ext6 |



	Date $\frac{1}{10}$ Sheet of $\frac{1}{10}$
Project Name: St. Paul Island PPAS	Project No. 102214-02
Field activity subject:	
Description of daily activities and events: 0730 @ office to get excipanout/Sumpling supplies/o	
0730 @ office to get equipment/sumpling supplies/o	t car
p930 @ Auport	
115 Report for St. Paul	
1530 Carrier to sunt faul - Awastry bags, Charles	- in to hatel
1630 protempt to reach physics for scholing vicet to Got porcount -> assume off work due pay. Well again tomorrow	tome tomorriw.
·	
<u> </u>	
·	
Visitors on site:	
Changes from plans/specifications and other special orders and important decisions:	
Weather conditions:	
Important telephone calls:	
Personnel on site:	
Signature:	Date: ///e/23

Date <u>1/4/73</u>
Sheet γ of γ
Project No. 102214 -09
Project Name: St. Paul PPAS
Field activity subject: Description of daily activities and events:
1800 Begin Proper to Sumply wells - calibrate YSI
0900 Begin day around Sterch area. Hard to Wayyufe - snow/
Lanners, Sunner Q 1045
1000 beach out to philip/ Admin to cample well - unsucashil
1020 Got in contact w/ Adnan > phone call do not work on islan
Lexts do.
MO @ N WALL
1128 Collect Sample SNP-NWell
1135 @ Well F-2
1205 collect Sample SWP-NeIIFI
1210 @ War F-5 1238 corlect Jampil SNP - War F5
1250 Begin drung around Sarch again to correct well
threaten data
1400 A lot of Building in Sarah aven and either but begin used
1400 A lot of Buildings in sarch given are either but beging used water is short off for sacon
* or coast (quard Buildys - no one in buildys after talky W/
Arran he said that a person well on the buildys but no
one luninty was trun
** State Buildys - no one is here, "Not Buldys", water is that
** Landfill - could not find unjour here. two large wetal
"Homores" - water is Shut Its to Buildings.
KX NUPTA Residence - water is Shot off for smaden
1500 Head to Worth Site to cheek yells
1520 Found wells - wells appear to be in good undition / 194 be
1530 Had back to hotel for sample Management
Meso End at Pay
Visitors on site:
Changes from plans/specifications and other special orders and important decisions:
Weather conditions:
Important telephone calls:
Personnel on site: 1/17/23
Signature: Date:

	Date $\frac{1/18/23}{\text{Sheet}}$
·	Project No. <u>52219-720</u>
Project Name: St. Payl PFAS	10/2/2/ 000
Field activity subject:	
Description of daily activities and events:	
1830 prep for sampling > rulibrate ysi 1030 itead to site to jut looks / prop for sam	
	pling, sunrise
1130 @ Will MWNWS-12	
51.0 100.0101.010	moin/must
1255 @ INEIL MWNWS-13	f. L
	eguipment
1420 Attempt to get more anys (well sungs)	Filed out
could not buy be contact w/ Landfill,	State buildys
and land fill, that back to Hotel "	or supple
1530 ENW of lan	
193° ENN 01 107	
<u> </u>	
	The state of the s
Visitors on site:	
Changes from plans/specifications and other special orders and important decisions:	
Weather conditions:	and the state of t
Important telephone calls:	
Personnel on site:	1/161 = 2
Signature:	Date: 1/19/23

	Date _ Sheet	
	oject No	
Field activity subject: Description of daily activities and events:		
0800 Begy parky Chrys For Ryn.		
5900 Chip in with Rain Carso - Start accep	ot m	gear D
600 Finish packs cookers/ dear for	De	partie
1200 Drip gegr//gggge & Parn		
1600 Depart Cord + Gaint Paul for Anchonge.	WIIL	Stop
2130 American for the		And the second s
1200 El DE Va	ye.	
Vood the de Dy		
	· · · · · · · · · · · · · · · · · · ·	
		<u> </u>
		CONTROL OF THE PROPERTY OF THE
Visitors on site:		
Changes from plans/specifications and other special orders and important decisions:		AND AND ADDRESS OF THE PARTY OF
Weather conditions:		
Important tolonhono caller		
Important telephone calls:		
Personnel on site:		- CONTRACTOR AND
Signature:	Date:	1/14/23

WATER SUPPLY WELL SAMPLING LOG

	Telephone		Juf SNP Spigot on ex	_ _ _ Sampl	Project Name Date Time Iing Personnel	102219-020 SNP PFAS 1/17/23 1/10 AJK
Samı	ole Number Duplicate	SNP-	NWell	-	Time _ Time _	1128
	Analysis	"PPA	5	_	Lab_	turblins
Pui	rge Volume	20 a	PARAMETERS [iteria]	
Ì			Conductivity	рН		
	Time	Temp. (°C) [± 0.5]	(µS/cm) [± 3%]	(std. units) [± 0.1]	l Wa	ter Clarity (visual)
	1115	2.60	354	6.67		Clear
	1120	2.60	345	6.50		clear
	123	2.55	350	6,59		clear
	1126	2.59	353	6.57		Clar
			LUNION - NAME -			

L	Notes:		N Well			
	_					
	•					
	-					

WATER SUPPLY WELL SAMPLING LOG

Owne Maili	Address r/Occupant ng address	ertgo	f Samt Paul	- Pi - -	oject Number \\ Project Name \\ Date \\ Time	NP PF45 V/V7/23
	Telephone			- Sampl	ing Personnel	ADE
Samp			Spryot Inside	Well V	wye	
Samp	ole Number Duplicate	5NP SN	P-WellFloz		Time	1205
	Analysis	Pi	PAS		Lab	avofins
Pur	ge Volume _.	0.5-	Mmin 0.5- PARAMETERS [s	tabinzation on	teria]	
	Time	Temp. (°C) [± 0.5]	Conductivity (µS/cm) [± 3%]	pH (std. units) [± 0.1]	Water Cl	arity (visual)
	140	3,40	290	5.44		ſ
	1145	3.28	28%	6.77		iv
	1150		286	18.0		al
	1155	3.21	V&T	6.84	cle	
	1200	3.25	2.89	6.87		eav
ŀ						
ľ						
H						
ľ						A SANDAR COMMISSION OF
Ľ	Notes:		Well F-	L		
	-					
	_					
	_					
	_					

WATER SUPPLY WELL SAMPLING LOG

Owne Maili	Address er/Occupant ing address	City of	Saint Paul	_	Project Name Date _	102219-020 SNP-PPAS VIT/23
				_		1210 ADR
Samp	ole Location	S	pryot inside	well	hause	
Samp	ole Number Duplicate	SNP-	- WellF5	.	Time_ Time_	1238
	Analysis	PRAS)	-	Lab _	Eurohns
Pur	ge Volume ِ	7.1,1°	5 L/Min PARAMETERS [s	tabilization cri	teria]	
		Temp. (°C)	Conductivity (µS/cm)	pH (std. units)		
	Time	[± 0.5]	(± 3%]	(sta. driits)	Wat	er Clarity (visual)
	1215	1-86	348	6.71		lar
	1220	2-84	348 365	7.05	CANADA CONTRACTOR CONT	1291
	1225	2.87	365	7.10		lehr Vocus
	1235	2.91	369	418		- lear
	1000	~~,,		3	```	
			′			
				· · · · · · · · · · · · · · · · · · ·		

	Notes:		Well +-5			
	-					
	-					
	-					
	_		-			
	_					

	MOAA						14.2010 - 120
Owner/Client	1 0 0 13 /g	<u> </u>	1 serial		_		102219-02
	MA SIK	- Sulw	g paul	***************************************	-	Date Wel	
	tdr Snoui	Δi	r Temp. (°F)		-	Time started	
Weather Conditions 15°	$\underline{-SniM1}$	Al	r remp. (r)		- т	ime completed	
Sample No. <u>5</u> M Duplicate Equipment Blank Pump <u>p.r</u> o		613	Time Time Time		- - -		
Purging Method ports	able / dedica	 ted pump		Di	ameter and 1	Гуре of Casing	12" PVC
Pumping Start 134			Approxim			Below MP (ft.)	
Purge Rate (gal./min.)					•	Below MP (ft.)	
Pumping End	AMMANDISCOCCOUNTS				•	Below MP (ft.)	the second control of
-				Depth to le		Below MP (ft.)	هجيب
Pump Set Depth Below MP KuriTec Tubing	(ft.) ~ 10 f	t (tabn	~\		Feet of	Water in Well	
		 	9)			allons per foot	
TruPoly Tubing	(ft.)	_				Sallons in Well	
Monument Condition Min	unent is c	ran did -	Purge Wat			Volume (gal.) Wext to	
Wiring Condition	4						
Measuring Point (MP) <u>Top o</u>	of Casing (TOC)	-	Monun leasuremen		Stickup) Rod & level	/Flushmount /Tape measu	
Top-of-casing to monument	(ft.)		_	Dat	talogger type	n/a	
Monument to ground surface	(ft.)		_		gger serial#		
□ Lock present and□ Well name legible□ Evidence of frost-j	on outside of w	_ (vd /ell	Me	asured cab	le length (ft.)	n/a 	
Notes Shurp) Monau	unt C	up is	damaj	LP / CSV	voled	
		WELL CA	ASING VOL	JMES			
Diameter of Well [ID-inches]	СМТ	11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

Gallons per lineal foot

Field	Parameter	Instrument VSI	75 Circle one	Parameters	stabilized)or	>3 well volumes purged
	Sample Ol	oservations	clear, Nogo	= HPZ N	Davor	
		Notes Had 1	ssues in pump -	- fixed +	- Started	Puraingo
	FIELD PARAMETERS [stabilization criteria]					
		I II.	ED I AIGHIETERO [S	tabilization o	ntonuj	
	Temp. (°C)	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	pH	ORP (mV)	Materia Clarita (visual)

Water Clarity (visual) [± 10 mV] 184, 2 Time [±10%] [± 3%] 1345 11,97 6.44 Cleur 1,42 241 1350 1.76 11.88 236 6.63 184.1 Clear clear 1355 11.86 a34 6.66 182.5 1.79 181.6 236 1400 11.81 6.67 1403 MR 1.81 cleur 11.84 180.0 6.70

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup
□	PEAS	2	40	
旦				旦
				□
□			AND THE RESERVE OF THE PARTY OF	

Owner/Client _	1100					_	•	102214-05
Location _	***************************************	rite -	- sal1	VT PAU	1	_	Date	1/18/23 MWNWS-12
Sampling Personnel Weather Conditions	AJR	Show	Δir	Temp. (°F)			Time started	commendation and the second
vveather conditions_	19 .	> N(0 0 0	, (II	Temp. (1)		Т	ime completed	
Sample No{ Duplicate _ Equipment Blank _	SNP-MWN	IWSIZ		Time Time Time	1233	- - -		
Purging Method (Pumping Start Purge Rate (gal./min.) Pumping End	1205	ledicated		Measu	ıred Total D Dej	epth of Well oth to Water	Below MP (ft.)	25.12 15.72
Pump Set Depth Below KuriTec Ti TruPoly Ti	w MP (ft.)^_ ubing (ft.) ubing (ft.)	17 Ft				Feet of G (Purge Water	Water in Well allons per foot Gallons in Well Volume (gal.)	9.4 ARO:10 0.1
Monument Condition	Copil				er Disposai		c next to	Well
Casing Condition	600 d							
Wiring Condition (dedicated pumps)	N/A							
Measuring Point (MP)	Top of Casing ((TOC)	Me		nent type:		/Flushmount /Tape measu	re
Top-of-casing to monu	ment (ft.)				Dat	alogger type	n/a	
Monument to ground su	rface (ft.)					gger serial#		
	and operation egible on outsic rost-jacking		cut	IVIE	asured cap	le length (ft.)	n/a	
Notes								
	-							
		W	ELL CA	SING VOL	UMES			
Diameter of Well [ID-inches]	C	СМТ	11⁄4	2	3	4	6	8
Gallons per lineal foot	0.0	00253	0.08	0.17	0.38	0.66	1.5	2.6

Field Parameter Instrument	151 5560	Circle one: Parameters stabilized or >3 well volumes purged
Sample Observations	clear	, No Octor
Notes _		

FIELD PARAMETERS [stabilization criteria]

		116	LD PARAIVIETERS (SI	abilization c	menaj	
Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1210	2.15	13,84	255	6.84	137.60	elear
					140.4	
1215	2113	13,77	260	6.90		chur
1220	3,17		259	6,91	142.1	clear
1225	2.15	12.42	260	6.92	1429	Clear
1230	2.14	12.39	260	6.94	142,7	Clear
				<u> </u>		
	Secretario e cimio, Marie La Sold Marie Constituto					
			***************************************	~#####################################		
						ACT

	Analysis	Sample Containers	Preservatives	auG
П	PEAG	2	46	
	17/1/			_
	war			

Laboratory SGS

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kristen Freiburger Shannon & Wilson, Inc 2355 Hill Rd. Fairbanks, Alaska 99709-5244

JOB DESCRIPTION

Generated 2/24/2023 10:23:51 AM

Sait Paul PFAS

JOB NUMBER

320-96242-1

Eurofins Sacramento 880 Riverside Parkway West Sacramento CA 95605



Eurofins Sacramento

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northern California, LLC Project Manager.

Authorization

Generated 2/24/2023 10:23:51 AM

Authorized for release by David Alltucker, Project Manager I David.Alltucker@et.eurofinsus.com (916)374-4383

Client: Shannon & Wilson, Inc Project/Site: Sait Paul PFAS Laboratory Job ID: 320-96242-1

Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Isotope Dilution Summary	13
QC Sample Results	14
QC Association Summary	17
Lab Chronicle	18
Certification Summary	19
Method Summary	20
Sample Summary	21
Chain of Custody	22
Receipt Checklists	23

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6

8

9

11

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: Sait Paul PFAS

Job ID: 320-96242-1

Qualifiers

LCMS

Qualifier Qualifier Description

J Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

5

1

0

10

10

13

Case Narrative

Client: Shannon & Wilson, Inc Project/Site: Sait Paul PFAS

Job ID: 320-96242-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-96242-1

Receipt

The samples were received on 1/24/2023 4:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.3° C.

LCMS

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-649399.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Job ID: 320-96242-1

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Detection Summary

Client: Shannon & Wilson, Inc Job ID: 320-96242-1

Project/Site: Sait Paul PFAS

Client Sample ID: SNP-NWELL Lab Sample ID: 320-96242-1

No Detections.

Client Sample ID: SNP-WELLF2 Lab Sample ID: 320-96242-2

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	1.2 J	1.9	0.50 ng/L	1 EPA 537(Mod)	Total/NA

Client Sample ID: SNP-WELLF102 Lab Sample ID: 320-96242-3

No Detections.

Client Sample ID: SNP-WELLF5 Lab Sample ID: 320-96242-4

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.83 J	1.8	0.49 ng/L	1	EPA 537(Mod)	Total/NA

Client Sample ID: SNP-MWNWS12 Lab Sample ID: 320-96242-5

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.28 J	1.9	0.23 ng/L	1	EPA 537(Mod)	Total/NA

Lab Sample ID: 320-96242-6 Client Sample ID: SNP-MWNWS13

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc Job ID: 320-96242-1 Project/Site: Sait Paul PFAS

Client Sample ID: SNP-NWELL

Date Received: 01/24/23 16:25

Lab Sample ID: 320-96242-1 Date Collected: 01/17/23 11:28

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.57	ng/L		01/26/23 05:58	02/21/23 16:17	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		01/26/23 05:58	02/21/23 16:17	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.83	ng/L		01/26/23 05:58	02/21/23 16:17	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		01/26/23 05:58	02/21/23 16:17	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		01/26/23 05:58	02/21/23 16:17	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		01/26/23 05:58	02/21/23 16:17	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.54	ng/L		01/26/23 05:58	02/21/23 16:17	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		01/26/23 05:58	02/21/23 16:17	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		01/26/23 05:58	02/21/23 16:17	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		01/26/23 05:58	02/21/23 16:17	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.56			01/26/23 05:58	02/21/23 16:17	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		01/26/23 05:58	02/21/23 16:17	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.9		ng/L			02/21/23 16:17	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.9	1.3	ng/L		01/26/23 05:58	02/21/23 16:17	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.23	ng/L		01/26/23 05:58	02/21/23 16:17	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.5	ng/L		01/26/23 05:58	02/21/23 16:17	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.31	ng/L		01/26/23 05:58	02/21/23 16:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		01/26/23 05:58	02/21/23 16:17	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		50 - 150				01/26/23 05:58	02/21/23 16:17	1
13C4 PFHpA	108		50 - 150				01/26/23 05:58	02/21/23 16:17	1
13C4 PFOA	108		50 ₋ 150				01/26/23 05:58	02/21/23 16:17	1
13C5 PFNA	106		50 ₋ 150				01/26/23 05:58	02/21/23 16:17	1
13C2 PFDA	101		50 - 150				01/26/23 05:58	02/21/23 16:17	1
13C2 PFUnA	93		50 ₋ 150				01/26/23 05:58	02/21/23 16:17	1
13C2 PFDoA	92		50 - 150				01/26/23 05:58	02/21/23 16:17	
13C2 PFTeDA	81		50 ₋ 150					02/21/23 16:17	1
13C3 PFBS	94		50 ₋ 150					02/21/23 16:17	1
1802 PFHxS	94		50 - 150				01/26/23 05:58	02/21/23 16:17	1
13C4 PFOS	86		50 ₋ 150					02/21/23 16:17	1
d3-NMeFOSAA	73		50 ₋ 150					02/21/23 16:17	1
d5-NEtFOSAA	76		50 - 150 50 - 150					02/21/23 16:17	
13C3 HFPO-DA	125		50 - 150 50 - 150					02/21/23 16:17	. 1

Client: Shannon & Wilson, Inc Job ID: 320-96242-1 Project/Site: Sait Paul PFAS

Client Sample ID: SNP-WELLF2

Lab Sample ID: 320-96242-2 Date Collected: 01/17/23 12:05

Matrix: Water Date Received: 01/24/23 16:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		01/26/23 05:58	01/27/23 12:43	1
Perfluorooctanesulfonic acid (PFOS)	1.2	J	1.9	0.50	ng/L		01/26/23 05:58	01/27/23 12:43	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		01/26/23 05:58	01/27/23 12:43	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		01/26/23 05:58	01/27/23 12:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.22	ng/L		01/26/23 05:58	01/27/23 12:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		01/26/23 05:58	01/27/23 12:43	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.30	ng/L		01/26/23 05:58	01/27/23 12:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		01/26/23 05:58	01/27/23 12:43	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		50 - 150				01/26/23 05:58	01/27/23 12:43	1
13C4 PFHpA	103		50 ₋ 150				01/26/23 05:58	01/27/23 12:43	1
13C4 PFOA	101		50 ₋ 150				01/26/23 05:58	01/27/23 12:43	1
13C5 PFNA	93		50 ₋ 150				01/26/23 05:58	01/27/23 12:43	1
13C2 PFDA	101		50 ₋ 150				01/26/23 05:58	01/27/23 12:43	1
13C2 PFUnA	101		50 - 150				01/26/23 05:58	01/27/23 12:43	1
13C2 PFDoA	87		50 ₋ 150				01/26/23 05:58	01/27/23 12:43	1
13C2 PFTeDA	92		50 ₋ 150				01/26/23 05:58	01/27/23 12:43	1
13C3 PFBS	92		50 ₋ 150				01/26/23 05:58	01/27/23 12:43	1
1802 PFHxS	103		50 - 150				01/26/23 05:58	01/27/23 12:43	1
13C4 PFOS	101		50 - 150				01/26/23 05:58	01/27/23 12:43	1
d3-NMeFOSAA	97		50 ₋ 150					01/27/23 12:43	1
	J.								
d5-NEtFOSAA	102		50 - 150				01/26/23 05:58	01/27/23 12:43	1

Client: Shannon & Wilson, Inc Job ID: 320-96242-1 Project/Site: Sait Paul PFAS

Client Sample ID: SNP-WELLF102

Lab Sample ID: 320-96242-3 Date Collected: 01/17/23 12:35

Matrix: Water Date Received: 01/24/23 16:25

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		01/26/23 05:58	01/27/23 12:53	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		01/26/23 05:58	01/27/23 12:53	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		01/26/23 05:58	01/27/23 12:53	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		01/26/23 05:58	01/27/23 12:53	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.22	ng/L		01/26/23 05:58	01/27/23 12:53	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		01/26/23 05:58	01/27/23 12:53	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.30	ng/L		01/26/23 05:58	01/27/23 12:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		01/26/23 05:58	01/27/23 12:53	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		50 - 150				01/26/23 05:58	01/27/23 12:53	1
13C4 PFHpA	111		50 - 150				01/26/23 05:58	01/27/23 12:53	1
13C4 PFOA	101		50 ₋ 150				01/26/23 05:58	01/27/23 12:53	1
13C5 PFNA	108		50 ₋ 150				01/26/23 05:58	01/27/23 12:53	1
13C2 PFDA	101		50 - 150				01/26/23 05:58	01/27/23 12:53	1
13C2 PFUnA	98		50 ₋ 150				01/26/23 05:58	01/27/23 12:53	1
13C2 PFDoA	95		50 - 150				01/26/23 05:58	01/27/23 12:53	1
13C2 PFTeDA	92		50 ₋ 150				01/26/23 05:58	01/27/23 12:53	1
13C3 PFBS	105		50 ₋ 150				01/26/23 05:58	01/27/23 12:53	1
1802 PFHxS	110		50 ₋ 150				01/26/23 05:58	01/27/23 12:53	1
13C4 PFOS	103		50 ₋ 150				01/26/23 05:58	01/27/23 12:53	1
d3-NMeFOSAA	100		50 ₋ 150					01/27/23 12:53	1
d5-NEtFOSAA	107		50 - 150					01/27/23 12:53	1
13C3 HFPO-DA	115		50 - 150					01/27/23 12:53	1

Page 9 of 23

Client: Shannon & Wilson, Inc Job ID: 320-96242-1 Project/Site: Sait Paul PFAS

Client Sample ID: SNP-WELLF5

Date Received: 01/24/23 16:25

Lab Sample ID: 320-96242-4 Date Collected: 01/17/23 12:38

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.78	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		01/26/23 05:58	01/27/23 13:04	1
Perfluorooctanesulfonic acid (PFOS)	0.83	J	1.8	0.49	ng/L		01/26/23 05:58	01/27/23 13:04	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		01/26/23 05:58	01/27/23 13:04	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		01/26/23 05:58	01/27/23 13:04	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		01/26/23 05:58	01/27/23 13:04	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		01/26/23 05:58	01/27/23 13:04	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		01/26/23 05:58	01/27/23 13:04	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		01/26/23 05:58	01/27/23 13:04	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	106		50 - 150				01/26/23 05:58	01/27/23 13:04	1
13C4 PFHpA	107		50 ₋ 150				01/26/23 05:58	01/27/23 13:04	1
13C4 PFOA	99		50 ₋ 150				01/26/23 05:58	01/27/23 13:04	1
13C5 PFNA	97		50 ₋ 150				01/26/23 05:58	01/27/23 13:04	1
13C2 PFDA	96		50 ₋ 150				01/26/23 05:58	01/27/23 13:04	1
13C2 PFUnA	97		50 - 150				01/26/23 05:58	01/27/23 13:04	1
13C2 PFDoA	93		50 - 150				01/26/23 05:58	01/27/23 13:04	1
13C2 PFTeDA	93		50 ₋ 150				01/26/23 05:58	01/27/23 13:04	1
13C3 PFBS	90		50 ₋ 150				01/26/23 05:58	01/27/23 13:04	1
1802 PFHxS	99		50 - 150				01/26/23 05:58	01/27/23 13:04	1
13C4 PFOS	93		50 - 150					01/27/23 13:04	. 1
d3-NMeFOSAA	101		50 - 150 50 - 150					01/27/23 13:04	1
d5-NEtFOSAA								01/27/23 13:04	
05-NETEUSAA	105		50 - 150				U1//b//3 U5 58	01/////31304	,

Client: Shannon & Wilson, Inc Job ID: 320-96242-1 Project/Site: Sait Paul PFAS

Client Sample ID: SNP-MWNWS12

Date Received: 01/24/23 16:25

Lab Sample ID: 320-96242-5 Date Collected: 01/18/23 12:33

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluoroheptanoic acid (PFHpA)	0.28	J	1.9	0.23	ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		01/26/23 05:58	01/27/23 13:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		01/26/23 05:58	01/27/23 13:14	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6		ng/L			01/27/23 13:14	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		01/26/23 05:58	01/27/23 13:14	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.22	ng/L		01/26/23 05:58	01/27/23 13:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		01/26/23 05:58	01/27/23 13:14	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.30	ng/L		01/26/23 05:58	01/27/23 13:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		01/26/23 05:58	01/27/23 13:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	92		50 - 150				01/26/23 05:58	01/27/23 13:14	1
13C4 PFHpA	93		50 - 150				01/26/23 05:58	01/27/23 13:14	1
13C4 PFOA	100		50 ₋ 150				01/26/23 05:58	01/27/23 13:14	1
13C5 PFNA	95		50 - 150				01/26/23 05:58	01/27/23 13:14	1
13C2 PFDA	100		50 - 150				01/26/23 05:58	01/27/23 13:14	1
13C2 PFUnA	94		50 ₋ 150				01/26/23 05:58	01/27/23 13:14	1
13C2 PFDoA	89		50 - 150					01/27/23 13:14	
13C2 PFTeDA	87		50 - 150					01/27/23 13:14	1
13C3 PFBS	92		50 - 150					01/27/23 13:14	1
1802 PFHxS	98		50 - 150					01/27/23 13:14	
13C4 PFOS	97		50 - 150 50 - 150					01/27/23 13:14	1
d3-NMeFOSAA	93		50 - 150					01/27/23 13:14	1
d5-NEtFOSAA	95		50 - 150					01/27/23 13:14	
13C3 HFPO-DA	111		50 - 150 50 - 150					01/27/23 13:14	1

Client: Shannon & Wilson, Inc Job ID: 320-96242-1 Project/Site: Sait Paul PFAS

Client Sample ID: SNP-MWNWS13

Lab Sample ID: 320-96242-6 Date Collected: 01/18/23 14:08

Matrix: Water Date Received: 01/24/23 16:25

Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.54	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.79	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.29	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.51	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.53	ng/L		01/26/23 05:58	01/27/23 13:24	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.50	ng/L		01/26/23 05:58	01/27/23 13:24	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		01/26/23 05:58	01/27/23 13:24	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		01/26/23 05:58	01/27/23 13:24	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		01/26/23 05:58	01/27/23 13:24	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		01/26/23 05:58	01/27/23 13:24	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.30	ng/L		01/26/23 05:58	01/27/23 13:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		01/26/23 05:58	01/27/23 13:24	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	109		50 - 150				01/26/23 05:58	01/27/23 13:24	1
13C4 PFHpA	91		50 - 150				01/26/23 05:58	01/27/23 13:24	1
13C4 PFOA	102		50 - 150				01/26/23 05:58	01/27/23 13:24	1
13C5 PFNA	101		50 - 150				01/26/23 05:58	01/27/23 13:24	1
13C2 PFDA	105		50 - 150				01/26/23 05:58	01/27/23 13:24	1
13C2 PFUnA	101		50 - 150				01/26/23 05:58	01/27/23 13:24	1
13C2 PFDoA	90		50 - 150				01/26/23 05:58	01/27/23 13:24	1
13C2 PFTeDA	93		50 ₋ 150				01/26/23 05:58	01/27/23 13:24	1
13C3 PFBS	102		50 ₋ 150				01/26/23 05:58	01/27/23 13:24	1
1802 PFHxS	101		50 - 150				01/26/23 05:58	01/27/23 13:24	1
13C4 PFOS	94		50 ₋ 150				01/26/23 05:58	01/27/23 13:24	1
d3-NMeFOSAA	90		50 ₋ 150				01/26/23 05:58	01/27/23 13:24	1
d5-NEtFOSAA	106		50 ₋ 150				01/26/23 05:58	01/27/23 13:24	1
13C3 HFPO-DA	115		50 ₋ 150				01/26/23 05:58		1

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: Sait Paul PFAS

Job ID: 320-96242-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water Prep Type: Total/NA

			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTDA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-96242-1	SNP-NWELL	110	108	108	106	101	93	92	81
320-96242-2	SNP-WELLF2	103	103	101	93	101	101	87	92
320-96242-3	SNP-WELLF102	103	111	101	108	101	98	95	92
320-96242-4	SNP-WELLF5	106	107	99	97	96	97	93	93
320-96242-5	SNP-MWNWS12	92	93	100	95	100	94	89	87
320-96242-6	SNP-MWNWS13	109	91	102	101	105	101	90	93
LCS 320-649399/2-A	Lab Control Sample	94	97	95	101	94	90	85	85
LCSD 320-649399/3-A	Lab Control Sample Dup	98	94	95	92	98	96	85	88
MB 320-649399/1-A	Method Blank	105	112	92	101	98	101	92	100
			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
320-96242-1	SNP-NWELL	94	94	86	73	76	125		
320-96242-2	SNP-WELLF2	92	103	101	97	102	108		
320-96242-3	SNP-WELLF102	105	110	103	100	107	115		
320-96242-4	SNP-WELLF5	90	99	93	101	105	109		
320-96242-5	SNP-MWNWS12	92	98	97	93	95	111		
320-96242-6	SNP-MWNWS13	102	101	94	90	106	115		
LCS 320-649399/2-A	Lab Control Sample	97	96	90	96	101	102		
LCSD 320-649399/3-A	Lab Control Sample Dup	93	99	89	91	99	100		
MB 320-649399/1-A	Method Blank	104	90	98	93	115	110		

Surrogate	Legend
-----------	--------

PFHxA = 13C2 PFHxA

C4PFHA = 13C4 PFHpA

PFOA = 13C4 PFOA

PFNA = 13C5 PFNA

PFDA = 13C2 PFDA

PFUnA = 13C2 PFUnA

PFDoA = 13C2 PFDoA

PFTDA = 13C2 PFTeDA

C3PFBS = 13C3 PFBS

PFHxS = 18O2 PFHxS

PFOS = 13C4 PFOS

d3NMFOS = d3-NMeFOSAA

d5NEFOS = d5-NEtFOSAA

HFPODA = 13C3 HFPO-DA

Eurofins Sacramento

Page 13 of 23

6

3

4

6

9

11

13

14

Client: Shannon & Wilson, Inc Job ID: 320-96242-1 Project/Site: Sait Paul PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-649399/1-A

Matrix: Water

Analysis Batch: 650561

Client Sample ID: Method Blank **Prep Type: Total/NA**

Prep Batch: 649399

Analysis Batom socos								. Top Batom	0-10000
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		01/26/23 05:58	01/27/23 12:02	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		01/26/23 05:58	01/27/23 12:02	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		01/26/23 05:58	01/27/23 12:02	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		01/26/23 05:58	01/27/23 12:02	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.0	0.24	ng/L		01/26/23 05:58	01/27/23 12:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		01/26/23 05:58	01/27/23 12:02	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		2.0	0.32	ng/L		01/26/23 05:58	01/27/23 12:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		01/26/23 05:58	01/27/23 12:02	1
	MR	MB							

	IVID IVID			
Isotope Dilution	%Recovery Qualifier	Limits	Prepared Analy	zed Dil Fac
13C2 PFHxA	105	50 - 150	01/26/23 05:58 01/27/23	12:02
13C4 PFHpA	112	50 - 150	01/26/23 05:58 01/27/23	3 12:02 1
13C4 PFOA	92	50 - 150	01/26/23 05:58 01/27/23	1 12:02 1
13C5 PFNA	101	50 - 150	01/26/23 05:58 01/27/23	12:02 1
13C2 PFDA	98	50 - 150	01/26/23 05:58 01/27/23	1 12:02 1
13C2 PFUnA	101	50 - 150	01/26/23 05:58 01/27/23	3 12:02 1
13C2 PFDoA	92	50 - 150	01/26/23 05:58 01/27/23	12:02 1
13C2 PFTeDA	100	50 - 150	01/26/23 05:58 01/27/23	1 12:02 1
13C3 PFBS	104	50 - 150	01/26/23 05:58 01/27/23	1 12:02 1
1802 PFHxS	90	50 - 150	01/26/23 05:58 01/27/23	12:02 1
13C4 PFOS	98	50 - 150	01/26/23 05:58 01/27/23	3 12:02 1
d3-NMeFOSAA	93	50 - 150	01/26/23 05:58 01/27/23	1 12:02 1
d5-NEtFOSAA	115	50 - 150	01/26/23 05:58 01/27/23	12:02 1
13C3 HFPO-DA	110	50 - 150	01/26/23 05:58 01/27/23	1 12:02 1

Lab Sample ID: LCS 320-649399/2-A

Matrix: Water

Analysis Batch: 650561

Client Sample ID:	Lab (Contro	Sample
	Prep	Type:	Total/NA

Prep Batch: 649399

		Spike	LCS	LCS				%Rec	
Analyte		Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFI	HxA)	40.0	45.2		ng/L		113	72 - 129	
Perfluoroheptanoic acid (PF	·HpA)	40.0	45.5		ng/L		114	72 - 130	
Perfluorooctanoic acid (PFC	DA)	40.0	42.7		ng/L		107	71 - 133	
Perfluorononanoic acid (PFI	NA)	40.0	43.2		ng/L		108	69 - 130	

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2/24/2023

Page 14 of 23

Spike

Client: Shannon & Wilson, Inc Job ID: 320-96242-1 Project/Site: Sait Paul PFAS

LCS LCS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-649399/2-A

Matrix: Water

Analysis Batch: 650561

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 649399 %Rec

						,	
Analyte	Added	Result	Qualifier U	Jnit	D %Rec	Limits	
Perfluorodecanoic acid (PFDA)	40.0	43.0	r	ng/L	108	71 - 129	
Perfluoroundecanoic acid	40.0	44.7	r	ng/L	112	69 - 133	
(PFUnA)							
Perfluorododecanoic acid	40.0	45.7	r	ng/L	114	72 - 134	
(PFDoA)							
Perfluorotridecanoic acid	40.0	42.5	r	ng/L	106	65 - 144	
(PFTriA)							
Perfluorotetradecanoic acid	40.0	41.7	r	ng/L	104	71 - 132	
(PFTeA)	25.5				404	70 400	
Perfluorobutanesulfonic acid	35.5	35.9	г	ng/L	101	72 - 130	
(PFBS) Perfluorohexanesulfonic acid	36.5	39.1	r	ng/L	107	68 - 131	
(PFHxS)	30.3	33.1	'	ig/L	107	00 - 131	
Perfluorooctanesulfonic acid	37.2	41.0	r	ng/L	110	65 - 140	
(PFOS)			•	· 3· –			
N-methylperfluorooctanesulfona	40.0	43.2	r	ng/L	108	65 - 136	
midoacetic acid (NMeFOSAA)							
N-ethylperfluorooctanesulfonami	40.0	43.9	r	ng/L	110	61 - 135	
doacetic acid (NEtFOSAA)							
9-Chlorohexadecafluoro-3-oxan	37.4	42.3	r	ng/L	113	77 - 137	
onane-1-sulfonic acid							
Hexafluoropropylene Oxide	40.0	42.5	r	ng/L	106	72 - 132	
Dimer Acid (HFPO-DA)	07.0	44.0		"	444	70 100	
11-Chloroeicosafluoro-3-oxaund	37.8	41.9	r	ng/L	111	76 - 136	
ecane-1-sulfonic acid	27.0	40 E	_	- a /I	121	81 - 141	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	49.5	ŗ	ng/L	131	01-141	
aciu (ADONA)							

LCS LCS

	LUS	LUJ	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	94		50 - 150
13C4 PFHpA	97		50 - 150
13C4 PFOA	95		50 - 150
13C5 PFNA	101		50 - 150
13C2 PFDA	94		50 - 150
13C2 PFUnA	90		50 - 150
13C2 PFDoA	85		50 - 150
13C2 PFTeDA	85		50 - 150
13C3 PFBS	97		50 - 150
1802 PFHxS	96		50 - 150
13C4 PFOS	90		50 - 150
d3-NMeFOSAA	96		50 - 150
d5-NEtFOSAA	101		50 - 150
13C3 HFPO-DA	102		50 - 150
_			

Lab Sample ID: LCSD 320-649399/3-A

Matrix: Water

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analysis Batch: 650561							Prep Ba	atch: 64	19399
	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	40.0	40.8		ng/L		102	72 - 129	10	30
Perfluoroheptanoic acid (PFHpA)	40.0	47.6		ng/L		119	72 - 130	5	30
Perfluorooctanoic acid (PFOA)	40.0	44.7		ng/L		112	71 - 133	4	30

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Page 15 of 23 2/24/2023

QC Sample Results

Client: Shannon & Wilson, Inc Job ID: 320-96242-1 Project/Site: Sait Paul PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-649399/3-A

Matrix: Water

Analysis Batch: 650561

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 649399

Analyte Added Result Qualifier Unit D %Rec Limits RPD Perfluorononanoic acid (PFNA) 40.0 45.6 ng/L 114 69 - 130 5 Perfluorodecanoic acid (PFDA) 40.0 44.1 ng/L 110 71 - 129 2 Perfluoroundecanoic acid (PFUA) 40.0 44.2 ng/L 110 69 - 133 1 (PFUnA) 9erfluorodecanoic acid 40.0 46.0 ng/L 115 72 - 134 1 (PFDoA) 9erfluorotridecanoic acid 40.0 44.6 ng/L 112 65 - 144 5 (PFTriA) 9erfluorotetradecanoic acid 40.0 41.7 ng/L 104 71 - 132 0 (PFTeA) 9erfluorobutanesulfonic acid 35.5 36.5 ng/L 103 72 - 130 2 (PFBS) 9erfluorobutanesulfonic acid 35.5 36.5 ng/L 103 72 - 130 2		RPD
Perfluorodecanoic acid (PFDA) 40.0 44.1 ng/L 110 71 - 129 2 Perfluoroundecanoic acid (PFUnA) 40.0 44.2 ng/L 110 69 - 133 1 (PFUnA) 72 - 134 1 (PFDoA) 9 115 72 - 134 1 (PFDoA) 112 65 - 144 5 (PFTriA) 9 104 71 - 132 0 (PFTeA) 104 71 - 132 0 Perfluorobutanesulfonic acid 35.5 36.5 ng/L 103 72 - 130 2		Limit
Perfluoroundecanoic acid (PFUnA) 40.0 44.2 ng/L 110 69 - 133 1 Perfluorododecanoic acid (PFDoA) 40.0 46.0 ng/L 115 72 - 134 1 Perfluorotridecanoic acid (PFTriA) 40.0 44.6 ng/L 112 65 - 144 5 Perfluorotetradecanoic acid (PFTeA) 40.0 41.7 ng/L 104 71 - 132 0 Perfluorobutanesulfonic acid 35.5 36.5 ng/L 103 72 - 130 2	c acid (PFNA)	30
(PFUnA) Perfluorododecanoic acid 40.0 46.0 ng/L 115 72 - 134 1 (PFDoA) Perfluorotridecanoic acid 40.0 44.6 ng/L 112 65 - 144 5 (PFTriA) Perfluorotetradecanoic acid 40.0 41.7 ng/L 104 71 - 132 0 (PFTeA) Perfluorobutanesulfonic acid 35.5 36.5 ng/L 103 72 - 130 2	c acid (PFDA)	30
(PFDoA) Perfluorotridecanoic acid 40.0 44.6 ng/L 112 65 - 144 5 (PFTriA) Perfluorotetradecanoic acid 40.0 41.7 ng/L 104 71 - 132 0 (PFTeA) Perfluorobutanesulfonic acid 35.5 36.5 ng/L 103 72 - 130 2	ioic acid	30
(PFTriA) Perfluorotetradecanoic acid 40.0 41.7 ng/L 104 71 - 132 0 (PFTeA) Perfluorobutanesulfonic acid 35.5 36.5 ng/L 103 72 - 130 2	ioic acid	30
(PFTeA) Perfluorobutanesulfonic acid 35.5 36.5 ng/L 103 72 - 130 2	oic acid	30
	anoic acid	30
(FFDS)	ulfonic acid	30
Perfluorohexanesulfonic acid 36.5 38.4 ng/L 105 68 - 131 2 (PFHxS)	ulfonic acid	30
Perfluorooctanesulfonic acid 37.2 40.4 ng/L 109 65 - 140 1 (PFOS)	ulfonic acid	30
N-methylperfluorooctanesulfona 40.0 46.8 ng/L 117 65 - 136 8 midoacetic acid (NMeFOSAA)		30
N-ethylperfluorooctanesulfonami 40.0 42.9 ng/L 107 61 - 135 2 doacetic acid (NEtFOSAA)		30
9-Chlorohexadecafluoro-3-oxan 37.4 43.9 ng/L 117 77 - 137 4 onane-1-sulfonic acid		30
Hexafluoropropylene Oxide 40.0 41.4 ng/L 104 72 - 132 3 Dimer Acid (HFPO-DA)		30
11-Chloroeicosafluoro-3-oxaund 37.8 42.4 ng/L 112 76 - 136 1 ecane-1-sulfonic acid		30
4,8-Dioxa-3H-perfluorononanoic 37.8 46.4 ng/L 123 81 - 141 7 acid (ADONA)	fluorononanoic	30

LCSD LCSD

	LOOD	LUUD	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	98		50 - 150
13C4 PFHpA	94		50 - 150
13C4 PFOA	95		50 - 150
13C5 PFNA	92		50 - 150
13C2 PFDA	98		50 - 150
13C2 PFUnA	96		50 - 150
13C2 PFDoA	85		50 - 150
13C2 PFTeDA	88		50 - 150
13C3 PFBS	93		50 - 150
1802 PFHxS	99		50 ₋ 150
13C4 PFOS	89		50 - 150
d3-NMeFOSAA	91		50 - 150
d5-NEtFOSAA	99		50 - 150
13C3 HFPO-DA	100		50 - 150

QC Association Summary

Client: Shannon & Wilson, Inc
Project/Site: Sait Paul PFAS

Job ID: 320-96242-1

LCMS

Prep Batch: 649399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-96242-1	SNP-NWELL	Total/NA	Water	3535	
320-96242-2	SNP-WELLF2	Total/NA	Water	3535	
320-96242-3	SNP-WELLF102	Total/NA	Water	3535	
320-96242-4	SNP-WELLF5	Total/NA	Water	3535	
320-96242-5	SNP-MWNWS12	Total/NA	Water	3535	
320-96242-6	SNP-MWNWS13	Total/NA	Water	3535	
MB 320-649399/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-649399/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-649399/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 650561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-96242-2	SNP-WELLF2	Total/NA	Water	EPA 537(Mod)	649399
320-96242-3	SNP-WELLF102	Total/NA	Water	EPA 537(Mod)	649399
320-96242-4	SNP-WELLF5	Total/NA	Water	EPA 537(Mod)	649399
320-96242-5	SNP-MWNWS12	Total/NA	Water	EPA 537(Mod)	649399
320-96242-6	SNP-MWNWS13	Total/NA	Water	EPA 537(Mod)	649399
MB 320-649399/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	649399
LCS 320-649399/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	649399
LCSD 320-649399/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	649399

Analysis Batch: 655426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-96242-1	SNP-NWELL	Total/NA	Water	EPA 537(Mod)	649399

Eurofins Sacramento

Page 17 of 23

9

3

6

8

9

11

12

Job ID: 320-96242-1

Client: Shannon & Wilson, Inc Project/Site: Sait Paul PFAS

Client Sample ID: SNP-NWELL

Date Collected: 01/17/23 11:28

Matrix: Water

Date Received: 01/24/23 16:25

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			256.5 mL	10.0 mL	649399	01/26/23 05:58	HK	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	655426	02/21/23 16:17	S1M	EET SAC

Client Sample ID: SNP-WELLF2

Date Collected: 01/17/23 12:05 Date Received: 01/24/23 16:25

Lab Sample ID: 320-96242-2

Lab Sample ID: 320-96242-1

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			270.1 mL	10.0 mL	649399	01/26/23 05:58	HK	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	650561	01/27/23 12:43	RS1	EET SAC

Client Sample ID: SNP-WELLF102

Date Collected: 01/17/23 12:35

Date Received: 01/24/23 16:25

Lab Sample ID: 320-96242-3

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			270.1 mL	10.0 mL	649399	01/26/23 05:58	HK	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	650561	01/27/23 12:53	RS1	EET SAC

Client Sample ID: SNP-WELLF5

Date Collected: 01/17/23 12:38

Date Received: 01/24/23 16:25

Lab Sample ID: 320-96242-4

Lab Sample ID: 320-96242-5

Lab Sample ID: 320-96242-6

Matrix: Water

Matrix: Water

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	_ Kuii	ractor	273.5 mL	10.0 mL	649399	01/26/23 05:58	. , ,	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	650561	01/27/23 13:04		EET SAC

Client Sample ID: SNP-MWNWS12

Date Collected: 01/18/23 12:33

Date Received: 01/24/23 16:25

_										
	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			270.1 mL	10.0 mL	649399	01/26/23 05:58	HK	EET SAC
Total/NIA	Analysis	EDA 537(Mod)		1	1 ml	1 ml	650561	01/27/23 13:14	DQ1	EET SAC

Client Sample ID: SNP-MWNWS13

Date Collected: 01/18/23 14:08

Date Received: 01/24/23 16:25

١		Batch	Batch		Dil	Initial	Final	Batch	Prepared		
	Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
	Total/NA	Prep	3535			270.1 mL	10.0 mL	649399	01/26/23 05:58	HK	EET SAC
	Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	650561	01/27/23 13:14	RS1	EET SAC

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			270.4 mL	10.0 mL	649399	01/26/23 05:58	HK	EET SAC
Total/NA	Analysis	EPA 537(Mod)		1	1 mL	1 mL	650561	01/27/23 13:24	RS1	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Page 18 of 23

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: Sait Paul PFAS

Job ID: 320-96242-1

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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14

Method Summary

Client: Shannon & Wilson, Inc Project/Site: Sait Paul PFAS

> **Method Description** PFAS for QSM 5.3, Table B-15

Protocol	Laboratory
EPA	EET SAC

SW846

Job ID: 320-96242-1

EET SAC

Protocol References:

Method

3535

EPA 537(Mod)

EPA = US Environmental Protection Agency

Solid-Phase Extraction (SPE)

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Shannon & Wilson, Inc Project/Site: Sait Paul PFAS Job ID: 320-96242-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-96242-1	SNP-NWELL	Water	01/17/23 11:28	01/24/23 16:25
320-96242-2	SNP-WELLF2	Water	01/17/23 12:05	01/24/23 16:25
320-96242-3	SNP-WELLF102	Water	01/17/23 12:35	01/24/23 16:25
320-96242-4	SNP-WELLF5	Water	01/17/23 12:38	01/24/23 16:25
320-96242-5	SNP-MWNWS12	Water	01/18/23 12:33	01/24/23 16:25
320-96242-6	SNP-MWNWS13	Water	01/18/23 14:08	01/24/23 16:25

Eurofins Environment Testing Northern California

880 Riverside Parkway West Sacramento, CA 95605 **Chain of Custody Record**



Environment Testing America

Client Contact	Report To: Kristen Freiburger			Site Contact:			Date: 1/23/2023			COC No: 1										
Shannon & Wilson Inc.	Tel/Fax: 907-458-3146				Lab Contact: David Alltucker			Carrier: Goldstreak				1 of1 COCs								
5430 Fairbanks Street, Suite 3	Analysis Turnaround Time					5.											Job N	No. 10	2219-020	
Anchorage, Alaska 99518		r (C) or Wo)		1 20														
Phone: 907-561-2120		AT if different t				Jab.														
FAX: Project Name: Saint Paul PFAS	4		weeks			1 >											SDG	No.		
Site:			week			5.3														
P O # 102219-020			2 days																	
. 0 % 1022 10 020	+ -		l day		1	Sample				11							-			
	Sample	Sample	Sample		# of															
Sample Identification	Date	Time	Туре	Matrix		P.F.P.S												Samp	le Specific l	Notes:
SNP-NWell	1/17/23	11:28	G	W	2	×				П										
SWP-WCIIFZ	1/14/23		6	W	2	×							\forall			+	-			
SNP-WellF10Z	V17/23	1235	G	W	2	×	\top	\top					++		\Box	+				
SNY- Wall F5	1/17/23		6	W	ス	×							+		11					
SNP-MWNWS12	1/18/13	1233	6	W	2	×		-		$\dagger \dagger$		\vdash	$\dagger \dagger$	\top		+				
SNP-MWNWS13	1/18/23		6	W	2	1							$\dagger \dagger$	\top	\Box					
	1 01-2	1100		00	-	H'	$\dashv \dagger$	+						-		_	+			
	'			_		HH	+	_		+	-		++	+	++	+	+			
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						Ш														
1714 404 1014 1014 1014 1014 1014 1014 1																				
320-96242 Chain of Custody						Ш										\top	_			
								+			+		+	-	+	+	+			
						4	+			-	-	-	+	+	+-1	+	-			
Preservation Used: 1=1cc, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= O Possible Hazard Identification	ther		-			San	nle Dis	nosal	(A foo	may	0.355	00000	if can	17/05	250.50	taine	diana	th	month)	
Non-Hazard Flammable Skin Irritant Pois	on R	Unknowh					Return					osal By		ipies	□ZA _A	robius	e long	er than		
Special Instructions/QC Requirements & Comments:	-	CHKHOWI					Neturi	100	ileiit		Disp	usai b)	Lau		(A	rcnive	e For_		Months	
D. U L I L	-			In m		I.														
Relinquished by:	Shunna	n + Wil	Oh	112312	me: 3 a.	Rece	ived by:	Cer	, 1	1	ماند	C	mpany	-			Date/	Time:	4/77	100
Relingatished by:	Company:			Date/Ti	me.	Rece	verlben	28	V	10	JU C	2 00	mpany				10	12	105	10,0
12518/			1/	14/23	190	2\	3/2	Q_									Date	7//-	1/23 23/	071
Relinquished by:	Company:			Date/Ti	/ [· 6		ived by:	<u> </u>				$\overline{}$	te7	_	_		ID:	14.	65/	74
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Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc Job Number: 320-96242-1

Login Number: 96242 List Source: Eurofins Sacramento

List Number: 1

Creator: Pratali, Sandra A

orditor. I fataii, dandra A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Amber Masters	CS Site Name:	N/A	Lab Name:	Eurofins Environment Testing			
Title:	Environmental Scientist	ADEC File No.:	N/A	Lab Report No.:	320-96242-1			
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	N/A	Lab Report Date:	February 24, 2023			
Note: Any N/	'A or No box check	ed must have	an explanation in the	comments box.				
1. Laboi	ratory							
	Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses? Yes \(\triangle \tr							
	Comments: Sample analyses were not subcontracted or transferred to another laboratory.							
2. Chair	of Custody (CoC	;)						
a.	Is the CoC inform released/received Yes ⊠ No □ No Comments:	d by)?	ted, signed, and dated	(including				
b.	the Department of	N/A □ ted: Per- and of Defense (De	uested? polyfluorinated substal pD) Quality Systems M rsion 5.3 Table B-15.	,				

Revision 9/2022

CS Site Name: N/A

Lab Report No.: 320-96242-1

3. Laboratory Sample Receipt Documentation

;	a.	Is the sample/cooler temperature documented and within range at receipt (0 $^{\circ}$ to 6 $^{\circ}$ C)?
		Yes ⊠ No □ N/A □
I	b.	Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)? Yes □ No □ N/A ☒ Comments: PFAS does not require any additional preservation beyond
		temperature control.
(C.	Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.? Yes No N/A
		Comments: The laboratory notes that the samples arrived in good condition.
(d.	If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.? Yes \boxtimes No \square N/A \square
		Comments: Custody seals were not noted. The cooler was taped and we do not consider the data to be affected by this discrepancy.
•	e.	Is the data quality or usability affected? Yes □ No ☒ N/A □ Comments: See above.
4. Cas	e l	Narrative
;	a.	Is the case narrative present and understandable? Yes ⊠ No □ N/A □ Comments:
!	b.	Are there discrepancies, errors, or QC failures identified by the lab? Yes No N/A Comments: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-649399.
		Were all the corrective actions documented? Yes □ No □ N/A ⊠ Comments: The laboratory did not note corrective actions.

CS Site Name: N/A

Lab Report No.: 320-96242-1

c. What is the effect on data quality/usability according to the case narrative? Comments: The case narrative does not indicate an effect on data quality or usability. See the following sections for our assessment.

5.	Sam	ple R	esults
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	a.	Are the correct analyses performed/reported as requested on CoC? Yes \boxtimes No \square N/A \square Comments:
	b.	Are all applicable holding times met? Yes ⊠ No □ N/A □ Comments:
	C.	Are all soils reported on a dry weight basis? Yes \square No \square N/A \boxtimes Comments: Soils were not submitted with this work order.
	d.	Are the reported limits of quantitation (LOQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project? Yes \boxtimes No \square N/A \square Comments:
	e.	Is the data quality or usability affected? Yes □ No ☒ N/A □ Comments: See above.
6.	QC Sa	imples
	a.	Method Blank
		 i. Was one method blank reported per matrix, analysis, and 20 samples? Yes ⋈ No □ N/A □ Comments:
		ii. Are all method blank results less than LOQ (or RL)? Yes ⊠ No □ Comments:
		iii. If above LOQ or RL, what samples are affected? Comments: There were no detections in the method blank associated with the project samples.
		iv. Do the affected sample(s) have data flags? If so, are the data flags clearly

defined?

CS Site Name: N/A Lab Report No.: 320-96242-1 Yes □ No □ N/A ☒ Comments: See above. v. Data quality or usability affected? Yes □ No ⋈ N/A □ Comments: See above. b. Laboratory Control Sample/Duplicate (LCS/LCSD) i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846) Yes ⊠ No □ N/A □ Comments: ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples? Yes □ No □ N/A ⊠ Comments: Metals/Inorganics were not requested as a part of this work order iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) Yes ⊠ No □ N/A □ Comments: iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) Yes ⊠ No □ N/A □ Comments: v. If %R or RPD is outside of acceptable limits, what samples are affected? Comments: N/A. See above. vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes □ No □ N/A ⋈ Comments: See above. vii. Is the data quality or usability affected?

Yes □ No ⋈ N/A □

CS Site Name: N/A

Lab Report No.: 320-96242-1

Comments: See above.

C.	Matrix	Spike/Matrix Spike Duplicate (MS/MSD)
	i.	Organics – Are one MS/MSD reported per matrix, analysis and 20 samples? Yes No N/A Comments: MS/MSD samples were not analyzed as a part of this work order. The laboratory analyzed LCS/LCSD samples to assess laboratory accuracy and precision.
	ii.	Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples? Yes \square No \square N/A \boxtimes Comments: Metals/Inorganics were not requested as a part of this work order.
	iii.	Accuracy – Are all percent recoveries (%R) reported and within method of laboratory limits and project specified objectives, if applicable? Yes □ No □ N/A ☒ Comments: See above.
	iv.	Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. Yes \square No \square N/A \boxtimes Comments: See above.
	٧.	If %R or RPD is outside of acceptable limits, what samples are affected? Comments: See above.
	vi.	Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes \square No \square N/A \boxtimes Comments: See above.
	vii.	Is the data quality or usability affected? Yes □ No □ N/A ☒ Comments: See above.
d.	_	gates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution ds Only

and laboratory samples?

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC,

CS Site Name: N/A Lab Report No.: 320-96242-1 Yes ⊠ No □ N/A □ Comments: ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages) Yes ⊠ No □ N/A □ Comments: iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? Yes □ No □ N/A ⊠ Comments: See above. iv. Is the data quality or usability affected? Yes □ No ⋈ N/A □ Comments: e. Trip Blanks i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes \square No \square N/A \boxtimes Comments: A trip blank is not required for PFAS analysis. ii. Are all results less than LOQ or RL? Yes □ No □ N/A ⊠ Comments: A trip blank is not required. iii. If above LOQ or RL, what samples are affected? Comments: None; a trip blank is not required. iv. Is the data quality or usability affected? Yes □ No □ N/A ⊠ Comments: See above. f. Field Duplicate i. Are one field duplicate submitted per matrix, analysis, and 10 project samples? Yes ⊠ No □ N/A □ Comments: Was the duplicate submitted blind to lab?

Yes ⊠ No □ N/A □

CS Site Name: N/A

Lab Report No.: 320-96242-1

Comments: Field duplicate pair SNP-WellF2 / SNP-WellF102 was submitted with this work order.

ii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD \ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X \ 100$$

	where $R_1 = Sample Concentration$
	R ₂ = Field Duplicate Concentration
	Yes \square No \square N/A \boxtimes Comments: RPD were not calculable, as analytes were not detected in both samples for the field-duplicate pair.
iii.	Is the data quality or usability affected? (Explain) Yes □ No ⋈ N/A □ Comments: See above.
g. Deco	ntamination or Equipment Blanks
i.	Were decontamination or equipment blanks collected? Yes □ No □ N/A ☒ Comments: Reusable equipment was not used; therefore, an equipment blank is not required.
ii.	Are all results less than LOQ or RL? Yes □ No □ N/A ☒ Comments: See above.
iii.	If above LOQ or RL, specify what samples are affected. Comments: N/A; see above.
iv.	Are data quality or usability affected? Yes □ No □ N/A ⊠ Comments: See above.
nor Nata I	Flags/Qualifiers (ACOF AFCEE Lab Specific etc.)

- 7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
 - a. Are they defined and appropriate?

Yes □ No □ N/A ⊠ Comments:



February 15, 2023

Name Address Saint Paul, AK 99660

RE: RESULTS OF 2023 PFAS WATER SUPPLY WELL SAMPLING, SAINT PAUL AIRPORT

Thank you for participating in our water supply well sampling program to evaluate the presence of per- and polyfluoroalkyl substances (PFAS) in groundwater near the Saint Paul Airport (SNP). Shannon & Wilson, Inc. collected a water sample from your water supply well at address on date. We have also sent a copy of this letter to your tenant.

The water sample was analyzed for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and several other PFAS compounds. We compare these concentrations to the Alaska Department of Environmental Conservation (DEC) drinking water action level of 70 parts per trillion (ppt) for the sum of PFOS and PFOA. Please note that these units are equivalent to nanograms per liter (ng/L).

Results of the analysis conducted by Eurofins Environment Testing indicate that PFOS was not detected, and PFOA was not detected in the groundwater sample from your well. Based on the laboratory results from this sampling event the sum of PFOS and PFOA for your water sample is XX ppt, which is above/below the DEC drinking water action level. (*Insert other detected PFAS*) were also detected in the sample; however, DEC has not promulgated groundwater or drinking water standards for this/these compounds. The portions of the original laboratory report that apply to your well (sample number *PW-039*) are enclosed for your records.

Shannon & Wilson has conducted this sampling event on behalf of the Alaska Department of Transportation and Public Facilities (DOT&PF). Please see the enclosed PFAS fact sheet for a link to the DOT&PF project website.

Name February 15, 2023 Page 2

If you have any questions regarding your results, please feel free to contact us.

Sincerely,

SHANNON & WILSON, INC.



Enc: Select Pages of Test America Laboratory Report No. 320-96242-1

PFAS Fact Sheet – Saint Paul Airport

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	Saint Paul Airport Sitewide PFAS			
File Number:	2644.38.046			
Completed by:	Shannon & Wilson, Inc.			
about which expo summary text abo	be used to reach agreement with the osure pathways should be further in out the CSM and a graphic depicting work plan and updated as needed in	vestigated dur g exposure pa	ring site characte thways should be	rization. From this information
General Instruct	tions: Follow the italicized instruc	tions in each	section below.	
1. General In Sources (check)	nformation: potential sources at the site)			
☐ USTs		☐ Vehicles	S	
☐ ASTs		Landfill	S	
☐ Dispensers/fu	el loading racks	☐ Transfor	rmers	
☐ Drums		⋉ Other:	Aqueous Film Form	ning Foam (AFFF) releases
Release Mechan	isms (check potential release mech	anisms at the	site)	
⊠ Spills		⊠ Direct d	ischarge	
⊠ Leaks		☐ Burning		
		☐ Other:		
Impacted Media	a (check potentially-impacted medic	a at the site)	,	
Surface soil (€)	, , ,	⊠ Groundy	water	
Subsurface so Sub	<u> </u>	⊠ Surface	water	
☐ Air	-	⊠ Biota		
⊠ Sediment		☐ Other:		
Receptors (checi	k receptors that could be affected by	y contaminati	on at the site)	
Residents (ad	ult or child)	⊠ Site visi	tor	
	or industrial worker	⊠ Trespass	ser	
▼ Construction ▼ Construction	worker	Recreati	onal user	
⊠ Subsistence h	arvester (i.e. gathers wild foods)			
Subsistence c	onsumer (i.e. eats wild foods)	☐ Other:		

Direct Contact -		
 Incidental Soil Ingestion Are contaminants present or potentially present in surface s 	oil between 0 and 15 feet below th	ne ground surface
(Contamination at deeper depths may require evaluation on		× State Survivo
If the box is checked, label this pathway complete:	Complete	
Comments:		
To our knowledge, no surface soil samples have been collected at the AFFF releases to the ground surface could cause soil contamination.		
2. Dermal Absorption of Contaminants from Soil		
Are contaminants present or potentially present in surface s (Contamination at deeper depths may require evaluation on		ne ground surface
Can the soil contaminants permeate the skin (see Appendix	B in the guidance document)?	$\overline{\times}$
If both boxes are checked, label this pathway complete:	Complete	
Comments:		
AFFF releases to the ground surface could cause soil contamination. Department of Health and Social Services, PFOS and PFOA are not al skin. However, Appendix B of the 2017 Guidance on Developing Co PFOS and PFOA.	ppreciably absorbed through the	
Ingestion - 1. Ingestion of Groundwater		
Have contaminants been detected or are they expected to be or are contaminants expected to migrate to groundwater in		X
Could the potentially affected groundwater be used as a cur source? Please note, only leave the box unchecked if DEC I water is not a currently or reasonably expected future source to 18 AAC 75.350.	has determined the ground-	X
If both boxes are checked, label this pathway complete:	Complete	
Comments:		
PFAS were detected in groundwater at the site, including the comm	unity's water supply wells.	

2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, \overline{X} or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Incomplete Comments: It is unlikely the surface water near SNP would be used as a drinking water source. If our investigative efforts determine this to be false, we will update this CSM. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or \overline{X} harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into \overline{X} biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the \overline{X} ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? If both boxes are checked, label this pathway complete: Incomplete

Comments:

PFAS are not included in Appendix D.

2. Inhalation of Indoor Air				
Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)				
Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)?				
If both boxes are checked, label this pathway complete:	Incomplete			
Comments:				
PFAS are not included in Appendix D.				

3.	Additional Exposure Pathways: (Although there are no definitive questions provided in this section,				
	these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)				
Dermal Exposure to Contaminants in Groundwater and Surface Water					
	Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if				

 Climate permits recreational use of waters for swimming. Climate permits exposure to groundwater during activities, such as construction. 	
o Groundwater or surface water is used for household purposes, such as bathing or cl	
Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of dermal absorption is incorporated into the groundwater exposure equation for residential uses.	
Check the box if further evaluation of this pathway is needed:	X
Comments:	
According to the Alaska Department of Health and Social Services, PFOS and PFOA are not appreciably absorbed through the skin. However, Appendix B of the 2017 Guidance on Developing Conceptual Site Models lists both PFOS and PFOA. We consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.	
Inhalation of Volatile Compounds in Tap Water	
Inhalation of volatile compounds in tap water may be a complete pathway if: The contaminated water is used for indoor household purposes such as showering, washing.	laundering, and dish
 The contaminants of concern are volatile (common volatile contaminants are listed guidance document.) 	in Appendix D in the
DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because vapors during normal household activities is incorporated into the groundwater exposure equations of the pathway because vapors during normal household activities is incorporated into the groundwater exposure equations.	
Check the box if further evaluation of this pathway is needed:	
Comments:	_
PFAS are not included in Appendix D.	

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed:

\overline{X}

Comments:

No surface soil samples have been collected at the SNP. However, AFFF was likely released to the ground surface on the lightly graveled runways that can be dusty in the summertime.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- o Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:



Comments:

No sediment samples have been collected at the SNP. Due to the potential for residents to access potentially contaminated surface water bodies, this has been marked as a pathway in need of further evaluation.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

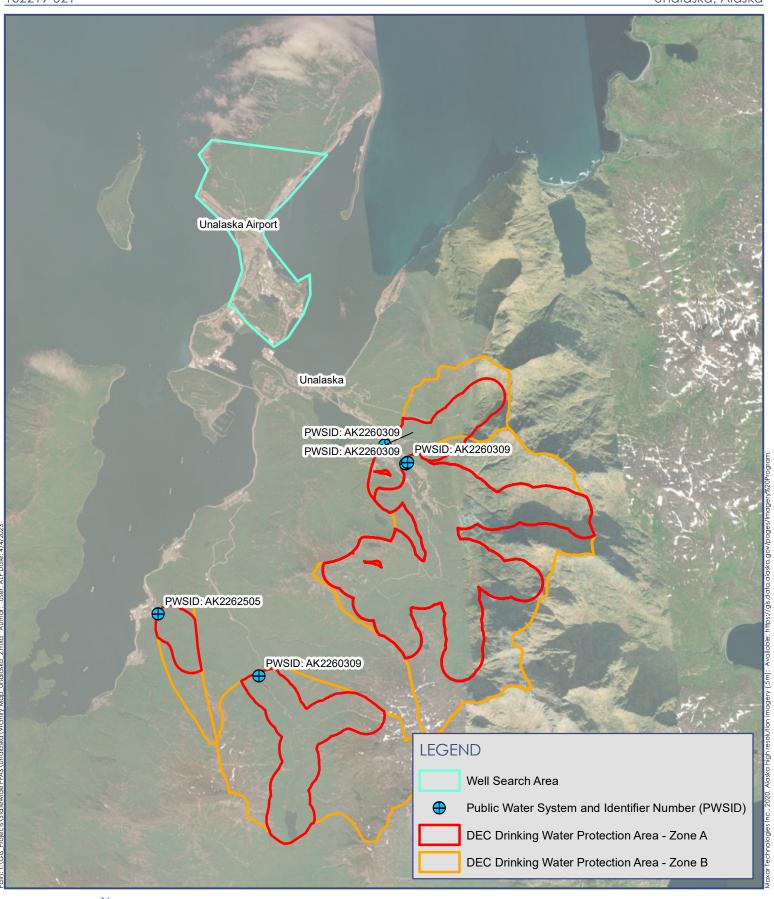
Site: Saint Paul Island Airport Sitewide PFAS	Instructions: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.								
Completed By: Shannon & Wilson, Inc.		use controls when describing patr	iways	•					
Date Completed: March 2023						(5)			
(1) Check the media that could be directly affected by the release. For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.	(3) Check all exposure media identified in (2).	(4) Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.	expo "F" f futur C	tify the receptors pathway for future receptors, furrent	ay: Ente eptors, or "I" fo & Fu	er "C" fo "C/F" fo for insign uture	or curre for both inificant	ent rec current expo	eptors, nt and sure.
Media Transport Mechanisms	Exposure Media	Exposure Pathway/Route	/	ers	spa; user	orke) siste	nsur'	
✓ Direct release to surface soil check soil Surface ✓ Migration to subsurface check soil Soil ✓ Migration to groundwater check groundwater (0-2 ft bgs) Volatilization check air			Residents	Commercial or Site visitors	Constr _{ucti}	Farmers or subsider	Subsistence	Other	
Runoff or erosion check surface water	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	ncidental Soil Ingestion	C/F	C/F C/F	C/F	C/F	C/F		
Uptake by plants or animals check biota	soil V	Dermal Absorption of Contaminants from Soil	ı	l l	J		I		
Other (list):		nhalation of Fugitive Dust	C/F	C/F C/F	C/F				
Subsurface Soil (2-15 ft bgs) Other (list):	groundwater V D	ngestion of Groundwater Dermal Absorption of Contaminants in Groundwater nhalation of Volatile Compounds in Tap Water	C/F	C/F C/F	C/F	C/F	C/F		
Ground- water Direct release to groundwater Check groundwater Check air Check surface water body Check surface water Flow to sediment Check sediment		nhalation of Outdoor Air nhalation of Indoor Air							
Uptake by plants or animals check biota		nhalation of Fugitive Dust							
Other (list): Direct release to surface water check surface water Surface Water Volatilization check sediment V Uptake by plants or animals check biota Other (list):	surface water	ngestion of Surface Water Dermal Absorption of Contaminants in Surface Water Inhalation of Volatile Compounds in Tap Water	I	I I	I	l l	I		
Direct release to sediment check sediment	sediment	Direct Contact with Sediment	C/F	C/F C/F	C/F	C/F	C/F		
Sediment V Resuspension, runoff, or erosion check surface water V Uptake by plants or animals check biota Other (list):		ngestion of Wild or Farmed Foods	C/F	C/F C/F	C/F	C/F	C/F		

Appendix J

Unalaska Airport Supporting Documents

CONTENTS

- Figure J1 Vicinity Map
- Figure J2 Site Map
- Well Search Questionnaire Letter and PFAS Fact Sheet Mailing
- DEC Conceptual Site Model Scoping and Graphic Forms





June 2023





June 2023 **SITE MAP Figure J2**



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

December 2022

Dear Property Owner or Occupant:

The Department of Transportation and Public Facilities (DOT&PF) is conducting a comprehensive evaluation of per- and polyfluoroalkyl substances (PFAS) contamination at state owned airports across the state. Firefighters at the Unalaska Airport have used aqueous film forming foam (AFFF), a standard firefighting agent that contains PFAS, to extinguish hydrocarbon fires during training exercises and emergency events.

The DOT&PF has contracted with environmental consulting firm, Shannon & Wilson, Inc., to collect groundwater samples from water supply wells near the airport in Unalaska. Prior to the sampling event, DOT&PF and their representatives will also reach out to the community leadership to discuss the project and address questions.

If you have an active well within the search areas (see attached map), please complete the enclosed water supply well survey and return to the address below, or call (907) 458-3146.

Shannon & Wilson 2355 Hill Road Fairbanks, AK 99709

Water supply well sample results will be compared to the Alaska Department of Conservation (DEC) drinking water action level of 70 parts per trillion for the sum of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), two compounds within the PFAS family. PFAS are emerging contaminants, and the research into the health effects of exposure to PFAS is ongoing. Results for the water samples will be shared with property owners and residents. If your drinking-water well is found to have PFAS above the action level, DOT&PF will assist with access to alternative drinking water.

If you have any questions, please contact me, or see the enclosed contact list to identify the most appropriate person or agency for your inquiry. We appreciate your patience as we work through this process.

Sincerely,

Sammy Cummings

Sammy Cumming

PFAS Program Manager, DOT&PF Statewide Aviation



Water Supply Well Inventory Survey Form

Da	::	
Pa	el:	
Na	e (Owner):	
Na	e (Occupant):	
Ph	ical Address:	
Ma	ing Address:	
Em	il Address (optional):	
Со	act Phone Number: (owner) (occupant)	
	Adults (18 and over) Teenagers (13 to 17) Children (12 and under) s at this residence:Full-Time Seasonal	
1)	From where do you obtain your drinking water? a) Water Supply Utility b) Well Water c) Water Delivery d) Other	
2)	f you have a water well, please answer the following questions: a) Where is the well located on the property?	
3)	Do you have any treatment on your well (e.g. water softener)? Please describe	: your
	Signature Date	





Notes:

- 1. AFFF: Aqueous Film Foarming Foam
- 2. Search area is approximate

December 2022

SITE MAP Figure 2



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

PFAS Fact Sheet - Unalaska Airport

December 2022

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging, and firefighting foams.

The presumed source of potential PFAS in groundwater in your community is the use of a fire-fighting foam called aqueous film forming foam (AFFF). Airport firefighters used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

The Alaska Department of Environmental Conservation (DEC) has adopted the Environmental Protection Agency's former lifetime health advisory (LHA) level for drinking water of **70 parts per trillion** for the sum of PFOS and PFOA. On June 15, 2022, the EPA adopted a revised interim LHA level. DOT&PF will continue to work with our state and federal partners to determine what this means for Alaska and will adjust as more information becomes available.

Website: www.dot.alaska.gov/airportwater/

For questions about well testing:

Shannon & Wilson, Inc.

Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program

Phone: 907-269-3057

Email: bill.oconnell@alaska.gov

For questions about PFAS and health effects:

Alaska Department of Health

Sarah Yoder, Env. Public Health Manager

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

For questions about fire training & other inquiries:

DOT&PF - Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

We advise residents with test results above the DEC Action Level not to use their water for drinking or cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC Action Level, DOT&PF will assist with access to an alternate source of drinking water.

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	ADOT&PF Unalaska Airport Sitewide PF	AS				
File Number:	2661.38.019					
Completed by:	Shannon & Wilson, Inc.					
about which expo summary text abo	osure pathways should be further in	vestigated dur g exposure pa	artment of Environmental Conservation (DEC) ring site characterization. From this information athways should be submitted with the site			
General Instruct	tions: Follow the italicized instruc	ctions in each	section below.			
1. General In Sources (check)	nformation: potential sources at the site)					
☐ USTs		☐ Vehicles	S			
☐ ASTs		☐ Landfill:	S			
☐ Dispensers/fu	el loading racks	☐ Transfor	rmers			
☐ Drums			Aqueous Film Forming Foam (AFFF) releases			
Release Mechan	nisms (check potential release mech	nanisms at the	site)			
⊠ Spills		⊠ Direct d	ischarge			
⊠ Leaks		☐ Burning				
		☐ Other:				
Impacted Media	a (check potentially-impacted medic	a at the site)				
✓ Surface soil (, , ,	⊠ Groundy	water			
Subsurface so Sub	<u> </u>	Surface Surface				
☐ Air		⊠ Biota				
⊠ Sediment		☐ Other:				
Receptors (check	k receptors that could be affected b	y contaminatio	on at the site)			
⊠ Residents (ad	ult or child)	⊠ Site visitor				
	or industrial worker	⊠ Trespasser				
▼ Construction	worker	⊠ Recreati	ional user			
⊠ Subsistence h	arvester (i.e. gathers wild foods)	区 Farmer				
Subsistence c	onsumer (i.e. eats wild foods)	☐ Other:				

2.	Exposure Pathways: (The answers to the following exposure pathways at the site. Check each box when	· ·	• •	-)		
a)	Direct Contact - 1. Incidental Soil Ingestion						
	Are contaminants present or potentially present in surface s (Contamination at deeper depths may require evaluation on				urface? ⊠		
	If the box is checked, label this pathway complete:		Complete				
	Comments:						
	To our knowledge, no surface soil samples have been collected at the AFFF releases to the ground surface could cause soil contamination.						
	2. Dermal Absorption of Contaminants from Soil						
	Are contaminants present or potentially present in surface s (Contamination at deeper depths may require evaluation on	-	urface?				
	Can the soil contaminants permeate the skin (see Appendix	Į	$\overline{\times}$				
	If both boxes are checked, label this pathway complete:		Complete				
	Comments:						
	AFFF releases to the ground surface could cause soil contamination. Department of Health and Social Services, PFOS and PFOA are not a skin. However, Appendix B of the 2017 Guidance on Developing Co PFOS and PFOA.	ppreciably	absorbed through the				
b)	Ingestion - 1. Ingestion of Groundwater						
	Have contaminants been detected or are they expected to be or are contaminants expected to migrate to groundwater in	ı	\overline{X}				
	Could the potentially affected groundwater be used as a cursource? Please note, only leave the box unchecked if DEC water is not a currently or reasonably expected future source to 18 AAC 75.350.	I					
	If both boxes are checked, label this pathway complete:						
	Comments:						
	To our knowledge, groundwater is not used as a drinking water soul	irce at or ne	ar the airport.				

2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, \overline{X} or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Incomplete Comments: It is unlikely the surface water near DUT would be used as a drinking water source. If our investigative efforts determine this to be false, we will update this CSM. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or \overline{X} harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into \overline{X} biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the \overline{X} ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? If both boxes are checked, label this pathway complete: Incomplete

Comments:

PFAS are not included in Appendix D.

2. Inhalation of Indoor Air				
Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)				
Are volatile compounds present in soil or groundwater (see Ap document)?	pendix D in the guidance			
If both boxes are checked, label this pathway complete:	Incomplete			
Comments:				
PFAS are not included in Appendix D.				

3.	Additional Exposure Pathways: (Although there are no definitive questions provided in this section,
	these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)
De	ermal Exposure to Contaminants in Groundwater and Surface Water
	Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if

 Climate permits recreational use of waters for swimming. Climate permits exposure to groundwater during activities, such as construction. 						
o Groundwater or surface water is used for household purposes, such as bathing or c						
Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of dermal absorption is incorporated into the groundwater exposure equation for residential uses.	± •					
Check the box if further evaluation of this pathway is needed:	X					
Comments:						
According to the Alaska Department of Health and Social Services, PFOS and PFOA are not appreciably absorbed through the skin. However, Appendix B of the 2017 Guidance on Developing Conceptual Site Models lists both PFOS and PFOA. We consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.						
Inhalation of Volatile Compounds in Tap Water						
Inhalation of volatile compounds in tap water may be a complete pathway if: The contaminated water is used for indoor household purposes such as showering, washing.	laundering, and dish					
The contaminants of concern are volatile (common volatile contaminants are listed guidance document.)	in Appendix D in the					
DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway becau vapors during normal household activities is incorporated into the groundwater exposure equa						
Check the box if further evaluation of this pathway is needed:						
Comments:	_					
PFAS are not included in Appendix D.						

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed:

\overline{X}

Comments:

No surface soil samples have been collected at the DUT. However, AFFF was likely released to the ground surface on the runways that can be dusty in the summertime.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- o Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:



Comments:

No sediment samples have been collected at the DUT. However, AFFF was likely release to the ground surface and runoff could occur to surface water bodies. Additionally, local residents may use subsistence practices (e.g., berry picking and fishing) that may expose them to sediment.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

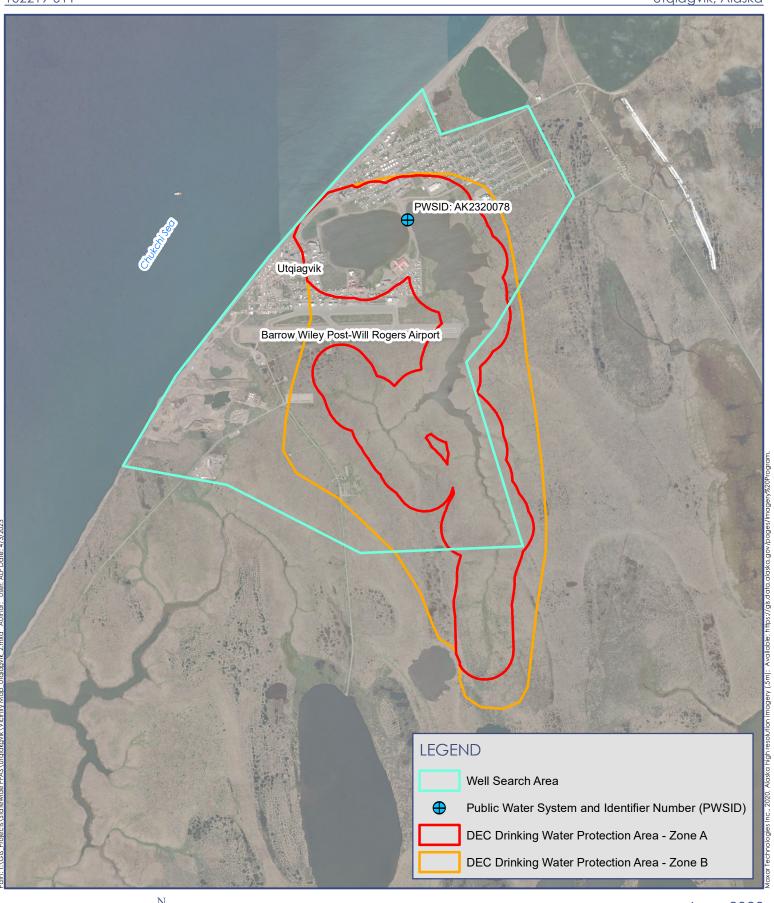
Site: ADOT&PF Unalaska Airport Sitewide PFAS	Instructions: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.								
Completed By: Shannon & Wilson, Inc.		use controls when describing pair		•					
(1) Check the media that could be directly affected by the release. (2) For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.	(3) Check all exposure media identified in (2).	(4) Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.	Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure. Current & Future Receptors						
Media Transport Mechanisms	Exposure Media	Exposure Pathway/Route	/	ren)	espa 'use'	orke	ر ع / الج	Insir.	
Surface Soil V Direct release to surface soil check soil Surface Soil ✓ Migration to subsurface check soil ✓ Migration to groundwater check groundwater (0-2 ft bgs) Volatilization check air		·	Residents (adulta	Commercial or Site visitor	Construct:	Farmers or subsister	Subsistence cong	Other	
Runoff or erosion check surface water		ncidental Soil Ingestion	C/F	C/F C/F	C/F	C/F	C/F		
✓ Uptake by plants or animals check biota	soil [Dermal Absorption of Contaminants from Soil	ı	l l	ı				
Other (list):		nhalation of Fugitive Dust	C/F	C/F C/F	C/F				
Subsurface Soil Volatilization Check groundwater Check groundwater Check groundwater Check groundwater Check groundwater Check biota Check biota Other (list):	☑ groundwater ☑ □	ngestion of Groundwater Dermal Absorption of Contaminants in Groundwater nhalation of Volatile Compounds in Tap Water	I	1 1	I		ı		
Ground- Direct release to groundwater check groundwater Check are check aroundwater	 	nhalation of Outdoor Air					$\overline{}$		
water Flow to surface water body check surface water	air I	nhalation of Indoor Air							
Flow to sediment check sediment Uptake by plants or animals check biota	II — — — — — — — — — — — — — — — — — —	nhalation of Fugitive Dust							
Other (list):		· · · · · · · · · · · · · · · · · · ·							
Direct release to surface water check surface water		ngestion of Surface Water			1.	 			
Surface Volatilization check air Water Sedimentation check sediment		Dermal Absorption of Contaminants in Surface Water	I	l l	ļ.				
✓ Uptake by plants or animals check biota		nhalation of Volatile Compounds in Tap Water							
Other (list): Direct release to sediment	sediment / [Direct Contact with Sediment	C/F	C/F C/F	C/F	C/F (C/F		
Sediment V Resuspension, runoff, or erosion Check surface water V Uptake by plants or animals Check biota Other (list):	▼ biota ✓ I	Ingestion of Wild or Farmed Foods	C/F	C/F C/F	C/F	C/F	C/F		

Appendix K

Utqiagvik Airport Supporting Documents

CONTENTS

- Figure K1 Vicinity Map
- Figure K2 Site Map
- Well Search Questionnaire Letter and PFAS Fact Sheet Mailing
- Well Search Questionnaire Responses
- Analytical Laboratory Reports (Supplied by BUECI)
- DEC Conceptual Site Model Scoping and Graphic Forms



June 2023





Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

January 2023

Dear Property Owner or Occupant:

The Department of Transportation and Public Facilities (DOT&PF) is conducting a comprehensive evaluation of per- and polyfluoroalkyl substances (PFAS) contamination at state owned airports across the state. Firefighters at the Wiley Post-Will Rogers Memorial Airport have used aqueous film forming foam (AFFF), a standard firefighting agent that contains PFAS, to extinguish hydrocarbon fires during training exercises and emergency events.

The DOT&PF has contracted with environmental consulting firm, Shannon & Wilson, Inc., to collect groundwater samples from water supply wells near the airport in Utqiagvik. Prior to the sampling event, DOT&PF and their representatives will also reach out to the community leadership to discuss the project and address questions.

This is an Issue Notice that only applies to the Well Search Area on the attached map. If you received this notice and do NOT reside in the well search area, disregard this notice.

If you have an active well within the search area (see attached map), please complete the enclosed water supply well survey and return to the address below, or call (907) 458-3146.

Shannon & Wilson 2355 Hill Road Fairbanks, AK 99709

Water supply well sample results will be compared to the Alaska Department of Conservation (DEC) drinking water action level of 70 parts per trillion for the sum of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), two compounds within the PFAS family. PFAS are emerging contaminants, and the research into the health effects of exposure to PFAS is ongoing. Results for the water samples will be shared with property owners and residents. If your drinkingwater well is found to have PFAS above the action level, DOT&PF will assist with access to alternative drinking water.

If you have any questions, please contact me, or see the enclosed contact list to identify the most appropriate person or agency for your inquiry. We appreciate your patience as we work through this process.

Sincerely,

Sammy Cummings

PFAS Program Manager, DOT&PF Statewide Aviation



Private Well Inventory Survey Form

Da	te:	
Pa	rcel:	
Na	ame (Owner):	
Na	ame (Occupant):	
Ph	ysical Address:	
Ma	ailing Address:	
Em	nail Address (optional):	
Со	ontact Phone Number: (owner)	(occupant)
	umber of persons residing at this location: ars at this residence:Full-TimeSe	Adults (18 and over) Teenagers (13 to 17) Children (12 and under) asonal
1) 2)	From where do you obtain your drinking water? a) College Utilities Water Supply c) Water Delivery If you have a water well, please answer the follow	b) Well Water d) Other ing questions:
	a) Where is the well located on the property? b) Is the well in use? Yes No c) If yes, please check all that apply regarding the Drinking Cooking Gardening d) If no, is the well usable, unusable, or properly Usable Unusable Abandoned e) When was the well installed? f) What is the well depth? g) What is the well diameter? h) What is the well type? Dug Well Drilled	e usage of your well water: Pets Other abandoned? Method Driven Unknown
	i) Do you have any treatment on your well (e.g. v	water softener)? Please describe
3)	Sample Permission Does the Fairbanks International Airport have per Yes No	mission to sample your private water well?
	Signature	 Date





Notes:

1. AFFF: Aqueous Film Foarming Foam

2. Search area is approximate

January 2023

SITE MAP Figure 2



Department of Transportation and Public Facilities

DIVISION OF STATEWIDE AVIATION

P.O. Box 196900, 99519-6900 4111 Aviation Avenue, 99502 Anchorage, AK Main: 907.269.0730 Fax: 907.269.0489 dot.state.ak.us

PFAS Fact Sheet - Utqiagvik Airport

January 2023

Per- and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals used for a wide variety of residential, commercial, and industrial uses. PFAS are considered emerging environmental contaminants and the health effects are not well known. PFAS are used in many consumer products ranging from fabric waterproofing compounds, non-stick cookware, stain resistant carpeting, some food packaging, and firefighting foams.

The presumed source of potential PFAS in groundwater in your community is the use of a fire-fighting foam called aqueous film forming foam (AFFF). Airport firefighters used the foam to extinguish petroleum fires during training exercises and emergency events.

The Alaska Department of Transportation & Public Facilities (DOT&PF) has hired Shannon & Wilson to test water supply wells near the airport for perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and other PFAS compounds.

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Website: www.dot.alaska.gov/airportwater/

For questions about well testing:

Shannon & Wilson, Inc.

Kristen Freiburger, Project Manager

Office Phone: 907-458-3146

Email: kristen.freiburger@shanwil.com

For regulatory questions:

Alaska Dept. of Environmental Conservation Bill O'Connell, Contaminated Sites Program

Phone: 907-269-3057

Email: bill.oconnell@alaska.gov

For questions about PFAS and health effects:

Alaska Department of Health

Sarah Yoder, Env. Public Health Manager

Phone: 907-269-8054

Email: sarah.yoder@alaska.gov

For questions about fire training & other inquiries:

DOT&PF - Statewide Aviation

Sammy Cummings, PFAS Program Manager

Phone: 907-888-5671

Email: airportwater@alaska.gov

We advise residents with test results above the DEC Action Level not to use their water for drinking or cooking. If your well is considered affected, you can continue to shower, clean, and do laundry. Test results are typically available within three to four weeks of sample collection. If your well is found to have PFAS above the DEC Action Level, DOT&PF will assist with access to an alternate source of drinking water.



Private Well Inventory Survey Form

Dat	<u>2-3-23</u>
Par	Tract A. 1: BLOCK 4 LOTS
Nar	e (Owner): Flossie Mongoyak/Gilford Mongoyak Jr
Nar	(Occupant): Flossie Mongoyak/Nova & Family
Phy	cal Address: 2418 D Street
Ma	ng Address: Box 608; BARROW, ALASKA 99723
Em	Address (optional): Abssiemong ayak@ hotmail.com
	act Phone Number: (owner) 907-319-6278 (occupant) 907-852-7004
	per of persons residing at this location: Adults (18 and over) Teenagers (13 to 17) Children (12 and under) At this residence: Seasonal
1)	rom where do you obtain your drinking water? College Utilities Water Supply
3)	ample Permission oes the Fairbanks International Airport have permission to sample your private water well? Yes No 2-3-23 gnature Date

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC# BUECI PFC

Company: Barrow Utilitie	CLIENT INFORM			Contact Po Jim Mu				Davas - ak	tive Added		Page 1 of 1			
Address: P.O. Box 449				WWTP A	PDES #:			Trizma	ive Added					
City, State Zip: Barrow, A	К 99723			PWS ID :	#: 320078			Mixture						
Phone: 907-852-8427				Send Resi	ults to ADEC:									Normal Turnaround
Fax: 907-852-5164				√ Yes	□ No		so.	S						
Email: powerplant@buec	i.org			Purchase O	order/Charge Code: 202:	10001	of Container	PFOS						□ RUSH day(s)
Project Name: PFAS Moni t	toring				2021-020			ಹ						
Sampled By:	rake II				0. 41 44		Number	PFOA						
Sample Identification	Sample Point	ID: Sample Date	Sample Tim	e Matrix	Lab ID#	Sub Lab ID#								Sample Comments
Raw Water Tap	SPIN001	115/21	14:15	W	PEF64218		2	х						
MG Tank	SPTP001	115/21	(4:20	W	PEF64219		2	х						
											-			
			-											
Possible Hazard Identifi Non-Hazardous	ication: □ Flammable	□ Skin Irritar	nt 🗆 Uni	known		Pollen Env Temper Sub Lab Temperat	ature	on arriva		_°C	COC Seal: COC Seal:		□ Intact □ Intact	□ Broken □ Absen □ Broken □ Absen
Special Instructions/QC	Requirements &	Comments:												
Relinquished by:		Company:	Cl		Date & Time:	1500		eived by:	all made	len Co	mpany: Pollen	Env.	Date	& Time: 1020am
Relinquished by		10	illen E	nv	Date & Time:	1100am	100	eived by:	/		mpany:		Date	& Time:
Relinquished by:		Company:			Date & Time:		Red	eived by:	i .	Co	mpany:		Date	& Time:



CERTIFICATE OF ANALYSIS

Report Date:

Receipt Date:

Sampled By:

1/15/2021

Tom Drake II

1/7/2021

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFC Monitoring Sampled By: Tom Drake II

PWS ID: 320078

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Tap	PEF64218	4810166	1/5/2021	2:15 PM
MG Tank	PEF64219	4810167	1/5/2021	2:20 PM

Jerry Pollen

Pollen Environmental, LLC - Fairbanks



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida(Primary AB)*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon*	4156
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Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
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Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 09/29/2020



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

Client: Pollen Environmental LLC Report: 507668

Attn: Jerry Pollen Priority: Standard Written

3536 International Avenue Status: Final

Fairbanks, AK 99701 PWS ID: AK2320078
Alaska Lab ID # IN00035

	Sample Information												
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time								
4810166	PEF64218-Raw Water Tap	537.1	01/05/21 14:15	Client	01/08/21 09:00								
4810167	PEF64219-MG Tank	537.1	01/05/21 14:20	Client	01/08/21 09:00								

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Artice Clifebowsh ASM Title

01/13/2021

Date

Authorized Signature
Client Name: Poller

Pollen Environmental LLC

Report #: 507668

Client Name: Pollen Environmental LLC Report #: 507668

Sampling Point: PEF64218-Raw Water Tap PWS ID: AK2320078

	EEA Methods													
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#					
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	4.3	ng/L	01/11/21 07:47	01/12/21 09:30	4810166					
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	44	ng/L	01/11/21 07:47	01/12/21 09:30	4810166					

Sampling Point: PEF64219-MG Tank PWS ID: AK2320078

	EEA Methods												
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#				
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	< 2.0	ng/L	01/11/21 07:47	01/12/21 04:16	4810167				
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	< 2.0	ng/L	01/11/21 07:47	01/12/21 04:16	4810167				

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Client Name: Pollen Environmental LLC Report #: 507668

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery** %

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC#		PFC
416112	50	7668

Company: Barrow Utilitie	CLIENT INFORMA			Contact P Jim Mu				Darcanyat	tive Added	R	Requested Analysis Page 1 of 1		1 of 1			
Address: P.O. Box 449				WWTP A	PDES #:			Trizma Mixture	IVE Added							
City, State Zip: Barrow, A	K 99723			PWS ID	#: 320078			HIXLUTE								
Phone: 907-852-8427				Send Resi	ults to ADEC;										Normal T	urnaround
Fax: 907-852-5164				√ Yes	□ No		ya	S								
Email: powerplant@buec	ci.org			Purchase O	rder/Charge Code: 202	10001	of Containers	PFOS							□ RUSH day(s)	day(s)
Project Name: PFAS Moni	S Monitoring				2021-02	0		ಶ								
Sampled By: Tom D	rake II			-	0		Number	PFOA								
Sample Identification	Sample Point I	D: Sample Date	Sample Time	e Matrix	Lab ID#	Sub Lab ID#									Sample Co	mments
Raw Water Tap	SPIN001	ilstri	14:15	W	PEF64218	4810166	2	х								
MG Tank	SPTP001	115/21	14:20	W	PEF64219	4810167	2	х								
										-						
														_		
															-	
Possible Hazard Identification Non-Hazardous	□ Flammable	☐ Skin Irritan	nt 🗆 Uni	known	4	Pollen Env Temper Sub Lab Temperat	rature	on arriva		<i>0n:</i>	coc s		0	Intact Intact	□ Broken □ Broken	☐ Absent☐ Absent
Special Instructions/QC	C Requirements &	Comments:						,								
Relinquished by:		Company:	CI		Date & Time:	1500	Rec	eived by	au ha	len		: Pollen Er	ıv.	Date 8	Time: 2/0/	Roger
Relinquished by		Company: P	. A	nv	Date & Time:	1100am	Rec	eyed by	Pellin	Wilt	Compan	Ä		Date 8	Time:	900
Relinquished by:		Company:			Date & Time:		Red	eived by	. 0	8	Compan				k Time:	





Eurofins Eaton Analytical Run Log Run ID: 284199 Method: 537.1

Calibration File	011121M537_1a-FL.mdb	011121M537_1a-FL.mdb								
Analysis Date	01/11/2021 19:09	01/11/2021 19:35	01/11/2021 19:48	01/11/2021 20:14	01/12/2021 02:06	01/12/2021 04:16	01/12/2021 04:29	01/12/2021 09:16	01/12/2021 09:30	01/12/2021 10:08
Instrument ID	긥	긤	긤	긥	긥	긥	긥	긤	긤	F
Matrix	SO	RW	RW	RW	SO	DW	SO	SO	DW	SO
Sample Site						PEF64219-MG Tank			PEF64218-Raw Water Tap	
Sample Id	4810589	4810569	4810570	4810571	4810590	4810167	4810591	4810893	4810166	4810894
Type	CCL	LRB	FBL	FBH	CCM	FS	CCH	CCM	FS	ССН

Pample Analyte Method MoA96 Cilent ID Result Anoput Target Units Recovery Recovery Pample Did Extracted Analyte Type Cile Extracted Analyte Cilent Perhusiroctanical cade (PFOA) 557.1 2.0 1.7565 2.0 ngt. 86 50.150 1.0 01082201 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 259513 259513 ngt. 100 50.150 1.0 01082201 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 259513 259513 ngt. 100 50.150 1.0 01082201 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 259513 259513 ngt. 100 50.150 1.0 01082201 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 259513 259513 ngt. 100 0.150 1.0 01082201 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 140 0427 40.0 ngt. 100 70.130 1.0 01082221 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 40 0427 40.0 ngt. 100 70.130 1.0 01082221 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 40 0427 40.0 ngt. 100 70.130 1.0 01082221 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 40 0427 40.0 ngt. 100 70.130 1.0 01082221 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 40 0427 40.0 ngt. 100 70.130 1.0 01082221 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 40 0428 40.0 ngt. 100 70.130 1.0 01082221 0940 011112021 CCL ISS-PGA-13C2 537.1 NA 40 0428 40.0 ngt. 100 70.130 1.0 01102221 0747 011112021 CCL ISS-PGA-13C2 537.1 NA 40 0428 40.0 ngt. 100 50.150 1.0 01112221 0747 011112021 CCL ISS-PGA-13C2 537.1 NA 22844 215933 ngt. 100 50.150 1.0 011112221 0747 011112021 CCL ISS-PGA-13C2 537.1 NA 22844 215933 ngt. 100 50.150 1.0 011112221 0747 011112021 CCL ISS-PGA-13C2	QC Summary Report																
CCL Perfluorocdanesulfonic acid (PFOS) S57.1 2.0	EEA ID#	Analyzed				RPD			Units	Target	Amount		Client ID	MDA95	Method	Analyte	
CCL IS-NMeFOSAA-d3 S37.1 N/A	:09 4810589	01/11/2021 19:09	01/08/2021 09:40	1.0			50 - 150	88	ng/L	2.0	1.7595			2.0	537.1	Perfluorooctanoic acid (PFOA)	CCL
CCL IS-PFOS-ISC4 S37.1 NA	:09 4810589	01/11/2021 19:09	01/08/2021 09:40	1.0			50 - 150	95	ng/L	2.0	1.9010			2.0	537.1	Perfluorooctanesulfonic acid (PFOS)	CCL
CCL S-FPOS-13C4 S37.1 N/A 289380 rgil. 100 50-150 1.0 0108/2021 0940 0111/2021 0740 0111/	:09 4810589	01/11/2021 19:09	01/08/2021 09:40	1.0			50 - 150	100	ng/L	215993	215993			N/A	537.1	IS-NMeFOSAA-d3	CCL
CCL SS NEIFOSALdS S37.1	:09 4810589	01/11/2021 19:09	01/08/2021 09:40	1.0			50 - 150	100	ng/L	525134	525134			N/A	537.1	IS-PFOA-13C2	CCL
CCL SS-PFDA-13C2 537.1 N/A 40.0427 40.0 ng/L 100 70-130 1.0 0108/2021 0940 0111/2021 CCL SS-PFPDA-13C2 537.1 N/A 40.8439 40.0 ng/L 102 70-130 1.0 0108/2021 0940 0111/2021 CCL SS-PFPDA-13C3 537.1 N/A 40.2459 40.0 ng/L 101 70-130 1.0 0108/2021 0940 1011/2021 LRB Perfluoroctanoic acid (PFOA) 537.1 2.0 < 2.0 ng/L 1.0 0111/2021 0747 1011/2021 LRB Perfluoroctanoic acid (PFOA) 537.1 2.0 < 2.0 ng/L 1.0 0111/2021 0747 1011/2021 LRB IS-MMerCSAA-d3 537.1 N/A 585070 525134 ng/L 108 50-150 1.0 0111/2021 0747 1011/2021 LRB IS-PFOA-13C2 537.1 N/A 585070 525134 ng/L 101 50-150 1.0 0111/2021 0747 1011/2021 LRB IS-PFOA-13C2 537.1 N/A 302177 289330 ng/L 104 50-150 1.0 0111/2021 0747 1011/2021 LRB IS-PFOA-13C2 537.1 N/A 302177 289330 ng/L 104 50-150 1.0 0111/2021 0747 1011/2021 LRB SS-PFDA-13C2 537.1 N/A 308901 40.0 ng/L 92 70-130 1.0 0111/2021 0747 1011/2021 LRB SS-PFDA-13C2 537.1 N/A 308901 40.0 ng/L 92 70-130 1.0 0111/2021 0747 1011/2021 LRB SS-PFDA-13C2 537.1 N/A 308901 40.0 ng/L 92 70-130 1.0 0111/2021 0747 1011/2021 LRB SS-PFDA-13C2 537.1 N/A 308902 40.0 ng/L 92 70-130 1.0 0111/2021 0747 1011/2021 LRB SS-PFDA-13C3 537.1 N/A 308902 40.0 ng/L 92 70-130 1.0 0111/2021 0747 1011/2021 PFBL Perfluoroctanoical did (PFOA) 537.1 2.0 1.0 1011/2021 0747 1011/2021 0747 1011/2021 PFBL Perfluoroctanoical did (PFOA) 537.1 2.0 1.0 1010/2010 0747 1011/2021 0747 1011/2021 PFBL IS-PFOA-13C2 537.1 N/A 208431 525134 ng/L 115 50-150 1.0 0111/2021 0747 1011/2021 PFBL IS-PFOA-13C2 537.1 N/A 226443 219933 ng/L 105 50-150 1.0 0111/2021 0747 1011/2021 PFBL IS-PFOA-13C2 537.1 N/A 226443 219933 ng/L 101 50-150 1.0 0111/2021 0747 1011/2021 0747 1011/2021 PFBL IS-PFOA-13C2 537.1 N/A 226449 219933 ng/L 101 50-150 1.0 0111/2021 0747 1011/2021 PFBL IS-PFOA-13C3 537.1 N/A 226449 219933 ng/L 104 50-150 1.0 0111/2021 0747 10111/2021 PFBL IS-PFOA-13C2 537.1 N/A 226449 219930 ng/	:09 4810589	01/11/2021 19:09	01/08/2021 09:40	1.0			50 - 150	100	ng/L	289380	289380			N/A	537.1	IS-PFOS-13C4	CCL
CCL SS-PFHA-13C2	:09 4810589	01/11/2021 19:09	01/08/2021 09:40	1.0			70 - 130	100	ng/L	160	159.5610			N/A	537.1	SS-NEtFOSAA-d5	CCL
CCL SS-HFPO-DA-13C3	:09 4810589	01/11/2021 19:09	01/08/2021 09:40	1.0			70 - 130	100	ng/L	40.0	40.0427			N/A	537.1	SS-PFDA-13C2	CCL
LRB Perfluorocotanoic acid (PFOA) \$37.1 \$2.0 < 2.0 ngl. 1.0 01/11/2021 07.47 01/11/2021 07.4	:09 4810589	01/11/2021 19:09	01/08/2021 09:40	1.0			70 - 130	102	ng/L	40.0	40.8439			N/A	537.1	SS-PFHxA-13C2	CCL
LRB Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 < 2.0 ng/L 1.0 01/11/2021 07.47 01/11/2021 LRB IS-NMeFOSAA-d3 537.1 N/A 585070 52594 ng/L 111 50 -150 1.0 01/11/2021 07.47 01/11/2021 LRB IS-PFOS-13C2 537.1 N/A 585070 125993 ng/L 111 50 -150 1.0 01/11/2021 07.47 01/11/2021 LRB IS-PFOS-13C4 537.1 N/A 302177 289380 ng/L 104 50 -150 1.0 01/11/2021 07.47 01/11/2021 LRB SS-NEIFOSAA-d5 537.1 N/A 30.9601 40.0 ng/L 91 70 -130 1.0 01/11/2021 07.47 01/11/2021 LRB SS-PFDA-13C2 537.1 N/A 36.9601 40.0 ng/L 92 70 -130 1.0 01/11/2021 07.47 01/11/2021 LRB SS-PFDA-13C2 537.1 N/A 36.8622 40.0 ng/L 92 70 -130 1.0 01/11/2021 07.47 01/11/2021 LRB SS-PFDA-13C3 537.1 N/A 36.8622 40.0 ng/L 92 70 -130 1.0 01/11/2021 07.47 01/11/2021 17.47 01/11/2021 LRB SS-PFDA-13C3 537.1 N/A 36.8622 40.0 ng/L 92 70 -130 1.0 01/11/2021 07.47 01/11/2021 LRB SS-PFDA-13C3 537.1 N/A 36.8624 40.0 ng/L 92 70 -130 1.0 01/11/2021 07.47 01/11/2021 LRB SS-PFDA-13C3 537.1 N/A 36.8624 40.0 ng/L 92 70 -130 1.0 01/11/2021 07.47 01/11/2021 LRB SS-PFDA-13C3 537.1 N/A 36.8624 40.0 ng/L 92 70 -130 1.0 01/11/2021 07.47 01/11/2021 LRB SS-PFDA-13C3 537.1 N/A 36.8624 40.0 ng/L 90 50 -150 1.0 01/11/2021 07.47 01/11/2021 07	:09 4810589	01/11/2021 19:09	01/08/2021 09:40	1.0			70 - 130	101	ng/L	40.0	40.2450			N/A	537.1	SS-HFPO-DA-13C3	CCL
LRB IS-NMEFOSA-A3 537.1 N/A 228444 215993 ng/L 106 50-150 1.0 01/11/2021 07-47 01/11/2021 URB IS-PEOA-13C2 537.1 N/A 585070 525134 ng/L 111 50-150 1.0 01/11/2021 07-47 01/11/2021 URB IS-PEOS-13C4 537.1 N/A 302177 289380 ng/L 104 50-150 1.0 01/11/2021 07-47 01/11/2021 URB IS-PEOS-13C4 537.1 N/A 146,3810 160 ng/L 91 70-130 1.0 01/11/2021 07-47 01/11/2021 URB SS-PEDA-13C2 537.1 N/A 36,9801 40.0 ng/L 92 70-130 1.0 01/11/2021 07-47 01/11/2021 URB SS-PEDA-13C2 537.1 N/A 36,8802 40.0 ng/L 92 70-130 1.0 01/11/2021 07-47 01/11/2021 URB SS-PEDA-13C3 537.1 N/A 36,8802 40.0 ng/L 92 70-130 1.0 01/11/2021 07-47 01/11/2021 URB SS-PEDA-13C3 537.1 N/A 36,8802 40.0 ng/L 92 70-130 1.0 01/11/2021 07-47 01/11/2021 URB SS-PEDA-13C3 537.1 N/A 36,8802 40.0 ng/L 92 70-130 1.0 01/11/2021 07-47 01/11/2021 URB SS-PEDA-13C3 537.1 N/A 36,8802 40.0 ng/L 92 70-130 1.0 01/11/2021 07-47 01/11/2021 URB SS-PEDA-13C3 537.1 N/A 36,8802 40.0 ng/L 90 50-150 1.0 01/11/2021 07-47 01/11/2021 URB SS-PEDA-13C3 537.1 N/A 226448 215993 ng/L 105 50-150 1.0 01/11/2021 07-47 01/11/2021 URB URB SS-PEDA-13C2 537.1 N/A 226448 215993 ng/L 105 50-150 1.0 01/11/2021 07-47 01/11/2021 URB URB SS-PEDA-13C2 537.1 N/A 226448 215993 ng/L 102 50-150 1.0 01/11/2021 07-47 01/11/2021 URB URB SS-PEDA-13C2 537.1 N/A 226448 215993 ng/L 102 50-150 1.0 01/11/2021 07-47 01/11/2021 URB URB SS-PEDA-13C2 537.1 N/A 236589 289390 ng/L 102 50-150 1.0 01/11/2021 07-47 01/11/2021 URB	:35 4810569	01/11/2021 19:35	01/11/2021 07:47	1.0					ng/L		2.0	<		2.0	537.1	Perfluorooctanoic acid (PFOA)	LRB
LRB IS-PFOA-13C2	:35 4810569	01/11/2021 19:35	01/11/2021 07:47	1.0					ng/L		2.0	<		2.0	537.1	Perfluorooctanesulfonic acid (PFOS)	LRB
LRB IS-PFOS-13C4 537.1 N/A 302177 289380 ng/L 104 50 - 150 1.0 01/11/2021 07:47 01/11/2021 LRB SS-NEIFOSAA-d5 537.1 N/A 146.3810 160 ng/L 91 70 - 130 1.0 01/11/2021 07:47 01/11/2021 LRB SS-PFDA-13C2 537.1 N/A 36.8661 40.0 ng/L 92 70 - 130 1.0 01/11/2021 07:47 01/11/2021 LRB SS-PFDA-13C2 537.1 N/A 36.8662 40.0 ng/L 92 70 - 130 1.0 01/11/2021 07:47 01/11/2021 LRB SS-PFDA-13C3 537.1 N/A 36.8324 40.0 ng/L 92 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBL Perfluorooctanoic acid (PFOA) 537.1 2.0 1.7056 2.0 ng/L 85 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBL Perfluorooctanoic acid (PFOS) 537.1 2.0 1.8083 2.0 ng/L 90 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBL IS-NBeFOSAA-d3 537.1 N/A 226448 215993 ng/L 105 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBL IS-PFOA-13C2 537.1 N/A 295989 289380 ng/L 105 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBL SS-NEIFOSAA-d5 537.1 N/A 295989 289380 ng/L 102 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBL SS-PFDA-13C2 537.1 N/A 295989 289380 ng/L 102 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBL SS-PFDA-13C2 537.1 N/A 295989 289380 ng/L 102 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBL SS-PFDA-13C2 537.1 N/A 33.5946 40.0 ng/L 91 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBL SS-PFDA-13C2 537.1 N/A 33.5946 40.0 ng/L 91 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluorooctanoic acid (PFOS) 537.1 N/A 33.5941 40.0 ng/L 99 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluorooctanoic acid (PFOS) 537.1 N/A 33.5941 40.0 ng/L 99 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluorooctanoic acid (PFOS) 537.1 N/A 33.5941 40.0 ng/L 99 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluorooctanoic acid (PFOS) 537.1 N/A 33.5941 40.0 ng/L 99 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOA-13C2 537.1 N/A 604866 525134 ng/L 115 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PF	:35 4810569	01/11/2021 19:35	01/11/2021 07:47	1.0			50 - 150	106	ng/L	215993	228444			N/A	537.1	IS-NMeFOSAA-d3	LRB
LRB SS-NEIFOSAA-d5 537.1 N/A 146.3810 160 ng/L 91 70-130 1.0 01/11/2021 07.47 01/11/2021 LRB SS-PFDA-13C2 537.1 N/A 36.9601 40.0 ng/L 92 70-130 1.0 01/11/2021 07.47 01/11/2021 LRB SS-PFHxA-13C2 537.1 N/A 36.8682 40.0 ng/L 92 70-130 1.0 01/11/2021 07.47 0	:35 4810569	01/11/2021 19:35	01/11/2021 07:47	1.0			50 - 150	111	ng/L	525134	585070			N/A	537.1	IS-PFOA-13C2	LRB
LRB SS-PFDA-13C2 537.1 N/A 36.9601 40.0 ng/L 92 70-130 1.0 01/11/2021 07:47 01/11/2021 LRB SS-PFHxA-13C2 537.1 N/A 36.8862 40.0 ng/L 92 70-130 1.0 01/11/2021 07:47 01/11/2021 LRB SS-HFPO-DA-13C3 537.1 N/A 36.8324 40.0 ng/L 92 70-130 1.0 01/11/2021 07:47 01/11/2021 FBL Perfluoroctanic acid (PFOA) 537.1 2.0 1.7056 2.0 ng/L 85 50-150 1.0 01/11/2021 07:47 01/11/2021 0	:35 4810569	01/11/2021 19:35	01/11/2021 07:47	1.0			50 - 150	104	ng/L	289380	302177			N/A	537.1	IS-PFOS-13C4	LRB
LRB SS-PFHxA-13C2 537.1 N/A 36.8862 40.0 ng/L 92 70-130 1.0 01/11/2021 07.47 01/11/2021 ERB SS-HFPO-DA-13C3 537.1 N/A 36.6324 40.0 ng/L 92 70-130 1.0 01/11/2021 07.47 01/11/2021 FBL Perfluoroctanoic acid (PFOA) 537.1 2.0 1.7056 2.0 ng/L 85 50-150 1.0 01/11/2021 07.47 01/11/2021 FBL Perfluoroctanoic acid (PFOS) 537.1 2.0 1.0 01/11/2021 07.47 01/11/202	:35 4810569	01/11/2021 19:35	01/11/2021 07:47	1.0			70 - 130	91	ng/L	160	146.3810			N/A	537.1	SS-NEtFOSAA-d5	LRB
LRB SS-HFPO-DA-13C3 537.1 N/A	:35 4810569	01/11/2021 19:35	01/11/2021 07:47	1.0			70 - 130	92	ng/L	40.0	36.9601			N/A	537.1	SS-PFDA-13C2	LRB
FBL Perfluorocctanoic acid (PFOA) 537.1 2.0 1.7056 2.0 ng/L 85 50 - 150 1.0 01/11/2021 07:47 0	:35 4810569	01/11/2021 19:35	01/11/2021 07:47	1.0			70 - 130	92	ng/L	40.0	36.8862			N/A	537.1	SS-PFHxA-13C2	LRB
FBL Perfluoroctanesulfonic acid (PFOS) 537.1 2.0 1.8083 2.0 ng/L 90 50-150 1.0 01/11/2021 07.47 01/11/20	:35 4810569	01/11/2021 19:35	01/11/2021 07:47	1.0			70 - 130	92	ng/L	40.0	36.6324			N/A	537.1	SS-HFPO-DA-13C3	LRB
FBL IS-NMeFOSAA-d3 537.1 N/A 226448 215993 ng/L 105 50 - 150 1.0 01/11/2021 07:47 01/	:48 4810570	01/11/2021 19:48	01/11/2021 07:47	1.0			50 - 150	85	ng/L	2.0	1.7056			2.0	537.1	Perfluorooctanoic acid (PFOA)	FBL
FBL IS-PFOA-13C2 537.1 N/A 594431 525134 ng/L 113 50 - 150 1.0 01/11/2021 07.47 01/11	:48 4810570	01/11/2021 19:48	01/11/2021 07:47	1.0			50 - 150	90	ng/L	2.0	1.8083			2.0	537.1	Perfluorooctanesulfonic acid (PFOS)	FBL
FBL IS-PFOS-13C4 537.1 N/A	:48 4810570	01/11/2021 19:48	01/11/2021 07:47	1.0			50 - 150	105	ng/L	215993	226448			N/A	537.1	IS-NMeFOSAA-d3	FBL
FBL SS-NEIFOSAA-d5 537.1 N/A 144.9880 160 ng/L 91 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBL SS-PFDA-13C2 537.1 N/A 36.5646 40.0 ng/L 91 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBL SS-PFDA-13C2 537.1 N/A 35.9373 40.0 ng/L 90 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBL SS-HFPO-DA-13C3 537.1 N/A 35.9373 40.0 ng/L 90 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBL SS-HFPO-DA-13C3 537.1 N/A 35.941 40.0 ng/L 88 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluoroctanesulfonic acid (PFOA) 537.1 2.0 198.1230 200 ng/L 99 70 - 130	:48 4810570	01/11/2021 19:48	01/11/2021 07:47	1.0			50 - 150	113	ng/L	525134	594431			N/A	537.1	IS-PFOA-13C2	FBL
FBL SS-PFDA-13C2 537.1 N/A 36.5646 40.0 ng/L 91 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBL SS-PFHxA-13C2 537.1 N/A 35.9373 40.0 ng/L 90 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBL SS-HFPO-DA-13C3 537.1 N/A 35.2641 40.0 ng/L 88 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 193.2770 200 ng/L 97 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 198.1230 200 ng/L 99 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH IS-NMeFOSAA-d3 537.1 N/A 225449 215993 ng/L 104 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOA-13C2 537.1 N/A 604866 525134 ng/L 115 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOS-13C4 537.1 N/A 312879 289380 ng/L 108 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH SS-NEtFOSAA-d5 537.1 N/A 152.1000 160 ng/L 95 70 - 130 1.0 01/11/2021 07:47 01/11/2021	:48 4810570	01/11/2021 19:48	01/11/2021 07:47	1.0			50 - 150	102	ng/L	289380	295989			N/A	537.1	IS-PFOS-13C4	FBL
FBL SS-PFHxA-13C2 537.1 N/A 35.9373 40.0 ng/L 90 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBL SS-HFPO-DA-13C3 537.1 N/A 35.2641 40.0 ng/L 88 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 193.2770 200 ng/L 97 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 198.1230 200 ng/L 99 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH IS-NMeFOSAA-d3 537.1 N/A 225449 215993 ng/L 104 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOA-13C2 537.1 N/A 604866 525134 ng/L 115 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOS-13C4 537.1 N/A 1312879 289380 ng/L 108 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH SS-NEtFOSAA-d5 537.1 N/A 152.1000 160 ng/L 95 70 - 130 1.0 01/11/2021 07:47 01/11/2021	:48 4810570	01/11/2021 19:48	01/11/2021 07:47	1.0			70 - 130	91	ng/L	160	144.9880			N/A	537.1	SS-NEtFOSAA-d5	FBL
FBL SS-HFPO-DA-13C3 537.1 N/A 35.2641 40.0 ng/L 88 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 193.2770 200 ng/L 97 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 198.1230 200 ng/L 99 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH IS-NMeFOSAA-d3 537.1 N/A 225449 215993 ng/L 104 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOA-13C2 537.1 N/A 604866 525134 ng/L 115 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOS-13C4 537.1 N/A 312879 289380 ng/L 108 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH SS-NEtFOSAA-d5 537.1 N/A 152.1000 160 ng/L 95 70 - 130 1.0 01/11/2021 07:47 01/11/2021	:48 4810570	01/11/2021 19:48	01/11/2021 07:47	1.0			70 - 130	91	ng/L	40.0	36.5646			N/A	537.1	SS-PFDA-13C2	FBL
FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 193.2770 200 ng/L 97 70 - 130 1.0 01/11/2021 07:47 01/11/2021 0	:48 4810570	01/11/2021 19:48	01/11/2021 07:47	1.0			70 - 130	90	ng/L	40.0	35.9373			N/A	537.1	SS-PFHxA-13C2	FBL
FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 198.1230 200 ng/L 99 70 - 130 1.0 01/11/2021 07:47 01/11/2021 FBH IS-NMeFOSAA-d3 537.1 N/A 225449 215993 ng/L 104 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOA-13C2 537.1 N/A 604866 525134 ng/L 115 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOS-13C4 537.1 N/A 312879 289380 ng/L 108 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH SS-NEtFOSAA-d5 537.1 N/A 152.1000 160 ng/L 95 70 - 130 1.0 01/11/2021 07:47 01/11/2021	:48 4810570	01/11/2021 19:48	01/11/2021 07:47	1.0			70 - 130	88	ng/L	40.0	35.2641			N/A	537.1	SS-HFPO-DA-13C3	FBL
FBH IS-NMeFOSAA-d3 537.1 N/A 225449 215993 ng/L 104 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOA-13C2 537.1 N/A 604866 525134 ng/L 115 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOS-13C4 537.1 N/A 312879 289380 ng/L 108 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH SS-NEtFOSAA-d5 537.1 N/A 152.1000 160 ng/L 95 70 - 130 1.0 01/11/2021 07:47 01/11/2021	0:14 4810571	01/11/2021 20:14	01/11/2021 07:47	1.0			70 - 130	97	ng/L	200	193.2770			2.0	537.1	Perfluorooctanoic acid (PFOA)	FBH
FBH IS-PFOA-13C2 537.1 N/A 604866 525134 ng/L 115 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOS-13C4 537.1 N/A 312879 289380 ng/L 108 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH SS-NEtFOSAA-d5 537.1 N/A 152.1000 160 ng/L 95 70 - 130 1.0 01/11/2021 07:47 01/11/2021	:14 4810571	01/11/2021 20:14	01/11/2021 07:47	1.0			70 - 130	99	ng/L	200	198.1230			2.0	537.1	Perfluorooctanesulfonic acid (PFOS)	FBH
FBH IS-PFOA-13C2 537.1 N/A 604866 525134 ng/L 115 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH IS-PFOS-13C4 537.1 N/A 312879 289380 ng/L 108 50 - 150 1.0 01/11/2021 07:47 01/11/2021 FBH SS-NEtFOSAA-d5 537.1 N/A 152.1000 160 ng/L 95 70 - 130 1.0 01/11/2021 07:47 01/11/2021	0:14 4810571	01/11/2021 20:14	01/11/2021 07:47	1.0			50 - 150	104	ng/L	215993	225449			N/A	537.1	IS-NMeFOSAA-d3	FBH
FBH SS-NEtFOSAA-d5 537.1 N/A 152.1000 160 ng/L 95 70 - 130 1.0 01/11/2021 07:47 01/11/2021	:14 4810571	01/11/2021 20:14	01/11/2021 07:47	1.0			50 - 150	115	ng/L	525134	604866			N/A	537.1	IS-PFOA-13C2	FBH
FBH SS-NEtFOSAA-d5 537.1 N/A 152.1000 160 ng/L 95 70 - 130 1.0 01/11/2021 07:47 01/11/2021	0:14 4810571	01/11/2021 20:14	01/11/2021 07:47	1.0			50 - 150	108	ng/L	289380	312879			N/A	537.1	IS-PFOS-13C4	FBH
FBH SS-PFDA-13C2 537.1 N/A 39.1923 40.0 ng/L 98 70 - 130 1.0 01/11/2021 07:47 01/11/2021	0:14 4810571	01/11/2021 20:14	01/11/2021 07:47	1.0			70 - 130	95		160	152.1000			N/A	537.1	SS-NEtFOSAA-d5	FBH
	0:14 4810571	01/11/2021 20:14	01/11/2021 07:47	1.0			70 - 130	98	ng/L	40.0	39.1923			N/A	537.1	SS-PFDA-13C2	FBH
FBH SS-PFHxA-13C2 537.1 N/A 36.0804 40.0 ng/L 90 70 - 130 1.0 01/11/2021 07:47 01/11/2021																	FBH
FBH SS-HFPO-DA-13C3 537.1 N/A 35.2731 40.0 ng/L 88 70 - 130 1.0 01/11/2021 07:47 01/11/2021				1.0				88									FBH
©CCM Perfluorooctanoic acid (PFOA) 537.1 2.0 102.5410 100 ng/L 103 70 - 130 1.0 01/08/2021 09:40 01/12/2021									_								
Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 102.4090 100 ng/L 102 70 - 130 1.0 01/08/2021 09:40 01/12/2021		-							_							, ,	0
©CCM IS-NMeFOSAA-d3 537.1 N/A 205357 205357 ng/L 100 50 - 150 1.0 01/08/2021 09:40 01/12/2021									_							` '	
CCM IS-PFOA-13C2 537.1 N/A 513600 513600 ng/L 100 50 - 150 1.0 01/08/2021 09:40 01/12/2021									_								

QC Summary Report (cont.) Sample Analyte Method MRL Client ID Result Amount Target Units % Recovery RPD RPD Dil Extracted Analyzed EEA																
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
ССМ	IS-PFOS-13C4	537.1	N/A			283397	283397	ng/L	100	50 - 150			1.0	01/08/2021 09:40	01/12/2021 02:06	4810590
ССМ	SS-NEtFOSAA-d5	537.1	N/A			160.7580	160	ng/L	100	70 - 130			1.0	01/08/2021 09:40	01/12/2021 02:06	4810590
ССМ	SS-PFDA-13C2	537.1	N/A			43.1229	40.0	ng/L	108	70 - 130			1.0	01/08/2021 09:40	01/12/2021 02:06	4810590
ССМ	SS-PFHxA-13C2	537.1	N/A		İ	40.7543	40.0	ng/L	102	70 - 130			1.0	01/08/2021 09:40	01/12/2021 02:06	4810590
ССМ	SS-HFPO-DA-13C3	537.1	N/A			41.2892	40.0	ng/L	103	70 - 130			1.0	01/08/2021 09:40	01/12/2021 02:06	4810590
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF64219-MG Tank	<	2.0		ng/L					0.88	01/11/2021 07:47	01/12/2021 04:16	4810167
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF64219-MG Tank	<	2.0		ng/L					0.88	01/11/2021 07:47	01/12/2021 04:16	4810167
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF64219-MG Tank		227276	205357	ng/L	111	50 - 150			0.88	01/11/2021 07:47	01/12/2021 04:16	4810167
FS	IS-PFOA-13C2	537.1	N/A	PEF64219-MG Tank		586540	513600	ng/L	114	50 - 150			0.88	01/11/2021 07:47	01/12/2021 04:16	4810167
FS	IS-PFOS-13C4	537.1	N/A	PEF64219-MG Tank		300647	283397	ng/L	106	50 - 150			0.88	01/11/2021 07:47	01/12/2021 04:16	4810167
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF64219-MG Tank		125.5080	160	ng/L	89	70 - 130			0.88	01/11/2021 07:47	01/12/2021 04:16	4810167
FS	SS-PFDA-13C2	537.1	N/A	PEF64219-MG Tank		33.1193	40.0	ng/L	94	70 - 130			0.88	01/11/2021 07:47	01/12/2021 04:16	4810167
FS	SS-PFHxA-13C2	537.1	N/A	PEF64219-MG Tank		30.9836	40.0	ng/L	88	70 - 130			0.88	01/11/2021 07:47	01/12/2021 04:16	4810167
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF64219-MG Tank		31.2242	40.0	ng/L	89	70 - 130			0.88	01/11/2021 07:47	01/12/2021 04:16	4810167
ССН	Perfluorooctanoic acid (PFOA)	537.1	2.0			197.1280	200	ng/L	99	70 - 130			1.0	01/08/2021 09:40	01/12/2021 04:29	4810591
ССН	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			197.4130	200	ng/L	99	70 - 130			1.0	01/08/2021 09:40	01/12/2021 04:29	4810591
ССН	IS-NMeFOSAA-d3	537.1	N/A		i	206995	206995	ng/L	100	50 - 150			1.0	01/08/2021 09:40	01/12/2021 04:29	4810591
ССН	IS-PFOA-13C2	537.1	N/A		i	519926	519926	ng/L	100	50 - 150			1.0	01/08/2021 09:40	01/12/2021 04:29	4810591
ССН	IS-PFOS-13C4	537.1	N/A		i	285218	285218	ng/L	100	50 - 150			1.0	01/08/2021 09:40	01/12/2021 04:29	4810591
ССН	SS-NEtFOSAA-d5	537.1	N/A			160.1570	160	ng/L	100	70 - 130			1.0	01/08/2021 09:40	01/12/2021 04:29	4810591
ССН	SS-PFDA-13C2	537.1	N/A		i	42.9040	40.0	ng/L	107	70 - 130			1.0	01/08/2021 09:40	01/12/2021 04:29	4810591
ССН	SS-PFHxA-13C2	537.1	N/A			39.3339	40.0	ng/L	98	70 - 130			1.0	01/08/2021 09:40	01/12/2021 04:29	4810591
ССН	SS-HFPO-DA-13C3	537.1	N/A		i	39.6649	40.0	ng/L	99	70 - 130			1.0	01/08/2021 09:40	01/12/2021 04:29	4810591
ССМ	Perfluorooctanoic acid (PFOA)	537.1	2.0			100.0450	100	ng/L	100	70 - 130			1.0	01/08/2021 09:40	01/12/2021 09:16	4810893
ССМ	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			100.2530	100	ng/L	100	70 - 130			1.0	01/08/2021 09:40	01/12/2021 09:16	4810893
ССМ	IS-NMeFOSAA-d3	537.1	N/A			211334	211334	ng/L	100	50 - 150			1.0	01/08/2021 09:40	01/12/2021 09:16	4810893
ССМ	IS-PFOA-13C2	537.1	N/A			531969	531969	ng/L	100	50 - 150			1.0	01/08/2021 09:40	01/12/2021 09:16	4810893
ССМ	IS-PFOS-13C4	537.1	N/A			296812	296812	ng/L	100	50 - 150			1.0	01/08/2021 09:40	01/12/2021 09:16	4810893
ССМ	SS-NEtFOSAA-d5	537.1	N/A			154.8980	160	ng/L	97	70 - 130			1.0	01/08/2021 09:40	01/12/2021 09:16	4810893
ССМ	SS-PFDA-13C2	537.1	N/A			41.1073	40.0	ng/L	103	70 - 130			1.0	01/08/2021 09:40	01/12/2021 09:16	4810893
ССМ	SS-PFHxA-13C2	537.1	N/A			40.2960	40.0	ng/L	101	70 - 130			1.0	01/08/2021 09:40		
ССМ	SS-HFPO-DA-13C3	537.1	N/A			41.2397	40.0	ng/L	103	70 - 130			1.0	01/08/2021 09:40	01/12/2021 09:16	4810893
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF64218-Raw Water Tar		4.3		ng/L					0.95	01/11/2021 07:47		
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF64218-Raw Water Tay		44		ng/L					0.95		01/12/2021 09:30	
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF64218-Raw Water Tay		247116	211334	ng/L	117	50 - 150			0.95	01/11/2021 07:47		
FS	IS-PFOA-13C2	537.1	N/A	PEF64218-Raw Water Tay		719848	531969	ng/L	135	50 - 150			0.95	01/11/2021 07:47		
FS	IS-PFOS-13C4	537.1	N/A	PEF64218-Raw Water Tay		341258	296812	ng/L	115	50 - 150			0.95	01/11/2021 07:47		_
	SS-NEtFOSAA-d5	537.1	N/A	'EF64218-Raw Water Tay		127.7760	160	ng/L	84	70 - 130			0.95	01/11/2021 07:47		
Page 1	SS-PFDA-13C2	537.1	N/A	PEF64218-Raw Water Tay		31.9272	40.0	ng/L	84	70 - 130			0.95	01/11/2021 07:47		
9 FS	SS-PFHxA-13C2	537.1	N/A	PEF64218-Raw Water Tay		32.2679	40.0	ng/L	85	70 - 130			0.95	01/11/2021 07:47		
O _{FS}	SS-HFPO-DA-13C3	537.1	N/A	'EF64218-Raw Water Ta		30.3105	40.0	ng/L	80	70 - 130			0.95	01/11/2021 07:47		

					QC S	Summary Rep	ort (cont.)							
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits		Dil Factor	Extracted	Analyzed	EEA ID#
ССН	Perfluorooctanoic acid (PFOA)	537.1	2.0			196.8800	200	ng/L	98	70 - 130	 	1.0	01/08/2021 09:40	01/12/2021 10:08	4810894
CCH	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			197.6140	200	ng/L	99	70 - 130	 	1.0	01/08/2021 09:40	01/12/2021 10:08	4810894
CCH	IS-NMeFOSAA-d3	537.1	N/A			223453	223453	ng/L	100	50 - 150	 	1.0	01/08/2021 09:40	01/12/2021 10:08	4810894
CCH	IS-PFOA-13C2	537.1	N/A			578425	578425	ng/L	100	50 - 150	 	1.0	01/08/2021 09:40	01/12/2021 10:08	4810894
CCH	IS-PFOS-13C4	537.1	N/A			304015	304015	ng/L	100	50 - 150	 	1.0	01/08/2021 09:40	01/12/2021 10:08	4810894
CCH	SS-NEtFOSAA-d5	537.1	N/A			158.1400	160	ng/L	99	70 - 130	 	1.0	01/08/2021 09:40	01/12/2021 10:08	4810894
CCH	SS-PFDA-13C2	537.1	N/A			40.1048	40.0	ng/L	100	70 - 130	 	1.0	01/08/2021 09:40	01/12/2021 10:08	4810894
CCH	SS-PFHxA-13C2	537.1	N/A			36.9775	40.0	ng/L	92	70 - 130	 	1.0	01/08/2021 09:40	01/12/2021 10:08	4810894
ССН	SS-HFPO-DA-13C3	537.1	N/A			38.0841	40.0	ng/L	95	70 - 130	 	1.0	01/08/2021 09:40	01/12/2021 10:08	4810894

Samp	le Tyr	oe Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCH	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FBH	Fortified Blank High		
FBL	Fortified Blank Low		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC# BUECI PFC

Company: Barrow Utilitie	CLIENT INFORMA s & Electric Coop			Contact P Jim Mu					Page 1 of 1	1			
Address: P.O. Box 449				WWTP A	PDES #:		- 1	Perservative Trizma	Added				
City, State Zip: Barrow, A	K 99723				#: 320078			Mixture					
Phone: 907-852-8427					ults to ADEC:							Normal Turnard	ound
Fax: 907-852-5164				√ Yes	□ No		Z.	SC					
Email: powerplant@buec	i.org			Purchase Order/Charge Code: 20210001				PFOS				□ RUSH da	ay(s)
Project Name: PFAS Moni	toring			P6#2021-089			r of Containers	∞ ಶ					
Sampled By: Tom	Drake	I					Numbe	PFOA					
Sample Identification		ID: Sample Date	Sample Time	Matrix	Lab ID#	Sub Lab ID#						Sample Comme	ents
Raw Water Tap	SPIN001	2/1/4	14:40	W	PEF64724		2	x					
MG Tank	SPTP001	2/1/21	14:35	W	PEFC4725		2	х					
			+		-								
									-				
					-				-				
Describing the second way								Sample Co	ondition				
Possible Hazard Identifi □ Non-Hazardous	□ Flammable	□ Skin Irritai	nt □ Unk	rnown		Pollen Env Temper Sub Lab Temperat	ature	on arrival:	2.0 0	C COC Seal:			Absent Absent
Special Instructions/QC	Requirements 8	Comments:											
Relinquished by:		Company:			Date & Time:	15:01	7	The same	tales	Company: Poller	Env.	Date & Time: 2/3/21 @ 094.	5
Relinquished by:		Company: Rilen	Env		141 -161	21130		eived by:	08	Company:		Date & Time:	
Relinquished by:	linquished by: Company:			Date & Time:			Received by: Company: Date &					Date & Time:	



CERTIFICATE OF ANALYSIS

Report Date:

Receipt Date:

Sampled By:

2/11/2021

2/3/2021

Tom Drake II

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFC Monitoring Sampled By: Tom Drake II

PWS ID: 320078

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Tap	PEF64724	4826872	2/1/2021	2:40 PM
MG Tank	PEF64725	4826873	2/1/2021	2:35 PM

Jerry Pollen

Pollen Environmental, LLC - Fairbanks



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida(Primary AB)*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon*	4156
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 09/29/2020



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207

1 800 332 4345

Laboratory Report

Client: Pollen Environmental LLC Report: 509612

Attn: Jerry Pollen Priority: Standard Written

3536 International Avenue Status: Final

Fairbanks, AK 99701 PWS ID: AK2320078
Alaska Lab ID # IN00035

	Sample Information											
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time							
4826872	PEF64724/Raw Water Tap	537.1	02/01/21 14:40	Client	02/04/21 09:00							
4826873	PEF64725/MG Tank	537.1	02/01/21 14:35	Client	02/04/21 09:00							

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Artice Clilebowsh ASM Title

02/09/2021

Date

Authorized Signature
Client Name: Pollen En

Pollen Environmental LLC

Report #: 509612

Client Name: Pollen Environmental LLC Report #: 509612

Sampling Point: PEF64724/Raw Water Tap PWS ID: AK2320078

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	5.6	ng/L	02/05/21 08:00	02/06/21 02:33	4826872			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	50	ng/L	02/05/21 08:00	02/06/21 02:33	4826872			

Sampling Point: PEF64725/MG Tank PWS ID: AK2320078

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	< 2.0	ng/L	02/05/21 08:00	02/06/21 02:44	4826873			
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	< 2.0	ng/L	02/05/21 08:00	02/06/21 02:44	4826873			

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Client Name: Pollen Environmental LLC Report #: 509612

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery** %

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC# BUECI PFC 418528

			Jim Mu						Requeste	Requested Analysis 509412				1 of 1			
								Perservat	tive Added			,					
Address: P.O. Box 449				WWTP A	APDES #:			Trizma Mixture									
City, State Zip: Barrow, A	K 99723			PWS ID	#: 320078			Tintuic					1				
Phone: 907-852-8427				Send Res	sults to ADEC:									Normal 1	Turnaround		
Fax: 907-852-5164				√ Yes	□ No		rs	SC									
Email: powerplant@bued	i.org			Purchase Order/Charge Code: 20210001				PFOS						□ RUSH _	day(s)		
Project Name: PFAS Moni	toring			P6#2021-089			Number of Containers	A &									
Sampled By: Tom	Drake	I					Numbe	PFOA									
Sample Identification	Sample Point	ID: Sample Date			Lab ID#	Sub Lab ID#								Sample Co	mments	7	
Raw Water Tap	SPIN001	2/1/21	14:40	W	PEFG4724		2	х						4826	872		
MG Tank	SPTP001	2/1/21	14:35	W	PEFG4725		2	х						1	873		
																1	
																1	
																1	
			1												-	-	
														-		-	
Possible Hazard Identifi	lastiani						4	Samula	Condition:					-		=	
□ Non-Hazardous	□ Flammable	□ Skin Irritar	nt 🗆 Uni	known		Pollen Env Tempe Sub Lab Temperal	rature	on arriva	al: 2.0					□ Broken □ Broken	□ Abser		
Special Instructions/QC	Requirements &	Comments:															
Relinquished by: Tom Inque M Relinquished by: Maure Code		Company:			Date & Time:	15:00	7	eived by	Lecter		ny: Pollen Er	v.	Date &	Time:	945		
Relinquished by:		Company:	Ems	Date & Time: 2130			() 1		Company: Date 8		Date'&	Time:					
Relinquished by:		Company:		Date & Time:		Rec	elved by	-	Compa	N. C.			Date & Time:				



Eurofins Eaton Analytical Run Log

Run ID: 285186 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4828164		OS	GA	02/05/2021 22:29	020521M537.1b.wiff
LRB	4828167		RW	GA	02/05/2021 22:50	020521M537.1b.wiff
FBL	4828168		RW	GA	02/05/2021 23:01	020521M537.1b.wiff
FBH	4828169		RW	GA	02/05/2021 23:12	020521M537.1b.wiff
CCM	4828165		OS	GA	02/06/2021 01:51	020521M537.1b.wiff
FS	4826872	PEF64724/Raw Water Tap	DW	GA	02/06/2021 02:33	020521M537.1b.wiff
FS	4826873	PEF64725/MG Tank	DW	GA	02/06/2021 02:44	020521M537.1b.wiff
CCH	4828166		OS	GA	02/06/2021 03:48	020521M537.1b.wiff

Part Part	QC Summary Report																
CCL Perfluorocdamesulfonic acid (PFOS) 557.1 2.0 1.8850 2.0 rglt 94 50.150 1.0 0.0050201 1010 0.0050202	EEA ID#	Analyzed				RPD			Units	Target	Amount		Client ID	MDA95	Method	Analyte	
CCL IS-NMeFOSAA-d3 537.1 N/A 1024953 10249526 rg/L 100 50-150 1.0 02052021 10-10 02052022 102050201 1020	:29 4828164	02/05/2021 22:29	02/05/2021 10:10	1.0			50 - 150	95	ng/L	2.0	1.8902			2.0	537.1	Perfluorooctanoic acid (PFOA)	CCL
CCL IS-PFOA-13C2 537.1	:29 4828164	02/05/2021 22:29	02/05/2021 10:10	1.0			50 - 150	94	ng/L	2.0	1.8850			2.0	537.1	Perfluorooctanesulfonic acid (PFOS)	CCL
CCL S-PFDS-13C4 S57.1 N/A S584812 S984871.7 ngiL 100 80 -150 1.0 0205202110.10 02052022 CCL S-N-EFFOSAA-d5 S57.1 N/A 157 6918 160 ngiL 99 70 -130 1.0 1.0 0205202110.10 02052022 CCL S-PFDA-13C2 S57.1 N/A 40.0851 40.0 ngiL 99 70 -130 1.0 1.0 0205202110.10 0205202 CCL S-PFDA-13C3 S57.1 N/A 40.0851 A.0 ngiL 99 70 -130 1.0 1.0 0205202110.10 0205202 CCL S-PFDA-13C3 S57.1 N/A 40.0777 40.0 ngiL 99 70 -130 1.0 0205202110.10 0205202 CCL S-PFDA-13C3 S57.1 N/A 40.0777 40.0 ngiL 99 70 -130 1.0 0205202110.10 0205202 CCL S-PFDA-13C3 S57.1 V/A 40.0777 40.0 ngiL 1.0 0205202110.10 0205202 CCL S-PFDA-13C3 S57.1 V/A 40.0777 40.0 ngiL 1.0 0205202110.10 0205202 CCC	:29 4828164	02/05/2021 22:29	02/05/2021 10:10	1.0			50 - 150	100	ng/L	1024352.61	1024353			N/A	537.1	IS-NMeFOSAA-d3	CCL
CCL SS-NEIFOSA-45 637.1 N/A 157.6918 160 ngiL 99 70-130 1.0 0205/22110-10 0205/222 0205/	:29 4828164	02/05/2021 22:29	02/05/2021 10:10	1.0			50 - 150	100	ng/L	1250165.03	1250165			N/A	537.1	IS-PFOA-13C2	CCL
CCL SS-PFDA-13C2 537.1 NA	:29 4828164	02/05/2021 22:29	02/05/2021 10:10	1.0			50 - 150	100	ng/L	5594871.73	5594872			N/A	537.1	IS-PFOS-13C4	CCL
CCL SS-PFHA-13C2 537.1 N/A 39.4107 40.0 ng/L 99 70-130 1.0 0205/2021 10:10 0205/2021 1	:29 4828164	02/05/2021 22:29	02/05/2021 10:10	1.0			70 - 130	99	ng/L	160	157.6918			N/A	537.1	SS-NEtFOSAA-d5	CCL
CCL SS-HFPO-DA-13C3 537.1 N/A 40.0777 40.0 ng/L 100 70-130 1.0 02/05/2021 10-10 02/	:29 4828164	02/05/2021 22:29	02/05/2021 10:10	1.0			70 - 130	100	ng/L	40.0	40.0951			N/A	537.1	SS-PFDA-13C2	CCL
LRB Perfluorocatanoic acid (PFOA) 537.1 2.0 < 2.0 ngiL 1.0 02/05/2021 08:00 02/05/202	:29 4828164	02/05/2021 22:29	02/05/2021 10:10	1.0			70 - 130	99	ng/L	40.0	39.4107	i i		N/A	537.1	SS-PFHxA-13C2	CCL
LRB Perfluorooctanesulfronic acid (PFOS) 537.1 2.0 < 2.0 ng/L 1.0 02/05/2021 08:00 02/05/202 LRB IS-NMeFOSAA-d3 537.1 N/A 9756268 102/4352.61 ng/L 95 50 -150 1.0 02/05/2021 08:00 02/05/202 LRB IS-PFOA-13C2 537.1 N/A 1200597 125/01650 ng/L 98 50 -150 1.0 02/05/2021 08:00 02/05/202 LRB IS-PFOA-13C2 537.1 N/A 5645802 5594871.72 ng/L 101 50 -150 1.0 02/05/2021 08:00 02/05/202 LRB SS-NEIFOSAA-d5 537.1 N/A 33.7.517 40.0 ng/L 84 70 -130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PFDA-13C2 537.1 N/A 33.5.7517 40.0 ng/L 89 70 -130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PFDA-13C2 537.1 N/A 33.2426 40.0 ng/L 98 70 -130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PFDA-13C3 537.1 N/A 33.2426 40.0 ng/L 98 70 -130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PFDA-13C3 537.1 N/A 33.4344 40.0 ng/L 98 70 -130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PFDA-3C3 537.1 N/A 38.1334 40.0 ng/L 98 70 -130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PFDA-3C3 537.1 N/A 38.1334 40.0 ng/L 98 70 -130 1.0 02/05/2021 08:00 02/05/202 LRB IS-PMEFOSAA-d3 537.1 N/A 997005 102/4352.61 ng/L 97 50 -150 1.0 02/05/2021 08:00 02/05/202 FBL Perfluorooctanesuffonic acid (PFOS) 537.1 2.0 1.7637 997005 102/4352.61 ng/L 97 50 -150 1.0 02/05/2021 08:00 02/05/202 FBL IS-PFOA-13C2 537.1 N/A 997005 102/4352.61 ng/L 97 50 -150 1.0 02/05/2021 08:00 02/05/202 FBL IS-PFOA-13C2 537.1 N/A 997005 102/4352.61 ng/L 97 50 -150 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 973006 40.0 ng/L 97 70 -130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 93.3866 40.0 ng/L 99 70 -130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 93.3866 40.0 ng/L 99 70 -130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 93.3896 40.0 ng/L 99 70 -130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluorooctanesulfonic acid (PFOS) 537.1 N/A 93.3896 40	:29 4828164	02/05/2021 22:29	02/05/2021 10:10	1.0			70 - 130	100	ng/L	40.0	40.0777			N/A	537.1	SS-HFPO-DA-13C3	CCL
LRB IS-NMeFOSA-43 537.1 N/A 975626 1024352.61 ng/L 95 50-150 1.0 02/05/2021 08:00 02/05/202 LRB IS-PCA-13C2 537.1 N/A 1230597 1250166.03 ng/L 98 50-150 1.0 02/05/2021 08:00 02/05/202 LRB IS-PCS-13C4 537.1 N/A 5648802 5954871.72 ng/L 101 50-150 1.0 02/05/2021 08:00 02/05/202 LRB IS-PCS-13C4 537.1 N/A 134.3477 160 ng/L 84 70-130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PEIN-13C2 537.1 N/A 33.57517 40.0 ng/L 89 70-130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PEIN-13C2 537.1 N/A 39.2426 40.0 ng/L 98 70-130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PEIN-13C2 537.1 N/A 39.1248 40.0 ng/L 90 70-130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PEIN-13C3 537.1 N/A 39.1248 40.0 ng/L 90 70-130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PEIN-13C3 537.1 N/A 39.1248 40.0 ng/L 99 70-130 1.0 02/05/2021 08:00 02/05/202 FBL Perfluoroctaneous/orline acid (PFOS) 537.1 2.0 1.10 02/05/2021 08:00 02/05/202 FBL IS-NMeFOSAA-d3 537.1 N/A 997005 1024352.61 ng/L 97 50-150 1.0 02/05/2021 08:00 02/05/202 FBL IS-PFON-13C2 537.1 N/A 1259026 1259165.02 ng/L 101 50-150 1.0 02/05/2021 08:00 02/05/202 FBL IS-PFON-13C2 537.1 N/A 5721287 100 ng/L 89 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PEIN-CSAA-d5 537.1 N/A 5721287 100 ng/L 89 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PEIN-CSAA-d5 537.1 N/A 5721287 100 ng/L 89 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PEIN-CSAA-d5 537.1 N/A 5721287 100 ng/L 89 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PEIN-CSAA-d5 537.1 N/A 37.896 40.0 ng/L 93 70-130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluoroctaneous/ordic acid (PFOS) 537.1 0.N/A 39.8989 200 ng/L 99 70-130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluoroctaneous/ordic acid (PFOS) 537.1 0.N/A 39.8989 200 ng/L 99 70-130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluoroctaneous/ordic acid (PFOS) 537.1 0.N/A 39.8989 300 ng/L 99 70-130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluoroctaneous/ordic acid (PFOS) 537	:50 4828167	02/05/2021 22:50	02/05/2021 08:00	1.0					ng/L		2.0	<		2.0	537.1	Perfluorooctanoic acid (PFOA)	LRB
LRB IS-PFOA-13C2	:50 4828167	02/05/2021 22:50	02/05/2021 08:00	1.0					ng/L		2.0	<		2.0	537.1	Perfluorooctanesulfonic acid (PFOS)	LRB
LRB IS-PFOS-13C4 537.1 N/A 5645802 5594871.73 ng/L 101 50 -150 1.0 02/05/2021 08.00 02/05/202 LRB SS-NEIFOSAA-d5 537.1 N/A 134.3477 160 ng/L 84 70 -130 1.0 02/05/2021 08.00 02/05/202 LRB SS-PFDA-13C2 537.1 N/A 33.57517 40.0 ng/L 89 70 -130 1.0 02/05/2021 08.00 02/05/202 LRB SS-PFDA-13C2 537.1 N/A 33.2426 40.0 ng/L 89 70 -130 1.0 02/05/2021 08.00 02/05/202 LRB SS-PFDA-13C3 537.1 N/A 33.2426 40.0 ng/L 99 70 -130 1.0 02/05/2021 08.00 02/05/202 LRB SS-PFDA-13C3 537.1 N/A 36.1234 40.0 ng/L 90 70 -130 1.0 02/05/2021 08.00 02/05/202 FBL Perfluorocotanoic acid (PFOA) 537.1 2.0 1.8630 2.0 ng/L 93 50 -150 1.0 02/05/2021 08.00 02/05/202 FBL IS-NMeFOSAA-d3 537.1 N/A 997005 1024352.61 ng/L 97 50 -150 1.0 02/05/2021 08.00 02/05/202 FBL IS-PFOA-13C2 537.1 N/A 997005 1024352.61 ng/L 97 50 -150 1.0 02/05/2021 08.00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 1259026 1250165.03 ng/L 101 50 -150 1.0 02/05/2021 08.00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 1259026 1250165.03 ng/L 102 50 -150 1.0 02/05/2021 08.00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 142.0251 160 ng/L 89 70 -130 1.0 02/05/2021 08.00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 142.0251 160 ng/L 89 70 -130 1.0 02/05/2021 08.00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 33.8366 40.0 ng/L 92 70 -130 1.0 02/05/2021 08.00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 33.8366 40.0 ng/L 92 70 -130 1.0 02/05/2021 08.00 02/05/202 FBH Perfluorocotanoic acid (PFOA) 537.1 2.0 193.5533 200 ng/L 97 70 -130 1.0 02/05/2021 08.00 02/05/202 FBH Perfluorocotanoic acid (PFOA) 537.1 0/A 139.2889 200 ng/L 97 70 -130 1.0 02/05/2021 08.00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 139.2889 200 ng/L 97 70 -130 1.0 02/05/2021 08.00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 139.2889 200 ng/L 97 70 -130 1.0 02/05/2021 08.00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 139.2889 200 ng/L 97 70 -130 1.0 02/05/20	:50 4828167	02/05/2021 22:50	02/05/2021 08:00	1.0			50 - 150	95	ng/L	1024352.61	975626			N/A	537.1	IS-NMeFOSAA-d3	LRB
LRB SS-NEIFOSAA-d5 537.1 N/A 134.3477 160 ng/L 84 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-PFDA-13C2 537.1 N/A 35.7517 40.0 ng/L 89 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-PFHxA-13C2 537.1 N/A 39.2426 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-PFHxA-13C2 537.1 N/A 39.2426 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C3 537.1 N/A 39.2426 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C3 537.1 N/A 39.2426 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C3 537.1 N/A 39.2426 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C3 537.1 N/A 99.00 1.0 ng/L 90 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C2 537.1 N/A 99.00 1.0 ng/L 88 50 - 150 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C2 537.1 N/A 125006 1250165.0 ng/L 101 50 - 150 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C2 537.1 N/A 125006 1250165.0 ng/L 101 50 - 150 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C2 537.1 N/A 142.0251 160 ng/L 89 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C2 537.1 N/A 142.0251 160 ng/L 89 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C2 537.1 N/A 33.8366 40.0 ng/L 92 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C3 537.1 N/A 33.8366 40.0 ng/L 92 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C3 537.1 N/A 33.8366 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C3 537.1 N/A 33.8366 40.0 ng/L 92 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C2 537.1 N/A 33.8366 40.0 ng/L 92 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C3 537.1 N/A 33.8366 40.0 ng/L 93 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C2 537.1 N/A 138.2888 200 ng/L 97 70 - 130 1.0 02/05/2021 08.00 02/05/202 LRB SS-HFPO-DA-13C2 537.1 N/A 138.2888 200 ng/L 97 70 - 130 1.	:50 4828167	02/05/2021 22:50	02/05/2021 08:00	1.0			50 - 150	98	ng/L	1250165.03	1230597			N/A	537.1	IS-PFOA-13C2	LRB
LRB SS-PFDA-13C2 537.1 N/A 35.7517 40.0 ng/L 88 70-130 1.0 02/05/2021 08:00 02/05/202 LRB SS-PFHxA-13C2 537.1 N/A 39.2426 40.0 ng/L 98 70-130 1.0 02/05/2021 08:00 02/05/202 LRB SS-HFPO-DA-13C3 537.1 N/A 36.1234 40.0 ng/L 90 70-130 1.0 02/05/2021 08:00 02/05/202 FBL Perfluoroctanesulfonic acid (PFOA) 537.1 2.0 1.8630 2.0 ng/L 93 50-150 1.0 02/05/2021 08:00 02/05/202 FBL Is-NMeFOSAA-d3 537.1 N/A 997005 1024352 61 ng/L 97 50-150 1.0 02/05/2021 08:00 02/05/202 FBL IS-PFOA-13C2 537.1 N/A 1259026 1250165.03 ng/L 101 50-150 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 5721287 5594871.73 ng/L 102 50-150 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 142.0251 160 ng/L 89 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 36.3836 40.0 ng/L 89 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 38.886 40.0 ng/L 92 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 38.886 40.0 ng/L 92 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 38.886 40.0 ng/L 92 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 38.886 40.0 ng/L 92 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 38.886 40.0 ng/L 92 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 38.886 40.0 ng/L 92 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 38.886 40.0 ng/L 90 70-130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluorocctanesulfonic acid (PFOA) 537.1 2.0 189.2889 200 ng/L 97 70-130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluorocctanesulfonic acid (PFOS) 537.1 N/A 189.2889 200 ng/L 97 70-130 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 189.2889 200 ng/L 97 70-130 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 189.2889 200 ng/L 97 70-130 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 189.2889 200 ng/L 101 50-150 1.	:50 4828167	02/05/2021 22:50	02/05/2021 08:00	1.0			50 - 150	101	ng/L	5594871.73	5645802			N/A	537.1	IS-PFOS-13C4	LRB
LRB SS-PFHxA-13C2	:50 4828167	02/05/2021 22:50	02/05/2021 08:00	1.0			70 - 130	84	ng/L	160	134.3477			N/A	537.1	SS-NEtFOSAA-d5	LRB
LRB SS-HFPO-DA-13C3 537.1 N/A 36.1234 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08:00 02/05/2021 FBL Perfluorocotanoic acid (PFOA) 537.1 2.0 1.8630 2.0 ng/L 93 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBL Perfluorocotanesulfonic acid (PFOS) 537.1 2.0 1.7637 2.0 ng/L 88 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBL Is-NMeFOSAA-d3 537.1 N/A 997005 1024352.61 ng/L 97 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBL Is-PFOS-13C2 537.1 N/A 1259026 1250166.03 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBL Is-PFOS-13C4 537.1 N/A 1242,0251 160 ng/L	:50 4828167	02/05/2021 22:50	02/05/2021 08:00	1.0			70 - 130	89	ng/L	40.0	35.7517			N/A	537.1	SS-PFDA-13C2	LRB
FBL Perfluorocctanoic acid (PFOA) 537.1 2.0 1.8630 2.0 ng/L 93 50 · 150 1.0 02/05/2021 08:00 02/05/2021 FBL Perfluorocctanesulfonic acid (PFOS) 537.1 2.0 1.7637 2.0 ng/L 88 50 · 150 1.0 02/05/2021 08:00 02/05/202 FBL IS-NMeFOSAA-d3 537.1 N/A 997005 1024352.61 ng/L 97 50 · 150 1.0 02/05/2021 08:00 02/05/202 FBL IS-PFOA-13C2 537.1 N/A 1259026 1250165.00 ng/L 101 50 · 150 1.0 02/05/2021 08:00 02/05/202 FBL IS-PFOA-13C2 537.1 N/A 142,0251 160 ng/L 89 70 · 130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 37.3896 40.0 ng/L 93 70	:50 4828167	02/05/2021 22:50	02/05/2021 08:00	1.0			70 - 130	98	ng/L	40.0	39.2426			N/A	537.1	SS-PFHxA-13C2	LRB
FBL Perfluoroctanesulfonic acid (PFOS) 537.1 2.0 1.7637 2.0 ng/L 88 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBL IS-NMeFOSAA-d3 537.1 N/A 997005 1024352.61 ng/L 97 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBL IS-PFOA-13C2 537.1 N/A 1259026 1250165.02 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBL IS-PFOS-13C4 537.1 N/A 5721287 5594871.73 ng/L 102 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBL SS-NEIFOSAA-d5 537.1 N/A 142.0251 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 37.3896 40.0 ng/L 93 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFHxA-13C2 537.1 N/A 36.8363 40.0 ng/L 92 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C3 537.1 N/A 36.8363 40.0 ng/L 92 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBL SS-HEPO-DA-13C3 537.1 N/A 38.8016 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluoroctanoic acid (PFOA) 537.1 2.0 189.2889 200 ng/L 97 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBH IS-NMeFOSAA-d3 537.1 N/A 1034864 1024352.61 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.00 ng/L 97 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.00 ng/L 97 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.00 ng/L 97 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.00 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBH IS-	:50 4828167	02/05/2021 22:50	02/05/2021 08:00	1.0			70 - 130	90	ng/L	40.0	36.1234			N/A	537.1	SS-HFPO-DA-13C3	LRB
FBL IS-NMeFOSAA-d3 537.1 N/A	:01 4828168	02/05/2021 23:01	02/05/2021 08:00	1.0			50 - 150	93	ng/L	2.0	1.8630			2.0	537.1	Perfluorooctanoic acid (PFOA)	FBL
FBL IS-PFOA-13C2 537.1 N/A 1259026 1250165.03 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBL IS-PFOS-13C4 537.1 N/A 5721287 5594871.73 ng/L 102 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBL SS-NEIFOSAA-d5 537.1 N/A 142.0251 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 37.3896 40.0 ng/L 93 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFDA-13C2 537.1 N/A 36.8363 40.0 ng/L 92 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBL SS-HFPO-DA-13C3 537.1 N/A 35.8016 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBL SS-HFPO-DA-13C3 537.1 N/A 35.8016 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 193.5533 200 ng/L 97 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluorooctanosulfonic acid (PFOS) 537.1 2.0 189.2889 200 ng/L 95 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBH IS-NMeFOSAA-d3 537.1 N/A 1034864 1024352.61 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOS-13C4 537.1 N/A 1283366 1250165.02 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOS-13C4 537.1 N/A 5627339 5594871.72 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOS-13C4 537.1 N/A 5627339 5594871.72 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOS-13C4 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOS-13C4 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/202 FB	:01 4828168	02/05/2021 23:01	02/05/2021 08:00	1.0			50 - 150	88	ng/L	2.0	1.7637			2.0	537.1	Perfluorooctanesulfonic acid (PFOS)	FBL
FBL IS-PFOS-13C4 537.1 N/A	:01 4828168	02/05/2021 23:01	02/05/2021 08:00	1.0			50 - 150	97	ng/L	1024352.61	997005			N/A	537.1	IS-NMeFOSAA-d3	FBL
FBL SS-NEIFOSAA-d5 537.1 N/A 142.0251 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2021 FBL SS-PFDA-13C2 537.1 N/A 37.3896 40.0 ng/L 93 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBL SS-PFDA-13C2 537.1 N/A 36.8363 40.0 ng/L 92 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBL SS-HFPO-DA-13C3 537.1 N/A 35.8016 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 193.5533 200 ng/L 97 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 189.2889 200 ng/L 95 70	:01 4828168	02/05/2021 23:01	02/05/2021 08:00	1.0			50 - 150	101	ng/L	1250165.03	1259026			N/A	537.1	IS-PFOA-13C2	FBL
FBL SS-PFDA-13C2 537.1 N/A 37.3896 40.0 ng/L 93 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-PFHXA-13C2 537.1 N/A 36.8363 40.0 ng/L 92 70-130 1.0 02/05/2021 08:00 02/05/202 FBL SS-HFPO-DA-13C3 537.1 N/A 35.8016 40.0 ng/L 90 70-130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 193.5533 200 ng/L 97 70-130 1.0 02/05/2021 08:00 02/05/202 FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 189.2889 200 ng/L 95 70-130 1.0 02/05/2021 08:00 02/05/202 FBH IS-NMeFOSAA-d3 537.1 N/A 1034864 1024352.61 ng/L 101 50-150 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.03 ng/L 103 50-150 1.0 02/05/2021 08:00 02/05/202 FBH IS-PFOS-13C4 537.1 N/A 1283366 1250165.03 ng/L 101 50-150 1.0 02/05/2021 08:00 02/05/202 FBH SS-NEIFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70-130 1.0 02/05/2021 08:00 02/05/202	:01 4828168	02/05/2021 23:01	02/05/2021 08:00	1.0			50 - 150	102	ng/L	5594871.73	5721287			N/A	537.1	IS-PFOS-13C4	FBL
FBL SS-PFHxA-13C2 537.1 N/A 36.8363 40.0 ng/L 92 70 - 130 1.0 02/05/2021 08:00 02/05/2021 FBL SS-HFPO-DA-13C3 537.1 N/A 35.8016 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08:00 02/05/2021 FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 193.5533 200 ng/L 97 70 - 130 1.0 02/05/2021 08:00 02/05/2021 FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 189.2889 200 ng/L 95 70 - 130 1.0 02/05/2021 08:00 02/05/2021 FBH IS-NMeFOSAA-d3 537.1 N/A 1034864 1024352.61 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.03 ng/L 103 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOS-13C4 537.1 N/A 1283366 1250165.03 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOS-13C4 537.1 N/A 1283366 1250165.03 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOS-13C4 537.1 N/A 1283366 1250165.03 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOS-13C4 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOS-13C4 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOS-13C4 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2021	:01 4828168	02/05/2021 23:01	02/05/2021 08:00	1.0			70 - 130	89	ng/L	160	142.0251			N/A	537.1	SS-NEtFOSAA-d5	FBL
FBL SS-HFPO-DA-13C3 537.1 N/A 35.8016 40.0 ng/L 90 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 189.2889 200 ng/L 95 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH IS-NMeFOSAA-d3 537.1 N/A 1034864 1024352.61 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.03 ng/L 103 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOS-13C4 537.1 N/A 1283366 1250165.03 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOS-13C4 537.1 N/A 1283366 1250165.03 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOS-13C4 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 10.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 15.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 15.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSA-D5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 15.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSA-D5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 15.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSA-D5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 15.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOSA-D5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 15.0 02/05/2021 08:00 02/05/2021 FBH IS-PFO	:01 4828168	02/05/2021 23:01	02/05/2021 08:00	1.0			70 - 130	93	ng/L	40.0	37.3896			N/A	537.1	SS-PFDA-13C2	FBL
FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 193.5533 200 ng/L 97 70 - 130 1.0 02/05/2021 08:00 02/05/2021 FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 189.2889 200 ng/L 95 70 - 130 1.0 02/05/2021 08:00 02/05/2021 FBH IS-NMeFOSAA-d3 537.1 N/A 1034864 1024352.61 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.03 ng/L 103 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOS-13C4 537.1 N/A 5627339 5594871.73 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH	:01 4828168	02/05/2021 23:0	02/05/2021 08:00	1.0			70 - 130	92	ng/L	40.0	36.8363			N/A	537.1	SS-PFHxA-13C2	FBL
FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 189.2889 200 ng/L 95 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH IS-NMeFOSAA-d3 537.1 N/A 1034864 1024352.61 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.03 ng/L 103 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH IS-PFOS-13C4 537.1 N/A 5627339 5594871.73 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH SS-NEtFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022 FBH SS-NEtFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022	:01 4828168	02/05/2021 23:01	02/05/2021 08:00	1.0			70 - 130	90	ng/L	40.0	35.8016			N/A	537.1	SS-HFPO-DA-13C3	FBL
FBH IS-NMeFOSAA-d3 537.1 N/A 1034864 1024352.61 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.03 ng/L 103 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOS-13C4 537.1 N/A 5627339 5594871.73 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH SS-NEtFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2021	:12 4828169	02/05/2021 23:12	02/05/2021 08:00	1.0			70 - 130	97	ng/L	200	193.5533			2.0	537.1	Perfluorooctanoic acid (PFOA)	FBH
FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.03 ng/L 103 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOS-13C4 537.1 N/A 5627339 5594871.73 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH SS-NEtFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/	:12 4828169	02/05/2021 23:12	02/05/2021 08:00	1.0			70 - 130	95	ng/L	200	189.2889			2.0	537.1	Perfluorooctanesulfonic acid (PFOS)	FBH
FBH IS-PFOA-13C2 537.1 N/A 1283366 1250165.03 ng/L 103 50 - 150 1.0 02/05/2021 08:00 02/05/2021 FBH IS-PFOS-13C4 537.1 N/A 5627339 5594871.73 ng/L 101 50 - 150 1.0 02/05/2021 08:00 02/05/2022 FBH SS-NEtFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022	:12 4828169	02/05/2021 23:12	02/05/2021 08:00	1.0			50 - 150	101	ng/L	1024352.61	1034864			N/A	537.1	IS-NMeFOSAA-d3	FBH
FBH SS-NEtFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/202:	:12 4828169	02/05/2021 23:12	02/05/2021 08:00	1.0			50 - 150	103		1250165.03	1283366			N/A	537.1	IS-PFOA-13C2	FBH
FBH SS-NEtFOSAA-d5 537.1 N/A 142.0649 160 ng/L 89 70 - 130 1.0 02/05/2021 08:00 02/05/2022	:12 4828169	02/05/2021 23:12	02/05/2021 08:00	1.0			50 - 150	101	ng/L	5594871.73	5627339			N/A	537.1	IS-PFOS-13C4	FBH
FBH SS-PFDA-13C2 537.1 N/A 37.9330 40.0 ng/L 95 70 - 130 1.0 02/05/2021 08:00 02/05/202	:12 4828169	02/05/2021 23:12	02/05/2021 08:00	1.0			70 - 130	89		160	142.0649			N/A	537.1	SS-NEtFOSAA-d5	FBH
	:12 4828169	02/05/2021 23:12	02/05/2021 08:00	1.0			70 - 130	95	ng/L	40.0	37.9330			N/A	537.1	SS-PFDA-13C2	FBH
FBH SS-PFHxA-13C2 537.1 N/A 37.8494 40.0 ng/L 95 70 - 130 1.0 02/05/2021 08:00 02/05/202:																	FBH
FBH SS-HFPO-DA-13C3 537.1 N/A 37.5457 40.0 ng/L 94 70 - 130 1.0 02/05/2021 08:00 02/05/202:				1.0				94									FBH
©CCM Perfluorooctanoic acid (PFOA) 537.1 2.0 100.5946 100 ng/L 101 70 - 130 1.0 02/05/2021 10:10 02/06/202																	
Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 95.7068 100 ng/L 96 70 - 130 1.0 02/05/2021 10:10 02/06/2021												i i				` '	0
©CCM IS-NMeFOSAA-d3 537.1 N/A 980775 980774.59 ng/L 100 50 - 150 1.0 02/05/2021 10:10 02/06/202										+		i				` ´ ´	
CCM IS-PFOA-13C2 537.1 N/A 1224504 1224504.4\$ ng/L 100 50 - 150 1.0 02/05/2021 10:10 02/06/202:																	0

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
ССМ	IS-PFOS-13C4	537.1	N/A			5598527	5598527.49	ng/L	100	50 - 150			1.0	02/05/2021 10:10	02/06/2021 01:51	4828165
ССМ	SS-NEtFOSAA-d5	537.1	N/A			164.0585	160	ng/L	103	70 - 130			1.0	02/05/2021 10:10	02/06/2021 01:51	4828165
ССМ	SS-PFDA-13C2	537.1	N/A			40.2252	40.0	ng/L	101	70 - 130			1.0	02/05/2021 10:10	02/06/2021 01:51	4828165
ССМ	SS-PFHxA-13C2	537.1	N/A			40.6081	40.0	ng/L	102	70 - 130			1.0	02/05/2021 10:10	02/06/2021 01:51	4828165
ССМ	SS-HFPO-DA-13C3	537.1	N/A			40.1722	40.0	ng/L	100	70 - 130			1.0	02/05/2021 10:10	02/06/2021 01:51	4828165
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF64724/Raw Water Taj		5.6		ng/L					0.89	02/05/2021 08:00	02/06/2021 02:33	4826872
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF64724/Raw Water Taj		50		ng/L					0.89	02/05/2021 08:00	02/06/2021 02:33	4826872
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF64724/Raw Water Taj		1021162	980774.59	ng/L	104	50 - 150			0.89	02/05/2021 08:00	02/06/2021 02:33	4826872
FS	IS-PFOA-13C2	537.1	N/A	PEF64724/Raw Water Taj		1329230	1224504.49	ng/L	109	50 - 150			0.89	02/05/2021 08:00	02/06/2021 02:33	4826872
FS	IS-PFOS-13C4	537.1	N/A	PEF64724/Raw Water Taj		6001057	5598527.49	ng/L	107	50 - 150			0.89	02/05/2021 08:00	02/06/2021 02:33	4826872
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF64724/Raw Water Taj		115.8243	160	ng/L	81	70 - 130			0.89	02/05/2021 08:00	02/06/2021 02:33	4826872
FS	SS-PFDA-13C2	537.1	N/A	PEF64724/Raw Water Taj		31.3096	40.0	ng/L	88	70 - 130			0.89	02/05/2021 08:00	02/06/2021 02:33	4826872
FS	SS-PFHxA-13C2	537.1	N/A	PEF64724/Raw Water Taj		33.6077	40.0	ng/L	94	70 - 130			0.89	02/05/2021 08:00	02/06/2021 02:33	4826872
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF64724/Raw Water Taj		31.0049	40.0	ng/L	87	70 - 130			0.89	02/05/2021 08:00	02/06/2021 02:33	4826872
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF64725/MG Tank	<	2.0		ng/L					0.89	02/05/2021 08:00	02/06/2021 02:44	4826873
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF64725/MG Tank	<	2.0		ng/L					0.89	02/05/2021 08:00	02/06/2021 02:44	4826873
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF64725/MG Tank		995852	980774.59	ng/L	102	50 - 150			0.89	02/05/2021 08:00	02/06/2021 02:44	4826873
FS	IS-PFOA-13C2	537.1	N/A	PEF64725/MG Tank		1248680	1224504.49	ng/L	102	50 - 150			0.89	02/05/2021 08:00	02/06/2021 02:44	4826873
FS	IS-PFOS-13C4	537.1	N/A	PEF64725/MG Tank		5525402	5598527.49	ng/L	99	50 - 150			0.89	02/05/2021 08:00	02/06/2021 02:44	4826873
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF64725/MG Tank		123.1920	160	ng/L	87	70 - 130			0.89	02/05/2021 08:00	02/06/2021 02:44	4826873
FS	SS-PFDA-13C2	537.1	N/A	PEF64725/MG Tank		31.9231	40.0	ng/L	90	70 - 130			0.89	02/05/2021 08:00	02/06/2021 02:44	4826873
FS	SS-PFHxA-13C2	537.1	N/A	PEF64725/MG Tank		33.2023	40.0	ng/L	93	70 - 130			0.89	02/05/2021 08:00	02/06/2021 02:44	4826873
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF64725/MG Tank		32.1213	40.0	ng/L	90	70 - 130			0.89	02/05/2021 08:00	02/06/2021 02:44	4826873
ССН	Perfluorooctanoic acid (PFOA)	537.1	2.0			198.5878	200	ng/L	99	70 - 130			1.0	02/05/2021 10:10	02/06/2021 03:48	4828166
ССН	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			199.5630	200	ng/L	100	70 - 130			1.0	02/05/2021 10:10	02/06/2021 03:48	4828166
ССН	IS-NMeFOSAA-d3	537.1	N/A			949853	949852.81	ng/L	100	50 - 150			1.0	02/05/2021 10:10	02/06/2021 03:48	4828166
ССН	IS-PFOA-13C2	537.1	N/A			1200110	1200110.18	ng/L	100	50 - 150			1.0	02/05/2021 10:10	02/06/2021 03:48	4828166
ССН	IS-PFOS-13C4	537.1	N/A			5352724	5352723.74	ng/L	100	50 - 150			1.0	02/05/2021 10:10	02/06/2021 03:48	4828166
ССН	SS-NEtFOSAA-d5	537.1	N/A			162.6925	160	ng/L	102	70 - 130			1.0	02/05/2021 10:10	02/06/2021 03:48	4828166
ССН	SS-PFDA-13C2	537.1	N/A			39.7109	40.0	ng/L	99	70 - 130			1.0	02/05/2021 10:10	02/06/2021 03:48	4828166
ССН	SS-PFHxA-13C2	537.1	N/A			39.7908	40.0	ng/L	99	70 - 130			1.0	02/05/2021 10:10	02/06/2021 03:48	4828166
ССН	SS-HFPO-DA-13C3	537.1	N/A			40.9102	40.0	ng/L	102	70 - 130			1.0	02/05/2021 10:10	02/06/2021 03:48	4828166

Samp	le Typ	e Kev

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCH	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FBH	Fortified Blank High		
FBL	Fortified Blank Low		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC# BUECI PFC

Company: Barrow Utilitie:	CLIENT INFORM			Contact Po Jim Mu						Requested Anal	ysis			Page 1 of 1
Address: P.O. Box 449				WWTP A	PDES #:			Perservative Add Trizma	ed					
City, State Zip: Barrow, A	K 99723			PWS ID :	#: 320078			Mixture						
Phone: 907-852-8427				Send Resu	ults to ADEC:								×	Normal Turnaround
Fax: 907-852-5164				√ Yes	□ No		50	SC						
Email: powerplant@buec	i.org			Purchase O	rder/Charge Code: 2021	0001	Containers	PFOS						RUSH day(s)
Project Name: PFAS Monit	toring			-	2021-156		90	⊗ ⊗						
Sampled By:	Drake	TI			70011 100		Number	PFOA						
Sample Identification	Sample Point	ID: Sample Date	Sample Time	Matrix	Lab ID#	Sub Lab ID#							Sa	mple Comments
Raw Water Tap	SPIN001	3/2/21	1440	W	PEF65271		2	x						
MG Tank	SPTP001	3/2/21	14:15	W	PEF65272		2	х						
	3. 1. 2.2													
								7777						
Possible Hazard Identifi				1				Sample Cond	litions					
□ Non-Hazardous	□ Flammable	□ Skin Irritan	t 🗆 Uni	known		Pollen Env Temper Sub Lab Temperat			4.9 °c °c	COC Seal:		□ Inta		Broken □ Abse Broken □ Abse
Special Instructions/QC	Requirements 8	& Comments:						, .						
Relinquished by:		Company:			Date & Time:	15:00	Rec	eved by:	len	Company: Poll	en Env.		Date & Tim	1.0930
Relinquished by		Company: 70	llen Em	/	Date & Time:	1100am	Rec	eived by:		Company:			Date & Tim	e:
Refinquished by:		Company:			Date & Time:		Rec	eived by:		Company:			Date & Tim	e:



SAMPLE RECEIPT CHECKLIST

Date & Time Rec	ceived 3-4-21 e 0930	Initials JEP

Laboratory Identification PEF65259-65273

L	apui	ator	y Identification _/c/oxo/oxo/o
N/A	YES	NO	
	M		Custody Seals intact? (N/A if hand delivered)
	d	П	Chain of Custody (COC) present and properly filled out?
	M	П	Samples received in hold time?
			Proper container and preservatives used?
			Bottles received intact and properly labeled
			Do sample labels match the COC?
	Ø		Sufficient volume of sample for all analysis?
	Ø		Temperature Blank received in cooler?
	₫		Were samples chilled before delivery to lab?
	d		Did samples have sufficient time to cool before delivery to lab? If not, mark ITTC (Insufficient Time To Cool) on COC form.
	П	ď	Are air bubbles present in VOA vials?
Notes	1		
*Tem			receipt at the laboratory 49 °C



CERTIFICATE OF ANALYSIS

Report Date:

Receipt Date:

Sampled By:

3/23/2021

Tom Drake II

3/4/2021

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFC Monitoring Sampled By: Tom Drake II

PWS ID: 320078

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Tap	PEF65271	4848559	3/2/2021	2:10 PM
MG Tank	PEF65272	4848560	3/2/2021	2:15 PM

Jerry Pollen

Pollen Environmental, LLC - Fairbanks



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida(Primary AB)*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon*	4156
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 09/29/2020



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

Client: Pollen Environmental LLC Report: 512160

Attn: Jerry Pollen Priority: Standard Written

3536 International Avenue Status: Final

Fairbanks, AK 99701 PWS ID: AK2320078
Alaska Lab ID # IN00035

	Sample Information												
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time								
4848559	PEF65271 Raw Water Tap	537.1	03/02/21 14:10	Client	03/05/21 10:00								
4848560	PEF65272 MG Tank	537.1	03/02/21 14:15	Client	03/05/21 10:00								

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Antice Clifebowsh ASM Title

03/16/2021

Date

Authorized Signature
Client Name: Polle

Pollen Environmental LLC

Report #: 512160

Client Name: Pollen Environmental LLC Report #: 512160

Sampling Point: PEF65271 Raw Water Tap PWS ID: AK2320078

	EEA Methods												
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#				
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	5.4	ng/L	03/09/21 07:40	03/10/21 08:56	4848559				
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	54	ng/L	03/09/21 07:40	03/10/21 08:56	4848559				

Sampling Point: PEF65272 MG Tank PWS ID: AK2320078

	EEA Methods								
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	< 2.0	ng/L	03/09/21 08:11	03/10/21 00:43	4848560
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	< 2.0	ng/L	03/09/21 08:11	03/10/21 00:43	4848560

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery** %

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

CO	C# BU	ECI	PFC
42086	1 51	21	60

Company: Barrow Utilities	CLIENT INFORMATI	ON		Contact Pe						R	equeste	d Analysi	s			Pag	e 1 of 1	1
Company. Barrow offices	s & Electric Coop.							Perservativ	e Added									
Address: P.O. Box 449				WWTP A	PDES #:			Trizma Mixture										
City, State Zip: Barrow, A	К 99723			PWS ID #	#: 320078											,		
Phone: 907-852-8427				Send Resu	ilts to ADEC:											Normal Normal	Turnaro	und
Fax: 907-852-5164				v Yes	□ No		Z.	SC										
mail: powerplant@bueci	i.org			Purchase O	rder/Charge Code: 2021	10001	of Containers	PFOS								□ RUSH	da	y(s)
Project Name: PFAS Monit	coring				2021-156			- లవ										
Sampled By:	Drake T	Ī					Number	PFOA										
Sample Identification	Sample Point ID:	Sample Date	Sample Time	e Matrix	Lab ID#	Sub Lab ID#										Sample C	omme	nts
Raw Water Tap	SPIN001	3/2/21	14110	W	YEF65271	1.	مر	х	4	184	855	9						
MG Tank	SPTP001	3/2/21	14:15	W	PEF65272	1 -	1	х		I	54	0						
						poly	200	121										
						031												
			×				Ī											
Possible Hazard Identifi	cation:					A		Sample	Condițio	n:			_					
□ Non-Hazardous	□ Flammable	□ Skin Irritan	t 🗆 Uni	known		Pollen Env Temperat Sub Lab Temperatur			: 4.	_ °c _ °c	coc:			□ In		Broken Broken		Absent Absent
Special Instructions/QC	Requirements & C	omments:																
Relinquished by:		Company:	1		Date & Time: 3/12/2/	15:00	Rec	elved by:	belle	1		y: Pollen	Env.			Time: CO	930	2
Relinquished by		Company: 7	llen En	/		1100am	Rec	eived by	Phillip	hite	Compar	y: 77			Date &	Time:	1000	0.0
Relinquished by:		Company:			Date & Time:		Rec	eived by:	The state of the s	Ju	Compar				Date &			



Run ID: 286431 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4849921		os	DQ	03/09/2021 19:20	030921M537_1a-DQ.mdb
LRB	4849927		RW	DQ	03/09/2021 19:46	030921M537_1a-DQ.mdb
FBL	4849929		RW	DQ	03/09/2021 19:59	030921M537_1a-DQ.mdb
CCM	4849923		OS	DQ	03/09/2021 22:47	030921M537_1a-DQ.mdb
FS	4848560	PEF65272 MG Tank	DW	DQ	03/10/2021 00:43	030921M537_1a-DQ.mdb
CCH	4849925		OS	DQ	03/10/2021 00:56	030921M537 1a-DQ.mdb

	QC Summary Report															
Sample Type	Analyte	Method	MDA95	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
CCL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.7524	2.0	ng/L	88	50 - 150			1.0	03/09/2021 13:40	03/09/2021 19:20	4849921
CCL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.6599	2.0	ng/L	83	50 - 150			1.0	03/09/2021 13:40	03/09/2021 19:20	4849921
CCL	IS-NMeFOSAA-d3	537.1	N/A			180091	180091	ng/L	100	50 - 150			1.0	03/09/2021 13:40	03/09/2021 19:20	4849921
CCL	IS-PFOA-13C2	537.1	N/A			360101	360101	ng/L	100	50 - 150			1.0	03/09/2021 13:40	03/09/2021 19:20	4849921
CCL	IS-PFOS-13C4	537.1	N/A			226007	226007	ng/L	100	50 - 150		i i	1.0	03/09/2021 13:40	03/09/2021 19:20	4849921
CCL	SS-NEtFOSAA-d5	537.1	N/A			164.6190	160	ng/L	103	70 - 130			1.0	03/09/2021 13:40	03/09/2021 19:20	4849921
CCL	SS-PFDA-13C2	537.1	N/A			39.6976	40.0	ng/L	99	70 - 130			1.0	03/09/2021 13:40	03/09/2021 19:20	4849921
CCL	SS-PFHxA-13C2	537.1	N/A			39.1858	40.0	ng/L	98	70 - 130		Ī Ī	1.0	03/09/2021 13:40	03/09/2021 19:20	4849921
CCL	SS-HFPO-DA-13C3	537.1	N/A			39.1530	40.0	ng/L	98	70 - 130			1.0	03/09/2021 13:40	03/09/2021 19:20	4849921
LRB	Perfluorooctanoic acid (PFOA)	537.1	2.0		<	2.0		ng/L					1.0	03/09/2021 08:11	03/09/2021 19:46	4849927
LRB	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0		<	2.0		ng/L					1.0	03/09/2021 08:11	03/09/2021 19:46	4849927
LRB	IS-NMeFOSAA-d3	537.1	N/A			171541	180091	ng/L	95	50 - 150			1.0	03/09/2021 08:11	03/09/2021 19:46	4849927
LRB	IS-PFOA-13C2	537.1	N/A			340042	360101	ng/L	94	50 - 150			1.0	03/09/2021 08:11	03/09/2021 19:46	4849927
LRB	IS-PFOS-13C4	537.1	N/A			197255	226007	ng/L	87	50 - 150			1.0	03/09/2021 08:11	03/09/2021 19:46	4849927
LRB	SS-NEtFOSAA-d5	537.1	N/A			134.5880	160	ng/L	84	70 - 130			1.0	03/09/2021 08:11	03/09/2021 19:46	4849927
LRB	SS-PFDA-13C2	537.1	N/A			34.8036	40.0	ng/L	87	70 - 130			1.0	03/09/2021 08:11	03/09/2021 19:46	4849927
LRB	SS-PFHxA-13C2	537.1	N/A			34.4197	40.0	ng/L	86	70 - 130			1.0	03/09/2021 08:11	03/09/2021 19:46	4849927
LRB	SS-HFPO-DA-13C3	537.1	N/A			33.5607	40.0	ng/L	84	70 - 130			1.0	03/09/2021 08:11	03/09/2021 19:46	4849927
FBL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.8869	2.0	ng/L	94	50 - 150			1.0	03/09/2021 08:11	03/09/2021 19:59	4849929
FBL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.7927	2.0	ng/L	90	50 - 150			1.0	03/09/2021 08:11	03/09/2021 19:59	4849929
FBL	IS-NMeFOSAA-d3	537.1	N/A			176758	180091	ng/L	98	50 - 150			1.0	03/09/2021 08:11	03/09/2021 19:59	4849929
FBL	IS-PFOA-13C2	537.1	N/A			356567	360101	ng/L	99	50 - 150			1.0	03/09/2021 08:11	03/09/2021 19:59	4849929
FBL	IS-PFOS-13C4	537.1	N/A			209754	226007	ng/L	93	50 - 150			1.0	03/09/2021 08:11	03/09/2021 19:59	4849929
FBL	SS-NEtFOSAA-d5	537.1	N/A			137.1790	160	ng/L	86	70 - 130			1.0	03/09/2021 08:11	03/09/2021 19:59	4849929
FBL	SS-PFDA-13C2	537.1	N/A			34.3886	40.0	ng/L	86	70 - 130			1.0	03/09/2021 08:11	03/09/2021 19:59	4849929
FBL	SS-PFHxA-13C2	537.1	N/A			33.9343	40.0	ng/L	85	70 - 130		T	1.0	03/09/2021 08:11	03/09/2021 19:59	4849929
FBL	SS-HFPO-DA-13C3	537.1	N/A			33.3213	40.0	ng/L	83	70 - 130			1.0	03/09/2021 08:11	03/09/2021 19:59	4849929
ССМ	Perfluorooctanoic acid (PFOA)	537.1	2.0			94.8659	100	ng/L	95	70 - 130			1.0	03/09/2021 13:40	03/09/2021 22:47	4849923
ССМ	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			92.2487	100	ng/L	92	70 - 130			1.0	03/09/2021 13:40	03/09/2021 22:47	4849923
ССМ	IS-NMeFOSAA-d3	537.1	N/A			184981	184981	ng/L	100	50 - 150			1.0	03/09/2021 13:40	03/09/2021 22:47	4849923
ССМ	IS-PFOA-13C2	537.1	N/A			356665	356665	ng/L	100	50 - 150			1.0	03/09/2021 13:40	03/09/2021 22:47	4849923
ССМ	IS-PFOS-13C4	537.1	N/A			218988	218988	ng/L	100	50 - 150			1.0	03/09/2021 13:40	03/09/2021 22:47	4849923
ССМ	SS-NEtFOSAA-d5	537.1	N/A			159.9180	160	ng/L	100	70 - 130			1.0	03/09/2021 13:40	03/09/2021 22:47	4849923
ССМ	SS-PFDA-13C2	537.1	N/A			40.3873	40.0	ng/L	101	70 - 130			1.0	03/09/2021 13:40	03/09/2021 22:47	4849923
ССМ	SS-PFHxA-13C2	537.1	N/A			39.4504	40.0	ng/L	99	70 - 130			1.0	03/09/2021 13:40	03/09/2021 22:47	4849923
ССМ	SS-HFPO-DA-13C3	537.1	N/A			40.9024	40.0	ng/L	102	70 - 130			1.0	03/09/2021 13:40	03/09/2021 22:47	4849923
T FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF65272 MG Tank	<	2.0		ng/L					0.87	03/09/2021 08:11	03/10/2021 00:43	4848560
age FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF65272 MG Tank	<	2.0		ng/L	<u> </u>				0.87	03/09/2021 08:11	03/10/2021 00:43	4848560
∞ FS	IS-NMeFOSAA-d3	537.1	N/A	PEF65272 MG Tank		184610	184981	ng/L	100	50 - 150			0.87	03/09/2021 08:11	03/10/2021 00:43	4848560
Ç FS	IS-PFOA-13C2	537.1	N/A	PEF65272 MG Tank		364016	356665	ng/L	102	50 - 150			0.87	03/09/2021 08:11	03/10/2021 00:43	4848560
70																

					QC S	Summary Rep	ort (cont.)							
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	 	Dil Factor	Extracted	Analyzed	EEA ID#
FS	IS-PFOS-13C4	537.1	N/A	PEF65272 MG Tank		206015	218988	ng/L	94	50 - 150	 	0.87	03/09/2021 08:11	03/10/2021 00:43	4848560
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF65272 MG Tank		111.4620	160	ng/L	80	70 - 130	 	0.87	03/09/2021 08:11	03/10/2021 00:43	4848560
FS	SS-PFDA-13C2	537.1	N/A	PEF65272 MG Tank		30.4392	40.0	ng/L	87	70 - 130	 	0.87	03/09/2021 08:11	03/10/2021 00:43	4848560
FS	SS-PFHxA-13C2	537.1	N/A	PEF65272 MG Tank		29.5010	40.0	ng/L	85	70 - 130	 	0.87	03/09/2021 08:11	03/10/2021 00:43	4848560
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF65272 MG Tank		29.1056	40.0	ng/L	84	70 - 130	 	0.87	03/09/2021 08:11	03/10/2021 00:43	4848560
ССН	Perfluorooctanoic acid (PFOA)	537.1	2.0			204.4370	200	ng/L	102	70 - 130	 	1.0	03/09/2021 13:40	03/10/2021 00:56	4849925
CCH	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			202.6090	200	ng/L	101	70 - 130	 	1.0	03/09/2021 13:40	03/10/2021 00:56	4849925
CCH	IS-NMeFOSAA-d3	537.1	N/A			190655	190655	ng/L	100	50 - 150	 	1.0	03/09/2021 13:40	03/10/2021 00:56	4849925
CCH	IS-PFOA-13C2	537.1	N/A			349487	349487	ng/L	100	50 - 150	 	1.0	03/09/2021 13:40	03/10/2021 00:56	4849925
ССН	IS-PFOS-13C4	537.1	N/A			217922	217922	ng/L	100	50 - 150	 	1.0	03/09/2021 13:40	03/10/2021 00:56	4849925
CCH	SS-NEtFOSAA-d5	537.1	N/A			149.5210	160	ng/L	93	70 - 130	 	1.0	03/09/2021 13:40	03/10/2021 00:56	4849925
ССН	SS-PFDA-13C2	537.1	N/A			41.4285	40.0	ng/L	104	70 - 130	 	1.0	03/09/2021 13:40	03/10/2021 00:56	4849925
ССН	SS-PFHxA-13C2	537.1	N/A			39.6953	40.0	ng/L	99	70 - 130	 	1.0	03/09/2021 13:40	03/10/2021 00:56	4849925
CCH	SS-HFPO-DA-13C3	537.1	N/A			42.1000	40.0	ng/L	105	70 - 130	 	1.0	03/09/2021 13:40	03/10/2021 00:56	4849925



Run ID: 286446 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4852073		OS	DQ	03/11/2021 20:34	031121M537_1b-DQ.mdb
LRB	4852076		RW	DQ	03/11/2021 20:59	031121M537_1b-DQ.mdb
FBL	4852077		RW	DQ	03/11/2021 21:12	031121M537_1b-DQ.mdb
FBM	4852082		RW	DQ	03/11/2021 21:25	031121M537_1b-DQ.mdb
CCM	4852074		OS	DQ	03/12/2021 04:57	031121M537_1b-DQ.mdb
CCH	4852075		OS	DQ	03/12/2021 07:32	031121M537 1b-DQ.mdb

					QC S	Summar	y Repo	ort								
Sample Type	Analyte	Method	MDA95	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
CCL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.7730	2.0	ng/L	89	50 - 150			1.0	03/10/2021 10:50	03/11/2021 20:34	4852073
CCL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.6438	2.0	ng/L	82	50 - 150			1.0	03/10/2021 10:50	03/11/2021 20:34	4852073
CCL	IS-NMeFOSAA-d3	537.1	N/A			163891	163891	ng/L	100	50 - 150			1.0	03/10/2021 10:50	03/11/2021 20:34	4852073
CCL	IS-PFOA-13C2	537.1	N/A			341249	341249	ng/L	100	50 - 150			1.0	03/10/2021 10:50	03/11/2021 20:34	4852073
CCL	IS-PFOS-13C4	537.1	N/A			197194	197194	ng/L	100	50 - 150			1.0	03/10/2021 10:50	03/11/2021 20:34	4852073
CCL	SS-NEtFOSAA-d5	537.1	N/A			160.4360	160	ng/L	100	70 - 130			1.0	03/10/2021 10:50	03/11/2021 20:34	4852073
CCL	SS-PFDA-13C2	537.1	N/A			40.0163	40.0	ng/L	100	70 - 130			1.0	03/10/2021 10:50	03/11/2021 20:34	4852073
CCL	SS-PFHxA-13C2	537.1	N/A			39.0939	40.0	ng/L	98	70 - 130			1.0	03/10/2021 10:50	03/11/2021 20:34	4852073
CCL	SS-HFPO-DA-13C3	537.1	N/A			39.9289	40.0	ng/L	100	70 - 130			1.0	03/10/2021 10:50	03/11/2021 20:34	4852073
LRB	Perfluorooctanoic acid (PFOA)	537.1	2.0		<	2.0		ng/L					1.0	03/11/2021 07:50	03/11/2021 20:59	4852076
LRB	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0		<	2.0		ng/L					1.0	03/11/2021 07:50	03/11/2021 20:59	4852076
LRB	IS-NMeFOSAA-d3	537.1	N/A			161666	163891	ng/L	99	50 - 150			1.0	03/11/2021 07:50	03/11/2021 20:59	4852076
LRB	IS-PFOA-13C2	537.1	N/A			348072	341249	ng/L	102	50 - 150			1.0	03/11/2021 07:50	03/11/2021 20:59	4852076
LRB	IS-PFOS-13C4	537.1	N/A			187234	197194	ng/L	95	50 - 150			1.0	03/11/2021 07:50	03/11/2021 20:59	4852076
LRB	SS-NEtFOSAA-d5	537.1	N/A			150.4550	160	ng/L	94	70 - 130			1.0	03/11/2021 07:50	03/11/2021 20:59	4852076
LRB	SS-PFDA-13C2	537.1	N/A			39.7533	40.0	ng/L	99	70 - 130			1.0	03/11/2021 07:50	03/11/2021 20:59	4852076
LRB	SS-PFHxA-13C2	537.1	N/A			39.8615	40.0	ng/L	100	70 - 130			1.0	03/11/2021 07:50	03/11/2021 20:59	4852076
LRB	SS-HFPO-DA-13C3	537.1	N/A			41.7688	40.0	ng/L	104	70 - 130			1.0	03/11/2021 07:50	03/11/2021 20:59	4852076
FBL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.9943	2.0	ng/L	100	50 - 150			1.0	03/11/2021 07:50	03/11/2021 21:12	4852077
FBL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.7667	2.0	ng/L	88	50 - 150			1.0	03/11/2021 07:50	03/11/2021 21:12	4852077
FBL	IS-NMeFOSAA-d3	537.1	N/A			155744	163891	ng/L	95	50 - 150			1.0	03/11/2021 07:50	03/11/2021 21:12	4852077
FBL	IS-PFOA-13C2	537.1	N/A			339629	341249	ng/L	100	50 - 150			1.0	03/11/2021 07:50	03/11/2021 21:12	4852077
FBL	IS-PFOS-13C4	537.1	N/A			193728	197194	ng/L	98	50 - 150			1.0	03/11/2021 07:50	03/11/2021 21:12	4852077
FBL	SS-NEtFOSAA-d5	537.1	N/A			155.9410	160	ng/L	97	70 - 130			1.0	03/11/2021 07:50	03/11/2021 21:12	4852077
FBL	SS-PFDA-13C2	537.1	N/A			40.8188	40.0	ng/L	102	70 - 130			1.0	03/11/2021 07:50	03/11/2021 21:12	4852077
FBL	SS-PFHxA-13C2	537.1	N/A			38.2568	40.0	ng/L	96	70 - 130			1.0	03/11/2021 07:50	03/11/2021 21:12	4852077
FBL	SS-HFPO-DA-13C3	537.1	N/A			39.0038	40.0	ng/L	98	70 - 130			1.0	03/11/2021 07:50	03/11/2021 21:12	4852077
FBM	Perfluorooctanoic acid (PFOA)	537.1	2.0			94.4658	100	ng/L	94	70 - 130			1.0	03/11/2021 07:50	03/11/2021 21:25	4852082
FBM	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			95.6109	100	ng/L	96	70 - 130			1.0	03/11/2021 07:50	03/11/2021 21:25	4852082
FBM	IS-NMeFOSAA-d3	537.1	N/A			167118	163891	ng/L	102	50 - 150			1.0	03/11/2021 07:50	03/11/2021 21:25	4852082
FBM	IS-PFOA-13C2	537.1	N/A			348544	341249	ng/L	102	50 - 150			1.0	03/11/2021 07:50	03/11/2021 21:25	4852082
FBM	IS-PFOS-13C4	537.1	N/A			191657	197194	ng/L	97	50 - 150			1.0	03/11/2021 07:50	03/11/2021 21:25	4852082
FBM	SS-NEtFOSAA-d5	537.1	N/A			145.6430	160	ng/L	91	70 - 130			1.0	03/11/2021 07:50	03/11/2021 21:25	4852082
FBM	SS-PFDA-13C2	537.1	N/A			39.6241	40.0	ng/L	99	70 - 130			1.0	03/11/2021 07:50	03/11/2021 21:25	4852082
FBM	SS-PFHxA-13C2	537.1	N/A			37.9701	40.0	ng/L	95	70 - 130			1.0		03/11/2021 21:25	
FBM	SS-HFPO-DA-13C3	537.1	N/A			39.6635	40.0	ng/L	99	70 - 130			1.0	-	03/11/2021 21:25	
ССМ	Perfluorooctanoic acid (PFOA)	537.1	2.0			98.3660	100	ng/L	98	70 - 130			1.0		03/12/2021 04:57	
a Geccm	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			100.6130	100	ng/L	101	70 - 130			1.0		03/12/2021 04:57	
→CCM	IS-NMeFOSAA-d3	537.1	N/A			180070	180070	ng/L	100	50 - 150			1.0		03/12/2021 04:57	
Э ССМ	IS-PFOA-13C2	537.1	N/A			360824	360824	ng/L	100	50 - 150			1.0	03/10/2021 10:50		

					QC S	ummary Rep	ort (cont.)								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	Dil Factor	Extracted	Analyzed	EEA ID#
ССМ	IS-PFOS-13C4	537.1	N/A			191428	191428	ng/L	100	50 - 150		 1.0	03/10/2021 10:50	03/12/2021 04:57	4852074
ССМ	SS-NEtFOSAA-d5	537.1	N/A			151.8140	160	ng/L	95	70 - 130		 1.0	03/10/2021 10:50	03/12/2021 04:57	4852074
ССМ	SS-PFDA-13C2	537.1	N/A			40.4176	40.0	ng/L	101	70 - 130		 1.0	03/10/2021 10:50	03/12/2021 04:57	4852074
ССМ	SS-PFHxA-13C2	537.1	N/A			39.0059	40.0	ng/L	98	70 - 130		 1.0	03/10/2021 10:50	03/12/2021 04:57	4852074
ССМ	SS-HFPO-DA-13C3	537.1	N/A			40.7509	40.0	ng/L	102	70 - 130		 1.0	03/10/2021 10:50	03/12/2021 04:57	4852074
CCH	Perfluorooctanoic acid (PFOA)	537.1	2.0			206.1440	200	ng/L	103	70 - 130		 1.0	03/10/2021 10:50	03/12/2021 07:32	4852075
CCH	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			210.4620	200	ng/L	105	70 - 130		 1.0	03/10/2021 10:50	03/12/2021 07:32	4852075
CCH	IS-NMeFOSAA-d3	537.1	N/A			171191	171191	ng/L	100	50 - 150		 1.0	03/10/2021 10:50	03/12/2021 07:32	4852075
CCH	IS-PFOA-13C2	537.1	N/A			340161	340161	ng/L	100	50 - 150		 1.0	03/10/2021 10:50	03/12/2021 07:32	4852075
CCH	IS-PFOS-13C4	537.1	N/A			193452	193452	ng/L	100	50 - 150		 1.0	03/10/2021 10:50	03/12/2021 07:32	4852075
CCH	SS-NEtFOSAA-d5	537.1	N/A			151.8660	160	ng/L	95	70 - 130		 1.0	03/10/2021 10:50	03/12/2021 07:32	4852075
CCH	SS-PFDA-13C2	537.1	N/A			40.8609	40.0	ng/L	102	70 - 130		 1.0	03/10/2021 10:50	03/12/2021 07:32	4852075
CCH	SS-PFHxA-13C2	537.1	N/A			39.1147	40.0	ng/L	98	70 - 130		 1.0	03/10/2021 10:50	03/12/2021 07:32	4852075
CCH	SS-HFPO-DA-13C3	537.1	N/A			41.2819	40.0	ng/L	103	70 - 130		 1.0	03/10/2021 10:50	03/12/2021 07:32	4852075



Run ID: 286494 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4850450		os	GA	03/10/2021 04:31	031021M537.1a.wiff
LRB	4850046		RW	GA	03/10/2021 04:52	031021M537.1a.wiff
FBL	4850050		RW	GA	03/10/2021 05:02	031021M537.1a.wiff
FBM	4850063		RW	GA	03/10/2021 05:13	031021M537.1a.wiff
CCM	4850452		OS	GA	03/10/2021 07:31	031021M537.1a.wiff
FS	4848559	PEF65271 Raw Water Tap	DW	GA	03/10/2021 08:56	031021M537.1a.wiff
CCH	4850456		OS	GA	03/10/2021 09:17	031021M537.1a.wiff

Sample Analyte Method MDASE Client ID Result Amount Target Units Recovery Recovery Emiss Recovery Emiss Recovery Recovery Recovery Recovery Recovery Emiss Recovery Recovery Recovery Recovery Emiss Recovery Recov	03/10/2021 04:31 03/10/2021 04:31 03/10/2021 04:31 03/10/2021 04:31	1 4850450 1 4850450
CCL Perfluorocataneautfonic acid (PFOS) 537.1 2.0 1.7839 2.0 ngt. 88 50 - 150 1.0 03/09/2021 13-40 03 CCL IS-MMFCSAA-43 537.1 N/A 630771 630771 124 ngt. 100 50 - 150 1.0 03/09/2021 13-40 03 CCL IS-PFOA-13C2 537.1 N/A 3475546 34755457 ngt. 100 50 - 150 1.0 03/09/2021 13-40 03 CCL IS-PFOA-13C2 537.1 N/A 38,8396 40.0 ngt. 102 70 - 130 1.0 03/09/2021 13-40 03 CCL SS-PFDA-13C2 537.1 N/A 38,8396 40.0 ngt. 102 70 - 130 1.0 03/09/2021 13-40 03 CCL SS-PFDA-13C2 537.1 N/A 42.0 ngt. 1.0 03/09/2021 13-40 03	03/10/2021 04:31 03/10/2021 04:31 03/10/2021 04:31 03/10/2021 04:31	1 4850450 1 4850450
CCL IS-PROA-13C2 537.1 N/A 832973 832973-94 ng/L 100 50-150 1.0 03/09/2021 13-40 03 CCL IS-PFOA-13C2 537.1 N/A 832973 832973-94 ng/L 100 50-150 1.0 03/09/2021 13-40 03 CCL IS-PFOA-13C4 537.1 N/A 3475548.7 ng/L 100 50-150 1.0 03/09/2021 13-40 03 CCL SS-NEIFOSA-d5 537.1 N/A 163.8980 160 ng/L 102 70-130 1.0 03/09/2021 13-40 03 CCL SS-PFDA-13C2 537.1 N/A 40.799 40.0 ng/L 97 70-130 1.0 03/09/2021 13-40 03 CCL SS-PFDA-13C2 537.1 N/A 40.799 40.0 ng/L 97 70-130 1.0 03/09/2021 13-40 03 CCL SS-PFDA-13C3 537.1 N/A 39.0439 40.0 ng/L 97 70-130 1.0 03/09/2021 13-40 03 CCL SS-PFDA-13C3 537.1 N/A 39.0439 40.0 ng/L 98 70-130 1.0 03/09/2021 13-40 03 CCL SS-PFDA-13C3 537.1 N/A 39.0439 40.0 ng/L 98 70-130 1.0 03/09/2021 13-40 03 LR8 Perfluorocatanesulfonic acid (PFOA) 537.1 2.0 < 2.0 ng/L 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 618335 630771.24 ng/L 98 50-150 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 618335 630771.24 ng/L 98 50-150 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 618335 630771.24 ng/L 98 50-150 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 808121 832973.49 ng/L 97 50-150 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 8305061 40.0 ng/L 82 70-130 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 3305061 40.0 ng/L 82 70-130 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 125.6222 100 ng/L 95 50-150 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 125.6222 100 ng/L 95 50-150 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 125.6222 100 ng/L 95 50-150 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 125.6222 100 ng/L 95 50-150 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 125.6222 100 ng/L 96 50-150 1.0 03/09/2021 07-40 03 LBB IS-PFOA-13C2 537.1 N/A 125.622 100 ng/L 96	03/10/2021 04:31 03/10/2021 04:31 03/10/2021 04:31	1 4850450
CCL IS-PFOA-13C2	03/10/2021 04:31 03/10/2021 04:31	
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LRB IS-NMeFOSAA-d3 537.1 N/A 618335 630771.24 ng/L 98 50 - 150 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C2 537.1 N/A 808121 832973.49 ng/L 97 50 - 150 1.0 03/09/2021 07:40 03 LRB IS-PFOS-13C4 537.1 N/A 3305081 3475545.7 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-NEIFOSAA-d5 537.1 N/A 125,6282 160 ng/L 79 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 32,6510 40.0 ng/L 82 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 33.487 40.0 ng/L 84 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C3 537.1 N/A 32,0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C3 537.1 N/A 32,0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C3 537.1 N/A 32,0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C3 537.1 N/A 32,0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 32,0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 1.9248 2.0 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 604466 630771.24 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 18998 2.0 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 18998 2.0 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 18998 2.0 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 18998 2.0 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 18998 2.0 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 18998 2.0 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 18998 2.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 18998 2.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 18998 2.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PF	03/10/2021 04:52	2 4850046
LRB IS-PFOA-13C2 537.1 N/A 808121 832973.49 ng/L 97 50 - 150 1.0 03/09/2021 07:40 03 LRB IS-PFOS-13C4 537.1 N/A 3305081 3475545.7 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-NEIFOSAA-d5 537.1 N/A 32.6510 40.0 ng/L 79 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 32.6510 40.0 ng/L 82 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 32.6450 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-HFPO-DA-13C3 537.1 N/A 32.0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 1.0 N/A 32.0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 1.0 N/A	03/10/2021 04:52	2 4850046
LRB IS-PFOS-13C4 537.1 N/A 3305081 3475545.7 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 LRB SS-NEIFOSAA-d5 537.1 N/A 125.6282 160 ng/L 79 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 32.6510 40.0 ng/L 82 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-PFDA-13C2 537.1 N/A 33.4487 40.0 ng/L 84 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-HFPO-DA-13C3 537.1 N/A 32.0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-HFPO-DA-13C3 537.1 N/A 32.0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 LRB Perfluoroctaneoic acid (PFOA) 537.1 2.0 1.9248 2.0 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C2 537.1 N/A 604466 630771.24 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C2 537.1 N/A 795027 832973.49 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB IS-PFOS-13C4 537.1 N/A 3328216 3475545.7 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C2 537.1 N/A 128.9107 160 ng/L 81 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C2 537.1 N/A 128.9107 160 ng/L 81 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C2 537.1 N/A 128.9107 160 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C2 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C2 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C3 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C3 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C3 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C3 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C3 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C3 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 LRB IS-PFOA-13C3 537.1 N/A 34.6614 40.0 ng/L 87	03/10/2021 04:52	2 4850046
LRB SS-NEIFOSAA-d5 537.1 N/A	03/10/2021 04:52	2 4850046
LRB SS-PFDA-13C2 537.1 N/A	03/10/2021 04:52	2 4850046
LRB SS-PFHXA-13C2 537.1 N/A 33.4487 40.0 ng/L 84 70 - 130 1.0 03/09/2021 07:40 03 LRB SS-HFPO-DA-13C3 537.1 N/A 32.0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 FBL Perfluorocotanoic acid (PFOA) 537.1 2.0 1.9248 2.0 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 FBL Perfluorocotanesulfonic acid (PFOS) 537.1 2.0 1.8998 2.0 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 FBL IS-NMeFOSAA-d3 537.1 N/A 604466 630771.24 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 FBL IS-PFOA-13C2 537.1 N/A 795027 832973.49 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 FBL IS-PFOS-13C4 537.1 N/A 3328216 3475545.7 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 FBL SS-NEIFOSAA-d5 537.1 N/A 128.9107 160 ng/L 81 70 - 130 1.0 03/09/2021 07:40 03 FBL SS-PFDA-13C2 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 FBL SS-PFIXA-13C2 537.1 N/A 34.8701 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 FBL SS-HFPO-DA-13C3 537.1 N/A 33.0270 40.0 ng/L 83 70 - 130 1.0 03/09/2021 07:40 03 FBM Perfluorocotanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 83 70 - 130 1.0 03/09/2021 07:40 03 FBM Perfluorocotanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 83 70 - 130 1.0 03/09/2021 07:40 03 FBM Perfluorocotanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 83 70 - 130 1.0 03/09/2021 07:40 03 FBM Perfluorocotanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03 FBM Perfluorocotanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03 FBM Perfluorocotanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03 FBM Perfluorocotanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03 FBM Perfluorocotanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03 FBM Perfluorocotanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03 FBM Perfluorocotanoic	03/10/2021 04:52	2 4850046
LRB SS-HFPO-DA-13C3 537.1 N/A 32.0414 40.0 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03 FBL Perfluorooctanoic acid (PFOA) 537.1 2.0 1.9248 2.0 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 FBL Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 1.8998 2.0 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 FBL IS-NMeFOSAA-d3 537.1 N/A 604466 630771.24 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 FBL IS-PFOA-13C2 537.1 N/A 795027 832973.49 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 FBL IS-PFOA-13C2 537.1 N/A 3328216 3475545.7 ng/L 96 50 - 150	03/10/2021 04:52	2 4850046
FBL Perfluorooctanoic acid (PFOA) 537.1 2.0 1.9248 2.0 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 FBL Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 1.8998 2.0 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 FBL IS-NMeFOSAA-d3 537.1 N/A 604466 630771.24 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 FBL IS-PFOA-13C2 537.1 N/A 795027 832973.49 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 FBL IS-PFOS-13C4 537.1 N/A 3328216 3475545.7 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 FBL SS-NEIFOSAA-d5 537.1 N/A 128.9107 160 ng/L 81 70 - 130	03/10/2021 04:52	2 4850046
FBL Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 1.8998 2.0 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03. FBL IS-NMeFOSAA-d3 537.1 N/A 604466 630771.24 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03. FBL IS-PFOA-13C2 537.1 N/A 795027 832973.49 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03. FBL IS-PFOS-13C4 537.1 N/A 3328216 3475545.7 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03. FBL SS-NEtFOSAA-d5 537.1 N/A 128.9107 160 ng/L 81 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-PFDA-13C2 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 <t< td=""><td>03/10/2021 04:52</td><td>2 4850046</td></t<>	03/10/2021 04:52	2 4850046
FBL IS-NMeFOSAA-d3 537.1 N/A 604466 630771.24 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03. FBL IS-PFOA-13C2 537.1 N/A 795027 832973.49 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03. FBL IS-PFOS-13C4 537.1 N/A 3328216 3475545.7 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03. FBL SS-NEIFOSAA-d5 537.1 N/A 128.9107 160 ng/L 81 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-PFDA-13C2 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-PFHxA-13C2 537.1 N/A 34.8701 40.0 ng/L 87 70	03/10/2021 05:02	2 4850050
FBL IS-PFOA-13C2 537.1 N/A 795027 832973.49 ng/L 95 50 - 150 1.0 03/09/2021 07:40 03 FBL IS-PFOS-13C4 537.1 N/A 3328216 3475545.7 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03 FBL SS-NEIFOSAA-d5 537.1 N/A 128.9107 160 ng/L 81 70 - 130 1.0 03/09/2021 07:40 03 FBL SS-PFDA-13C2 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 FBL SS-PFHxA-13C2 537.1 N/A 34.8701 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03 FBL SS-HFPO-DA-13C3 537.1 N/A 33.0270 40.0 ng/L 83 70 - 130 1.0 03/09	03/10/2021 05:02	2 4850050
FBL IS-PFOS-13C4 537.1 N/A 3328216 3475545.7 ng/L 96 50 - 150 1.0 03/09/2021 07:40 03. FBL SS-NEIFOSAA-d5 537.1 N/A 128.9107 160 ng/L 81 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-PFDA-13C2 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-PFHXA-13C2 537.1 N/A 34.8701 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-HFPO-DA-13C3 537.1 N/A 33.0270 40.0 ng/L 83 70 - 130 1.0 03/09/2021 07:40 03. FBM Perfluorooctanoic acid (PFOA) 537.1 2.0 93.3469 100	03/10/2021 05:02	2 4850050
FBL SS-NEtFOSAA-d5 537.1 N/A 128.9107 160 ng/L 81 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-PFDA-13C2 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-PFHxA-13C2 537.1 N/A 34.8701 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-HFPO-DA-13C3 537.1 N/A 33.0270 40.0 ng/L 83 70 - 130 1.0 03/09/2021 07:40 03. FBM Perfluorooctanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03.	03/10/2021 05:02	2 4850050
FBL SS-PFDA-13C2 537.1 N/A 34.6614 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-PFHxA-13C2 537.1 N/A 34.8701 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-HFPO-DA-13C3 537.1 N/A 33.0270 40.0 ng/L 83 70 - 130 1.0 03/09/2021 07:40 03. FBM Perfluorooctanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03.	03/10/2021 05:02	2 4850050
FBL SS-PFHxA-13C2 537.1 N/A 34.8701 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03. FBL SS-HFPO-DA-13C3 537.1 N/A 33.0270 40.0 ng/L 83 70 - 130 1.0 03/09/2021 07:40 03. FBM Perfluorooctanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03.	03/10/2021 05:02	2 4850050
FBL SS-HFPO-DA-13C3 537.1 N/A 33.0270 40.0 ng/L 83 70 - 130 1.0 03/09/2021 07:40 03. FBM Perfluorocotanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03.	03/10/2021 05:02	2 4850050
FBM Perfluorooctanoic acid (PFOA) 537.1 2.0 93.3469 100 ng/L 93 70 - 130 1.0 03/09/2021 07:40 03.	03/10/2021 05:02	2 4850050
	03/10/2021 05:02	2 4850050
	03/10/2021 05:13	3 4850063
FBM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 94.1115 100 ng/L 94 70 - 130 1.0 03/09/2021 07:40 03.	03/10/2021 05:13	3 4850063
FBM IS-NMeFOSAA-d3 537.1 N/A 660927 630771.24 ng/L 105 50 - 150 1.0 03/09/2021 07:40 03.	03/10/2021 05:13	3 4850063
FBM IS-PFOA-13C2 537.1 N/A 831073 832973.49 ng/L 100 50 - 150 1.0 03/09/2021 07:40 03.	03/10/2021 05:13	3 4850063
FBM IS-PFOS-13C4 537.1 N/A 3467344 3475545.7 ng/L 100 50 - 150 1.0 03/09/2021 07:40 03.	03/10/2021 05:13	3 4850063
FBM SS-NEtFOSAA-d5 537.1 N/A 128.0592 160 ng/L 80 70 - 130 1.0 03/09/2021 07:40 03.	03/10/2021 05:13	3 4850063
FBM SS-PFDA-13C2 537.1 N/A 34.9713 40.0 ng/L 87 70 - 130 1.0 03/09/2021 07:40 03.	03/10/2021 05:13	3 4850063
FBM SS-PFHxA-13C2 537.1 N/A 34.4823 40.0 ng/L 86 70 - 130 1.0 03/09/2021 07:40 03.		
FBM SS-HFPO-DA-13C3 537.1 N/A 33.9714 40.0 ng/L 85 70 - 130 1.0 03/09/2021 07:40 03.		
©CCM Perfluorooctanoic acid (PFOA) 537.1 2.0 92.8025 100 ng/L 93 70 - 130 1.0 03/09/2021 13:40 03.		
Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 95.1784 100 ng/L 95 70 - 130 1.0 03/09/2021 13:40 03.		
CCM IS-NMeFOSAA-d3 537.1 N/A 609711 609711.49 ng/L 100 50 - 150 1.0 03/09/2021 13:40 03.		
QCCM IS-PFOA-13C2 537.1 N/A 793140 793139.87 ng/L 100 50 - 150 1.0 03/09/2021 13:40 03.		

					QC S	Summary Rep	port (cont.)							
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	Dil Factor	Extracted	Analyzed	EEA ID#
ССМ	IS-PFOS-13C4	537.1	N/A			3277119	3277118.84	ng/L	100	50 - 150		 1.0	03/09/2021 13:40	03/10/2021 07:31	4850452
ССМ	SS-NEtFOSAA-d5	537.1	N/A			165.7835	160	ng/L	104	70 - 130		 1.0	03/09/2021 13:40	03/10/2021 07:31	4850452
ССМ	SS-PFDA-13C2	537.1	N/A			38.7985	40.0	ng/L	97	70 - 130		 1.0	03/09/2021 13:40	03/10/2021 07:31	4850452
ССМ	SS-PFHxA-13C2	537.1	N/A			40.4813	40.0	ng/L	101	70 - 130		 1.0	03/09/2021 13:40	03/10/2021 07:31	4850452
ССМ	SS-HFPO-DA-13C3	537.1	N/A			40.5418	40.0	ng/L	101	70 - 130		 1.0	03/09/2021 13:40	03/10/2021 07:31	4850452
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	EF65271 Raw Water Taj		5.4		ng/L				 0.94	03/09/2021 07:40	03/10/2021 08:56	4848559
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF65271 Raw Water Taj		54		ng/L				 0.94	03/09/2021 07:40	03/10/2021 08:56	4848559
FS	IS-NMeFOSAA-d3	537.1	N/A	EF65271 Raw Water Taj		634856	609711.49	ng/L	104	50 - 150		 0.94	03/09/2021 07:40	03/10/2021 08:56	4848559
FS	IS-PFOA-13C2	537.1	N/A	EF65271 Raw Water Taj		833188	793139.87	ng/L	105	50 - 150		 0.94	03/09/2021 07:40	03/10/2021 08:56	4848559
FS	IS-PFOS-13C4	537.1	N/A	EF65271 Raw Water Taj		3531992	3277118.84	ng/L	108	50 - 150		 0.94	03/09/2021 07:40	03/10/2021 08:56	4848559
FS	SS-NEtFOSAA-d5	537.1	N/A	EF65271 Raw Water Taj		103.3371	160	ng/L	69	70 - 130		 0.94	03/09/2021 07:40	03/10/2021 08:56	4848559
FS	SS-PFDA-13C2	537.1	N/A	PEF65271 Raw Water Tay		30.1714	40.0	ng/L	80	70 - 130		 0.94	03/09/2021 07:40	03/10/2021 08:56	4848559
FS	SS-PFHxA-13C2	537.1	N/A	EF65271 Raw Water Taj		32.1013	40.0	ng/L	85	70 - 130		 0.94	03/09/2021 07:40	03/10/2021 08:56	4848559
FS	SS-HFPO-DA-13C3	537.1	N/A	EF65271 Raw Water Taj		30.2643	40.0	ng/L	80	70 - 130		 0.94	03/09/2021 07:40	03/10/2021 08:56	4848559
ССН	Perfluorooctanoic acid (PFOA)	537.1	2.0			196.1553	200	ng/L	98	70 - 130		 1.0	03/09/2021 13:40	03/10/2021 09:17	4850456
ССН	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			205.5041	200	ng/L	103	70 - 130		 1.0	03/09/2021 13:40	03/10/2021 09:17	4850456
ССН	IS-NMeFOSAA-d3	537.1	N/A			617325	617324.78	ng/L	100	50 - 150		 1.0	03/09/2021 13:40	03/10/2021 09:17	4850456
ССН	IS-PFOA-13C2	537.1	N/A			831632	831631.76	ng/L	100	50 - 150		 1.0	03/09/2021 13:40	03/10/2021 09:17	4850456
ССН	IS-PFOS-13C4	537.1	N/A			3337980	3337979.81	ng/L	100	50 - 150		 1.0	03/09/2021 13:40	03/10/2021 09:17	4850456
CCH	SS-NEtFOSAA-d5	537.1	N/A			162.0112	160	ng/L	101	70 - 130		 1.0	03/09/2021 13:40	03/10/2021 09:17	4850456
CCH	SS-PFDA-13C2	537.1	N/A			38.7149	40.0	ng/L	97	70 - 130		 1.0	03/09/2021 13:40	03/10/2021 09:17	4850456
CCH	SS-PFHxA-13C2	537.1	N/A			39.8629	40.0	ng/L	100	70 - 130		 1.0	03/09/2021 13:40	03/10/2021 09:17	4850456
ССН	SS-HFPO-DA-13C3	537.1	N/A			38.8140	40.0	ng/L	97	70 - 130		 1.0	03/09/2021 13:40	03/10/2021 09:17	4850456

Sample Type Key	Samp	le Typ	e Kev
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Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCH	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FBL	Fortified Blank Low		
FBM	Fortified Blank Mid		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC# BUECI PFC

Company: Barrow Utilitie	CLIENT INFORMA s & Electric Coop	17117		Contact P Jim Mu					1000	Requested Analy	/sis		Page 1 of 1
Address: P.O. Box 449				WWTP A	PDES #:			Perservative A Trizma	dded			111-	
City, State Zip: Barrow, A	K 99723			PWS ID	#: 320078			Mixture					
Phone: 907-852-8427				Send Res	ults to ADEC:								Normal Turnaround
Fax: 907-852-5164				v Yes	□ No		v.	S					
Email: powerplant@buec	i.org			Purchase C	order/Charge Code: 2021	0001	tainel	PFOS					□ RUSH day(s)
Project Name: PFAS Monit	toring			PoH	2021-236		of Cor	⊗ 4					
Sampled By: Tom I	Drake II						lumber	PFOA					
Sample Identification	Sample Point I	D: Sample Date	Sample Time	Matrix	Lab ID#	Sub Lab ID#	_ z						Sample Comments
Raw Water Tap	SPIN001	4/1/2/	0810	W	PEF65907		2	x				1.11	
MG Tank	SPTP001	4/18/21	0816	W	PER 5908		2	х					
ing iding	5111002	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	00.1		120000								
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			-				-		-		-	-	
									-				
									- 4 1				
					17								
Possible Hazard Identifi □ Non-Hazardous		□ Skin Irritai	nt 🗆 Unk	rnown		Pollen Env Temper Sub Lab Temperat				COC Seal:			l Broken □ Abser
Special Instructions/QC	Requirements &	Comments:											
Relinquished by:		Company:	. I.		Date & Time:	6905	Rec	eived by:	Pelu	Company: Polle	n Env.	Date & 1	ime:
Relinguished by:		Company:	EN		Date & Time:	2.430	Rec	ceived by:		Company:		Date & 1	Time:
Relinquished by:		Company:			Date & Time:		Rec	eived by:		Company:		Date & 1	Time:



CERTIFICATE OF ANALYSIS

Report Date:

Receipt Date:

Sampled By:

4/20/2021

4/8/2021

Tom Drake II

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFC Monitoring Sampled By: Tom Drake II

PWS ID: 320078

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Tap	PEF65907	4876238	4/7/2021	8:10 AM
MG Tank	PEF65908	4876239	4/7/2021	8:15 AM

Jerry Pollen

Pollen Environmental, LLC - Fairbanks



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida(Primary AB)*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon*	4156
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 09/29/2020



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207

1 800 332 4345

Laboratory Report

Pollen Environmental LLC 515206 Client: Report:

Priority: Standard Written Attn: Jerry Pollen

Status: Final 3536 International Avenue

Fairbanks, AK 99701 PWS ID: AK2320078 Alaska Lab ID # IN00035

	Sample Information														
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time										
4876238	PEF35907/Raw Water Tap	537.1	04/07/21 08:10	Client	04/14/21 09:00										
4876239	PEF35908/MG Tank	537.1	04/07/21 08:15	Client	04/14/21 09:00										

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Mui Chlebowsen Title

04/19/2021

Date

Authorized Signature

Client Name:

Pollen Environmental LLC

Report #: 515206

Sampling Point: PEF35907/Raw Water Tap PWS ID: AK2320078

	EEA Methods														
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#						
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	6.0	ng/L	04/16/21 07:15	04/16/21 23:57	4876238						
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	62	ng/L	04/16/21 07:15	04/16/21 23:57	4876238						

Sampling Point: PEF35908/MG Tank PWS ID: AK2320078

		I	EEA Met	hods					
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	< 2.0	ng/L	04/16/21 07:15	04/17/21 00:10	4876239
1763-23-1	1763-23-1 Perfluorooctanesulfonic acid (PFOS)			2.0	< 2.0	ng/L	04/16/21 07:15	04/17/21 00:10	4876239

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery** %

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC# BUECI PFC

Company: Barrow Utilitie	CLIENT INFORM	Jim Mu			Requested Analysis									1 of 1			
Company. Barrow officie	es a Electric Coop							Perserva	tive Adde	d							
Address: P.O. Box 449				WWTP A	APDES #:			Trizma Mixture									
City, State Zip: Barrow, A	K 99723			PWS ID	#: 320078			Mixture									
Phone: 907-852-8427				Send Res	sults to ADEC:		-			-					3	Normal T	urnaround
Fax: 907-852-5164				v Yes	□ No		۳	SC									
Email: powerplant@buec	ci.org			Purchase	Order/Charge Code: 2021	10001	of Containers	PFOS							r	RUSH _	day(s)
Project Name: PFAS Moni	itoring			Pot	+2021-236		er of Cor	A &									
Sampled By: 16M	Drake II						Number	PFOA	ובמגו								
Sample Identification	Sample Point	ID: Sample Date	Sample Tim	e Matrix		Sub Lab ID#	- 1	6414	1000						5	Sample Co	mments
Raw Water Tap	SPIN001	4/18/21	0810	W	PEF65907	4876238	12	х								8	
MG Tank	SPTP001	4/10/21	0815	W	PER 5908	V 39	17	х									
						Ť.											
4																	
																15	
Possible Hazard Identif	ication:		4					Sample	e Condit	ion:							
□ Non-Hazardous	□ Flammable	□ Skin Irritar	nt 🗆 Un	known		Pollen Env Tempe Sub Lab Tempera			val: 3	\$ 00 00	coc s			□ Intac		Broken Broken	□ Absent □ Absent
Special Instructions/QC	Requirements 8	& Comments:															
Relinquished by:		Company:	. 1		Date & Time:	. 0 /	Rec	ceived by	5-78	2/	Company	: Pollen En	ıv.	ļç	ate & Ti	me: 2) e [c	
Relinguished by:		Company:	EW		Date & Time:	6905		ceived by			Company	·:			ate & Tir		700
Relinquished by:		Company:	~w		Date & Time:	Lusu	Relo	elved by		X	Company	A		D	ate/& Ti/	ne:	0900



Run ID: 287791 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4877314		OS	DQ	04/15/2021 19:59	041521M537_1a-DQ.mdb
LRB	4877261		RW	DQ	04/15/2021 20:25	041521M537_1a-DQ.mdb
FBL	4877264		RW	DQ	04/15/2021 20:37	041521M537_1a-DQ.mdb
CCM	4877315		OS	DQ	04/16/2021 04:22	041521M537_1a-DQ.mdb
CCH	4877316		OS	DQ	04/16/2021 05:53	041521M537_1a-DQ.mdb
CCM	4879654		OS	DQ	04/16/2021 10:44	041521M537_1a-DQ.mdb
CCH	4879655		OS	DQ	04/16/2021 12:14	041521M537 1a-DQ.mdb

	QC Summary Report															
Sample Type	Analyte	Method	MDA95	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
CCL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.8639	2.0	ng/L	93	50 - 150			1.0	04/13/2021 11:01	04/15/2021 19:59	4877314
CCL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.8149	2.0	ng/L	91	50 - 150			1.0	04/13/2021 11:01	04/15/2021 19:59	4877314
CCL	IS-NMeFOSAA-d3	537.1	N/A			164934	164934	ng/L	100	50 - 150			1.0	04/13/2021 11:01	04/15/2021 19:59	4877314
CCL	IS-PFOA-13C2	537.1	N/A			313184	313184	ng/L	100	50 - 150			1.0	04/13/2021 11:01	04/15/2021 19:59	4877314
CCL	IS-PFOS-13C4	537.1	N/A			182003	182003	ng/L	100	50 - 150			1.0	04/13/2021 11:01	04/15/2021 19:59	4877314
CCL	SS-NEtFOSAA-d5	537.1	N/A			160.4300	160	ng/L	100	70 - 130			1.0	04/13/2021 11:01	04/15/2021 19:59	4877314
CCL	SS-PFDA-13C2	537.1	N/A			39.0989	40.0	ng/L	98	70 - 130			1.0	04/13/2021 11:01	04/15/2021 19:59	4877314
CCL	SS-PFHxA-13C2	537.1	N/A			39.0356	40.0	ng/L	98	70 - 130			1.0	04/13/2021 11:01	04/15/2021 19:59	4877314
CCL	SS-HFPO-DA-13C3	537.1	N/A			38.6087	40.0	ng/L	97	70 - 130			1.0	04/13/2021 11:01	04/15/2021 19:59	4877314
LRB	Perfluorooctanoic acid (PFOA)	537.1	2.0		<	2.0		ng/L					1.0	04/15/2021 06:00	04/15/2021 20:25	4877261
LRB	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0		<	2.0		ng/L					1.0	04/15/2021 06:00	04/15/2021 20:25	4877261
LRB	IS-NMeFOSAA-d3	537.1	N/A			183884	164934	ng/L	111	50 - 150			1.0	04/15/2021 06:00	04/15/2021 20:25	4877261
LRB	IS-PFOA-13C2	537.1	N/A			344957	313184	ng/L	110	50 - 150			1.0	04/15/2021 06:00	04/15/2021 20:25	4877261
LRB	IS-PFOS-13C4	537.1	N/A			201725	182003	ng/L	111	50 - 150			1.0	04/15/2021 06:00	04/15/2021 20:25	4877261
LRB	SS-NEtFOSAA-d5	537.1	N/A			133.9130	160	ng/L	84	70 - 130			1.0	04/15/2021 06:00	04/15/2021 20:25	4877261
LRB	SS-PFDA-13C2	537.1	N/A			35.9513	40.0	ng/L	90	70 - 130			1.0	04/15/2021 06:00	04/15/2021 20:25	4877261
LRB	SS-PFHxA-13C2	537.1	N/A			34.9718	40.0	ng/L	87	70 - 130			1.0	04/15/2021 06:00	04/15/2021 20:25	4877261
LRB	SS-HFPO-DA-13C3	537.1	N/A			34.9098	40.0	ng/L	87	70 - 130			1.0	04/15/2021 06:00	04/15/2021 20:25	4877261
FBL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.6884	2.0	ng/L	84	50 - 150			1.0	04/15/2021 06:00	04/15/2021 20:37	4877264
FBL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.7626	2.0	ng/L	88	50 - 150			1.0	04/15/2021 06:00	04/15/2021 20:37	4877264
FBL	IS-NMeFOSAA-d3	537.1	N/A			177788	164934	ng/L	108	50 - 150		T	1.0	04/15/2021 06:00	04/15/2021 20:37	4877264
FBL	IS-PFOA-13C2	537.1	N/A			333758	313184	ng/L	107	50 - 150		T	1.0	04/15/2021 06:00	04/15/2021 20:37	4877264
FBL	IS-PFOS-13C4	537.1	N/A			191852	182003	ng/L	105	50 - 150		T	1.0	04/15/2021 06:00	04/15/2021 20:37	4877264
FBL	SS-NEtFOSAA-d5	537.1	N/A			151.1810	160	ng/L	94	70 - 130		T	1.0	04/15/2021 06:00	04/15/2021 20:37	4877264
FBL	SS-PFDA-13C2	537.1	N/A			38.7130	40.0	ng/L	97	70 - 130		T	1.0	04/15/2021 06:00	04/15/2021 20:37	4877264
FBL	SS-PFHxA-13C2	537.1	N/A			37.1119	40.0	ng/L	93	70 - 130		T	1.0	04/15/2021 06:00	04/15/2021 20:37	4877264
FBL	SS-HFPO-DA-13C3	537.1	N/A			36.8498	40.0	ng/L	92	70 - 130			1.0	04/15/2021 06:00	04/15/2021 20:37	4877264
ССМ	Perfluorooctanoic acid (PFOA)	537.1	2.0			98.3602	100	ng/L	98	70 - 130			1.0	04/13/2021 11:01	04/16/2021 04:22	4877315
ССМ	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			96.5925	100	ng/L	97	70 - 130			1.0	04/13/2021 11:01	04/16/2021 04:22	4877315
ССМ	IS-NMeFOSAA-d3	537.1	N/A			176268	176268	ng/L	100	50 - 150			1.0	04/13/2021 11:01	04/16/2021 04:22	4877315
ССМ	IS-PFOA-13C2	537.1	N/A			339682	339682	ng/L	100	50 - 150			1.0	04/13/2021 11:01	04/16/2021 04:22	4877315
ССМ	IS-PFOS-13C4	537.1	N/A			190050	190050	ng/L	100	50 - 150			1.0	04/13/2021 11:01	04/16/2021 04:22	4877315
ССМ	SS-NEtFOSAA-d5	537.1	N/A			164.2310	160	ng/L	103	70 - 130			1.0	04/13/2021 11:01	04/16/2021 04:22	4877315
ССМ	SS-PFDA-13C2	537.1	N/A			37.8635	40.0	ng/L	95	70 - 130			1.0	04/13/2021 11:01	04/16/2021 04:22	4877315
ССМ	SS-PFHxA-13C2	537.1	N/A			37.2864	40.0	ng/L	93	70 - 130			1.0	04/13/2021 11:01	04/16/2021 04:22	4877315
ССМ	SS-HFPO-DA-13C3	537.1	N/A			37.5172	40.0	ng/L	94	70 - 130			1.0	04/13/2021 11:01	04/16/2021 04:22	4877315
ССН	Perfluorooctanoic acid (PFOA)	537.1	2.0			201.3470	200	ng/L	101	70 - 130			1.0		04/16/2021 05:53	
а ССН	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			202.9460	200	ng/L	101	70 - 130			1.0		04/16/2021 05:53	
ΦCCH	IS-NMeFOSAA-d3	537.1	N/A			176750	176750	ng/L	100	50 - 150			1.0		04/16/2021 05:53	
ZCCH	IS-PFOA-13C2	537.1	N/A			352728	352728	ng/L	100	50 - 150			1.0		04/16/2021 05:53	
40							= -	3								

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
ССН	IS-PFOS-13C4	537.1	N/A			195789	195789	ng/L	100	50 - 150			1.0	04/13/2021 11:01	04/16/2021 05:53	4877316
CCH	SS-NEtFOSAA-d5	537.1	N/A			164.7160	160	ng/L	103	70 - 130			1.0	04/13/2021 11:01	04/16/2021 05:53	4877316
CCH	SS-PFDA-13C2	537.1	N/A			37.2014	40.0	ng/L	93	70 - 130			1.0	04/13/2021 11:01	04/16/2021 05:53	4877316
CCH	SS-PFHxA-13C2	537.1	N/A			37.0658	40.0	ng/L	93	70 - 130			1.0	04/13/2021 11:01	04/16/2021 05:53	4877316
CCH	SS-HFPO-DA-13C3	537.1	N/A			37.1941	40.0	ng/L	93	70 - 130			1.0	04/13/2021 11:01	04/16/2021 05:53	4877316
ССМ	Perfluorooctanoic acid (PFOA)	537.1	2.0			97.6845	100	ng/L	98	70 - 130			1.0	04/13/2021 13:55	04/16/2021 10:44	4879654
ССМ	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			98.1414	100	ng/L	98	70 - 130			1.0	04/13/2021 13:55	04/16/2021 10:44	4879654
ССМ	IS-NMeFOSAA-d3	537.1	N/A			184511	184511	ng/L	100	50 - 150			1.0	04/13/2021 13:55	04/16/2021 10:44	4879654
ССМ	IS-PFOA-13C2	537.1	N/A			298916	298916	ng/L	100	50 - 150			1.0	04/13/2021 13:55	04/16/2021 10:44	4879654
ССМ	IS-PFOS-13C4	537.1	N/A			190347	190347	ng/L	100	50 - 150			1.0	04/13/2021 13:55	04/16/2021 10:44	4879654
ССМ	SS-NEtFOSAA-d5	537.1	N/A			152.7380	160	ng/L	95	70 - 130			1.0	04/13/2021 13:55	04/16/2021 10:44	4879654
ССМ	SS-PFDA-13C2	537.1	N/A			43.6148	40.0	ng/L	109	70 - 130			1.0	04/13/2021 13:55	04/16/2021 10:44	4879654
ССМ	SS-PFHxA-13C2	537.1	N/A			44.1801	40.0	ng/L	110	70 - 130			1.0	04/13/2021 13:55	04/16/2021 10:44	4879654
ССМ	SS-HFPO-DA-13C3	537.1	N/A			40.5449	40.0	ng/L	101	70 - 130			1.0	04/13/2021 13:55	04/16/2021 10:44	4879654
CCH	Perfluorooctanoic acid (PFOA)	537.1	2.0			201.6630	200	ng/L	101	70 - 130			1.0	04/13/2021 13:55	04/16/2021 12:14	4879655
CCH	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			199.0160	200	ng/L	100	70 - 130			1.0	04/13/2021 13:55	04/16/2021 12:14	4879655
ССН	IS-NMeFOSAA-d3	537.1	N/A			197186	197186	ng/L	100	50 - 150			1.0	04/13/2021 13:55	04/16/2021 12:14	4879655
ССН	IS-PFOA-13C2	537.1	N/A			339161	339161	ng/L	100	50 - 150			1.0	04/13/2021 13:55	04/16/2021 12:14	4879655
ССН	IS-PFOS-13C4	537.1	N/A			199728	199728	ng/L	100	50 - 150			1.0	04/13/2021 13:55	04/16/2021 12:14	4879655
ССН	SS-NEtFOSAA-d5	537.1	N/A			151.8090	160	ng/L	95	70 - 130			1.0	04/13/2021 13:55	04/16/2021 12:14	4879655
CCH	SS-PFDA-13C2	537.1	N/A			38.9641	40.0	ng/L	97	70 - 130			1.0	04/13/2021 13:55	04/16/2021 12:14	4879655
CCH	SS-PFHxA-13C2	537.1	N/A			39.1226	40.0	ng/L	98	70 - 130			1.0	04/13/2021 13:55	04/16/2021 12:14	4879655
CCH	SS-HFPO-DA-13C3	537.1	N/A			37.7297	40.0	ng/L	94	70 - 130			1.0	04/13/2021 13:55	04/16/2021 12:14	4879655



Run ID: 287821 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4879413		OS	FL	04/16/2021 18:31	041621M537_1a-FL.mdb
LRB	4879371		RW	FL	04/16/2021 18:57	041621M537_1a-FL.mdb
FBL	4879373		RW	FL	04/16/2021 19:10	041621M537_1a-FL.mdb
CCM	4879415		OS	FL	04/16/2021 23:05	041621M537_1a-FL.mdb
FS	4876238	PEF35907/Raw Water Tap	DW	FL	04/16/2021 23:57	041621M537_1a-FL.mdb
FS	4876239	PEF35908/MG Tank	DW	FL	04/17/2021 00:10	041621M537_1a-FL.mdb
CCH	4879417		OS	FL	04/17/2021 00:36	041621M537 1a-FL.mdb

	QC Summary Report															
Sample Type	Analyte	Method	MDA95	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
CCL	Perfluorooctanoic acid (PFOA)	537.1	2.0			2.1130	2.0	ng/L	106	50 - 150			1.0	04/16/2021 13:50	04/16/2021 18:31	4879413
CCL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			2.2632	2.0	ng/L	113	50 - 150			1.0	04/16/2021 13:50	04/16/2021 18:31	4879413
CCL	IS-NMeFOSAA-d3	537.1	N/A			351335	351335	ng/L	100	50 - 150			1.0	04/16/2021 13:50	04/16/2021 18:31	4879413
CCL	IS-PFOA-13C2	537.1	N/A			973573	973573	ng/L	100	50 - 150			1.0	04/16/2021 13:50	04/16/2021 18:31	4879413
CCL	IS-PFOS-13C4	537.1	N/A			320862	320862	ng/L	100	50 - 150			1.0	04/16/2021 13:50	04/16/2021 18:31	4879413
CCL	SS-NEtFOSAA-d5	537.1	N/A			162.4910	160	ng/L	102	70 - 130			1.0	04/16/2021 13:50	04/16/2021 18:31	4879413
CCL	SS-PFDA-13C2	537.1	N/A			40.6471	40.0	ng/L	102	70 - 130			1.0	04/16/2021 13:50	04/16/2021 18:31	4879413
CCL	SS-PFHxA-13C2	537.1	N/A			40.1781	40.0	ng/L	100	70 - 130			1.0	04/16/2021 13:50	04/16/2021 18:31	4879413
CCL	SS-HFPO-DA-13C3	537.1	N/A			39.2296	40.0	ng/L	98	70 - 130			1.0	04/16/2021 13:50	04/16/2021 18:31	4879413
LRB	Perfluorooctanoic acid (PFOA)	537.1	2.0		<	2.0		ng/L					1.0	04/16/2021 07:15	04/16/2021 18:57	4879371
LRB	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0		<	2.0		ng/L					1.0	04/16/2021 07:15	04/16/2021 18:57	4879371
LRB	IS-NMeFOSAA-d3	537.1	N/A			359886	351335	ng/L	102	50 - 150			1.0	04/16/2021 07:15	04/16/2021 18:57	4879371
LRB	IS-PFOA-13C2	537.1	N/A			1026790	973573	ng/L	105	50 - 150			1.0	04/16/2021 07:15	04/16/2021 18:57	4879371
LRB	IS-PFOS-13C4	537.1	N/A			331072	320862	ng/L	103	50 - 150			1.0	04/16/2021 07:15	04/16/2021 18:57	4879371
LRB	SS-NEtFOSAA-d5	537.1	N/A			134.2010	160	ng/L	84	70 - 130			1.0	04/16/2021 07:15	04/16/2021 18:57	4879371
LRB	SS-PFDA-13C2	537.1	N/A			37.2891	40.0	ng/L	93	70 - 130			1.0	04/16/2021 07:15	04/16/2021 18:57	4879371
LRB	SS-PFHxA-13C2	537.1	N/A			34.3777	40.0	ng/L	86	70 - 130			1.0	04/16/2021 07:15	04/16/2021 18:57	4879371
LRB	SS-HFPO-DA-13C3	537.1	N/A			29.9844	40.0	ng/L	75	70 - 130			1.0	04/16/2021 07:15	04/16/2021 18:57	4879371
FBL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.8606	2.0	ng/L	93	50 - 150			1.0	04/16/2021 07:15	04/16/2021 19:10	4879373
FBL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.9595	2.0	ng/L	98	50 - 150			1.0	04/16/2021 07:15	04/16/2021 19:10	4879373
FBL	IS-NMeFOSAA-d3	537.1	N/A			360390	351335	ng/L	103	50 - 150			1.0	04/16/2021 07:15	04/16/2021 19:10	4879373
FBL	IS-PFOA-13C2	537.1	N/A			1023590	973573	ng/L	105	50 - 150			1.0	04/16/2021 07:15	04/16/2021 19:10	4879373
FBL	IS-PFOS-13C4	537.1	N/A			335474	320862	ng/L	105	50 - 150			1.0	04/16/2021 07:15	04/16/2021 19:10	4879373
FBL	SS-NEtFOSAA-d5	537.1	N/A			144.6740	160	ng/L	90	70 - 130			1.0	04/16/2021 07:15	04/16/2021 19:10	4879373
FBL	SS-PFDA-13C2	537.1	N/A			37.8162	40.0	ng/L	95	70 - 130			1.0	04/16/2021 07:15	04/16/2021 19:10	4879373
FBL	SS-PFHxA-13C2	537.1	N/A			36.6741	40.0	ng/L	92	70 - 130			1.0	04/16/2021 07:15	04/16/2021 19:10	4879373
FBL	SS-HFPO-DA-13C3	537.1	N/A			33.7820	40.0	ng/L	84	70 - 130			1.0	04/16/2021 07:15	04/16/2021 19:10	4879373
ССМ	Perfluorooctanoic acid (PFOA)	537.1	2.0			98.6652	100	ng/L	99	70 - 130			1.0	04/16/2021 13:50	04/16/2021 23:05	4879415
ССМ	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			98.0876	100	ng/L	98	70 - 130			1.0	04/16/2021 13:50	04/16/2021 23:05	4879415
ССМ	IS-NMeFOSAA-d3	537.1	N/A			343297	343297	ng/L	100	50 - 150			1.0	04/16/2021 13:50	04/16/2021 23:05	4879415
ССМ	IS-PFOA-13C2	537.1	N/A			964549	964549	ng/L	100	50 - 150			1.0	04/16/2021 13:50	04/16/2021 23:05	4879415
ССМ	IS-PFOS-13C4	537.1	N/A			312017	312017	ng/L	100	50 - 150			1.0	04/16/2021 13:50	04/16/2021 23:05	4879415
ССМ	SS-NEtFOSAA-d5	537.1	N/A			150.4190	160	ng/L	94	70 - 130			1.0	04/16/2021 13:50	04/16/2021 23:05	4879415
ССМ	SS-PFDA-13C2	537.1	N/A			38.3720	40.0	ng/L	96	70 - 130			1.0	04/16/2021 13:50	04/16/2021 23:05	4879415
ССМ	SS-PFHxA-13C2	537.1	N/A			38.6280	40.0	ng/L	97	70 - 130			1.0	04/16/2021 13:50	04/16/2021 23:05	4879415
ССМ	SS-HFPO-DA-13C3	537.1	N/A			39.5402	40.0	ng/L	99	70 - 130			1.0	04/16/2021 13:50	04/16/2021 23:05	4879415
ე FS დ	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF35907/Raw Water Taj		6.0		ng/L					0.97	04/16/2021 07:15	04/16/2021 23:57	4876238
age FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF35907/Raw Water Taj		62		ng/L					0.97	04/16/2021 07:15	04/16/2021 23:57	4876238
→ FS	IS-NMeFOSAA-d3	537.1	N/A	PEF35907/Raw Water Taj		372710	343297	ng/L	109	50 - 150			0.97	04/16/2021 07:15	04/16/2021 23:57	4876238
Q FS	IS-PFOA-13C2	537.1	N/A	PEF35907/Raw Water Taj		1055300	964549	ng/L	109	50 - 150			0.97	04/16/2021 07:15	04/16/2021 23:57	4876238

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
FS	IS-PFOS-13C4	537.1	N/A	²EF35907/Raw Water Taj		335789	312017	ng/L	108	50 - 150			0.97	04/16/2021 07:15	04/16/2021 23:57	4876238
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF35907/Raw Water Taj		112.4400	160	ng/L	72	70 - 130			0.97	04/16/2021 07:15	04/16/2021 23:57	4876238
FS	SS-PFDA-13C2	537.1	N/A	PEF35907/Raw Water Taj		34.3325	40.0	ng/L	88	70 - 130			0.97	04/16/2021 07:15	04/16/2021 23:57	4876238
FS	SS-PFHxA-13C2	537.1	N/A	PEF35907/Raw Water Taj		36.1446	40.0	ng/L	93	70 - 130			0.97	04/16/2021 07:15	04/16/2021 23:57	4876238
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF35907/Raw Water Taj		35.2121	40.0	ng/L	91	70 - 130			0.97	04/16/2021 07:15	04/16/2021 23:57	4876238
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF35908/MG Tank	<	2.0		ng/L					0.94	04/16/2021 07:15	04/17/2021 00:10	4876239
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF35908/MG Tank	<	2.0		ng/L					0.94	04/16/2021 07:15	04/17/2021 00:10	4876239
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF35908/MG Tank		374307	343297	ng/L	109	50 - 150			0.94	04/16/2021 07:15	04/17/2021 00:10	4876239
FS	IS-PFOA-13C2	537.1	N/A	PEF35908/MG Tank		1053160	964549	ng/L	109	50 - 150			0.94	04/16/2021 07:15	04/17/2021 00:10	4876239
FS	IS-PFOS-13C4	537.1	N/A	PEF35908/MG Tank		336098	312017	ng/L	108	50 - 150			0.94	04/16/2021 07:15	04/17/2021 00:10	4876239
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF35908/MG Tank		121.1340	160	ng/L	81	70 - 130			0.94	04/16/2021 07:15	04/17/2021 00:10	4876239
FS	SS-PFDA-13C2	537.1	N/A	PEF35908/MG Tank		34.3206	40.0	ng/L	91	70 - 130			0.94	04/16/2021 07:15	04/17/2021 00:10	4876239
FS	SS-PFHxA-13C2	537.1	N/A	PEF35908/MG Tank		28.7033	40.0	ng/L	76	70 - 130			0.94	04/16/2021 07:15	04/17/2021 00:10	4876239
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF35908/MG Tank		27.2790	40.0	ng/L	73	70 - 130			0.94	04/16/2021 07:15	04/17/2021 00:10	4876239
ССН	Perfluorooctanoic acid (PFOA)	537.1	2.0			204.4160	200	ng/L	102	70 - 130			1.0	04/16/2021 13:50	04/17/2021 00:36	4879417
ССН	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			203.5750	200	ng/L	102	70 - 130			1.0	04/16/2021 13:50	04/17/2021 00:36	4879417
ССН	IS-NMeFOSAA-d3	537.1	N/A			349512	349512	ng/L	100	50 - 150			1.0	04/16/2021 13:50	04/17/2021 00:36	4879417
ССН	IS-PFOA-13C2	537.1	N/A			947903	947903	ng/L	100	50 - 150			1.0	04/16/2021 13:50	04/17/2021 00:36	4879417
ССН	IS-PFOS-13C4	537.1	N/A			311451	311451	ng/L	100	50 - 150			1.0	04/16/2021 13:50	04/17/2021 00:36	4879417
CCH	SS-NEtFOSAA-d5	537.1	N/A			155.9760	160	ng/L	97	70 - 130			1.0	04/16/2021 13:50	04/17/2021 00:36	4879417
ССН	SS-PFDA-13C2	537.1	N/A			39.9572	40.0	ng/L	100	70 - 130			1.0	04/16/2021 13:50	04/17/2021 00:36	4879417
CCH	SS-PFHxA-13C2	537.1	N/A			39.5164	40.0	ng/L	99	70 - 130			1.0	04/16/2021 13:50	04/17/2021 00:36	4879417
ССН	SS-HFPO-DA-13C3	537.1	N/A			40.5675	40.0	ng/L	101	70 - 130			1.0	04/16/2021 13:50	04/17/2021 00:36	4879417

Samp	le Tyr	oe Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCH	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FBL	Fortified Blank Low		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC# BUECI PFC

Company: Barrow Utilitie	CLIENT INFORM S & Electric Coo	11.11.2.		Contact F Jim Mu						Requested Ana	lysis		Page 1 of 1
Address: P.O. Box 449				WWTPA	APDES #:		+	Perservative / Trizma	Added				
City, State Zip: Barrow, A	AK 99723			122.00			+	Mixture					
				1	#: 320078				711/77				
Phone: 907-852-8427				Send Res	sults to ADEC:								Normal Turnaround
Fax: 907-852-5164				√ Yes	□ No		8	PFOS					
Email: powerplant@bued	ci.org			Purchase (Order/Charge Code: 2021	0001	of Containers	P					□ RUSH day(s)
Project Name: PFAS Moni	itoring	-17		3	2021-311		r of Co	⊗ ∀					
Sampled By: James Sample Identification	F Mu-	sha J-					Number	PFOA		1971			
Sample Identification	Sample Point	ID: Sample Date	Sample Tim	e Matrix	Lab ID#	Sub Lab ID#							Sample Comments
Raw Water Tap	SPIN001	5/4/21	08:10	W	PEFINAYY		2	x					
MG Tank	COTOOA	5/4/21	5000	W	DECLUBS		2	V					
MG Talik	SPTP001	-(1/01	08:15	VV	THE CONTROL			Х					
-													
Possible Hazard Identif	ination.							Sample Co	andition:			V.	-
□ Non-Hazardous	□ Flammable	e 🗆 Skin Irritan	nt 🗆 Uni	known		Pollen Env Tempe Sub Lab Tempera		on arrival:	°c	COC Seal:	₽		□ Broken □ Absent □ Broken □ Absent
Special Instructions/QC	Requirements i	& Comments:											
Relinquished by:		Company:	I		Date & Time: \$ (4 2			eived by:	Ellen	Company: Pol	len Env.	Date &	Time: 120920am
Reliniuished by:		Company:	ENV			21030am		eived by:		Company:		Date &	Time:
Relinquisted by:		Company:			Date & Time:		Rec	eived by:		Company:		Date &	Time:



CERTIFICATE OF ANALYSIS

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFC Monitoring Sampled By: James F. Murphy

PWS ID: 320078

Report Date: 5/14/2021 Receipt Date: 5/5/2021

Sampled By: James F Murphy

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Tap	PEF66477	4894121	5/4/2021	8:10 AM
MG Tank	PEF66478	4894122	5/4/2021	8:15 AM

Jerry Pollen / Marcus Cogley

Pollen Environmental, LLC



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida(Primary AB)*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon*	4156
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 09/29/2020



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

Client: Pollen Environmental LLC Report: 517135

Attn: Jerry Pollen Priority: Standard Written

3536 International Avenue Status: Final

Fairbanks, AK 99701 PWS ID: AK2320078
Alaska Lab ID # IN00035

	Sample Information											
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time							
4894121	PEF66477/Raw Water Tap	537.1	05/04/21 08:10	Client	05/06/21 09:45							
4894122	PEF66478/MG Tank	537.1	05/04/21 08:15	Client	05/06/21 09:45							

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Smu Chebowshi ASM

05/14/2021

Date

Authorized Signature
Client Name: Polle

Pollen Environmental LLC

Report #: 517135

Title

Sampling Point: PEF66477/Raw Water Tap PWS ID: AK2320078

	EEA Methods									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#	
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	5.8	ng/L	05/10/21 08:25	05/11/21 07:15	4894121	
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	52	ng/L	05/10/21 08:25	05/11/21 07:15	4894121	

Sampling Point: PEF66478/MG Tank PWS ID: AK2320078

	EEA Methods									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#	
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	< 2.0	ng/L	05/10/21 08:25	05/11/21 07:28	4894122	
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	< 2.0	ng/L	05/10/21 08:25	05/11/21 07:28	4894122	

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery** %

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC#	BUECI	PFC
42	530	13

Company: Barrow Utilitie	CLIENT INFORMA			Jim Mu				Porconyat	ive Added	Requeste	d Analysi	5/7/3	5	Page 1 of 1
Address: P.O. Box 449				WWTP A	PDES #:			Trizma Mixture	Ne Added					
City, State Zip: Barrow, A	AK 99723			PWS ID	#: 320078			Mixture						
Phone: 907-852-8427				Send Res	ults to ADEC:									Normal Turnaround
Fax: 907-852-5164				v Yes	□ No		y,	S						
Email: powerplant@buec	ci.org			Purchase 0	Order/Charge Code: 2021	10001	Itaine	PFOS						□ RUSH day(s)
Project Name: PFAS Moni	toring	_		-	1021-311		Number of Containers	- త						
Sampled By: James	F Mu-a	h= J-					Mumbe	PFOA						
Sample Identification	Sample Point I	D: Sample D	Date Sample Tin	ne Matrix	Lab ID#	Sub Lab ID#					9			Sample Comments
Raw Water Tap	SPIN001	5/4/2	1 (8:10	W	PEF/d/HYY		2	х						4894121
MG Tank	SPTP001	5/4/2		W	PEF/6.478		2	х						1 122
			08:12											
													-	
					-									
		-		1	3,						-			
			-	4										
Possible Hazard Identifi	,													
□ Non-Hazardous	□ Flammable	□ Skin Iri	ritant 🗆 Ur	nknown		Pollen Env Tempe Sub Lab Tempera	erature ature o	on arriva	Condition:	°c coc	Seal: Seal:	1/		□ Broken □ Absent □ Broken □ Absent
Special Instructions/QC	Requirements &	Comments:												
Relinguished by:		Company	CT		Date & Time: & (4/2/		Red	ceived by	2 Rollin	Compa	ny: Pollen	Env.	Date &	Time: 1 @ 2920am
Relinquished by:		Combany	n Env			21030 am	Rec	ceived by	· ·	Compa			Date &	Time:
Relinquished by:		Company			Date & Time:		Rec	celved by		Compa	TEP.		Date &	Time: 0-2021
	1,							Val					- 4	oavis



Eurofins Eaton Analytical Run Log

Run ID: 288870 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4896946		OS	DQ	05/11/2021 04:14	051121M537_1a-DQ.mdb
LRB	4896906		RW	DQ	05/11/2021 04:40	051121M537_1a-DQ.mdb
FBL	4896908		RW	DQ	05/11/2021 04:53	051121M537_1a-DQ.mdb
FS	4894121	PEF66477/Raw Water Tap	DW	DQ	05/11/2021 07:15	051121M537_1a-DQ.mdb
FS	4894122	PEF66478/MG Tank	DW	DQ	05/11/2021 07:28	051121M537_1a-DQ.mdb
CCM	4896948		os	DQ	05/11/2021 07:41	051121M537_1a-DQ.mdb

					QC S	Summar	y Repo	rt							
Sample Type	Analyte	Method	MDA95	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	 Dil Factor	Extracted	Analyzed	EEA ID#
CCL	Perfluorooctanoic acid (PFOA)	537.1	2.0			2.1733	2.0	ng/L	109	50 - 150		 1.0	05/06/2021 12:59	05/11/2021 04:14	4896946
CCL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			2.0172	2.0	ng/L	101	50 - 150		 1.0	05/06/2021 12:59	05/11/2021 04:14	4896946
CCL	IS-NMeFOSAA-d3	537.1	N/A			132667	132667	ng/L	100	50 - 150		 1.0	05/06/2021 12:59	05/11/2021 04:14	4896946
CCL	IS-PFOA-13C2	537.1	N/A			324996	324996	ng/L	100	50 - 150		 1.0	05/06/2021 12:59	05/11/2021 04:14	4896946
CCL	IS-PFOS-13C4	537.1	N/A			169256	169256	ng/L	100	50 - 150		 1.0	05/06/2021 12:59	05/11/2021 04:14	4896946
CCL	SS-NEtFOSAA-d5	537.1	N/A			158.1030	160	ng/L	99	70 - 130		 1.0	05/06/2021 12:59	05/11/2021 04:14	4896946
CCL	SS-PFDA-13C2	537.1	N/A			39.7584	40.0	ng/L	99	70 - 130		 1.0	05/06/2021 12:59	05/11/2021 04:14	4896946
CCL	SS-PFHxA-13C2	537.1	N/A			40.2464	40.0	ng/L	101	70 - 130		 1.0	05/06/2021 12:59	05/11/2021 04:14	4896946
CCL	SS-HFPO-DA-13C3	537.1	N/A			39.4523	40.0	ng/L	99	70 - 130		 1.0	05/06/2021 12:59	05/11/2021 04:14	4896946
LRB	Perfluorooctanoic acid (PFOA)	537.1	2.0		<	2.0		ng/L				 1.0	05/10/2021 08:25	05/11/2021 04:40	4896906
LRB	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0		<	2.0		ng/L				 1.0	05/10/2021 08:25	05/11/2021 04:40	4896906
LRB	IS-NMeFOSAA-d3	537.1	N/A			140153	132667	ng/L	106	50 - 150		 1.0	05/10/2021 08:25	05/11/2021 04:40	4896906
LRB	IS-PFOA-13C2	537.1	N/A			362246	324996	ng/L	111	50 - 150		 1.0	05/10/2021 08:25	05/11/2021 04:40	4896906
LRB	IS-PFOS-13C4	537.1	N/A			184002	169256	ng/L	109	50 - 150		 1.0	05/10/2021 08:25	05/11/2021 04:40	4896906
LRB	SS-NEtFOSAA-d5	537.1	N/A			141.7190	160	ng/L	89	70 - 130		 1.0	05/10/2021 08:25	05/11/2021 04:40	4896906
LRB	SS-PFDA-13C2	537.1	N/A			35.5660	40.0	ng/L	89	70 - 130		 1.0	05/10/2021 08:25	05/11/2021 04:40	4896906
LRB	SS-PFHxA-13C2	537.1	N/A			36.1103	40.0	ng/L	90	70 - 130		 1.0	05/10/2021 08:25	05/11/2021 04:40	4896906
LRB	SS-HFPO-DA-13C3	537.1	N/A			35.1466	40.0	ng/L	88	70 - 130		 1.0	05/10/2021 08:25	05/11/2021 04:40	4896906
FBL	Perfluorooctanoic acid (PFOA)	537.1	2.0			2.0720	2.0	ng/L	104	50 - 150		 1.0	05/10/2021 08:25	05/11/2021 04:53	4896908
FBL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			2.0870	2.0	ng/L	104	50 - 150		 1.0	05/10/2021 08:25	05/11/2021 04:53	4896908
FBL	IS-NMeFOSAA-d3	537.1	N/A			139675	132667	ng/L	105	50 - 150		 1.0	05/10/2021 08:25	05/11/2021 04:53	4896908
FBL	IS-PFOA-13C2	537.1	N/A			343817	324996	ng/L	106	50 - 150		 1.0	05/10/2021 08:25	05/11/2021 04:53	4896908
FBL	IS-PFOS-13C4	537.1	N/A			168317	169256	ng/L	99	50 - 150		 1.0	05/10/2021 08:25	05/11/2021 04:53	4896908
FBL	SS-NEtFOSAA-d5	537.1	N/A			149.1850	160	ng/L	93	70 - 130		 1.0	05/10/2021 08:25	05/11/2021 04:53	4896908
FBL	SS-PFDA-13C2	537.1	N/A			38.4566	40.0	ng/L	96	70 - 130		 1.0	05/10/2021 08:25	05/11/2021 04:53	4896908
FBL	SS-PFHxA-13C2	537.1	N/A			38.0370	40.0	ng/L	95	70 - 130		 1.0	05/10/2021 08:25	05/11/2021 04:53	4896908
FBL	SS-HFPO-DA-13C3	537.1	N/A			37.2635	40.0	ng/L	93	70 - 130		 1.0	05/10/2021 08:25	05/11/2021 04:53	4896908
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF66477/Raw Water Taj		5.8		ng/L				 0.94	05/10/2021 08:25	05/11/2021 07:15	4894121
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF66477/Raw Water Taj		52		ng/L				 0.94	05/10/2021 08:25	05/11/2021 07:15	4894121
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF66477/Raw Water Taj		146814	132667	ng/L	111	50 - 150		 0.94	05/10/2021 08:25	05/11/2021 07:15	4894121
FS	IS-PFOA-13C2	537.1	N/A	PEF66477/Raw Water Taj		378486	324996	ng/L	116	50 - 150		 0.94	05/10/2021 08:25	05/11/2021 07:15	4894121
FS	IS-PFOS-13C4	537.1	N/A	PEF66477/Raw Water Taj		192174	169256	ng/L	114	50 - 150		 0.94	05/10/2021 08:25	05/11/2021 07:15	4894121
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF66477/Raw Water Taj		133.7870	160	ng/L	89	70 - 130		 0.94	05/10/2021 08:25	05/11/2021 07:15	4894121
FS	SS-PFDA-13C2	537.1	N/A	PEF66477/Raw Water Taj		33.8193	40.0	ng/L	90	70 - 130		 0.94	05/10/2021 08:25	05/11/2021 07:15	4894121
FS	SS-PFHxA-13C2	537.1	N/A	PEF66477/Raw Water Taj		34.9712	40.0	ng/L	93	70 - 130		 0.94	05/10/2021 08:25	05/11/2021 07:15	4894121
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF66477/Raw Water Taj		33.4138	40.0	ng/L	89	70 - 130		 0.94	05/10/2021 08:25	05/11/2021 07:15	4894121
	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF66478/MG Tank	<	2.0		ng/L				 0.91		05/11/2021 07:28	
PFS age FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF66478/MG Tank	<	2.0		ng/L				 0.91		05/11/2021 07:28	
∞ FS	IS-NMeFOSAA-d3	537.1	N/A	PEF66478/MG Tank		153912	132667	ng/L	116	50 - 150		 0.91	05/10/2021 08:25		
FS	IS-PFOA-13C2	537.1	N/A	PEF66478/MG Tank		364495	324996	ng/L	112	50 - 150		 0.91	05/10/2021 08:25		
	2 of 2			11 22 12				J-			_ ^ _		70 / 55 4 5		

	QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits			Dil Factor	Extracted	Analyzed	EEA ID#
FS	IS-PFOS-13C4	537.1	N/A	PEF66478/MG Tank		183558	169256	ng/L	108	50 - 150			0.91	05/10/2021 08:25	05/11/2021 07:28	4894122
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF66478/MG Tank		138.1380	160	ng/L	95	70 - 130			0.91	05/10/2021 08:25	05/11/2021 07:28	4894122
FS	SS-PFDA-13C2	537.1	N/A	PEF66478/MG Tank		34.3084	40.0	ng/L	94	70 - 130			0.91	05/10/2021 08:25	05/11/2021 07:28	4894122
FS	SS-PFHxA-13C2	537.1	N/A	PEF66478/MG Tank		33.2222	40.0	ng/L	91	70 - 130			0.91	05/10/2021 08:25	05/11/2021 07:28	4894122
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF66478/MG Tank		31.8050	40.0	ng/L	87	70 - 130			0.91	05/10/2021 08:25	05/11/2021 07:28	4894122
ССМ	Perfluorooctanoic acid (PFOA)	537.1	2.0			98.4896	100	ng/L	98	70 - 130			1.0	05/06/2021 12:59	05/11/2021 07:41	4896948
ССМ	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			98.4517	100	ng/L	98	70 - 130			1.0	05/06/2021 12:59	05/11/2021 07:41	4896948
ССМ	IS-NMeFOSAA-d3	537.1	N/A			141371	141371	ng/L	100	50 - 150			1.0	05/06/2021 12:59	05/11/2021 07:41	4896948
ССМ	IS-PFOA-13C2	537.1	N/A			324281	324281	ng/L	100	50 - 150			1.0	05/06/2021 12:59	05/11/2021 07:41	4896948
ССМ	IS-PFOS-13C4	537.1	N/A			172803	172803	ng/L	100	50 - 150			1.0	05/06/2021 12:59	05/11/2021 07:41	4896948
ССМ	SS-NEtFOSAA-d5	537.1	N/A			162.4760	160	ng/L	102	70 - 130			1.0	05/06/2021 12:59	05/11/2021 07:41	4896948
ССМ	SS-PFDA-13C2	537.1	N/A			38.6891	40.0	ng/L	97	70 - 130			1.0	05/06/2021 12:59	05/11/2021 07:41	4896948
ССМ	SS-PFHxA-13C2	537.1	N/A			39.3469	40.0	ng/L	98	70 - 130			1.0	05/06/2021 12:59	05/11/2021 07:41	4896948
CCM	SS-HFPO-DA-13C3	537.1	N/A			39.4955	40.0	ng/L	99	70 - 130			1.0	05/06/2021 12:59	05/11/2021 07:41	4896948

Sam	ole Type	Key
••••	<i>,</i>	,

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FBL	Fortified Blank Low		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

Company: Barrow Utilitie	CLIENT INFORMAT	ION		Contact P						Requeste	d Analysis		Page 1 of 1
Address: P.O. Box 449								Perservativ	re Added				
	2			WWTP A	PDES #:								
City, State Zip: Barrow, A	K 99723			PWS ID	#: 320078								
Phone: 907-852-3176				Send Resi	ults to ADEC:								Normal Turnaround
Fax: 907-852-5164				Yes	□ No		75	SC					
Email: powerplant@buec	ci.org			Purchase 0	rder/Charge Code:		of Containers	PFOS		8			□ RUSH day(s)
Project Name: PFAS Moni	toring				021-449		r of Co	Ø Ø					
Sampled By: 75h	Drake II			d	Val-III		Number	PFOA					
Sample Identification			Sample Time	Matrix	Lab ID#	Sub Lab ID#] = [Sample Comments
MG Tank	SPIPOOL	617121	13-10	W	PEF67593		2	Х					
Raw Water Tap	SPIN OD 1	617121	1325	W	PEF67593		2	Х					
Raw water rap	21111-01	71100	121		1-10-10-10								
Possible Hazard Identifi								C	Condition:				
□ Non-Hazardous		□ Skin Irritan	nt 🗆 Unk	nown		Pollen Env Tempera Sub Lab Temperati	ature	on arrival	The second secon				☐ Broken ☐ Absent☐ Broken ☐ Absent
Special Instructions/QC	Requirements & C	omments:											
Relinquished by:		Company:	CI		Date & Time:	1530	Rece	ived by:	follon	Compan	y: Pollen Env	Date &	Time: 2/100
Relinquished by		Company 201	len Env		Date & Time: 21 @	1030am	Rece	eived by:	, ,	Compan	y:	Date &	
Relinquished by:		Company:			Date & Time:	122	Rece	eived by:		Compan	y:	Date &	Time:



CERTIFICATE OF ANALYSIS

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFAS Monitoring Sampled By: James F. Murphy

PWS ID: 320078

Report Date:	6/23/2021
Receipt Date:	6/9/2021
Sampled By:	Tom Drake II

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
MG Tank	PEF67592	4927105	6/7/2021	1:40 PM
Raw Water Tap	PEF67593	4927106	6/7/2021	1:25 PM

Jerry Pollen / Marcus Cogley

Pollen Environmental, LLC



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida(Primary AB)*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon*	4156
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 09/29/2020



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

Client: Pollen Environmental LLC Report: 520941

Attn: Jerry Pollen Priority: Standard Written

3536 International Avenue Status: Final

Fairbanks, AK 99701 PWS ID: AK2320078
Alaska Lab ID # IN00035

	Sample Information											
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time							
4927105	PEF67592/MG Tank	537.1	06/07/21 13:40	Client	06/11/21 09:00							
4927106	PEF67593/Raw Water Tap	537.1	06/07/21 13:25	Client	06/11/21 09:00							

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Situi Chilebawshi ASM

06/22/2021

Date

Authorized Signature

Client Name:

Pollen Environmental LLC

Report #: 520941

Title

Client Name: Pollen Environmental LLC Report #: 520941

Sampling Point: PEF67592/MG Tank PWS ID: AK2320078

	EEA Methods										
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#		
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	< 2.0	ng/L	06/14/21 07:43	06/15/21 07:53	4927105		
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	< 2.0	ng/L	06/14/21 07:43	06/15/21 07:53	4927105		

Sampling Point: PEF67593/Raw Water Tap PWS ID: AK2320078

	EEA Methods										
Analyte ID #	Analyte Method Reg MRL† Result Units Preparation Analyzed EEA Limit Date Date ID#										
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	7.3	ng/L	06/14/21 07:43	06/15/21 08:03	4927106		
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	69	ng/L	06/14/21 07:43	06/15/21 08:03	4927106		

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Client Name: Pollen Environmental LLC Report #: 520941

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery** %

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

Company: Barrow Utilitie	S & Electric Coop.	TON		Contact P Jim Mu			Requested Analysis 520941					941	Page	1 of 1		
Address: P.O. Box 449				WWTP A	PDES #:			1000110	1011000							
City, State Zip: Barrow, A	K 99723			PWS ID	#: 320078											
Phone: 907-852-3176				Send Res	ults to ADEC:										Normal T	urnaround
Fax: 907-852-5164				Yes	□ No		S O S									
Email: powerplant@buec	i.org				order/Charge Code:		& PFOS					□ RUSH _	day(s)			
Project Name: PFAS Moni	toring				021-449		of	A &								
Sampled By:	Stake II						Number	PFOA								
Sample Identification		: Sample Date	Sample Time	Matrix	Lab ID#	Sub Lab ID#			5	Don.		- 4			Sample Co	mments
MG Tank	SPTP 001	617121	13-10	W	PEF67593		2	X							4927	105
Raw Water Tap	SPIN OD 1	617121	1325	W	PEF67593		2	X							1	106
Possible Hazard Identifi □ Non-Hazardous	cation: □ Flammable	□ Skin Irritan	t 🗆 Unk	nown		Pollen Env Temper Sub Lab Temperati	ature	on arriv	Conditional:		coc s		The second secon	,	Broken Broken	□ Absent □ Absent
Special Instructions/QC	Requirements & C	omments:														
Relinquished by:		Company:	CI		Date & Time:	1520	Rec	eived by	folk	n	Company	r; Pollen E	nv.	Date &	Time: 2/10	00
Relinquished by: Relinquished by? Relinquished by?		Company:	en Env		Date & Time: 21 @	1030am	1				Company			Date &	Time:	
Relinquished by:		Company:			Date & Time:		Rec	elved by	~		Company	A		Date &	Time:	



Eurofins Eaton Analytical Run Log

Run ID: 290572 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4928350		OS	GA	06/15/2021 03:38	061521M537.1a.wiff
LRB	4928356		RW	GA	06/15/2021 03:59	061521M537.1a.wiff
FBL	4928358		RW	GA	06/15/2021 04:21	061521M537.1a.wiff
FBH	4928360		RW	GA	06/15/2021 04:42	061521M537.1a.wiff
CCM	4928352		os	GA	06/15/2021 06:38	061521M537.1a.wiff
FS	4927105	PEF67592/MG Tank	DW	GA	06/15/2021 07:53	061521M537.1a.wiff
FS	4927106	PEF67593/Raw Water Tap	DW	GA	06/15/2021 08:03	061521M537.1a.wiff
CCH	4928354		OS	GA	06/15/2021 08:14	061521M537.1a.wiff

Sample Method MoMe		QC Summary Report															
Polity control and (Price) 5371 20		Analyte	Method	MDA95	Client ID		Amount	Target	Units			RPD		ı	Extracted	Analyzed	
COL S.NHEPOATSC2 S371 NA	CCL	Perfluorooctanoic acid (PFOA)	537.1	2.0			2.2390	2.0	ng/L	112	50 - 150			1.0	06/11/2021 08:35	06/15/2021 03:38	4928350
CCL 18-PHO-LOCZ	CCL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.9052	2.0	ng/L	95	50 - 150			1.0	06/11/2021 08:35	06/15/2021 03:38	4928350
CCL SIS-PPOS-ISCH S371	CCL	IS-NMeFOSAA-d3	537.1	N/A			1223627	1223627	ng/L	100	50 - 150			1.0	06/11/2021 08:35	06/15/2021 03:38	4928350
CCIL SS.AFFOGALAS	CCL	IS-PFOA-13C2	537.1	N/A			1252864	1252863.87	ng/L	100	50 - 150			1.0	06/11/2021 08:35	06/15/2021 03:38	4928350
CCL SS PFIDA 1522 537.1 N/A	CCL	IS-PFOS-13C4	537.1	N/A			5005765	5005764.96	ng/L	100	50 - 150			1.0	06/11/2021 08:35	06/15/2021 03:38	4928350
COL. SS-PFPN-1302 S37.1 NA	CCL	SS-NEtFOSAA-d5	537.1	N/A			172.4896	160	ng/L	108	70 - 130			1.0	06/11/2021 08:35	06/15/2021 03:38	4928350
Col. SS-HPPO-DA-13C3 837.1 N/A 40.8835 40.0 right 102 70-130 1.0 06112021 0.835 06150201 0.336 8628350 1.88 Perfluencoateneautomic acid (PFOS) 537.1 2.0 < 2.0 right 1.0 06142021 07/3 06150201 0.356 8628355 1.88 SS-HPO-DA-13C2 537.1 N/A 1218613 1228627 right 100 50-150 1.0 06142021 07/3 06150201 0.356 8628355 1.88 SS-HPO-DA-13C2 537.1 N/A 14888880 5005764 right 100 50-150 1.0 06142021 07/3 06150201 0.356 8628355 1.88 SS-HPO-DA-13C2 537.1 N/A 4888880 5005764 right 100 70-150 1.0 06142021 07/3 06150201 0.356 8628355 1.88 SS-HPO-DA-13C2 537.1 N/A 4888880 5005764 right 100 right	CCL	SS-PFDA-13C2	537.1	N/A			42.4995	40.0	ng/L	106	70 - 130			1.0	06/11/2021 08:35	06/15/2021 03:38	4928350
LIRB Perfluorocotanoul code (PFOA) S37.1 2.0 < 2.0 mg.L 1.0 06/14/2021 07/39 06/15/2021 03/59 06/28/35/6 LIRB Perfluorocotanoulmo and (PFOS) 637.1 N.A 12/28/31 12/28/27 ng/L 100 50 - 150 1.0 06/14/2021 07/31 06/15/2021 03/59 06/28/35/6 LIRB S.S.PEFOA-13C2 537.1 N.A 12/27/78 12/28/28/3 ng/L 100 50 - 150 1.0 06/14/2021 07/31 06/15/2021 03/59 06/28/35/6 LIRB S.S.PEFOA-13C2 537.1 N.A 14/24/37/8 12/28/28/3 ng/L 100 50 - 150 1.0 06/14/2021 07/31 06/15/2021 03/59 06/28/35/6 LIRB S.S.PEFOA-13C2 537.1 N.A 14/24/32 150 ng/L 38 70 - 130 1.0 06/14/2021 07/31 06/15/2021 03/59 06/28/35/6 LIRB S.S.PEFDA-13C2 537.1 N.A 38.2767 4.0 ng/L 39 70 - 130 1.0 06/14/2021 07/31 06/15/2021 03/59 06/28/35/6 LIRB S.S.PEFDA-13C2 537.1 N.A 38.2767 4.0 ng/L 39 70 - 130 1.0 06/14/2021 07/31 06/15/2021 03/59 06/28/35/6 LIRB S.S.PEFDA-13C2 537.1 N.A 38.2767 4.0 ng/L 39 70 - 130 1.0 06/14/2021 07/31 06/15/2021 03/59 06/28/35/6 LIRB S.S.PEFDA-13C2 537.1 N.A 38.2767 4.0 ng/L 39 70 - 130 1.0 06/14/2021 07/31 06/15/2021 03/59 06/28/35/6 LIRB S.S.PEFDA-13C2 537.1 N.A 2.22393 2.0 ng/L 111 50 - 150 1.0 06/14/2021 07/31 06/15/2021 03/59 06/28/35/6 LIRB S.S.PEFDA-13C2 537.1 N.A 11/23/237 12/28/237 ng/L 39 50 - 150 1.0 06/14/2021 07/31 06/15/2021 03/59 06/28/35/6 LIRB S.S.PEFDA-13C2 537.1 N.A 11/23/237 12/28/237 ng/L 39 50 - 150 1.0 06/14/2021 07/31 06/15/2021 04/21 06/28/35/6 LIRB S.S.PEFDA-13C2 537.1 N.A 11/23/237 12/28/237 12/28/237 ng/L 39 50 - 150 1.0 06/14/2021 07/31 06/15/2021 04/21 06/28/35/6 LIRB S.S.PEFDA-13C2 537.1 N.A 14/23/	CCL	SS-PFHxA-13C2	537.1	N/A			40.4889	40.0	ng/L	101	70 - 130			1.0	06/11/2021 08:35	06/15/2021 03:38	4928350
RB	CCL	SS-HFPO-DA-13C3	537.1	N/A			40.8835	40.0	ng/L	102	70 - 130			1.0	06/11/2021 08:35	06/15/2021 03:38	4928350
Libb	LRB	Perfluorooctanoic acid (PFOA)	537.1	2.0		<	2.0		ng/L					1.0	06/14/2021 07:43	06/15/2021 03:59	4928356
LRB IS-FFCA-13C2 S37.1	LRB	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0		<	2.0		ng/L					1.0	06/14/2021 07:43	06/15/2021 03:59	4928356
LIBB SS-HEFOSA13C4 S57.1 N/A 4838080 5005764.9E ng/L 97 50 - 150 1.0 06/14/221 0743 09/15/221 03.59 4928356 1.0 1.	LRB	IS-NMeFOSAA-d3	537.1	N/A			1218613	1223627	ng/L	100	50 - 150			1.0	06/14/2021 07:43	06/15/2021 03:59	4928356
LRB SS-NEFCSA-d5 S37.1 N/A 149.4932 160 ngt. 93 70-130 1.0 06142021 0743 06152021 0359 4928356 LRB SS-PFDA-13C2 S37.1 N/A 38.2767 40.0 ngt. 96 70-130 1.0 06142021 0743 06152021 0359 4928356 LRB SS-PFDA-13C2 S37.1 N/A 38.9013 40.0 ngt. 97 70-130 1.0 06142021 0743 06152021 0359 4928356 LRB SS-PFDA-13C3 S37.1 N/A 36.9179 40.0 ngt. 92 70-130 1.0 06142021 0743 06152021 0359 4928356 LRB SS-PFDA-13C3 S37.1 N/A 2.0 2.2293 2.0 ngt. 1111 S0-150 1.0 06142021 0743 06152021 0321 9359 4928356 LRB SS-PFDA-13C2 S37.1 N/A 1195512 1223827 ngt. 98 S0-150 1.0 06142021 0743 06152021 0421 4928358 LRB IS-PFOA-13C2 S37.1 N/A 1195512 1223827 ngt. 98 S0-150 1.0 06142021 0743 06152021 0421 4928358 LRB IS-PFOA-13C2 S37.1 N/A 11323837 125288337 ngt. 98 S0-150 1.0 06142021 0743 06152021 0421 4928358 LRB IS-PFOA-13C2 S37.1 N/A 143.3461 160 ngt. 90 70-130 1.0 06142021 0743 06152021 0421 4928358 LRB SS-PFDA-13C2 S37.1 N/A 143.3461 160 ngt. 98 70-130 1.0 06142021 0743 06152021 0421 4928358 LRB SS-PFDA-13C2 S37.1 N/A 33.9493 40.0 ngt. 98 70-130 1.0 06142021 0743 06152021 0421 4928358 LRB SS-PFDA-13C2 S37.1 N/A 33.9493 40.0 ngt. 98 70-130 1.0 06142021 0743 06152021 0421 4928358 LRB SS-PFDA-13C2 S37.1 N/A 33.9493 40.0 ngt. 98 70-130 1.0 06142021 0743 06152021 0421 4928358 LRB SS-PFDA-13C2 S37.1 N/A 37.3091 40.0 ngt. 98 70-130 1.0 06142021 0743 06152021 0421 4928358 LRB SS-PFDA-13C2 S37.1 N/A 37.3091 40.0 ngt. 98	LRB	IS-PFOA-13C2	537.1	N/A			1247778	1252863.87	ng/L	100	50 - 150			1.0	06/14/2021 07:43	06/15/2021 03:59	4928356
LRB SS-PFDA-13C2 S37.1	LRB	IS-PFOS-13C4	537.1	N/A			4838080	5005764.96	ng/L	97	50 - 150			1.0	06/14/2021 07:43	06/15/2021 03:59	4928356
LRB SS-PFHA-13C2 537.1 N/A 38.9003 40.0 ng/L 97 70-130 1.0 0614/2021 0743 0615/2021 0359 4928356	LRB	SS-NEtFOSAA-d5	537.1	N/A			149.4932	160	ng/L	93	70 - 130			1.0	06/14/2021 07:43	06/15/2021 03:59	4928356
FBL Perfluorocotanoic acid (PFOA) 537.1 N/A 36.9179 40.0 ng/L 92 70 - 130 1.0 06/14/2021 07.43 06/15/2021 03.59 4928356 FBL Perfluorocotanoic acid (PFOA) 537.1 2.0 2.293 2.0 ng/L 111 50 - 150 1.0 06/14/2021 07.43 06/15/2021 04.21 4928356 FBL IS-NMEFOSAA-d3 537.1 N/A 1195512 1223627 ng/L 98 50 - 150 1.0 06/14/2021 07.43 06/15/2021 04.21 4928356 FBL IS-PFOA-13C2 537.1 N/A 1195512 1223627 ng/L 98 50 - 150 1.0 06/14/2021 07.43 06/15/2021 04.21 4928356 FBL IS-PFOA-13C2 537.1 N/A 11323637 1252883.87 ng/L 98 50 - 150 1.0 06/14/2021 07.43 06/15/2021 04.21 4928356 FBL IS-PFOS-13C4 537.1 N/A 47/15514 500764.96 ng/L 90 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04.21 4928356 FBL SS-PFDA-13C2 537.1 N/A 143348 105764.96 ng/L 90 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04.21 4928356 FBL SS-PFDA-13C2 537.1 N/A 33.9493 40.0 ng/L 90 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04.21 4928356 FBL SS-PFDA-13C2 537.1 N/A 33.9493 40.0 ng/L 98 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04.21 4928356 FBL SS-PFDA-13C2 537.1 N/A 33.9493 40.0 ng/L 98 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04.21 4928356 FBL SS-PFDA-13C2 537.1 N/A 33.9493 40.0 ng/L 98 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04.21 4928356 FBL SS-PFDA-13C2 537.1 N/A 37.9491 40.0 ng/L 98 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04.24 4928350 FBL Perfluorocotanosutonic acid (PFOA) 537.1 2.0 184.0703 200 ng/L 93 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04.24 4928350 FBL IS-PFOS-13C4 537.1 N/A 1279179 12528838 79/L 108 50 - 150 1.0 06/14/2021 07.43 06/15/202	LRB	SS-PFDA-13C2	537.1	N/A			38.2767	40.0	ng/L	96	70 - 130			1.0	06/14/2021 07:43	06/15/2021 03:59	4928356
FBIL Perfluorocotanoic acid (FFCA) 537.1 2.0 2.2293 2.0 ng/L 111 50.150 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL Perfluorocotanesulfonic acid (FFCA) 537.1 2.0 2.0891 2.0 ng/L 104 50.150 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL IS-NMeFOSA-d3 537.1 N/A 1195512 1223637 1223637 ng/L 98 50.150 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL IS-PFCA-13C2 537.1 N/A 4715514 5005764.96 ng/L 94 50.150 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL IS-PFCA-13C2 537.1 N/A 4715514 5005764.96 ng/L 94 50.150 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL SS-PFDA-13C2 537.1 N/A 4715514 5005764.96 ng/L 94 50.150 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL SS-PFDA-13C2 537.1 N/A 33.3491 100 ng/L 90 70.130 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL SS-PFDA-13C2 537.1 N/A 33.3491 40.0 ng/L 95 70.130 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL SS-PFDA-13C2 537.1 N/A 33.3491 40.0 ng/L 95 70.130 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL SS-PFDA-13C3 537.1 N/A 33.3491 40.0 ng/L 95 70.130 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL SS-PFDA-13C3 537.1 N/A 33.3491 40.0 ng/L 93 70.130 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL SS-MEFO-DA-13C3 537.1 N/A 37.3091 40.0 ng/L 93 70.130 1.0 06/14/2021 07-43 06/15/2021 04-21 4928358 FBIL SS-MEFO-DA-13C3 537.1 N/A 37.3091 40.0 ng/L 93 70.130 1.0 06/14/2021 07-43 06/15/2021 04-24 4928350 FBIL SS-MEFO-DA-13C3 537.1 N/A 1317415 1223627 ng/L 103 50.150 1.0 06/14/2021 07-43 06/15/2021 04-24 4928350 FBIL IS-PFOA-13C2 537.1 N/A 1317415 1223627 ng/L 103 50.150 1.0 06/14/2021 07-43 06/15/2021 04-24 4928350 FBIL IS-PFOA-13C2 537.1 N/A 1317415 1223627 ng/L 103 50.150 1.0 06/14/2021 07-43 06/15/2021 04-24 4928350 FBIL IS-PFOA-13C2 537.1 N/A 1317415 1223627 ng/L 103 50.150 1.0 06/14/2021 07-43 06/15/2021 04-24 4928350 FBIL IS-PFOA-13C2 537.1 N/A 1317415 1223627 ng/L 103 50.150 1.0 06/14/2021 0	LRB	SS-PFHxA-13C2	537.1	N/A			38.9003	40.0	ng/L	97	70 - 130			1.0	06/14/2021 07:43	06/15/2021 03:59	4928356
FBL Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 2.0891 2.0 ng/L 104 50.150 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL IS-MMeFOSAA-d3 537.1 N/A 1195612 1223827 ng/L 98 50.150 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL IS-PFOA-13C2 537.1 N/A 1225837 1252863.8 ng/L 98 50.150 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL IS-PFOS-NG4 537.1 N/A 143.3461 160 ng/L 90 70.130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-MEIFOSAA-d5 537.1 N/A 143.3461 160 ng/L 90 70.130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-PFNA-13C2 537.1 N/A 33.9493 40.0 ng/L 98 70.130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-PFNA-13C2 537.1 N/A 33.9393 40.0 ng/L 98 70.130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-PFNA-13C2 537.1 N/A 33.9393 40.0 ng/L 98 70.130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-PFNA-13C2 537.1 N/A 33.9393 40.0 ng/L 98 70.130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-PFNA-13C2 537.1 N/A 33.9391 40.0 ng/L 93 70.130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBH Perfluorooctaneoic acid (PFOA) 537.1 2.0 184.0703 200 ng/L 92 70.130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBH Perfluorooctaneoic acid (PFOA) 537.1 2.0 184.0703 200 ng/L 92 70.130 1.0 06/14/2021 07:43 06/15/2021 04:24 4928350 FBH IS-PFOA-13C2 537.1 N/A 1317415 1223627 ng/L 108 50.150 1.0 06/14/2021 07:43 06/15/2021 04:24 4928350 FBH IS-PFOA-13C2 537.1 N/A 1317415 1223628 8 ng/L 103 50.150 1.0 06/14/2021 07:43 06/15/2021 04:24 4928350 FBH IS-PFOA-13C2 537.1 N/A 1317415 1236287 ng/L 108 50.150 1.0 06/14/2021 07:43 06/15/2021 04:24 4928350 FBH IS-PFOA-13C2 537.1 N/A 1317415 1236287 ng/L 108 50.150 1.0 06/14/2021 07:43 06/15/2021 04:24 4928350 FBH IS-PFOA-13C2 537.1 N/A 1317415 123686 8 ng/L 103 50.150 1.0 06/14/2021 07:43 06/15/2021 04:24 4928350 FBH IS-PFOA-13C2 537.1 N/A 13	LRB	SS-HFPO-DA-13C3	537.1	N/A			36.9179	40.0	ng/L	92	70 - 130			1.0	06/14/2021 07:43	06/15/2021 03:59	4928356
FBL IS-NMeFOSA-d3	FBL	Perfluorooctanoic acid (PFOA)	537.1	2.0			2.2293	2.0	ng/L	111	50 - 150			1.0	06/14/2021 07:43	06/15/2021 04:21	4928358
FBL IS-PFOA-13C2	FBL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			2.0891	2.0	ng/L	104	50 - 150			1.0	06/14/2021 07:43	06/15/2021 04:21	4928358
FBL IS-PFOS-13C4 537.1 N/A 4715514 5005764.9E ng/L 94 50 - 150 1.0 06/14/2021 07-33 06/15/2021 04:21 4928358 FBL SS-NEIFOSAA-d5 537.1 N/A 143.3461 160 ng/L 90 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:21 4928358 FBL SS-PFDA-13C2 537.1 N/A 38.1830 40.0 ng/L 98 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:21 4928358 FBL SS-PFDA-13C3 537.1 N/A 38.1830 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:21 4928358 FBL SS-HFPO-DA-13C3 537.1 N/A 38.1830 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:21 4928358 FBL SS-HFPO-DA-13C3 537.1 N/A 37.3991 40.0 ng/L 93 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:21 4928358 FBH Perfluorocatanoic acid (PFOA) 537.1 2.0 186.0938 200 ng/L 92 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH IS-NMEFOSAA-d3 537.1 N/A 1317415 1223627 ng/L 108 50 - 150 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH IS-PFOS-13C4 537.1 N/A 1219179 1252686.87 ng/L 108 50 - 150 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH IS-PFOS-13C4 537.1 N/A 1419331 160 ng/L 88 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH SS-NEIFOSAA-d5 537.1 N/A 4875966 5005764.9E ng/L 97 50 - 150 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH SS-NEIFOSAA-d5 537.1 N/A 4875966 5005764.9E ng/L 97 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 4875966 5005764.9E ng/L 97 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 4875966 5005764.9E ng/L 97 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 4875966 5005764.9E ng/L 97 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 4875966 5005764.9E ng/L 97 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 4875966 5005764.9E ng/L 97 70 - 130 1.0 06/14/2021 07-33 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 4875966 5005764.9E ng/L 97 70 - 130	FBL	IS-NMeFOSAA-d3	537.1	N/A			1195512	1223627	ng/L	98	50 - 150			1.0	06/14/2021 07:43	06/15/2021 04:21	4928358
FBL SS-NEIFOSAA-d5 537.1 N/A 143.3461 160 ng/L 90 70-130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-PFDA-13C2 537.1 N/A 39.3493 40.0 ng/L 98 70-130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-PFHX-A13C2 537.1 N/A 38.1830 40.0 ng/L 95 70-130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-PFHX-A13C3 537.1 N/A 37.3991 40.0 ng/L 95 70-130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-PFHX-A13C3 537.1 N/A 184.0703 200 ng/L 92 70-130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBH Perfluorooctanesulfonic acid (PFOA) 537.1 2.0 186.0938 200 ng/L 92 70-130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBH IS-NBEFOSAA-d3 537.1 N/A 1317415 1223627 ng/L 108 50-150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH IS-PFOA-13C2 537.1 N/A 1317415 1223627 ng/L 108 50-150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH IS-PFOA-13C2 537.1 N/A 1291719 1252863.87 ng/L 103 50-150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH IS-PFOA-13C2 537.1 N/A 4875966 5005764.9¢ ng/L 97 50-150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-NEIFOSAA-d5 537.1 N/A 4875966 5005764.9¢ ng/L 97 50-150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 4875966 5005764.9¢ ng/L 97 70-130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 4875966 5005764.9¢ ng/L 97 70-130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 38.9960 40.0 ng/L 97 70-130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 38.9960 40.0 ng/L 97 70-130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 96 70-130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 96 70-130 1.0 06/14/2021 07:43 06/15/2021 06:38 4928362 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 96 70	FBL	IS-PFOA-13C2	537.1	N/A			1232637	1252863.87	ng/L	98	50 - 150			1.0	06/14/2021 07:43	06/15/2021 04:21	4928358
FBL SS-PFDA-13C2 537.1 N/A 39.3493 4.0.0 ng/L 98 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04:21 4928358 FBL SS-PFHXA-13C2 537.1 N/A 37.3091 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04:21 4928358 FBL SS-HFPO-DA-13C3 537.1 N/A 37.3091 40.0 ng/L 92 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04:21 4928358 FBH Perfluorocotanoic acid (PFOA) 537.1 2.0 186.0938 200 ng/L 92 70 - 130 1.0 06/14/2021 07.43 06/15/2021 04:22 4928360 FBH IS-NMeFOSAA-d3 537.1 N/A 1317415 1223627 ng/L 108 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:22 4928360 FBH IS-PFOA-13C2 537.1 N/A 1291719 1252863.87 ng/L 103 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:22 4928360 FBH SS-NEIFOSAA-d5 537.1 N/A 4875966 5005764.9€ ng/L 97 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:22 4928360 FBH SS-PFDA-13C2 537.1 N/A 141.3931 160 ng/L 88 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 141.3931 160 ng/L 88 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 141.3931 160 ng/L 88 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 141.3931 160 ng/L 88 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 38.9960 40.0 ng/L 97 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 38.9960 40.0 ng/L 97 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 97 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 97 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 97 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 97 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 19.00000000000000000000000000000000	FBL	IS-PFOS-13C4	537.1	N/A			4715514	5005764.96	ng/L	94	50 - 150			1.0	06/14/2021 07:43	06/15/2021 04:21	4928358
FBL SS-PFHXA-13C2 537.1 N/A 38.1830 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:21 4928358 FBL SS-HFPO-DA-13C3 537.1 N/A 184.0703 200 ng/L 92 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:22 4928360 FBH Perfluorooctaneoic acid (PFOA) 537.1 2.0 184.0703 200 ng/L 92 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH IS-NMeFOSAA-d3 537.1 N/A 1317415 1223627 ng/L 108 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH IS-PFOA-13C2 537.1 N/A 1291719 1252863.87 ng/L 103 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH IS-PFOA-13C2 537.1 N/A 4875966 5005764.96 ng/L 97 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 141.3931 160 ng/L 88 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 141.3931 160 ng/L 88 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 138.9960 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 38.9960 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 38.9960 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 38.9960 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C3 537.1 N/A 38.9960 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 06:38 4928352 FBH SS-PFDA-13C3 537.1 N/A 120 120 12	FBL	SS-NEtFOSAA-d5	537.1	N/A			143.3461	160	ng/L	90	70 - 130			1.0	06/14/2021 07:43	06/15/2021 04:21	4928358
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FBH Perfluorooctaneoic acid (PFOA) 537.1 2.0 184.0703 200 ng/L 92 70-130 1.0 06/14/2021 07-43 06/15/2021 04-42 4928360	FBL	SS-PFHxA-13C2	537.1	N/A			38.1830	40.0	ng/L	95	70 - 130		T	1.0	06/14/2021 07:43	06/15/2021 04:21	4928358
FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 186.0938 200 ng/L 93 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360	FBL	SS-HFPO-DA-13C3	537.1	N/A			37.3091	40.0	ng/L	93	70 - 130			1.0	06/14/2021 07:43	06/15/2021 04:21	4928358
FBH IS-NMeFOSAA-d3 537.1 N/A 1317415 1223627 ng/L 108 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH IS-PFOA-13C2 537.1 N/A 1291719 1252863.87 ng/L 103 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH IS-PFOS-13C4 537.1 N/A 4875966 5005764.9€ ng/L 97 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-NEIFOSAA-d5 537.1 N/A 141.3931 160 ng/L 88 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 38.9960 40.0 ng/L 97 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFHXA-13C2 537.1 N/A 37.9500 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 104.0518 100 ng/L 104 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 CCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 102.6110 100 ng/L 103 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 CCM IS-NMeFOSAA-d3 537.1 N/A 1259826 1259826.31 ng/L 100 50 - 150 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 N/O 150 N/O 15	FBH	Perfluorooctanoic acid (PFOA)	537.1	2.0			184.0703	200	ng/L	92	70 - 130			1.0	06/14/2021 07:43	06/15/2021 04:42	4928360
FBH IS-PFOA-13C2 537.1 N/A 1291719 1252863.87 ng/L 103 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH IS-PFOS-13C4 537.1 N/A 4875966 5005764.9€ ng/L 97 50 - 150 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-NEIFOSAA-d5 537.1 N/A 141.3931 160 ng/L 88 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 38.9960 40.0 ng/L 97 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFHXA-13C2 537.1 N/A 37.9500 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 104.0518 100 ng/L 104 70 - 130 1.0 06/14/2021 07:43 06/15/2021 06:38 4928352 FBH SS-HFPO-DA-13C3 537.1 N/A 1259826 1259826.31 ng/L 100 50 - 150 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 FBH SS-NMEFOSAA-d3 537.1 N/A 1259826 1259826.31 ng/L 100 50 - 150 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352	FBH	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			186.0938	200	ng/L	93	70 - 130			1.0	06/14/2021 07:43	06/15/2021 04:42	4928360
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FBH SS-NEtFOSAA-d5 537.1 N/A 141.3931 160 ng/L 88 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFDA-13C2 537.1 N/A 38.9960 40.0 ng/L 97 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-PFHxA-13C2 537.1 N/A 37.9500 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 104.0518 100 ng/L 104 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 GBCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 102.6110 100 ng/L 103 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 GBCM IS-NMeFOSAA-d3 537.1 N/A 1259826 1259826.31 ng/L 100 50 - 150 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352	FBH	IS-PFOS-13C4	537.1	N/A			4875966	5005764.96	ng/L	97	50 - 150			1.0	06/14/2021 07:43	06/15/2021 04:42	4928360
FBH SS-PFHxA-13C2 537.1 N/A 37.9500 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 Perfluorooctanoic acid (PFOA) 537.1 2.0 104.0518 100 ng/L 104 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 CCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 102.6110 100 ng/L 103 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 CCM IS-NMeFOSAA-d3 537.1 N/A 1259826 1259826.31 ng/L 100 50 - 150 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352	FBH	SS-NEtFOSAA-d5	537.1	N/A			141.3931	160		88	70 - 130			1.0	06/14/2021 07:43	06/15/2021 04:42	4928360
FBH SS-PFHxA-13C2 537.1 N/A 37.9500 40.0 ng/L 95 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 CCM Perfluorooctanoic acid (PFOA) 537.1 2.0 104.0518 100 ng/L 104 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 CCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 102.6110 100 ng/L 103 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 CCM IS-NMeFOSAA-d3 537.1 N/A 1259826 1259826.31 ng/L 100 50 - 150 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352	FBH	SS-PFDA-13C2	537.1	N/A			38.9960	40.0	ng/L	97	70 - 130			1.0	06/14/2021 07:43	06/15/2021 04:42	4928360
FBH SS-HFPO-DA-13C3 537.1 N/A 38.3506 40.0 ng/L 96 70 - 130 1.0 06/14/2021 07:43 06/15/2021 04:42 4928360 TCCM Perfluorooctanoic acid (PFOA) 537.1 2.0 104.0518 100 ng/L 104 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 CCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 102.6110 100 ng/L 103 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 CCM IS-NMeFOSAA-d3 537.1 N/A 1259826 1259826.31 ng/L 100 50 - 150 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352	FBH																
CCM Perfluorooctanoic acid (PFOA) 537.1 2.0 104.0518 100 ng/L 104 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 GCCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 102.6110 100 ng/L 103 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 CCM IS-NMeFOSAA-d3 537.1 N/A 1259826 1259826 1259826.31 ng/L 100 50 - 150 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352	FBH									96				1.0			
Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 102.6110 100 ng/L 103 70 - 130 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352 ©CCM IS-NMeFOSAA-d3 537.1 N/A 1259826 1259826.31 ng/L 100 50 - 150 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352																	
©CCM IS-NMeFOSAA-d3 537.1 N/A 1259826 1259826.31 ng/L 100 50 - 150 1.0 06/11/2021 08:35 06/15/2021 06:38 4928352	a																-
		IS-PFOA-13C2	537.1	N/A			1276413	1276412.9	ng/L	100	50 - 150			1.0			-

	QC Summary Report (cont.)														
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	 Dil Factor	Extracted	Analyzed	EEA ID#
ССМ	IS-PFOS-13C4	537.1	N/A			4812748	4812747.59	ng/L	100	50 - 150		 1.0	06/11/2021 08:35	06/15/2021 06:38	4928352
ССМ	SS-NEtFOSAA-d5	537.1	N/A			164.3446	160	ng/L	103	70 - 130		 1.0	06/11/2021 08:35	06/15/2021 06:38	4928352
CCM	SS-PFDA-13C2	537.1	N/A			40.3331	40.0	ng/L	101	70 - 130		 1.0	06/11/2021 08:35	06/15/2021 06:38	4928352
ССМ	SS-PFHxA-13C2	537.1	N/A			38.8841	40.0	ng/L	97	70 - 130		 1.0	06/11/2021 08:35	06/15/2021 06:38	4928352
CCM	SS-HFPO-DA-13C3	537.1	N/A			41.2573	40.0	ng/L	103	70 - 130		 1.0	06/11/2021 08:35	06/15/2021 06:38	4928352
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF67592/MG Tank	<	2.0		ng/L				 0.87	06/14/2021 07:43	06/15/2021 07:53	4927105
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF67592/MG Tank	<	2.0		ng/L				 0.87	06/14/2021 07:43	06/15/2021 07:53	4927105
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF67592/MG Tank		1219228	1259826.31	ng/L	97	50 - 150		 0.87	06/14/2021 07:43	06/15/2021 07:53	4927105
FS	IS-PFOA-13C2	537.1	N/A	PEF67592/MG Tank		1287573	1276412.9	ng/L	101	50 - 150		 0.87	06/14/2021 07:43	06/15/2021 07:53	4927105
FS	IS-PFOS-13C4	537.1	N/A	PEF67592/MG Tank		4882149	4812747.59	ng/L	101	50 - 150		 0.87	06/14/2021 07:43	06/15/2021 07:53	4927105
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF67592/MG Tank		140.4985	160	ng/L	101	70 - 130		 0.87	06/14/2021 07:43	06/15/2021 07:53	4927105
FS	SS-PFDA-13C2	537.1	N/A	PEF67592/MG Tank		33.4907	40.0	ng/L	96	70 - 130		 0.87	06/14/2021 07:43	06/15/2021 07:53	4927105
FS	SS-PFHxA-13C2	537.1	N/A	PEF67592/MG Tank		32.7597	40.0	ng/L	94	70 - 130		 0.87	06/14/2021 07:43	06/15/2021 07:53	4927105
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF67592/MG Tank		32.6576	40.0	ng/L	94	70 - 130		 0.87	06/14/2021 07:43	06/15/2021 07:53	4927105
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF67593/Raw Water Taj		7.3		ng/L				 0.89	06/14/2021 07:43	06/15/2021 08:03	4927106
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF67593/Raw Water Taj		69		ng/L				 0.89	06/14/2021 07:43	06/15/2021 08:03	4927106
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF67593/Raw Water Taj		1299932	1259826.31	ng/L	103	50 - 150		 0.89	06/14/2021 07:43	06/15/2021 08:03	4927106
FS	IS-PFOA-13C2	537.1	N/A	PEF67593/Raw Water Taj		1242470	1276412.9	ng/L	97	50 - 150		 0.89	06/14/2021 07:43	06/15/2021 08:03	4927106
FS	IS-PFOS-13C4	537.1	N/A	PEF67593/Raw Water Taj		5076711	4812747.59	ng/L	105	50 - 150		 0.89	06/14/2021 07:43	06/15/2021 08:03	4927106
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF67593/Raw Water Taj		122.3226	160	ng/L	86	70 - 130		 0.89	06/14/2021 07:43	06/15/2021 08:03	4927106
FS	SS-PFDA-13C2	537.1	N/A	PEF67593/Raw Water Taj		34.3120	40.0	ng/L	96	70 - 130		 0.89	06/14/2021 07:43	06/15/2021 08:03	4927106
FS	SS-PFHxA-13C2	537.1	N/A	PEF67593/Raw Water Taj		30.2499	40.0	ng/L	85	70 - 130		 0.89	06/14/2021 07:43	06/15/2021 08:03	4927106
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF67593/Raw Water Taj		32.4897	40.0	ng/L	91	70 - 130		 0.89	06/14/2021 07:43	06/15/2021 08:03	4927106
ССН	Perfluorooctanoic acid (PFOA)	537.1	2.0			209.0623	200	ng/L	105	70 - 130		 1.0	06/11/2021 08:35	06/15/2021 08:14	4928354
ССН	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			200.1856	200	ng/L	100	70 - 130		 1.0	06/11/2021 08:35	06/15/2021 08:14	4928354
ССН	IS-NMeFOSAA-d3	537.1	N/A			1258605	1258605.19	ng/L	100	50 - 150		 1.0	06/11/2021 08:35	06/15/2021 08:14	4928354
ССН	IS-PFOA-13C2	537.1	N/A			1223320	1223319.77	ng/L	100	50 - 150		 1.0	06/11/2021 08:35	06/15/2021 08:14	4928354
ССН	IS-PFOS-13C4	537.1	N/A			4790552	4790551.63	ng/L	100	50 - 150		 1.0	06/11/2021 08:35	06/15/2021 08:14	4928354
ССН	SS-NEtFOSAA-d5	537.1	N/A			162.1123	160	ng/L	101	70 - 130		 1.0	06/11/2021 08:35	06/15/2021 08:14	4928354
ССН	SS-PFDA-13C2	537.1	N/A			42.0159	40.0	ng/L	105	70 - 130		 1.0	06/11/2021 08:35	06/15/2021 08:14	4928354
ССН	SS-PFHxA-13C2	537.1	N/A			40.3607	40.0	ng/L	101	70 - 130		 1.0	06/11/2021 08:35	06/15/2021 08:14	4928354
ССН	SS-HFPO-DA-13C3	537.1	N/A			41.2284	40.0	ng/L	103	70 - 130		 1.0	06/11/2021 08:35	06/15/2021 08:14	4928354

Samp	le Typ	e Kev

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCH	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FBH	Fortified Blank High		
FBL	Fortified Blank Low		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLEN ENVIRONMENTAL, LLC 3039 Davis Road Fairbanks, AK 99709 | 907.479.8368 | www.pollenenv.com

CHAIN OF CUSTODY/WORKORDER FORM

	CLIENT INFORMA	TION		Contact Pe			Requested Analysis						T 11 11 11 11 11 11 11 11 11 11 11 11 11
ompany: Barrow Utilities	s & Electric Coop.			January Control	Piny								Page 1 of 1
ddress: P.O. Box 449				WWTP A	PDES #:		Perservative Added						
ity, State Zip: Barrow, Al	K 99723			PWS ID #	#: 320078								
hone: 907-852-3176				Send Results to ADEC:			1						Normal Turnarou
ax: 907-852-5164				X Yes □ No				SS					
nall: powerplant@bueci.org				Purchase 0	rder/Charge Code:		Containe	PFOS					□ RUSH day
Project Name: PFAS Monitoring					llen Po#2021	- 592	6	A 8					
ampled By:	Drake I			[0]	in to " over!	01.	lumber	PFOA					
Sample Identification	Sample Point II	: Sample Date	Sample Time	e Matrix	Lab ID#	Sub Lab ID#	115						Sample Commen
MG Tank	SPTP001	7/12/21	0840	W	PEF68675		2	X					
Raw Water Tap	SPIN001	2113/21	0835	W	PEF68673		2	X					
E-6.11.1.3.3					17.11								
				1									
		Special	Instructions	s/OC Regu	irements & Comme	nts:				4			Sample Temperature:
		,										Pollen En	v on arrival: 5 7 °C on arrival: °C
low Drake I		Company:	21	Date & Til	ne:	Received by:	Ber	llen	Compa	any: Polle	1 Em	Date & T	me: 210 0915am
delinquished by: follow	7	Company: Pal	len Env	Date & Tir	ne: 21 @ 11 00 cm	Received by:			Compa			Date & Ti	
elinquished by:		Company:		Date & Tir		Received by:			Compa	any:		Date & Ti	me:



CERTIFICATE OF ANALYSIS

Report Date:

Receipt Date:

Sampled By:

7/24/2021

7/15/2021

Tom Drake II

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFAS Monitoring

Sampled By: Tom Drake II

PWS ID: 320078

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
MG Tank	PEF68672	4957200	7/13/2021	8:40 AM
Raw Water Tap	PEF68673	4957201	7/13/2021	8:35 AM

Jerry Pollen / Marcus Cogley

Pollen Environmental, LLC



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida(Primary AB)*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon*	4156
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 09/29/2020



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

Client: Pollen Environmental LLC Report: 524415

Attn: Jerry Pollen Priority: Standard Written

3536 International Avenue Status: Final

Fairbanks, AK 99701 PWS ID: AK2320078
Alaska Lab ID # IN00035

	Sampl	e Information			
EEA ID#	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
4957200	PEF68672/MG Tank	537.1	07/13/21 08:40	Client	07/16/21 09:00
4957201	PEF68673/Raw Water Tap	537.1	07/13/21 08:35	Client	07/16/21 09:00

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Some Chebowshi ASM

07/23/2021

Date

Authorized Signature
Client Name: Polle

Pollen Environmental LLC

Report #: 524415

Title

Client Name: Pollen Environmental LLC Report #: 524415

Sampling Point: PEF68672/MG Tank PWS ID: AK2320078

	EEA Methods											
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#			
335-67-1	Perfluorooctanoic acid (PFOA)	fluorooctanoic acid (PFOA) 537.1 2.0 < 2.0 ng/L 07/20/21 06:28 07/21/21 06:56 495720										
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	fluorooctanesulfonic acid (PFOS) 537.1 2.0 < 2.0 ng/L 07/20/21 06:28 07/21/21 06:56 4957200										

Sampling Point: PEF68673/Raw Water Tap PWS ID: AK2320078

	EEA Methods										
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID#		
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	4.2	ng/L	07/20/21 06:28	07/21/21 07:09	4957201		
1763-23-1	Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 45 ng/L 07/20/21 06:28 07/21/21 07:09 4957201										

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Client Name: Pollen Environmental LLC Report #: 524415

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery** %

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

CHAIN OF CUSTODY/WORKORDER FORM

ENVIRONMENTAL, LLC
3039 Davis Road Fairbanks, AK 99709 | 907.479.8368 | www.pollenenv.com

Company: Barrow Utilitie	CLIENT INFORMA			Jim Mu						Rec	uested /	Analysis			Page 1 of 1
Address: P.O. Box 449				WWTP A	PDES #:			Perservi	ative Adde						
City, State Zip: Barrow, A	AK 99723				#: 320078			me ser			-	-	-1-	+	
Phone: 907-852-3176				1 1 V. O. C. C. C.	ults to ADEC:										Normal Turnaround
Fax: 907-852-5164				X Yes	□ No		u	S							
Email: powerplant@bued	ci.org			Purchase (Order/Charge Code:		Containers	PFOS							□ RUSH day(s)
Project Name: PFAS Moni	itoring				len PO# 2021	- 592	5	ಶ							
Sampled By:	Drake I			'	Hen I o See A	010	Number	PFOA					3		
Sample Identification	Sample Point	ID: Sample Date	Sample Tim	ne Matrix	Lab ID#	Sub Lab ID#									Sample Comments
MG Tank	SPTP001	7/12/21	0840	W	PEF681075	14957200	2	X	(1)						
Raw Water Tap	SPIN001	2113/21	0835	W		4957201	2	X	(1)						
							4			-		-			
													+		(IR)
							1								23
		Special	Instruction	is/QC Requ	uirements & Comme	ents:								Sample	Temperature:
													Poller	Env on arr	ival: 5-7 °C
													Sub L	ab on arriv	al: 2.2°C
						1		2							intact
Relinquished by:		Company:	21	Date & T. 7/13	IZI our	Received by:	bit	Hen		Company:	Bllen	Em	Date	& Tyme: 2/	11: 2.2°C 11tact C0915am
Relinquished by: Relinquished by:	1		lèn Env		ime: 5-2/ @11000m	Received by		21	an	Company.	EEA	7	Date	8 Time: 1-16-2	1 0900
Reiniquisned by:		Company:		Date & T	ime:	Received by))	Company:			Date	& Time:	



Eurofins Eaton Analytical Run Log

Run ID: 291874 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4956869		OS	GA	07/17/2021 02:57	071721M537.1a.wiff
LRB	4956839		RW	GA	07/17/2021 03:18	071721M537.1a.wiff
FBL	4956841		RW	GA	07/17/2021 03:29	071721M537.1a.wiff
FBH	4956843		RW	GA	07/17/2021 03:39	071721M537.1a.wiff
CCM	4956871		OS	GA	07/17/2021 05:46	071721M537.1a.wiff
CCH	4956873		OS	GA	07/17/2021 07:33	071721M537.1a.wiff

					QC S	Summai	y Repo	rt								
Sample Type	Analyte	Method	MDA95	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID#
CCL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.8939	2.0	ng/L	95	50 - 150			1.0	07/16/2021 11:01	07/17/2021 02:57	4956869
CCL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.7836	2.0	ng/L	89	50 - 150			1.0	07/16/2021 11:01	07/17/2021 02:57	4956869
CCL	IS-NMeFOSAA-d3	537.1	N/A			1654247	1654247	ng/L	100	50 - 150			1.0	07/16/2021 11:01	07/17/2021 02:57	4956869
CCL	IS-PFOA-13C2	537.1	N/A			1266519	1266518.98	ng/L	100	50 - 150			1.0	07/16/2021 11:01	07/17/2021 02:57	4956869
CCL	IS-PFOS-13C4	537.1	N/A			4654952	4654952.15	ng/L	100	50 - 150			1.0	07/16/2021 11:01	07/17/2021 02:57	4956869
CCL	SS-NEtFOSAA-d5	537.1	N/A			162.8163	160	ng/L	102	70 - 130			1.0	07/16/2021 11:01	07/17/2021 02:57	4956869
CCL	SS-PFDA-13C2	537.1	N/A			41.1076	40.0	ng/L	103	70 - 130			1.0	07/16/2021 11:01	07/17/2021 02:57	4956869
CCL	SS-PFHxA-13C2	537.1	N/A			41.4198	40.0	ng/L	104	70 - 130			1.0	07/16/2021 11:01	07/17/2021 02:57	4956869
CCL	SS-HFPO-DA-13C3	537.1	N/A			38.5938	40.0	ng/L	96	70 - 130			1.0	07/16/2021 11:01	07/17/2021 02:57	4956869
LRB	Perfluorooctanoic acid (PFOA)	537.1	2.0		<	2.0		ng/L					1.0	07/16/2021 05:00	07/17/2021 03:18	4956839
LRB	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0		<	2.0		ng/L					1.0	07/16/2021 05:00	07/17/2021 03:18	4956839
LRB	IS-NMeFOSAA-d3	537.1	N/A			1656341	1654247	ng/L	100	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:18	4956839
LRB	IS-PFOA-13C2	537.1	N/A			1310941	1266518.98	ng/L	104	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:18	4956839
LRB	IS-PFOS-13C4	537.1	N/A			4792195	4654952.15	ng/L	103	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:18	4956839
LRB	SS-NEtFOSAA-d5	537.1	N/A			134.0971	160	ng/L	84	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:18	4956839
LRB	SS-PFDA-13C2	537.1	N/A			35.0899	40.0	ng/L	88	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:18	4956839
LRB	SS-PFHxA-13C2	537.1	N/A			36.5000	40.0	ng/L	91	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:18	4956839
LRB	SS-HFPO-DA-13C3	537.1	N/A			35.1300	40.0	ng/L	88	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:18	4956839
FBL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.9129	2.0	ng/L	96	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:29	4956841
FBL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.7817	2.0	ng/L	89	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:29	4956841
FBL	IS-NMeFOSAA-d3	537.1	N/A			1607924	1654247	ng/L	97	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:29	4956841
FBL	IS-PFOA-13C2	537.1	N/A			1263896	1266518.98	ng/L	100	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:29	4956841
FBL	IS-PFOS-13C4	537.1	N/A			4698365	4654952.15	ng/L	101	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:29	4956841
FBL	SS-NEtFOSAA-d5	537.1	N/A			151.6391	160	ng/L	95	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:29	4956841
FBL	SS-PFDA-13C2	537.1	N/A			38.1314	40.0	ng/L	95	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:29	4956841
FBL	SS-PFHxA-13C2	537.1	N/A			38.7846	40.0	ng/L	97	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:29	4956841
FBL	SS-HFPO-DA-13C3	537.1	N/A			38.4010	40.0	ng/L	96	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:29	4956841
FBH	Perfluorooctanoic acid (PFOA)	537.1	2.0			186.0907	200	ng/L	93	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:39	4956843
FBH	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			192.7203	200	ng/L	96	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:39	4956843
FBH	IS-NMeFOSAA-d3	537.1	N/A			1576713	1654247	ng/L	95	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:39	4956843
FBH	IS-PFOA-13C2	537.1	N/A			1304913	1266518.98	ng/L	103	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:39	4956843
FBH	IS-PFOS-13C4	537.1	N/A			4584155	4654952.15	ng/L	98	50 - 150			1.0	07/16/2021 05:00	07/17/2021 03:39	4956843
FBH	SS-NEtFOSAA-d5	537.1	N/A			147.0777	160	ng/L	92	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:39	4956843
FBH	SS-PFDA-13C2	537.1	N/A			37.4954	40.0	ng/L	94	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:39	4956843
FBH	SS-PFHxA-13C2	537.1	N/A			37.6928	40.0	ng/L	94	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:39	4956843
FBH	SS-HFPO-DA-13C3	537.1	N/A			36.5091	40.0	ng/L	91	70 - 130			1.0	07/16/2021 05:00	07/17/2021 03:39	4956843
тССМ	Perfluorooctanoic acid (PFOA)	537.1	2.0			103.3606	100	ng/L	103	70 - 130			1.0	07/16/2021 11:01	07/17/2021 05:46	4956871
а ССМ	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			102.4348	100	ng/L	102	70 - 130			1.0	07/16/2021 11:01	07/17/2021 05:46	4956871
∞ _{CCM}	IS-NMeFOSAA-d3	537.1	N/A			1521708	1521707.53	ng/L	100	50 - 150			1.0		07/17/2021 05:46	
CCW	IS-PFOA-13C2	537.1	N/A			1198807	1198806.77	ng/L	100	50 - 150			1.0		07/17/2021 05:46	

					QC S	Summary Re	port (cont.)								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	 	Dil Factor	Extracted	Analyzed	EEA ID#
ССМ	IS-PFOS-13C4	537.1	N/A			4448225	4448225.32	ng/L	100	50 - 150	 	1.0	07/16/2021 11:01	07/17/2021 05:46	4956871
ССМ	SS-NEtFOSAA-d5	537.1	N/A			161.3829	160	ng/L	101	70 - 130	 	1.0	07/16/2021 11:01	07/17/2021 05:46	4956871
ССМ	SS-PFDA-13C2	537.1	N/A			40.2546	40.0	ng/L	101	70 - 130	 	1.0	07/16/2021 11:01	07/17/2021 05:46	4956871
ССМ	SS-PFHxA-13C2	537.1	N/A			42.4170	40.0	ng/L	106	70 - 130	 	1.0	07/16/2021 11:01	07/17/2021 05:46	4956871
ССМ	SS-HFPO-DA-13C3	537.1	N/A			40.7910	40.0	ng/L	102	70 - 130	 	1.0	07/16/2021 11:01	07/17/2021 05:46	4956871
CCH	Perfluorooctanoic acid (PFOA)	537.1	2.0			198.8764	200	ng/L	99	70 - 130	 	1.0	07/16/2021 11:01	07/17/2021 07:33	4956873
CCH	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			202.6141	200	ng/L	101	70 - 130	 	1.0	07/16/2021 11:01	07/17/2021 07:33	4956873
CCH	IS-NMeFOSAA-d3	537.1	N/A			1610688	1610687.79	ng/L	100	50 - 150	 	1.0	07/16/2021 11:01	07/17/2021 07:33	4956873
CCH	IS-PFOA-13C2	537.1	N/A			1234123	1234123.22	ng/L	100	50 - 150	 	1.0	07/16/2021 11:01	07/17/2021 07:33	4956873
CCH	IS-PFOS-13C4	537.1	N/A			4585530	4585530.33	ng/L	100	50 - 150	 	1.0	07/16/2021 11:01	07/17/2021 07:33	4956873
CCH	SS-NEtFOSAA-d5	537.1	N/A			152.5363	160	ng/L	95	70 - 130	 	1.0	07/16/2021 11:01	07/17/2021 07:33	4956873
CCH	SS-PFDA-13C2	537.1	N/A			39.0199	40.0	ng/L	98	70 - 130	 	1.0	07/16/2021 11:01	07/17/2021 07:33	4956873
CCH	SS-PFHxA-13C2	537.1	N/A			40.3146	40.0	ng/L	101	70 - 130	 	1.0	07/16/2021 11:01	07/17/2021 07:33	4956873
CCH	SS-HFPO-DA-13C3	537.1	N/A			39.2073	40.0	ng/L	98	70 - 130	 	1.0	07/16/2021 11:01	07/17/2021 07:33	4956873



Eurofins Eaton Analytical Run Log

Run ID: 291916 Method: 537.1

Type	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4959292		OS	FL	07/21/2021 02:35	072121M537_1a-FL.mdb
LRB	4959307		RW	FL	07/21/2021 03:01	072121M537_1a-FL.mdb
FBL	4959308		RW	FL	07/21/2021 03:14	072121M537_1a-FL.mdb
CCM	4959300		OS	FL	07/21/2021 06:04	072121M537_1a-FL.mdb
FS	4957200	PEF68672/MG Tank	DW	FL	07/21/2021 06:56	072121M537_1a-FL.mdb
FS	4957201	PEF68673/Raw Water Tap	DW	FL	07/21/2021 07:09	072121M537_1a-FL.mdb
CCH	4959301		OS	FL	07/21/2021 13:39	072121M537_1a-FL.mdb

	QC Summary Report															
Sample Type	Analyte	Method	MDA95	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD		Dil Factor	Extracted	Analyzed	EEA ID#
CCL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.8131	2.0	ng/L	91	50 - 150			1.0	07/16/2021 11:22	07/21/2021 02:35	4959292
CCL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.9880	2.0	ng/L	99	50 - 150			1.0	07/16/2021 11:22	07/21/2021 02:35	4959292
CCL	IS-NMeFOSAA-d3	537.1	N/A			589851	589851	ng/L	100	50 - 150			1.0	07/16/2021 11:22	07/21/2021 02:35	4959292
CCL	IS-PFOA-13C2	537.1	N/A			1241320	1241320	ng/L	100	50 - 150			1.0	07/16/2021 11:22	07/21/2021 02:35	4959292
CCL	IS-PFOS-13C4	537.1	N/A			295054	295054	ng/L	100	50 - 150			1.0	07/16/2021 11:22	07/21/2021 02:35	4959292
CCL	SS-NEtFOSAA-d5	537.1	N/A			166.8110	160	ng/L	104	70 - 130			1.0	07/16/2021 11:22	07/21/2021 02:35	4959292
CCL	SS-PFDA-13C2	537.1	N/A			40.1148	40.0	ng/L	100	70 - 130			1.0	07/16/2021 11:22	07/21/2021 02:35	4959292
CCL	SS-PFHxA-13C2	537.1	N/A			39.9913	40.0	ng/L	100	70 - 130			1.0	07/16/2021 11:22	07/21/2021 02:35	4959292
CCL	SS-HFPO-DA-13C3	537.1	N/A			38.9700	40.0	ng/L	97	70 - 130			1.0	07/16/2021 11:22	07/21/2021 02:35	4959292
LRB	Perfluorooctanoic acid (PFOA)	537.1	2.0		<	2.0		ng/L					1.0	07/20/2021 06:28	07/21/2021 03:01	4959307
LRB	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0		<	2.0		ng/L	Ī				1.0	07/20/2021 06:28	07/21/2021 03:01	4959307
LRB	IS-NMeFOSAA-d3	537.1	N/A			555020	589851	ng/L	94	50 - 150			1.0	07/20/2021 06:28	07/21/2021 03:01	4959307
LRB	IS-PFOA-13C2	537.1	N/A		i i	1179130	1241320	ng/L	95	50 - 150			1.0	07/20/2021 06:28	07/21/2021 03:01	4959307
LRB	IS-PFOS-13C4	537.1	N/A			290795	295054	ng/L	99	50 - 150			1.0	07/20/2021 06:28	07/21/2021 03:01	4959307
LRB	SS-NEtFOSAA-d5	537.1	N/A		i i	157.0900	160	ng/L	98	70 - 130			1.0	07/20/2021 06:28	07/21/2021 03:01	4959307
LRB	SS-PFDA-13C2	537.1	N/A			39.6079	40.0	ng/L	99	70 - 130			1.0	07/20/2021 06:28	07/21/2021 03:01	4959307
LRB	SS-PFHxA-13C2	537.1	N/A		i	38.5642	40.0	ng/L	96	70 - 130		Ĭ Ĭ	1.0	07/20/2021 06:28	07/21/2021 03:01	4959307
LRB	SS-HFPO-DA-13C3	537.1	N/A			35.0050	40.0	ng/L	88	70 - 130		Í I	1.0	07/20/2021 06:28	07/21/2021 03:01	4959307
FBL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.8769	2.0	ng/L	94	50 - 150			1.0	07/20/2021 06:28	07/21/2021 03:14	4959308
FBL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.8557	2.0	ng/L	93	50 - 150			1.0	07/20/2021 06:28	07/21/2021 03:14	4959308
FBL	IS-NMeFOSAA-d3	537.1	N/A			539700	589851	ng/L	91	50 - 150			1.0	07/20/2021 06:28	07/21/2021 03:14	4959308
FBL	IS-PFOA-13C2	537.1	N/A			1156070	1241320	ng/L	93	50 - 150			1.0	07/20/2021 06:28	07/21/2021 03:14	4959308
FBL	IS-PFOS-13C4	537.1	N/A			278709	295054	ng/L	94	50 - 150			1.0	07/20/2021 06:28	07/21/2021 03:14	4959308
FBL	SS-NEtFOSAA-d5	537.1	N/A			154.0620	160	ng/L	96	70 - 130			1.0	07/20/2021 06:28	07/21/2021 03:14	4959308
FBL	SS-PFDA-13C2	537.1	N/A			37.8394	40.0	ng/L	95	70 - 130			1.0	07/20/2021 06:28	07/21/2021 03:14	4959308
FBL	SS-PFHxA-13C2	537.1	N/A			37.4152	40.0	ng/L	94	70 - 130			1.0	07/20/2021 06:28	07/21/2021 03:14	4959308
FBL	SS-HFPO-DA-13C3	537.1	N/A			35.7350	40.0	ng/L	89	70 - 130			1.0	07/20/2021 06:28	07/21/2021 03:14	4959308
ССМ	Perfluorooctanoic acid (PFOA)	537.1	2.0			102.8970	100	ng/L	103	70 - 130		Ī Ī	1.0	07/16/2021 11:22	07/21/2021 06:04	4959300
ССМ	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			102.6680	100	ng/L	103	70 - 130		i i	1.0	07/16/2021 11:22	07/21/2021 06:04	4959300
ССМ	IS-NMeFOSAA-d3	537.1	N/A			581949	581949	ng/L	100	50 - 150		Í Í	1.0	07/16/2021 11:22	07/21/2021 06:04	4959300
ССМ	IS-PFOA-13C2	537.1	N/A			1238270	1238270	ng/L	100	50 - 150		T	1.0	07/16/2021 11:22	07/21/2021 06:04	4959300
ССМ	IS-PFOS-13C4	537.1	N/A			305844	305844	ng/L	100	50 - 150		Î Î	1.0	07/16/2021 11:22	07/21/2021 06:04	4959300
ССМ	SS-NEtFOSAA-d5	537.1	N/A			157.9280	160	ng/L	99	70 - 130		i i	1.0	07/16/2021 11:22	07/21/2021 06:04	4959300
ССМ	SS-PFDA-13C2	537.1	N/A		i	39.2844	40.0	ng/L	98	70 - 130			1.0	07/16/2021 11:22	07/21/2021 06:04	4959300
ССМ	SS-PFHxA-13C2	537.1	N/A			40.5183	40.0	ng/L	101	70 - 130			1.0	07/16/2021 11:22	07/21/2021 06:04	4959300
ССМ	SS-HFPO-DA-13C3	537.1	N/A		i	40.0291	40.0	ng/L	100	70 - 130			1.0	07/16/2021 11:22	07/21/2021 06:04	4959300
	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF68672/MG Tank	<	2.0		ng/L					0.91		07/21/2021 06:56	
Page FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF68672/MG Tank	<	2.0		ng/L					0.91		07/21/2021 06:56	
→ FS	IS-NMeFOSAA-d3	537.1	N/A	PEF68672/MG Tank		577778	581949	ng/L	99	50 - 150			0.91		07/21/2021 06:56	
O FS	IS-PFOA-13C2	537.1	N/A	PEF68672/MG Tank		1208590	1238270	ng/L	98	50 - 150			0.91		07/21/2021 06:56	
→ D								3								

	QC Summary Report (cont.)														
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits		Dil Factor	Extracted	Analyzed	EEA ID#
FS	IS-PFOS-13C4	537.1	N/A	PEF68672/MG Tank		300202	305844	ng/L	98	50 - 150	 	0.91	07/20/2021 06:28	07/21/2021 06:56	4957200
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF68672/MG Tank		141.6600	160	ng/L	97	70 - 130	 	0.91	07/20/2021 06:28	07/21/2021 06:56	4957200
FS	SS-PFDA-13C2	537.1	N/A	PEF68672/MG Tank		36.1693	40.0	ng/L	99	70 - 130	 	0.91	07/20/2021 06:28	07/21/2021 06:56	4957200
FS	SS-PFHxA-13C2	537.1	N/A	PEF68672/MG Tank		34.8929	40.0	ng/L	96	70 - 130	 	0.91	07/20/2021 06:28	07/21/2021 06:56	4957200
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF68672/MG Tank		34.1963	40.0	ng/L	94	70 - 130	 	0.91	07/20/2021 06:28	07/21/2021 06:56	4957200
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF68673/Raw Water Taj		4.2		ng/L			 	0.93	07/20/2021 06:28	07/21/2021 07:09	4957201
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF68673/Raw Water Taj		45		ng/L			 	0.93	07/20/2021 06:28	07/21/2021 07:09	4957201
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF68673/Raw Water Taj		509527	581949	ng/L	88	50 - 150	 	0.93	07/20/2021 06:28	07/21/2021 07:09	4957201
FS	IS-PFOA-13C2	537.1	N/A	PEF68673/Raw Water Taj		1086940	1238270	ng/L	88	50 - 150	 	0.93	07/20/2021 06:28	07/21/2021 07:09	4957201
FS	IS-PFOS-13C4	537.1	N/A	PEF68673/Raw Water Taj		282612	305844	ng/L	92	50 - 150	 	0.93	07/20/2021 06:28	07/21/2021 07:09	4957201
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF68673/Raw Water Taj		141.8180	160	ng/L	95	70 - 130	 	0.93	07/20/2021 06:28	07/21/2021 07:09	4957201
FS	SS-PFDA-13C2	537.1	N/A	PEF68673/Raw Water Taj		36.9586	40.0	ng/L	99	70 - 130	 	0.93	07/20/2021 06:28	07/21/2021 07:09	4957201
FS	SS-PFHxA-13C2	537.1	N/A	PEF68673/Raw Water Taj		35.2009	40.0	ng/L	95	70 - 130	 	0.93	07/20/2021 06:28	07/21/2021 07:09	4957201
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF68673/Raw Water Taj		38.4797	40.0	ng/L	103	70 - 130	 	0.93	07/20/2021 06:28	07/21/2021 07:09	4957201
CCH	Perfluorooctanoic acid (PFOA)	537.1	2.0			205.8940	200	ng/L	103	70 - 130	 	1.0	07/16/2021 11:22	07/21/2021 13:39	4959301
ССН	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			204.7360	200	ng/L	102	70 - 130	 	1.0	07/16/2021 11:22	07/21/2021 13:39	4959301
ССН	IS-NMeFOSAA-d3	537.1	N/A			699905	699905	ng/L	100	50 - 150	 	1.0	07/16/2021 11:22	07/21/2021 13:39	4959301
ССН	IS-PFOA-13C2	537.1	N/A			1359590	1359590	ng/L	100	50 - 150	 	1.0	07/16/2021 11:22	07/21/2021 13:39	4959301
ССН	IS-PFOS-13C4	537.1	N/A			354214	354214	ng/L	100	50 - 150	 	1.0	07/16/2021 11:22	07/21/2021 13:39	4959301
ССН	SS-NEtFOSAA-d5	537.1	N/A			153.6580	160	ng/L	96	70 - 130	 	1.0	07/16/2021 11:22	07/21/2021 13:39	4959301
ССН	SS-PFDA-13C2	537.1	N/A			42.3936	40.0	ng/L	106	70 - 130	 	1.0	07/16/2021 11:22	07/21/2021 13:39	4959301
ССН	SS-PFHxA-13C2	537.1	N/A			41.4260	40.0	ng/L	104	70 - 130	 	1.0	07/16/2021 11:22	07/21/2021 13:39	4959301
ССН	SS-HFPO-DA-13C3	537.1	N/A			42.5707	40.0	ng/L	106	70 - 130	 	1.0	07/16/2021 11:22	07/21/2021 13:39	4959301

Samp	le Typ	e Kev

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type		
CCH	Continuing Calibration High				
CCL	Continuing Calibration Low				
CCM	Continuing Calibration Mid				
FS	Field Sample				
FBH	Fortified Blank High				
FBL	Fortified Blank Low				
LRB	Laboratory Reagent Blank				

END OF REPORT

POLLENIENTAL, LLC ENVIRONMENTAL, LLC 3039 Davis Road Fairbanks, AK 99709 | 907.479.8368 | www.pollenenv.com

CHAIN OF CUSTODY/WORKORDER FORM

CLIENT INFORMATION		Contact Person: Jim Murphy			Requested Analysis								
Company: Barrow Utilities & Electric Coop.							Consequence Added					Page 1 of 1	
Address: P.O. Box 449			WWTP APDES #:			Perservative Added							
City, State Zip: Barrow, AK 99723			PWS ID #: 320078										
Phone: 907-852-3176 Fax: 907-852-5164 Email: powerplant@bueci.org			Send Results to ADEC: Yes □ No Purchase Order/Charge Code: ZOZIODO									Normal Turnaround	
						E	SC						
						ntaine	PFOS				□ RUSHda		
Project Name: PFAS Monitoring		2021-711		Number of Contain	A S								
Sampled By: Tom	MLO TL			0.00			umbe	PFOA					
Sample Identification	Sample Point ID:	Sample Date	Sample Tim	e Matrix	Lab ID#	Sub Lab ID#	z	П.					Sample Comments
MG Tank	SPTP001	8/9/21	11:15		PEF69475		2	X		431			
Raw Water Tap	SPIN001	8/9/21	11:20	W	PEF(8476		2	X		ve e ili			
Kaw water rap	SPINOUI	- + + - 1	***************************************		LIGHTO								
				-									
												+ +	
									_				
		Specia	Instructions	s/QC Requ	irements & Commer	its:						Sa	mple Temperature:
												Pollen Env d	n arrival: 1.4 °C
												Sub Lab on	arrival: °C
Relinquished by:		Company:	C.I.	Date & Ti	me: -L 12100	Received by:	72	1	Compan	E E	nv	Date & Time	11000
Relinquished by:		Company:	For	Date & Ti	ne 100	Received by:			Compan	y:		Date & Time	11
Relinquished by:		Company:	114	Date & Ti	me:	Received by:			Compan	y:		Date & Time	8



CERTIFICATE OF ANALYSIS

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFAS Monitoring Sampled By: James F. Murphy

PWS ID: 320078

Report Date:	8/31/2021
Receipt Date:	8/10/2021
Sampled By:	Tom Drake II

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
MG Tank	PEF69475	4983142	8/9/2021	11:15 AM
Raw Water Tap	PEF69476	4983143	8/9/2021	11:20 AM

Jerry Pollen / Marcus Cogley

Pollen Environmental, LLC



LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at $(800)\ 332-4345$ or $(574)\ 233-4777$.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida(Primary AB)*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon*	4156
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 09/29/2020



110 South Hill Street South Bend, IN 46617 Tel: (574) 233-4777 Fax: (574) 233-8207 1 800 332 4345

Laboratory Report

527268 Client: Pollen Environmental LLC Report:

Priority: Standard Written Jerry Pollen Attn:

Status: Final 3536 International Avenue

PWS ID: AK2320078 Fairbanks, AK 99701 Alaska Lab ID # IN00035

	Sample Information								
EEA ID#	Client ID	Collected Date / Time	Collected By:	Received Date / Time					
4983142	PEF69475/MG Tank	537.1	08/09/21 11:15	Client	08/12/21 09:00				
4983143	PEF69476/RawWaterTap	537.1	08/09/21 11:15	Client	08/12/21 09:00				

Report Summary

Note: See attached page for additional comments.

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Mui Chlebowser Title

08/30/2021

Date

Authorized Signature

Client Name:

Pollen Environmental LLC

Report #: 527268 Client Name: Pollen Environmental LLC Report #: 527268

Sampling Point: PEF69475/MG Tank PWS ID: AK2320078

	EEA Methods								
Analyte ID #	Analyte Method Reg MRL† Result Units Preparation Analyzed EE								
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	< 2.0	ng/L	08/17/21 07:00	08/18/21 00:41	4983142
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	< 2.0	ng/L	08/17/21 07:00	08/18/21 00:41	4983142

Sampling Point: PEF69476/RawWaterTap PWS ID: AK2320078

	EEA Methods									
Analyte ID #	Analyte Method Reg MRL† Result Units Preparation Analyzed EEA									
335-67-1	Perfluorooctanoic acid (PFOA)	537.1		2.0	3.6	ng/L	08/17/21 07:00	08/18/21 00:54	4983143	
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537.1		2.0	43	ng/L	08/17/21 07:00	08/18/21 00:54	4983143	

[†] EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	۸	!

Client Name: Pollen Environmental LLC Report #: 527268

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / **Laboratory Reagent Blank (LRB)** - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery** %

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

ENVIRONMENTAL, LLC 3039 Davis Road Fairbanks, AK 99709 | 907.479.8368 | www.pollenenv.com

433045
677748
CHAIN OF CUSTODY/WORKORDER FORM

COC# BUECI PFC

	CLIENT INFORMATI	ON		Contact P					Requi	ested Analysis		
Company: Barrow Utilitie	s & Electric Coop.							Development				Page 1 of 1
Address: P.O. Box 449				WWTP A	PDES #:			Perservativ	/e Added			
City, State Zip: Barrow, A	K 99723			PWS ID	#: 320078							1.
Phone: 907-852-3176				Send Resi	ults to ADEC:							Normal Turnaround
Fax: 907-852-5164				Yes	□ No		ĸ	SC				
Email: powerplant@buec	i.org			Purchase C	Toziobi		Containe	PFOS				□ RUSH day(s)
Project Name: PFAS Monit	toring				1-711			A 8				
Sampled By: Tom	rake II						Number of	PFOA		11-		
Sample Identification	Sample Point ID:	Sample Date	Sample Time	Matrix	Lab ID#	Sub Lab ID#						Sample Comments
MG Tank	SPTP001	8/9/21	11:15	W	PEF69475 PEF69476	4983142	12	X				
Raw Water Tap	SPIN001	8/9/21	11:20	W	PEFLAH76	4983143	12	X				
							118					
												1112
		Specia	Instructions	/QC Requ	irements & Comme	nts:					Şam	ple Temperature:
									Shipping intact upon	straps receipt	Pollen Env on Sub Lab on a	arrival: I.4 °C
Relinquished by: Relinquished by: Relinquished by:		Company:	C,I,	Date & Ti	me: -[/21/	Received by:	12	4	Company:	Env	Date & Time:	1000
Relinquished by:		Company:	+nv	8-11-2 Date & Ti	me: 1100	Received by:	V	avs		В	Date & Time:	



Eurofins Eaton Analytical Run Log

Run ID: 293449 Method: 537.1

<u>Type</u>	Sample Id	Sample Site	<u>Matrix</u>	Instrument ID	Analysis Date	Calibration File
CCL	4987027		OS	FL	08/17/2021 18:48	081721M537_1a-FL.mdb
LRB	4987001		RW	FL	08/17/2021 19:14	081721M537_1a-FL.mdb
FBL	4987003		RW	FL	08/17/2021 19:27	081721M537_1a-FL.mdb
FBH	4987005		RW	FL	08/17/2021 19:54	081721M537_1a-FL.mdb
CCM	4987031		OS	FL	08/17/2021 22:56	081721M537_1a-FL.mdb
FS	4983142	PEF69475/MG Tank	DW	FL	08/18/2021 00:41	081721M537_1a-FL.mdb
FS	4983143	PEF69476/RawWaterTap	DW	FL	08/18/2021 00:54	081721M537_1a-FL.mdb
CCH	4987033		OS	FL	08/18/2021 01:07	081721M537 1a-FL.mdb

Sample Analyse Method MoAs Client Figure Fi						QC S	Summar	y Repo	ort							
Perhapsocara-entire and PTOS) S371 20 21/28 2.0 apt.		Analyte	Method	MDA95	Client ID		Amount	Target	Units	11		RPD		Extracted	Analyzed	
CCL SI-MAN-GOSAL-43 59.71 NA	CCL	Perfluorooctanoic acid (PFOA)	537.1	2.0			2.0048	2.0	ng/L	100	50 - 150		 1.0	08/16/2021 12:59	08/17/2021 18:48	4987027
CCL IS-PF0A-UCC	CCL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			2.1268	2.0	ng/L	106	50 - 150		 1.0	08/16/2021 12:59	08/17/2021 18:48	4987027
CCL SS-PFDA-13C2 S371 NA	CCL	IS-NMeFOSAA-d3	537.1	N/A			482540	482540	ng/L	100	50 - 150		 1.0	08/16/2021 12:59	08/17/2021 18:48	4987027
Col. SS-HEFOCAA-45 S37.1 NA	CCL	IS-PFOA-13C2	537.1	N/A			1050130	1050130	ng/L	100	50 - 150		 1.0	08/16/2021 12:59	08/17/2021 18:48	4987027
CGL SS-FFDA-13C2 S37 NA	CCL	IS-PFOS-13C4	537.1	N/A			248112	248112	ng/L	100	50 - 150		 1.0	08/16/2021 12:59	08/17/2021 18:48	4987027
CCL SS-IPFN-D-IGC2 S37.1 NA	CCL	SS-NEtFOSAA-d5	537.1	N/A			168.8510	160	ng/L	106	70 - 130		 1.0	08/16/2021 12:59	08/17/2021 18:48	4987027
Column C	CCL	SS-PFDA-13C2	537.1	N/A			41.2802	40.0	ng/L	103	70 - 130		 1.0	08/16/2021 12:59	08/17/2021 18:48	4987027
LIRB Perfluorooctaneoutline and (PFOA) 637.1 2.0 - < 2.0 ngiL - - - 1.0 0e17/2021 07:00 0e17/2021 19:14 468700 LIRB Perfluorooctaneoutline and (PFOA) 637.1 2.0 - < 2.0 ngiL - - - 1.0 0e17/2021 07:00 0e17/2021 19:14 468700 LIRB SI-NINFOSAA-3 537.1 NAA - 4690584 482840 ngiL 102 50-150 - 1.0 0e17/2021 07:00 0e17/2021 19:14 489700 LIRB SI-PFOA-13C2 537.1 NAA - 258021 248112 ngiL 102 50-150 - 1.0 0e17/2021 07:00 0e17/2021 19:14 489700 LIRB SI-PFOA-13C2 537.1 NAA - 1460450 160 ngiL 102 50-150 - 1.0 0e17/2021 07:00 0e17/2021 19:14 489700 LIRB SI-PFOA-13C2 537.1 NAA - 37.9491 4.00 ngiL 95 70-130 - 1.0 0e17/2021 07:00 0e17/2021 19:14 489700 LIRB SI-PFOA-13C2 537.1 NAA - 35.4246 40.0 ngiL 89 70-130 - 1.0 0e17/2021 07:00 0e17/2021 19:14 489700 LIRB SI-PFOA-13C2 537.1 NAA - 35.4246 40.0 ngiL 89 70-130 - 1.0 0e17/2021 07:00 0e17/2021 19:14 489700 LIRB SI-PFOA-13C2 537.1 NAA - 35.4246 40.0 ngiL 89 70-130 - 1.0 0e17/2021 07:00 0e17/2021 19:14 489700 LIRB SI-PFOA-13C2 537.1 NAA - 36.4246 40.0 ngiL 89 70-130 - 1.0 0e17/2021 07:00 0e17/2021 19:14 489700 LIRB SI-PFOA-13C2 537.1 NAA - 1.0 497/201 40.0 ngiL 89 70-130 - 1.0 0e17/201 07:00 0e17/201 19:14 498700 LIRB SI-PFOA-13C2 537.1 NAA - 1.0 497/201 1.0	CCL	SS-PFHxA-13C2	537.1	N/A			39.6683	40.0	ng/L	99	70 - 130		 1.0	08/16/2021 12:59	08/17/2021 18:48	4987027
LRB Perfluoroctanesulfonic acid (PFOS) 537.1 2.0 - < 2.0	CCL	SS-HFPO-DA-13C3	537.1	N/A			39.7134	40.0	ng/L	99	70 - 130		 1.0	08/16/2021 12:59	08/17/2021 18:48	4987027
Libb IS NIMEFOSAAd3 S37.1 N/A	LRB	Perfluorooctanoic acid (PFOA)	537.1	2.0		<	2.0		ng/L				 1.0	08/17/2021 07:00	08/17/2021 19:14	4987001
LIRB IS-PFOA-13C2 537.1 N/A 1080250 1050130 ngl. 103 80 - 180 1.0 081172021 07.00 081172021 191.4 488700 1050130 1050130 1050130 1050130 1050130 1.0 081172021 07.00 081172021 191.4 488700 1050130 1050130 1050130 1050130 1050130 1050130 1050130 1.0 081172021 07.00 081172021 191.4 488700 1050130	LRB	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0		<	2.0		ng/L				 1.0	08/17/2021 07:00	08/17/2021 19:14	4987001
LIB IS-PFOS-13C4	LRB	IS-NMeFOSAA-d3	537.1	N/A			490554	482540	ng/L	102	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:14	4987001
LIRB SS.NEIFOSA.455	LRB	IS-PFOA-13C2	537.1	N/A			1080250	1050130	ng/L	103	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:14	4987001
LRB SS-FFDA-13C2 537.1 N/A 37.9491 40.0 ng/L 95 70-130 10 0817/2021 07:00 0817/2021 19:14 488700 LRB SS-FFHXA-13C2 537.1 N/A 37.0543 40.0 ng/L 98 70-130 10 0817/2021 07:00 0817/2021 19:14 488700 FBL Perfluorooctanoic acid (PFOA) 537.1 2.0 119798 2.0 ng/L 99 50-150 10 0817/2021 07:00 0817/2021 19:21 488700 FBL Perfluorooctanoic acid (PFOA) 537.1 2.0 119898 2.0 ng/L 99 50-150 1.0 0817/2021 07:00 0817/2021 19:27 488700 FBL IS-NEFOA-13C2 537.1 N/A 1114970 1050130 ng/L 106 50-150 1.0 0817/2021 07:00 0817/2021 19:27 488700 FBL IS-NEFOA-13C2 537.1 N/A 1114970 1050130 ng/L 106 50-150 1.0 0817/2021 07:00 0817/2021 19:27 488700 FBL IS-NEFOA-13C2 537.1 N/A 1114970 1050130 ng/L 106 50-150 1.0 0817/2021 07:00 0817/2021 19:27 488700 FBL SS-NEFOSA-45 537.1 N/A 150.4940 160 ng/L 94 70-130 1.0 0817/2021 07:00 0817/2021 19:27 488700 FBL SS-PFHX-13C2 537.1 N/A 150.4940 160 ng/L 94 70-130 1.0 0817/2021 07:00 0817/2021 19:27 488700 FBL SS-PFHX-13C2 537.1 N/A 150.4940 160 ng/L 94 70-130 1.0 0817/2021 07:00 0817/2021 19:27 488700 FBL SS-PFHX-13C2 537.1 N/A 135.9226 40.0 ng/L 90 70-130 1.0 0817/2021 07:00 0817/2021 19:27 488700 FBH Perfluorooctanois acid (PFOA) 537.1 2.0 189.8320 200 ng/L 94 70-130 1.0 0817/2021 07:00 0817/2021 19:27 488700 FBH Perfluorooctanois acid (PFOA) 537.1 N/A 189.8320 200 ng/L 95 70-130 1.0 0817/2021 07:00 0817/2021 19:27 488700 FBH Perfluorooctanois acid (PFOA) 537.1 N/A 189.8320 200 ng/L 95 70-130 1.0 0817/2021 07:00 0817/2021 19:24 488700 FBH SS-PEA-13C2 537.1 N/A 189.8320 200 ng/L 95 70-130 1.0 0817/2021 07:00 0817/2021 19:54 488700 FBH SS-PEA-13C2 537.1 N/A 189.8320 200 ng/L 95 70-130 1.0 0817/2021 07:00 0817/2021 19:54 488700 FBH SS-PEA-13C2 537.1 N/A 193.8420 19:00 ng/L 95 70-130 1.0 0817/2021 07:00 0817/2021 19:54 488700 FBH SS-PEA-13C2 537.1 N/A 193.8420 19:00 ng/	LRB	IS-PFOS-13C4	537.1	N/A			253821	248112	ng/L	102	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:14	4987001
LRB SS-FFHx-13C2 537.1 N/A 37.0543 40.0 ng/L 93 70-130 1.0 0817/2021 07.00 0817/2021 19.14 488700 LRB SS-HFPO-DA-13C3 537.1 N/A 35.4246 40.0 ng/L 99 70-130 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBL Perfluorocdaneoicacid (FPOA) 537.1 2.0 1.9656 2.0 ng/L 99 50-150 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBL Perfluorocdaneoicacid (FPOA) 537.1 N/A 497521 492540 ng/L 103 50-150 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBL IS-NBE/OSAA-33 537.1 N/A 497521 492540 ng/L 103 50-150 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBL IS-PFOA-13C2 537.1 N/A 1114970 1050130 ng/L 106 50-150 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBL IS-PFOA-13C2 537.1 N/A 286467 248112 ng/L 107 50-150 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBL SS-NBE/CSAA-45 537.1 N/A 150.4840 160 ng/L 94 70-130 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBL SS-PFDA-13C2 537.1 N/A 150.4840 160 ng/L 94 70-130 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBL SS-PFDA-13C2 537.1 N/A 137.0252 40.0 ng/L 93 70-130 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBH SS-PFDA-13C2 537.1 N/A 35.9256 40.0 ng/L 90 70-130 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBH Perfluorocdaneoication acid (PFOA) 537.1 2.0 1886330 200 ng/L 96 70-130 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBH Perfluorocdaneoication acid (PFOS) 537.1 2.0 1886330 200 ng/L 96 70-130 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBH IS-POA-13C2 537.1 N/A 188630 200 ng/L 96 70-130 1.0 0817/2021 07.00 0817/2021 19.27 488700 FBH IS-POA-13C2 537.1 N/A 188630 200 ng/L 96 70-130 1.0 0817/2021 07.00 0817/2021 19.24 488700 FBH IS-POA-13C2 537.1 N/A 198630 100 ng/L 98 70-130 1.0 0817/2021 07.00 0817/2021 19.24 488700 FBH IS-POA-13C2 537.1 N/A 198630 100 ng/L 98 70-130 1.0 0817/2021 07.00 0817/2021 19.24 488700 FBH IS-POA-13C2 537.1 N/A 198630 100 ng/L 98 70-130 1.0 0817/2021 07.	LRB	SS-NEtFOSAA-d5	537.1	N/A			146.0450	160	ng/L	91	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:14	4987001
FBL Perfluorocotanoic acid (PFOA) S37.1 N/A 35.4246 40.0 rg/L 89 70 - 130 1.0 0917/2021 07.00 0817/2021 1927 488700. FBL Perfluorocotanoic acid (PFOA) S37.1 2.0 1.9986 2.0 rg/L 98 50 - 150 1.0 0817/2021 07.00 0817/2021 1927 488700. FBL SI-NIMEFOSAA-d3 S37.1 N/A 497521 482540 rg/L 103 50 - 150 1.0 0817/2021 07.00 0817/2021 1927 488700. FBL IS-PFOA-13C2 S37.1 N/A 497521 482540 rg/L 103 50 - 150 1.0 0817/2021 07.00 0817/2021 1927 488700. FBL IS-PFOA-13C2 S37.1 N/A 286467 284112 rg/L 107 50 - 150 1.0 0817/2021 07.00 0817/2021 1927 488700. FBL SS-PFDA-13C2 S37.1 N/A 150.4940 180 rg/L 93 70 - 130 1.0 0817/2021 07.00 0817/2021 1927 488700. FBL SS-PFHAZ-13C2 S37.1 N/A 37.0252 40.0 rg/L 93 70 - 130 1.0 0817/2021 07.00 0817/2021 1927 488700. FBL SS-PFHAZ-13C2 S37.1 N/A 35.9226 40.0 rg/L 86 70 - 130 1.0 0817/2021 07.00 0817/2021 1927 488700. FBH Perfluorocotanosic acid (PFOA) S37.1 2.0 1876380 200 rg/L 94 70 - 130 1.0 0817/2021 07.00 0817/2021 1927 488700. FBH SS-PFDA-13C2 S37.1 N/A 188320 200 rg/L 94 70 - 130 1.0 0817/2021 07.00 0817/2021 1927 488700. FBH IS-PFO-SA-3G S37.1 N/A 465419 482540 rg/L 95 70 - 130 1.0 0817/2021 07.00 0817/2021 1927 488700. FBH IS-PFO-SA-3G S37.1 N/A 465419 482540 rg/L 95 70 - 130 1.0 0817/2021 07.00 0817/2021 1924 488700. FBH IS-PFO-SA-3G S37.1 N/A 465419 482540 rg/L 95 70 - 130 1.0 0817/2021 07.00 0817/2021 1924 488700. FBH IS-PFO-SA-3G S37.1 N/A 485419 482540 rg/L 95 70 - 130 1.0 0817/2021 07.00 0817/2021 1924 488700. FBH IS-PFO-SA-3G	LRB	SS-PFDA-13C2	537.1	N/A			37.9491	40.0	ng/L	95	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:14	4987001
FBL Perfluorooctanesid (PFOA) 537.1 2.0 1.9798 2.0 ng/L 99 50 - 150 1.0 0817/2021 07.00 0817/2021 19.27 4887002 1887002	LRB	SS-PFHxA-13C2	537.1	N/A			37.0543	40.0	ng/L	93	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:14	4987001
FBL Perfluoroctanesulfonic acid (PFOS) 537.1 2.0 19656 2.0 ng/L 98 50-150 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBL IS-MMeFOSAA-d3 537.1 N/A 497521 482540 ng/L 103 50-150 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBL IS-PFOA-13C2 537.1 N/A 266467 248112 ng/L 107 50-150 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBL SS-PEDA-13C2 537.1 N/A 150.4940 160 ng/L 94 70-130 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBL SS-PFDA-13C2 537.1 N/A 37.0252 40.0 ng/L 93 70-130 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBL SS-PFDA-13C2 537.1 N/A 35.9226 40.0 ng/L 93 70-130 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBL SS-PFDA-13C2 537.1 N/A 35.9226 40.0 ng/L 90 70-130 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBH Perfluoroctanesulfonic acid (PFOA) 537.1 2.0 188.8320 200 ng/L 94 70-130 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBH Perfluoroctanesulfonic acid (PFOA) 537.1 2.0 188.8320 200 ng/L 94 70-130 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBH IS-PFOA-13C2 537.1 N/A 188.8320 200 ng/L 95 70-130 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBH IS-PFOA-13C2 537.1 N/A 188.8320 200 ng/L 95 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH IS-PFOA-13C2 537.1 N/A 188.8320 200 ng/L 95 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH IS-PFOA-13C2 537.1 N/A 189.8320 160 ng/L 96 50-150 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH IS-PFOA-13C2 537.1 N/A 139.8520 160 ng/L 97 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH SS-PFDA-13C2 537.1 N/A 139.8520 160 ng/L 99 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH SS-PFDA-13C2 537.1 N/A 139.8520 160 ng/L 99 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH SS-PFDA-13C2 537.1 N/A 139.8520 160 ng/L 99 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH SS-PFDA-13C2 537.1 N/A 199.8707 100 ng/L 99 70-	LRB	SS-HFPO-DA-13C3	537.1	N/A			35.4246	40.0	ng/L	89	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:14	4987001
FBL IS-NMeFOSA-d3 537.1 N/A 497521 482540 ng/L 103 50 -150 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBL IS-PFOA-13C2 537.1 N/A 266467 248112 ng/L 107 50 -150 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBL SS-NEIFOSA-d5 537.1 N/A 150.4940 160 ng/L 94 70 -130 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBL SS-PFDA-13C2 537.1 N/A 150.4940 160 ng/L 93 70 -130 1.0 08/17/2021 07:00 08/17/2021 19:27 498700: FBL SS-PFDA-13C2 537.1 N/A 37.0252 40.0 ng/L 93 70 -130 1.0 08/17/2021 19:27 498700: FBL SS-PFDA-13C2 537.1 N/A 33.59226 40.0 ng/L 90 70 -130 1.0 08/17/2021 19:27 498700: FBL SS-PFDA-13C3 537.1 N/A 33.59226 40.0 ng/L 90 70 -130 1.0 08/17/2021 19:27 498700: FBL SS-PFDA-13C3 537.1 N/A 34.6527 40.0 ng/L 86 70 -130 1.0 08/17/2021 19:27 498700: FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 187.6380 200 ng/L 94 70 -130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH IS-NMeFOSA-d3 537.1 N/A 465419 482540 ng/L 96 50 -150 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH IS-PFOA-13C2 537.1 N/A 465419 482540 ng/L 96 50 -150 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH IS-PFOA-13C2 537.1 N/A 465419 482540 ng/L 96 50 -150 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH IS-PFOA-13C2 537.1 N/A 103/1440 1050130 ng/L 98 50 -150 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH IS-PFOA-13C2 537.1 N/A 139.8520 160 ng/L 97 70 -130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH SS-PFDA-13C2 537.1 N/A 139.8520 40.0 ng/L 97 70 -130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH SS-PFDA-13C2 537.1 N/A 139.8520 40.0 ng/L 97 70 -130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH SS-PFDA-13C2 537.1 N/A 38.0202 40.0 ng/L 97 70 -130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH SS-PFDA-13C2 537.1 N/A 38.0202 40.0 ng/L 99 70 -130 1.0 08/17/2021 07:00 08/17/2021 19:54 498700: FBH SS-PFDA-13C2 537.1 N/A	FBL	Perfluorooctanoic acid (PFOA)	537.1	2.0			1.9798	2.0	ng/L	99	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:27	4987003
FBL IS-PFOA-13C2 537.1 N/A 1114970 1050130 ng/L 106 50 - 150 1.0 08/17/2021 19.27 498700.	FBL	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			1.9656	2.0	ng/L	98	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:27	4987003
FBL IS-PFOS-13C4 537.1 N/A 266467 248112 ng/L 107 50 -150 1.0 08/17/2021 19:27 4987002 49870	FBL	IS-NMeFOSAA-d3	537.1	N/A			497521	482540	ng/L	103	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:27	4987003
FBL SS-NEIFOSAA-d5 537.1 N/A 150.4940 160 ng/L 94 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:27 4987002 19:27 19:27 4987002 19:27	FBL	IS-PFOA-13C2	537.1	N/A			1114970	1050130	ng/L	106	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:27	4987003
FBL SS-PFDA-13C2 537.1 N/A 37.0252 40.0 ng/L 93 70-130 1.0 08/17/2021 07:00 08/17/2021 19:27 4987003	FBL	IS-PFOS-13C4	537.1	N/A			266467	248112	ng/L	107	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:27	4987003
FBL SS-PFHxA-13C2 537.1 N/A 335,9226 40.0 ng/L 90 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:27 4987005 49870	FBL	SS-NEtFOSAA-d5	537.1	N/A			150.4940	160	ng/L	94	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:27	4987003
FBL SS-HFPO-DA-13C3 537.1 N/A 34.5627 40.0 ng/L 86 70-130 1.0 08/17/2021 07:00 08/17/2021 19:27 4987002 FBH Perfluorooctanoic acid (PFOA) 537.1 2.0 187.6380 200 ng/L 94 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987002 FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 189.8320 200 ng/L 95 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987002 FBH IS-NMeFOSAA-d3 537.1 N/A 465419 482540 ng/L 96 50-150 1.0 08/17/2021 07:00 08/17/2021 19:54 4987002 FBH IS-PFOA-13C2 537.1 N/A 1031440 1050130 ng/L 98 50-150 1.0 08/17/2021 07:00 08/17/2021 19:54 4987002 FBH IS-PFOSAA-d5 537.1 N/A 249163 248112 ng/L 100 50-150 1.0 08/17/2021 07:00 08/17/2021 19:54 4987002 FBH SS-NEIFOSAA-d5 537.1 N/A 139.8520 160 ng/L 87 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987002 FBH SS-PFDA-13C2 537.1 N/A 38.0202 40.0 ng/L 95 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987002 FBH SS-PFDA-13C3 537.1 N/A 37.2746 40.0 ng/L 93 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987002 FBH SS-HFPO-DA-13C3 537.1 N/A 37.2852 40.0 ng/L 93 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987002 FBH SS-HFPO-DA-13C3 537.1 N/A 37.2852 40.0 ng/L 93 70-130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987002 FBH SS-HFPO-DA-13C3 537.1 N/A 37.2852 40.0 ng/L 99 70-130 1.0 08/17/2021 12:59 08/17/2021 22:56 498703 FBH SS-HFPO-DA-13C3 537.1 N/A 99.3707 100 ng/L 99 70-130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 FBH SS-NMeFOSAA-d3 537.1 N/A 99.8718 100 ng/L 100 50-150 1.0 08/16/2021 12:59 08/17/2021 22:56 498703	FBL	SS-PFDA-13C2	537.1	N/A			37.0252	40.0	ng/L	93	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:27	4987003
FBH Perfluorooctanesulfonic acid (PFOA) 537.1 2.0 187.6380 200 ng/L 94 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987000 ng/L 95 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987000 ng/L 95 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987000 ng/L 96 50 - 150 1.0 08/17/2021 07:00 08/17/2021 19:54 4987000 ng/L 98 50 - 150 1.0 08/17/2021	FBL	SS-PFHxA-13C2	537.1	N/A			35.9226	40.0	ng/L	90	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:27	4987003
FBH Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 189.8320 200 ng/L 95 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987005	FBL	SS-HFPO-DA-13C3	537.1	N/A			34.5627	40.0	ng/L	86	70 - 130	i	 1.0	08/17/2021 07:00	08/17/2021 19:27	4987003
FBH IS-NMeFOSAA-d3 537.1 N/A 465419 482540 ng/L 96 50 - 150 1.0 08/17/2021 07:00 08/17/2021 19:54 4987005	FBH	Perfluorooctanoic acid (PFOA)	537.1	2.0			187.6380	200	ng/L	94	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:54	4987005
FBH IS-PFOA-13C2 537.1 N/A 1031440 1050130 ng/L 98 50 - 150 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH IS-PFOS-13C4 537.1 N/A 249163 248112 ng/L 100 50 - 150 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-NEtFOSAA-d5 537.1 N/A 139.8520 160 ng/L 87 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-PFDA-13C2 537.1 N/A 38.0202 40.0 ng/L 95 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-PFHX-13C2 537.1 N/A 37.2746 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-HFPO-DA-13C3 537.1 N/A 37.2852 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FCM Perfluorooctanoic acid (PFOA) 537.1 2.0 99.3707 100 ng/L 99 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703	FBH	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			189.8320	200	ng/L	95	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:54	4987005
FBH IS-PFOS-13C4 537.1 N/A 249163 248112 ng/L 100 50 - 150 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-NEIFOSAA-d5 537.1 N/A 38.0202 40.0 ng/L 95 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-PFDA-13C2 537.1 N/A 38.0202 40.0 ng/L 95 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-PFHXA-13C2 537.1 N/A 37.2746 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-HFPO-DA-13C3 537.1 N/A 37.2852 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 TOCM Perfluorooctanoic acid (PFOA) 537.1 2.0 99.3707 100 ng/L 99 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 4987033 OCCM Perfluorooctanesulfonic acid (PFOS) 537.1 N/A 99.8718 100 ng/L 100 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 4987033	FBH	IS-NMeFOSAA-d3	537.1	N/A			465419	482540	ng/L	96	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:54	4987005
FBH SS-NEtFOSAA-d5 537.1 N/A 139.8520 160 ng/L 87 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-PFDA-13C2 537.1 N/A 38.0202 40.0 ng/L 95 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-PFHX-13C2 537.1 N/A 37.2746 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-HFPO-DA-13C3 537.1 N/A 37.2852 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FCCM Perfluorooctanoic acid (PFOA) 537.1 2.0 99.3707 100 ng/L 99 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 CCCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 99.8718 100 ng/L 100 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703	FBH	IS-PFOA-13C2	537.1	N/A			1031440	1050130	ng/L	98	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:54	4987005
FBH SS-PFDA-13C2 537.1 N/A 38.0202 40.0 ng/L 95 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-PFHxA-13C2 537.1 N/A 37.2746 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-HFPO-DA-13C3 537.1 N/A 37.2852 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 CCM Perfluorooctanoic acid (PFOA) 537.1 2.0 99.8718 100 ng/L 99 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 CCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 99.8718 100 ng/L 100 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 498703	FBH	IS-PFOS-13C4	537.1	N/A			249163	248112	ng/L	100	50 - 150		 1.0	08/17/2021 07:00	08/17/2021 19:54	4987005
FBH SS-PFHxA-13C2 537.1 N/A 37.2746 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 FBH SS-HFPO-DA-13C3 537.1 N/A 37.2852 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987008 CCM Perfluorooctanoic acid (PFOA) 537.1 2.0 99.3707 100 ng/L 99 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 CCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 99.8718 100 ng/L 100 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 498703	FBH	SS-NEtFOSAA-d5	537.1	N/A			139.8520	160	ng/L	87	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:54	4987005
FBH SS-HFPO-DA-13C3 537.1 N/A 37.2852 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987032 CCM Perfluorooctanoic acid (PFOA) 537.1 2.0 99.3707 100 ng/L 99 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 99.8718 100 ng/L 100 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 Ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 Ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 Ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 Ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 Ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 Ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 Ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 Ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 4987032 CCM IS-NMeFOSAA-D3 473919 Ng/L 100 50 - 150 1.0 08/16/20	FBH	SS-PFDA-13C2	537.1	N/A			38.0202	40.0	ng/L	95	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:54	4987005
FBH SS-HFPO-DA-13C3 537.1 N/A 37.2852 40.0 ng/L 93 70 - 130 1.0 08/17/2021 07:00 08/17/2021 19:54 4987009 CCM Perfluorooctanoic acid (PFOA) 537.1 2.0 99.3707 100 ng/L 99 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 CCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 99.8718 100 ng/L 100 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 498703	FBH	SS-PFHxA-13C2	537.1	N/A			37.2746	40.0		93	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:54	4987005
TCCM Perfluorooctanoic acid (PFOA) 537.1 2.0 99.3707 100 ng/L 99 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 GCCM Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 99.8718 100 ng/L 100 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 CCM IS-NMeFOSAA-d3 537.1 N/A 473919 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 498703	FBH	SS-HFPO-DA-13C3	537.1	N/A			37.2852	40.0	_	93	70 - 130		 1.0	08/17/2021 07:00	08/17/2021 19:54	4987005
Perfluorooctanesulfonic acid (PFOS) 537.1 2.0 99.8718 100 ng/L 100 70 - 130 1.0 08/16/2021 12:59 08/17/2021 22:56 498703 08/17/2021 22:56 4987	ССМ	Perfluorooctanoic acid (PFOA)	537.1	2.0			99.3707	100	_	99	70 - 130		 1.0	08/16/2021 12:59	08/17/2021 22:56	4987031
©CCM IS-NMeFOSAA-d3 537.1 N/A 473919 ng/L 100 50 - 150 1.0 08/16/2021 12:59 08/17/2021 22:56 498703	a GCCM	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			99.8718	100	_	100	70 - 130		 1.0	08/16/2021 12:59	08/17/2021 22:56	4987031
		IS-NMeFOSAA-d3	537.1	N/A			473919	473919		100	50 - 150	Í	 1.0	08/16/2021 12:59	08/17/2021 22:56	4987031
	CCW	IS-PFOA-13C2	537.1	N/A			1030320	1030320	_	100	50 - 150		 1.0	08/16/2021 12:59	08/17/2021 22:56	4987031

					QC S	Summary Re	port (cont.)								
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	Dil Factor	Extracted	Analyzed	EEA ID#
ССМ	IS-PFOS-13C4	537.1	N/A			250616	250616	ng/L	100	50 - 150		 1.0	08/16/2021 12:59	08/17/2021 22:56	4987031
ССМ	SS-NEtFOSAA-d5	537.1	N/A			161.2850	160	ng/L	101	70 - 130		 1.0	08/16/2021 12:59	08/17/2021 22:56	4987031
ССМ	SS-PFDA-13C2	537.1	N/A			41.4909	40.0	ng/L	104	70 - 130		 1.0	08/16/2021 12:59	08/17/2021 22:56	4987031
ССМ	SS-PFHxA-13C2	537.1	N/A			40.2629	40.0	ng/L	101	70 - 130		 1.0	08/16/2021 12:59	08/17/2021 22:56	4987031
ССМ	SS-HFPO-DA-13C3	537.1	N/A			39.7334	40.0	ng/L	99	70 - 130		 1.0	08/16/2021 12:59	08/17/2021 22:56	4987031
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF69475/MG Tank	<	2.0		ng/L				 0.95	08/17/2021 07:00	08/18/2021 00:41	4983142
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF69475/MG Tank	<	2.0		ng/L				 0.95	08/17/2021 07:00	08/18/2021 00:41	4983142
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF69475/MG Tank		467654	473919	ng/L	99	50 - 150		 0.95	08/17/2021 07:00	08/18/2021 00:41	4983142
FS	IS-PFOA-13C2	537.1	N/A	PEF69475/MG Tank		1022340	1030320	ng/L	99	50 - 150		 0.95	08/17/2021 07:00	08/18/2021 00:41	4983142
FS	IS-PFOS-13C4	537.1	N/A	PEF69475/MG Tank		243251	250616	ng/L	97	50 - 150		 0.95	08/17/2021 07:00	08/18/2021 00:41	4983142
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF69475/MG Tank		135.7060	160	ng/L	89	70 - 130		 0.95	08/17/2021 07:00	08/18/2021 00:41	4983142
FS	SS-PFDA-13C2	537.1	N/A	PEF69475/MG Tank		37.0584	40.0	ng/L	98	70 - 130		 0.95	08/17/2021 07:00	08/18/2021 00:41	4983142
FS	SS-PFHxA-13C2	537.1	N/A	PEF69475/MG Tank		37.2034	40.0	ng/L	98	70 - 130		 0.95	08/17/2021 07:00	08/18/2021 00:41	4983142
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF69475/MG Tank		34.6477	40.0	ng/L	91	70 - 130		 0.95	08/17/2021 07:00	08/18/2021 00:41	4983142
FS	Perfluorooctanoic acid (PFOA)	537.1	2.0	PEF69476/RawWaterTap		3.6		ng/L				 0.96	08/17/2021 07:00	08/18/2021 00:54	4983143
FS	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0	PEF69476/RawWaterTap		43		ng/L				 0.96	08/17/2021 07:00	08/18/2021 00:54	4983143
FS	IS-NMeFOSAA-d3	537.1	N/A	PEF69476/RawWaterTap		457711	473919	ng/L	97	50 - 150		 0.96	08/17/2021 07:00	08/18/2021 00:54	4983143
FS	IS-PFOA-13C2	537.1	N/A	PEF69476/RawWaterTap		1007180	1030320	ng/L	98	50 - 150		 0.96	08/17/2021 07:00	08/18/2021 00:54	4983143
FS	IS-PFOS-13C4	537.1	N/A	PEF69476/RawWaterTap		251053	250616	ng/L	100	50 - 150		 0.96	08/17/2021 07:00	08/18/2021 00:54	4983143
FS	SS-NEtFOSAA-d5	537.1	N/A	PEF69476/RawWaterTap		136.3230	160	ng/L	89	70 - 130		 0.96	08/17/2021 07:00	08/18/2021 00:54	4983143
FS	SS-PFDA-13C2	537.1	N/A	PEF69476/RawWaterTap		36.7202	40.0	ng/L	96	70 - 130		 0.96	08/17/2021 07:00	08/18/2021 00:54	4983143
FS	SS-PFHxA-13C2	537.1	N/A	PEF69476/RawWaterTap		37.1167	40.0	ng/L	97	70 - 130		 0.96	08/17/2021 07:00	08/18/2021 00:54	4983143
FS	SS-HFPO-DA-13C3	537.1	N/A	PEF69476/RawWaterTap		38.9446	40.0	ng/L	101	70 - 130		 0.96	08/17/2021 07:00	08/18/2021 00:54	4983143
ССН	Perfluorooctanoic acid (PFOA)	537.1	2.0			204.1360	200	ng/L	102	70 - 130		 1.0	08/16/2021 12:59	08/18/2021 01:07	4987033
ССН	Perfluorooctanesulfonic acid (PFOS)	537.1	2.0			205.1490	200	ng/L	103	70 - 130		 1.0	08/16/2021 12:59	08/18/2021 01:07	4987033
ССН	IS-NMeFOSAA-d3	537.1	N/A			442851	442851	ng/L	100	50 - 150		 1.0	08/16/2021 12:59	08/18/2021 01:07	4987033
ССН	IS-PFOA-13C2	537.1	N/A			975989	975989	ng/L	100	50 - 150		 1.0	08/16/2021 12:59	08/18/2021 01:07	4987033
ССН	IS-PFOS-13C4	537.1	N/A			241646	241646	ng/L	100	50 - 150		 1.0	08/16/2021 12:59	08/18/2021 01:07	4987033
ССН	SS-NEtFOSAA-d5	537.1	N/A			151.4040	160	ng/L	95	70 - 130		 1.0	08/16/2021 12:59	08/18/2021 01:07	4987033
ССН	SS-PFDA-13C2	537.1	N/A			39.7504	40.0	ng/L	99	70 - 130		 1.0	08/16/2021 12:59	08/18/2021 01:07	4987033
ССН	SS-PFHxA-13C2	537.1	N/A			40.2279	40.0	ng/L	101	70 - 130		 1.0	08/16/2021 12:59	08/18/2021 01:07	4987033
ССН	SS-HFPO-DA-13C3	537.1	N/A			41.7400	40.0	ng/L	104	70 - 130		 1.0	08/16/2021 12:59	08/18/2021 01:07	4987033

Samp	le Tvr	be Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCH	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FBH	Fortified Blank High		
FBL	Fortified Blank Low		
LRB	Laboratory Reagent Blank		

END OF REPORT

POLLENS ENVIRONMENTAL, LLC 3039 Davis Road Fairbanks, AK 99709 I 907,479,8368 I www.pollenenv.com

CHAIN OF CUSTODY/WORKORDER FORM

COC# BUECI PFC

2	CLIENT INFORMAT	ION		Contact Pe				Requested Analysis						
Company: Barrow Utilities & Electric Coop.			Jim Mur	рпу									Page 1 of 1	
Address: P.O. Box 449				WWTP APDES #:			Perservative Added						_	
City Chate 7in Barrers A	V 00722			WWIPAP	VIP APDES #:									
City, State Zip: Barrow, A	K 99/23			PWS ID #: 320078										
Phone; 907-852-3176 Fax: 907-852-5164				Send Results to ADEC:										Normal Turnaround
				Yes			2	PFOS						
Email: powerplant@buec	i.org				der/Charge Code:		tain	PF						☐ RUSH day(s)
Project Name: PFAS Monitoring			20210601			Number of Containers	∞							
Sampled By: 16h	Drake I	Ī					Numbe	PFOA						
Sample Identification	Sample Point ID	The second second			Lab ID#	Sub Lab ID#	,							Sample Comments
MG Tank	SPTP001	917/21	13:40	WP	EF 70452		2	X						
Raw Water Tap	SPIN001	9/7/21			EF 70453		2	X						
												1 - 1		
	1	Special	Instructions	/QC Requi	rements & Comme	nts:							Sample	Temperature:
												Pollen Er	nv on arr	ival: 0. °C
												Sub Lab	on arriva	al: °C
Religquished by: 15M Drake II Relinquished by:		Company: Company:		Date & Tim	15 75 70	Received by:	for	llen	Compa	Pollen	Env	Date & T 9-9 Date & T	ime:	0920am
									Соттра	iy.		Date & I	mile.	
Relinquished by:		Company:		Date & Tim	ne:	Received by:			Compa	ıy:		Date & T	ime:	_



SAMPLE RECEIPT CHECKLIST

Date & Time Received 9/9/4 @ 0920 Initials _ Ew

Laboratory Identification PEF 70452 - 70453

N/A	YES	NO	
	\not		Custody Seals intact? (N/A if hand delivered)
	1		Chain of Custody (COC) present and properly filled out?
	P		Samples received in hold time?
	\not		Proper container and preservatives used?
	Ø		Bottles received intact and properly labeled
	\not		Do sample labels match the COC?
	A		Sufficient volume of sample for all analysis?
	Ø		Temperature Blank received in cooler?
	×		Were samples chilled before delivery to lab?
	$\not\vdash$		Did samples have sufficient time to cool before delivery to lab? If not, mark ITTC (Insufficient Time To Cool) on COC form.
		\not	Are air bubbles present in VOA vials?
Note	es:		
*Ter	nperatu	ire upoi	n receipt at the laboratory <u>O.l</u> °C
	inter	nal samı	ole kit thermometer infra-red thermometer



CERTIFICATE OF ANALYSIS

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFAS Monitoring Sampled By: James F. Murphy

PWS ID: 320078

Report Date:	10/4/2021
Receipt Date:	9/9/2021
Sampled By:	Tom Drake II

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
MG Tank	PEF70452	810-1699-1	9/7/2021	1:40 PM
Raw Water Tap	PEF70453	810-1699-2	9/7/2021	1:35 PM

Jerry Pollen / Marcus Cogley

Pollen Environmental, LLC



Environment Testing America

ANALYTICAL REPORT

Eurofins Eaton Analytical - South Bend 110 S Hill Street South Bend, IN 46617 Tel: (574)233-4777

Laboratory Job ID: 810-1699-1

Client Project/Site: PFC Compliance

For:

Pollen Environmental LLC 3039 Davis Road Fairbanks, Alaska 99709

Attn: Jerry Pollen

Essi Ca46

Authorized for release by: 10/4/2021 1:11:53 PM

Traci Chlebowski, Project Manager (574)233-4777

traci.chlebowski@eurofinset.com

.....LINKS

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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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3

4

5

7

8

1 N

13

14

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
Surrogate Summary	7
QC Sample Results	8
QC Association Summary	9
Lab Chronicle	10
Certification Summary	11
Method Summary	12
Sample Summary	13
Chain of Custody	14
Receint Checklists	15

-6

4

6

8

10

12

13

Definitions/Glossary

Client: Pollen Environmental LLC Job ID: 810-1699-1

Project/Site: PFC Compliance

Qualifiers

LCMS

Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)

EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit ML Minimum Level (Dioxin) MPN Most Probable Number MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive **Quality Control**

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

Case Narrative

Client: Pollen Environmental LLC
Project/Site: PFC Compliance

Job ID: 810-1699-1

Job ID: 810-1699-1

Laboratory: Eurofins Eaton Analytical - South Bend

Narrative

Job Narrative 810-1699-1

Comments

No additional comments.

Receipt

The samples were received on 9/10/2021 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.2° C.

LCMS

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Pollen Environmental LLC Job ID: 810-1699-1

Project/Site: PFC Compliance

Client Sample ID: PEF70452/MG Tank

PWSID Number: AK2320078

No Detections.

Client Sample ID: PEF70453/Raw Water Tap

PWSID Number: AK2320078

Analyte	Result Qualifier	RL	Unit	Dil Fac D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	50	1.8	ng/L		537.1	Total/NA
Perfluorooctanoic acid (PFOA)	4.5	1.8	ng/L	1	537.1	Total/NA

Lab Sample ID: 810-1699-1

Lab Sample ID: 810-1699-2

Client Sample Results

Client: Pollen Environmental LLC Job ID: 810-1699-1

Project/Site: PFC Compliance

Client Sample ID: PEF70452/MG Tank

Date Collected: 09/07/21 13:40 Date Received: 09/10/21 09:00 Lab Sample ID: 810-1699-1

Matrix: Drinking Water
PWSID Number: AK2320078

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<1.7		1.7	ng/L		09/14/21 08:49	09/15/21 01:48	1
Perfluorooctanoic acid (PFOA)	<1.7		1.7	ng/L		09/14/21 08:49	09/15/21 01:48	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		70 - 130			09/14/21 08:49	09/15/21 01:48	1
13C2 PFDA	97		70 - 130			09/14/21 08:49	09/15/21 01:48	1
13C3 HFPO-DA	91		70 - 130			09/14/21 08:49	09/15/21 01:48	1
	84		70 - 130			09/14/21 08:49	09/15/21 01:48	

Client Sample ID: PEF70453/Raw Water Tap

Lab Sample ID: 810-1699-2

Date Collected: 09/07/21 13:35

Matrix: Drinking Water
Date Received: 09/10/21 09:00

PWSID Number: AK2320078

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	50		1.8	ng/L		09/14/21 08:49	09/15/21 01:58	1
Perfluorooctanoic acid (PFOA)	4.5		1.8	ng/L		09/14/21 08:49	09/15/21 01:58	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	85		70 - 130			09/14/21 08:49	09/15/21 01:58	1
13C2 PFDA	100		70 - 130			09/14/21 08:49	09/15/21 01:58	1
13C3 HFPO-DA	82		70 - 130			09/14/21 08:49	09/15/21 01:58	1
d5-NEtFOSAA	87		70 - 130			09/14/21 08:49	09/15/21 01:58	

10/4/2021

Surrogate Summary

Client: Pollen Environmental LLC Job ID: 810-1699-1

Project/Site: PFC Compliance

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Drinking Water Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
		PFHxA	PFDA	HFPODA	d5NEFOS		
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)		
810-1699-1	PEF70452/MG Tank	101	97	91	84		
810-1699-2	PEF70453/Raw Water Tap	85	100	82	87		
LCS 810-3130/3-A	Lab Control Sample	92	95	95	83		
LLCS 810-3130/2-A	Lab Control Sample	104	98	94	87		
MB 810-3130/1-A	Method Blank	99	98	90	92		

Surrogate Legend

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
HFPODA = 13C3 HFPO-DA
d5NEFOS = d5-NEtFOSAA

Eurofins Eaton Analytical - South Bend

Job ID: 810-1699-1

Client: Pollen Environmental LLC

Project/Site: PFC Compliance

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 810-3130/1-A Client Sample ID: Method Blank

Matrix: Drinking Water Analysis Batch: 3207

Prep Type: Total/NA Prep Batch: 3130

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		09/14/21 08:49	09/14/21 22:16	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		09/14/21 08:49	09/14/21 22:16	1

MB MB

Surrogate	%Recovery Qu	ualifier Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99	70 - 130	09/14/21 08:49	09/14/21 22:16	1
13C2 PFDA	98	70 - 130	09/14/21 08:49	09/14/21 22:16	1
13C3 HFPO-DA	90	70 - 130	09/14/21 08:49	09/14/21 22:16	1
d5-NEtFOSAA	92	70 - 130	09/14/21 08:49	09/14/21 22:16	1

Lab Sample ID: LCS 810-3130/3-A **Client Sample ID: Lab Control Sample**

Matrix: Drinking Water Analysis Batch: 3207

Prep Type: Total/NA Prep Batch: 3130

	Spike	LCS	LCS			%Rec.	
Analyte	Added	Result	Qualifier Un	it D	%Rec	Limits	
Perfluorooctanesulfonic acid	178	158	ng/	L _	89	70 - 130	
(PFOS)							
Perfluorooctanoic acid (PFOA)	178	164	ng/	Ľ	92	70 - 130	

LCS LCS

	LC3 LC3	
Surrogate	%Recovery Qualifier	Limits
13C2 PFHxA	92	70 - 130
13C2 PFDA	95	70 - 130
13C3 HFPO-DA	95	70 - 130
d5-NEtFOSAA	83	70 - 130

Lab Sample ID: LLCS 810-3130/2-A

Matrix: Drinking Water Analysis Batch: 3207

Client Sample ID: Lab Control Sample

Prep Type: Total/NA Prep Batch: 3130

	Sp	ke LLCS	LLCS				%Rec.	
Analyte	Add	ed Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorooctanesulfonic acid		78 1.58	J	ng/L		89	50 - 150	
(PFOS)								
Perfluorooctanoic acid (PFOA)	1	78 1.66	J	ng/L		93	50 - 150	

LLCS LLCS

Surrogate	%Recovery	Qualifier	Limits
13C2 PFHxA	104		70 - 130
13C2 PFDA	98		70 - 130
13C3 HFPO-DA	94		70 - 130
d5-NEtFOSAA	87		70 - 130

Eurofins Eaton Analytical - South Bend

10/4/2021

QC Association Summary

Client: Pollen Environmental LLC
Project/Site: PFC Compliance

Job ID: 810-1699-1

LCMS

Prep Batch: 3130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-1699-1	PEF70452/MG Tank	Total/NA	Drinking Water	537.1 DW	
810-1699-2	PEF70453/Raw Water Tap	Total/NA	Drinking Water	537.1 DW	
MB 810-3130/1-A	Method Blank	Total/NA	Drinking Water	537.1 DW	
LCS 810-3130/3-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW	
LLCS 810-3130/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW	

Analysis Batch: 3207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-1699-1	PEF70452/MG Tank	Total/NA	Drinking Water	537.1	3130
810-1699-2	PEF70453/Raw Water Tap	Total/NA	Drinking Water	537.1	3130
MB 810-3130/1-A	Method Blank	Total/NA	Drinking Water	537.1	3130
LCS 810-3130/3-A	Lab Control Sample	Total/NA	Drinking Water	537.1	3130
LLCS 810-3130/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1	3130

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Lab Chronicle

Client: Pollen Environmental LLC Job ID: 810-1699-1

Project/Site: PFC Compliance

Client Sample ID: PEF70452/MG Tank

Lab Sample ID: 810-1699-1 Date Collected: 09/07/21 13:40 **Matrix: Drinking Water**

Date Received: 09/10/21 09:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			3130	09/14/21 08:49	ST	EA SB
Total/NA	Analysis	537.1		1	3207	09/15/21 01:48	MH	EA SB

Client Sample ID: PEF70453/Raw Water Tap

Lab Sample ID: 810-1699-2 Date Collected: 09/07/21 13:35 **Matrix: Drinking Water**

Date Received: 09/10/21 09:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			3130	09/14/21 08:49	ST	EA SB
Total/NA	Analysis	537.1		1	3207	09/15/21 01:58	MH	EA SB

Laboratory References:

EASB = Eurofins Eaton Analytical - South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Accreditation/Certification Summary

Client: Pollen Environmental LLC
Project/Site: PFC Compliance

Job ID: 810-1699-1

Laboratory: Eurofins Eaton Analytical - South Bend

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska	State	IN00035	06-30-22

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Method Summary

Client: Pollen Environmental LLC Project/Site: PFC Compliance

Job ID: 810-1699-1

Method	Method Description	Protocol	Laboratory
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA SB
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	EA SB

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EA SB = Eurofins Eaton Analytical - South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

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Sample Summary

Client: Pollen Environmental LLC Project/Site: PFC Compliance

Job ID: 810-1699-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
810-1699-1	PEF70452/MG Tank	Drinking Water	09/07/21 13:40	09/10/21 09:00	AK2320078
810-1699-2	PEF70453/Raw Water Tap	Drinking Water	09/07/21 13:35	09/10/21 09:00	AK2320078

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ENVIRONMENTAL, LLC 3039 Davis Road Egirbanks AK 99709 1 907 479 8368 L wasay pollengay com



STODY/WORKORDER FORM

COC# BUECI PFC

	STODY/WORKO
(8) 86 (1984 19 06 1911 1 9 (8) 10 (8) 6 (8) (9) (8) (8) (8) (8)	CO

3039 Davis Road F	airbanks, AK 99	709 907.	4/9.8368	I www.b	oollenenv.com											
	CLIENT INFORMATI	ON		Contact Person: Jim Murphy				Requested Analysis								
Company: Barrow Utilitie	s & Electric Coop.														Page 1 of 1	
								Perserva	tive Added	ii						·
Address: P.O. Box 449				WWTP APDES #:			7444	Trizmi	1							
City, State Zip: Barrow, AK 99723			PWS ID #	: 320078												
Phone: 907-852-3176				Send Resu	Its to ADEC:											Normal Turnaround
Fax: 907-852-5164				Yes	□ No		22	SC								
Email: powerplant@buec	i.org	-		1	der/Charge Code:		ntaine	PFOS								□ RUSH day(s)
Project Name: PFAS Moni	toring			20210601		of Co	8									
Sampled By:	X. 1. T				2021-8	79	lumber	PFOA								
Sample Identification	Drake TI Sample Point ID:	Comple Bate	Comple Time	Madula	Lab ID#	Sub Lab ID#	N	_	1							
						Sub Lab ID#	2	X	15				ř.			Sample Comments
MG Tank	SPTP001	917/21	13:40	1	EF 70452		Specific		17							
Raw Water Tap	SPIN001	9/7/21	1334	W P	ef 70453		2	Х	(1)			_				
						-										
							2									

							Wales									
							100 C 100 C									
							2k									
							ASSESSOR									
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		Specia	Instructions	JQC Requi	rements & Comme	nts:			1						Sample	Temperature:
														Pollen Er	W 00 355	val: 0 / °C
														1		
						1										1: 2.2 (°C IA)
Relinquished by: Relinquished by:		Company:		Date & Tin	ne: 7540	Received by:	16	llen	,	Company	Poller	Env		Date & T	ime:	0920am
Relinquished by: Polley	1	Company:	Pollen Env	Date & Tin	ne: 21@ 1100am	Received 17:	2	0	~	Company	EE	A		Date & T	18-a	0900
Relinquished by:		Company:		Date & Tin	ne:	Received by:	(5		Company	/ :			Date & T		

Login Sample Receipt Checklist

Client: Pollen Environmental LLC Job Number: 810-1699-1

Login Number: 1699 List Source: Eurofins Eaton Analytical - South Bend

List Number: 1

Creator: Spurgeon, Sheri

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

POLLEI ENVIRONMENTAL, LLC 3039 Davis Road Fairbanks, AK 99709 | 907.479.8368 | www.pollenenv.com

CHAIN OF CUSTODY/WORKORDER FORM

COC# BUECI PFC

CLIENT INFORMATION Company: Barrow Utilities & Electric Coop.			Contact P Jim Mu			Requested Analysis					Page 1 of 1	
Address: P.O. Box 449				MANATE A	DDEC #.			Perservative Ac	lded			
	City, State Zip: Barrow, AK 99723			WWTP APDES #:								
City, State Zip: Barrow, AK 99723				#: 320078								
Phone: 907-852-3176				Send Res	ults to ADEC:							Normal Turnaround
Fax: 907-852-5164				Yes Yes	□ No		srs	SC				
Email: powerplant@buec	ci.org			Purchase C	Order/Charge Code:		ontaine	PFOS				□ RUSH day(s)
Project Name: PFAS Moni	toring				0#2021 - 91	- 98 7 8 8						
Sampled By:	Drake 3			10	1	3.5	Number of Containers	PFOA				
Sample Identification	Sample Point	ID: Sample Date	Sample Tim	e Matrix	Lab ID#	Sub Lab ID#						Sample Comments
MG Tank	SPTP001	10/25/21	6916	W	PEF7144	6	2	X				
Raw Water Tap	SPIN001	10/25/21	0940	W	PEF 7144		2	Х				
								- 11				
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	_											
	_			+								
				-	1							
				-								
				1								
		Specia	I Instruction	s/QC Requ	irements & Comme	ents:	1				5	Sample Temperature:
											150000	on arrival:
Relinquished by: Relinquished by: Relinquished by:	Fa	Company:		Date & Ti	69:45	Received by:	_		Сотрану:	EN	Date & Ti	1/2021 @ 10:50
Relinquished by:	ten	Company:	Em	Date & Ti	me: 21130	Received by:			Company:		Date & Ti	me:



SAMPLE RECEIPT CHECKLIST

Date	e &	Time	Received 10 36 301 0150 Initials TDP
La	abora	atory	Identification PEF71446-PEF7144
N/A	YES	NO	
			Custody Seals intact? (N/A if hand delivered)
			Chain of Custody (COC) present and properly filled out?
			Samples received in hold time?
			Proper container and preservatives used?
			Bottles received intact and properly labeled
			Do sample labels match the COC?
			Sufficient volume of sample for all analysis?
			Temperature Blank received in cooler?
			Were samples chilled before delivery to lab?
	V		Did samples have sufficient time to cool before delivery to lab? If not, mark ITTC (Insufficient Time To Cool) on COC form.
d			Are air bubbles present in VOA vials?
Notes	s:		
_			
*Tem	peratur	e upon	receipt at the laboratory 1,9 °C
	intern	al sampl	e kit thermometer infra-red thermometer



CERTIFICATE OF ANALYSIS

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFAS Monitoring Sampled By: James F. Murphy

PWS ID: 320078

Report Date:	11/8/2021
Receipt Date:	10/26/2021
Sampled By:	Tom Drake II

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
MG Tank	PEF71446	810-6039-1	10/25/2021	9:15 AM
Raw Water Tap	PEF71447	810-6039-2	10/25/2021	9:10 AM

Jerry Pollen

Pollen Environmental, LLC



Environment Testing America

ANALYTICAL REPORT

Eurofins Eaton Analytical - South Bend 110 S Hill Street South Bend, IN 46617 Tel: (574)233-4777

Laboratory Job ID: 810-6039-1

Client Project/Site: PFC Compliance 2021-982

For:

Pollen Environmental LLC 3039 Davis Road Fairbanks, Alaska 99709

Attn: Jerry Pollen

Eraci Ca46

Authorized for release by: 11/7/2021 9:25:55 AM

Traci Chlebowski, Project Manager (574)233-4777

traci.chlebowski@eurofinset.com

LINKS

Review your project results through

Total Access

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Detection Summary	4
Client Sample Results	5
Surrogate Summary	6
QC Sample Results	7
QC Association Summary	8
Lab Chronicle	9
Certification Summary	10
Method Summary	11
Sample Summary	12
Chain of Custody	13
Receint Checklists	14

3

4

6

8

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Definitions/Glossary

Client: Pollen Environmental LLC Job ID: 810-6039-1 Project/Site: PFC Compliance 2021-982

Qualifiers

LCMS

Qualifier **Qualifier Description**

Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery **CFL** Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

Duplicate Error Ratio (normalized absolute difference) DER

Dil Fac **Dilution Factor**

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin) LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit MLMinimum Level (Dioxin) MPN Most Probable Number Method Quantitation Limit MQL

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC **Quality Control**

Relative Error Ratio (Radiochemistry) **RER**

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count **TNTC**

Page 3 of 14

Detection Summary

Client: Pollen Environmental LLC Job ID: 810-6039-1

Project/Site: PFC Compliance 2021-982

Client Sample ID: PEF71446/MG Tank

PWSID Number: AK2320078

Lab Sample ID: 810-6039-1

No Detections.

Client Sample ID: PEF71447/Raw Water Tap Lab Sample ID: 810-6039-2

PWSID Number: AK2320078

Analyte	Result Qualifier	RL	Unit	Dil Fac D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	61	1.7	ng/L		537.1	Total/NA
Perfluorooctanoic acid (PFOA)	5.3	1.7	ng/L	1	537.1	Total/NA

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Client Sample Results

Client: Pollen Environmental LLC Project/Site: PFC Compliance 2021-982

Lab Sample ID: 810-6039-1

Matrix: Drinking Water

Job ID: 810-6039-1

PWSID Number: AK2320078

Client Sample ID: PEF71446/MG Tank
D-4- 0-11-4-4-40/05/04 00-45

Date Collected: 10/25/21 09:15
Date Received: 10/27/21 14:00

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	ng/L		10/29/21 06:00	10/29/21 23:21	1
Perfluorooctanoic acid (PFOA)	<1.8		1.8	ng/L		10/29/21 06:00	10/29/21 23:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	84	·	70 - 130			10/29/21 06:00	10/29/21 23:21	1
13C2 PFDA	94		70 - 130			10/29/21 06:00	10/29/21 23:21	1
13C3 HFPO-DA	84		70 - 130			10/29/21 06:00	10/29/21 23:21	1
d5-NEtFOSAA	85		70 - 130			10/29/21 06:00	10/29/21 23:21	1

Client Sample ID: PEF71447/Raw Water Tap

Date Collected: 10/25/21 09:10 Date Received: 10/27/21 14:00

Lab Sample ID: 810-6039-2
Matrix: Drinking Water
PWSID Number: AK2320078

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	61		1.7	ng/L		10/29/21 06:00	10/29/21 23:32	1
Perfluorooctanoic acid (PFOA)	5.3		1.7	ng/L		10/29/21 06:00	10/29/21 23:32	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	76		70 - 130			10/29/21 06:00	10/29/21 23:32	1
13C2 PFDA	92		70 - 130			10/29/21 06:00	10/29/21 23:32	1
13C3 HFPO-DA	82		70 - 130			10/29/21 06:00	10/29/21 23:32	1
d5-NEtFOSAA	86		70 - 130			10/29/21 06:00	10/29/21 23:32	

11/7/2021

Surrogate Summary

Client: Pollen Environmental LLC Job ID: 810-6039-1 Project/Site: PFC Compliance 2021-982

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Drinking Water Prep Type: Total/NA

			Percent Surrogate Recovery (A				
		PFHxA	PFDA	HFPODA	d5NEFOS		
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)		
810-6039-1	PEF71446/MG Tank	84	94	84	85		
810-6039-2	PEF71447/Raw Water Tap	76	92	82	86		
LCS 810-6210/3-A	Lab Control Sample	93	88	90	86		
LLCS 810-6210/2-A	Lab Control Sample	88	88	87	88		
MB 810-6210/1-A	Method Blank	88	86	91	84		

Surrogate Legend

PFHxA = 13C2 PFHxA PFDA = 13C2 PFDA HFPODA = 13C3 HFPO-DA d5NEFOS = d5-NEtFOSAA

Client: Pollen Environmental LLC Job ID: 810-6039-1 Project/Site: PFC Compliance 2021-982

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 810-6210/1-A

Matrix: Drinking Water Analysis Batch: 6267

Perfluorooctanoic acid (PFOA)

Perfluorooctanesulfonic acid (PFOS)

Analyte

Client Sample ID: Method Blank

Prep Type: Total/NA Prep Batch: 6210

MB MB Result Qualifier RL Unit Prepared Analyzed Dil Fac <2.0 2.0 ng/L 10/29/21 06:00 10/29/21 19:49 <2.0 2.0 ng/L 10/29/21 06:00 10/29/21 19:49

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	88		70 - 130	10/29/21 06:00	10/29/21 19:49	1
13C2 PFDA	86		70 - 130	10/29/21 06:00	10/29/21 19:49	1
13C3 HFPO-DA	91		70 - 130	10/29/21 06:00	10/29/21 19:49	1
d5-NEtFOSAA	84		70 - 130	10/29/21 06:00	10/29/21 19:49	1

Lab Sample ID: LCS 810-6210/3-A

Matrix: Drinking Water Analysis Batch: 6267

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Prep Batch: 6210

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit %Rec Limits Perfluorooctanesulfonic acid 95.7 97.1 ng/L 101 70 - 130 (PFOS) Perfluorooctanoic acid (PFOA) 95.7 98.3 103 70 - 130 ng/L

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
13C2 PFHxA	93		70 - 130
13C2 PFDA	88		70 - 130
13C3 HFPO-DA	90		70 - 130
d5-NEtFOSAA	86		70 - 130

Lab Sample ID: LLCS 810-6210/2-A

Matrix: Drinking Water Analysis Batch: 6267

Perfluorooctanoic acid (PFOA)

Client Sample ID: Lab Control Sample

Spike LLCS LLCS %Rec. Analyte Added Result Qualifier Unit %Rec Limits Perfluorooctanesulfonic acid 1.88 1.89 J ng/L 100 50 - 150 (PFOS)

1.80 J

ng/L

1.88

LLCS LLCS

Surrogate	%Recovery Q	ualifier	Limits
13C2 PFHxA	88		70 - 130
13C2 PFDA	88		70 - 130
13C3 HFPO-DA	87		70 - 130
d5-NEtFOSAA	88		70 - 130

50 - 150

95

Prep Type: Total/NA

Prep Batch: 6210

QC Association Summary

Client: Pollen Environmental LLC
Project/Site: PFC Compliance 2021-982

Job ID: 810-6039-1

LCMS

Prep Batch: 6210

Lab Sample ID 810-6039-1	Client Sample ID PEF71446/MG Tank	Prep Type Total/NA	Matrix Drinking Water	Method 537.1 DW	Prep Batch
810-6039-2	PEF71447/Raw Water Tap	Total/NA	Drinking Water	537.1 DW	
MB 810-6210/1-A	Method Blank	Total/NA	Drinking Water	537.1 DW	
LCS 810-6210/3-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW	
LLCS 810-6210/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW	

Analysis Batch: 6267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-6039-1	PEF71446/MG Tank	Total/NA	Drinking Water	537.1	6210
810-6039-2	PEF71447/Raw Water Tap	Total/NA	Drinking Water	537.1	6210
MB 810-6210/1-A	Method Blank	Total/NA	Drinking Water	537.1	6210
LCS 810-6210/3-A	Lab Control Sample	Total/NA	Drinking Water	537.1	6210
LLCS 810-6210/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1	6210

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Lab Chronicle

Client: Pollen Environmental LLC Job ID: 810-6039-1

Project/Site: PFC Compliance 2021-982

Client Sample ID: PEF71446/MG Tank

Lab Sample ID: 810-6039-1 Date Collected: 10/25/21 09:15 **Matrix: Drinking Water**

Date Received: 10/27/21 14:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			6210	10/29/21 06:00	TR	EA SB
Total/NA	Analysis	537.1		1	6267	10/29/21 23:21	MH	EA SB

Client Sample ID: PEF71447/Raw Water Tap

Date Collected: 10/25/21 09:10

Date Received: 10/27/21 14:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			6210	10/29/21 06:00	TR	EA SB
Total/NA	Analysis	537.1		1	6267	10/29/21 23:32	MH	EA SB

Laboratory References:

EA SB = Eurofins Eaton Analytical - South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Lab Sample ID: 810-6039-2

Matrix: Drinking Water

Accreditation/Certification Summary

Client: Pollen Environmental LLC Job ID: 810-6039-1

Project/Site: PFC Compliance 2021-982

Laboratory: Eurofins Eaton Analytical - South Bend

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska	State	IN00035	06-30-22

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Method Summary

Client: Pollen Environmental LLC

Project/Site: PFC Compliance 2021-982

Method	Method Description	Protocol	Laboratory
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA SB
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	EA SB

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EA SB = Eurofins Eaton Analytical - South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Job ID: 810-6039-1

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Sample Summary

Client: Pollen Environmental LLC

Project/Site: PFC Compliance 2021-982

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
810-6039-1	PEF71446/MG Tank	Drinking Water	10/25/21 09:15	10/27/21 14:00	AK2320078
810-6039-2	PEF71447/Raw Water Tap	Drinking Water	10/25/21 09:10	10/27/21 14:00	AK2320078

Job ID: 810-6039-1

ENVIRONMENTAL, LLC 3039 Davis Road Egirbanks, AK 99709 L 907 479 83 68 L www.polleneav.com 810-6039



ISTODY/WORKORDER FORM

COC# **BUECI PFC**

	CLIENT INFORM	IATION		Contact P				1						
Company: Barrow Utilitie	es & Electric Coo	p.		Jim Mu	rpny						Page 1 of			
Address: P.O. Box 449				WWTP A	PDES #:			Perserva Tri Zmi	tive Added					
City, State Zip: Barrow, A	AK 99723			PWS ID #: 320078			- (C 1)							
Phone: 907-852-3176				Send Results to ADEC:			Ī.							Normal Turnaround
Fax: 907-852-5164				Yes	□ No			100						
	mall: powerplant@bueci.org Project Name: PFAS Monitoring			Purchase O	rder/Charge Code:		Containers	PFOS						☐ RUSH day(s)
				202	10001			∞ ಶ						
				7	#2021 - 98	Number of	PFOA							
Sampled By: 10m	Drake:	I					Non	F F						
Sample Identification		ID: Sample Date	ogus	e Matrix W	PEF 71446	Sub Lab ID#	2	X	(1)					Sample Comments
MG Tank	SPTP001				OCC TILL		2	X	13					
Raw Water Tap	SPIN001	10/25/21	09140	W	151 1131		-		4)_					
												-		
												+		
					-			-				-		
												-		
							100	-						
		Specia	I Instructions	s/QC Requ	irements & Commer	its:							Sam	ple Temperature.
													Pollen Env on	arrival: 1,9 °C 23
					5								Sub Lab on ar	rival:
						\bigcirc								Intact
Relinquished by:	F,	Company:		Date & Tir	09445	Received by:				Company:	EN		Date & Jime:	021 @ 10'5D
Relinquished by:	ten	Company:	Em	Date & Tir		Received by	7	20	on	Company:	A		Date & Time: Date & Time:	AN 1400
Relinquished by:	1	Company:	-110	Date & Tir	ne:	Received by:	7			Company:			Date & Time:	יאון וקטט

Login Sample Receipt Checklist

Client: Pollen Environmental LLC Job Number: 810-6039-1

Login Number: 6039 List Source: Eurofins Eaton Analytical - South Bend

List Number: 1

Creator: Spurgeon, Sheri

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

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POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax jerry@pollenenv.com

COC# BUECI PFC

CLIENT INFORMATION Company: Barrow Utilities & Electric Coop.			Contact P				Requested Analysis Perservative Added						Page 1 of 1			
Address: P.O. Box 449				WWTP A	PDES #:			Trizma Mixture	ve Added							
City, State Zip: Barrow, A	AK 99723			PWS ID	#: 320078			MIXLUTE								
Phone: 907-852-8427				Send Res	ults to ADEC:									Normal Turnaround		
Fax: 907-852-5164				v Yes	□ No		22	SC						,		
Email: powerplant@buec	Email: powerplant@bueci.org			Purchase C	Order/Charge Code: 202	10001	ntaine	PFO						☐ RUSH day(s)		
Project Name: PFAS Moni	itoring			- 2	1021-995		r of Co	A S								
Sampled By: 16m	Drake :	生					Numbe	PFOA								
Sample Identification	Sample Point I	D: Sample Date	Sample Tim	e Matrix	Lab ID#	Sub Lab ID#							4	Sample Comments		
Raw Water Tap	SPIN001	11/1/21	0900	W	PEF 71570		2	Х								
MG Tank	SPTP001	11/1/21	0905	W	PEF71571		2	х								
														1		
Possible Hazard Identific	□ Flammable	□ Skin Irritani	t 🗆 Uni	known		Pollen Env Tempe Sub Lab Tempera		on arriva		c coc		- II		□ Broken □ Absent □ Broken □ Absent		
Special Instructions/QC	Requirements &	comments:														
Relinquished by: Tom Drake II Relinguished by?		Company:	C.T.		Date & Time: 11 (1) 21 Date & Time: 11-3-21 @ 1	6945	Rec	elved by:	Coglas	Compar 6 Compar	y: Pollen Env	,	Date & Date &	Time:		
Religioushed by:		Company:	ren En	V	1/-3-2/@/ Date & Time:	100am		elved by:	00	Compar			Date &			



SAMPLE RECEIPT CHECKLIST

Dat	e &	Time	e Received <u>upal e 1010</u> Initials <u>MC</u>						
L	Laboratory Identification PEF 71570-71572								
N/A	YES	NO							
			Custody Seals intact? (N/A if hand delivered)						
			Chain of Custody (COC) present and properly filled out?						
	Q		Samples received in hold time?						
	Ø		Proper container and preservatives used?						
			Bottles received intact and properly labeled						
	Do sample labels match the COC?								
	Ø'		Sufficient volume of sample for all analysis?						
			Temperature Blank received in cooler?						
			Were samples chilled before delivery to lab?						
			Did samples have sufficient time to cool before delivery to lab? If not, mark ITTC (Insufficient Time To Cool) on COC form.						
R			Are air bubbles present in VOA vials?						
Notes	5:								
*Tem			receipt at the laboratory 38°C e kit thermometer						



CERTIFICATE OF ANALYSIS

Report Date:

Receipt Date:

Sampled By:

11/18/2021

11/2/2021

Tom Drake II

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFAS Monitoring

Sampled By: Tom Drake II

PWS ID: 320078

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Tap	PEF71570	810-6759-1	11/1/2021	9:00 AM
MG Tank	PEF71571	810-6759-2	11/1/2021	9:05 AM

Jerry Pollen

Pollen Environmental, LLC



Environment Testing America

ANALYTICAL REPORT

Eurofins Eaton Analytical - South Bend 110 S Hill Street South Bend, IN 46617 Tel: (574)233-4777

Laboratory Job ID: 810-6759-1

Client Project/Site: PFC Compliance - 2021-995

For:

Pollen Environmental LLC 3039 Davis Road Fairbanks, Alaska 99709

Attn: Jerry Pollen

Essi Ca46

Authorized for release by: 11/18/2021 2:48:35 PM

Traci Chlebowski, Project Manager (574)233-4777

traci.chlebowski@eurofinset.com

LINKS

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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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14

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
Surrogate Summary	7
QC Sample Results	8
QC Association Summary	9
Lab Chronicle	10
Certification Summary	11
Method Summary	12
Sample Summary	13
Chain of Custody	14
Receipt Checklists	15

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Definitions/Glossary

Client: Pollen Environmental LLC

Job ID: 810-6759-1 Project/Site: PFC Compliance - 2021-995

Qualifiers

LCMS

Qualifier **Qualifier Description**

Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Appreviation	These commonly used appreviations may or may not be present in this report.
n	listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery **CFL** Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

Duplicate Error Ratio (normalized absolute difference) DER

Dil Fac **Dilution Factor**

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

Estimated Detection Limit (Dioxin) **EDL** LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit MLMinimum Level (Dioxin) MPN Most Probable Number Method Quantitation Limit MQL

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC **Quality Control**

Relative Error Ratio (Radiochemistry) **RER**

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count **TNTC**

Case Narrative

Client: Pollen Environmental LLC

Project/Site: PFC Compliance - 2021-995

Job ID: 810-6759-1

Job ID: 810-6759-1

Laboratory: Eurofins Eaton Analytical - South Bend

Narrative

Job Narrative 810-6759-1

Comments

No additional comments.

Receipt

The samples were received on 11/4/2021 9:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.2° C.

LCMS

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

5-07-55-1

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Detection Summary

Client: Pollen Environmental LLC Job ID: 810-6759-1

Project/Site: PFC Compliance - 2021-995

Client Sample ID: PEF71570/Raw Water Tap

PWSID Number: AK2320078

Lab Sample ID: 810-6759-1

Lab Sample ID: 810-6759-2

Analyte	Result Qua	alifier RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS	53	1.8	ng/L	1	_	537.1	Total/NA
Perfluorooctanoic acid (PFOA)	4.8	1.8	ng/L	1		537.1	Total/NA

Client Sample ID: PEF71571/MG Tank

PWSID Number: AK2320078

No Detections.

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Client Sample Results

Client: Pollen Environmental LLC

Project/Site: PFC Compliance - 2021-995

Client Sample ID: PEF71570/Raw Water Tap

Date Collected: 11/01/21 09:00 Date Received: 11/04/21 09:15 Lab Sample ID: 810-6759-1

Matrix: Drinking Water PWSID Number: AK2320078

Job ID: 810-6759-1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	53		1.8	ng/L		11/05/21 05:20	11/05/21 23:13	1
Perfluorooctanoic acid (PFOA)	4.8		1.8	ng/L		11/05/21 05:20	11/05/21 23:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	78		70 - 130			11/05/21 05:20	11/05/21 23:13	1
13C2 PFDA	95		70 - 130			11/05/21 05:20	11/05/21 23:13	1
13C3 HFPO-DA	80		70 - 130			11/05/21 05:20	11/05/21 23:13	1
d5-NEtFOSAA	82		70 - 130			11/05/21 05:20	11/05/21 23:13	

Client Sample ID: PEF71571/MG Tank

Date Collected: 11/01/21 09:05 Date Received: 11/04/21 09:15 Lab Sample ID: 810-6759-2

Matrix: Drinking Water PWSID Number: AK2320078

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<1.7		1.7	ng/L		11/05/21 05:20	11/05/21 23:24	1
Perfluorooctanoic acid (PFOA)	<1.7		1.7	ng/L		11/05/21 05:20	11/05/21 23:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		70 - 130			11/05/21 05:20	11/05/21 23:24	1
13C2 PFDA	88		70 - 130			11/05/21 05:20	11/05/21 23:24	1
13C3 HFPO-DA	85		70 - 130			11/05/21 05:20	11/05/21 23:24	1

11/18/2021

Surrogate Summary

Client: Pollen Environmental LLC

Project/Site: PFC Compliance - 2021-995

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Drinking Water Prep Type: Total/NA

810-6759-2		Percent Surrogate Recove							
		PFHxA	PFDA	HFPODA	d5NEFOS				
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)				
810-6759-1	PEF71570/Raw Water Tap	78	95	80	82				
810-6759-2	PEF71571/MG Tank	89	88	85	83				
LLCS 810-6664/2-A	Lab Control Sample	94	87	93	86				
MB 810-6664/1-A	Method Blank	83	90	86	83				

Surrogate Legend

PFHxA = 13C2 PFHxA PFDA = 13C2 PFDA HFPODA = 13C3 HFPO-DA d5NEFOS = d5-NEtFOSAA 3

Job ID: 810-6759-1

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QC Sample Results

Client: Pollen Environmental LLC Job ID: 810-6759-1

Project/Site: PFC Compliance - 2021-995

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Drinking Water Analysis Batch: 6722

Prep Type: Total/NA Prep Batch: 6664 MB MB

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<2.0	2.0	ng/L		11/05/21 05:20	11/05/21 21:16	1
Perfluorooctanoic acid (PFOA)	<2.0	2.0	ng/L		11/05/21 05:20	11/05/21 21:16	1
	MB MB						

Surrogate	%Recovery	Qualifier Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	83	70 - 13	0 11/05/21 05:20	11/05/21 21:16	1
13C2 PFDA	90	70 - 13	0 11/05/21 05:20	11/05/21 21:16	1
13C3 HFPO-DA	86	70 - 13	0 11/05/21 05:20	11/05/21 21:16	1
d5-NEtFOSAA	83	70 - 13	0 11/05/21 05:20	11/05/21 21:16	1

Lab Sample ID: LLCS 810-6664/2-A

Client Sample ID: Lab Control Sample Matrix: Drinking Water Prep Type: Total/NA **Analysis Batch: 6722**

Prep Batch: 6664 LLCS LLCS Spike %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Perfluorooctanesulfonic acid 1.94 1.82 J ng/L 94 50 - 150 (PFOS) Perfluorooctanoic acid (PFOA) 1.94 1.67 J ng/L 86 50 - 150

LLCS LLCS Surrogate %Recovery Qualifier Limits 13C2 PFHxA 70 - 130 94 13C2 PFDA 87 70 - 130 13C3 HFPO-DA 70 - 130 93 d5-NEtFOSAA 86 70 - 130

Eurofins Eaton Analytical - South Bend

11/18/2021

QC Association Summary

Client: Pollen Environmental LLC

Project/Site: PFC Compliance - 2021-995

LCMS

Prep Batch: 6664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method Prep Batch
810-6759-1	PEF71570/Raw Water Tap	Total/NA	Drinking Water	537.1 DW
810-6759-2	PEF71571/MG Tank	Total/NA	Drinking Water	537.1 DW
MB 810-6664/1-A	Method Blank	Total/NA	Drinking Water	537.1 DW
LLCS 810-6664/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW

Analysis Batch: 6722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-6759-1	PEF71570/Raw Water Tap	Total/NA	Drinking Water	537.1	6664
810-6759-2	PEF71571/MG Tank	Total/NA	Drinking Water	537.1	6664
MB 810-6664/1-A	Method Blank	Total/NA	Drinking Water	537.1	6664
LLCS 810-6664/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1	6664

Job ID: 810-6759-1

Lab Chronicle

Client: Pollen Environmental LLC

Project/Site: PFC Compliance - 2021-995

Client Sample ID: PEF71570/Raw Water Tap

Lab Sample ID: 810-6759-1 Date Collected: 11/01/21 09:00 **Matrix: Drinking Water** Date Received: 11/04/21 09:15

Batch **Batch** Dilution **Batch** Prepared **Prep Type** Method or Analyzed Analyst Type Run **Factor** Number Lab Total/NA 537.1 DW 6664 11/05/21 05:20 TR **EA SB** Prep Total/NA EA SB 537.1 6722 11/05/21 23:13 MH Analysis 1

Client Sample ID: PEF71571/MG Tank

Date Collected: 11/01/21 09:05

Date Received: 11/04/21 09:15

		Batch	Batch		Dilution	Batch	Prepared		
	Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
	Total/NA	Prep	537.1 DW			6664	11/05/21 05:20	TR	EA SB
l	Total/NA	Analysis	537.1		1	6722	11/05/21 23:24	MH	EA SB

Laboratory References:

EA SB = Eurofins Eaton Analytical - South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Lab Sample ID: 810-6759-2

Matrix: Drinking Water

Accreditation/Certification Summary

Client: Pollen Environmental LLC Job ID: 810-6759-1

Project/Site: PFC Compliance - 2021-995

Laboratory: Eurofins Eaton Analytical - South Bend

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska	State	IN00035	06-30-22

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Method Summary

Client: Pollen Environmental LLC

Project/Site: PFC Compliance - 2021-995

MethodMethod DescriptionProtocolLaboratory537.1Perfluorinated Alkyl Acids (LC/MS)EPAEA SB537.1 DWExtraction of Perfluorinated Alkyl AcidsEPAEA SB

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EASB = Eurofins Eaton Analytical - South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Job ID: 810-6759-1

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Sample Summary

Client: Pollen Environmental LLC Project/Site: PFC Compliance - 2021-995

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
810-6759-1	PEF71570/Raw Water Tap	Drinking Water	11/01/21 09:00	11/04/21 09:15	AK2320078
810-6759-2	PEF71571/MG Tank	Drinking Water	11/01/21 09:05	11/04/21 09:15	AK2320078

Job ID: 810-6759-1

POLLEN ENVIRONMENTAL, LLC.

CHAIN OF CUSTODY/WORKORDER FORM

3536 International Street Fairbanks, AK 99701 (907) 479-8368 Phone (907) 452-6853 Fax Jerry@pollenenv.com



COC# BUECI PFC

	CLIENT INFORMATI	ON		Contact Po	erson: 810-6759	Chain of Custody				R	quested	Analysis			Page 1	of 1	
Company: Barrow Utilities	& Electric Coop.							Dorcon/at	ive Added						, age .	0. 2	
Address: P.O. Box 449				WWTP A	PDES #:	-		Trizma	ve Added								
City, State Zip: Barrow, Al	K 99723			PWS ID #	#: 320078			Mixture									
Phone: 907-852-8427				Send Resu	Its to ADEC:										Normal Tu	rnaround	
Fax: 907-852-5164				v Yes	□ No		2	SS							1		
Email: powerplant@bueci	.org			Purchase Order/Charge Code: 20210001			ntaine	PFOS							□ RUSH	day(s)	
Project Name: PFAS Monit	coring			2021-995			er of Co	ø									
Sampled By: 15m	Drake #	-					Mumb	PFOA									
Sample Identification	Sample Point ID:	Sample Date	Sample Time	Matrix	Lab ID#	Sub Lab ID#	100000			111111111111111111111111111111111111111					Sample Cor	nments	
Raw Water Tap	SPIN001	11/1/21	0900	W	PEF 71570		2	xU									
MG Tank	SPTP001	11/1/21	0905	W	PEF71571		2	×L	Pa .								
				-													
				-		-				-							
				-													
					<u> </u>												
Possible Hazard Identific Non-Hazardous		□ Skin Irritant	: 🗆 Unk	known		Pollen Env Tempera Sub Lab Temperati		on arriv			coc s		1		□ Broken □ Broken	□ Absent	
Special Instructions/QC	Requirements & Co	mments:									(1º	3)					
Relinguished by: Relinguished by: Relinguished by: Relinguished by:		Company:	C.T.		Date & Time:	6945	1 /	physical by		low	16	y: Polien Env.		14/2/5	Time: Time:	٥	
Pallaculated by:		Company:	kn En	ν	Date & Time:	100am		alveit by	0	- Ca	Compan	EEA		Date &		915	
remidulation by.		Company.			Date & Tille.		Rec	elved by			Compan	, .		Date &	· · · · · · · · · · · · · · · · · · ·		

Accuracy, Precision, and Professional Service

Client: Pollen Environmental LLC Job Number: 810-6759-1

Login Number: 6759 List Source: Eurofins Eaton Analytical - South Bend

List Number: 1

Creator: Spurgeon, Sheri

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

POLLEN ENVIRONMENTAL, LLC

CHAIN OF CUSTODY/WORKORDER FORM

COC# BUECI PFC

3039 Davis Road F	airbanks, AK 9	9709 907.	479.8368	www.	pollenenv.com										
	CLIENT INFORMA	TION		Contact Person: Jim Murphy				Requested Analysis						B	
Company: Barrow Utilities & Electric Coop.						Perservative Added							Page 1 of 1		
Address: P.O. Box 449				WWTP A	APDES #:										
City, State Zip: Barrow, A	K 99723			PWS ID	#: 320078										
Phone: 907-852-3176				Send Results to ADEC:									1 1	1	□ Normal Turnaround
Fax: 907-852-5164							on .	S	S				1 1		
Email: powerplant@bueci.org Project Name: PFAS Monitoring			Purchase Order/Charge Code: P.O. # 3021 - 1095			tainer	PFC	PFOS		1 1	□ RUSH da	RUSHday(s)			
						r of Con	∞								
Sampled By: Mark	K Ahsoak	耳					Numbe	PFOA	8						
Sample Identification	Sample Point II			e Matrix	A	Sub Lab ID#								5	Sample Comments
MG Tank	SPTP001	12-7	1058	W	PEF7229	1/	2	Х							
Raw Water Tap	SPIN001	12-7	1100	W	PEF7229	8	2	X							
		Special	Instructions	/QC Requ	uirements & Comm	ents:			-				S	ample 1	Temperature:
													Pollen Env		al: 0.9 °C
,															
Relinquished by Der	phone call 1	S Company UE	ct	Date & T	ime: 7-2/01/07 2021 @ 10:00	Received by:	belle	en		Company:	en En	/	Date & Tig	ne: 21@	0935
elindushed by:		Company:	EN	Patt & T	2021 @ 10 W	Received by:				Company:			Date & Tin		
Relinquished by:		Company:		Date & Time: Received by:				Company:				Date & Time:			
		_													



SAMPLE RECEIPT CHECKLIST

Date & Time Received Laboratory Identification YES OK N/A Custody Seals intact? (N/A if hand delivered) \square Chain of Custody (COC) present and properly filled out? Samples received in hold time? Proper container and preservatives used? Bottles received intact and properly labeled Do sample labels match the COC? Sufficient volume of sample for all analysis? Temperature Blank received in cooler? Were samples chilled before delivery to lab? Did samples have sufficient time to cool before delivery to lab? \Box If not, mark ITTC (Insufficient Time To Cool) on COC form. Are air bubbles present in VOA vials? *Temperature upon receipt at the laboratory $\bigcirc 9^{\circ}$ C infra-red thermometer internal sample kit thermometer



CERTIFICATE OF ANALYSIS

Barrow Utilities and Electric Coop.

Attn: Jim Murphy

PO Box 449

Barrow, AK 99723 Phone: (907) 852-5164 Fax: (907) 852-6751

E-mail: powerplant@bueci.org

Project Name: PFAS Monitoring Sampled By: Mark Ahsoak III

PWS ID: 320078

Report Date: 12/30/2021 Receipt Date: 12/8/2021 Sampled By: Mark Ahsoak III

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
MG Tank	PEF72297	810-10100-1	12/7/2021	10:58 AM
Raw Water Tap	PEF72298	810-10100-2	12/7/2021	11:00 AM

Jerry Pollen

Pollen Environmental, LLC



Environment Testing America

ANALYTICAL REPORT

Eurofins Eaton Analytical - South Bend 110 S Hill Street South Bend, IN 46617 Tel: (574)233-4777

Laboratory Job ID: 810-10100-1 Client Project/Site: 2021-1095

For:

Pollen Environmental LLC 3039 Davis Road Fairbanks, Alaska 99709

Attn: Jerry Pollen

Isai Caleb

Authorized for release by: 12/29/2021 2:13:23 PM

Traci Chlebowski, Project Manager (574)233-4777

traci.chlebowski@eurofinset.com

.....LINKS

Review your project results through Total Access

Have a Question?



Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
Surrogate Summary	7
QC Sample Results	8
QC Association Summary	9
Lab Chronicle	10
Certification Summary	11
Method Summary	12
Sample Summary	13
Chain of Custody	14
Receint Checklists	15

Definitions/Glossary

Client: Pollen Environmental LLC Job ID: 810-10100-1

Project/Site: 2021-1095

Qualifiers

		N/A	0
ш	u	IVI	J

Qualifier **Qualifier Description**

Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
p	Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery CFL Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

Duplicate Error Ratio (normalized absolute difference) DER

Dil Fac **Dilution Factor**

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin) LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit MLMinimum Level (Dioxin) MPN Most Probable Number Method Quantitation Limit MQL

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC **Quality Control**

Relative Error Ratio (Radiochemistry) **RER**

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count **TNTC**

Case Narrative

Client: Pollen Environmental LLC Job ID: 810-10100-1

Project/Site: 2021-1095

Job ID: 810-10100-1

Laboratory: Eurofins Eaton Analytical - South Bend

Narrative

Job Narrative 810-10100-1

Comments

No additional comments.

Receipt

The samples were received on 12/13/2021 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.2° C.

LCMS

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Pollen Environmental LLC Job ID: 810-10100-1

Project/Site: 2021-1095

Client Sample ID: PEF72297/MG Tank

Lab Sample ID: 810-10100-1

PWSID Number: AK320078

No Detections.

Client Sample ID: PEF72298/Raw Water Tap

Lab Sample ID: 810-10100-2

PWSID Number: AK320078

Analyte	Result Qualifier	RL	Unit	Dil Fac I) Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	61	1.9	ng/L		537.1	Total/NA
Perfluorooctanoic acid (PFOA)	5.7	1.9	ng/L	1	537.1	Total/NA

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Client Sample Results

Client: Pollen Environmental LLC Job ID: 810-10100-1

Project/Site: 2021-1095

Client Sample ID: PEF72297/MG Tank

Lab Sample ID: 810-10100-1

Date Collected: 12/07/21 10:58

Date Received: 12/13/21 10:00

Matrix: Drinking Water
PWSID Number: AK320078

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<1.9		1.9	ng/L		12/16/21 06:22	12/19/21 19:57	1
Perfluorooctanoic acid (PFOA)	<1.9		1.9	ng/L		12/16/21 06:22	12/19/21 19:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130			12/16/21 06:22	12/19/21 19:57	1
13C2 PFDA	93		70 - 130			12/16/21 06:22	12/19/21 19:57	1
13C3 HFPO-DA	92		70 - 130			12/16/21 06:22	12/19/21 19:57	1
d5-NEtFOSAA	87		70 - 130			10/16/01 06:00	12/19/21 19:57	1

Client Sample ID: PEF72298/Raw Water Tap

Lab Sample ID: 810-10100-2

Date Collected: 12/07/21 11:00 Matrix: Drinking Water
Date Received: 12/13/21 10:00 PWSID Number: AK320078

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	61		1.9	ng/L		12/16/21 06:22	12/19/21 20:07	1
Perfluorooctanoic acid (PFOA)	5.7		1.9	ng/L		12/16/21 06:22	12/19/21 20:07	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		70 - 130			12/16/21 06:22	12/19/21 20:07	1
13C2 PFDA	96		70 - 130			12/16/21 06:22	12/19/21 20:07	1
13C3 HFPO-DA	89		70 - 130			12/16/21 06:22	12/19/21 20:07	1
			70 - 130				12/19/21 20:07	

12/29/2021

Surrogate Summary

Client: Pollen Environmental LLC Job ID: 810-10100-1

Project/Site: 2021-1095

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Drinking Water Prep Type: Total/NA

			P	ercent Surr	ogate Reco
		PFHxA	PFDA	HFPODA	d5NEFOS
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
810-10100-1	PEF72297/MG Tank	97	93	92	87
810-10100-2	PEF72298/Raw Water Tap	87	96	89	80
LCS 810-9297/2-A	Lab Control Sample	103	97	96	91
LLCS 810-9297/3-A	Lab Control Sample	103	98	91	87
MB 810-9297/1-A	Method Blank	101	97	94	87

Surrogate Legend

PFHxA = 13C2 PFHxA PFDA = 13C2 PFDA HFPODA = 13C3 HFPO-DA d5NEFOS = d5-NEtFOSAA

Client: Pollen Environmental LLC Job ID: 810-10100-1

Project/Site: 2021-1095

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 810-9297/1-A	Client Sample ID: Method Blank
Matrix: Drinking Water	Prep Type: Total/NA
Analysis Batch: 9489	Prep Batch: 9297

	мв мв						
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<2.0	2.0	ng/L		12/16/21 06:22	12/19/21 19:25	1
Perfluorooctanoic acid (PFOA)	<2.0	2.0	ng/L		12/16/21 06:22	12/19/21 19:25	1
	MB MB						

	IVID	IND				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		70 - 130	12/16/21 06:22	12/19/21 19:25	1
13C2 PFDA	97		70 - 130	12/16/21 06:22	12/19/21 19:25	1
13C3 HFPO-DA	94		70 - 130	12/16/21 06:22	12/19/21 19:25	1
d5-NEtFOSAA	87		70 - 130	12/16/21 06:22	12/19/21 19:25	1

Lab Sample ID: LCS 810-9297/2-A **Client Sample ID: Lab Control Sample Matrix: Drinking Water** Prep Type: Total/NA

Analysis Batch: 9489 Prep Batch: 9297

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorooctanesulfonic acid	97.2	96.8		ng/L		100	70 - 130	
(PFOS)								
Perfluorooctanoic acid (PFOA)	97.2	96.7		ng/L		99	70 - 130	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
13C2 PFHxA	103		70 - 130
13C2 PFDA	97		70 - 130
13C3 HFPO-DA	96		70 - 130
d5-NEtEOSAA	91		70 130

Lab Sample ID: LLCS 810-9297/3-A **Client Sample ID: Lab Control Sample Matrix: Drinking Water** Prep Type: Total/NA

Analysis Batch: 9489 Prep Batch: 9297

-	Spike	LLCS	LLCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorooctanesulfonic acid	1.92	1.76	J	ng/L		92	50 - 150	
(PFOS)								
Perfluorooctanoic acid (PEOA)	1 02	1 74	1	na/l		01	50 150	

Perfluorooctanesulfonic acid (PFOS)			1.92	1.76 J	ng/L	ξ	92	50 - 150	
Perfluorooctanoic acid (PFOA)			1.92	1.74 J	ng/L	9	91	50 - 150	
	LLCS	LLCS							
Surrogate	%Recovery	Qualifier	Limits						
13C2 PEH _V Δ	103		70 - 130						

- and - gard	,	~~~~	
13C2 PFHxA	103		70 - 130
13C2 PFDA	98		70 - 130
13C3 HFPO-DA	91		70 - 130
d5-NEtFOSAA	87		70 - 130

12/29/2021

QC Association Summary

Client: Pollen Environmental LLC Job ID: 810-10100-1

Project/Site: 2021-1095

LCMS

Prep Batch: 9297

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-10100-1	PEF72297/MG Tank	Total/NA	Drinking Water	537.1 DW	
810-10100-2	PEF72298/Raw Water Tap	Total/NA	Drinking Water	537.1 DW	
MB 810-9297/1-A	Method Blank	Total/NA	Drinking Water	537.1 DW	
LCS 810-9297/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW	
LLCS 810-9297/3-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW	

Analysis Batch: 9489

Lab Sample ID 810-10100-1	Client Sample ID PEF72297/MG Tank	Prep Type Total/NA	Matrix Drinking Water	Method	Prep Batch 9297
810-10100-2	PEF72298/Raw Water Tap	Total/NA	Drinking Water	537.1	9297
MB 810-9297/1-A	Method Blank	Total/NA	Drinking Water	537.1	9297
LCS 810-9297/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1	9297
LLCS 810-9297/3-A	Lab Control Sample	Total/NA	Drinking Water	537.1	9297

Lab Chronicle

Client: Pollen Environmental LLC Job ID: 810-10100-1

Project/Site: 2021-1095

Client Sample ID: PEF72297/MG Tank

Lab Sample ID: 810-10100-1

Date Collected: 12/07/21 10:58 Matrix: Drinking Water
Date Received: 12/13/21 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			9297	12/16/21 06:22	CM	EA SB
Total/NA	Analysis	537.1		1	9489	12/19/21 19:57	MH	EA SB

Client Sample ID: PEF72298/Raw Water Tap

Date Collected: 12/07/21 11:00 Date Received: 12/13/21 10:00

-	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			9297	12/16/21 06:22	CM	EA SB
Total/NA	Analysis	537.1		1	9489	12/19/21 20:07	MH	EA SB

Laboratory References:

EA SB = Eurofins Eaton Analytical - South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

L ID: 010 10100 1

Lab Sample ID: 810-10100-2

Matrix: Drinking Water

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Accreditation/Certification Summary

Client: Pollen Environmental LLC Job ID: 810-10100-1

Project/Site: 2021-1095

Laboratory: Eurofins Eaton Analytical - South Bend

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska	State	IN00035	06-30-22

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Method Summary

Client: Pollen Environmental LLC

Project/Site: 2021-1095

Job ID: 810-10100-1

Method	Method Description	Protocol	Laboratory
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA SB
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	EA SB

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EA SB = Eurofins Eaton Analytical - South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

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Sample Summary

Client: Pollen Environmental LLC

Project/Site: 2021-1095

 Lab Sample ID
 Client Sample ID
 Matrix
 Collected
 Received
 PWSID Number

 810-10100-1
 PEF72297/MG Tank
 Drinking Water
 12/07/21 10:58
 12/13/21 10:00
 AK320078

 810-10100-2
 PEF72298/Raw Water Tap
 Drinking Water
 12/07/21 11:00
 12/13/21 10:00
 AK320078

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Job ID: 810-10100-1

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ENVIRONMENTAL, LLC

N OF CUSTODY/WORKORDER FORM

810-10100 COC

BUECI PFC COC=

CLIENT INFORMATION Company: Barrow Utilities & Electric Coop.			Contact Person: Jim Murphy						Requested	Analysis		Page 1 of 1	
						Perservative /	rage 1 or 1						
Address: P.O. Box 449			WWTP A	APDES #:									
City, State Zip: Barrow, A	AK 99723			PWS ID	PWS ID #: 320078			V 1					
hone: 907-852-3176				Send Res	sults to ADEC:		- 1		-1			4	☐ Normal Turnaroun
ax: 907-852-5164				□ Yes	□ No			S					
mail: powerplant@bue	ci.org				Order/Charge Code:		-	PFOS					☐ RUSH day(s
Project Name: PFAS Mon	itoring			RI	C #30	251-16	15	∞ 5					
Sampled By:	× 17051 -1	77					Amp	PFOA			-40		
Sample Identification	Sample Point	D: Sample Date	Sample Time	e Matrix		Sub Lab ID#							Sample Comments
MG Tank	SPTP001	1.5.3		W	PEF7229	7	2	X					
Raw Water Tap	SPIN001		- / <u>v</u>	w	PEF 7229	\$	2	X					
							+	-		+	-	++	
							+					+ +	
		10000					1						
							\perp						
									-		_		
		Special	Instructions	i/QC Requ	uirements & Comme	nts:							n arrival: 0.9 °C arrival: 3.2 °C Blue
ellanden ser	phone call	For CompanyuE	ct	Date & T	100 0 10 W	Received by:	de	n	Comp	silen E	in	Date & Time	2160935
All Daniel By		CONTON !	EN	PZE	2521 0100	Received by:			Comp	any:			
Pelinguiched by		Company:		Date &	ime:	Received by			Comp	any:		Date & Time	3-2021









Login Sample Receipt Checklist

Client: Pollen Environmental LLC Job Number: 810-10100-1

Login Number: 10100 List Source: Eurofins Eaton Analytical - South Bend

List Number: 1

Creator: DePriest, Kellie

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:	ADOT&PF Barrow (Utqiagvik) Airport Sitewide PFAS							
File Number:	310.38.036							
Completed by:	Shannon & Wilson, Inc.							
about which exposummary text about which about the summary text about the summary text about the summary text about the summary text about which exposure the summary text about the sum	osure pathways should be further in out the CSM and a graphic depicting work plan and updated as needed in	vestigated dur g exposure par later reports.	eartment of Environmental Conservation (DEC) ring site characterization. From this information thways should be submitted with the site					
1. General In	ions: Follow the italicized instruct nformation: potential sources at the site)	tions in each s	section below.					
USTs		☐ Vehicles	3					
☐ ASTs		☐ Landfills	S					
☐ Dispensers/fu	el loading racks	☐ Transfor	rmers					
Drums	-	⊠ Other:	Aqueous Film Forming Foam (AFFF) releases					
Release Mechan	isms (check potential release mech	anisms at the	site)					
⊠ Spills		⊠ Direct di	ischarge					
⊠ Leaks		☐ Burning						
		☐ Other:						
Impacted Media	a (check potentially-impacted media	at the site)						
Surface soil (, , ,	⊠ Groundv	water					
Subsurface son (c	- ,	⊠ Surface v						
Air	11 (* 2 1001 053)	⊠ Biota	water					
⊠ Sediment		Other:						
Receptors (check	k receptors that could be affected by	contaminatio	on at the site)					
Residents (adu	ult or child)	⊠ Site visit	tor					
区 Commercial o	r industrial worker	▼ Trespass	ser					
	worker	⊠ Recreation	onal user					
⊠ Subsistence ha	arvester (i.e. gathers wild foods)	⊠ Farmer						
⊠ Subsistence co	onsumer (i.e. eats wild foods)	☐ Other:						
		I						

2. Exposure Pathways: (The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)										
a)	Direct Contact - 1. Incidental Soil Ingestion									
	Are contaminants present or potentially present in surface so (Contamination at deeper depths may require evaluation on a		the ground surface?							
	If the box is checked, label this pathway complete:									
	Comments:									
	PFAS has been detected in surface water adjacent to the site, likely as ground surface at the airport.	a result of AFFF relea	ses to the							
	2. Dermal Absorption of Contaminants from Soil									
	Are contaminants present or potentially present in surface so (Contamination at deeper depths may require evaluation on a		the ground surface?							
	Can the soil contaminants permeate the skin (see Appendix E	X								
	If both boxes are checked, label this pathway complete:									
	Comments:									
	AFFF releases to the ground surface may cause soil contamination at to Department of Health and Social Services, PFOS and PFOA are not appskin. However, Appendix B of the 2017 Guidance on Developing Contamination at the PFOS and PFOA.	oreciably absorbed th	nrough the							
b)	Ingestion - 1. Ingestion of Groundwater									
	Have contaminants been detected or are they expected to be or are contaminants expected to migrate to groundwater in the	oundwater,	X							
	Could the potentially affected groundwater be used as a curre source? Please note, only leave the box unchecked if DEC has water is not a currently or reasonably expected future source to 18 AAC 75.350.	ground-								
	If both boxes are checked, label this pathway complete:	te								
	Comments:									
	Groundwater is not used as a drinking water source at or near the site									

2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, \overline{X} or are contaminants expected to migrate to surface water in the future? Could potentially affected surface water bodies be used, currently or in the future, as a $\overline{\times}$ drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). If both boxes are checked, label this pathway complete: Complete Comments: PFAS have been detected in surface water samples collected from a reservoir adjacent to the airport which is used as a water source for Utqiagvik's municipal water system. 3. Ingestion of Wild and Farmed Foods Is the site in an area that is used or reasonably could be used for hunting, fishing, or \overline{X} harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into \overline{X} biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) If all of the boxes are checked, label this pathway complete: Complete Comments: c) Inhalation-1. Inhalation of Outdoor Air Are contaminants present or potentially present in surface soil between 0 and 15 feet below the \overline{X} ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) Are the contaminants in soil volatile (see Appendix D in the guidance document)? *If both boxes are checked, label this pathway complete:* Incomplete Comments: PFAS are not included in Appendix D. If volatile organic compounds are reported during site

characterization activities, this section will be updated with the new information.

2. Innalation of Indoor Air					
Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)					
Are volatile compounds present in soil or groundwater (see Apdocument)?	ppendix D in the guidance				
If both boxes are checked, label this pathway complete:	Incomplete				
Comments:					
I control of the cont					

3.	Additional Exposure Pathways:	(Although there are no	definitive questions provided in this section,
	these exposure pathways should also be	considered at each site.	Use the guidelines provided below to
	determine if further evaluation of each p	athway is warranted.)	

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- O Climate permits recreational use of waters for swimming.
- o Climate permits exposure to groundwater during activities, such as construction.
- o Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Chec	k the box if further evaluation of this pathway is needed:	×
Comme		
Inhalati	on of Volatile Compounds in Tap Water	
Inhala o	tion of volatile compounds in tap water may be a complete pathway if: The contaminated water is used for indoor household purposes such as showering,	laundering, and dish
0	washing. The contaminants of concern are volatile (common volatile contaminants are listed guidance document.)	in Appendix D in th
	undwater cleanup levels in 18 AAC 75, Table C are protective of this pathway becausuring normal household activities is incorporated into the groundwater exposure equations.	
Chec	k the box if further evaluation of this pathway is needed:	
Comme	nts:	

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- O Dust particles are less than 10 micrometers (Particulate Matter PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed:

$\overline{\times}$

Comments:

AFFF was likely released to the ground surface that may be dusty in the summertime.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- o Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:



Comments:

To our knowledge, no sediment samples have been collected at the BRW. Due to the potential for residents to access potentially contaminated surface water bodies, this has been marked as a pathway in need of further evaluation.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: ADOT&PF Utqiagvik Airport Sitewide PFAS		Instructions: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land							
Completed By: Shannon & Wilson, Inc.			use controls when describing pat	nways	i -				
Date Completed: March 2023							(5)		
(1) (2) Check the media that could be directly affected by the release. For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.	(3) Check all exposure media identified in (2).		(4) Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.	Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure. Current & Future Receptors					
Media Transport Mechanisms	Exposure Me	edia	Exposure Pathway/Route	/	ers	sspas user	orker	siste	ms _{un}
Surface Soil (0-2 ft bgs) Direct release to surface soil Surface Migration to subsurface check soil Check soil Check soil Check groundwater check air				Residents	Commercial or Site visite	Const	Farmers or 6	Subsistence	Other
Runoff or erosion check surface water		✓ Incide	ental Soil Ingestion	C/F	C/F C/F	C/F	C/F	C/F	
Uptake by plants or animals check biota	soil	✓ Derm	al Absorption of Contaminants from Soil		l I	ı	I	ı	
Other (list):		✓ Inhala	ation of Fugitive Dust	C/F	C/F C/F	C/F	C/F	C/F	
Subsurface Soil Volatilization Check groundwater Check groundwater Check groundwater Check groundwater Check groundwater Check groundwater Check air Check biota Check biota Check biota Check biota Check biota	groundwater	✓ Derma	tion of Groundwater al Absorption of Contaminants in Groundwater ation of Volatile Compounds in Tap Water	I	I I	I	I	I	
Ground- water Volatilization	air air	Inhala	ation of Outdoor Air ation of Indoor Air ation of Fugitive Dust						
Direct release to surface water		✓ Ingest	tion of Surface Water	C/F	C/F C/F	C/F	C/F		
Surface Volatilization check air	surface water	✓ Derma	al Absorption of Contaminants in Surface Water	ı	l l	ı	ı	ı	
Water ✓ Sedimentation check sediment ✓ Uptake by plants or animals check biota Other (list):	/	Inhala	ation of Volatile Compounds in Tap Water						
Direct release to sediment check sediment	sediment	✓ Direct	t Contact with Sediment	C/F	C/F C/F	C/F	C/F	C/F	
Sediment Very Resuspension, runoff, or erosion Check surface water Uptake by plants or animals Check biota Other (list):	▼ biota	V Inges	tion of Wild or Farmed Foods	C/F	C/F C/F	C/F	C/F	C/F	

Important Information

About Your Environmental Report



IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors that were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary, because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the Geoprofessional Business Association (https://www.geoprofessional.org)