

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's

CLIENT INFORMATION			Contact Person: Jim Murphy			Requested Analysis						Page 1 of 1		
Company: Barrow Utilities & Electric Coop.			Address: P.O. Box 449			Perservative Added						<input checked="" type="checkbox"/> Normal Turnaround <input type="checkbox"/> RUSH ____ day(s)		
City, State Zip: Barrow, AK 99723			WWTP APDES #:			PFC's - PFOA & PFOS								
Phone: 907-852-2000 6166			PWS ID #: 320078 - report as special											
Fax: 907-852-2005 5164			Send Results to ADEC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No											
Email: busplant@bueci.org, powerplant@bueci.org			Purchase Order/Charge Code: 20160504 20170541 2017412 30.642.007											
Project Name: PFOA and PFOS Monitoring			Sampled By: Tom Drake II											
Sample Identification	Sample Date	Sample Time	Matrix	Lab ID#	Sub Lab ID#							Number of Containers		
M&T	8.7.17	0805	W	PEF35014		3	X							
WTPLSRWST	8.7.17	0800	W	PEF35015		3	X							
Possible Hazard Identification: <input type="checkbox"/> Non-Hazardous <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Unknown												Sample Condition: Pollen Env Temperature on arrival: 10.0 °C Sub Lab Temperature on arrival: °C		
Special Instructions/QC Requirements & Comments:														
Relinquished by: Tom Drake II	Company: BUECI	Date & Time: 8/7/17 0900	Received by: Jerry Walden				Company: Pollen Env.	Date & Time: 8/7/17 2:10						
Relinquished by: Jerry Walden	Company: Pollen Env	Date & Time: 8-8-17 @ 1100	Received by:				Company:	Date & Time:						
Relinquished by:	Company:	Date & Time:	Received 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

Report Date: 8/7/2017
 Receipt Date: 8/7/2017
 Sampled By: Tom R. Drake II

Project Name: PFOA and PFOS Monitoring
Sampled By: Jim Murphy Jr.
PWS ID: 320078

Sample ID:	Pollen Env ID:	Eurofins ID:	Date:	Time:
MGT	PEF35614	3752127	8/7/2017	8:05 AM
WTPLSRWST	PEF35615	3752128	8/7/2017	8:00 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	Montana	CERT0026
Alaska	IN00035	Nebraska	NE-OS-05-04
Arizona	AZ0432	Nevada	IN00035
Arkansas	IN00035	New Hampshire*	2124
California	2920	New Jersey*	IN598
Colorado	IN035	New Mexico	IN00035
Colorado Radiochemistry	IN035	New York*	11398
Connecticut	PH-0132	North Carolina	18700
Delaware	IN035	North Dakota	R-035
Florida*	E87775	Ohio	87775
Georgia	929	Oklahoma	D9508
Hawaii	IN035	Oregon (Primary AB)*	4074-001
Idaho	IN00035	Pennsylvania*	68-00466
Illinois*	200001	Puerto Rico	IN00035
Illinois Microbiology	17767	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*	LA170006	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
Missouri	880		

*NELAP/TNI Recognized Accreditation Bodies

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

 Attn: Jerry Pollen
 3536 International Avenue
 Fairbanks, AK 99701

Report: 395157
 Priority: Rush 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
3752127	PEF35614/MGT	537	08/07/17 08:05	Client	08/09/17 08:30
3752128	PEF35615/WTPLSRWST	537	08/07/17 08:00	Client	08/09/17 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.

 ASM

Authorized Signature

Title

08/16/2017

Date

Client Name: Pollen Environmental LLC
 Report #: 395157

Sampling Point: PEF35614/MGT

PWS ID: AK2320078

EEA Methods									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
1763-23-1	Perfluorooctane sulfonate (PFOS)	537	---	2.0	< 2.0	ng/L	08/10/17 07:20	08/10/17 19:59	3752127
335-67-1	Perfluorooctanoic acid (PFOA)	537	---	2.0	< 2.0	ng/L	08/10/17 07:20	08/10/17 19:59	3752127

Sampling Point: PEF35615/WTPLSRWST

PWS ID: AK2320078

EEA Methods									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
1763-23-1	Perfluorooctane sulfonate (PFOS)	537	---	2.0	72	ng/L	08/10/17 07:20	08/10/17 20:33	3752128
335-67-1	Perfluorooctanoic acid (PFOA)	537	---	2.0	7.0	ng/L	08/10/17 07:20	08/10/17 20:33	3752128

† 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.

POLLEN ENVIRONMENTAL, LLC.

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

CHAIN OF CUSTODY/WORKORDER FORM

3244914 COC# BUECI-PFC's

CLIENT INFORMATION				Contact Person: Jim Murphy		Requested Analysis 395157						Page 1 of 1
Company: Barrow Utilities & Electric Coop.						Perservative Added						
Address: P.O. Box 449				WWTP APDES #:		PFC's - PFOA & PFOS Number of Containers						<input checked="" type="checkbox"/> Normal Turnaround <input type="checkbox"/> RUSH 5 day(s)
City, State Zip: Barrow, AK 99723				PWS ID #: 320078 - report as special								
Phone: 907-852-2009 6166				Send Results to ADEC:								
Fax: 907-852-2005 5164				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								
Email: busplant@bueci.org, powerplant@bueci.org				Purchase Order/Charge Code: 20160504								
Project Name: PFOA and PFOS Monitoring				20170541 30.642.007 2017442								
Sampled By: Tom Drake II												
Sample Identification	Sample Date	Sample Time	Matrix	Lab ID#	Sub Lab ID#							Sample Comments
MGT	8.7.17	0805	W	PEF35014	3752127	3	X	A				RUSH TC 8-9-17
WTPLSRWST	8.7.17	0800	W	PEF35015	↓ 128	3	X	A				
Possible Hazard Identification: <input type="checkbox"/> Non-Hazardous <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Unknown												Sample Condition: Pollen Env Temperature on arrival: 10.6 °C Sub Lab Temperature on arrival: 3.8 °C
<input type="checkbox"/> Intact <input type="checkbox"/> Broken <input type="checkbox"/> Absent <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Broken <input type="checkbox"/> Absent												
Special Instructions/QC Requirements & Comments:												
Relinquished by: Tom Drake II	Company: BUECI	Date & Time: 8.7.17 0900	Received by: Monique Organick				Company: Pollen Env.	Date & Time: 8/7/17 2:10				
Relinquished by: Jerry Pollen	Company: Pollen Env	Date & Time: 8-8-17 @ 1100	Received by:				Company:	Date & Time:				
Relinquished by:	Company:	Date & Time:	Received by: KDum				Company: EEA	Date & Time: 8-9-17 0830				

Accuracy, Precision, and Professional Service

Eurofins Eaton Analytical Run Log

Run ID: 232871 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	3753222		OS	FL	08/10/2017 18:35	081017M537a-FL-PFC12.mdb
LRB	3753192		RW	FL	08/10/2017 19:09	081017M537a-FL-PFC12.mdb
FBM	3753193		RW	FL	08/10/2017 19:42	081017M537a-FL-PFC12.mdb
FS	3752127	PEF35614/MGT	DW	FL	08/10/2017 19:59	081017M537a-FL-PFC12.mdb
LFSMM	3753195	PEF35614/MGT	DW	FL	08/10/2017 20:16	081017M537a-FL-PFC12.mdb
FS	3752128	PEF35615/WTPLSRWST	DW	FL	08/10/2017 20:33	081017M537a-FL-PFC12.mdb
CCM	3753223		OS	FL	08/10/2017 23:04	081017M537a-FL-PFC12.mdb

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
CCL	IS-PFOA-13C2	537	N/A	---		712319.00	712319	ng/L	100	50 - 150	---	1.0	08/09/2017 11:35	08/10/2017 18:35	3753222
CCL	IS-PFOS-13C4	537	N/A	---		132586.00	132586	ng/L	100	50 - 150	---	1.0	08/09/2017 11:35	08/10/2017 18:35	3753222
CCL	SS-PFDA-13C2	537	N/A	---		100.7820	100	ng/L	101	70 - 130	---	1.0	08/09/2017 11:35	08/10/2017 18:35	3753222
CCL	SS-PFHA-13C2	537	N/A	---		50.5550	50.0	ng/L	101	70 - 130	---	1.0	08/09/2017 11:35	08/10/2017 18:35	3753222
CCL	Perfluorooctane sulfonate (PFOS)	537	2.0	---		2.1853	2.0	ng/L	109	50 - 150	---	1.0	08/09/2017 11:35	08/10/2017 18:35	3753222
CCL	Perfluorooctanoic acid (PFOA)	537	2.0	---		2.1013	2.0	ng/L	105	50 - 150	---	1.0	08/09/2017 11:35	08/10/2017 18:35	3753222
LRB	IS-PFOA-13C2	537	N/A	---		671706.00	712319	ng/L	94	50 - 150	---	0.99	08/10/2017 07:20	08/10/2017 19:09	3753192
LRB	IS-PFOS-13C4	537	N/A	---		126850.00	132586	ng/L	96	50 - 150	---	0.99	08/10/2017 07:20	08/10/2017 19:09	3753192
LRB	SS-PFDA-13C2	537	N/A	---		96.4498	100	ng/L	97	70 - 130	---	0.99	08/10/2017 07:20	08/10/2017 19:09	3753192
LRB	SS-PFHA-13C2	537	N/A	---		46.2049	50.0	ng/L	93	70 - 130	---	0.99	08/10/2017 07:20	08/10/2017 19:09	3753192
LRB	Perfluorooctane sulfonate (PFOS)	537	2.0	---	<	2.0		ng/L	---	---	---	0.99	08/10/2017 07:20	08/10/2017 19:09	3753192
LRB	Perfluorooctanoic acid (PFOA)	537	2.0	---	<	2.0		ng/L	---	---	---	0.99	08/10/2017 07:20	08/10/2017 19:09	3753192
FBM	IS-PFOA-13C2	537	N/A	---		743976.00	712319	ng/L	104	50 - 150	---	1.0	08/10/2017 07:20	08/10/2017 19:42	3753193
FBM	IS-PFOS-13C4	537	N/A	---		142271.00	132586	ng/L	107	50 - 150	---	1.0	08/10/2017 07:20	08/10/2017 19:42	3753193
FBM	SS-PFDA-13C2	537	N/A	---		93.5662	100	ng/L	94	70 - 130	---	1.0	08/10/2017 07:20	08/10/2017 19:42	3753193
FBM	SS-PFHA-13C2	537	N/A	---		44.8052	50.0	ng/L	90	70 - 130	---	1.0	08/10/2017 07:20	08/10/2017 19:42	3753193
FBM	Perfluorooctane sulfonate (PFOS)	537	2.0	---		94.7294	100	ng/L	95	70 - 130	---	1.0	08/10/2017 07:20	08/10/2017 19:42	3753193
FBM	Perfluorooctanoic acid (PFOA)	537	2.0	---		92.3042	100	ng/L	92	70 - 130	---	1.0	08/10/2017 07:20	08/10/2017 19:42	3753193
FS	IS-PFOA-13C2	537	N/A	PEF35614/MGT		603056.00	712319	ng/L	85	50 - 150	---	0.95	08/10/2017 07:20	08/10/2017 19:59	3752127
FS	IS-PFOS-13C4	537	N/A	PEF35614/MGT		114281.00	132586	ng/L	86	50 - 150	---	0.95	08/10/2017 07:20	08/10/2017 19:59	3752127
FS	SS-PFDA-13C2	537	N/A	PEF35614/MGT		91.6393	100	ng/L	96	70 - 130	---	0.95	08/10/2017 07:20	08/10/2017 19:59	3752127
FS	SS-PFHA-13C2	537	N/A	PEF35614/MGT		45.1409	50.0	ng/L	95	70 - 130	---	0.95	08/10/2017 07:20	08/10/2017 19:59	3752127
FS	Perfluorooctane sulfonate (PFOS)	537	2.0	PEF35614/MGT	<	2.0		ng/L	---	---	---	0.95	08/10/2017 07:20	08/10/2017 19:59	3752127
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF35614/MGT	<	2.0		ng/L	---	---	---	0.95	08/10/2017 07:20	08/10/2017 19:59	3752127
LFSMM	IS-PFOA-13C2	537	N/A	PEF35614/MGT		707660.00	712319	ng/L	99	50 - 150	---	1.0	08/10/2017 07:20	08/10/2017 20:16	3753195
LFSMM	IS-PFOS-13C4	537	N/A	PEF35614/MGT		134954.00	132586	ng/L	102	50 - 150	---	1.0	08/10/2017 07:20	08/10/2017 20:16	3753195
LFSMM	SS-PFDA-13C2	537	N/A	PEF35614/MGT		98.6187	100	ng/L	99	70 - 130	---	1.0	08/10/2017 07:20	08/10/2017 20:16	3753195
LFSMM	SS-PFHA-13C2	537	N/A	PEF35614/MGT		47.8211	50.0	ng/L	96	70 - 130	---	1.0	08/10/2017 07:20	08/10/2017 20:16	3753195
LFSMM	Perfluorooctane sulfonate (PFOS)	537	2.0	PEF35614/MGT		95.0804	100	ng/L	95	70 - 130	---	1.0	08/10/2017 07:20	08/10/2017 20:16	3753195
LFSMM	Perfluorooctanoic acid (PFOA)	537	2.0	PEF35614/MGT		94.6339	100	ng/L	95	70 - 130	---	1.0	08/10/2017 07:20	08/10/2017 20:16	3753195
FS	IS-PFOA-13C2	537	N/A	PEF35615/WTPLSRWST		672922.00	712319	ng/L	94	50 - 150	---	0.95	08/10/2017 07:20	08/10/2017 20:33	3752128
FS	IS-PFOS-13C4	537	N/A	PEF35615/WTPLSRWST		129255.00	132586	ng/L	97	50 - 150	---	0.95	08/10/2017 07:20	08/10/2017 20:33	3752128
FS	SS-PFDA-13C2	537	N/A	PEF35615/WTPLSRWST		91.5576	100	ng/L	96	70 - 130	---	0.95	08/10/2017 07:20	08/10/2017 20:33	3752128
FS	SS-PFHA-13C2	537	N/A	PEF35615/WTPLSRWST		46.9570	50.0	ng/L	99	70 - 130	---	0.95	08/10/2017 07:20	08/10/2017 20:33	3752128
FS	Perfluorooctane sulfonate (PFOS)	537	2.0	PEF35615/WTPLSRWST		72		ng/L	---	---	---	0.95	08/10/2017 07:20	08/10/2017 20:33	3752128
FS	Perfluorooctanoic acid (PFOA)	537	2.0	PEF35615/WTPLSRWST		7.0		ng/L	---	---	---	0.95	08/10/2017 07:20	08/10/2017 20:33	3752128
CCM	IS-PFOA-13C2	537	N/A	---		682521.00	682521	ng/L	100	50 - 150	---	1.0	08/09/2017 11:35	08/10/2017 23:04	3753223
CCM	IS-PFOS-13C4	537	N/A	---		132505.00	132505	ng/L	100	50 - 150	---	1.0	08/09/2017 11:35	08/10/2017 23:04	3753223
CCM	SS-PFDA-13C2	537	N/A	---		99.1464	100	ng/L	99	70 - 130	---	1.0	08/09/2017 11:35	08/10/2017 23:04	3753223
CCM	SS-PFHA-13C2	537	N/A	---		49.4848	50.0	ng/L	99	70 - 130	---	1.0	08/09/2017 11:35	08/10/2017 23:04	3753223

QC Summary Report (cont.)

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD Limit	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
CCM	Perfluorooctane sulfonate (PFOS)	537	2.0	---		100.6480	100	ng/L	101	70 - 130	---	---	1.0	08/09/2017 11:35	08/10/2017 23:04	3753223
CCM	Perfluorooctanoic acid (PFOA)	537	2.0	---		101.0150	100	ng/L	101	70 - 130	---	---	1.0	08/09/2017 11:35	08/10/2017 23:04	3753223

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		
FBM	Fortified Blank Mid		
LFSMM	LFSM Mid		
LRB	Laboratory Reagent Blank		

END OF REPORT