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
Total PFAS Detected June 9, 2019	**37.72**	**1,515,700**	**13,330**	**10,253**
Total PFAS Detected June 11, 2019	--	**90,899.4**	--	--

Environmental Services, Inc.

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

June 9, 11, & 21, 2019

Farmington River

Windsor, Connecticut

Environmental Services, Inc.

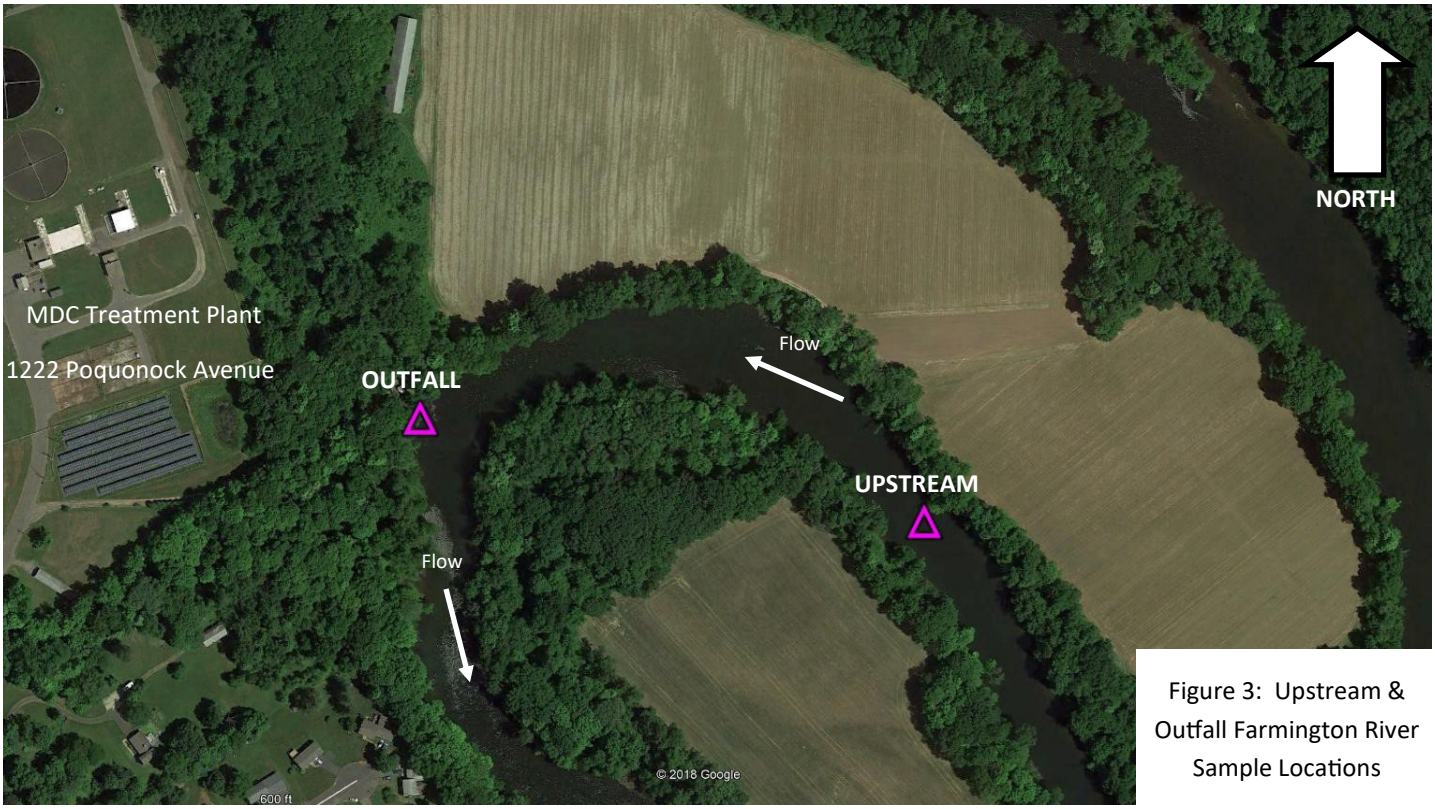

Figure 3: Upstream & Outfall Farmington River Sample Locations

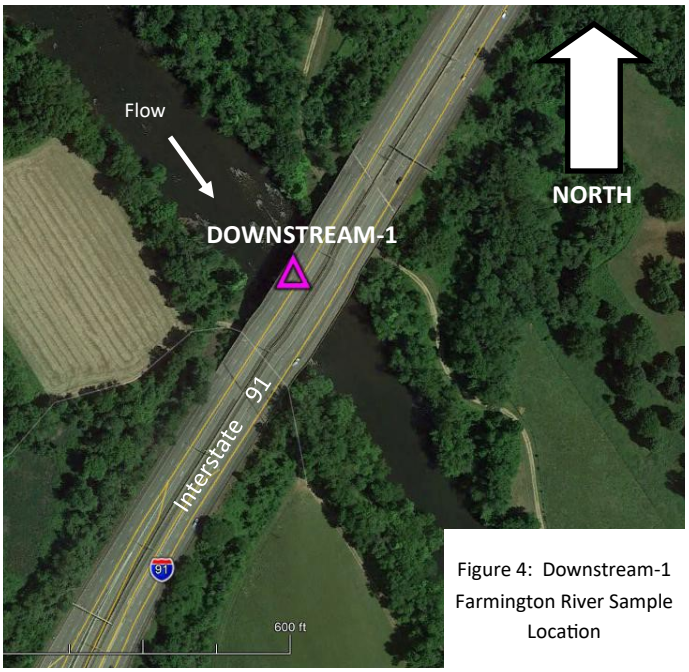

Figure 4: Downstream-1 Farmington River Sample Location

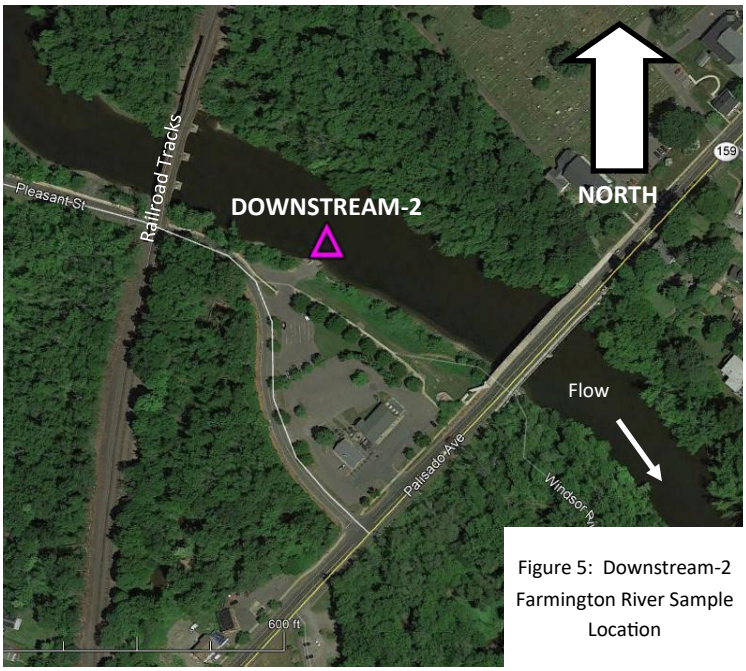

Figure 5: Downstream-2 Farmington River Sample Location

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

June 9, 11, & 21, 2019

Farmington River - Windsor, Connecticut

Environmental Services, Inc.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

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

(717) 556-7255

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.

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
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.

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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	**VPH and EPH Methods only:** 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.

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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

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/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	
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 perfluorooctanesulfonamidoacetic Acid.				
14473	NMeFOSAA	2355-31-9	N.D.	0.86	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic 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 recoveries are 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 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

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 Version 1.1 Modified**		**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 perfluorooctanesulfonamidoacetic Acid.				
14473	NMeFOSAA	2355-31-9	N.D.	0.88	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.				
14473	Perfluorobutanesulfonic acid	375-73-5	1.3	0.26	1
14473	Perfluorobutanoic acid	375-22-4	3.1 J	1.8	1
14473	Perfluorodecanesulfonic acid	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 acid	355-46-4	4.4	0.35	1
14473	Perfluorohexanoic acid	307-24-4	3.5	0.35	1
14473	Perfluorononanesulfonic acid	68259-12-1	1.6 J	0.53	1
14473	Perfluorononanoic acid	375-95-1	1.2 J	0.35	1
14473	Perfluorooctanesulfonamide	754-91-6	1.9 J	0.44	1
14473	Perfluorooctanesulfonic acid	1763-23-1	300	0.35	1
14473	Perfluorooctanoic acid	335-67-1	4.5	0.26	1
14473	Perfluoropentanesulfonate	2706-91-4	0.61 J	0.35	1
14473	Perfluoropentanoic acid	2706-90-3	2.3 J	1.8	1
14473	Perfluorotetradecanoic acid	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

Due to the sample matrix, extraction standard recoveries are 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 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

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 Version 1.1 Modified**		**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 perfluorooctanesulfonamidoacetic Acid.				
14473	NMeFOSAA	2355-31-9	N.D.	0.88	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic 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 to the sample matrix, extraction standard recoveries are 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 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

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 537 Version 1.1 Modified**		**ng/l**	**ng/l**	
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 perfluorooctanesulfonamidoacetic Acid.				
14473	NMeFOSAA	2355-31-9	N.D.	0.90	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic 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

Due to the sample matrix, extraction standard recoveries are 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): 1087236-1087239								
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

*- Outside of specification
(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: 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

*- Outside of specification
(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: 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
(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

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Acct. # 44484 Group # 280333 Sample # 105736-39

Client: Environmental Services Inc.			
Project Name/#: 2019-0537	Site ID #:		
Project Manager: Dustin Mitchell	P.O. #: 79345		
Sampler: C Knight	PWSID #:		
Phone #: 860-528-9500	Quote #:		
State where samples were collected: CT	For Compliance: Yes ☐ No ☒		

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Tissue	Water	Ground	Potable	Surface	NPDES	Other:	Total # of Containers	Preservation: 0	PFAS 537 mod. (11)										Remarks
Upstream – June 21	6/21/19	9:50	X					SW						2		X										Trizma Acid
Outfall – June 21		10:15	X													X										
Downstream 1 – June 21		11:00	X													X										
Downstream 2 – June 21		12:45	X													X										

For Lab Use Only

SF #: _____

SCR #: _____

Preservation Codes

H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; F = Field Filtered; O = Other

Turnaround Time Requested (TAT) (please check): Standard ☐ Rush ☒

(Rush TAT is subject to laboratory approval and surcharges.)

Date results are needed: ASAP

Rush results requested by (please check): E-Mail ☒ Phone ☐

E-mail Address: Dustin@e-s-i.com and CKnight@e-s-i.com

Phone: 8604027069

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐
Type III (Reduced non-CLP)	☐	CT RCP	☒
Type VI (Raw Data Only)	☐	TX TRRP-13	☐
NJ DKQP	☐	NYSDEC Category	☐ A or ☐ B

EDD Required? Yes ☒ No ☐ If yes, format: PDF

	Relinquished by:	Date	Time	Received by:	Date	Time
1	[signature]	6/21/19	1:15			
2						
3						
4						
5				[signature]	6/22/19	9:40

Relinquished by Commercial Carrier: UPS _____ FedEx ☒ Other _____

Temperature upon receipt 2.1 °C

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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:	CT		

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:	Yes	Total Trip Blank Qty:	0
Samples Chilled:	Yes	Air Quality Samples Present:	No
Paperwork Enclosed:	Yes		
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
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)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	32170023	2.1	IR	Dry	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
Upstream_June21	6/21/2019 10:15	Time swtiched with sample Outfall
Outfall_June21	6/21/2019 09:50	Time swtiched with sample Upstream

upstream COC = ~~9:50~~ 9:50
Outfall COC = 10:15

The collection times on COC are correct per C. Knight.
LF593 6/24/19

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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 >= 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

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.