

ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
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Laboratory Job ID: 410-15142-1

Client Project/Site: PFC Investigation

Sampling Event: (GSES) General System Evaluation Samples

For:

Merrimack Village District
2 Greens Pond Road
Merrimack, New Hampshire 03054

Attn: Jill Lavoie



Authorized for release by:
10/9/2020 11:10:08 AM

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Results relate only to the items tested and the sample(s) as received by the laboratory.



Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

* QC recoveries that exceed the upper limits and are associated with non-detect samples are qualified but no further narration is needed since the bias is high and does not change a non-detect result.

* 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 is 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 the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

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

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

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Mary Kate Izzo
Project Manager
10/9/2020 11:10:08 AM



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Definitions/Glossary

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*5	Isotope dilution analyte is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Job ID: 410-15142-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative 410-15142-1

Receipt

The samples were received on 9/25/2020 10:49 AM; the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.9°C

LCMS

Method PFC_IDA: The following sample(s) were found to contain residual chlorine: MVD-2(T)/1531010_008 (410-15142-1), MVD-3(T)/1531010_003 (410-15142-2) and MVD-TP/1531010_508 (410-15142-5).

Method PFC_IDA: The recovery for target analyte 1H, 1H,2H,2H-perfluorododecanesulfonic acid (10:2) is outside the QC acceptance limits in the opening continuing calibration verification standard. Since the result is high and target 1H, 1H,2H,2H-perfluorododecanesulfonic acid (10:2) is not detected in the following samples: MVD-2(T)/1531010_008 (410-15142-1), MVD-3(T)/1531010_003 (410-15142-2), MVD-7(R)/1531010_007 (410-15142-3), MVD-8(R)/1531010_009 (410-15142-4) and MVD-TP/1531010_508 (410-15142-5), the data is reported. The recovery for labeled isotopes: ¹³C2-PFDoDA, d5-NEtFOSAA, and M2-8:2 FTS are outside the QC acceptance limits in the opening continuing calibration verification standard. Since the recovery for the labeled isotopes are within QC limits in the following samples: MVD-2(T)/1531010_008 (410-15142-1), MVD-3(T)/1531010_003 (410-15142-2), MVD-7(R)/1531010_007 (410-15142-3), MVD-8(R)/1531010_009 (410-15142-4) and MVD-TP/1531010_508 (410-15142-5), the data is reported.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: MVD-7(R)/1531010_007 (410-15142-3) and MVD-8(R)/1531010_009 (410-15142-4) is outside the QC acceptance limits. The following action was taken: This sample was re-extracted within the required holding time and the recovery for the labeled isotope(s) is again outside the QC acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Client Sample ID: MVD-2(T)/1531010_008

Lab Sample ID: 410-15142-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.1		1.7	0.43	ng/L	1		T-WI14355 r12	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.5		1.7	0.43	ng/L	1		T-WI14355 r12	Total/NA
Perfluorooctanoic acid (PFOA)	12		1.7	0.43	ng/L	1		T-WI14355 r12	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.1		1.7	0.43	ng/L	1		T-WI14355 r12	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	1.7	0.43	ng/L	1		T-WI14355 r12	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.1		1.7	0.43	ng/L	1		T-WI14355 r12	Total/NA
Perfluorobutanoic acid (PFBA)	2.2	J	4.3	1.7	ng/L	1		T-WI14355 r12	Total/NA
Perfluoropentanoic acid (PFPA)	2.4		1.7	0.43	ng/L	1		T-WI14355 r12	Total/NA

Client Sample ID: MVD-3(T)/1531010_003

Lab Sample ID: 410-15142-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	7.8		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.7		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorooctanoic acid (PFOA)	17		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorononanoic acid (PFNA)	0.71	J	1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.1		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.70	J	1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.3		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorobutanoic acid (PFBA)	4.7		4.4	1.8	ng/L	1		T-WI14355 r12	Total/NA
Perfluoropentanoic acid (PFPA)	6.6		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA

Client Sample ID: MVD-7(R)/1531010_007

Lab Sample ID: 410-15142-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.2		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.7		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorooctanoic acid (PFOA)	24		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorononanoic acid (PFNA)	0.75	J	1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.1		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.9		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.7		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorobutanoic acid (PFBA)	2.4	J	4.4	1.8	ng/L	1		T-WI14355 r12	Total/NA
Perfluoropentanoic acid (PFPA)	2.6		1.8	0.44	ng/L	1		T-WI14355 r12	Total/NA

Client Sample ID: MVD-8(R)/1531010_009

Lab Sample ID: 410-15142-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.6		1.7	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.8		1.7	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorooctanoic acid (PFOA)	20		1.7	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.7		1.7	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	1.7	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.8		1.7	0.44	ng/L	1		T-WI14355 r12	Total/NA
Perfluorobutanoic acid (PFBA)	1.9	J	4.4	1.7	ng/L	1		T-WI14355 r12	Total/NA
Perfluoropentanoic acid (PFPA)	2.2		1.7	0.44	ng/L	1		T-WI14355 r12	Total/NA

Client Sample ID: MVD-TP/1531010_508

Lab Sample ID: 410-15142-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.8		1.8	0.45	ng/L	1		T-WI14355 r12	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.2		1.8	0.45	ng/L	1		T-WI14355 r12	Total/NA
Perfluorooctanoic acid (PFOA)	27		1.8	0.45	ng/L	1		T-WI14355 r12	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

Detection Summary

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Client Sample ID: MVD-TP/1531010_508 (Continued)

Lab Sample ID: 410-15142-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid (PFNA)	0.53	J	1.8	0.45	ng/L	1		T-WI14355 r12	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.9		1.8	0.45	ng/L	1		T-WI14355 r12	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	1.8	0.45	ng/L	1		T-WI14355 r12	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.6		1.8	0.45	ng/L	1		T-WI14355 r12	Total/NA
Perfluorobutanoic acid (PFBA)	2.0	J	4.5	1.8	ng/L	1		T-WI14355 r12	Total/NA
Perfluoropentanoic acid (PFPA)	2.2		1.8	0.45	ng/L	1		T-WI14355 r12	Total/NA

This Detection Summary does not include radiochemical test results.

Euofins Lancaster Laboratories Env, LLC

Client Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Client Sample ID: MVD-2(T)/1531010_008

Lab Sample ID: 410-15142-1

Date Collected: 09/24/20 14:25

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	3.1		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluoroheptanoic acid (PFHpA)	2.5		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorooctanoic acid (PFOA)	12		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorobutanesulfonic acid (PFBS)	3.1		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorooctanesulfonic acid (PFOS)	2.1		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
NEtFOSAA	ND		2.6	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
NMeFOSAA	ND		1.7	0.52	ng/L		09/29/20 08:28	10/02/20 15:06	1
10:2 Fluorotelomer sulfonic acid	ND		4.3	0.86	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.6	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	*	2.6	0.86	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*	2.6	0.86	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorobutanoic acid (PFBA)	2.2	J	4.3	1.7	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluoropentanoic acid (PFPA)	2.4		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
NMeFOSE	ND		2.6	0.86	ng/L		09/29/20 08:28	10/02/20 15:06	1
NMeFOSA	ND		2.6	0.86	ng/L		09/29/20 08:28	10/02/20 15:06	1
NEtFOSE	ND		2.6	0.86	ng/L		09/29/20 08:28	10/02/20 15:06	1
NEtFOSA	ND		4.3	0.86	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
4:2 Fluorotelomer sulfonic acid	ND		1.7	0.43	ng/L		09/29/20 08:28	10/02/20 15:06	1
6:2 Fluorotelomer sulfonic acid	ND		4.3	1.7	ng/L		09/29/20 08:28	10/02/20 15:06	1
8:2 Fluorotelomer sulfonic acid	ND		2.6	0.86	ng/L		09/29/20 08:28	10/02/20 15:06	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	95		20 - 187	09/29/20 08:28	10/02/20 15:06	1
M2-8:2 FTS	110		34 - 182	09/29/20 08:28	10/02/20 15:06	1
M2-6:2 FTS	102		29 - 189	09/29/20 08:28	10/02/20 15:06	1
13C5 PFHxA	85		31 - 142	09/29/20 08:28	10/02/20 15:06	1
13C4 PFHpA	86		30 - 144	09/29/20 08:28	10/02/20 15:06	1
13C8 PFOA	94		49 - 127	09/29/20 08:28	10/02/20 15:06	1
13C9 PFNA	96		47 - 136	09/29/20 08:28	10/02/20 15:06	1
13C6 PFDA	97		47 - 128	09/29/20 08:28	10/02/20 15:06	1
13C7 PFUnA	97		40 - 135	09/29/20 08:28	10/02/20 15:06	1
13C2-PFDoDA	94		28 - 136	09/29/20 08:28	10/02/20 15:06	1

Eurofins Lancaster Laboratories Env, LLC

Client Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Client Sample ID: MVD-2(T)/1531010_008

Lab Sample ID: 410-15142-1

Date Collected: 09/24/20 14:25

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12 (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFTeDA	103		10 - 144	09/29/20 08:28	10/02/20 15:06	1
13C3 PFBS	100		19 - 178	09/29/20 08:28	10/02/20 15:06	1
13C3 PFHxS	84		32 - 145	09/29/20 08:28	10/02/20 15:06	1
13C8 PFOS	91		49 - 126	09/29/20 08:28	10/02/20 15:06	1
d3-NMeFOSAA	96		32 - 151	09/29/20 08:28	10/02/20 15:06	1
d5-NEtFOSAA	96		37 - 164	09/29/20 08:28	10/02/20 15:06	1
13C8 FOSA	87		10 - 143	09/29/20 08:28	10/02/20 15:06	1
13C4 PFBA	94		41 - 132	09/29/20 08:28	10/02/20 15:06	1
13C5 PFPeA	102		33 - 155	09/29/20 08:28	10/02/20 15:06	1
d7-N-MeFOSE-M	69		10 - 143	09/29/20 08:28	10/02/20 15:06	1
d3-NMePFOSA	39		10 - 107	09/29/20 08:28	10/02/20 15:06	1
d9-N-EtFOSE-M	70		10 - 142	09/29/20 08:28	10/02/20 15:06	1
d5-NEtPFOSA	37		10 - 108	09/29/20 08:28	10/02/20 15:06	1

Client Sample ID: MVD-3(T)/1531010_003

Lab Sample ID: 410-15142-2

Date Collected: 09/24/20 14:15

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	7.8		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluoroheptanoic acid (PFHpA)	4.7		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorooctanoic acid (PFOA)	17		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorononanoic acid (PFNA)	0.71	J	1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorobutanesulfonic acid (PFBS)	4.1		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorohexanesulfonic acid (PFHxS)	0.70	J	1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorooctanesulfonic acid (PFOS)	2.3		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
NEtFOSAA	ND		2.6	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
NMeFOSAA	ND		1.8	0.53	ng/L		09/29/20 08:28	10/02/20 15:16	1
10:2 Fluorotelomer sulfonic acid	ND		4.4	0.88	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.6	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	*	2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*	2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorobutanoic acid (PFBA)	4.7		4.4	1.8	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluoropentanoic acid (PFPA)	6.6		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
NMeFOSE	ND		2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:16	1

Eurofins Lancaster Laboratories Env, LLC

Client Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Client Sample ID: MVD-3(T)/1531010_003

Lab Sample ID: 410-15142-2

Date Collected: 09/24/20 14:15

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSA	ND		2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:16	1
NEtFOSE	ND		2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:16	1
NEtFOSA	ND		4.4	0.88	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
4:2 Fluorotelomer sulfonic acid	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:16	1
6:2 Fluorotelomer sulfonic acid	ND		4.4	1.8	ng/L		09/29/20 08:28	10/02/20 15:16	1
8:2 Fluorotelomer sulfonic acid	ND		2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:16	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
M2-4:2 FTS	113		20 - 187				09/29/20 08:28	10/02/20 15:16	1
M2-8:2 FTS	102		34 - 182				09/29/20 08:28	10/02/20 15:16	1
M2-6:2 FTS	104		29 - 189				09/29/20 08:28	10/02/20 15:16	1
13C5 PFHxA	84		31 - 142				09/29/20 08:28	10/02/20 15:16	1
13C4 PFHpA	87		30 - 144				09/29/20 08:28	10/02/20 15:16	1
13C8 PFOA	90		49 - 127				09/29/20 08:28	10/02/20 15:16	1
13C9 PFNA	94		47 - 136				09/29/20 08:28	10/02/20 15:16	1
13C6 PFDA	92		47 - 128				09/29/20 08:28	10/02/20 15:16	1
13C7 PFUnA	92		40 - 135				09/29/20 08:28	10/02/20 15:16	1
13C2-PFDoDA	92		28 - 136				09/29/20 08:28	10/02/20 15:16	1
13C2 PFTeDA	98		10 - 144				09/29/20 08:28	10/02/20 15:16	1
13C3 PFBS	106		19 - 178				09/29/20 08:28	10/02/20 15:16	1
13C3 PFHxS	85		32 - 145				09/29/20 08:28	10/02/20 15:16	1
13C8 PFOS	89		49 - 126				09/29/20 08:28	10/02/20 15:16	1
d3-NMeFOSAA	93		32 - 151				09/29/20 08:28	10/02/20 15:16	1
d5-NEtFOSAA	93		37 - 164				09/29/20 08:28	10/02/20 15:16	1
13C8 FOSA	83		10 - 143				09/29/20 08:28	10/02/20 15:16	1
13C4 PFBA	93		41 - 132				09/29/20 08:28	10/02/20 15:16	1
13C5 PFPeA	107		33 - 155				09/29/20 08:28	10/02/20 15:16	1
d7-N-MeFOSE-M	75		10 - 143				09/29/20 08:28	10/02/20 15:16	1
d3-NMePFOSA	37		10 - 107				09/29/20 08:28	10/02/20 15:16	1
d9-N-EtFOSE-M	75		10 - 142				09/29/20 08:28	10/02/20 15:16	1
d5-NEtPFOSA	35		10 - 108				09/29/20 08:28	10/02/20 15:16	1

Client Sample ID: MVD-7(R)/1531010_007

Lab Sample ID: 410-15142-3

Date Collected: 09/24/20 13:39

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	3.2		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluoroheptanoic acid (PFHpA)	3.7		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorooctanoic acid (PFOA)	24		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorononanoic acid (PFNA)	0.75	J	1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorobutanesulfonic acid (PFBS)	2.1		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorohexanesulfonic acid (PFHxS)	1.9		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1

Client Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Client Sample ID: MVD-7(R)/1531010_007

Lab Sample ID: 410-15142-3

Date Collected: 09/24/20 13:39

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	6.7		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
NEtFOSAA	ND		2.6	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
NMeFOSAA	ND		1.8	0.53	ng/L		09/29/20 08:28	10/02/20 15:25	1
10:2 Fluorotelomer sulfonic acid	ND		4.4	0.88	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.6	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND *		2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluoro-n-octadecanoic acid (PFODA)	ND *		2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorobutanoic acid (PFBA)	2.4 J		4.4	1.8	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluoropentanoic acid (PFPA)	2.6		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
NMeFOSE	ND		2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:25	1
NMeFOSA	ND		2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:25	1
NEtFOSE	ND		2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:25	1
NEtFOSA	ND		4.4	0.88	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
4:2 Fluorotelomer sulfonic acid	ND		1.8	0.44	ng/L		09/29/20 08:28	10/02/20 15:25	1
6:2 Fluorotelomer sulfonic acid	ND		4.4	1.8	ng/L		09/29/20 08:28	10/02/20 15:25	1
8:2 Fluorotelomer sulfonic acid	ND		2.6	0.88	ng/L		09/29/20 08:28	10/02/20 15:25	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
M2-4:2 FTS	114		20 - 187				09/29/20 08:28	10/02/20 15:25	1
M2-8:2 FTS	104		34 - 182				09/29/20 08:28	10/02/20 15:25	1
M2-6:2 FTS	105		29 - 189				09/29/20 08:28	10/02/20 15:25	1
13C5 PFHxA	86		31 - 142				09/29/20 08:28	10/02/20 15:25	1
13C4 PFHpA	85		30 - 144				09/29/20 08:28	10/02/20 15:25	1
13C8 PFOA	93		49 - 127				09/29/20 08:28	10/02/20 15:25	1
13C9 PFNA	90		47 - 136				09/29/20 08:28	10/02/20 15:25	1
13C6 PFDA	93		47 - 128				09/29/20 08:28	10/02/20 15:25	1
13C7 PFUnA	93		40 - 135				09/29/20 08:28	10/02/20 15:25	1
13C2-PFDoDA	91		28 - 136				09/29/20 08:28	10/02/20 15:25	1
13C2 PFTeDA	99		10 - 144				09/29/20 08:28	10/02/20 15:25	1
13C3 PFBS	106		19 - 178				09/29/20 08:28	10/02/20 15:25	1
13C3 PFHxS	84		32 - 145				09/29/20 08:28	10/02/20 15:25	1
13C8 PFOS	85		49 - 126				09/29/20 08:28	10/02/20 15:25	1
d3-NMeFOSAA	93		32 - 151				09/29/20 08:28	10/02/20 15:25	1
d5-NEtFOSAA	95		37 - 164				09/29/20 08:28	10/02/20 15:25	1
13C8 FOSA	30		10 - 143				09/29/20 08:28	10/02/20 15:25	1
13C4 PFBA	93		41 - 132				09/29/20 08:28	10/02/20 15:25	1
13C5 PFPeA	102		33 - 155				09/29/20 08:28	10/02/20 15:25	1
d7-N-MeFOSE-M	2 *5		10 - 143				09/29/20 08:28	10/02/20 15:25	1
d3-NMePFOSA	0.2 *5		10 - 107				09/29/20 08:28	10/02/20 15:25	1

Eurofins Lancaster Laboratories Env, LLC

Client Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Client Sample ID: MVD-7(R)/1531010_007

Lab Sample ID: 410-15142-3

Date Collected: 09/24/20 13:39

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12 (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d9-N-EtFOSE-M	2	*5	10 - 142	09/29/20 08:28	10/02/20 15:25	1
d5-NEtPFOSA	0.3	*5	10 - 108	09/29/20 08:28	10/02/20 15:25	1

Client Sample ID: MVD-8(R)/1531010_009

Lab Sample ID: 410-15142-4

Date Collected: 09/24/20 13:50

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	2.6		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluoroheptanoic acid (PFHpA)	2.8		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorooctanoic acid (PFOA)	20		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorobutanesulfonic acid (PFBS)	1.7		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorooctanesulfonic acid (PFOS)	4.8		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
NEtFOSAA	ND		2.6	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
NMeFOSAA	ND		1.7	0.52	ng/L		09/29/20 08:28	10/02/20 15:35	1
10:2 Fluorotelomer sulfonic acid	ND		4.4	0.87	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.6	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	*	2.6	0.87	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*	2.6	0.87	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorobutanoic acid (PFBA)	1.9	J	4.4	1.7	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluoropentanoic acid (PFPA)	2.2		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
NMeFOSE	ND		2.6	0.87	ng/L		09/29/20 08:28	10/02/20 15:35	1
NMeFOSA	ND		2.6	0.87	ng/L		09/29/20 08:28	10/02/20 15:35	1
NEtFOSE	ND		2.6	0.87	ng/L		09/29/20 08:28	10/02/20 15:35	1
NEtFOSA	ND		4.4	0.87	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
4:2 Fluorotelomer sulfonic acid	ND		1.7	0.44	ng/L		09/29/20 08:28	10/02/20 15:35	1
6:2 Fluorotelomer sulfonic acid	ND		4.4	1.7	ng/L		09/29/20 08:28	10/02/20 15:35	1
8:2 Fluorotelomer sulfonic acid	ND		2.6	0.87	ng/L		09/29/20 08:28	10/02/20 15:35	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
M2-4:2 FTS	113		20 - 187	09/29/20 08:28	10/02/20 15:35	1			
M2-8:2 FTS	110		34 - 182	09/29/20 08:28	10/02/20 15:35	1			

Client Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Client Sample ID: MVD-8(R)/1531010_009

Lab Sample ID: 410-15142-4

Date Collected: 09/24/20 13:50

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12 (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	106		29 - 189	09/29/20 08:28	10/02/20 15:35	1
13C5 PFHxA	90		31 - 142	09/29/20 08:28	10/02/20 15:35	1
13C4 PFHpA	88		30 - 144	09/29/20 08:28	10/02/20 15:35	1
13C8 PFOA	94		49 - 127	09/29/20 08:28	10/02/20 15:35	1
13C9 PFNA	94		47 - 136	09/29/20 08:28	10/02/20 15:35	1
13C6 PFDA	94		47 - 128	09/29/20 08:28	10/02/20 15:35	1
13C7 PFUnA	100		40 - 135	09/29/20 08:28	10/02/20 15:35	1
13C2-PFDoDA	93		28 - 136	09/29/20 08:28	10/02/20 15:35	1
13C2 PFTeDA	100		10 - 144	09/29/20 08:28	10/02/20 15:35	1
13C3 PFBS	110		19 - 178	09/29/20 08:28	10/02/20 15:35	1
13C3 PFHxS	86		32 - 145	09/29/20 08:28	10/02/20 15:35	1
13C8 PFOS	92		49 - 126	09/29/20 08:28	10/02/20 15:35	1
d3-NMeFOSAA	97		32 - 151	09/29/20 08:28	10/02/20 15:35	1
d5-NEtFOSAA	94		37 - 164	09/29/20 08:28	10/02/20 15:35	1
13C8 FOSA	57		10 - 143	09/29/20 08:28	10/02/20 15:35	1
13C4 PFBA	93		41 - 132	09/29/20 08:28	10/02/20 15:35	1
13C5 PFPeA	107		33 - 155	09/29/20 08:28	10/02/20 15:35	1
d7-N-MeFOSE-M	13		10 - 143	09/29/20 08:28	10/02/20 15:35	1
d3-NMePFOSA	0.9	*5	10 - 107	09/29/20 08:28	10/02/20 15:35	1
d9-N-EtFOSE-M	14		10 - 142	09/29/20 08:28	10/02/20 15:35	1
d5-NEtPFOSA	1	*5	10 - 108	09/29/20 08:28	10/02/20 15:35	1

Client Sample ID: MVD-TP/1531010_508

Lab Sample ID: 410-15142-5

Date Collected: 09/24/20 13:56

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	2.8		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluoroheptanoic acid (PFHpA)	3.2		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorooctanoic acid (PFOA)	27		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorononanoic acid (PFNA)	0.53	J	1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorotridecanoic acid (PFTeDA)	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorobutanesulfonic acid (PFBS)	1.9		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorooctanesulfonic acid (PFOS)	3.6		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
NEtFOSAA	ND		2.7	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
NMeFOSAA	ND		1.8	0.53	ng/L		09/29/20 08:28	10/02/20 15:45	1
10:2 Fluorotelomer sulfonic acid	ND		4.5	0.89	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1

Client Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Client Sample ID: MVD-TP/1531010_508

Lab Sample ID: 410-15142-5

Date Collected: 09/24/20 13:56

Matrix: Water

Date Received: 09/25/20 10:49

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	ND		2.7	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	*	2.7	0.89	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*	2.7	0.89	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorobutanoic acid (PFBA)	2.0	J	4.5	1.8	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluoropentanoic acid (PFPA)	2.2		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
NMeFOSE	ND		2.7	0.89	ng/L		09/29/20 08:28	10/02/20 15:45	1
NMeFOSA	ND		2.7	0.89	ng/L		09/29/20 08:28	10/02/20 15:45	1
NEtFOSE	ND		2.7	0.89	ng/L		09/29/20 08:28	10/02/20 15:45	1
NEtFOSA	ND		4.5	0.89	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
4:2 Fluorotelomer sulfonic acid	ND		1.8	0.45	ng/L		09/29/20 08:28	10/02/20 15:45	1
6:2 Fluorotelomer sulfonic acid	ND		4.5	1.8	ng/L		09/29/20 08:28	10/02/20 15:45	1
8:2 Fluorotelomer sulfonic acid	ND		2.7	0.89	ng/L		09/29/20 08:28	10/02/20 15:45	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
M2-4:2 FTS	113		20 - 187				09/29/20 08:28	10/02/20 15:45	1
M2-8:2 FTS	104		34 - 182				09/29/20 08:28	10/02/20 15:45	1
M2-6:2 FTS	108		29 - 189				09/29/20 08:28	10/02/20 15:45	1
13C5 PFHxA	89		31 - 142				09/29/20 08:28	10/02/20 15:45	1
13C4 PFHpA	87		30 - 144				09/29/20 08:28	10/02/20 15:45	1
13C8 PFOA	97		49 - 127				09/29/20 08:28	10/02/20 15:45	1
13C9 PFNA	93		47 - 136				09/29/20 08:28	10/02/20 15:45	1
13C6 PFDA	96		47 - 128				09/29/20 08:28	10/02/20 15:45	1
13C7 PFUnA	102		40 - 135				09/29/20 08:28	10/02/20 15:45	1
13C2-PFDoDA	98		28 - 136				09/29/20 08:28	10/02/20 15:45	1
13C2 PFTeDA	103		10 - 144				09/29/20 08:28	10/02/20 15:45	1
13C3 PFBS	110		19 - 178				09/29/20 08:28	10/02/20 15:45	1
13C3 PFHxS	87		32 - 145				09/29/20 08:28	10/02/20 15:45	1
13C8 PFOS	89		49 - 126				09/29/20 08:28	10/02/20 15:45	1
d3-NMeFOSAA	98		32 - 151				09/29/20 08:28	10/02/20 15:45	1
d5-NEtFOSAA	104		37 - 164				09/29/20 08:28	10/02/20 15:45	1
13C8 FOSA	92		10 - 143				09/29/20 08:28	10/02/20 15:45	1
13C4 PFBA	94		41 - 132				09/29/20 08:28	10/02/20 15:45	1
13C5 PFPeA	108		33 - 155				09/29/20 08:28	10/02/20 15:45	1
d7-N-MeFOSE-M	87		10 - 143				09/29/20 08:28	10/02/20 15:45	1
d3-NMePFOSA	56		10 - 107				09/29/20 08:28	10/02/20 15:45	1
d9-N-EtFOSE-M	87		10 - 142				09/29/20 08:28	10/02/20 15:45	1
d5-NEtPFOSA	54		10 - 108				09/29/20 08:28	10/02/20 15:45	1

Isotope Dilution Summary

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (20-187)	M282FTS (34-182)	M262FTS (29-189)	13C5PHA (31-142)	C4PFHA (30-144)	C8PFOA (49-127)	C9PFNA (47-136)	C6PFDA (47-128)
410-15142-1	MVD-2(T)/1531010_008	95	110	102	85	86	94	96	97
410-15142-2	MVD-3(T)/1531010_003	113	102	104	84	87	90	94	92
410-15142-3	MVD-7(R)/1531010_007	114	104	105	86	85	93	90	93
410-15142-4	MVD-8(R)/1531010_009	113	110	106	90	88	94	94	94
410-15142-5	MVD-TP/1531010_508	113	104	108	89	87	97	93	96
LCS 410-48749/2-A	Lab Control Sample	87	109	96	94	93	98	98	99
LCSD 410-48749/3-A	Lab Control Sample Dup	85	97	101	92	89	94	93	92
MB 410-48749/1-A	Method Blank	88	101	96	94	91	97	103	98

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	13C7PUA (40-135)	PFDODA (28-136)	PFTDA (10-144)	C3PFBS (19-178)	C3PFHS (32-145)	C8PFOS (49-126)	d3NMFOS (32-151)	d5NEFOS (37-164)
410-15142-1	MVD-2(T)/1531010_008	97	94	103	100	84	91	96	96
410-15142-2	MVD-3(T)/1531010_003	92	92	98	106	85	89	93	93
410-15142-3	MVD-7(R)/1531010_007	93	91	99	106	84	85	93	95
410-15142-4	MVD-8(R)/1531010_009	100	93	100	110	86	92	97	94
410-15142-5	MVD-TP/1531010_508	102	98	103	110	87	89	98	104
LCS 410-48749/2-A	Lab Control Sample	102	98	102	93	91	93	95	97
LCSD 410-48749/3-A	Lab Control Sample Dup	93	95	99	89	85	86	93	91
MB 410-48749/1-A	Method Blank	99	96	100	95	89	98	98	98

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOSA (10-143)	PFBA (41-132)	PFPeA (33-155)	NMFM (10-143)	d3NMFSA (10-107)	NEFM (10-142)	d5NPFSA (10-108)
410-15142-1	MVD-2(T)/1531010_008	87	94	102	69	39	70	37
410-15142-2	MVD-3(T)/1531010_003	83	93	107	75	37	75	35
410-15142-3	MVD-7(R)/1531010_007	30	93	102	2 *5	0.2 *5	2 *5	0.3 *5
410-15142-4	MVD-8(R)/1531010_009	57	93	107	13	0.9 *5	14	1 *5
410-15142-5	MVD-TP/1531010_508	92	94	108	87	56	87	54
LCS 410-48749/2-A	Lab Control Sample	85	93	91	78	49	79	43
LCSD 410-48749/3-A	Lab Control Sample Dup	83	92	91	73	48	80	45
MB 410-48749/1-A	Method Blank	85	95	92	74	43	73	41

Surrogate Legend

- M242FTS = M2-4:2 FTS
- M282FTS = M2-8:2 FTS
- M262FTS = M2-6:2 FTS
- 13C5PHA = 13C5 PFHxA
- C4PFHA = 13C4 PFHpA
- C8PFOA = 13C8 PFOA
- C9PFNA = 13C9 PFNA
- C6PFDA = 13C6 PFDA
- 13C7PUA = 13C7 PFUnA
- PFDODA = 13C2-PFDODA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- C3PFHS = 13C3 PFHxS
- C8PFOS = 13C8 PFOS
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- PFOSA = 13C8 FOSA

Isotope Dilution Summary

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
NMFM = d7-N-MeFOSE-M
d3NMFSA = d3-NMePFOSA
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA

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QC Sample Results

Client: Merrimack Village District
 Project/Site: PFC Investigation

Job ID: 410-15142-1

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12

Lab Sample ID: MB 410-48749/1-A
Matrix: Water
Analysis Batch: 50097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 48749

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
NEtFOSAA	ND		3.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
NMeFOSAA	ND		2.0	0.60	ng/L		09/29/20 08:28	10/02/20 14:36	1
10:2 Fluorotelomer sulfonic acid	ND		5.0	1.0	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		3.0	1.0	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		3.0	1.0	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorobutanoic acid (PFBA)	ND		5.0	2.0	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluoropentanoic acid (PFPA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
NMeFOSE	ND		3.0	1.0	ng/L		09/29/20 08:28	10/02/20 14:36	1
NMeFOSA	ND		3.0	1.0	ng/L		09/29/20 08:28	10/02/20 14:36	1
NEtFOSE	ND		3.0	1.0	ng/L		09/29/20 08:28	10/02/20 14:36	1
NEtFOSA	ND		5.0	1.0	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
4:2 Fluorotelomer sulfonic acid	ND		2.0	0.50	ng/L		09/29/20 08:28	10/02/20 14:36	1
6:2 Fluorotelomer sulfonic acid	ND		5.0	2.0	ng/L		09/29/20 08:28	10/02/20 14:36	1
8:2 Fluorotelomer sulfonic acid	ND		3.0	1.0	ng/L		09/29/20 08:28	10/02/20 14:36	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
M2-4:2 FTS	88		20 - 187	09/29/20 08:28	10/02/20 14:36	1
M2-8:2 FTS	101		34 - 182	09/29/20 08:28	10/02/20 14:36	1
M2-6:2 FTS	96		29 - 189	09/29/20 08:28	10/02/20 14:36	1
13C5 PFHxA	94		31 - 142	09/29/20 08:28	10/02/20 14:36	1
13C4 PFHpA	91		30 - 144	09/29/20 08:28	10/02/20 14:36	1
13C8 PFOA	97		49 - 127	09/29/20 08:28	10/02/20 14:36	1
13C9 PFNA	103		47 - 136	09/29/20 08:28	10/02/20 14:36	1
13C6 PFDA	98		47 - 128	09/29/20 08:28	10/02/20 14:36	1
13C7 PFUnA	99		40 - 135	09/29/20 08:28	10/02/20 14:36	1
13C2-PFDoDA	96		28 - 136	09/29/20 08:28	10/02/20 14:36	1
13C2 PFTeDA	100		10 - 144	09/29/20 08:28	10/02/20 14:36	1

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QC Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12 (Continued)

Lab Sample ID: MB 410-48749/1-A
Matrix: Water
Analysis Batch: 50097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 48749

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	95		19 - 178	09/29/20 08:28	10/02/20 14:36	1
13C3 PFHxS	89		32 - 145	09/29/20 08:28	10/02/20 14:36	1
13C8 PFOS	98		49 - 126	09/29/20 08:28	10/02/20 14:36	1
d3-NMeFOSAA	98		32 - 151	09/29/20 08:28	10/02/20 14:36	1
d5-NEtFOSAA	98		37 - 164	09/29/20 08:28	10/02/20 14:36	1
13C8 FOSA	85		10 - 143	09/29/20 08:28	10/02/20 14:36	1
13C4 PFBA	95		41 - 132	09/29/20 08:28	10/02/20 14:36	1
13C5 PFPeA	92		33 - 155	09/29/20 08:28	10/02/20 14:36	1
d7-N-MeFOSE-M	74		10 - 143	09/29/20 08:28	10/02/20 14:36	1
d3-NMePFOSA	43		10 - 107	09/29/20 08:28	10/02/20 14:36	1
d9-N-EtFOSE-M	73		10 - 142	09/29/20 08:28	10/02/20 14:36	1
d5-NEtPFOSA	41		10 - 108	09/29/20 08:28	10/02/20 14:36	1

Lab Sample ID: LCS 410-48749/2-A
Matrix: Water
Analysis Batch: 50097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48749

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
							Limits
Perfluorohexanoic acid (PFHxA)	25.6	25.1		ng/L		98	66 - 137
Perfluoroheptanoic acid (PFHpA)	25.6	27.0		ng/L		105	66 - 141
Perfluorooctanoic acid (PFOA)	25.6	24.5		ng/L		96	65 - 136
Perfluorononanoic acid (PFNA)	25.6	25.5		ng/L		99	65 - 140
Perfluorodecanoic acid (PFDA)	25.6	28.6		ng/L		112	63 - 137
Perfluorotridecanoic acid (PFTrDA)	25.6	28.4		ng/L		111	58 - 146
Perfluorotetradecanoic acid (PFTeA)	25.6	26.5		ng/L		103	64 - 141
Perfluorobutanesulfonic acid (PFBS)	22.6	22.2		ng/L		98	65 - 132
Perfluorohexanesulfonic acid (PFHxS)	24.2	22.4		ng/L		93	60 - 128
Perfluorooctanesulfonic acid (PFOS)	24.5	21.4		ng/L		87	51 - 126
NEtFOSAA	25.6	30.3		ng/L		118	54 - 134
NMeFOSAA	25.6	30.7		ng/L		120	58 - 143
10:2 Fluorotelomer sulfonic acid	24.7	24.1		ng/L		98	44 - 141
Perfluoropentanesulfonic acid (PFPeS)	24.0	26.2		ng/L		109	71 - 136
Perfluoroheptanesulfonic Acid (PFHpS)	24.4	25.2		ng/L		104	67 - 135
Perfluorononanesulfonic acid (PFNS)	24.6	26.8		ng/L		109	67 - 137
Perfluorodecanesulfonic acid (PFDS)	24.7	26.7		ng/L		108	61 - 134
Perfluorododecanesulfonic acid (PFDoS)	24.8	26.0		ng/L		105	54 - 136
Perfluorooctanesulfonamide (PFOSA)	25.6	28.4		ng/L		111	55 - 130
Perfluoro-n-hexadecanoic acid (PFHxDA)	25.6	35.6		ng/L		139	52 - 149
Perfluoro-n-octadecanoic acid (PFODA)	25.6	43.3 *		ng/L		169	32 - 167

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QC Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12 (Continued)

Lab Sample ID: LCS 410-48749/2-A
Matrix: Water
Analysis Batch: 50097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48749

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	25.6	27.0		ng/L		105	62 - 156
Perfluoropentanoic acid (PFPA)	25.6	27.0		ng/L		106	72 - 139
NMeFOSE	25.6	26.1		ng/L		102	52 - 131
NMeFOSA	25.6	26.4		ng/L		103	49 - 141
NEtFOSE	25.6	25.6		ng/L		100	49 - 128
NEtFOSA	25.6	26.9		ng/L		105	50 - 136
Perfluorododecanoic acid (PFDoA)	25.6	27.1		ng/L		106	63 - 140
Perfluoroundecanoic acid (PFUnA)	25.6	25.9		ng/L		101	62 - 138
4:2 Fluorotelomer sulfonic acid	23.9	26.9		ng/L		113	59 - 130
6:2 Fluorotelomer sulfonic acid	24.3	28.6		ng/L		118	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	25.3		ng/L		103	56 - 140

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
M2-4:2 FTS	87		20 - 187
M2-8:2 FTS	109		34 - 182
M2-6:2 FTS	96		29 - 189
13C5 PFHxA	94		31 - 142
13C4 PFHpA	93		30 - 144
13C8 PFOA	98		49 - 127
13C9 PFNA	98		47 - 136
13C6 PFDA	99		47 - 128
13C7 PFUnA	102		40 - 135
13C2-PFDoDA	98		28 - 136
13C2 PFTeDA	102		10 - 144
13C3 PFBS	93		19 - 178
13C3 PFHxS	91		32 - 145
13C8 PFOS	93		49 - 126
d3-NMeFOSAA	95		32 - 151
d5-NEtFOSAA	97		37 - 164
13C8 FOSA	85		10 - 143
13C4 PFBA	93		41 - 132
13C5 PFPeA	91		33 - 155
d7-N-MeFOSE-M	78		10 - 143
d3-NMePFOSA	49		10 - 107
d9-N-EtFOSE-M	79		10 - 142
d5-NEtPFOSA	43		10 - 108

Lab Sample ID: LCSD 410-48749/3-A
Matrix: Water
Analysis Batch: 50097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 48749

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	25.6	25.5		ng/L		100	66 - 137	2	30
Perfluoroheptanoic acid (PFHpA)	25.6	28.9		ng/L		113	66 - 141	7	30
Perfluorooctanoic acid (PFOA)	25.6	25.1		ng/L		98	65 - 136	2	30
Perfluorononanoic acid (PFNA)	25.6	25.7		ng/L		100	65 - 140	1	30
Perfluorodecanoic acid (PFDA)	25.6	28.7		ng/L		112	63 - 137	0	30

Eurofins Lancaster Laboratories Env, LLC

QC Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12 (Continued)

Lab Sample ID: LCSD 410-48749/3-A
Matrix: Water
Analysis Batch: 50097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 48749

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorotridecanoic acid (PFTTrDA)	25.6	28.7		ng/L		112	58 - 146	1	30
Perfluorotetradecanoic acid (PFTTeA)	25.6	27.6		ng/L		108	64 - 141	4	30
Perfluorobutanesulfonic acid (PFBS)	22.6	22.9		ng/L		101	65 - 132	3	30
Perfluorohexanesulfonic acid (PFHxS)	24.2	23.7		ng/L		98	60 - 128	5	30
Perfluorooctanesulfonic acid (PFOS)	24.5	22.1		ng/L		90	51 - 126	3	30
NEtFOSAA	25.6	29.9		ng/L		117	54 - 134	1	30
NMeFOSAA	25.6	29.4		ng/L		115	58 - 143	4	30
10:2 Fluorotelomer sulfonic acid	24.7	27.1		ng/L		110	44 - 141	12	30
Perfluoropentanesulfonic acid (PFPeS)	24.0	26.0		ng/L		108	71 - 136	1	30
Perfluoroheptanesulfonic Acid (PFHpS)	24.4	26.7		ng/L		109	67 - 135	5	30
Perfluorononanesulfonic acid (PFNS)	24.6	28.2		ng/L		115	67 - 137	5	30
Perfluorodecanesulfonic acid (PFDS)	24.7	28.2		ng/L		114	61 - 134	5	30
Perfluorododecanesulfonic acid (PFDoS)	24.8	25.6		ng/L		103	54 - 136	2	30
Perfluorooctanesulfonamide (PFOSA)	25.6	28.4		ng/L		111	55 - 130	0	30
Perfluoro-n-hexadecanoic acid (PFHxDA)	25.6	43.7 *		ng/L		171	52 - 149	20	30
Perfluoro-n-octadecanoic acid (PFODA)	25.6	42.8		ng/L		167	32 - 167	1	30
Perfluorobutanoic acid (PFBA)	25.6	27.4		ng/L		107	62 - 156	2	30
Perfluoropentanoic acid (PFPA)	25.6	26.5		ng/L		104	72 - 139	2	30
NMeFOSE	25.6	26.5		ng/L		103	52 - 131	1	30
NMeFOSA	25.6	28.1		ng/L		110	49 - 141	6	30
NEtFOSE	25.6	25.9		ng/L		101	49 - 128	1	30
NEtFOSA	25.6	28.7		ng/L		112	50 - 136	6	30
Perfluorododecanoic acid (PFDoA)	25.6	27.4		ng/L		107	63 - 140	1	30
Perfluoroundecanoic acid (PFUnA)	25.6	26.9		ng/L		105	62 - 138	4	30
4:2 Fluorotelomer sulfonic acid	23.9	27.4		ng/L		114	59 - 130	2	30
6:2 Fluorotelomer sulfonic acid	24.3	26.3		ng/L		109	57 - 137	8	30
8:2 Fluorotelomer sulfonic acid	24.5	28.9		ng/L		118	56 - 140	13	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
M2-4:2 FTS	85		20 - 187
M2-8:2 FTS	97		34 - 182
M2-6:2 FTS	101		29 - 189
13C5 PFHxA	92		31 - 142
13C4 PFHpA	89		30 - 144
13C8 PFOA	94		49 - 127
13C9 PFNA	93		47 - 136
13C6 PFDA	92		47 - 128

QC Sample Results

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Method: T-WI14355 r12 - SOP T-PFAS-WI14355 Rev.12 (Continued)

Lab Sample ID: LCSD 410-48749/3-A
Matrix: Water
Analysis Batch: 50097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 48749

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C7 PFUnA	93		40 - 135
13C2-PFDoDA	95		28 - 136
13C2 PFTeDA	99		10 - 144
13C3 PFBS	89		19 - 178
13C3 PFHxS	85		32 - 145
13C8 PFOS	86		49 - 126
d3-NMeFOSAA	93		32 - 151
d5-NEtFOSAA	91		37 - 164
13C8 FOSA	83		10 - 143
13C4 PFBA	92		41 - 132
13C5 PFPeA	91		33 - 155
d7-N-MeFOSE-M	73		10 - 143
d3-NMePFOSA	48		10 - 107
d9-N-EtFOSE-M	80		10 - 142
d5-NEtPFOSA	45		10 - 108

QC Association Summary

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

LCMS

Prep Batch: 48749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-15142-1	MVD-2(T)/1531010_008	Total/NA	Water	T-WI14355 r12	
410-15142-2	MVD-3(T)/1531010_003	Total/NA	Water	T-WI14355 r12	
410-15142-3	MVD-7(R)/1531010_007	Total/NA	Water	T-WI14355 r12	
410-15142-4	MVD-8(R)/1531010_009	Total/NA	Water	T-WI14355 r12	
410-15142-5	MVD-TP/1531010_508	Total/NA	Water	T-WI14355 r12	
MB 410-48749/1-A	Method Blank	Total/NA	Water	T-WI14355 r12	
LCS 410-48749/2-A	Lab Control Sample	Total/NA	Water	T-WI14355 r12	
LCSD 410-48749/3-A	Lab Control Sample Dup	Total/NA	Water	T-WI14355 r12	

Analysis Batch: 50097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-15142-1	MVD-2(T)/1531010_008	Total/NA	Water	T-WI14355 r12	48749
410-15142-2	MVD-3(T)/1531010_003	Total/NA	Water	T-WI14355 r12	48749
410-15142-3	MVD-7(R)/1531010_007	Total/NA	Water	T-WI14355 r12	48749
410-15142-4	MVD-8(R)/1531010_009	Total/NA	Water	T-WI14355 r12	48749
410-15142-5	MVD-TP/1531010_508	Total/NA	Water	T-WI14355 r12	48749
MB 410-48749/1-A	Method Blank	Total/NA	Water	T-WI14355 r12	48749
LCS 410-48749/2-A	Lab Control Sample	Total/NA	Water	T-WI14355 r12	48749
LCSD 410-48749/3-A	Lab Control Sample Dup	Total/NA	Water	T-WI14355 r12	48749

Prep Batch: 50772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-15142-3 - RE	MVD-7(R)/1531010_007	Total/NA	Water	T-WI14355 r12	
410-15142-4 - RE	MVD-8(R)/1531010_009	Total/NA	Water	T-WI14355 r12	
MB 410-50772/1-A	Method Blank	Total/NA	Water	T-WI14355 r12	
LCS 410-50772/2-A	Lab Control Sample	Total/NA	Water	T-WI14355 r12	

Analysis Batch: 51332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-15142-3 - RE	MVD-7(R)/1531010_007	Total/NA	Water	T-WI14355 r12	50772
410-15142-4 - RE	MVD-8(R)/1531010_009	Total/NA	Water	T-WI14355 r12	50772
MB 410-50772/1-A	Method Blank	Total/NA	Water	T-WI14355 r12	50772
LCS 410-50772/2-A	Lab Control Sample	Total/NA	Water	T-WI14355 r12	50772

Lab Chronicle

Client: Merrimack Village District
 Project/Site: PFC Investigation

Job ID: 410-15142-1

Client Sample ID: MVD-2(T)/1531010_008
Date Collected: 09/24/20 14:25
Date Received: 09/25/20 10:49

Lab Sample ID: 410-15142-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	T-WI14355 r12			48749	09/29/20 08:28	W5MU	ELLE
Total/NA	Analysis	T-WI14355 r12		1	50097	10/02/20 15:06	MT26	ELLE

Client Sample ID: MVD-3(T)/1531010_003
Date Collected: 09/24/20 14:15
Date Received: 09/25/20 10:49

Lab Sample ID: 410-15142-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	T-WI14355 r12			48749	09/29/20 08:28	W5MU	ELLE
Total/NA	Analysis	T-WI14355 r12		1	50097	10/02/20 15:16	MT26	ELLE

Client Sample ID: MVD-7(R)/1531010_007
Date Collected: 09/24/20 13:39
Date Received: 09/25/20 10:49

Lab Sample ID: 410-15142-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	T-WI14355 r12			48749	09/29/20 08:28	W5MU	ELLE
Total/NA	Analysis	T-WI14355 r12		1	50097	10/02/20 15:25	MT26	ELLE
Total/NA	Prep	T-WI14355 r12	RE		50772	10/05/20 08:30	NF	ELLE
Total/NA	Analysis	T-WI14355 r12	RE	1	51332	10/06/20 12:41	OLN7	ELLE

Client Sample ID: MVD-8(R)/1531010_009
Date Collected: 09/24/20 13:50
Date Received: 09/25/20 10:49

Lab Sample ID: 410-15142-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	T-WI14355 r12			48749	09/29/20 08:28	W5MU	ELLE
Total/NA	Analysis	T-WI14355 r12		1	50097	10/02/20 15:35	MT26	ELLE
Total/NA	Prep	T-WI14355 r12	RE		50772	10/05/20 08:30	NF	ELLE
Total/NA	Analysis	T-WI14355 r12	RE	1	51332	10/06/20 12:51	OLN7	ELLE

Client Sample ID: MVD-TP/1531010_508
Date Collected: 09/24/20 13:56
Date Received: 09/25/20 10:49

Lab Sample ID: 410-15142-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	T-WI14355 r12			48749	09/29/20 08:28	W5MU	ELLE
Total/NA	Analysis	T-WI14355 r12		1	50097	10/02/20 15:45	MT26	ELLE

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Merrimack Village District
 Project/Site: PFC Investigation

Job ID: 410-15142-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Hampshire	NELAP	273019	01-10-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
T-WI14355 r12	T-WI14355 r12	Water	10:2 Fluorotelomer sulfonic acid
T-WI14355 r12	T-WI14355 r12	Water	4:2 Fluorotelomer sulfonic acid
T-WI14355 r12	T-WI14355 r12	Water	6:2 Fluorotelomer sulfonic acid
T-WI14355 r12	T-WI14355 r12	Water	8:2 Fluorotelomer sulfonic acid
T-WI14355 r12	T-WI14355 r12	Water	NETFOSA
T-WI14355 r12	T-WI14355 r12	Water	NETFOSAA
T-WI14355 r12	T-WI14355 r12	Water	NETFOSE
T-WI14355 r12	T-WI14355 r12	Water	NMeFOSA
T-WI14355 r12	T-WI14355 r12	Water	NMeFOSAA
T-WI14355 r12	T-WI14355 r12	Water	NMeFOSE
T-WI14355 r12	T-WI14355 r12	Water	Perfluorobutanesulfonic acid (PFBS)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorobutanoic acid (PFBA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorodecanesulfonic acid (PFDS)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorodecanoic acid (PFDA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorododecanesulfonic acid (PFDoS)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorododecanoic acid (PFDoA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluoroheptanesulfonic Acid (PFHpS)
T-WI14355 r12	T-WI14355 r12	Water	Perfluoroheptanoic acid (PFHpA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorohexanesulfonic acid (PFHxS)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorohexanoic acid (PFHxA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluoro-n-hexadecanoic acid (PFHxDA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluoro-n-octadecanoic acid (PFODA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorononanesulfonic acid (PFNS)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorononanoic acid (PFNA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorooctanesulfonamide (PFOSA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorooctanesulfonic acid (PFOS)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorooctanoic acid (PFOA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluoropentanesulfonic acid (PFPeS)
T-WI14355 r12	T-WI14355 r12	Water	Perfluoropentanoic acid (PFPA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorotetradecanoic acid (PFTeA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluorotridecanoic acid (PFTrDA)
T-WI14355 r12	T-WI14355 r12	Water	Perfluoroundecanoic acid (PFUnA)

Method Summary

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Method	Method Description	Protocol	Laboratory
T-WI14355 r12	SOP T-PFAS-WI14355 Rev.12	ELLE - Lancaster	ELLE
T-WI14355 r12	T-PFAS-WI14355 Revision 12	ELLE - Lancaster	ELLE

Protocol References:

ELLE - Lancaster = Eurofins Lancaster, Facility Standard Operating Procedure.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



Sample Summary

Client: Merrimack Village District
Project/Site: PFC Investigation

Job ID: 410-15142-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
410-15142-1	MVD-2(T)/1531010_008	Water	09/24/20 14:25	09/25/20 10:49	
410-15142-2	MVD-3(T)/1531010_003	Water	09/24/20 14:15	09/25/20 10:49	
410-15142-3	MVD-7(R)/1531010_007	Water	09/24/20 13:39	09/25/20 10:49	
410-15142-4	MVD-8(R)/1531010_009	Water	09/24/20 13:50	09/25/20 10:49	
410-15142-5	MVD-TP/1531010_508	Water	09/24/20 13:56	09/25/20 10:49	

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410-15142 Chain of Custody

Drinking Water and Groundwater Bureau

October 14, 2019

Page 1 of 1

GENERAL SYSTEM EVALUATION SAMPLES ONLY ***

Questions: (603) 271-2513

PWS ID: 1531010

Collected By: Ronald Miner

System Name: MERRIMACK VILLAGE DIST

Signature: Ronald Miner (Print Name)

PWS Town: MERRIMACK

Phone Number: (603) 440-8722

Sample Type: Treatment Evaluation Other

If sample is chlorinated, please fill in Chlorine Residual (mg/L) column.

I certify that all samples taken are from the site(s) listed below and all information provided on this form to the lab is valid.

Sample Purpose/Comments:

Analysis Requested

Sample Site Location	Date & Time Sample Collected	Lab Sample ID	# of Containers	Parameters Requested	Free/Total (circle one) Chlorine Residual (mg/L)
MVD-2(G)/1531010-008	9/24/20 14:25		3	PFA5 by isotope dilution 32 Compounds	
MVD-3(G)/1531010-003	9/24/20 14:15		3		
MVD-7(R)/1531010-007	9/24/20 13:39		3		
MVD-8(R)/1531010-009	9/24/20 13:50		3		
MVD-7(R)/1531010-508	9/24/20 13:56		3		

NOTE: Samples collected for NITRATE/NITRITE analysis NEED to be collected prior to chlorination. Check with Lab. CYANIDE samples NEED to be collected prior to chlorination. Check with Lab.

*** Samples that are representative of water being consumed, and indicate the presence of acute contaminants exceeding the MCL, shall be used for compliance purposes.

FOR LAB USE: Temp C (upon receipt): 2.9 On Ice? Y / N Batch ID (if different than sample ID prefix): _____ List QUALIFIERS (if any): _____

Relinquished by: Ronald Miner Received by: _____ Date/Time: _____

Relinquished by: _____ Received at Lab by: _____ Date/Time: 9/25/20 10:49

Lab Conducting Analysis: _____ Signature: _____ Lab Accred. ID: _____ Phone: _____

Reporting Lab (if different): _____ Signature: Col Wells Lab Accred. ID: _____ Phone: _____

NOTE: If acute contaminants are present/exceeded, results must be reported to DES within 24 hours.

JR

NLR

Login Sample Receipt Checklist

Client: Merrimack Village District

Job Number: 410-15142-1

Login Number: 15142

List Source: Eurofins Lancaster Laboratories Env

List Number: 1

Creator: Rivera-Santa, Julissa

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified.	N/A	
Residual Chlorine Checked.	N/A	
Sample custody seals are intact.	N/A	