### AFFF Spill Sampling Data Total PFAS & Specific Compounds Detected June 21, 2019

Sample I.D.:	Upstream	Outfall	Downstream-1	Downstream-2
Total PFAS Detected (ng/L [ppt]))	17.94	330.82	49.85	39.74
NEtFOSAA	< 0.86	< 0.88	< 0.88	< 0.9
Perfluorobutanesulfonic acid	1.4	1.3	1.2	1.2
Perfluorobutanoic acid	1.9	3.1	2.1	2.1
Pefluorodecanesulfonic acid	< 0.52	0.75	< 0.53	< 0.54
Perfluorododecanoic acid	< 0.43	1.4	< 0.44	< 0.45
Pefluoroheptanesulfonic acid	< 0.34	1.0	< 0.35	< 0.36
Pefluoroheptanoic acid	0.95	1.3	1.2	1.1
Pefluorohexanesulfonic acid	1.4	4.4	2.1	1.8
Pefluorohexanoic acid	2.2	3.5	2.6	2.4
Pefluorononanesulfonic acid	< 0.52	1.6	< 0.53	< 0.54
Pefluorononanoic acid	0.49	1.2	0.65	0.64
Pefluorooctanesulfonamide	< 0.43	1.9	< 0.44	< 0.45
Pefluorooctanesulfonic acid	4.6	300	35	25
Pefluorooctanoic acid	2.7	4.5	2.7	2.7
Pefluoropentanesulfonate	< 0.34	0.61	< 0.35	0.4
Pefluoropentanoic acid	2.3	2.3	2.3	2.4
Perfluorotetradecanoic acid	< 0.26	0.66	< 0.26	< 0.27
Perfluoroundecanoic acid	< 0.34	1.3	< 0.35	< 0.36
<b>Total PFAS Detected June 9, 2019</b>	37.72	1,515,700	13,330	10,253
<b>Total PFAS Detected June 11, 2019</b>		90,899.4		





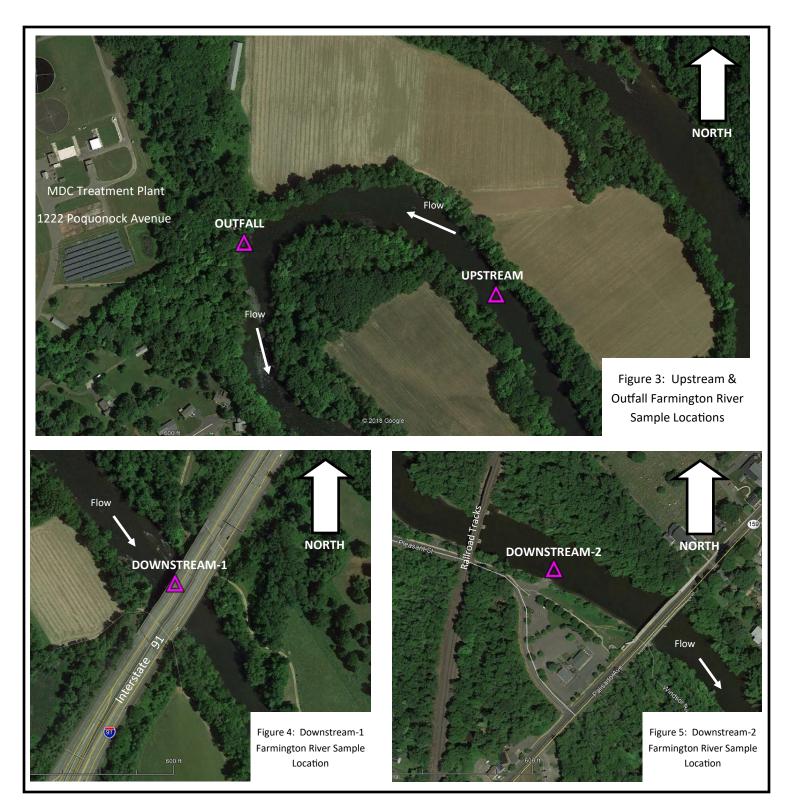
FIGURE 2 - Overview of Four Fire Fighting Foam Emergency Response Sampling Locations

June 9, 11, & 21, 2019

Farmington River

Windsor, Connecticut





FIGURES 3, 4 & 5 - Fire Fighting Foam Emergency Response Sampling Locations

June 9, 11, & 21, 2019

Farmington River - Windsor, Connecticut











#### **ANALYSIS REPORT**

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601 Environmental Services Inc. 90 Brookfield Street South Windsor CT 06074

Report Date: June 27, 2019 13:56

Project: 2019-0537

Account #: 44484 Group Number: 2050333 PO Number: 79345 State of Sample Origin: CT

Electronic Copy To Environmental Services Inc. Attn: Dustin Mitchell Electronic Copy To Environmental Services Inc. Attn: Cindy Knight

Respectfully Submitted,

Lynn M. Frederiksen

Principal Specialist Group Leader

Lyn M. Frederiksen

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









#### **SAMPLE INFORMATION**

Client Sample Description	Sample Collection	ELLE#
	<u>Date/Time</u>	
Upstream_June21 Grab Surface Water	06/21/2019 09:50	1087236
Outfall_June21 Grab Surface Water	06/21/2019 10:15	1087237
Downstream1_June21 Grab Surface Water	06/21/2019 11:00	1087238
Downstream2_June21 Grab Surface Water	06/21/2019 12:45	1087239

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



#### Lancaster Laboratories Environmental







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# Laboratory Analysis CT QA/QC Certification Form

Laboratory Name: Eurofins Lancaster Laboratories Environmental

Client: Environmental Services Inc.

Project: 2019-0537

Sampling Date(s): 06/21/19

Laboratory Sample ID(s): 1087236-1087239

		Yes or No
1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed (including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents)?	Yes
1A	Were method specified preservation and holding time requirements met?	Yes
1B	<u>VPH and EPH Methods only:</u> Was the VPH or EPH Method conducted without significant modifications (see Section 11.3 of respective methods)?	NA
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	Yes
3	Were samples received at an appropriate temperature (<6° C)?	Yes
4	Were all QA/QC performance criteria specified in the CT DEP Reasonable Confidence Protocol documents achieved?	No
5	Were reporting limits* specified on the chain-of-custody met?	Yes
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	Yes
7	Are project specific QC samples included in this data set?	No

Note: For all questions to which the response was "No" (with exception of question #7), additional information must be provided in an attached narrative. If the answer to #1, #1A or question #1B is "No", the data package does not meet the requirements for "Reasonable Confidence."

\*The Limit of Quantitation (LOQ) meets requirements for the Reporting Limit (RL) as defined in the CT Reasonable Confidence Protocols, unless otherwise noted.

I, the undersigned, attest under the pains and penalties of perjury that the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.



### Case Narrative

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Project Name: 2019-0537 ELLE Group #: 2050333

#### **General Comments:**

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if 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.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

#### **Analysis Specific Comments:**

#### EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 1087236, 1087237, 1087238, 1087239

Due to the sample matrix, extraction standard recoveries are outside QC acceptance criteria as noted on the QC summary.

Batch #: 19175001 (Sample number(s): 1087236-1087239)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 1087236, 1087237, 1087238, 1087239

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Sample Description: Upstream\_June21 Grab Surface Water

2019-0537

Project Name: 2019-0537

Submittal Date/Time: 06/22/2019 09:40 Collection Date/Time: 06/21/2019 09:50

Environmental Services Inc.

ELLE Sample #: WW 1087236

ELLE Group #: 2050333

Matrix: Surface Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
LC/MS		7 Version 1.1	ng/l	ng/l	
	Modifie				
14473	4:2-Fluorotelomersulfonic acid	757124-72-4	N.D.	0.86	1
14473	6:2-Fluorotelomersulfonic acid	27619-97-2	N.D.	0.86	1
14473	8:2-Fluorotelomersulfonic acid	39108-34-4	N.D.	1.7	1
14473	NEtFOSAA	2991-50-6	N.D.	0.86	1
	NEtFOSAA is the acronym for N-ethyl	perfluorooctanesulfona	midoacetic Acid.		
14473	NMeFOSAA	2355-31-9	N.D.	0.86	1
	NMeFOSAA is the acronym for N-met	hyl perfluorooctanesulfo	namidoacetic Acid.		
14473	Perfluorobutanesulfonic acid	375-73-5	1.4	0.26	1
14473	Perfluorobutanoic acid	375-22-4	1.9 J	1.7	1
14473	Perfluorodecanesulfonic acid	335-77-3	N.D.	0.52	1
14473	Perfluorodecanoic acid	335-76-2	N.D.	0.77	1
14473	Perfluorododecanoic acid	307-55-1	N.D.	0.43	1
14473	Perfluoroheptanesulfonic acid	375-92-8	N.D.	0.34	1
14473	Perfluoroheptanoic acid	375-85-9	0.95	0.34	1
14473	Perfluorohexanesulfonic acid	355-46-4	1.4 J	0.34	1
14473	Perfluorohexanoic acid	307-24-4	2.2	0.34	1
14473	Perfluorononanesulfonic acid	68259-12-1	N.D.	0.52	1
14473	Perfluorononanoic acid	375-95-1	0.49 J	0.34	1
14473	Perfluorooctanesulfonamide	754-91-6	N.D.	0.43	1
14473	Perfluorooctanesulfonic acid	1763-23-1	4.6	0.34	1
14473	Perfluorooctanoic acid	335-67-1	2.7	0.26	1
14473	Perfluoropentanesulfonate	2706-91-4	N.D.	0.34	1
14473	Perfluoropentanoic acid	2706-90-3	2.3 J	1.7	1
14473	Perfluorotetradecanoic acid	376-06-7	N.D.	0.26	1
14473	Perfluorotridecanoic acid	72629-94-8	N.D.	0.34	1
14473	Perfluoroundecanoic acid	2058-94-8	N.D.	0.34	1
Due	to the sample matrix, extraction standard	d recoveries are			
outsi	de QC acceptance criteria as noted on t	he QC summary.			

	Laboratory Sample Analysis Record							
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor	
14473	PFAS - 24 compounds	EPA 537 Version 1.1 Modified	1	19175001	06/26/2019 08:19	Jason W Knight	1	
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	19175001	06/24/2019 07:45	Courtney J Fatta	1	

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Sample Description: Outfall\_June21 Grab Surface Water

2019-0537

Project Name: 2019-0537

Submittal Date/Time: 06/22/2019 09:40 Collection Date/Time: 06/21/2019 10:15

Environmental Services Inc.

ELLE Sample #: WW 1087237

ELLE Group #: 2050333

Matrix: Surface Water

CAT No.	Analysis Name		CAS Number	Result		Method Detection Limit	Dilution Factor
LC/MS	/MS Miscellaneous	EPA 537 Ve	ersion 1.1	ng/l		ng/l	
		Modified					
14473	4:2-Fluorotelomersulfonic		757124-72-4	N.D.		0.88	1
14473	6:2-Fluorotelomersulfonic		27619-97-2	N.D.		0.88	1
14473	8:2-Fluorotelomersulfonic	acid	39108-34-4	N.D.		1.8	1
14473	NEtFOSAA		2991-50-6	N.D.		0.88	1
	NEtFOSAA is the acronyn	n for N-ethyl perf	luorooctanesulfona	midoacetic Ad	cid.		
14473	NMeFOSAA		2355-31-9	N.D.		0.88	1
	NMeFOSAA is the acrony	m for N-methyl p	erfluorooctanesulfo	namidoacetic	Acid.		
14473	Perfluorobutanesulfonic ad	cid	375-73-5	1.3		0.26	1
14473	Perfluorobutanoic acid		375-22-4	3.1 J		1.8	1
14473	Perfluorodecanesulfonic a	cid	335-77-3	0.75 J		0.53	1
14473	Perfluorodecanoic acid		335-76-2	N.D.		0.79	1
14473	Perfluorododecanoic acid		307-55-1	1.4 J		0.44	1
14473	Perfluoroheptanesulfonic	acid	375-92-8	1.0 J		0.35	1
14473	Perfluoroheptanoic acid		375-85-9	1.3		0.35	1
14473	Perfluorohexanesulfonic a	cid	355-46-4	4.4		0.35	1
14473	Perfluorohexanoic acid		307-24-4	3.5		0.35	1
14473	Perfluorononanesulfonic a	icid	68259-12-1	1.6 J		0.53	1
14473	Perfluorononanoic acid		375-95-1	1.2 J		0.35	1
14473	Perfluorooctanesulfonami	de	754-91-6	1.9 J		0.44	1
14473	Perfluorooctanesulfonic ad	cid	1763-23-1	300		0.35	1
14473	Perfluorooctanoic acid		335-67-1	4.5		0.26	1
14473	Perfluoropentanesulfonate	9	2706-91-4	0.61 J		0.35	1
14473	Perfluoropentanoic acid		2706-90-3	2.3 J		1.8	1
14473	Perfluorotetradecanoic ac	id	376-06-7	0.66 J		0.26	1
14473	Perfluorotridecanoic acid		72629-94-8	N.D.		0.35	1
14473	Perfluoroundecanoic acid		2058-94-8	1.3 J		0.35	1
	to the sample matrix, extract						
outsi	de QC acceptance criteria as	s noted on the Q	C summary.				

	Laboratory Sample Analysis Record							
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor	
14473	PFAS - 24 compounds	EPA 537 Version 1.1 Modified	1	19175001	06/26/2019 01:43	Jason W Knight	1	
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	19175001	06/24/2019 07:45	Courtney J Fatta	1	

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Sample Description: Downstream1\_June21 Grab Surface Water

2019-0537

Project Name: 2019-0537

Submittal Date/Time: 06/22/2019 09:40 Collection Date/Time: 06/21/2019 11:00

Environmental Services Inc.
ELLE Sample #: WW 1087238
ELLE Group #: 2050333

Matrix: Surface Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
LC/MS	/MS Miscellaneous EPA 537 Ve Modified	rsion 1.1	ng/l	ng/l	
14473	4:2-Fluorotelomersulfonic acid	757124-72-4	N.D.	0.88	1
14473	6:2-Fluorotelomersulfonic acid	27619-97-2	N.D.	0.88	1
14473	8:2-Fluorotelomersulfonic acid	39108-34-4	N.D.	1.8	1
14473	NEtFOSAA	2991-50-6	N.D.	0.88	1
	NEtFOSAA is the acronym for N-ethyl perfle	uorooctanesulfonam	idoacetic Acid.		
14473	NMeFOSAA	2355-31-9	N.D.	0.88	1
	NMeFOSAA is the acronym for N-methyl pe	erfluorooctanesulfon	amidoacetic Acid.		
14473	Perfluorobutanesulfonic acid	375-73-5	1.2	0.26	1
14473	Perfluorobutanoic acid	375-22-4	2.1 J	1.8	1
14473	Perfluorodecanesulfonic acid	335-77-3	N.D.	0.53	1
14473	Perfluorodecanoic acid	335-76-2	N.D.	0.79	1
14473	Perfluorododecanoic acid	307-55-1	N.D.	0.44	1
14473	Perfluoroheptanesulfonic acid	375-92-8	N.D.	0.35	1
14473	Perfluoroheptanoic acid	375-85-9	1.2	0.35	1
14473	Perfluorohexanesulfonic acid	355-46-4	2.1	0.35	1
14473	Perfluorohexanoic acid	307-24-4	2.6	0.35	1
14473	Perfluorononanesulfonic acid	68259-12-1	N.D.	0.53	1
14473	Perfluorononanoic acid	375-95-1	0.65 J	0.35	1
14473	Perfluorooctanesulfonamide	754-91-6	N.D.	0.44	1
14473	Perfluorooctanesulfonic acid	1763-23-1	35	0.35	1
14473	Perfluorooctanoic acid	335-67-1	2.7	0.26	1
14473	Perfluoropentanesulfonate	2706-91-4	N.D.	0.35	1
14473	Perfluoropentanoic acid	2706-90-3	2.3 J	1.8	1
14473	Perfluorotetradecanoic acid	376-06-7	N.D.	0.26	1
14473	Perfluorotridecanoic acid	72629-94-8	N.D.	0.35	1
14473	Perfluoroundecanoic acid	2058-94-8	N.D.	0.35	1
Due t	o the sample matrix, extraction standard reco	veries are			
outsid	de QC acceptance criteria as noted on the QC	C summary.			

	Laboratory Sample Analysis Record							
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor	
14473	PFAS - 24 compounds	EPA 537 Version 1.1 Modified	1	19175001	06/26/2019 01:52	Jason W Knight	1	
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	19175001	06/24/2019 07:45	Courtney J Fatta	1	



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**Sample Description:** Downstream2\_June21 Grab Surface Water

2019-0537

**Project Name:** 2019-0537

Submittal Date/Time: 06/22/2019 09:40 Collection Date/Time: 06/21/2019 12:45 **Environmental Services Inc. ELLE Sample #: WW 1087239 ELLE Group #:** 2050333 Matrix: Surface Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
LC/MS	MS Miscellaneous EPA 53	Version 1.1	ng/l	ng/l	
	Modifie	t			
14473	4:2-Fluorotelomersulfonic acid	757124-72-4	N.D.	0.90	1
14473	6:2-Fluorotelomersulfonic acid	27619-97-2	N.D.	0.90	1
14473	8:2-Fluorotelomersulfonic acid	39108-34-4	N.D.	1.8	1
14473	NEtFOSAA	2991-50-6	N.D.	0.90	1
	NEtFOSAA is the acronym for N-ethyl	perfluorooctanesulfonai	midoacetic Acid.		
14473	NMeFOSAA	2355-31-9	N.D.	0.90	1
	NMeFOSAA is the acronym for N-met	hyl perfluorooctanesulfo	namidoacetic Acid.		
14473	Perfluorobutanesulfonic acid	375-73-5	1.2	0.27	1
14473	Perfluorobutanoic acid	375-22-4	2.1 J	1.8	1
14473	Perfluorodecanesulfonic acid	335-77-3	N.D.	0.54	1
14473	Perfluorodecanoic acid	335-76-2	N.D.	0.81	1
14473	Perfluorododecanoic acid	307-55-1	N.D.	0.45	1
14473	Perfluoroheptanesulfonic acid	375-92-8	N.D.	0.36	1
14473	Perfluoroheptanoic acid	375-85-9	1.1	0.36	1
14473	Perfluorohexanesulfonic acid	355-46-4	1.8	0.36	1
14473	Perfluorohexanoic acid	307-24-4	2.4	0.36	1
14473	Perfluorononanesulfonic acid	68259-12-1	N.D.	0.54	1
14473	Perfluorononanoic acid	375-95-1	0.64 J	0.36	1
14473	Perfluorooctanesulfonamide	754-91-6	N.D.	0.45	1
14473	Perfluorooctanesulfonic acid	1763-23-1	25	0.36	1
14473	Perfluorooctanoic acid	335-67-1	2.7	0.27	1
14473	Perfluoropentanesulfonate	2706-91-4	0.40 J	0.36	1
14473	Perfluoropentanoic acid	2706-90-3	2.4 J	1.8	1
14473	Perfluorotetradecanoic acid	376-06-7	N.D.	0.27	1
14473	Perfluorotridecanoic acid	72629-94-8	N.D.	0.36	1
14473	Perfluoroundecanoic acid	2058-94-8	N.D.	0.36	1

outside QC acceptance criteria as noted on the QC summary.

	Laboratory Sample Analysis Record							
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor	
14473	PFAS - 24 compounds	EPA 537 Version 1.1 Modified	1	19175001	06/26/2019 02:01	Jason W Knight	1	
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	19175001	06/24/2019 07:45	Courtney J Fatta	1	

### **Quality Control Summary**

Client Name: Environmental Services Inc. Group Number: 2050333

Reported: 06/27/2019 13:56

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
	ng/l	ng/l
Batch number: 19175001	Sample number(s	): 1087236-1087239
4:2-Fluorotelomersulfonic acid	N.D.	1.0
6:2-Fluorotelomersulfonic acid	N.D.	1.0
8:2-Fluorotelomersulfonic acid	N.D.	2.0
NEtFOSAA	N.D.	1.0
NMeFOSAA	N.D.	1.0
Perfluorobutanesulfonic acid	N.D.	0.30
Perfluorobutanoic acid	N.D.	2.0
Perfluorodecanesulfonic acid	N.D.	0.60
Perfluorodecanoic acid	N.D.	0.90
Perfluorododecanoic acid	N.D.	0.50
Perfluoroheptanesulfonic acid	N.D.	0.40
Perfluoroheptanoic acid	N.D.	0.40
Perfluorohexanesulfonic acid	N.D.	0.40
Perfluorohexanoic acid	N.D.	0.40
Perfluorononanesulfonic acid	N.D.	0.60
Perfluorononanoic acid	N.D.	0.40
Perfluorooctanesulfonamide	N.D.	0.50
Perfluorooctanesulfonic acid	N.D.	0.40
Perfluorooctanoic acid	N.D.	0.30
Perfluoropentanesulfonate	N.D.	0.40
Perfluoropentanoic acid	N.D.	2.0
Perfluorotetradecanoic acid	N.D.	0.30
Perfluorotridecanoic acid	N.D.	0.40
Perfluoroundecanoic acid	N.D.	0.40

#### LCS/LCSD

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
Batch number: 19175001	Sample number	(s): 1087236-1	1087239						
4:2-Fluorotelomersulfonic acid	14.94	14.09	14.94	16.5	94	110	82-152	16	30
6:2-Fluorotelomersulfonic acid	15.17	17.04	15.17	16	112	105	66-155	6	30
8:2-Fluorotelomersulfonic acid	15.33	19.8	15.33	20.06	129	131	66-148	1	30
NEtFOSAA	5.44	5.98	5.44	5.39	110	99	55-169	11	30
NMeFOSAA	5.44	6.02	5.44	6.41	111	118	44-147	6	30

<sup>\*-</sup> Outside of specification

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

<sup>(2)</sup> The unspiked result was more than four times the spike added.

### **Quality Control Summary**

Client Name: Environmental Services Inc. Group Number: 2050333

Reported: 06/27/2019 13:56

#### 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
Perfluorobutanesulfonic acid	4.81	4.65	4.81	5.78	97	120	73-128	22	30
Perfluorobutanoic acid	5.44	5.99	5.44	6.07	110	112	74-142	1	30
Perfluorodecanesulfonic acid	5.24	4.99	5.24	5.12	95	98	60-135	3	30
Perfluorodecanoic acid	5.44	5.41	5.44	6.20	99	114	69-148	14	30
Perfluorododecanoic acid	5.44	6.18	5.44	6.25	114	115	75-136	1	30
Perfluoroheptanesulfonic acid	5.18	5.58	5.18	4.97	108	96	64-135	12	30
Perfluoroheptanoic acid	5.44	5.45	5.44	5.36	100	98	76-140	2	30
Perfluorohexanesulfonic acid	5.14	4.93	5.14	4.43	96	86	71-131	11	30
Perfluorohexanoic acid	5.44	5.44	5.44	5.78	100	106	75-135	6	30
Perfluorononanesulfonic acid	5.22	5.80	5.22	6.37	111	122	66-133	9	30
Perfluorononanoic acid	5.44	5.54	5.44	5.53	102	102	72-148	0	30
Perfluorooctanesulfonamide	5.44	5.82	5.44	6.40	107	118	65-164	9	30
Perfluorooctanesulfonic acid	5.20	5.03	5.20	5.20	97	100	67-138	3	30
Perfluorooctanoic acid	5.44	5.71	5.44	5.74	105	106	72-138	1	30
Perfluoropentanesulfonate	5.10	5.07	5.10	5.31	99	104	76-127	5	30
Perfluoropentanoic acid	5.44	5.42	5.44	5.42	100	100	74-134	0	30
Perfluorotetradecanoic acid	5.44	6.11	5.44	5.86	112	108	74-135	4	30
Perfluorotridecanoic acid	5.44	5.48	5.44	6.42	101	118	61-145	16	30
Perfluoroundecanoic acid	5.44	6.19	5.44	5.41	114	100	75-146	13	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: PFAS - 24 compounds

Batch number: 19175001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C2-4:2-FTS	13C5-PFHxA	13C3-PFHxS
1087236	89	118	146	267*	86	63
1087237	84	108	125	306*	79	63
1087238	82	108	115	233*	79	74
1087239	84	105	115	250*	79	75
Blank	92	88	96	100	93	97
LCS	82	77	84	93	87	81
LCSD	85	83	88	85	82	86
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
1087236	44	189*	89	89	91	91
1087237	46	235*	86	86	92	93
1087238	64	166	88	84	86	81

<sup>\*-</sup> Outside of specification

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

<sup>(2)</sup> The unspiked result was more than four times the spike added.

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### **Quality Control Summary**

Client Name: Environmental Services Inc. Group Number: 2050333

Reported: 06/27/2019 13:56

#### **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: PFAS - 24 compounds

Batch number: 19175001

	13C4-PFHpA	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA
1087239	65	176*	87	80	89	89
Blank	94	97	95	89	94	95
LCS	79	81	82	80	86	86
LCSD	80	85	82	84	92	86
Limits:	35-126	32-170	48-122	50-121	41-144	47-125
	13C2-8:2-FTS	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA
1087236	155	87	77	94	67	63
1087237	204*	84	75	84	70	53
1087238	122	82	74	75	72	56
1087239	142	81	81	81	64	42
Blank	96	79	89	78	82	79
LCS	84	84	83	78	88	72
LCSD	88	75	89	83	82	78
Limits:	27-164	30-127	30-128	30-142	39-130	26-119

	13C8-PFOSA	
1087236	31	
1087237	44	
1087238	43	
1087239	41	
Blank	72	
LCS	72	
LCSD	70	
Limits:	11-127	

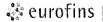
\*- Outside of specification

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

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

## Environmental Analysis Request/Chain of Custody

- caronns	Lancaster Laboratories Environmental			Acct. #	44	481	( Gro	<sub>up #</sub> 2	iS	<u> </u>	32	s	Sample	#\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	5N	36	· -	39		
Client: <i>Enviro</i> .	nmental Services Inc						Matrix	w.,—————				Α	naly	ses F	Reque	este	d		For Lab Us	se Only
Project Name/#: 💪	2019-0537	Site ID#:						<u></u>		Preservation and					d Filtration Codes				ŚF #:	
Project Manager:	Dustin Mitchell	P.O. #:	79345	)		Tissue	ace			0									SCR #:	
Sampler: C. Kaj	aht	PWSID#:	,			ı≝	Ground Surface		,,	1.1									Preserva	ion Codes
Phone #: 860	528 9500	Quote #:				lt∏			iner	1	~				}				H ≃ HCI	T = Thiosulfate
State where sample	es were collected:For C	Compliance:	Yes 🗌	No	阳	Sediment [	ble		onta	W 7	}								N = HNO3	B = NaOH
		Colle	ection		Composite		Potable er NPDES	3F;	Total # of Containers	45 53									S = H <sub>2</sub> SO <sub>4</sub> F = Field Filtered	$P = H_3PO_4$ $O = Other$
Sample Identific	ation	Date	Time	Grab	Con	Soil	Water	Other:	Tota	PFA									Ren	arks
Upstream -	June 2	6/21/19	9:50	3			5W		2	X									Trizma	Aril
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Lançaster Laboratories Environmental

### Sample Administration Receipt Documentation Log

Doc Log ID:

252219

Group Number(s): 2050333

Client: ENVIRONMENTAL SERVICE INC

**Delivery and Receipt Information** 

**Delivery Method:** 

Fed Ex

Arrival Timestamp:

06/22/2019 9:40

Number of Packages:

1

Number of Projects:

1

State/Province of Origin:

<u>CT</u>

**Arrival Condition Summary** 

Shipping Container Sealed:

Yes

Sample IDs on COC match Containers:

Yes

Custody Seal Present:

Yes

Sample Date/Times match COC:

No

Custody Seal Intact:

Paperwork Enclosed:

Yes

Total Trip Blank Qty:

0

Samples Chilled:

Yes Yes

Air Quality Samples Present:

No

Samples Intact:

Yes

Missing Samples:

No No

Extra Samples:

Discrepancy in Container Qty on COC:

No

Unpacked by Jessenia Colon Martinez (30856) at 10:15 on 06/22/2019

Samples Chilled Details

Thermometer Types:

DT = Digital (Temp. Bottle)

IR = Infrared (Surface Temp)

Comments

All Temperatures in °C.

Cooler# Thermometer ID

Corrected Temp

Therm. Type

Ice Type

Ice Present?

Ice Container

32170023

Outfall\_June21

2.1

ΙR

Dry

Bagged

Elevated Temp? Ν

Sample Date/Time Discrepancy Details

upstream coc = 0:9

Sample ID on COC Upstream\_June21

Date/Time on Label 6/21/2019 10:15

6/21/2019 09:50

Time swtiched with sample Outfall Time swtiched with sample Upstream

outful coc = 10:15

The collection times on are correct per

CO C\_



**BMQL** 

Dry weight

basis

### **Explanation of Symbols and Abbreviations**

milliliter(s)

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

Below Minimum Quantitation Level

Diliqe	Bolow William Quartitudion 2010		Trimine (o)					
С	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							

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.

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

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

as-received basis.

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
С	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 >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
Р	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

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.