



ANALYSIS REPORT

Prepared by:

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

Prepared for:

Merrimack Village District
2 Greens Pond Road
Merrimack NH 03054

Report Date: December 30, 2019 14:01

Project: PFC Investigation

Account #: 38083
Group Number: 2077696
PO Number: 3332
State of Sample Origin: NH

Electronic Copy To Merrimack Village District

Attn: Jill Lavoie

Respectfully Submitted,



Mary Kate Izzo
Project Manager

(717) 556-4656

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SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
1531010_504 Grab Water	12/04/2019 11:15	1215863
1531010_505 Grab Water	12/04/2019 11:58	1215864
1531010_508 Grab Water	12/04/2019 11:26	1215865

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

Sample Description: 1531010_504 Grab Water
GPW 3 CAMP SARGENT TREAT HOUSE/ 003

Merrimack Village District
ELLE Sample #: EW 1215863
ELLE Group #: 2077696
Matrix: Water

Project Name: PFC Investigation

Submittal Date/Time: 12/05/2019 11:04
Collection Date/Time: 12/04/2019 11:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537.1, ver. 1.0 Nov. 2018	ng/l	ng/l	ng/l	
14980	Perfluorohexanesulfonic acid	355-46-4	0.73 J	0.43	1.7	1
14980	Perfluorononanoic acid	375-95-1	0.88 J	0.43	1.7	1
14980	Perfluorooctanesulfonic acid	1763-23-1	2.1	0.43	1.7	1
14980	Perfluorooctanoic acid	335-67-1	21	0.43	1.7	1

A field reagent blank was not submitted with this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14980	4 PFAS Cmpds by 537.1	EPA 537.1, ver. 1.0 Nov. 2018	1	19343009	12/10/2019 22:59	Marissa C Drexinger	1
14979	DW PFAS 537.1 Prep	EPA 537.1, ver. 1.0 Nov. 2018	1	19343009	12/09/2019 16:00	Anthony C Polaski	1

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

Sample Description: 1531010_505 Grab Water
GPW 2A BERRY LANE TREATMENT HOUSE/ 008

Merrimack Village District
ELLE Sample #: EW 1215864
ELLE Group #: 2077696
Matrix: Water

Project Name: PFC Investigation

Submittal Date/Time: 12/05/2019 11:04
Collection Date/Time: 12/04/2019 11:58

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537.1, ver. 1.0 Nov. 2018	ng/l	ng/l	ng/l	
14980	Perfluorohexanesulfonic acid	355-46-4	0.98 J	0.44	1.8	1
14980	Perfluorononanoic acid	375-95-1	0.60 J	0.44	1.8	1
14980	Perfluorooctanesulfonic acid	1763-23-1	2.0	0.44	1.8	1
14980	Perfluorooctanoic acid	335-67-1	17	0.44	1.8	1

A field reagent blank was not submitted with this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14980	4 PFAS Cmpds by 537.1	EPA 537.1, ver. 1.0 Nov. 2018	1	19343009	12/10/2019 23:10	Marissa C Drexinger	1
14979	DW PFAS 537.1 Prep	EPA 537.1, ver. 1.0 Nov. 2018	1	19343009	12/09/2019 16:00	Anthony C Polaski	1

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

Sample Description: 1531010_508 Grab Water
FINISHED WATER/WTP/BLEND 007 009

Merrimack Village District
ELLE Sample #: EW 1215865
ELLE Group #: 2077696
Matrix: Water

Project Name: PFC Investigation

Submittal Date/Time: 12/05/2019 11:04
Collection Date/Time: 12/04/2019 11:26

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537.1, ver. 1.0 Nov. 2018	ng/l	ng/l	ng/l	
14980	Perfluorohexanesulfonic acid	355-46-4	1.2 J	0.43	1.7	1
14980	Perfluorononanoic acid	375-95-1	0.52 J	0.43	1.7	1
14980	Perfluorooctanesulfonic acid	1763-23-1	1.8	0.43	1.7	1
14980	Perfluorooctanoic acid	335-67-1	18	0.43	1.7	1

A field reagent blank was not submitted with this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14980	4 PFAS Cmpds by 537.1	EPA 537.1, ver. 1.0 Nov. 2018	1	19343009	12/10/2019 23:22	Marissa C Drexinger	1
14979	DW PFAS 537.1 Prep	EPA 537.1, ver. 1.0 Nov. 2018	1	19343009	12/09/2019 16:00	Anthony C Polaski	1

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

Quality Control Summary

Client Name: Merrimack Village District
Reported: 12/30/2019 14:01

Group Number: 2077696

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 ng/l	MDL** ng/l	LOQ ng/l
Batch number: 19343009	Sample number(s): 1215863-1215865		
Perfluorohexanesulfonic acid	N.D.	0.50	2.0
Perfluorononanoic acid	N.D.	0.50	2.0
Perfluorooctanesulfonic acid	N.D.	0.50	2.0
Perfluorooctanoic acid	N.D.	0.50	2.0

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: 19343009	Sample number(s): 1215863-1215865								
Perfluorohexanesulfonic acid	18.68	18.83	18.68	19.73	101	106	70-130	5	30
Perfluorononanoic acid	20.48	20.3	20.48	21.94	99	107	70-130	8	30
Perfluorooctanesulfonic acid	18.96	18.15	18.96	19.53	96	103	70-130	7	30
Perfluorooctanoic acid	20.48	19.31	20.48	19.45	94	95	70-130	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 4 PFAS Cmpds by 537.1

Batch number: 19343009

	13C2-PFHxA	13C2-PFDA	D5-NetFOSAA	13C3-HFPODA
1215863	100	101	92	94
1215864	96	98	90	89
1215865	94	95	89	90
Blank	105	103	99	96
LCS	98	100	95	92
LCSD	87	84	82	83
Limits:	70-130	70-130	70-130	70-130

*- Outside of specification

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

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

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

Quality Control Summary

Client Name: Merrimack Village District
Reported: 12/30/2019 14:01

Group Number: 2077696

*- Outside of specification

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

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

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



38083/2077 UAG/1215863-65

Drinking Water and Groundwater Bureau Analysis Request Form

December 4, 2019

Page 1 of 3

CHEMICAL

Compliance Sample Site(s) per Master Sampling Schedule

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) 424-9241

Date/Time Sample Collected: 12/4/19 11:15am

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.

Locator ID#: 504

Sample Site Location: GPW 3 CAMP SARGENT TREAT HOUSE / 003

Sample Period: Q1 Q2 Q3 Q4 Year: 2019

Sample Type: Routine Confirmation Make-up

Check Test(s) Requested	# of Containers	Lab Sample ID	Check Test(s) Requested	# of Containers	Lab Sample ID
NITRITE * (see note)			Compliance Gross Alpha		
NITRATE * (see note)			Combined Radium		
VOC			Uranium mass		
SOC			PFAS	✓	2 PFOA/PFOS/PFNA/PFHxS
IOC ** (see note)			OTHER:		

* 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.

FOR LAB USE: Temp C (upon receipt): 45 On Ice /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: [Signature] Date/Time: 12/5/19 11:04

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

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

NOTE: THIS IS NOT A REPORTING FORM. Results to be reported must include all information specified in Env-Dw 719, Reporting Monitoring Data.

Results must be reported to DES within 2 business days of analysis completion unless acute contaminants are exceeded which must be reported within 24 hours.



38083/2077696/1215863-05

Drinking Water and Groundwater Bureau
Analysis Request Form

December 4, 2019

Page 2 of 3

CHEMICAL

Compliance Sample Site(s) per Master Sampling Schedule

Questions: (603) 271-2513

PWS ID: 1531010

Collected By:

Ronald Miner

System Name: MERRIMACK VILLAGE DIST

Signature:

Ronald Miner (Print Name)

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.

PWS Town: MERRIMACK

Phone Number:

(603) 424-9241

Date/Time Sample Collected:

12/4/19 11:58

Locator ID#: 505

Sample Site Location: GPW 2A BERRY LANE TREATMENT HOUSE / 008

Sample Period: Q1 Q2 Q3 Q4 Year: 2019

Sample Type: Routine Confirmation Make-up

Check Test(s) Requested	# of Containers	Lab Sample ID	Check Test(s) Requested	# of Containers	Lab Sample ID
NITRITE * (see note)			Compliance Gross Alpha		
NITRATE * (see note)			Combined Radium		
VOC			Uranium mass		
SOC			PFAS	✓	2 PFOA/PFOS/PFNA/PFHxS
IOC ** (see note)			OTHER:		

* 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.

FOR LAB USE: Temp C (upon receipt): 4.5 On Ice? 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: 12/5/19 11:04

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

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

NOTE: THIS IS NOT A REPORTING FORM. Results to be reported must include all information specified in Env-Dw 719, Reporting Monitoring Data.

Results must be reported to DES within 2 business days of analysis completion unless acute contaminants are exceeded which must be reported within 24 hours.



38083/2077696/1215803-65

Drinking Water and Groundwater Bureau Analysis Request Form

December 4, 2019

Page 3 of 3

CHEMICAL

Compliance Sample Site(s) per Master Sampling Schedule

Questions: (603) 271-2513

PWS ID: 1531010

Collected By: Ronald Miner

(Print Name)

System Name: MERRIMACK VILLAGE DIST

Signature: [Signature]

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.

PWS Town: MERRIMACK

Phone Number: (603) 424-9241

Date/Time Sample Collected: 12/4/19 11:26

Locator ID#: 508

Sample Site Location: FINISHED WATER/WTP/BLEND 007 009

Sample Period: Q1 Q2 Q3 Q4 Year: 2019

Sample Type: Routine Confirmation Make-up

Check Test(s) Requested	# of Containers	Lab Sample ID	Check Test(s) Requested	# of Containers	Lab Sample ID
NITRITE * (see note)			Compliance Gross Alpha		
NITRATE * (see note)			Combined Radium		
VOC			Uranium mass		
SOC			PFAS	✓ 2	PFCA/PFCU/PFNA/PFHXS
IOC ** (see note)			OTHER:		

* 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.

FOR LAB USE: Temp C (upon receipt): 4.5 On Ice? Batch ID (if different than sample ID prefix): _____ List QUALIFIERS (if any): _____

Relinquished by: [Signature] Received by: _____ Date/Time: _____

Relinquished by: _____ Received at Lab by: [Signature] Date/Time: 12/5/19 11:24

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

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

NOTE: THIS IS NOT A REPORTING FORM. Results to be reported must include all information specified in Env-Dw 719, Reporting Monitoring Data.

Results must be reported to DES within 2 business days of analysis completion unless acute contaminants are exceeded which must be reported within 24 hours.



Client: ~~NHDES~~ Merrimack Village District
③ mki 30410 12/6/19

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Date: 12/05/2019
Number of Packages: 1 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
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

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	192050133	4.5	IR	Wet	Y	Loose/Bag	N

Explanation of Symbols and Abbreviations

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

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

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

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

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

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

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

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Data Qualifiers

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

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.