



ANALYSIS REPORT

Prepared by:

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Lancaster, PA 17601

Prepared for:

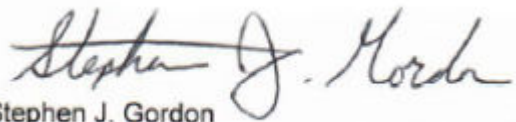
CWM Environmental
11931 State Route 85
Suite B
Kittanning PA 16201

Report Date: August 29, 2019 00:23

Project: PFAS - EP101

Account #: 20413
Group Number: 2058237
State of Sample Origin: PA

Respectfully Submitted,



Stephen J. Gordon
Project Manager

(724) 597-2027

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
EP101 Grab Water	08/07/2019 14:52	1122275
RAW Grab Water	08/07/2019 14:40	1122276
Trip Blank Water	08/07/2019	1122277

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: EP101 Grab Water
PFAS

CWM Environmental
ELLE Sample #: PW 1122275
ELLE Group #: 2058237
Matrix: Potable Water

Project Name: PFAS - EP101

Submission Date/Time: 08/09/2019 08:45
Collection Date/Time: 08/07/2019 14:52

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1						
			ng/l	ng/l	ng/l	
14070	NEtFOSAA	2991-50-6	N.D. B	0.45	1.8	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14070	NMeFOSAA	2355-31-9	N.D. B	0.45	1.8	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14070	Perfluorobutanesulfonic acid	375-73-5	0.77 JB	0.45	1.8	1
14070	Perfluorodecanoic acid	335-76-2	N.D. B	0.45	1.8	1
14070	Perfluorododecanoic acid	307-55-1	N.D. B	0.45	1.8	1
14070	Perfluoroheptanoic acid	375-85-9	0.51 JB	0.45	1.8	1
14070	Perfluorohexanesulfonic acid	355-46-4	N.D. B	0.45	1.8	1
14070	Perfluorohexanoic acid	307-24-4	1.3 JB	0.45	1.8	1
14070	Perfluorononanoic acid	375-95-1	N.D. B	0.45	1.8	1
14070	Perfluorooctanesulfonic acid	1763-23-1	1.4 JB	0.45	1.8	1
14070	Perfluorooctanoic acid	335-67-1	1.3 JB	0.45	1.8	1
14070	Perfluorotetradecanoic acid	376-06-7	N.D. B	0.45	1.8	1
14070	Perfluorotridecanoic acid	72629-94-8	N.D. B	0.45	1.8	1
14070	Perfluoroundecanoic acid	2058-94-8	N.D. B	0.45	1.8	1

Target analytes were detected in the method blank associated with this sample as noted on the QC Summary.

A field reagent blank was not submitted with this sample.

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/20.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14070	14 compounds in drinking water	EPA 537 Version 1.1	1	19228013	08/21/2019 09:39	Marissa C Drexinger	1
14381	DW PFAS Prep	EPA 537 Version 1.1	1	19228013	08/18/2019 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: RAW Grab Water
PFAS

CWM Environmental
ELLE Sample #: WW 1122276
ELLE Group #: 2058237
Matrix: Wastewater

Project Name: PFAS - EP101

Submission Date/Time: 08/09/2019 08:45
Collection Date/Time: 08/07/2019 14:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	10:2Fluorotelomersulfonic acid ¹	120226-60-0	N.D.	0.97	4.8	1
14473	4:2-Fluorotelomersulfonic acid	757124-72-4	N.D.	0.48	1.9	1
14473	6:2-Fluorotelomersulfonic acid	27619-97-2	4.4 J	1.9	4.8	1
14473	8:2-Fluorotelomersulfonic acid	39108-34-4	N.D.	0.97	2.9	1
14473	NEtFOSAA	2991-50-6	N.D.	0.48	2.9	1
NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NEtPFOSA	4151-50-2	N.D.	0.97	4.8	1
NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide						
14473	NEtPFOSAE	1691-99-2	N.D.	0.97	2.9	1
NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol						
14473	NMeFOSAA	2355-31-9	N.D.	0.58	1.9	1
NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMePFOSA	31506-32-8	N.D.	0.97	2.9	1
NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide						
14473	NMePFOSAE	24448-09-7	N.D.	0.97	2.9	1
NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol						
14473	Perfluorobutanesulfonic acid	375-73-5	0.90 J	0.48	1.9	1
14473	Perfluorobutanoic acid	375-22-4	2.2 J	1.9	4.8	1
14473	Perfluorodecanesulfonic acid	335-77-3	N.D.	0.48	1.9	1
14473	Perfluorodecanoic acid	335-76-2	N.D.	0.48	1.9	1
14473	Perfluorododecanesulfonic acid	79780-39-5	N.D.	0.48	2.9	1
14473	Perfluorododecanoic acid	307-55-1	N.D.	0.48	1.9	1
14473	Perfluoroheptanesulfonic acid	375-92-8	N.D.	0.48	1.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.73 J	0.48	1.9	1
14473	Perfluorohexadecanoic acid	67905-19-5	N.D.	0.97	2.9	1
14473	Perfluorohexanesulfonic acid	355-46-4	N.D.	0.48	1.9	1
14473	Perfluorohexanoic acid	307-24-4	1.4 J	0.48	1.9	1
14473	Perfluorononanesulfonic acid ¹	68259-12-1	N.D.	0.48	1.9	1
14473	Perfluorononanoic acid	375-95-1	N.D.	0.48	1.9	1
14473	Perfluorooctadecanoic acid	16517-11-6	N.D. Q0	0.97	2.9	1
14473	Perfluorooctanesulfonamide	754-91-6	N.D.	0.48	1.9	1
14473	Perfluorooctanesulfonic acid	1763-23-1	1.5 J	0.48	1.9	1
14473	Perfluorooctanoic acid	335-67-1	1.6 J	0.48	1.9	1
14473	Perfluoropentanesulfonate	2706-91-4	N.D.	0.48	1.9	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 J	0.48	1.9	1
14473	Perfluorotetradecanoic acid	376-06-7	N.D.	0.48	1.9	1
14473	Perfluorotridecanoic acid	72629-94-8	N.D.	0.48	1.9	1
14473	Perfluoroundecanoic acid	2058-94-8	N.D.	0.48	1.9	1

Extraction standard recoveries are outside QC acceptance criteria as noted on the QC summary. The sample was re-extracted outside the

*=This limit was used in the evaluation of the final result

Sample Description: RAW Grab Water
PFAS

CWM Environmental
ELLE Sample #: WW 1122276
ELLE Group #: 2058237
Matrix: Wastewater

Project Name: PFAS - EP101

Submission Date/Time: 08/09/2019 08:45
Collection Date/Time: 08/07/2019 14:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
	<p>required holding and extraction standard recoveries were again outside acceptance criteria. The data reported is from the initial extraction of the sample.</p> <p>The percent differences for extraction standards 13C2-8:2-FTS and d5-NEtFOSAA in the opening calibration verification standard associated with the sample was above QC acceptance criteria. The native recoveries of 8:2-FTS and NEtFOSAA in the opening CCV met QC acceptance criteria, the data is reported.</p> <p>The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.</p>					

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/20.

¹ = This analyte was not on the laboratory's PA DEP Scope of Accreditation at the time of analysis.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	32 compounds by EPA 537 mod	EPA 537 Version 1.1 Modified	1	19225002	08/15/2019 01:58	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	19225002	08/13/2019 07:30	Toby Barnhart	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
PFAS

CWM Environmental
ELLE Sample #: WW 112277
ELLE Group #: 2058237
Matrix: Wastewater

Project Name: PFAS - EP101

Submission Date/Time: 08/09/2019 08:45
Collection Date/Time: 08/07/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	10:2Fluorotelomersulfonic acid ¹	120226-60-0	N.D.	0.86	4.3	1
14473	4:2-Fluorotelomersulfonic acid	757124-72-4	N.D.	0.43	1.7	1
14473	6:2-Fluorotelomersulfonic acid	27619-97-2	N.D.	1.7	4.3	1
14473	8:2-Fluorotelomersulfonic acid	39108-34-4	N.D.	0.86	2.6	1
14473	NEtFOSAA	2991-50-6	N.D.	0.43	2.6	1
NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NEtPFOSA	4151-50-2	N.D.	0.86	4.3	1
NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide						
14473	NEtPFOSAE	1691-99-2	N.D.	0.86	2.6	1
NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol						
14473	NMeFOSAA	2355-31-9	N.D.	0.52	1.7	1
NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMePFOSA	31506-32-8	N.D.	0.86	2.6	1
NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide						
14473	NMePFOSAE	24448-09-7	N.D.	0.86	2.6	1
NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol						
14473	Perfluorobutanesulfonic acid	375-73-5	N.D.	0.43	1.7	1
14473	Perfluorobutanoic acid	375-22-4	N.D.	1.7	4.3	1
14473	Perfluorodecanesulfonic acid	335-77-3	N.D.	0.43	1.7	1
14473	Perfluorodecanoic acid	335-76-2	N.D.	0.43	1.7	1
14473	Perfluorododecanesulfonic acid	79780-39-5	N.D.	0.43	2.6	1
14473	Perfluorododecanoic acid	307-55-1	N.D.	0.43	1.7	1
14473	Perfluoroheptanesulfonic acid	375-92-8	N.D.	0.43	1.7	1
14473	Perfluoroheptanoic acid	375-85-9	N.D.	0.43	1.7	1
14473	Perfluorohexadecanoic acid	67905-19-5	N.D.	0.86	2.6	1
14473	Perfluorohexanesulfonic acid	355-46-4	N.D.	0.43	1.7	1
14473	Perfluorohexanoic acid	307-24-4	N.D.	0.43	1.7	1
14473	Perfluorononanesulfonic acid ¹	68259-12-1	N.D.	0.43	1.7	1
14473	Perfluorononanoic acid	375-95-1	N.D.	0.43	1.7	1
14473	Perfluorooctadecanoic acid	16517-11-6	N.D. QO	0.86	2.6	1
14473	Perfluorooctanesulfonamide	754-91-6	N.D.	0.43	1.7	1
14473	Perfluorooctanesulfonic acid	1763-23-1	N.D.	0.43	1.7	1
14473	Perfluorooctanoic acid	335-67-1	N.D.	0.43	1.7	1
14473	Perfluoropentanesulfonate	2706-91-4	N.D.	0.43	1.7	1
14473	Perfluoropentanoic acid	2706-90-3	N.D.	0.43	1.7	1
14473	Perfluorotetradecanoic acid	376-06-7	N.D.	0.43	1.7	1
14473	Perfluorotridecanoic acid	72629-94-8	N.D.	0.43	1.7	1
14473	Perfluoroundecanoic acid	2058-94-8	N.D.	0.43	1.7	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
PFAS

CWM Environmental
ELLE Sample #: WW 1122277
ELLE Group #: 2058237
Matrix: Wastewater

Project Name: PFAS - EP101

Submittal Date/Time: 08/09/2019 08:45
Collection Date/Time: 08/07/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
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The percent differences for extraction standards 13C2-8:2-FTS and d5-NEtFOSAA in the opening calibration verification standard associated with the sample was above QC acceptance criteria. The native recoveries of 8:2-FTS and NEtFOSAA in the opening CCV met QC acceptance criteria, the data is reported.

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/20.

¹ = This analyte was not on the laboratory's PA DEP Scope of Accreditation at the time of analysis.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	32 compounds by EPA 537 mod	EPA 537 Version 1.1 Modified	1	19225002	08/15/2019 02:07	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	19225002	08/13/2019 07:30	Toby Barnhart	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CWM Environmental
Reported: 08/29/2019 00:23

Group Number: 2058237

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 19225002	Sample number(s): 1122276-1122277		
10:2-Fluorotelomersulfonic acid	N.D.	1.0	5.0
4:2-Fluorotelomersulfonic acid	N.D.	0.50	2.0
6:2-Fluorotelomersulfonic acid	N.D.	2.0	5.0
8:2-Fluorotelomersulfonic acid	N.D.	1.0	3.0
NEtFOSAA	N.D.	0.50	3.0
NEtPFOSA	N.D.	1.0	5.0
NEtPFOSAE	N.D.	1.0	3.0
NMeFOSAA	N.D.	0.60	2.0
NMePFOSA	N.D.	1.0	3.0
NMePFOSAE	N.D.	1.0	3.0
Perfluorobutanesulfonic acid	N.D.	0.50	2.0
Perfluorobutanoic acid	N.D.	2.0	5.0
Perfluorodecanesulfonic acid	N.D.	0.50	2.0
Perfluorodecanoic acid	N.D.	0.50	2.0
Perfluorododecanesulfonic acid	N.D.	0.50	3.0
Perfluorododecanoic acid	N.D.	0.50	2.0
Perfluoroheptanesulfonic acid	N.D.	0.50	2.0
Perfluoroheptanoic acid	N.D.	0.50	2.0
Perfluorohexadecanoic acid	N.D.	1.0	3.0
Perfluorohexanesulfonic acid	N.D.	0.50	2.0
Perfluorohexanoic acid	N.D.	0.50	2.0
Perfluorononanesulfonic acid	N.D.	0.50	2.0
Perfluorononanoic acid	N.D.	0.50	2.0
Perfluorooctadecanoic acid	N.D.	1.0	3.0
Perfluorooctanesulfonamide	N.D.	0.50	2.0
Perfluorooctanesulfonic acid	N.D.	0.50	2.0
Perfluorooctanoic acid	N.D.	0.50	2.0
Perfluoropentanesulfonate	N.D.	0.50	2.0
Perfluoropentanoic acid	N.D.	0.50	2.0
Perfluorotetradecanoic acid	N.D.	0.50	2.0
Perfluorotridecanoic acid	N.D.	0.50	2.0
Perfluoroundecanoic acid	N.D.	0.50	2.0
Batch number: 19228013	Sample number(s): 1122275		
NEtFOSAA	1.1 J	0.50	2.0
NMeFOSAA	1.2 J	0.50	2.0
Perfluorobutanesulfonic acid	0.80 J	0.50	2.0
Perfluorodecanoic acid	1.0 J	0.50	2.0
Perfluorododecanoic acid	1.0 J	0.50	2.0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CWM Environmental
Reported: 08/29/2019 00:23

Group Number: 2058237

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluoroheptanoic acid	0.90 J	0.50	2.0
Perfluorohexanesulfonic acid	0.74 J	0.50	2.0
Perfluorohexanoic acid	1.1 J	0.50	2.0
Perfluorononanoic acid	1.1 J	0.50	2.0
Perfluorooctanesulfonic acid	1.0 J	0.50	2.0
Perfluorooctanoic acid	1.1 J	0.50	2.0
Perfluorotetradecanoic acid	1.1 J	0.50	2.0
Perfluorotridecanoic acid	1.2 J	0.50	2.0
Perfluoroundecanoic acid	1.0 J	0.50	2.0

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Batch number: 19225002	Sample number(s): 1122276-1122277								
10:2Fluorotelomersulfonic acid	15.42	16.44			107		49-186		
4:2-Fluorotelomersulfonic acid	14.94	12.93			86		82-152		
6:2-Fluorotelomersulfonic acid	15.17	14.77			97		66-155		
8:2-Fluorotelomersulfonic acid	15.33	15.09			98		66-148		
NEtFOSAA	5.44	4.32			79		55-169		
NEtPFOSA	5.44	5.02			92		70-130		
NEtPFOSAE	5.44	5.21			96		70-130		
NMeFOSAA	5.44	6.32			116		44-147		
NMePFOSA	5.44	5.98			110		70-130		
NMePFOSAE	5.44	5.24			96		70-130		
Perfluorobutanesulfonic acid	4.81	4.51			94		73-128		
Perfluorobutanoic acid	5.44	5.84			107		74-142		
Perfluorodecanesulfonic acid	5.24	4.97			95		60-135		
Perfluorodecanoic acid	5.44	5.88			108		69-148		
Perfluorododecanesulfonic acid	5.26	4.35			83		70-130		
Perfluorododecanoic acid	5.44	6.00			110		75-136		
Perfluoroheptanesulfonic acid	5.18	5.11			99		64-135		
Perfluoroheptanoic acid	5.44	6.29			116		76-140		
Perfluorohexadecanoic acid	5.44	5.11			94		21-151		
Perfluorohexanesulfonic acid	5.14	5.03			98		71-131		
Perfluorohexanoic acid	5.44	5.54			102		75-135		
Perfluorononanesulfonic acid	5.22	5.58			107		66-133		
Perfluorononanoic acid	5.44	5.74			105		72-148		
Perfluorooctadecanoic acid	5.44	3.54			65*		70-130		
Perfluorooctanesulfonamide	5.44	5.40			99		65-164		
Perfluorooctanesulfonic acid	5.20	4.61			89		67-138		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CWM Environmental
Reported: 08/29/2019 00:23

Group Number: 2058237

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	5.44	5.22			96		72-138		
Perfluoropentanesulfonate	5.10	5.60			110		76-127		
Perfluoropentanoic acid	5.44	6.07			112		74-134		
Perfluorotetradecanoic acid	5.44	6.17			113		74-135		
Perfluorotridecanoic acid	5.44	6.03			111		61-145		
Perfluoroundecanoic acid	5.44	4.90			90		75-146		
Batch number: 19228013	Sample number(s): 1122275								
NETFOSAA	80	82.04	80	86.45	103	108	70-130	5	30
NMeFOSAA	80	80.55	80	90.06	101	113	70-130	11	30
Perfluorobutanesulfonic acid	70.8	77.67	70.8	81.26	110	115	70-130	5	30
Perfluorodecanoic acid	80	84.03	80	89.16	105	111	70-130	6	30
Perfluorododecanoic acid	80	80.21	80	86.87	100	109	70-130	8	30
Perfluoroheptanoic acid	80	86.19	80	92.55	108	116	70-130	7	30
Perfluorohexanesulfonic acid	72.96	76.68	72.96	80.84	105	111	70-130	5	30
Perfluorohexanoic acid	80	81.93	80	89.03	102	111	70-130	8	30
Perfluorononanoic acid	80	85.28	80	90.36	107	113	70-130	6	30
Perfluorooctanesulfonic acid	74.04	80.87	74.04	83.04	109	112	70-130	3	30
Perfluorooctanoic acid	80	90.33	80	95.07	113	119	70-130	5	30
Perfluorotetradecanoic acid	80	84.43	80	89.25	106	112	70-130	6	30
Perfluorotridecanoic acid	80	89.34	80	96.47	112	121	70-130	8	30
Perfluoroundecanoic acid	80	81.95	80	91.66	102	115	70-130	11	30

Labeled Isotope Quality Control

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: 32 compounds by EPA 537 mod
Batch number: 19225002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C2-4:2-FTS	13C5-PFHxA	13C3-PFHxS
1122276	74	89	101	135	70	72
1122277	76	73	70	99	80	64
Blank	84	83	80	93	82	86
LCS	78	72	73	78	69	72
Limits:	33-123	31-157	26-148	21-182	35-138	34-126
	13C4-PFHpA	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA
1122276	72	114	76	70	79	76
1122277	60	89	77	73	77	75
Blank	83	101	81	81	89	84

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CWM Environmental
Reported: 08/29/2019 00:23

Group Number: 2058237

Labeled Isotope Quality Control (continued)

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: 32 compounds by EPA 537 mod
Batch number: 19225002

	13C4-PFHpA	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA
LCS	70	87	73	80	85	78
Limits:	35-126	32-170	48-122	50-121	41-144	47-125

	13C2-8:2-FTS	d3-NMeFOSAA	13C7-PFUnDA	d5-NEIFOSAA	13C2-PFDoDA	13C2-PFTeDA
1122276	100	69	67	85	69	50
1122277	82	75	75	90	74	60
Blank	115	100	91	112	90	86
LCS	97	85	83	102	79	74
Limits:	27-164	30-127	30-128	30-142	39-130	26-119

	13C8-PFOSA	d7-NMePFOSAE	d3-NMePFOSA	d9-NEIPFOSAE	d5-NEIPFOSA
1122276	45	25	5*	23	5*
1122277	65	61	34	61	36
Blank	85	80	34	72	30
LCS	75	69	39	69	35
Limits:	11-127	10-128	10-104	10-121	10-106

Analysis Name: 14 compounds in drinking water
Batch number: 19228013

	13C2-PFHxA	13C2-PFDA	D5-NetFOSAA
1122275	96	96	88
Blank	92	94	94
LCS	96	96	89
LCSD	97	94	91
Limits:	70-130	70-130	70-130

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 20413 Group # 2058237 Sample # 1122275-77

COC # 589703

Client Information			Matrix				Analysis Requested											For Lab Use Only																																		
Client: <u>Cwm</u>	Acct. #:		<input type="checkbox"/> Soil <input type="checkbox"/> Sediment <input type="checkbox"/> Tissue <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Surface <input type="checkbox"/> Other:	Total # of Containers	Preservation and Filtration Codes											FSC:	SCR# <u>246915</u>																																			
Project Name/ #: <u>PFAS</u>	PWSID #:				<table border="1"> <tr> <td><u>14 Compounds (Triem)</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>											<u>14 Compounds (Triem)</u>																																				
<u>14 Compounds (Triem)</u>																																																				
Project Manager: <u>Ryan Shaler</u>	P.O. #:													Remarks																																						
Sampler: <u>Robert Gomez</u>	Quote #:													<u>Not Repeatable</u>																																						
State where samples were collected:	For Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>																																																			
Sample Identification		Collected		Grab	Composite	Soil	Water	Other:	Total # of Containers	Analysis Requested																																										
Date	Time	Grab	Composite							Soil	Water	Other:	Total # of Containers																																							
<u>EP101</u>	<u>8/7/19</u>	<u>1452</u>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<u>2</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																																									
<u>RAW</u>	<u>8/7/19</u>	<u>1440</u>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<u>2</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																																									
Turnaround Time (TAT) Requested (please circle) Standard _____ Rush _____ (Rush TAT is subject to laboratory approval and surcharge.) Requested TAT in business days: _____ E-mail address: _____										Relinquished by: <u>Amanda Demaco</u> Date: <u>8-1-19</u> Time: <u>941</u> Received by: _____ Date: _____ Time: _____																																										
Data Package Options (circle if required) Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only) Type III (Reduced non-CLP) NJ DKQP TX TRRP-13 NYSDEC Category A or B MA MCP CT RCP										Relinquished by: <u>Robert Gomez (PWSA)</u> Date: <u>8/7/19</u> Time: <u>1510</u> Received by: _____ Date: _____ Time: _____																																										
EDD Required? Yes No If yes, format: _____ Site-Specific QC (MS/MSD/Dup)? Yes No (If yes, indicate QC sample and submit triplicate sample volume.)										Relinquished by: <u>[Signature]</u> Date: <u>8-9-19</u> Time: <u>8:05</u> Received by: _____ Date: _____ Time: _____																																										
Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____										Relinquished by Commercial Carrier: UPS <input checked="" type="checkbox"/> FedEx _____ Other _____ Temperature upon receipt <u>2-3</u> °C																																										



Lancaster Laboratories
Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 256523



Group Number(s):

2058237

Client: CWM ENVIRONMENTAL

Delivery and Receipt Information

Delivery Method:	<u>UPS</u>	Arrival Timestamp:	<u>08/09/2019 10:00</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Jessenia Colon Martinez (30 856) at 14:08 on 08/09/2019

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.3	DT	Wet	Y	Loose/Bag	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report
B	Detection in the Blank
Q0	LCS/LCSD Low
Q1	LCS/LCSD High
Q2	MS/MSD Low
Q3	MS/MSD High
Q7	LCS/LCSD RPD
Q8	DUP RPD
Q9	MS/MSD RPD

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.