



CERTIFICATE OF ANALYSIS

Barrow Utilities and Electric Coop.
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Report Date: 2/26/2019
 Receipt Date: 2/5/2019
 Sampled By: Tom Drake II

Project Name: PFOA and PFOS Monitoring
Sampled By: Tom Drake II
PWS ID: 320078

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
Raw Water Tap	PEF47124	4189861	2/4/2019	1:55 PM
MG Tank	PEF47125	4189862	2/4/2019	2:00 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	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

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Laboratory Report

Client: Pollen Environmental LLC
 Attn: Jerry Pollen
 3536 International Avenue
 Fairbanks, AK 99701

Report: 442553
 Priority: Standard Written
 Status: Final
 PWS ID: AK2320078
 Alaska Lab ID #: IN00035

Sample Information					
EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
4189861	PEF47124/Raw Water Tap	537	02/04/19 13:55	Client	02/06/19 08:45
4189862	PEF47125/MG Tank	537	02/04/19 14:00	Client	02/06/19 08:45

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.

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 ASM

Authorized Signature

Title

02/26/2019

Date

Client Name: Pollen Environmental LLC
 Report #: 442553

Sampling Point: PEF47124/Raw Water Tap

PWS ID: AK2320078

EEA Methods									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537	---	2.0	94	ng/L	02/15/19 07:45	02/19/19 18:33	4189861
335-67-1	Perfluorooctanoic acid (PFOA)	537	---	2.0	7.9	ng/L	02/15/19 07:45	02/19/19 18:33	4189861

Sampling Point: PEF47125/MG Tank

PWS ID: AK2320078

EEA Methods									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	537	---	2.0	< 2.0	ng/L	02/15/19 07:45	02/19/19 18:50	4189862
335-67-1	Perfluorooctanoic acid (PFOA)	537	---	2.0	< 2.0	ng/L	02/15/19 07:45	02/19/19 18:50	4189862

† 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:	*	^	!

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.

Eurofins Eaton Analytical Run Log

Run ID: **255303** Method: **537**

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
CCL	4201129		OS	FL	02/19/2019 14:52	021919M537a-FL-PFC-Ext.mdb
LRB	4198441		RW	FL	02/19/2019 15:43	021919M537a-FL-PFC-Ext.mdb
FBH	4198443		RW	FL	02/19/2019 16:17	021919M537a-FL-PFC-Ext.mdb
FS	4189861	PEF47124/Raw Water Tap	DW	FL	02/19/2019 18:33	021919M537a-FL-PFC-Ext.mdb
FS	4189862	PEF47125/MG Tank	DW	FL	02/19/2019 18:50	021919M537a-FL-PFC-Ext.mdb
CCM	4201130		OS	FL	02/19/2019 21:06	021919M537a-FL-PFC-Ext.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	--		1235840.00	1235840	ng/L	100	50 - 150	---	---	1.0	02/14/2019 12:21	02/19/2019 14:52	4201129
CCL	IS-PFOA-13C2	537	N/A	--		2121170.00	2121170	ng/L	100	50 - 150	---	---	1.0	02/14/2019 12:21	02/19/2019 14:52	4201129
CCL	IS-PFOS-13C4	537	N/A	--		377731.00	377731	ng/L	100	50 - 150	---	---	1.0	02/14/2019 12:21	02/19/2019 14:52	4201129
CCL	IS-GenX-13C3	537	N/A	--		165412.00	165412	ng/L	100	50 - 150	---	---	1.0	02/14/2019 12:21	02/19/2019 14:52	4201129
CCL	SS-NEIFOSAA-d5	537	N/A	--		210.5830	200	ng/L	105	70 - 130	---	---	1.0	02/14/2019 12:21	02/19/2019 14:52	4201129
CCL	SS-PFDA-13C2	537	N/A	--		102.4430	100	ng/L	102	70 - 130	---	---	1.0	02/14/2019 12:21	02/19/2019 14:52	4201129
CCL	SS-PFHXA-13C2	537	N/A	--		50.1554	50.0	ng/L	100	70 - 130	---	---	1.0	02/14/2019 12:21	02/19/2019 14:52	4201129
CCL	Perfluorooctanesulfonic acid (PFOS)	537	2.0	--		2.0446	2.0	ng/L	102	50 - 150	---	---	1.0	02/14/2019 12:21	02/19/2019 14:52	4201129
CCL	Perfluorooctanoic acid (PFOA)	537	2.0	--		1.9168	2.0	ng/L	96	50 - 150	---	---	1.0	02/14/2019 12:21	02/19/2019 14:52	4201129
LRB	IS-NMeFOSAA-d3	537	N/A	--		1180660.00	1235840	ng/L	96	50 - 150	---	---	0.89	02/15/2019 07:45	02/19/2019 15:43	4198441
LRB	IS-PFOA-13C2	537	N/A	--		2022770.00	2121170	ng/L	95	50 - 150	---	---	0.89	02/15/2019 07:45	02/19/2019 15:43	4198441
LRB	IS-PFOS-13C4	537	N/A	--		364874.00	377731	ng/L	97	50 - 150	---	---	0.89	02/15/2019 07:45	02/19/2019 15:43	4198441
LRB	IS-GenX-13C3	537	N/A	--		161256.00	165412	ng/L	97	50 - 150	---	---	0.89	02/15/2019 07:45	02/19/2019 15:43	4198441
LRB	SS-NEIFOSAA-d5	537	N/A	--		163.5240	200	ng/L	92	70 - 130	---	---	0.89	02/15/2019 07:45	02/19/2019 15:43	4198441
LRB	SS-PFDA-13C2	537	N/A	--		85.0481	100	ng/L	96	70 - 130	---	---	0.89	02/15/2019 07:45	02/19/2019 15:43	4198441
LRB	SS-PFHXA-13C2	537	N/A	--		42.7194	50.0	ng/L	96	70 - 130	---	---	0.89	02/15/2019 07:45	02/19/2019 15:43	4198441
LRB	Perfluorooctanesulfonic acid (PFOS)	537	2.0	--	<	2.0		ng/L	---	---	---	---	0.89	02/15/2019 07:45	02/19/2019 15:43	4198441
LRB	Perfluorooctanoic acid (PFOA)	537	2.0	--	<	2.0		ng/L	---	---	---	---	0.89	02/15/2019 07:45	02/19/2019 15:43	4198441
FBH	IS-NMeFOSAA-d3	537	N/A	--		1148090.00	1235840	ng/L	93	50 - 150	---	---	1.0	02/15/2019 07:45	02/19/2019 16:17	4198443
FBH	IS-PFOA-13C2	537	N/A	--		1903310.00	2121170	ng/L	90	50 - 150	---	---	1.0	02/15/2019 07:45	02/19/2019 16:17	4198443
FBH	IS-PFOS-13C4	537	N/A	--		368868.00	377731	ng/L	98	50 - 150	---	---	1.0	02/15/2019 07:45	02/19/2019 16:17	4198443
FBH	IS-GenX-13C3	537	N/A	--		152202.00	165412	ng/L	92	50 - 150	---	---	1.0	02/15/2019 07:45	02/19/2019 16:17	4198443
FBH	SS-NEIFOSAA-d5	537	N/A	--		185.1960	200	ng/L	93	70 - 130	---	---	1.0	02/15/2019 07:45	02/19/2019 16:17	4198443
FBH	SS-PFDA-13C2	537	N/A	--		99.8554	100	ng/L	100	70 - 130	---	---	1.0	02/15/2019 07:45	02/19/2019 16:17	4198443
FBH	SS-PFHXA-13C2	537	N/A	--		50.8958	50.0	ng/L	102	70 - 130	---	---	1.0	02/15/2019 07:45	02/19/2019 16:17	4198443
FBH	Perfluorooctanesulfonic acid (PFOS)	537	2.0	--		201.9200	200	ng/L	101	70 - 130	---	---	1.0	02/15/2019 07:45	02/19/2019 16:17	4198443
FBH	Perfluorooctanoic acid (PFOA)	537	2.0	--		204.3200	200	ng/L	102	70 - 130	---	---	1.0	02/15/2019 07:45	02/19/2019 16:17	4198443
FS	IS-NMeFOSAA-d3	537	N/A	PEF47124/Raw Water Tai		1174440.00	1235840	ng/L	95	50 - 150	---	---	0.88	02/15/2019 07:45	02/19/2019 18:33	4198861
FS	IS-PFOA-13C2	537	N/A	PEF47124/Raw Water Tai		2054230.00	2121170	ng/L	97	50 - 150	---	---	0.88	02/15/2019 07:45	02/19/2019 18:33	4198861
FS	IS-PFOS-13C4	537	N/A	PEF47124/Raw Water Tai		368617.00	377731	ng/L	97	50 - 150	---	---	0.88	02/15/2019 07:45	02/19/2019 18:33	4198861
FS	IS-GenX-13C3	537	N/A	PEF47124/Raw Water Tai		159477.00	165412	ng/L	96	50 - 150	---	---	0.88	02/15/2019 07:45	02/19/2019 18:33	4198861
FS	SS-NEIFOSAA-d5	537	N/A	PEF47124/Raw Water Tai		165.4890	200	ng/L	94	70 - 130	---	---	0.88	02/15/2019 07:45	02/19/2019 18:33	4198861
FS	SS-PFDA-13C2	537	N/A	PEF47124/Raw Water Tai		85.5506	100	ng/L	97	70 - 130	---	---	0.88	02/15/2019 07:45	02/19/2019 18:33	4198861
FS	SS-PFHXA-13C2	537	N/A	PEF47124/Raw Water Tai		42.9824	50.0	ng/L	98	70 - 130	---	---	0.88	02/15/2019 07:45	02/19/2019 18:33	4198861
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF47124/Raw Water Tai		94		ng/L	---	---	---	---	0.88	02/15/2019 07:45	02/19/2019 18:33	4198861
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF47124/Raw Water Tai		7.9		ng/L	---	---	---	---	0.88	02/15/2019 07:45	02/19/2019 18:33	4198861
FS	IS-NMeFOSAA-d3	537	N/A	PEF47125/IMG Tank		1290060.00	1235840	ng/L	104	50 - 150	---	---	0.88	02/15/2019 07:45	02/19/2019 18:50	4198862
FS	IS-PFOA-13C2	537	N/A	PEF47125/IMG Tank		2198750.00	2121170	ng/L	104	50 - 150	---	---	0.88	02/15/2019 07:45	02/19/2019 18:50	4198862
FS	IS-PFOS-13C4	537	N/A	PEF47125/IMG Tank		401922.00	377731	ng/L	106	50 - 150	---	---	0.88	02/15/2019 07:45	02/19/2019 18:50	4198862
FS	IS-GenX-13C3	537	N/A	PEF47125/IMG Tank		172215.00	165412	ng/L	104	50 - 150	---	---	0.88	02/15/2019 07:45	02/19/2019 18:50	4198862

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	SS-NEFOSAA-d5	537	N/A	PEF47125/IMG Tank		154.3740	200	ng/L	88	70 - 130	---	---	0.88	02/15/2019 07:45	02/19/2019 18:50	4189862
FS	SS-PFDA-13C2	537	N/A	PEF47125/IMG Tank		84.5334	100	ng/L	96	70 - 130	---	---	0.88	02/15/2019 07:45	02/19/2019 18:50	4189862
FS	SS-PFHXA-13C2	537	N/A	PEF47125/IMG Tank		42.7094	50.0	ng/L	97	70 - 130	---	---	0.88	02/15/2019 07:45	02/19/2019 18:50	4189862
FS	Perfluorooctanesulfonic acid (PFOS)	537	2.0	PEF47125/IMG Tank	<	2.0		ng/L	---	---	---	---	0.88	02/15/2019 07:45	02/19/2019 18:50	4189862
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF47125/IMG Tank	<	2.0		ng/L	---	---	---	---	0.88	02/15/2019 07:45	02/19/2019 18:50	4189862
CCM	IS-NMeFOSAA-d3	537	N/A	---		1326290.00	1326290	ng/L	100	50 - 150	---	---	1.0	02/14/2019 12:21	02/19/2019 21:06	4201130
CCM	IS-PFOA-13C2	537	N/A	---		2221010.00	2221010	ng/L	100	50 - 150	---	---	1.0	02/14/2019 12:21	02/19/2019 21:06	4201130
CCM	IS-PFOS-13C4	537	N/A	---		410994.00	410994	ng/L	100	50 - 150	---	---	1.0	02/14/2019 12:21	02/19/2019 21:06	4201130
CCM	IS-GenX-13C3	537	N/A	---		172895.00	172895	ng/L	100	50 - 150	---	---	1.0	02/14/2019 12:21	02/19/2019 21:06	4201130
CCM	SS-NEFOSAA-d5	537	N/A	---		200.7490	200	ng/L	100	70 - 130	---	---	1.0	02/14/2019 12:21	02/19/2019 21:06	4201130
CCM	SS-PFDA-13C2	537	N/A	---		102.1250	100	ng/L	102	70 - 130	---	---	1.0	02/14/2019 12:21	02/19/2019 21:06	4201130
CCM	SS-PFHXA-13C2	537	N/A	---		49.7949	50.0	ng/L	100	70 - 130	---	---	1.0	02/14/2019 12:21	02/19/2019 21:06	4201130
CCM	Perfluorooctanesulfonic acid (PFOS)	537	2.0	---		103.1910	100	ng/L	103	70 - 130	---	---	1.0	02/14/2019 12:21	02/19/2019 21:06	4201130
CCM	Perfluorooctanoic acid (PFOA)	537	2.0	---		100.6090	100	ng/L	101	70 - 130	---	---	1.0	02/14/2019 12:21	02/19/2019 21:06	4201130

Sample Type Key

<u>Type (Abbr.)</u>	<u>Sample Type</u>	<u>Type (Abbr.)</u>	<u>Sample Type</u>
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FBH	Fortified Blank High		
LRB	Laboratory Reagent Blank		

END OF REPORT