



Memo

To: Mr. Max Luick, MEDEP
From: Kevin M. Kitchin, PG & Brian Horan, LSP, GES
cc: Mr. Joseph Guarnaccia, PhD, BASF Corporation
Date: March 21, 2022
Re: PFAS Sampling Summary
Former Hamblet & Hayes Site
55 Crowley Road
Lewiston, Maine

On September 13, 2021, the Maine Department of Environmental Protection (MEDEP) requested BASF to provide a plan to address the potential for the presence of Per- and Polyfluoroalkyl Substances (PFAS) in groundwater at the former Hamblet & Hayes Site (the “Site”) located at 55 Crowley Road in Lewiston, Maine. On behalf of BASF, GES provided MEDEP with a PFAS sampling Work Plan (via email) on October 28, 2021. The work plan was approved by MEDEP on October 28, 2021.

To meet the objective, groundwater sampling locations were selected/distributed to be representative of site-wide conditions, and they were generally sited to correlate source areas and groundwater flow in both the shallow water bearing unit and the deeper aquifer (see Figure 1). GES implemented the work plan with modifications in November 2021 and January 2022, as detailed below:

- The approved plan included the following six wells:
 - Shallow MW-401B, RX-5 and RX-13
 - Deep: RX-28, PZ-16 and MW-35D
 - With the exception of RX-05, which could not be sampled due to lack of water, these wells were sampled in November 2021.
- Following the November 2021 sampling event, modifications were made to the sampling plan. In January 2022 GES collected the following samples:
 - RX-01 was sampled as a replacement for RX-05.
 - Two additional wells were added to the plan, MW-33 and EW-401, to improve representativeness of site conditions.
- PFAS laboratory analyses were conducted via modified USEPA Method 537.1 (isotope dilution) with 18 PFAS compounds reported and with a reporting limit of at least 2.0 nanograms per liter (ng/L) in accordance with MEDEP’s August 2021 *PFAS Considerations at Sites using the Maine Remedial Action Guidelines (RAGs)* guidance document.



- Quality assurance/quality control (QA/QC) samples were collected during the November 2021 sampling event, and they included 1 equipment blank, 1 field blank, 1 trip blank, and 1 field duplicate using lab certified PFAS-free water.

PFAS Sampling Protocol

PFAS samples were collected in accordance with GES' internal Standard Operating Procedure that were provided to MEDEP in the October 2021 Workplan email.

Well sampling utilized USEPA low-flow sampling methods. The wells were first measured for field stabilization parameters that included pH, dissolved oxygen (DO), turbidity, oxidation-reduction potential (ORP), temperature, and specific conductivity using a calibrated YSI Model 6920 or equivalent. Low Flow Field Data Sheets from the November 2021 and January 2022 PFAS sampling events are included as **Attachment 1**. GES personnel conducted appropriate decontamination of non-disposable equipment before and during gauging and sampling activities.

PFAS Sample Results

Analytical results for the November 2021 and January 2022 groundwater sampling events are summarized in **Table 1**. Laboratory analytical reports are included as **Attachment 2**.

Per MEDEP's August 2021 *PFAS Considerations at Sites using the Maine RAGs* guidance document, PFAS sample results were compared to the sum of six PFAS compounds (perfluorooctane sulphonic acid [PFOS], perfluorooctanoic acid [PFOA], perfluoroheptanoic acid [PFHpA], perfluorononanoic acid [PFNA], perfluorohexane sulfonate [PFHxS], and perfluorodecanoic acid [PFDA]) relative to a total concentration of 20 ng/L (**Table 1**). None of the locations sampled exceeded the MEDEP 20 ng/L RAG threshold for total PFAS.

Conclusion

In response to the MEDEP's request to assess the presence of PFAS compounds at the Site, BASF implemented a MEDEP-approved Work Plan, modified to accommodate field conditions and expand coverage. While trace concentrations of PFAS compounds were detected, none of the detected concentrations exceeded the MEDEP 20 ng/L RAG threshold.



Figure

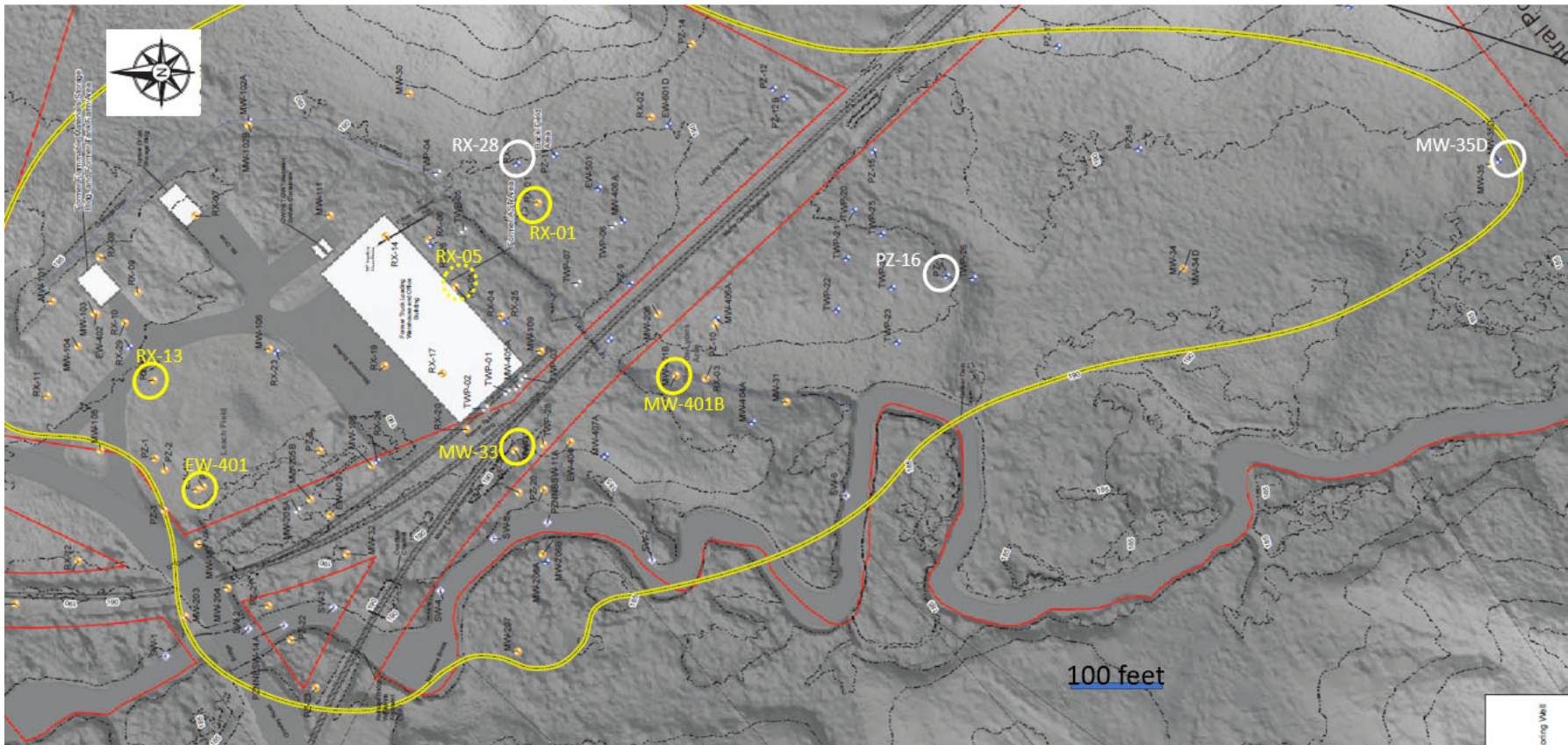


Figure 1 – Site map showing the locations of the wells sampled for PFAS compounds. Locations in yellow are screened in the shallow water bearing unit, and locations in white are screened in the deeper aquifer. Note that RX-05 could not be sampled due to lack of water, and it was replaced with RX-01.



Table

Table 1
Summary of Groundwater Analytical Data: PFAS (2021 and 2022)
 Former Hamblet Hayes Site
 55 Crowley Road
 Lewiston, Maine



Monitoring Well: Sample Date: Groundwater Zone:	MW-35D 11/3/2021 Deep	MW-401B 11/3/2021 Shallow	PZ-16 11/2/2021 Deep	RX-13 11/4/2021 Shallow	RX-28 11/4/2021 Deep	RX-28 Duplicate 11/4/2021 Deep	MW-33 1/5/2022 Shallow	RX-01 1/5/2022 Shallow	EW-401 1/5/2022 Shallow
MEDEP Interim Drinking Water Standard*	20 ng/L	20 ng/L	20 ng/L	20 ng/L	20 ng/L	20 ng/L	20 ng/L	20 ng/L	20 ng/L
Analytical Method Specific Analyte	Units								
EPA Method 537.1									
11CI-PF3OUds (F53B Minor)	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
Perfluorohexanoic acid (PFHxA)	ng/L	< 1.9	< 1.9	9.4	< 1.9	4.5	4.1	< 1.9	8.5
4,8-Dioxa-3h-Perfluorononanoic acid ADONA	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
9CI-PF3ONS (F53B Major)	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic acid	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
N-Methyl Perfluorooctane Sulfonamidoacetic acid	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
Perfluorobutanesulfonic acid (PFBS)	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
Perfluorododecanoic acid (PFDoA)	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
Perfluorotetradecanoic acid (PFTA)	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
Perfluorotridecanoic acid (PFTrDA)	ng/L	3.4	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
Perfluoroundecanoic acid (PFUnA)	ng/L	8.2	< 1.9	< 1.9	< 1.9	3.5	3.7	< 1.9	< 2.0
Perfluorooctane sulphonic acid (PFOS)	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	2.3	< 2.0
Perfluorooctanoic acid (PFOA)	ng/L	< 1.9	< 1.9	3.6	< 1.9	< 1.9	< 1.8	< 1.9	10
Perfluoroheptanoic acid (PFHpA)	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	2.5
Perfluorononanoic acid (PFNA)	ng/L	14	< 1.9	5.6	< 1.9	11	10	< 1.9	< 2.0
Perfluorohexane sulfonate (PFHxS)	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
Perfluorodecanoic acid (PFDA)	ng/L	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9	< 2.0
Total PFOS, PFOA, PFHpA, PFNA, PFHxS, and PFDA*	ng/L	14	ND	9.2	ND	11	10	2.3	12.5

Notes:
 ng/L = nanograms per liter
 < = Not detected at the indicated reporting limit
 * = the sum of six PFAS compounds (PFOS, PFOA, PFHpA, PFNA, PFHxS, and PFDA) relative to a total concentration of 20 ng/L
Bolded concentration or reporting limits indicate exceedences of the Maine Interim Remedial Action Guidelines (RAGs) - *None identified*
 Groundwater Zone is indicative of the respective well screen/sample location being in the deep aquifer (Deep) or shallow water bearing zone (Shallow) at the Site.



Attachment 1 – Low Flow Field Data Sheets (November 2021 & January 2022)

LOW FLOW SAMPLING DATA SHEET

SITE: BASF Lewiston DATE: <u>11-5-21</u>	FIELD PERSONNEL: <u>L. WATKIN</u> WEATHER: <u>Clear -40°</u>
MONITORING WELL #: <u>MW 35D</u> WELL DEPTH: <u>61.80</u> feet	SCREENED INTERVAL: <u>49.59</u>
MONITORING WELL PERMIT #: <u> </u> WELL DIAMETER: <u>2</u> inches	MONITORING WELL IS FLUSH TO GRADE

PID/FID READINGS (ppm _v):	BACKGROUND: N/A HEADSPACE: N/A	PUMP INTAKE DEPTH: <u>30</u> feet below top of casing DEPTH TO WATER BEFORE PUMP INSTALLATION: <u>4.76</u> feet below top of casing
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TIME	Plumbing	Sampling	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mV)		DISSOLVED OXYGEN (mg/L)		TURBIDITY (NTU)		TEMPERATURE (°C)		PUMPING RATE (mL/min)	DEPTH TO WATER (feet below top of casing)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1225	X		7.10	NA	408	NA	-186.2	NA	2.38	NA	26.2	NA	12.03	NA	300	4.79
1230	X		7.23	.13	409	1	-217	30.8	.95	1.43	19.3	6.9	12.10	.07	300	4.80
1235	X		7.30	.07	389	20	-255.6	38.6	.40	.55	19.5	.2	11.68	.42	300	4.83
1240	X		7.31	.01	386	3	-260.1	4.5	.39	.01	19.8	.3	11.63	.05	300	4.85
1245	X		7.32	.01	383	3	-262.8	2.7	.41	.02	20	.2	11.61	.02	300	4.86

Comments: full list VOCs / PFAS sample @ 1255

Analyses Samples Collected for: full list VOCs / PFAS sample @ 1255

Parameters have stabilized when three consecutive readings are within ± 0.1 for pH; ± 3% for specific conductivity and temperature; ± 10 mV for edox potential; and ± 10% for dissolved oxygen and turbidity. Pumping rate to be maintained at rate less than 300 ml/min that allows drawdown of <0.3 feet.

LOW FLOW SAMPLING DATA SHEET

Sheet 1 of

SITE: BASF Lewiston	FIELD PERSONNEL: <u>Lynn Under</u>
DATE: <u>11-4-21</u>	WEATHER: <u>clear 40°</u>
MONITORING WELL #: <u>RX-13</u>	WELL DEPTH: <u>19.75</u> feet
MONITORING WELL PERMIT #: <u> </u>	SCREENED INTERVAL: <u>6-19.5</u>
WELL DIAMETER: <u>2</u> inches	MONITORING WELL IS FLUSH TO GRADE

PID/FID READINGS (ppm):	BACKGROUND: <u>N/A</u>	PUMP INTAKE DEPTH: <u>12</u> feet below top of casing
	HEADSPACE: <u>N/A</u>	DEPTH TO WATER BEFORE PUMP INSTALLATION: <u>5.32</u> feet below top of casing

TIME	Purging	Sampling	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mV)		DISSOLVED OXYGEN (mg/L)		TURBIDITY (NTU)		TEMPERATURE (°C)		PUMPING RATE (mL/min)	DEPTH TO WATER (feet below top of casing)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1500	X		6.51	NA	183	NA	80.1	NA	4.14	NA	10.4	NA	12.60	NA	300	5.57
1505	X		6.29	22	182	1	85.2	5.1	1.30	2.84	8.3	2.1	12.21	.39	300	6.49
1510	X		6.22	7	181	1	86.8	1.6	.92	.38	4.5	3.8	11.95	.26	300	6.83
1515	X		6.20	2	182	1	85.1	1.7	.80	.12	3.1	1.4	11.91	.04	300	7.07
1520	X		6.30	0	182	0	85.6	.5	.80	0	2.8	.3	11.90	.01	300	7.26
1525	X		6.19	1	182	1	85.7	.1	.83	.03	2.9	.1	11.89	.01	300	7.42

Comments: Analyses Samples Collected for: full list voc's (PFAS) sample @ 1535

Parameters have stabilized when three consecutive readings are within ± 0.1 for pH; ± 3% for specific conductivity and temperature; ± 10 mV for redox potential; and ± 10% for dissolved oxygen and turbidity. Pumping rate to be maintained at rate less than 300 ml/min that allows drawdown of <0.3 feet.

LOW FLOW SAMPLING DATA SHEET

Sheet 1 of

SITE: BASF Lewiston DATE: <u>11-4-21</u>	FIELD PERSONNEL: <u>Liam Walker</u> WEATHER: <u>clear 35°</u>
MONITORING WELL #: <u>RX-28</u> WELL DEPTH: <u>48.9</u> feet MONITORING WELL PERMIT #: <u> </u> WELL DIAMETER: <u>2</u> inches	SCREENED INTERVAL: <u>41-46</u> MONITORING WELL IS FLUSH TO GRADE

PID/FID READINGS (ppm _v):	BACKGROUND: <u>N/A</u> HEADSPACE: <u>N/A</u>	PUMP INTAKE DEPTH: <u>30</u> feet below top of casing DEPTH TO WATER BEFORE PUMP INSTALLATION: <u>4.58</u> feet below top of casing
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TIME	Purging	Sampling	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mV)		DISSOLVED OXYGEN (mg/L)		TURBIDITY (NTU)		TEMPERATURE (°C)		PUMPING RATE (mL/min)	DEPTH TO WATER (feet below top of casing)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1105	X		9.24	NA	104	NA	15.9	NA	7.73	NA	23.6	NA	10.05	NA	300	4.60
1110	X		9.37	.13	97	7	26.9	11	7.46	.27	6.1	17.5	10.17	.12	300	4.64
1115	X		9.40	.03	93	4	34.6	7.7	7.27	.19	6.3	.2	10.43	.26	300	4.65
1120	X		9.42	.02	91	2	39.6	5.0	6.56	.77	3.4	2.9	10.46	.03	300	4.67
1125	X		9.44	.02	91	0	44.5	4.9	6.47	.03	3.0	.4	10.47	.01	300	4.69
1130	X		9.45	.01	91	0	47.9	3.4	6.49	.02	3.1	.1	10.50	.03	300	4.72

Comments: Full list voc's / PFAS Sample @ 1140

Parameters have stabilized when three consecutive readings are within ± 0.1 for pH; ± 3% for specific conductivity and temperature; ± 10 mV for redox potential; and ± 10% for dissolved oxygen and turbidity. Pumping rate to be maintained at rate less than 300 ml/min that allows drawdown of <0.3 feet.

LOW FLOW SAMPLING DATA SHEET

Sheet 1 of

SITE: BASF Lewiston
 DATE: 11-4-21
 MONITORING WELL #: RX-05 WELL DEPTH: 10.40 feet
 MONITORING WELL PERMIT #: WELL DIAMETER: 2 inches
 FIELD PERSONNEL: L. Walker
 WEATHER: clear 35°
 SCREENED INTERVAL: 6-11
 MONITORING WELL IS FLUSH TO GRADE

PID/FID READINGS (ppm.v): BACKGROUND: N/A PUMP INTAKE DEPTH: 9 feet below top of casing
 HEADSPACE: N/A DEPTH TO WATER BEFORE PUMP INSTALLATION: 5.03 feet below top of casing

TIME	Purging	Sampling	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mV)		DISSOLVED OXYGEN (mg/L)		TURBIDITY (NTU)		TEMPERATURE (°C)		PUMPING RATE (mL/min)	DEPTH TO WATER (feet below top of casing)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
0930	X		7.33	NA	482	NA	32.1	NA	2.49	NA	68.1	NA	9.63	NA	300	5.71
0935	X		7.13	.20	850	368	36.8	4.7	3.32	.83	229	160.9	10.68	1.05	300	7.01
0940	X		7.28	.15	534	316	28.1	8.7	3.66	.34	176	53	10.28	.40	300	8.21
0945	X		7.18	.10	580	46	34.4	6.3	2.95	.71	298	122	10.92	.64	200	9.10
0950	X		7.10	.08	727	147	39.7	5.3	1.92	1.03	over range		11.76	.84	200	10.28
0955																

Comments:
Analyses Samples Collected for: all list VOC's + PFAS - NO sample - well runs DRY @ 0955

Parameters have stabilized when three consecutive readings are within ± 0.1 for pH; ± 3% for specific conductivity and temperature; ± 10 mV for redox potential; and ± 10% for dissolved oxygen and turbidity. Pumping rate to be maintained at rate less than 300 ml/min that allows drawdown of <0.3 feet.



Attachment 2 – Groundwater Laboratory Analytical Reports (November 2021 and January 2022)

December 1, 2021

Kevin Kitchin
GES - MA
1 Park Drive, Suite 8
Westford, MA 01886

Project Location: Lewiston, ME
Client Job Number:
Project Number: 1605574
Laboratory Work Order Number: 21K0407

Enclosed are results of analyses for samples as received by the laboratory on November 5, 2021. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Matthew J Beaupre
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

 GES - MA
 1 Park Drive, Suite 8
 Westford, MA 01886
 ATTN: Kevin Kitchin

REPORT DATE: 12/1/2021

PURCHASE ORDER NUMBER: 1605574/54/873 ORG 1116

PROJECT NUMBER: 1605574

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 21K0407

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: Lewiston, ME

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PZ-16	21K0407-01	Ground Water		EPA 537.1	
MW35D	21K0407-02	Ground Water		EPA 537.1	
MW401B	21K0407-03	Ground Water		EPA 537.1	
RX28	21K0407-04	Ground Water		EPA 537.1	
RX13	21K0407-05	Ground Water		EPA 537.1	
RX28 Duplicate	21K0407-06	Ground Water		EPA 537.1	
Field Blank	21K0407-07	Ground Water		EPA 537.1	
Equipmernt Blank	21K0407-08	Ground Water		EPA 537.1	
Trip Blank	21K0407-09	Ground Water		EPA 537.1	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

12/1/21: Report reissued changing P2-16 to PZ-16 per client request

EPA 537.1

Qualifications:

PF-14

Internal standard area <70% of associated continuing calibration standard internal standard area. Re-analysis yielded similar internal standard non-conformance. Original results reported.

Analyte & Samples(s) Qualified:

13C-PFOS

21K0407-05[RX13]

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Perfluorononanoic acid (PFNA)

S065613-CCV2

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Matthew J Beaupre
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 21K0407

Date Received: 11/5/2021

Field Sample #: PZ-16

Sampled: 11/2/2021 13:10

Sample ID: 21K0407-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluorohexanoic acid (PFHxA)	9.4	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluorooctanoic acid (PFOA)	3.6	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluorononanoic acid (PFNA)	5.6	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
N-EtFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
N-MeFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 10:56	BLH
Surrogates		% Recovery		Recovery Limits		Flag/Qual			
13C-PFHxA		103		70-130				11/11/21 10:56	
M3HFPO-DA		89.7		70-130				11/11/21 10:56	
13C-PFDA		113		70-130				11/11/21 10:56	
d5-NEtFOSAA		104		70-130				11/11/21 10:56	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 21K0407

Date Received: 11/5/2021

Field Sample #: MW35D

Sampled: 11/3/2021 12:55

Sample ID: 21K0407-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluorononanoic acid (PFNA)	14	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
N-EtFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluoroundecanoic acid (PFUnA)	8.2	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
N-MeFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluorotridecanoic acid (PFTriDA)	3.4	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:04	BLH
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
13C-PFHxA		103	70-130					11/11/21 11:04	
M3HFPO-DA		95.2	70-130					11/11/21 11:04	
13C-PFDA		116	70-130					11/11/21 11:04	
d5-NEtFOSAA		123	70-130					11/11/21 11:04	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 21K0407

Date Received: 11/5/2021

Field Sample #: MW401B

Sampled: 11/3/2021 15:05

Sample ID: 21K0407-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
N-EtFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
N-MeFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:11	BLH
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
13C-PFHxA		97.0	70-130					11/11/21 11:11	
M3HFPO-DA		84.3	70-130					11/11/21 11:11	
13C-PFDA		111	70-130					11/11/21 11:11	
d5-NEtFOSAA		103	70-130					11/11/21 11:11	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 21K0407

Date Received: 11/5/2021

Sampled: 11/4/2021 11:40

 Field Sample #: **RX28**

 Sample ID: **21K0407-04**

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluorohexanoic acid (PFHxA)	4.5	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluorononanoic acid (PFNA)	11	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
N-EtFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluoroundecanoic acid (PFUnA)	3.5	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
N-MeFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:18	BLH
Surrogates		% Recovery		Recovery Limits	Flag/Qual				
13C-PFHxA		102		70-130				11/11/21 11:18	
M3HFPO-DA		88.7		70-130				11/11/21 11:18	
13C-PFDA		121		70-130				11/11/21 11:18	
d5-NEtFOSAA		126		70-130				11/11/21 11:18	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 21K0407

Date Received: 11/5/2021

 Field Sample #: **RX13**

Sampled: 11/4/2021 15:35

 Sample ID: **21K0407-05**

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
N-EtFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
N-MeFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:25	BLH
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
13C-PFHxA		85.5	70-130					11/11/21 11:25	
M3HFPO-DA		74.2	70-130					11/11/21 11:25	
13C-PFDA		110	70-130					11/11/21 11:25	
d5-NEtFOSAA		98.7	70-130					11/11/21 11:25	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 21K0407

Date Received: 11/5/2021

 Field Sample #: **RX28 Duplicate**

Sampled: 11/4/2021 11:40

 Sample ID: **21K0407-06**

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluorohexanoic acid (PFHxA)	4.1	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluorononanoic acid (PFNA)	10	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
N-EtFOSAA	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluoroundecanoic acid (PFUnA)	3.7	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
N-MeFOSAA	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:32	BLH
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
13C-PFHxA		105	70-130					11/11/21 11:32	
M3HFPO-DA		90.2	70-130					11/11/21 11:32	
13C-PFDA		122	70-130					11/11/21 11:32	
d5-NEtFOSAA		127	70-130					11/11/21 11:32	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 21K0407

Date Received: 11/5/2021

Field Sample #: Field Blank

Sampled: 11/4/2021 16:00

Sample ID: 21K0407-07

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
N-EtFOSAA	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
N-MeFOSAA	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:46	BLH
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
13C-PFHxA	98.3	70-130						11/11/21 11:46	
M3HFPO-DA	82.0	70-130						11/11/21 11:46	
13C-PFDA	107	70-130						11/11/21 11:46	
d5-NEtFOSAA	102	70-130						11/11/21 11:46	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 21K0407

Date Received: 11/5/2021

Field Sample #: Equipmernt Blank

Sampled: 11/4/2021 16:20

Sample ID: 21K0407-08

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
N-EtFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
N-MeFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 11:54	BLH
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
13C-PFHxA		101	70-130					11/11/21 11:54	
M3HFPO-DA		85.0	70-130					11/11/21 11:54	
13C-PFDA		110	70-130					11/11/21 11:54	
d5-NEtFOSAA		103	70-130					11/11/21 11:54	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 21K0407

Date Received: 11/5/2021

Field Sample #: Trip Blank

Sampled: 11/5/2021 00:00

Sample ID: 21K0407-09

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
N-EtFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
N-MeFOSAA	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		EPA 537.1	11/9/21	11/11/21 12:01	BLH
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
13C-PFHxA		105	70-130					11/11/21 12:01	
M3HFPO-DA		86.9	70-130					11/11/21 12:01	
13C-PFDA		111	70-130					11/11/21 12:01	
d5-NEtFOSAA		107	70-130					11/11/21 12:01	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: EPA 537.1 Analytical Method: EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
21K0407-01 [PZ-16]	B294241	266	1.00	11/09/21
21K0407-02 [MW35D]	B294241	268	1.00	11/09/21
21K0407-03 [MW401B]	B294241	270	1.00	11/09/21
21K0407-04 [RX28]	B294241	269	1.00	11/09/21
21K0407-05 [RX13]	B294241	263	1.00	11/09/21
21K0407-06 [RX28 Duplicate]	B294241	271	1.00	11/09/21
21K0407-07 [Field Blank]	B294241	271	1.00	11/09/21
21K0407-08 [Equipment Blank]	B294241	263	1.00	11/09/21
21K0407-09 [Trip Blank]	B294241	258	1.00	11/09/21

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B294241 - EPA 537.1										
Blank (B294241-BLK1)										
Prepared: 11/09/21 Analyzed: 11/11/21										
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L							
N-EtFOSAA	ND	1.8	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L							
N-MeFOSAA	ND	1.8	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L							
11Cl-PF3OUdS (F53B Minor)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Major)	ND	1.8	ng/L							
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L							
Surrogate: 13C-PFHxA	41.7		ng/L	36.6		114	70-130			
Surrogate: M3HFPO-DA	35.8		ng/L	36.6		97.8	70-130			
Surrogate: 13C-PFDA	44.1		ng/L	36.6		121	70-130			
Surrogate: d5-NEtFOSAA	169		ng/L	146		115	70-130			
LCS (B294241-BS1)										
Prepared: 11/09/21 Analyzed: 11/11/21										
Perfluorobutanesulfonic acid (PFBS)	7.95	1.9	ng/L	8.32		95.6	70-130			
Perfluorohexanoic acid (PFHxA)	9.41	1.9	ng/L	9.38		100	70-130			
Perfluorohexanesulfonic acid (PFHxS)	7.85	1.9	ng/L	8.57		91.6	70-130			
Perfluoroheptanoic acid (PFHpA)	9.30	1.9	ng/L	9.38		99.1	70-130			
Perfluorooctanoic acid (PFOA)	9.27	1.9	ng/L	9.38		98.8	70-130			
Perfluorooctanesulfonic acid (PFOS)	8.19	1.9	ng/L	8.70		94.1	70-130			
Perfluorononanoic acid (PFNA)	9.25	1.9	ng/L	9.38		98.7	70-130			
Perfluorodecanoic acid (PFDA)	9.33	1.9	ng/L	9.38		99.5	70-130			
N-EtFOSAA	9.17	1.9	ng/L	9.38		97.8	70-130			
Perfluoroundecanoic acid (PFUnA)	9.14	1.9	ng/L	9.38		97.5	70-130			
N-MeFOSAA	8.95	1.9	ng/L	9.38		95.4	70-130			
Perfluorododecanoic acid (PFDoA)	8.33	1.9	ng/L	9.38		88.9	70-130			
Perfluorotridecanoic acid (PFTrDA)	8.83	1.9	ng/L	9.38		94.2	70-130			
Perfluorotetradecanoic acid (PFTA)	8.87	1.9	ng/L	9.38		94.6	70-130			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.53	1.9	ng/L	9.38		102	70-130			
11Cl-PF3OUdS (F53B Minor)	7.81	1.9	ng/L	8.84		88.3	70-130			
9Cl-PF3ONS (F53B Major)	7.67	1.9	ng/L	8.75		87.7	70-130			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	8.60	1.9	ng/L	8.86		97.1	70-130			
Surrogate: 13C-PFHxA	41.6		ng/L	37.5		111	70-130			
Surrogate: M3HFPO-DA	35.9		ng/L	37.5		95.7	70-130			
Surrogate: 13C-PFDA	43.2		ng/L	37.5		115	70-130			
Surrogate: d5-NEtFOSAA	168		ng/L	150		112	70-130			

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QUALITY CONTROL
Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B294584 - EPA 537.1										
Blank (B294584-BLK1)										
Prepared: 11/15/21 Analyzed: 11/17/21										
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L							
N-EtFOSAA	ND	1.9	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L							
N-MeFOSAA	ND	1.9	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L							
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L							
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L							
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L							
Surrogate: 13C-PFHxA	28.8		ng/L	37.7		76.5	70-130			
Surrogate: M3HFPO-DA	28.0		ng/L	37.7		74.3	70-130			
Surrogate: 13C-PFDA	35.3		ng/L	37.7		93.8	70-130			
Surrogate: d5-NEtFOSAA	165		ng/L	151		110	70-130			
LCS (B294584-BS1)										
Prepared: 11/15/21 Analyzed: 11/17/21										
Perfluorobutanesulfonic acid (PFBS)	1.80	1.9	ng/L	1.65		109	50-150			
Perfluorohexanoic acid (PFHxA)	1.60	1.9	ng/L	1.86		85.9	50-150			
Perfluorohexanesulfonic acid (PFHxS)	1.70	1.9	ng/L	1.70		100	50-150			
Perfluoroheptanoic acid (PFHpA)	1.59	1.9	ng/L	1.86		85.4	50-150			
Perfluorooctanoic acid (PFOA)	1.67	1.9	ng/L	1.86		90.1	50-150			
Perfluorooctanesulfonic acid (PFOS)	1.60	1.9	ng/L	1.72		93.0	50-150			
Perfluorononanoic acid (PFNA)	1.57	1.9	ng/L	1.86		84.7	50-150			
Perfluorodecanoic acid (PFDA)	1.35	1.9	ng/L	1.86		72.8	50-150			
N-EtFOSAA	1.46	1.9	ng/L	1.86		78.8	50-150			
Perfluoroundecanoic acid (PFUnA)	1.51	1.9	ng/L	1.86		81.4	50-150			
N-MeFOSAA	1.42	1.9	ng/L	1.86		76.5	50-150			
Perfluorododecanoic acid (PFDoA)	1.69	1.9	ng/L	1.86		91.3	50-150			
Perfluorotridecanoic acid (PFTrDA)	1.67	1.9	ng/L	1.86		89.7	50-150			
Perfluorotetradecanoic acid (PFTA)	1.77	1.9	ng/L	1.86		95.4	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	2.00	1.9	ng/L	1.86		108	50-150			
11Cl-PF3OUdS (F53B Minor)	1.73	1.9	ng/L	1.75		98.9	50-150			
9Cl-PF3ONS (F53B Major)	1.59	1.9	ng/L	1.73		91.8	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.55	1.9	ng/L	1.75		88.4	50-150			
Surrogate: 13C-PFHxA	38.2		ng/L	37.1		103	70-130			
Surrogate: M3HFPO-DA	38.7		ng/L	37.1		104	70-130			
Surrogate: 13C-PFDA	35.8		ng/L	37.1		96.4	70-130			
Surrogate: d5-NEtFOSAA	176		ng/L	149		118	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
PF-14	Internal standard area <70% of associated continuing calibration standard internal standard area. Re-analysis yielded similar internal standard non-conformance. Original results reported.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS**Certified Analyses included in this Report**

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
N-EtFOSAA	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
N-MeFOSAA	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
11CI-PF3OUdS (F53B Minor)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
9CI-PF3ONS (F53B Major)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Public Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2022
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2022
RI	Rhode Island Department of Health	LAO00112	12/30/2021
NC	North Carolina Div. of Water Quality	652	12/31/2021
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2021
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____



con-test
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client GES
 Received By EA Date 11/5/21 Time 1655

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
 Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 2.6
 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA
 Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T
 Did COC include all pertinent information? Client T Analysis T Sampler Name T
 Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T
 Are there Lab to Filters? F Who was notified? _____
 Are there Rushes? F Who was notified? _____
 Are there Short Holds? F Who was notified? _____

Is there enough Volume? T
 Is there Headspace where applicable? NA MS/MSD? F
 Proper Media/Containers Used? T Is splitting samples required? F
 Were trip blanks received? T On COC? T
 Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Flashpoint		Col./Bacteria	2oz Amb/Clear
DI-		Other Glass		Other Plastic	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Unused Media

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Comments:

January 21, 2022

Kevin Kitchin
GES - MA
1 Park Drive, Suite 8
Westford, MA 01886

Project Location: Lewiston, ME
Client Job Number:
Project Number: 1605574
Laboratory Work Order Number: 22A0201

Enclosed are results of analyses for samples as received by the laboratory on January 6, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Matthew J Beaupre
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

GES - MA
1 Park Drive, Suite 8
Westford, MA 01886
ATTN: Kevin Kitchin

REPORT DATE: 1/21/2022

PURCHASE ORDER NUMBER: 1605574/54/873 ORG 1116

PROJECT NUMBER: 1605574

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22A0201

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: Lewiston, ME

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW 33	22A0201-01	Ground Water		EPA 537.1	
RX 01	22A0201-02	Ground Water		EPA 537.1	
EW 401	22A0201-03	Ground Water		EPA 537.1	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537.1

Qualifications:

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Sample(s) Qualified:

Hexafluoropropylene oxide dimer :

S067562-CCV1, S067562-CCV2, S067562-CCV3

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Technical Representative

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 22A0201

Date Received: 1/6/2022

Field Sample #: MW 33

Sampled: 1/5/2022 10:50

Sample ID: 22A0201-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluorooctanesulfonic acid (PFOS)	2.3	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
N-EtFOSAA	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
N-MeFOSAA	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 16:58	BLH
Surrogates		% Recovery		Recovery Limits	Flag/Qual				
13C-PFHxA		90.3		70-130				1/18/22 16:58	
M3HFPO-DA		102		70-130				1/18/22 16:58	
13C-PFDA		96.8		70-130				1/18/22 16:58	
d5-NEtFOSAA		97.5		70-130				1/18/22 16:58	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Lewiston, ME

Sample Description:

Work Order: 22A0201

Date Received: 1/6/2022

Field Sample #: RX 01

Sampled: 1/5/2022 12:00

Sample ID: 22A0201-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluorohexanoic acid (PFHxA)	8.5	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluoroheptanoic acid (PFHpA)	2.5	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluorooctanoic acid (PFOA)	10	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
N-EtFOSAA	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
N-MeFOSAA	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
11Cl-PF3OUdS (F53B Minor)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
9Cl-PF3ONS (F53B Major)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:05	BLH
Surrogates		% Recovery		Recovery Limits	Flag/Qual				
13C-PFHxA		91.5		70-130				1/18/22 17:05	
M3HFPO-DA		104		70-130				1/18/22 17:05	
13C-PFDA		101		70-130				1/18/22 17:05	
d5-NEtFOSAA		102		70-130				1/18/22 17:05	

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Project Location: Lewiston, ME

Sample Description:

Work Order: 22A0201

Date Received: 1/6/2022

Field Sample #: EW 401

Sampled: 1/5/2022 13:00

Sample ID: 22A0201-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
N-EtFOSAA	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
N-MeFOSAA	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		EPA 537.1	1/11/22	1/18/22 17:12	BLH
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
13C-PFHxA		96.8	70-130					1/18/22 17:12	
M3HFPO-DA		104	70-130					1/18/22 17:12	
13C-PFDA		99.3	70-130					1/18/22 17:12	
d5-NEtFOSAA		105	70-130					1/18/22 17:12	

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Sample Extraction Data

Prep Method: EPA 537.1 Analytical Method: EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22A0201-01 [MW 33]	B298715	260	1.00	01/11/22
22A0201-02 [RX 01]	B298715	255	1.00	01/11/22
22A0201-03 [EW 401]	B298715	260	1.00	01/11/22

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QUALITY CONTROL
Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B298715 - EPA 537.1										
Blank (B298715-BLK1)										
Prepared: 01/14/22 Analyzed: 01/18/22										
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L							
N-EtFOSAA	ND	1.8	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L							
N-MeFOSAA	ND	1.8	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L							
11Cl-PF3OUdS (F53B Minor)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Major)	ND	1.8	ng/L							
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L							
Surrogate: 13C-PFHxA	34.2		ng/L	36.1		94.8	70-130			
Surrogate: M3HFPO-DA	33.2		ng/L	36.1		92.1	70-130			
Surrogate: 13C-PFDA	36.8		ng/L	36.1		102	70-130			
Surrogate: d5-NEtFOSAA	146		ng/L	144		101	70-130			
LCS (B298715-BS1)										
Prepared: 01/14/22 Analyzed: 01/18/22										
Perfluorobutanesulfonic acid (PFBS)	1.62	1.8	ng/L	1.60		101	50-150			
Perfluorohexanoic acid (PFHxA)	1.42	1.8	ng/L	1.80		78.5	50-150			
Perfluorohexanesulfonic acid (PFHxS)	1.69	1.8	ng/L	1.65		102	50-150			
Perfluoroheptanoic acid (PFHpA)	1.51	1.8	ng/L	1.80		83.7	50-150			
Perfluorooctanoic acid (PFOA)	2.31	1.8	ng/L	1.80		128	50-150			
Perfluorooctanesulfonic acid (PFOS)	1.46	1.8	ng/L	1.67		87.0	50-150			
Perfluorononanoic acid (PFNA)	1.64	1.8	ng/L	1.80		90.6	50-150			
Perfluorodecanoic acid (PFDA)	1.73	1.8	ng/L	1.80		95.7	50-150			
N-EtFOSAA	1.47	1.8	ng/L	1.80		81.7	50-150			
Perfluoroundecanoic acid (PFUnA)	1.73	1.8	ng/L	1.80		95.7	50-150			
N-MeFOSAA	1.71	1.8	ng/L	1.80		94.5	50-150			
Perfluorododecanoic acid (PFDoA)	1.37	1.8	ng/L	1.80		75.9	50-150			
Perfluorotridecanoic acid (PFTrDA)	1.46	1.8	ng/L	1.80		80.8	50-150			
Perfluorotetradecanoic acid (PFTA)	1.46	1.8	ng/L	1.80		80.7	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	2.07	1.8	ng/L	1.80		115	50-150			
11Cl-PF3OUdS (F53B Minor)	1.46	1.8	ng/L	1.70		86.0	50-150			
9Cl-PF3ONS (F53B Major)	1.59	1.8	ng/L	1.68		94.6	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.58	1.8	ng/L	1.70		92.9	50-150			
Surrogate: 13C-PFHxA	35.7		ng/L	36.1		99.0	70-130			
Surrogate: M3HFPO-DA	36.0		ng/L	36.1		99.7	70-130			
Surrogate: 13C-PFDA	37.5		ng/L	36.1		104	70-130			
Surrogate: d5-NEtFOSAA	155		ng/L	144		107	70-130			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
N-EtFOSAA	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
N-MeFOSAA	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
11Cl-PF3OUdS (F53B Minor)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
9Cl-PF3ONS (F53B Major)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT,ME,PA,MI,MA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Public Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2022
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2022
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____



con-test
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client GES

Received By RLJ Date 11/6/22 Time 11:35

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 5 Actual Temp - 2°
By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA
Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all Client T Analysis T Sampler Name T
pertinent information? Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F

Are there Rushes? F

Are there Short Holds? F

Is there enough Volume? T

Is there Headspace where applicable? NA

Proper Media/Containers Used? T

Were trip blanks received? F

Do all samples have the proper pH? _____

Who was notified? _____

Who was notified? _____

Who was notified? _____

MS/MSD? F

Is splitting samples required? F

On COC? F

Acid NA

Base NA

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	10	4oz Amb/Clear
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear
DI-		Other Glass		Other Plastic		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments: