Groundwater & Environmental Services, Inc.

6010 N Bailey Ave Suite #1
Amherst, NY 14226

T. 800.287.7857

Submitted March 21, 2023

Revised: March 29, 2024

Ms. Megan Kuczka
NYSDEC – Region 9
270 Michigan Ave.
Buffalo, NY 14203

Re: Emergent Contaminant Groundwater Sampling
NYSDEC Site No. 915145
Lehigh Industrial Park
31 South Street
Lackawanna, NY 14218

Dear Ms. Kuczka:

Groundwater & Environmental Services, Inc., (GES) has compiled the attached information for the New York State Department of Environmental Conservation (NYSDEC) regarding the Groundwater sampling that was conducted on September 12-13, 2022.

FIELD ACTIVITIES:

On September 12-13, 2022 GES personnel conducted groundwater sampling from two monitoring wells (MW-2 and MW-4) at the Lehigh Industrial Park (site). A site location map showing the locations of MW-2 and MW-4 is presented as **Figure 1**. The wells were sampled via low-flow techniques using a peristaltic pump, dedicated high density polyethylene (HDPE) tubing, and a water quality meter (YSI). Water quality and turbidity were monitored for stabilization with a YSI to determine when sample collection could begin. The sampling logs are presented in **Appendix A**. The requested laboratory analysis consisted of Per- and Polyfluorinated Alkyl Substances (PFAS) via method 537 modified, 1,4-Dioxane via 8270 Selected Ion Monitoring (SIM), Target Analyte List (TAL) metals and Polychlorinated biphenyl (PCB) via method 8082. All sample coolers were packed with ice and shipped under chain of custody to Con-Test, a Pace Analytical Laboratory (Con-Test) in East Longmeadow, Massachusetts by September 14, 2022. PFAS samples were stored in dedicated coolers, separate from the other samples. GES followed a strict emerging contaminants sampling protocol which included no eating or drinking onsite, or applying sunscreen or cosmetic products on the sampling day. Emerging contaminants protocol also require the sampler wear well laundered clothes without the use of fabric softeners. No Teflon containing materials, field notebooks or sharpie markers were permitted onsite.

RESULTS:

The analytical results were received from Con-Test on October 7, 2022. Due to a communication error regarding the chain of custody, MW-2 was analyzed twice for PCBs and 1,4-Dioxane and MW-4 was analyzed twice for all target compounds. Both results are reflected in **Table 1** and **Table 2**. The analytical data for PFAS was compared to the New York State Maximum Contaminant Levels (NYS MCLs) of which the draft values were issued in November 2022. The MCLs are set forth at 10 ng/L for both PFOA and PFOS, and at 1 µg/L for 1,4-dioxane. A complete analytical package is presented as **Appendix B**.

Analytical review indicated that groundwater quality standard exceedances for MW-2 were iron, magnesium and sodium. MW-4 had groundwater quality exceedances for beryllium, chromium, iron, lead, magnesium, manganese, nickel, and thallium. PCB-1260 was detected in exceedance of standards in both monitoring wells. The results of TAL metals and PCB's are presented in **Table 1**.

Several PFAS compounds were detected in MW-2 and MW-4. Two PFAS compounds exceeded newly established NYS drinking water standards released on July 30, 2020. The concentration of Perfluorooctanoic Acid (PFOA) was 37 nanograms per liter (ng/L) for the duplicate sample performed on MW-2 and 16 ng/L and 11 ng/L for MW-4, which was analyzed twice during the September 2022 sampling event as discussed above. The concentration of Perfluorooctanesulfonic Acid (PFOS) was 62 ng/L for the duplicate sample performed on MW-2 during the September 2022 sampling event. The respective drinking water standard for these analytes is 10 ng/L. 1,4 Dioxane was not detected in MW-2 and was detected below the standard of 1 microgram/liter (µg/L) in MW-4. The results of PFAS compounds and 1,4-Dioxane are displayed in **Table 2**.

An electronic data deliverable (EDD) from the analytical data was completed and submitted to the department on March 21, 2023. Results for analyses that were run twice are reflected in the EDD save for one analyte. Due to the way the lab entered the data electronically, only one value for PCB-1260 could be reflected in the EDD for MW-2. In this case, the higher value was considered reportable. A data usability report (DUSR) was performed on the analytical results by RemVēr in Colchester, Connecticut and received on January 4, 2023. The results indicated the data was acceptable and no samples or data were rejected as unusable arising from quality control (QC) failures. The report did however note several quality issues. The replicate pair performed poorly for many metals/metalloids and for PFAS. Three matrix spike and matrix spike duplicate runs were not within acceptable performance criteria and unreliable for metals, PFAS and 1,4-Dioxane. Internal standards for surrogates indicated high or low bias in three samples for 1,4-Dioxane and PFAS. Three method blanks analyzed for 1,4-Dioxane or metals indicated blank contamination. High or low biases were identified in three PFAS compounds due to results beyond control limits for laboratory control samples, calibration verifications, secondary ion transition monitoring or signal to noise ratio. Appropriate qualifiers were assigned by RemVēr based on these quality

issues and are represented in the EDD submitted. A complete DUSR report is presented in **Appendix C.**

If you have any questions or comments regarding the content of this report, please contact the undersigned at 800-287-7857 extension 4350.

Sincerely,

Jessica Paterson
Associate Environmental Scientist

Thomas Palmer
Sr. Project Manager

Attachments

Figure 1 – Site Location Map

Table 1 – TAL Metals and PCB Analytical Results

Table 2 – PFAS and 1,4-Dioxane Analytical Results

Appendix A – Well Sampling Logs

Appendix B – Analytical Data

Appendix C – DUSR Report

Figures

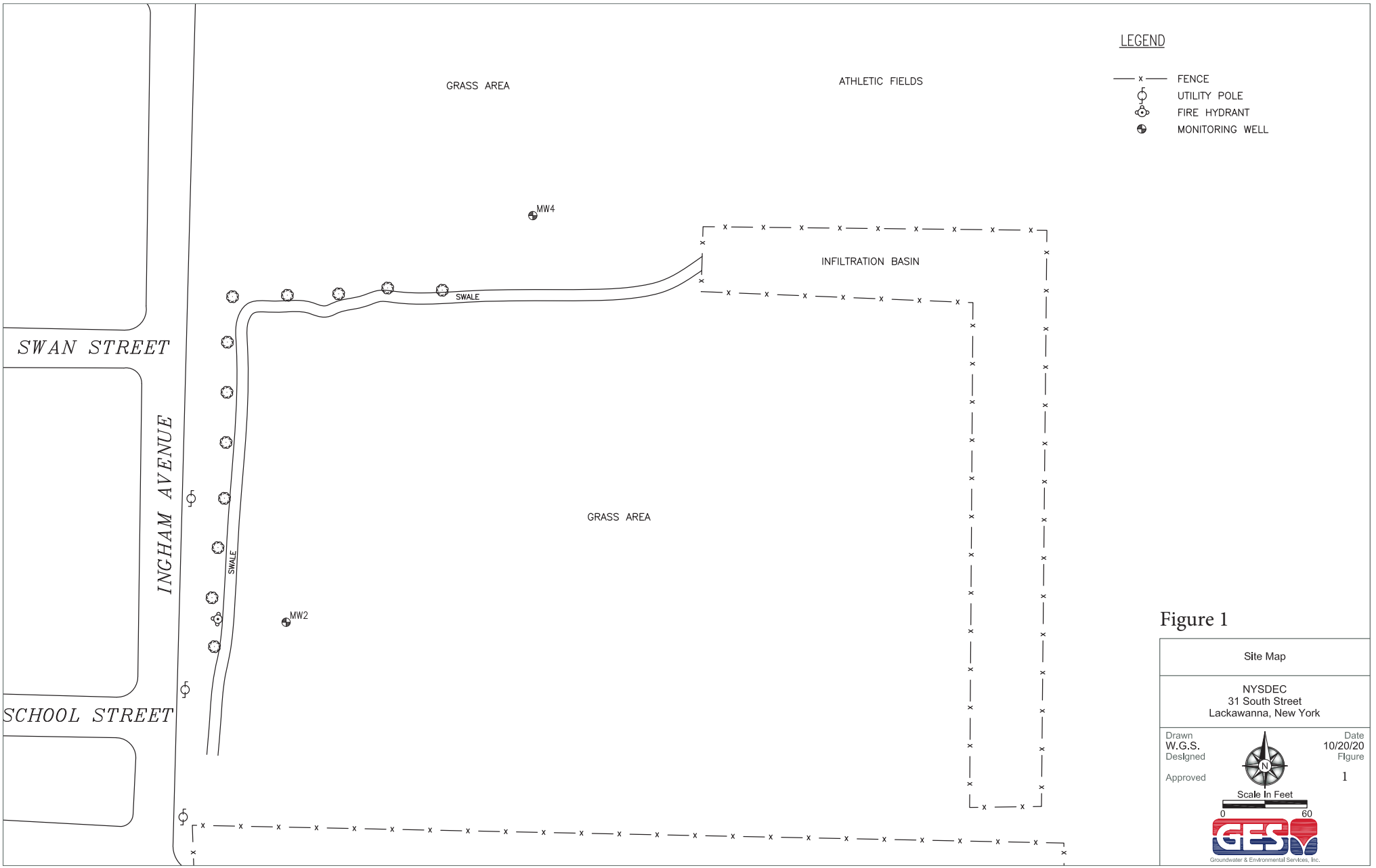

Figure 1

Site Map

NYSDEC
31 South Street
Lackawanna, New York

Drawn W.G.S.
Designed
Approved

Date 10/20/20
Figure 1

Scale In Feet
0 60

GES
Groundwater & Environmental Services, Inc.

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Tables

Lehigh Industrial Park
NYSDEC Site #915145
31 South Street
Lackawanna, NY

Table 1
TAL Metals and PCB Analytical Results

Monitoring Well		NYSDEC Part 703.5: Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations	MW-2	DUP-1 (MW-2)	MW-2	MW-2	MW-2 cont.	DUP-1 (MW-2)	MW-4	MW-4	DUP-1 (MW-4)	MW-4	MW-4
Sample Type			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Date			9/30/2020	9/30/2020	9/28/2021	9/12/2022	9/13/2022	9/13/2022	9/30/2020	9/28/2021	9/28/2021	9/12/2022	9/13/2022
Depth to Water (ft below TOC)			19.00	19.00	18.59	18.95	19.26	19.26	14.20	13.80	13.80	14.02	14.70
Top of Casing Elevation (ft)			592.81	592.81	592.81	592.81	592.81	592.81	592.61	592.61	592.61	592.61	592.61
Groundwater Elevation (ft)			573.81	573.81	574.22	573.86	573.55	573.55	578.41	578.81	578.81	578.59	577.91
CAS #	**Metals via 6010C (ug/L)**												
NA	ALUMINUM	NS	160 (J)	NA	200 (^+U)	NA	1,300 (J) (PM)	U (PM)	5,300	U	NA	21,000	550
NA	ANTIMONY	**3**	U	NA	U	NA	2.9 (J) (PM)	0.54 (J) (PM)	U	U	NA	U	U
7440-38-2	ARSENIC	**25**	U	NA	U	NA	1.4 (J) (PM)	U (PM)	U	U	NA	11	U
7440-39-3	BARIUM	**1,000**	67 (^)	NA	53	NA	66 (J) (PM)	51 (J) (PM)	110 (^)	76	NA	490	86
NA	BERYLLIUM	**3**	U	NA	U	NA	0.10 (J) (PM)	U (PM)	U	U	NA	**4.7 (J)(D)**	0.17 (J)
7440-43-9	CADMIUM	**5**	U	NA	U	NA	0.45 (J) (PM)	U (PM)	U	U	NA	1.7	0.032 (J)
NA	CALCIUM	NS	152,000	NA	144,000	NA	150,000	140,000	172,000	144,000	NA	730,000	160,000 (J)
7440-47-3	CHROMIUM, TOTAL	**50**	1.6 (J)	NA	U	NA	11	U	7.6	U	NA	**50**	1.4
NA	COBALT	NS	1.3 (J)	NA	U	NA	3.3 (J) (PM)	1.3 (J) (PM)	1.9 (J)	U	NA	29	1.0 (J)
NA	COPPER	**200**	2.7 (J)	NA	3.0 (J)	NA	22 (J) (PM)	2.9 (J) (PM)	21	2.3 (J)	NA	110	5.7
NA	IRON	**300**	**7,700**	NA	91	NA	**29,000 (J) (PM)**	**500 (J) (PM)**	**5,900**	85	NA	**47,000**	**1,000**
7439-92-1	LEAD	**25**	U	NA	U	NA	7.8 (J) (PM)	U (PM)	12	U	NA	**150 (D)**	2.1
NA	MAGNESIUM	**35,000**	**47,100**	NA	**42,900**	NA	**46,000**	**45,000**	**47,300**	**44,200**	NA	**110,000 (J)**	**45,000**
NA	MANGANESE	**300**	98	NA	5.6	NA	110 (J) (PM)	22 (J) (PM)	290	270	NA	**11,000 (D)**	140
7439-97-6	MERCURY	**0.7**	U	NA	U	NA	0.059 (J) (PM)	U (PM)	U	U	NA	0.04 (J)	U
NA	NICKEL	**100**	6 (J)	NA	4.9 (J)	NA	21 (J) (PM)	13 (J) (PM)	7.6 (J)	U	NA	**110**	9.3
NA	POTASSIUM	NS	5,200	NA	5,300	NA	5,700	5,500	6,300	4,000	NA	9,700	5,800
7782-49-2	SELENIUM	**10**	U (F1)	NA	U	NA	3.8 (J) (PM)	4.0 (J) (PM)	U	U	NA	2.0 (J)	U
7440-22-4	SILVER	**50**	U	NA	U	NA	0.13 (J) (PM)	U (PM)	U	U	NA	0.57	U
NA	SODIUM	**20,000**	**26,200**	NA	**21,900**	NA	**28,000**	**29,000**	9,500	8,500	NA	12,000	10,000
NA	THALLIUM	**0.5**	U	NA	U	NA	0.28 (J) (PM)	U (PM)	U	U	NA	**2.1**	0.25
NA	VANADIUM	NS	U	NA	U	NA	3.5 (J) (PM)	U (PM)	9.7	U	NA	40	U
NA	ZINC	**2,000**	29	NA	3.3 (J)	NA	210 (J) (PM)	4.4 (J) (PM)	31	2.7 (J)	NA	290	8.1 (J)
CAS #	**PCB's via method 8082 (ug/L)**												
NA	PCB - 1016	**0.09**	U	NA	UJ	U	U	U	U	UJ	NA	U	U
NA	PCB - 1221	**0.09**	U	NA	U	U	U	U	U	U	NA	U	U
NA	PCB - 1232	**0.09**	U	NA	U	U	U	U	U	U	NA	U	U
NA	PCB - 1242	**0.09**	U	NA	U	U	U	U	U	U	NA	U	U
NA	PCB - 1248	**0.09**	U	NA	U	U	U	U	U	U	NA	U	U
NA	PCB - 1254	**0.09**	U	NA	U	U	U	U	U	U	NA	U	U
NA	PCB - 1260	**0.09**	U	NA	**0.65 (J)**	**0.26***	**1.0***	**0.23**	U	**0.33 (J)**	NA	**2.3**	U
NA	PCB - 1262	**0.09**	U	NA	U	U	U	U	U	U	NA	U	U
NA	PCB - 1268	**0.09**	U	NA	U	U	U	U	U	U	NA	U	U

Notes:
*MW-2 was analyzed twice for PCBs. The EDD only reflects the higher value to avoid duplicates.
TAL = Target Analyte List
PCB = Polychlorinated biphenyl
TOC = top of casing
ug/L = micrograms per liter
ng/L = nanograms per liter
U = Compound was not detected at or above laboratory method detection limit (MDL)
J = Result is less than the reporting limit (RL) but greater than or equal to the MDL and the concentration is an approximate value
J- / J+ = sample likely to have a low bias / high bias
D = Sample analysis from dilution of original sample
R = Sample result rejected due to serious deficiency in ability to analyze sample and meet quality control criteria; the presence or absence of the analyte cannot be confirmed.
P = Use professional judgment based on data use. It usually has an "M" with it, which indicates that a manual check should be made if the data that are qualified with the "P" are important to the data user. "PM" also means a decision is necessary from the Project Manager (or a delegate) concerning the need for further review of the data.
PM = A manual review of the raw data is recommended to determine if the defect affects data use. This review should include consideration of potential affects that could result from using the "P" qualified data.
B = Compound found in blank and sample
G = The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
NA = Not analyzed
*USEPA Health Advisory Level for Drinking Water November 2016 (Not a regulatory standard)
NS=Not Specified by Part 703.5
F1 = MS and/or MSD recovery exceeds control limits
Part 703.5 PCB Limitation is Summation of all aloclors
^ = ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

Lehigh Industrial Park
NYSDEC Site #915145
31 South Street
Lackawanna, NY

Table 2
PFAS Analytical Results

Monitoring Well		NYSDEC Maximum Contaminant Levels (MCLs) for PFAS in Finished Drinking Water	NYSDEC Part 703.5: Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations	MW-2	DUP-1 (MW-2)	MW-2	MW-2	MW-2 cont.	DUP-1 (MW-2)	MW-4	MW-4	DUP-1 (MW-4)	MW-4	MW-4	Equip. Blank	Equip. Blank	Equip. Blank
Sample Type				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Date				9/30/2020	9/30/2020	9/28/2021	9/12/2022	9/13/2022	9/13/2022	9/30/2020	9/28/2021	9/28/2021	9/12/2022	9/13/2022	9/30/2020	9/28/2021	9/12/2022
Depth to Water (ft below TOC)				19.00	19.00	18.59	18.95	19.26	19.26	14.20	13.80	13.80	14.02	14.70	NA	NA	NA
Top of Casing Elevation (ft)				592.81	592.81	592.81	592.81	592.81	592.81	592.61	592.61	592.61	592.61	592.61	NA	NA	NA
Groundwater Elevation (ft)				573.81	573.81	574.22	573.86	573.55	573.55	578.41	578.81	578.81	578.59	578.81	NA	NA	NA
Grouping	**Fluorinated Alkyl Substances (ng/L)**																
Perfluoroalkyl carboxylates	Perfluorobutanoic Acid (PFBA)	NS	NS	35	34	58	1.7(J)	NA	13 (J)(PM)	U	1.3 (J)	1.2 (J)	3.1 (J)	2.3 (J)(PM)	U	U	2.8
	Perfluoropentanoic Acid (PFPeA)	NS	NS	21	21	50	2.7 (J)	NA	1.4 (J)(PM)	U	U	U	U(J)	3.6 (J)(PM)	U	U	5.0
	Perfluorohexanoic Acid (PFHxA)	NS	NS	22	21	39	3.1	NA	6.5 (J)(PM)	U	0.73 (J)	U	U	U (J)	U	U	5.1
	Perfluoroheptanoic Acid (PFHpA)	NS	NS	15	18	15	1.2 (J)	NA	6.1 (J)(PM)	0.42 (J)	1.1 (J)	1.1 (J)	1.9 (J)	1.4 (J)(PM)	U	U	2.3
	Perfluorooctanoic Acid (PFOA)	**10**	**10**	**81**	**66**	**42**	4.9(J)	NA	**37 (J)(PM)**	4.3	**13**	**12**	**16 (J)**	**11 (J)(PM)**	U	U	7.7
	Perfluorononanoic Acid (PFNA)	NS	NS	1.6 (J)	1.6 (J)	0.50 (J)	0.36(J)	NA	1.6 (J)(PM)	U	U	U	U (J)	U (J)	U	U	0.65 (J)
	Perfluorodecanoic Acid (PFDA)	NS	NS	U	U	U	U(J)	NA	U(J)	U	U	U	U (J)	U (J)	U	U	U
	Perfluoroundecanoic Acid (PFUnA)	NS	NS	U	U	U	U (J)	NA	U(J)	U	U	U	U (J)	U (J)	U	U	U
	Perfluorododecanoic Acid (PFDoA)	NS	NS	U (*)	U (*)	U	U	NA	U(J)	U (*)	U	U	U	U (J)	U (*)	U	U
	Perfluorotridecanoic Acid (PFTriA)	NS	NS	U	U	U	U	NA	U(J)	U	U	U	U	U (J)	U	U	U
	Perfluorotetradecanoic Acid (PFTeA)	NS	NS	U	U	U	U	NA	U(J)	U	U	U	U	U (J)	U	U	U(J)
Perfluoroalkyl sulfonates	Perfluorobutanesulfonic Acid (PFBS)	NS	NS	2.7	U (G)	1.6 (J)	1.8(J)	NA	3.7 (J)(PM)	0.73 (J)	1.6 (J)	1.5 (J)	1.9 (J)	3.3 (J)(PM)	U	U	2.9
	Perfluorohexanesulfonic Acid (PFHxS)	NS	NS	16	18	5.6	2.1	NA	2.7 (J)(PM)	U	1.9	1.7 (J)	U	U (J)	U	U	3.2
	Perfluoroheptanesulfonic Acid (PFHpS)	NS	NS	2.6	3.6	0.81 (J)	U (J)	NA	1.3 (J)(PM)	U	U	U	U (J)	U (J)	U	U	U
	Perfluorooctanesulfonic Acid (PFOS)	**10**	**10**	**82**	**71**	**27**	5.7	NA	**62 (J)(PM)**	1.4 (J)	4.7	4.3	8.5	4.2 (J)(PM)	U	0.32 (J)	9.7
	Perfluorodecanesulfonic Acid (PFDS)	NS	NS	U	U	U	U	NA	U(J)	U	U	U	U	U (J)	U	U	U
Perfluorooctane-sulfonamides	Perfluorooctane Sulfonamide (PFOSA)	NS	NS	U	U	U	U	NA	U(J)	U	U	U	U	U (J)	1.6 (J)	U	U
Perfluorooctane-sulfonamidoacetic acids	N-methyl Perfluorooctane Sulfonamidoacetic Acid (NMeFOSAA)	NS	NS	U	U	U	U(J)	NA	U(J)	U	U	U	U(J)	U(J)	U	U	U
	N-ethyl Perfluorooctane Sulfonamidoacetic Acid (NEtFOSSA)	NS	NS	U	U	U	U(J+)	NA	U(J+)	U	U	U	U(J+)	U(J)	U	U	U(J+)
Fluorinated Telomer Sulfonates	6:2 FTS	NS	NS	U	U	U	U(J)	NA	U(J)	U	U	U	U(J)	U(J-)	U	U	U
	8:2 FTS	NS	NS	U	U	U	U(J)	NA	U(J)	U	U	U	U(J)	2.8 (J)(PM)	U	U	U
Total FAS	500 parts per trillion	NS	**500**	278.9	254.2	239.9	23.56	NA	135.3	6.9	24.3	21.8	31.4	28.6	1.6	0.3	39.35
1,4 Dioxane (ug/L)		**1**	**1**	U	NA	U	U(PM)*	U(PM)*	U(PM)	U	U	NA	0.038 (J)(PM)	U (PM)	NA	NA	NA

Notes:
PFAS = Per- and Polyfluorinated Substances
TOC = top of casing
ug/L = micrograms per liter
ng/L = nanograms per liter
U = Compound was not detected at or above laboratory method detection limit (MDL)
J = Result is less than the reporting limit (RL) but greater than or equal to the MDL and the concentration is an approximate value
J- / J+ = sample likely to have a low bias / high bias
D = Sample analysis from dilution of original sample
R = Sample result rejected due to serious deficiency in ability to analyze sample and meet quality control criteria; the presence or absence of the analyte cannot be confirmed.
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PM = A manual review of the raw data is recommended to determine if the defect affects data use, as in "R" above.This review should include consideration of potential affects that could result from using the "P" qualified data.
NS = not specified by NYSDEC Regulations
B = Compound found in blank and sample
G = The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference

Appendix A - Well Sampling Logs

WELL SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **949325**

Project Name:	NYSDEC/Lackawanna/NY/SouthSt/31	Date:	9/12/2022
Project Address:	31 South Street, Lackawanna, NY	Sampler(s):	B.Delaney
Project #/Phase/Task/Org:	0901824/1109	Sampling Method	Low Flow

Well ID: **MW-2**
Well Diameter: **2"**
Initial Depth to Water (ft): **18.95**
Depth to Bottom (ft): **22.45**

Pump Type/Model: **Peristaltic Pump 22603**
Water Quality Meter Model/SN: **YSI Pro/Serial # 50633**
Date Meter Calibrated: **9/12/2022**

Well Volume Purged	Clock Time (24 Hour)	Depth to Water (ft)	Purge Rate (ml/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. (uS/cm or umhos/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1	1500	19.96	225		15.4	0.843	6.98	-70.90	1.01	4.65	clear to slightly cloudy
2	1505	20.45	225		15.1	0.838	6.97	-75.90	0.74	2.29	clear
3	1510	20.90	225		14.9	0.833	6.96	-63.10	0.75	3.17	some black flakes suspended in clear water
4	1515	21.42	225		14.9	0.836	6.95	77.80	0.65	2.06	clear
5											
6											

Comments: **Purge Start @ 1449 ; Sampled @ 1520 09/12 and 0820 09/13 ; Purged 2 gallons Bees in lid of stick up ; Well went dry while collecting PCB bottle ; Resumed sampling for TAL metals and PCBs on 9/13/22 DUP-1 collected at 0820 9/13, limited supply for PCBs dup sample**

WELL SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **949325**

Project Name:	NYSDEC/Lackawanna/NY/SouthSt/31	Date:	9/12/2022
Project Address:	31 South Street, Lackawanna, NY	Sampler(s):	B.Delaney
Project #/Phase/Task/Org:	0901824/1109	Sampling Method	Low Flow

Well ID: **MW-4**
Well Diameter: **2"**
Initial Depth to Water (ft): **14.02**
Depth to Bottom (ft): **16.85**

Pump Type/Model: **Peristaltic Pump 22603**
Water Quality Meter Model/SN: **YSI Pro/Serial # 50633**
Date Meter Calibrated: **9/12/2022**

Well Volume Purged	Clock Time (24 Hour)	Depth to Water (ft)	Purge Rate (ml/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. (uS/cm or umhos/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1	1230	14.50	150		17.3	0.843	6.67	94.60	1.45	29.37	slightly cloudy
2	1235	15.00	150		17.3	0.854	6.69	60.90	1.01	29.06	slightly cloudy
3	1240	15.40	150		17.8	0.867	6.71	60.50	0.88	7.62	clear to slightly cloudy
4	1245	15.80	150		17.6	0.866	6.71	60.90	0.82	6.55	clear to slightly cloudy
5	1250	15.90	150		17.4	0.865	6.72	68.90	0.77	25.33	clear to slightly cloudy
6											

Comments: **Purge Start @ 1215 ; Sampled @ 1255 9/12 and MS/MSD @ 1025 9/13 ; Purged 2 gallons**
Resumed sampling for MS/MSD on 9/13/22 due to well going dry previous day
Well went dry again so limited supply for 1,4-Dioxane and PCBs MS/MSD

Appendix B - Analytical Data

con-test®
A Pace Analytical® Laboratory

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

October 7, 2022

Thomas Palmer
NYDEC_GES - Williamsville, NY
415 Lawrence Bell Drive
Williamsville, NY 14221

Project Location: 31 South St, Lackawanna, NY
Client Job Number:
Project Number: 915145
Laboratory Work Order Number: 22I0695
PWSID# 949325

Enclosed are results of analyses for samples as received by the laboratory on September 14, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

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NYDEC_GES - Williamsville, NY
415 Lawrence Bell Drive
Williamsville, NY 14221
ATTN: Thomas Palmer

REPORT DATE: 10/7/2022

PURCHASE ORDER NUMBER: 145618

PROJECT NUMBER: 915145

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22I0695

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

PROJECT LOCATION: 31 South St, Lackawanna, NY

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-2	22I0695-01	Ground Water		SOP-454 PFAS	
				SW-846 8082A	
				SW-846 8270E	
MW-4	22I0695-02	Ground Water		SOP-454 PFAS	
				SW-846 6010D	
				SW-846 6020B	
				SW-846 7470A	
				SW-846 8082A	
				SW-846 8270E	
MW-2	22I0695-03	Ground Water		SW-846 6010D	
				SW-846 6020B	
				SW-846 7470A	
				SW-846 8082A	
				SW-846 8270E	
DUP-1	22I0695-04	Ground Water		SOP-454 PFAS	
				SW-846 6010D	
				SW-846 6020B	
				SW-846 7470A	
				SW-846 8082A	
				SW-846 8270E	
Equipment Blank	22I0695-05	Ground Water		SOP-454 PFAS	
MW-4	22I0695-06	Ground Water		SOP-454 PFAS	
				SW-846 6010D	
				SW-846 6020B	
				SW-846 7470A	
				SW-846 8082A	
				SW-846 8270E	

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CASE NARRATIVE SUMMARY

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

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Qualifications:

L-01

Laboratory fortified blank/laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.

Analyte & Samples(s) Qualified:

N-EtFOSAA
B317692-BS1

MS-22

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonic acid (6:2
22I0695-06[MW-4]

8:2 Fluorotelomersulfonic acid (8:2
B317999-MSD1

N-EtFOSAA
B317999-MSD1

N-MeFOSAA
B317999-MSD1

Perfluorobutanesulfonic acid (PFB
22I0695-06[MW-4]

Perfluorobutanoic acid (PFBA)
22I0695-06[MW-4]

Perfluorodecanoic acid (PFDA)
B317999-MSD1

Perfluoroheptanesulfonic acid (PFl
B317999-MSD1

Perfluoroheptanoic acid (PFHpA)
22I0695-06[MW-4], B317999-MSD1

Perfluorononanoic acid (PFNA)
B317999-MSD1

Perfluorooctanesulfonic acid (PFO
22I0695-06[MW-4], B317999-MS1

Perfluorooctanoic acid (PFOA)
22I0695-06[MW-4], B317999-MSD1

Perfluoropentanoic acid (PFPeA)
22I0695-06[MW-4]

Perfluoroundecanoic acid (PFUnA)
B317999-MSD1

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:

M2-6:2FTS
22I0695-02[MW-4], 22I0695-04[DUP-1]

M2-8:2FTS
22I0695-02[MW-4]

PF-20

Quantifing ion signal to noise ratio is <10. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluorobutanesulfonic acid (PFB
22I0695-04[DUP-1], 22I0695-06[MW-4]

PF-23

Qualifier ion ratio <50% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluorobutanesulfonic acid (PFB
22I0695-04[DUP-1]

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S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

M2-6:2FTS
B317692-BLK1, B317692-BS1, S077344-CCV2, S077344-CCV3, S077344-CCV4

M2-8:2FTS
B317999-MS1, S077344-CCV2, S077344-CCV3, S077344-CCV4

M2PFTA
22I0695-04[DUP-1], 22I0695-05[Equipment Blank]

M3HFPO-DA
22I0695-02[MW-4], 22I0695-04[DUP-1]

M5PFPeA
22I0695-04[DUP-1]

M8FOSA
22I0695-04[DUP-1]

MPFBA
22I0695-04[DUP-1]

MPFDoA
22I0695-04[DUP-1]

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

8:2 Fluorotelomersulfonic acid (8:2
22I0695-06[MW-4], S077428-CCV1

Nonafluoro-3,6-dioxaheptanoic aci
S077344-CCV1

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Hexafluoropropylene oxide dimer a
S077344-CCV3

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:

Hexafluoropropylene oxide dimer a
S077428-CCV4

SW-846 6010D

Qualifications:

MS-19

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

Analyte & Samples(s) Qualified:

Calcium
22I0695-06[MW-4], B317398-MS2, B317398-MSD2

Magnesium
22I0695-06[MW-4], B317398-MS2, B317398-MSD2

SW-846 8270E

Qualifications:

MS-23

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

1,4-Dioxane
22I0695-01[MW-2], 22I0695-03[MW-2], 22I0695-04[DUP-1], B317373-MS1

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R-06

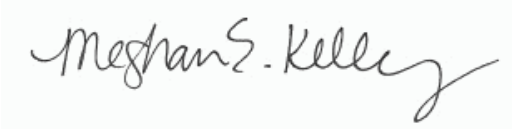
Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample.

Analyte & Samples(s) Qualified:

1,4-Dioxane

22I0695-06[MW-4], B317373-MS1

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.



Meghan E. Kelley
Reporting Specialist

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-2 Sampled: 9/12/2022 15:20

Sample ID: 22I0695-01

Sample Matrix: Ground Water

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.20	0.032	µg/L	1	MS-23	SW-846 8270E	9/16/22	9/22/22 9:55	SPF

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	21.0	15-110		9/22/22 9:55	

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Project Location: 31 South St, Lackawanna, NY | Sample Description: | Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-2 | Sampled: 9/12/2022 15:20

Sample ID: 22I0695-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	1.7	1.9	0.70	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorobutanesulfonic acid (PFBS)	1.8	1.9	0.27	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluoropentanoic acid (PFPeA)	2.7	1.9	0.37	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorohexanoic acid (PFHxA)	3.1	1.9	0.36	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	0.57	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorodecanoic acid (PFDA)	ND	1.9	0.46	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorododecanoic acid (PFDoA)	ND	1.9	0.42	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	0.89	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
N-EtFOSAA	ND	1.9	0.60	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
N-MeFOSAA	ND	1.9	0.72	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorotetradecanoic acid (PFTA)	ND	1.9	0.35	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	0.31	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorooctanesulfonamide (FOSA)	ND	1.9	0.40	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorohexanesulfonic acid (PFHxS)	2.1	1.9	0.32	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	0.35	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluoroundecanoic acid (PFUnA)	ND	1.9	0.35	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluoroheptanoic acid (PFHpA)	1.2	1.9	0.33	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorooctanoic acid (PFOA)	4.9	1.9	0.64	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorooctanesulfonic acid (PFOS)	5.7	1.9	0.57	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL
Perfluorononanoic acid (PFNA)	0.36	1.9	0.33	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 6:40	DRL

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-2 Sampled: 9/12/2022 15:20

Sample ID: 22I0695-01

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	0.052	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:15	TG
Aroclor-1221 [1]	ND	0.20	0.077	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:15	TG
Aroclor-1232 [1]	ND	0.20	0.071	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:15	TG
Aroclor-1242 [1]	ND	0.20	0.075	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:15	TG
Aroclor-1248 [1]	ND	0.20	0.087	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:15	TG
Aroclor-1254 [1]	ND	0.20	0.076	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:15	TG
Aroclor-1260 [2]	0.26	0.20	0.076	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:15	TG
Aroclor-1262 [1]	ND	0.20	0.062	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:15	TG
Aroclor-1268 [1]	ND	0.20	0.076	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:15	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	91.0	30-150		9/25/22 16:15
Decachlorobiphenyl [2]	97.0	30-150		9/25/22 16:15
Tetrachloro-m-xylene [1]	65.4	30-150		9/25/22 16:15
Tetrachloro-m-xylene [2]	65.3	30-150		9/25/22 16:15

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-4 Sampled: 9/12/2022 12:55

Sample ID: 22I0695-02

Sample Matrix: Ground Water

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	0.038	0.22	0.036	µg/L	1	J	SW-846 8270E	9/19/22	9/26/22 12:42	SPF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	25.6	15-110		9/26/22 12:42

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-4 Sampled: 9/12/2022 12:55

Sample ID: 22I0695-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	3.1	4.2	1.5	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorobutanesulfonic acid (PFBS)	1.9	4.2	0.59	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluoropentanoic acid (PFPeA)	ND	4.2	0.82	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorohexanoic acid (PFHxA)	ND	4.2	0.80	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.2	1.3	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorodecanoic acid (PFDA)	ND	4.2	1.0	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorododecanoic acid (PFDoA)	ND	4.2	0.92	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.2	2.0	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
N-EtFOSAA	ND	4.2	1.3	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
N-MeFOSAA	ND	4.2	1.6	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorotetradecanoic acid (PFTA)	ND	4.2	0.76	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorotridecanoic acid (PFTrDA)	ND	4.2	0.58	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorodecanesulfonic acid (PFDS)	ND	4.2	0.68	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorooctanesulfonamide (FOSA)	ND	4.2	0.87	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorohexanesulfonic acid (PFHxS)	ND	4.2	0.70	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	4.2	0.76	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluoroundecanoic acid (PFUnA)	ND	4.2	0.77	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluoroheptanoic acid (PFHpA)	1.9	4.2	0.72	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorooctanoic acid (PFOA)	16	4.2	1.4	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorooctanesulfonic acid (PFOS)	8.5	4.2	1.3	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL
Perfluorononanoic acid (PFNA)	ND	4.2	0.72	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:47	DRL

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-4 Sampled: 9/12/2022 12:55

Sample ID: 22I0695-02

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.27	0.072	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:33	TG
Aroclor-1221 [1]	ND	0.27	0.11	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:33	TG
Aroclor-1232 [1]	ND	0.27	0.099	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:33	TG
Aroclor-1242 [1]	ND	0.27	0.10	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:33	TG
Aroclor-1248 [1]	ND	0.27	0.12	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:33	TG
Aroclor-1254 [1]	ND	0.27	0.11	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:33	TG
Aroclor-1260 [1]	2.3	0.27	0.085	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:33	TG
Aroclor-1262 [1]	ND	0.27	0.087	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:33	TG
Aroclor-1268 [1]	ND	0.27	0.11	µg/L	1		SW-846 8082A	9/19/22	9/25/22 16:33	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	82.3	30-150		9/25/22 16:33
Decachlorobiphenyl [2]	87.1	30-150		9/25/22 16:33
Tetrachloro-m-xylene [1]	78.1	30-150		9/25/22 16:33
Tetrachloro-m-xylene [2]	74.6	30-150		9/25/22 16:33

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-4 Sampled: 9/12/2022 12:55

Sample ID: 22I0695-02

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aluminum	21	0.050	0.015	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:41	ATP
Antimony	ND	20	4.8	µg/L	20		SW-846 6020B	9/20/22	10/3/22 19:44	QNW
Arsenic	11	0.80	0.31	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:42	MJH
Barium	490	10	1.2	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:42	MJH
Beryllium	4.7	8.0	1.5	µg/L	20	J	SW-846 6020B	9/20/22	10/3/22 19:44	QNW
Cadmium	1.7	0.20	0.030	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:42	MJH
Calcium	730	0.50	0.11	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:41	ATP
Chromium	50	1.0	0.61	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:42	MJH
Cobalt	29	1.0	0.12	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:42	MJH
Copper	110	1.0	0.25	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:42	MJH
Iron	47	0.050	0.019	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:41	ATP
Lead	150	10	2.7	µg/L	20		SW-846 6020B	9/20/22	10/3/22 19:44	QNW
Magnesium	110	0.050	0.0095	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:41	ATP
Manganese	11000	200	41	µg/L	200		SW-846 6020B	9/20/22	10/4/22 15:55	QNW
Mercury	0.000040	0.00010	0.000040	mg/L	1	J	SW-846 7470A	9/21/22	9/21/22 13:28	ATP
Nickel	110	5.0	0.63	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:42	MJH
Potassium	9.7	2.0	0.30	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:41	ATP
Selenium	2.0	5.0	0.95	µg/L	1	J	SW-846 6020B	9/20/22	9/21/22 16:42	MJH
Silver	0.57	0.20	0.027	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:42	MJH
Sodium	12	2.0	0.53	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:41	ATP
Thallium	2.1	0.20	0.057	µg/L	1		SW-846 6020B	9/20/22	10/3/22 19:41	QNW
Vanadium	40	5.0	2.2	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:42	MJH
Zinc	290	10	1.5	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:42	MJH

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

Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-2 Sampled: 9/13/2022 08:20

Sample ID: 22I0695-03

Sample Matrix: Ground Water

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.20	0.033	µg/L	1	MS-23	SW-846 8270E	9/16/22	9/22/22 10:15	SPF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	23.3	15-110		9/22/22 10:15

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-2 Sampled: 9/13/2022 08:20

Sample ID: 22I0695-03

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	0.053	µg/L	1		SW-846 8082A	9/19/22	9/26/22 12:45	TG
Aroclor-1221 [1]	ND	0.20	0.080	µg/L	1		SW-846 8082A	9/19/22	9/26/22 12:45	TG
Aroclor-1232 [1]	ND	0.20	0.073	µg/L	1		SW-846 8082A	9/19/22	9/26/22 12:45	TG
Aroclor-1242 [1]	ND	0.20	0.077	µg/L	1		SW-846 8082A	9/19/22	9/26/22 12:45	TG
Aroclor-1248 [1]	ND	0.20	0.089	µg/L	1		SW-846 8082A	9/19/22	9/26/22 12:45	TG
Aroclor-1254 [1]	ND	0.20	0.079	µg/L	1		SW-846 8082A	9/19/22	9/26/22 12:45	TG
Aroclor-1260 [1]	1.0	0.20	0.063	µg/L	1		SW-846 8082A	9/19/22	9/26/22 12:45	TG
Aroclor-1262 [1]	ND	0.20	0.064	µg/L	1		SW-846 8082A	9/19/22	9/26/22 12:45	TG
Aroclor-1268 [1]	ND	0.20	0.078	µg/L	1		SW-846 8082A	9/19/22	9/26/22 12:45	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	83.5	30-150		9/26/22 12:45
Decachlorobiphenyl [2]	89.7	30-150		9/26/22 12:45
Tetrachloro-m-xylene [1]	54.3	30-150		9/26/22 12:45
Tetrachloro-m-xylene [2]	51.5	30-150		9/26/22 12:45

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-2 Sampled: 9/13/2022 08:20

Sample ID: 22I0695-03

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aluminum	1.3	0.050	0.015	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:49	ATP
Antimony	2.9	1.0	0.24	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Arsenic	1.4	0.80	0.31	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Barium	66	10	1.2	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Beryllium	0.10	0.40	0.076	µg/L	1	J	SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Cadmium	0.45	0.20	0.030	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Calcium	150	0.50	0.11	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:49	ATP
Chromium	11	1.0	0.61	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:45	MJH
Cobalt	3.3	1.0	0.12	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Copper	22	1.0	0.25	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Iron	29	0.050	0.019	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:49	ATP
Lead	7.8	0.50	0.13	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Magnesium	46	0.050	0.0095	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:49	ATP
Manganese	110	1.0	0.20	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Mercury	0.000059	0.00010	0.000040	mg/L	1	J	SW-846 7470A	9/20/22	9/20/22 14:49	ATP
Nickel	21	5.0	0.63	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Potassium	5.7	2.0	0.30	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:49	ATP
Selenium	3.8	5.0	0.95	µg/L	1	J	SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Silver	0.13	0.20	0.027	µg/L	1	J	SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Sodium	28	2.0	0.53	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:49	ATP
Thallium	0.28	0.20	0.057	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW
Vanadium	3.5	5.0	2.2	µg/L	1	J	SW-846 6020B	9/15/22	9/20/22 12:04	QNW
Zinc	210	10	1.5	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:35	QNW

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: DUP-1 Sampled: 9/12/2022 08:20

Sample ID: 22I0695-04

Sample Matrix: Ground Water

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.20	0.033	µg/L	1	MS-23	SW-846 8270E	9/16/22	9/22/22 10:35	SPF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	21.8	15-110		9/22/22 10:35

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Project Location: 31 South St, Lackawanna, NY | Sample Description: | Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: DUP-1 | Sampled: 9/12/2022 08:20

Sample ID: 22I0695-04

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	13	1.9	0.70	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorobutanesulfonic acid (PFBS)	3.7	1.9	0.26	ng/L	1	PF-20, PF-23	SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluoropentanoic acid (PFPeA)	1.4	1.9	0.37	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorohexanoic acid (PFHxA)	6.5	1.9	0.36	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	0.57	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorodecanoic acid (PFDA)	ND	1.9	0.46	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorododecanoic acid (PFDoA)	ND	1.9	0.42	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluoroheptanesulfonic acid (PFHpS)	1.3	1.9	0.88	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
N-EtFOSAA	ND	1.9	0.59	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
N-MeFOSAA	ND	1.9	0.71	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorotetradecanoic acid (PFTA)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	0.31	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorooctanesulfonamide (FOSA)	ND	1.9	0.40	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorohexanesulfonic acid (PFHxS)	2.7	1.9	0.32	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluoroundecanoic acid (PFUnA)	ND	1.9	0.35	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluoroheptanoic acid (PFHpA)	6.1	1.9	0.32	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorooctanoic acid (PFOA)	37	1.9	0.64	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorooctanesulfonic acid (PFOS)	62	1.9	0.57	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL
Perfluorononanoic acid (PFNA)	1.6	1.9	0.33	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 6:55	DRL

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: DUP-1 Sampled: 9/12/2022 08:20

Sample ID: 22I0695-04

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	0.053	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:09	TG
Aroclor-1221 [1]	ND	0.20	0.080	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:09	TG
Aroclor-1232 [1]	ND	0.20	0.073	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:09	TG
Aroclor-1242 [1]	ND	0.20	0.077	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:09	TG
Aroclor-1248 [1]	ND	0.20	0.089	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:09	TG
Aroclor-1254 [1]	ND	0.20	0.079	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:09	TG
Aroclor-1260 [2]	0.23	0.20	0.078	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:09	TG
Aroclor-1262 [1]	ND	0.20	0.064	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:09	TG
Aroclor-1268 [1]	ND	0.20	0.078	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:09	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	89.7	30-150		9/25/22 17:09
Decachlorobiphenyl [2]	95.8	30-150		9/25/22 17:09
Tetrachloro-m-xylene [1]	60.8	30-150		9/25/22 17:09
Tetrachloro-m-xylene [2]	60.1	30-150		9/25/22 17:09

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: DUP-1 Sampled: 9/12/2022 08:20

Sample ID: 22I0695-04

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aluminum	ND	0.050	0.015	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:57	ATP
Antimony	0.54	1.0	0.24	µg/L	1	J	SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Arsenic	ND	0.80	0.31	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Barium	51	10	1.2	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Beryllium	ND	0.40	0.076	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Cadmium	ND	0.20	0.030	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Calcium	140	0.50	0.11	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:57	ATP
Chromium	ND	1.0	0.61	µg/L	1		SW-846 6020B	9/20/22	9/21/22 16:48	MJH
Cobalt	1.3	1.0	0.12	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Copper	2.9	1.0	0.25	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Iron	0.50	0.050	0.019	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:57	ATP
Lead	ND	0.50	0.13	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Magnesium	45	0.050	0.0095	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:57	ATP
Manganese	22	1.0	0.20	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Mercury	ND	0.00010	0.000040	mg/L	1		SW-846 7470A	9/20/22	9/20/22 14:51	ATP
Nickel	13	5.0	0.63	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Potassium	5.5	2.0	0.30	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:57	ATP
Selenium	4.0	5.0	0.95	µg/L	1	J	SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Silver	ND	0.20	0.027	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Sodium	29	2.0	0.53	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:57	ATP
Thallium	ND	0.20	0.057	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:39	QNW
Vanadium	ND	5.0	2.2	µg/L	1		SW-846 6020B	9/15/22	9/20/22 12:07	QNW
Zinc	4.4	10	1.5	µg/L	1	J	SW-846 6020B	9/15/22	9/19/22 14:39	QNW

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Project Location: 31 South St, Lackawanna, NY | Sample Description: | Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: Equipment Blank | Sampled: 9/12/2022 12:10

Sample ID: 22I0695-05

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	2.8	1.9	0.69	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorobutanesulfonic acid (PFBS)	2.9	1.9	0.26	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluoropentanoic acid (PFPeA)	5.0	1.9	0.36	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorohexanoic acid (PFHxA)	5.1	1.9	0.36	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	0.57	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorodecanoic acid (PFDA)	ND	1.9	0.46	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorododecanoic acid (PFDoA)	ND	1.9	0.41	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	0.87	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
N-EtFOSAA	ND	1.9	0.59	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
N-MeFOSAA	ND	1.9	0.71	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorotetradecanoic acid (PFTA)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	0.30	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorooctanesulfonamide (FOSA)	ND	1.9	0.39	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorohexanesulfonic acid (PFHxS)	3.2	1.9	0.31	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluoroundecanoic acid (PFUnA)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluoroheptanoic acid (PFHpA)	2.3	1.9	0.32	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorooctanoic acid (PFOA)	7.7	1.9	0.63	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorooctanesulfonic acid (PFOS)	9.7	1.9	0.56	ng/L	1		SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL
Perfluorononanoic acid (PFNA)	0.65	1.9	0.32	ng/L	1	J	SOP-454 PFAS	9/26/22	10/1/22 7:02	DRL

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-4 Sampled: 9/13/2022 10:25

Sample ID: 22I0695-06

Sample Matrix: Ground Water

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.21	0.034	µg/L	1	R-06	SW-846 8270E	9/16/22	9/21/22 17:43	SPF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	24.4	15-110		9/21/22 17:43

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-4 Sampled: 9/13/2022 10:25

Sample ID: 22I0695-06

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	2.3	4.2	1.6	ng/L	1	MS-22, J	SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorobutanesulfonic acid (PFBS)	3.3	4.2	0.59	ng/L	1	MS-22, PF-20, J	SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluoropentanoic acid (PFPeA)	3.6	4.2	0.82	ng/L	1	MS-22, J	SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorohexanoic acid (PFHxA)	ND	4.2	0.81	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.2	1.3	ng/L	1	V-05	SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorodecanoic acid (PFDA)	ND	4.2	1.0	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorododecanoic acid (PFDoA)	ND	4.2	0.92	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.2	2.0	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
N-EtFOSAA	ND	4.2	1.3	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
N-MeFOSAA	ND	4.2	1.6	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorotetradecanoic acid (PFTA)	ND	4.2	0.77	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorotridecanoic acid (PFTrDA)	ND	4.2	0.58	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorodecanesulfonic acid (PFDS)	ND	4.2	0.68	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorooctanesulfonamide (FOSA)	ND	4.2	0.88	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorohexanesulfonic acid (PFHxS)	ND	4.2	0.71	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.8	4.2	0.76	ng/L	1	MS-22, J	SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluoroundecanoic acid (PFUnA)	ND	4.2	0.77	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluoroheptanoic acid (PFHpA)	1.4	4.2	0.72	ng/L	1	MS-22, J	SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorooctanoic acid (PFOA)	11	4.2	1.4	ng/L	1	MS-22	SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorooctanesulfonic acid (PFOS)	4.2	4.2	1.3	ng/L	1	MS-22	SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL
Perfluorononanoic acid (PFNA)	ND	4.2	0.72	ng/L	1		SOP-454 PFAS	9/27/22	10/1/22 18:33	DRL

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-4 Sampled: 9/13/2022 10:25

Sample ID: 22I0695-06

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	0.052	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:27	TG
Aroclor-1221 [1]	ND	0.20	0.078	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:27	TG
Aroclor-1232 [1]	ND	0.20	0.072	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:27	TG
Aroclor-1242 [1]	ND	0.20	0.075	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:27	TG
Aroclor-1248 [1]	ND	0.20	0.088	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:27	TG
Aroclor-1254 [1]	ND	0.20	0.077	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:27	TG
Aroclor-1260 [1]	ND	0.20	0.061	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:27	TG
Aroclor-1262 [1]	ND	0.20	0.063	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:27	TG
Aroclor-1268 [1]	ND	0.20	0.077	µg/L	1		SW-846 8082A	9/19/22	9/25/22 17:27	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	96.6	30-150		9/25/22 17:27
Decachlorobiphenyl [2]	103	30-150		9/25/22 17:27
Tetrachloro-m-xylene [1]	71.0	30-150		9/25/22 17:27
Tetrachloro-m-xylene [2]	70.0	30-150		9/25/22 17:27

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Project Location: 31 South St, Lackawanna, NY Sample Description: Work Order: 22I0695

Date Received: 9/14/2022

Field Sample #: MW-4 Sampled: 9/13/2022 10:25

Sample ID: 22I0695-06

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aluminum	0.55	0.050	0.015	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:03	ATP
Antimony	ND	1.0	0.24	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Arsenic	ND	0.80	0.31	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Barium	86	10	1.2	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Beryllium	0.17	0.40	0.076	µg/L	1	J	SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Cadmium	0.032	0.20	0.030	µg/L	1	J	SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Calcium	160	0.50	0.11	mg/L	1	MS-19	SW-846 6010D	9/16/22	9/19/22 0:03	ATP
Chromium	1.4	1.0	0.61	µg/L	1		SW-846 6020B	9/20/22	9/21/22 11:24	MJH
Cobalt	1.0	1.0	0.12	µg/L	1	J	SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Copper	5.7	1.0	0.25	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Iron	1.0	0.050	0.019	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:03	ATP
Lead	2.1	0.50	0.13	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Magnesium	45	0.050	0.0095	mg/L	1	MS-19	SW-846 6010D	9/16/22	9/19/22 0:03	ATP
Manganese	140	1.0	0.20	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Mercury	ND	0.00010	0.000040	mg/L	1		SW-846 7470A	9/20/22	9/20/22 14:53	ATP
Nickel	9.3	5.0	0.63	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Potassium	5.8	2.0	0.30	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:03	ATP
Selenium	ND	5.0	0.95	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Silver	ND	0.20	0.027	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Sodium	10	2.0	0.53	mg/L	1		SW-846 6010D	9/16/22	9/19/22 0:03	ATP
Thallium	0.25	0.20	0.057	µg/L	1		SW-846 6020B	9/15/22	9/19/22 14:29	QNW
Vanadium	ND	5.0	2.2	µg/L	1		SW-846 6020B	9/15/22	9/20/22 12:09	QNW
Zinc	8.1	10	1.5	µg/L	1	J	SW-846 6020B	9/15/22	9/19/22 14:29	QNW

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Sample Extraction Data

Prep Method: SOP 454-PFAAS **Analytical Method: SOP-454 PFAS**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-01 [MW-2]	B317692	265	1.00	09/26/22
22I0695-02 [MW-4]	B317692	120	1.00	09/26/22
22I0695-04 [DUP-1]	B317692	266	1.00	09/26/22
22I0695-05 [Equipment Blank]	B317692	269	1.00	09/26/22

Prep Method: SOP 454-PFAAS **Analytical Method: SOP-454 PFAS**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-06 [MW-4]	B317999	120	1.00	09/27/22

Prep Method: SW-846 3005A **Analytical Method: SW-846 6010D**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-02 [MW-4]	B317398	50.0	50.0	09/16/22
22I0695-03 [MW-2]	B317398	50.0	50.0	09/16/22
22I0695-04 [DUP-1]	B317398	50.0	50.0	09/16/22
22I0695-06 [MW-4]	B317398	50.0	50.0	09/16/22

Prep Method: SW-846 3005A **Analytical Method: SW-846 6020B**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-03 [MW-2]	B317317	50.0	50.0	09/15/22
22I0695-04 [DUP-1]	B317317	50.0	50.0	09/15/22
22I0695-06 [MW-4]	B317317	50.0	50.0	09/15/22

Prep Method: SW-846 3005A **Analytical Method: SW-846 6020B**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-02 [MW-4]	B317622	50.0	50.0	09/20/22
22I0695-03RE1 [MW-2]	B317622	50.0	50.0	09/20/22
22I0695-04RE1 [DUP-1]	B317622	50.0	50.0	09/20/22

Prep Method: SW-846 3005A **Analytical Method: SW-846 6020B**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-06RE1 [MW-4]	B317628	25.0	25.0	09/20/22

Prep Method: SW-846 7470A Prep **Analytical Method: SW-846 7470A**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-02 [MW-4]	B316769	10.0	10.0	09/21/22

Prep Method: SW-846 7470A Prep **Analytical Method: SW-846 7470A**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-03 [MW-2]	B317319	10.0	10.0	09/20/22

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Sample Extraction Data

Prep Method: SW-846 7470A Prep **Analytical Method: SW-846 7470A**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-04 [DUP-1]	B317319	10.0	10.0	09/20/22
22I0695-06 [MW-4]	B317319	10.0	10.0	09/20/22

Prep Method: SW-846 3510C **Analytical Method: SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-01 [MW-2]	B317558	1020	10.0	09/19/22
22I0695-02 [MW-4]	B317558	730	10.0	09/19/22
22I0695-03 [MW-2]	B317558	990	10.0	09/19/22
22I0695-04 [DUP-1]	B317558	990	10.0	09/19/22
22I0695-06 [MW-4]	B317558	1010	10.0	09/19/22

Prep Method: SW-846 3510C **Analytical Method: SW-846 8270E**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-01 [MW-2]	B317373	1020	1.00	09/16/22
22I0695-03 [MW-2]	B317373	985	1.00	09/16/22
22I0695-04 [DUP-1]	B317373	995	1.00	09/16/22
22I0695-06 [MW-4]	B317373	960	1.00	09/16/22

Prep Method: SW-846 3510C **Analytical Method: SW-846 8270E**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22I0695-02 [MW-4]	B317557	900	1.00	09/19/22

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QUALITY CONTROL

1,4-Dioxane by isotope dilution GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B317373 - SW-846 3510C										
Blank (B317373-BLK1)				Prepared: 09/16/22 Analyzed: 09/21/22						
1,4-Dioxane	ND	0.20	µg/L							
Surrogate: 1,4-Dioxane-d8	*2.26*		µg/L	10.0		22.6	15-110			
LCS (B317373-BS1)				Prepared: 09/16/22 Analyzed: 09/21/22						
1,4-Dioxane	10.5	0.20	µg/L	10.0		105	40-140			
Surrogate: 1,4-Dioxane-d8	*2.36*		µg/L	10.0		23.6	15-110			
LCS Dup (B317373-BSD1)				Prepared: 09/16/22 Analyzed: 09/21/22						
1,4-Dioxane	10.8	0.20	µg/L	10.0		108	40-140	2.72	30	
Surrogate: 1,4-Dioxane-d8	*2.44*		µg/L	10.0		24.4	15-110			
Matrix Spike (B317373-MS1)	**Source: 22I0695-06**			Prepared: 09/16/22 Analyzed: 09/21/22						
1,4-Dioxane	ND	0.20	µg/L	10.0	ND	*	40-140			MS-23, R-06
Surrogate: 1,4-Dioxane-d8	*10.3*		µg/L	10.0		103	15-110			
Matrix Spike Dup (B317373-MSD1)	**Source: 22I0695-06**			Prepared: 09/16/22 Analyzed: 09/22/22						
1,4-Dioxane	10.8	0.20	µg/L	10.0	ND	108	40-140		20	
Surrogate: 1,4-Dioxane-d8	*2.69*		µg/L	10.0		26.9	15-110			
Batch B317557 - SW-846 3510C										
Blank (B317557-BLK1)				Prepared: 09/19/22 Analyzed: 09/26/22						
1,4-Dioxane	0.041	0.20	µg/L							J
Surrogate: 1,4-Dioxane-d8	*2.61*		µg/L	10.0		26.1	15-110			
LCS (B317557-BS1)				Prepared: 09/19/22 Analyzed: 09/26/22						
1,4-Dioxane	9.75	0.20	µg/L	10.0		97.5	40-140			
Surrogate: 1,4-Dioxane-d8	*2.66*		µg/L	10.0		26.6	15-110			
LCS Dup (B317557-BSD1)				Prepared: 09/19/22 Analyzed: 09/26/22						
1,4-Dioxane	10.7	0.20	µg/L	10.0		107	40-140	9.22	30	
Surrogate: 1,4-Dioxane-d8	*2.38*		µg/L	10.0		23.8	15-110			

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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 B317692 - SOP 454-PFAAS											
Blank (B317692-BLK1)				Prepared: 09/26/22 Analyzed: 10/01/22							
Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L								
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L								
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L								
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L								
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L								
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L								
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L								
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L								
N-EtFOSAA	ND	1.9	ng/L								
N-MeFOSAA	ND	1.9	ng/L								
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L								
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L								
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L								
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L								
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L								
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L								
Perfluoroundecanoic acid (PFUnA)	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								
LCS (B317692-BS1)				Prepared: 09/26/22 Analyzed: 10/01/22							
Perfluorobutanoic acid (PFBA)	11.7	1.9	ng/L	9.57		122		73-129			
Perfluorobutanesulfonic acid (PFBS)	10.2	1.9	ng/L	8.47		121		72-130			
Perfluoropentanoic acid (PFPeA)	11.5	1.9	ng/L	9.57		121		72-129			
Perfluorohexanoic acid (PFHxA)	11.6	1.9	ng/L	9.57		121		72-129			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	11.6	1.9	ng/L	9.19		127		67-138			
Perfluorodecanoic acid (PFDA)	11.7	1.9	ng/L	9.57		122		71-129			
Perfluorododecanoic acid (PFDoA)	11.4	1.9	ng/L	9.57		120		72-134			
Perfluoroheptanesulfonic acid (PFHpS)	10.4	1.9	ng/L	9.14		114		69-134			
N-EtFOSAA	13.0	1.9	ng/L	9.57		**136**	*	61-135			L-01
N-MeFOSAA	12.6	1.9	ng/L	9.57		132		65-136			
Perfluorotetradecanoic acid (PFTA)	11.3	1.9	ng/L	9.57		118		71-132			
Perfluorotridecanoic acid (PFTrDA)	11.5	1.9	ng/L	9.57		120		65-144			
Perfluorodecanesulfonic acid (PFDS)	8.92	1.9	ng/L	9.24		96.6		53-142			
Perfluorooctanesulfonamide (FOSA)	11.8	1.9	ng/L	9.57		123		67-137			
Perfluorohexanesulfonic acid (PFHxS)	10.7	1.9	ng/L	8.76		123		68-131			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	11.7	1.9	ng/L	9.09		129		64-140			
Perfluoroundecanoic acid (PFUnA)	12.1	1.9	ng/L	9.57		126		69-133			
Perfluoroheptanoic acid (PFHpA)	11.6	1.9	ng/L	9.57		121		72-130			
Perfluorooctanoic acid (PFOA)	11.7	1.9	ng/L	9.57		122		71-133			
Perfluorooctanesulfonic acid (PFOS)	10.1	1.9	ng/L	8.85		114		65-140			
Perfluorononanoic acid (PFNA)	12.0	1.9	ng/L	9.57		125		69-130			

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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 B317999 - SOP 454-PFAAS										
Blank (B317999-BLK1)				Prepared: 09/27/22 Analyzed: 10/01/22						
Perfluorobutanoic acid (PFBA)	ND	1.8	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L							
N-EtFOSAA	ND	1.8	ng/L							
N-MeFOSAA	ND	1.8	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L							
Perfluoroundecanoic acid (PFUnA)	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							
LCS (B317999-BS1)				Prepared: 09/27/22 Analyzed: 10/01/22						
Perfluorobutanoic acid (PFBA)	11.2	1.9	ng/L	9.35		120	73-129			
Perfluorobutanesulfonic acid (PFBS)	10.1	1.9	ng/L	8.28		122	72-130			
Perfluoropentanoic acid (PFPeA)	11.1	1.9	ng/L	9.35		119	72-129			
Perfluorohexanoic acid (PFHxA)	11.3	1.9	ng/L	9.35		121	72-129			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.4	1.9	ng/L	8.98		116	67-138			
Perfluorodecanoic acid (PFDA)	11.2	1.9	ng/L	9.35		119	71-129			
Perfluorododecanoic acid (PFDoA)	10.5	1.9	ng/L	9.35		112	72-134			
Perfluoroheptanesulfonic acid (PFHpS)	11.5	1.9	ng/L	8.93		129	69-134			
N-EtFOSAA	12.7	1.9	ng/L	9.35		135	61-135			
N-MeFOSAA	12.4	1.9	ng/L	9.35		132	65-136			
Perfluorotetradecanoic acid (PFTA)	11.0	1.9	ng/L	9.35		118	71-132			
Perfluorotridecanoic acid (PFTrDA)	11.3	1.9	ng/L	9.35		121	65-144			
Perfluorodecanesulfonic acid (PFDS)	8.87	1.9	ng/L	9.03		98.3	53-142			
Perfluorooctanesulfonamide (FOSA)	11.5	1.9	ng/L	9.35		122	67-137			
Perfluorohexanesulfonic acid (PFHxS)	10.1	1.9	ng/L	8.56		118	68-131			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	11.4	1.9	ng/L	8.89		128	64-140			
Perfluoroundecanoic acid (PFUnA)	12.1	1.9	ng/L	9.35		130	69-133			
Perfluoroheptanoic acid (PFHpA)	11.4	1.9	ng/L	9.35		122	72-130			
Perfluorooctanoic acid (PFOA)	12.1	1.9	ng/L	9.35		129	71-133			
Perfluorooctanesulfonic acid (PFOS)	9.76	1.9	ng/L	8.65		113	65-140			
Perfluorononanoic acid (PFNA)	11.4	1.9	ng/L	9.35		122	69-130			

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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 B317999 - SOP 454-PFAAS											
Matrix Spike (B317999-MS1)	**Source: 22I0695-06**			Prepared: 09/27/22 Analyzed: 10/01/22							
Perfluorobutanoic acid (PFBA)	24.4	4.1	ng/L	20.5	2.29	108		73-129			
Perfluorobutanesulfonic acid (PFBS)	23.2	4.1	ng/L	18.2	3.30	110		72-130			
Perfluoropentanoic acid (PFPeA)	21.0	4.1	ng/L	20.5	3.57	85.0		72-129			
Perfluorohexanoic acid (PFHxA)	22.9	4.1	ng/L	20.5	ND	112		72-129			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	21.8	4.1	ng/L	19.7	ND	110		67-138			
Perfluorodecanoic acid (PFDA)	23.3	4.1	ng/L	20.5	ND	114		71-129			
Perfluorododecanoic acid (PFDoA)	23.1	4.1	ng/L	20.5	ND	112		72-134			
Perfluoroheptanesulfonic acid (PFHpS)	22.9	4.1	ng/L	19.6	ND	117		69-134			
N-EtFOSAA	27.5	4.1	ng/L	20.5	ND	134		61-135			
N-MeFOSAA	26.0	4.1	ng/L	20.5	ND	127		65-136			
Perfluorotetradecanoic acid (PFTA)	23.2	4.1	ng/L	20.5	ND	113		71-132			
Perfluorotridecanoic acid (PFTrDA)	24.7	4.1	ng/L	20.5	ND	120		65-144			
Perfluorodecanesulfonic acid (PFDS)	19.8	4.1	ng/L	19.8	ND	100		53-142			
Perfluorooctanesulfonamide (FOSA)	24.4	4.1	ng/L	20.5	ND	119		67-137			
Perfluorohexanesulfonic acid (PFHxS)	21.2	4.1	ng/L	18.8	ND	113		68-131			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	28.1	4.1	ng/L	19.5	2.84	129		64-140			
Perfluoroundecanoic acid (PFUnA)	25.4	4.1	ng/L	20.5	ND	124		69-133			
Perfluoroheptanoic acid (PFHpA)	26.6	4.1	ng/L	20.5	1.36	123		72-130			
Perfluorooctanoic acid (PFOA)	36.4	4.1	ng/L	20.5	10.7	125		71-133			
Perfluorooctanesulfonic acid (PFOS)	31.1	4.1	ng/L	19.0	4.21	**141**	*	65-140			MS-22
Perfluorononanoic acid (PFNA)	25.5	4.1	ng/L	20.5	ND	124		69-130			
Matrix Spike Dup (B317999-MSD1)	**Source: 22I0695-06**			Prepared: 09/27/22 Analyzed: 10/01/22							
Perfluorobutanoic acid (PFBA)	26.6	4.2	ng/L	20.9	2.29	116		73-129	8.56	30	
Perfluorobutanesulfonic acid (PFBS)	25.1	4.2	ng/L	18.5	3.30	118		72-130	7.86	30	
Perfluoropentanoic acid (PFPeA)	24.4	4.2	ng/L	20.9	3.57	99.7		72-129	14.9	30	
Perfluorohexanoic acid (PFHxA)	26.0	4.2	ng/L	20.9	ND	124		72-129	12.6	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	27.9	4.2	ng/L	20.1	ND	**139**	*	67-138	24.6	30	MS-22
Perfluorodecanoic acid (PFDA)	27.9	4.2	ng/L	20.9	ND	**133**	*	71-129	17.8	30	MS-22
Perfluorododecanoic acid (PFDoA)	26.9	4.2	ng/L	20.9	ND	129		72-134	15.4	30	
Perfluoroheptanesulfonic acid (PFHpS)	27.1	4.2	ng/L	20.0	ND	**136**	*	69-134	16.6	30	MS-22
N-EtFOSAA	29.0	4.2	ng/L	20.9	ND	**139**	*	61-135	5.11	30	MS-22
N-MeFOSAA	29.5	4.2	ng/L	20.9	ND	**141**	*	65-136	12.7	30	MS-22
Perfluorotetradecanoic acid (PFTA)	26.3	4.2	ng/L	20.9	ND	126		71-132	12.5	30	
Perfluorotridecanoic acid (PFTrDA)	28.8	4.2	ng/L	20.9	ND	138		65-144	15.7	30	
Perfluorodecanesulfonic acid (PFDS)	22.6	4.2	ng/L	20.2	ND	112		53-142	13.3	30	
Perfluorooctanesulfonamide (FOSA)	28.3	4.2	ng/L	20.9	ND	135		67-137	14.6	30	
Perfluorohexanesulfonic acid (PFHxS)	24.7	4.2	ng/L	19.1	ND	129		68-131	15.1	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	28.2	4.2	ng/L	19.9	2.84	128		64-140	0.330	30	
Perfluoroundecanoic acid (PFUnA)	29.2	4.2	ng/L	20.9	ND	**140**	*	69-133	14.0	30	MS-22
Perfluoroheptanoic acid (PFHpA)	29.7	4.2	ng/L	20.9	1.36	**136**	*	72-130	10.9	30	MS-22
Perfluorooctanoic acid (PFOA)	44.1	4.2	ng/L	20.9	10.7	**160**	*	71-133	19.2	30	MS-22
Perfluorooctanesulfonic acid (PFOS)	31.4	4.2	ng/L	19.3	4.21	140		65-140	0.933	30	
Perfluorononanoic acid (PFNA)	30.9	4.2	ng/L	20.9	ND	**148**	*	69-130	19.2	30	MS-22

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B317558 - SW-846 3510C										
Blank (B317558-BLK1)				Prepared: 09/19/22 Analyzed: 09/25/22						
Aroclor-1016	ND	0.20	µg/L							
Aroclor-1016 [2C]	ND	0.20	µg/L							
Aroclor-1221	ND	0.20	µg/L							
Aroclor-1221 [2C]	ND	0.20	µg/L							
Aroclor-1232	ND	0.20	µg/L							
Aroclor-1232 [2C]	ND	0.20	µg/L							
Aroclor-1242	ND	0.20	µg/L							
Aroclor-1242 [2C]	ND	0.20	µg/L							
Aroclor-1248	ND	0.20	µg/L							
Aroclor-1248 [2C]	ND	0.20	µg/L							
Aroclor-1254	ND	0.20	µg/L							
Aroclor-1254 [2C]	ND	0.20	µg/L							
Aroclor-1260	ND	0.20	µg/L							
Aroclor-1260 [2C]	ND	0.20	µg/L							
Aroclor-1262	ND	0.20	µg/L							
Aroclor-1262 [2C]	ND	0.20	µg/L							
Aroclor-1268	ND	0.20	µg/L							
Aroclor-1268 [2C]	ND	0.20	µg/L							
Surrogate: Decachlorobiphenyl	*2.03*		µg/L	2.00		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.15*		µg/L	2.00		107	30-150			
Surrogate: Tetrachloro-m-xylene	*1.35*		µg/L	2.00		67.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.31*		µg/L	2.00		65.7	30-150			
LCS (B317558-BS1)				Prepared: 09/19/22 Analyzed: 09/25/22						
Aroclor-1016	0.37	0.20	µg/L	0.500		73.6	40-140			
Aroclor-1016 [2C]	0.40	0.20	µg/L	0.500		80.9	40-140			
Aroclor-1260	0.40	0.20	µg/L	0.500		80.1	40-140			
Aroclor-1260 [2C]	0.42	0.20	µg/L	0.500		84.0	40-140			
Surrogate: Decachlorobiphenyl	*2.03*		µg/L	2.00		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.15*		µg/L	2.00		107	30-150			
Surrogate: Tetrachloro-m-xylene	*1.29*		µg/L	2.00		64.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.27*		µg/L	2.00		63.3	30-150			
LCS Dup (B317558-BSD1)				Prepared: 09/19/22 Analyzed: 09/25/22						
Aroclor-1016	0.40	0.20	µg/L	0.500		80.1	40-140	8.45	20	
Aroclor-1016 [2C]	0.42	0.20	µg/L	0.500		84.9	40-140	4.84	20	
Aroclor-1260	0.43	0.20	µg/L	0.500		86.2	40-140	7.39	20	
Aroclor-1260 [2C]	0.45	0.20	µg/L	0.500		89.5	40-140	6.35	20	
Surrogate: Decachlorobiphenyl	*2.16*		µg/L	2.00		108	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.27*		µg/L	2.00		113	30-150			
Surrogate: Tetrachloro-m-xylene	*1.39*		µg/L	2.00		69.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.37*		µg/L	2.00		68.3	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B317558 - SW-846 3510C										
Matrix Spike (B317558-MS1)	**Source: 22I0695-06**			Prepared: 09/19/22 Analyzed: 09/25/22						
Aroclor-1016	0.43	0.20	µg/L	0.500	ND	85.5	40-140			
Aroclor-1016 [2C]	0.46	0.20	µg/L	0.500	ND	91.7	40-140			
Aroclor-1260	0.44	0.20	µg/L	0.500	ND	88.9	40-140			
Aroclor-1260 [2C]	0.48	0.20	µg/L	0.500	ND	96.1	40-140			
Surrogate: Decachlorobiphenyl	*2.17*		µg/L	2.00		109	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.35*		µg/L	2.00		118	30-150			
Surrogate: Tetrachloro-m-xylene	*1.60*		µg/L	2.00		80.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.59*		µg/L	2.00		79.4	30-150			
Matrix Spike Dup (B317558-MSD1)	**Source: 22I0695-06**			Prepared: 09/19/22 Analyzed: 09/25/22						
Aroclor-1016	0.44	0.20	µg/L	0.500	ND	88.3	40-140	3.17	50	
Aroclor-1016 [2C]	0.47	0.20	µg/L	0.500	ND	94.9	40-140	3.43	50	
Aroclor-1260	0.52	0.20	µg/L	0.500	ND	103	40-140	15.0	50	
Aroclor-1260 [2C]	0.55	0.20	µg/L	0.500	ND	111	40-140	14.3	50	
Surrogate: Decachlorobiphenyl	*2.18*		µg/L	2.00		109	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.35*		µg/L	2.00		118	30-150			
Surrogate: Tetrachloro-m-xylene	*1.59*		µg/L	2.00		79.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.58*		µg/L	2.00		79.1	30-150			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B316769 - SW-846 7470A Prep										
Blank (B316769-BLK1)				Prepared & Analyzed: 09/21/22						
Mercury	ND	0.00010	mg/L							
LCS (B316769-BS1)				Prepared & Analyzed: 09/21/22						
Mercury	0.00457	0.00010	mg/L	0.00402		114	80-120			
LCS Dup (B316769-BSD1)				Prepared & Analyzed: 09/21/22						
Mercury	0.00403	0.00010	mg/L	0.00402		100	80-120	12.7	20	
Batch B317317 - SW-846 3005A										
Blank (B317317-BLK1)				Prepared: 09/15/22 Analyzed: 09/19/22						
Antimony	ND	1.0	µg/L							
Arsenic	ND	0.80	µg/L							
Barium	ND	10	µg/L							
Beryllium	ND	0.40	µg/L							
Cadmium	ND	0.20	µg/L							
Cobalt	ND	1.0	µg/L							
Copper	ND	1.0	µg/L							
Lead	ND	0.50	µg/L							
Manganese	0.26	1.0	µg/L							J
Nickel	ND	5.0	µg/L							
Selenium	ND	5.0	µg/L							
Silver	ND	0.20	µg/L							
Thallium	ND	0.20	µg/L							
Vanadium	ND	5.0	µg/L							
Zinc	1.8	10	µg/L							J
LCS (B317317-BS1)				Prepared: 09/15/22 Analyzed: 09/19/22						
Antimony	558	10	µg/L	500		112	80-120			
Arsenic	541	8.0	µg/L	500		108	80-120			
Barium	546	100	µg/L	500		109	80-120			
Beryllium	530	4.0	µg/L	500		106	80-120			
Cadmium	543	2.0	µg/L	500		109	80-120			
Cobalt	509	10	µg/L	500		102	80-120			
Copper	1020	10	µg/L	1000		102	80-120			
Lead	521	5.0	µg/L	500		104	80-120			
Manganese	512	10	µg/L	500		102	80-120			
Nickel	500	50	µg/L	500		100	80-120			
Selenium	516	50	µg/L	500		103	80-120			
Silver	518	2.0	µg/L	500		104	80-120			
Thallium	514	2.0	µg/L	500		103	80-120			
Vanadium	506	50	µg/L	500		101	80-120			
Zinc	1010	100	µg/L	1000		101	80-120			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B317317 - SW-846 3005A										
LCS Dup (B317317-BSD1)				Prepared: 09/15/22 Analyzed: 09/19/22						
Antimony	548	10	µg/L	500		110	80-120	1.72	20	
Arsenic	543	8.0	µg/L	500		109	80-120	0.312	20	
Barium	539	100	µg/L	500		108	80-120	1.30	20	
Beryllium	525	4.0	µg/L	500		105	80-120	0.872	20	
Cadmium	539	2.0	µg/L	500		108	80-120	0.784	20	
Cobalt	508	10	µg/L	500		102	80-120	0.249	20	
Copper	1030	10	µg/L	1000		103	80-120	1.36	20	
Lead	525	5.0	µg/L	500		105	80-120	0.727	20	
Manganese	513	10	µg/L	500		103	80-120	0.0370	20	
Nickel	502	50	µg/L	500		100	80-120	0.330	20	
Selenium	517	50	µg/L	500		103	80-120	0.178	20	
Silver	517	2.0	µg/L	500		103	80-120	0.115	20	
Thallium	516	2.0	µg/L	500		103	80-120	0.289	20	
Vanadium	508	50	µg/L	500		102	80-120	0.453	20	
Zinc	1020	100	µg/L	1000		102	80-120	0.952	20	
Matrix Spike (B317317-MS1)		**Source: 22I0695-06**		Prepared: 09/15/22 Analyzed: 09/19/22						
Antimony	547	10	µg/L	500	ND	109	75-125			
Arsenic	534	8.0	µg/L	500	ND	107	75-125			
Barium	623	100	µg/L	500	86.1	107	75-125			
Beryllium	520	4.0	µg/L	500	ND	104	75-125			
Cadmium	536	2.0	µg/L	500	ND	107	75-125			
Cobalt	520	10	µg/L	500	ND	104	75-125			
Copper	1010	10	µg/L	1000	5.73	100	75-125			
Lead	526	5.0	µg/L	500	2.06	105	75-125			
Manganese	649	10	µg/L	500	136	103	75-125			
Nickel	512	50	µg/L	500	9.33	101	75-125			
Selenium	512	50	µg/L	500	ND	102	75-125			
Silver	506	2.0	µg/L	500	ND	101	75-125			
Thallium	523	2.0	µg/L	500	ND	105	75-125			
Zinc	1010	100	µg/L	1000	ND	101	75-125			
Matrix Spike Dup (B317317-MSD1)		**Source: 22I0695-06**		Prepared: 09/15/22 Analyzed: 09/19/22						
Antimony	543	10	µg/L	500	ND	109	75-125	0.828	20	
Arsenic	527	8.0	µg/L	500	ND	105	75-125	1.20	20	
Barium	618	100	µg/L	500	86.1	106	75-125	0.943	20	
Beryllium	521	4.0	µg/L	500	ND	104	75-125	0.0919	20	
Cadmium	533	2.0	µg/L	500	ND	107	75-125	0.527	20	
Cobalt	518	10	µg/L	500	ND	104	75-125	0.351	20	
Copper	1010	10	µg/L	1000	5.73	100	75-125	0.192	20	
Lead	528	5.0	µg/L	500	2.06	105	75-125	0.355	20	
Manganese	646	10	µg/L	500	136	102	75-125	0.356	20	
Nickel	513	50	µg/L	500	9.33	101	75-125	0.240	20	
Selenium	509	50	µg/L	500	ND	102	75-125	0.435	20	
Silver	501	2.0	µg/L	500	ND	100	75-125	0.840	20	
Thallium	521	2.0	µg/L	500	ND	104	75-125	0.404	20	
Zinc	1010	100	µg/L	1000	ND	101	75-125	0.154	20	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B317319 - SW-846 7470A Prep										
Blank (B317319-BLK1)				Prepared & Analyzed: 09/20/22						
Mercury	ND	0.00010	mg/L							
LCS (B317319-BS1)				Prepared & Analyzed: 09/20/22						
Mercury	0.00409	0.00010	mg/L	0.00402		102	80-120			
LCS Dup (B317319-BSD1)				Prepared & Analyzed: 09/20/22						
Mercury	0.00406	0.00010	mg/L	0.00402		101	80-120	0.776	20	
Matrix Spike (B317319-MS2)		**Source: 22I0695-06**		Prepared & Analyzed: 09/20/22						
Mercury	0.00422	0.00010	mg/L	0.00402	ND	105	75-125			
Matrix Spike Dup (B317319-MSD2)		**Source: 22I0695-06**		Prepared & Analyzed: 09/20/22						
Mercury	0.00436	0.00010	mg/L	0.00402	ND	108	75-125	3.08	20	
Batch B317398 - SW-846 3005A										
Blank (B317398-BLK1)				Prepared: 09/16/22 Analyzed: 09/18/22						
Aluminum	ND	0.050	mg/L							
Calcium	ND	0.50	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.050	mg/L							
Potassium	ND	2.0	mg/L							
Blank (B317398-BLK2)				Prepared: 09/16/22 Analyzed: 10/06/22						
Sodium	ND	2.0	mg/L							
LCS (B317398-BS1)				Prepared: 09/16/22 Analyzed: 09/18/22						
Aluminum	0.483	0.050	mg/L	0.500		96.5	80-120			
Calcium	4.12	0.50	mg/L	4.00		103	80-120			
Iron	4.12	0.050	mg/L	4.00		103	80-120			
Magnesium	4.07	0.050	mg/L	4.00		102	80-120			
Potassium	4.23	2.0	mg/L	4.00		106	80-120			
LCS (B317398-BS2)				Prepared: 09/16/22 Analyzed: 10/06/22						
Sodium	4.04	2.0	mg/L	4.00		101	80-120			
LCS Dup (B317398-BSD1)				Prepared: 09/16/22 Analyzed: 09/18/22						
Aluminum	0.496	0.050	mg/L	0.500		99.2	80-120	2.74	20	
Calcium	4.22	0.50	mg/L	4.00		106	80-120	2.38	20	
Iron	4.23	0.050	mg/L	4.00		106	80-120	2.47	20	
Magnesium	4.17	0.050	mg/L	4.00		104	80-120	2.59	20	
Potassium	4.33	2.0	mg/L	4.00		108	80-120	2.48	20	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B317398 - SW-846 3005A											
LCS Dup (B317398-BSD2)				Prepared: 09/16/22 Analyzed: 10/06/22							
Sodium	4.11	2.0	mg/L	4.00		103		80-120	1.63	20	
Matrix Spike (B317398-MS2)		**Source: 22I0695-06**		Prepared: 09/16/22 Analyzed: 09/18/22							
Aluminum	1.17	0.050	mg/L	0.500	0.553	123		75-125			
Calcium	170	0.50	mg/L	4.00	162	**187**	*	75-125			MS-19
Iron	5.10	0.050	mg/L	4.00	0.995	103		75-125			
Magnesium	50.0	0.050	mg/L	4.00	44.9	**126**	*	75-125			MS-19
Potassium	10.2	2.0	mg/L	4.00	5.76	112		75-125			
Matrix Spike Dup (B317398-MSD2)		**Source: 22I0695-06**		Prepared: 09/16/22 Analyzed: 09/18/22							
Aluminum	1.12	0.050	mg/L	0.500	0.553	113		75-125	4.76	20	
Calcium	168	0.50	mg/L	4.00	162	**149**	*	75-125	0.882	20	MS-19
Iron	5.08	0.050	mg/L	4.00	0.995	102		75-125	0.463	20	
Magnesium	49.5	0.050	mg/L	4.00	44.9	114		75-125	1.01	20	MS-19
Potassium	10.0	2.0	mg/L	4.00	5.76	107		75-125	2.17	20	
Batch B317622 - SW-846 3005A											
Blank (B317622-BLK1)				Prepared: 09/20/22 Analyzed: 10/03/22							
Antimony	ND	1.0	µg/L								
Arsenic	ND	0.80	µg/L								
Barium	ND	10	µg/L								
Beryllium	ND	0.40	µg/L								
Cadmium	ND	0.20	µg/L								
Chromium	ND	1.0	µg/L								
Cobalt	ND	1.0	µg/L								
Copper	0.53	1.0	µg/L								J
Lead	ND	0.50	µg/L								
Manganese	0.26	1.0	µg/L								J
Nickel	ND	5.0	µg/L								
Selenium	ND	5.0	µg/L								
Silver	ND	0.20	µg/L								
Thallium	ND	0.20	µg/L								
Vanadium	ND	5.0	µg/L								
Zinc	2.2	10	µg/L								J
LCS (B317622-BS1)				Prepared: 09/20/22 Analyzed: 10/03/22							
Antimony	554	10	µg/L	500		111		80-120			
Arsenic	530	8.0	µg/L	500		106		80-120			
Barium	493	100	µg/L	500		98.6		80-120			
Beryllium	566	4.0	µg/L	500		113		80-120			
Cadmium	537	2.0	µg/L	500		107		80-120			
Chromium	515	10	µg/L	500		103		80-120			
Cobalt	494	10	µg/L	500		98.9		80-120			
Copper	971	10	µg/L	1000		97.1		80-120			
Lead	571	5.0	µg/L	500		114		80-120			
Manganese	509	10	µg/L	500		102		80-120			
Nickel	560	50	µg/L	500		112		80-120			
Selenium	499	50	µg/L	500		99.8		80-120			
Silver	524	2.0	µg/L	500		105		80-120			
Thallium	564	2.0	µg/L	500		113		80-120			
Vanadium	520	50	µg/L	500		104		80-120			
Zinc	1110	100	µg/L	1000		111		80-120			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B317622 - SW-846 3005A										
LCS Dup (B317622-BSD1)				Prepared: 09/20/22 Analyzed: 10/03/22						
Antimony	562	10	µg/L	500		112	80-120	1.36	20	
Arsenic	534	8.0	µg/L	500		107	80-120	0.621	20	
Barium	499	100	µg/L	500		99.7	80-120	1.14	20	
Beryllium	563	4.0	µg/L	500		113	80-120	0.425	20	
Cadmium	544	2.0	µg/L	500		109	80-120	1.29	20	
Chromium	516	10	µg/L	500		103	80-120	0.0861	20	
Cobalt	496	10	µg/L	500		99.1	80-120	0.265	20	
Copper	970	10	µg/L	1000		97.0	80-120	0.0733	20	
Lead	575	5.0	µg/L	500		115	80-120	0.773	20	
Manganese	512	10	µg/L	500		102	80-120	0.652	20	
Nickel	557	50	µg/L	500		111	80-120	0.566	20	
Selenium	499	50	µg/L	500		99.9	80-120	0.138	20	
Silver	529	2.0	µg/L	500		106	80-120	0.949	20	
Thallium	566	2.0	µg/L	500		113	80-120	0.258	20	
Vanadium	517	50	µg/L	500		103	80-120	0.501	20	
Zinc	1120	100	µg/L	1000		112	80-120	0.329	20	
Batch B317628 - SW-846 3005A										
Blank (B317628-BLK1)				Prepared: 09/20/22 Analyzed: 09/21/22						
Chromium	ND	1.0	µg/L							
LCS (B317628-BS1)				Prepared: 09/20/22 Analyzed: 09/21/22						
Chromium	546	10	µg/L	500		109	80-120			
LCS Dup (B317628-BSD1)				Prepared: 09/20/22 Analyzed: 09/21/22						
Chromium	511	10	µg/L	500		102	80-120	6.46	20	
Matrix Spike (B317628-MS1)		**Source: 22I0695-06RE1**		Prepared: 09/20/22 Analyzed: 09/21/22						
Chromium	503	10	µg/L	500	ND	101	75-125			
Matrix Spike Dup (B317628-MSD1)		**Source: 22I0695-06RE1**		Prepared: 09/20/22 Analyzed: 09/21/22						
Chromium	505	10	µg/L	500	ND	101	75-125	0.407	20	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

MW-2

Lab Sample ID: 22I0695-01

Date(s) Analyzed: 09/25/2022 09/25/2022

Instrument ID (1): ECD1

Instrument ID (2): ECD1

GC Column (1): ID: (mm)

GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1260	1	0.000	0.000	0.000	0.25	
	2	0.000	0.000	0.000	0.26	3.9

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

MW-4

Lab Sample ID: 22I0695-02

Date(s) Analyzed: 09/25/2022 09/25/2022

Instrument ID (1): ECD1

Instrument ID (2): ECD1

GC Column (1): ID: (mm)

GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1260	1	0.000	0.000	0.000	2.3	
	2	0.000	0.000	0.000	2.2	4.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

MW-2

Lab Sample ID: 22I0695-03

Date(s) Analyzed: 09/26/2022 09/26/2022

Instrument ID (1): ECD1

Instrument ID (2): ECD1

GC Column (1): ID: (mm)

GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1260	1	0.000	0.000	0.000	1.0	
	2	0.000	0.000	0.000	0.97	3.1

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

DUP-1

Lab Sample ID: 22I0695-04

Date(s) Analyzed: 09/25/2022 09/25/2022

Instrument ID (1): ECD1

Instrument ID (2): ECD1

GC Column (1): ID: (mm)

GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1260	1	0.000	0.000	0.000	0.21	
	2	0.000	0.000	0.000	0.23	9.1

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B317558-BS1 Date(s) Analyzed: 09/25/2022 09/25/2022

Instrument ID (1): ECD1 Instrument ID (2): ECD1

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.37	
	2	0.000	0.000	0.000	0.40	7.8
Aroclor-1260	1	0.000	0.000	0.000	0.40	
	2	0.000	0.000	0.000	0.42	4.9

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B317558-BSD1 Date(s) Analyzed: 09/25/2022 09/25/2022

Instrument ID (1): ECD1 Instrument ID (2): ECD1

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.40	
	2	0.000	0.000	0.000	0.42	4.9
Aroclor-1260	1	0.000	0.000	0.000	0.43	
	2	0.000	0.000	0.000	0.45	4.6

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

Matrix Spike

Lab Sample ID: B317558-MS1 Date(s) Analyzed: 09/25/2022 09/25/2022

Instrument ID (1): ECD1 Instrument ID (2): ECD1

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.43	
	2	0.000	0.000	0.000	0.46	6.7
Aroclor-1260	1	0.000	0.000	0.000	0.44	
	2	0.000	0.000	0.000	0.48	6.5

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

Matrix Spike Dup

Lab Sample ID: B317558-MSD1 Date(s) Analyzed: 09/25/2022 09/25/2022

Instrument ID (1): ECD1 Instrument ID (2): ECD1

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.44	
	2	0.000	0.000	0.000	0.47	6.6
Aroclor-1260	1	0.000	0.000	0.000	0.52	
	2	0.000	0.000	0.000	0.55	5.6

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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.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
L-01	Laboratory fortified blank/laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.
MS-19	Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
MS-23	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-20	Quantifing ion signal to noise ratio is <10. Detection is suspect.
PF-23	Qualifier ion ratio <50% of associated calibration. Detection is suspect.
R-06	Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample.
S-29	Extracted Internal Standard is outside of control limits.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
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.

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-2 (22I0695-01)			Lab File ID: 22I0695-01.d			Analyzed: 10/01/22 06:40			
M8FOSA	178970.9	3.988567	222,202.00	3.988567	81	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	163454.5	2.463967	184,995.00	2.45575	88	50 - 150	0.0082	+/-0.50	
M2PFTA	849673.4	4.313416	1,027,328.00	4.313416	83	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	97009.41	3.794833	78,592.00	3.794833	123	50 - 150	0.0000	+/-0.50	
MPFBA	263120.9	1.075083	289,248.00	1.066783	91	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	70755.7	2.798383	89,068.00	2.7902	79	50 - 150	0.0082	+/-0.50	
M6PFDA	472476.8	3.79535	488,110.00	3.79535	97	50 - 150	0.0000	+/-0.50	
M3PFBS	108233.5	1.878383	110,121.00	1.878383	98	50 - 150	0.0000	+/-0.50	
M7PFUnA	585026.9	3.938033	597,631.00	3.938033	98	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	93437.93	3.4373	74,640.00	3.4373	125	50 - 150	0.0000	+/-0.50	
M5PFPeA	285539.3	1.698283	309,485.00	1.698283	92	50 - 150	0.0000	+/-0.50	
M5PFHxA	630220.3	2.5477	675,491.00	2.539483	93	50 - 150	0.0082	+/-0.50	
M3PFHxS	88772.24	3.201883	88,759.00	3.201883	100	50 - 150	0.0000	+/-0.50	
M4PFHpA	748904.8	3.1627	786,080.00	3.1627	95	50 - 150	0.0000	+/-0.50	
M8PFOA	643210.1	3.453817	640,379.00	3.445833	100	50 - 150	0.0080	+/-0.50	
M8PFOS	74885.45	3.644167	74,322.00	3.644167	101	50 - 150	0.0000	+/-0.50	
M9PFNA	465718.5	3.6452	488,356.00	3.6452	95	50 - 150	0.0000	+/-0.50	
MPFDoA	574761.4	4.07265	652,642.00	4.072667	88	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	173311.3	3.945517	192,397.00	3.945517	90	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	197203.5	3.873767	237,533.00	3.873767	83	50 - 150	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	255435	10.525	502,960.00	10.519	51	50 - 200	0.0060	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-4 (22I0695-02)			Lab File ID: 22I0695-02.d			Analyzed: 10/01/22 06:47			
M8FOSA	189897.6	3.988567	222,202.00	3.988567	85	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	202376.7	2.44755	184,995.00	2.45575	109	50 - 150	-0.0082	+/-0.50	
M2PFTA	960238.5	4.313416	1,027,328.00	4.313416	93	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	135626.6	3.794833	78,592.00	3.794833	173	50 - 150	0.0000	+/-0.50	*
MPFBA	195567.2	1.066783	289,248.00	1.066783	68	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	42536.87	2.782017	89,068.00	2.7902	48	50 - 150	-0.0082	+/-0.50	*
M6PFDA	451112.8	3.79535	488,110.00	3.79535	92	50 - 150	0.0000	+/-0.50	
M3PFBS	88695.24	1.861817	110,121.00	1.878383	81	50 - 150	-0.0166	+/-0.50	
M7PFUnA	592762.4	3.93805	597,631.00	3.938033	99	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	151043.4	3.4373	74,640.00	3.4373	202	50 - 150	0.0000	+/-0.50	*
M5PFPeA	202235.3	1.690017	309,485.00	1.698283	65	50 - 150	-0.0083	+/-0.50	
M5PFHxA	526743.9	2.531267	675,491.00	2.539483	78	50 - 150	-0.0082	+/-0.50	
M3PFHxS	77568.8	3.201883	88,759.00	3.201883	87	50 - 150	0.0000	+/-0.50	
M4PFHpA	661729	3.1627	786,080.00	3.1627	84	50 - 150	0.0000	+/-0.50	
M8PFOA	584219.9	3.445833	640,379.00	3.445833	91	50 - 150	0.0000	+/-0.50	
M8PFOS	69218.59	3.644167	74,322.00	3.644167	93	50 - 150	0.0000	+/-0.50	
M9PFNA	446889.1	3.637217	488,356.00	3.6452	92	50 - 150	-0.0080	+/-0.50	
MPFDoA	606883.4	4.072667	652,642.00	4.072667	93	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	199595.4	3.945517	192,397.00	3.945517	104	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	202224.9	3.873767	237,533.00	3.873767	85	50 - 150	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	707939	10.512	637,925.00	10.515	111	50 - 200	-0.0030	+/-0.50	
MW-2 (22I0695-03)			Lab File ID: F21S265006.D			Analyzed: 09/22/22 10:15			
1,4-Dichlorobenzene-d4	511788	10.519	502,960.00	10.519	102	50 - 200	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
DUP-1 (22I0695-04)			Lab File ID: 22I0695-04.d			Analyzed: 10/01/22 06:55			
M8FOSA	95581.16	3.988567	222,202.00	3.988567	43	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	179083.9	2.4146	184,995.00	2.45575	97	50 - 150	-0.0412	+/-0.50	
M2PFTA	157494.7	4.313416	1,027,328.00	4.313416	15	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	116764.7	3.794833	78,592.00	3.794833	149	50 - 150	0.0000	+/-0.50	
MPFBA	52529.55	1.050167	289,248.00	1.066783	18	50 - 150	-0.0166	+/-0.50	*
M3HFPO-DA	39155.22	2.757467	89,068.00	2.7902	44	50 - 150	-0.0327	+/-0.50	*
M6PFDA	372344.4	3.79535	488,110.00	3.79535	76	50 - 150	0.0000	+/-0.50	
M3PFBS	76787.22	1.828667	110,121.00	1.878383	70	50 - 150	-0.0497	+/-0.50	
M7PFUnA	399081	3.93805	597,631.00	3.938033	67	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	140527.1	3.429317	74,640.00	3.4373	188	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	105733.3	1.656917	309,485.00	1.698283	34	50 - 150	-0.0414	+/-0.50	*
M5PFHxA	379595.5	2.498417	675,491.00	2.539483	56	50 - 150	-0.0411	+/-0.50	
M3PFHxS	66234.33	3.193817	88,759.00	3.201883	75	50 - 150	-0.0081	+/-0.50	
M4PFHpA	505964.4	3.154633	786,080.00	3.1627	64	50 - 150	-0.0081	+/-0.50	
M8PFOA	469884	3.445833	640,379.00	3.445833	73	50 - 150	0.0000	+/-0.50	
M8PFOS	51302.59	3.644167	74,322.00	3.644167	69	50 - 150	0.0000	+/-0.50	
M9PFNA	360871.8	3.637217	488,356.00	3.6452	74	50 - 150	-0.0080	+/-0.50	
MPFDoA	291245.7	4.072667	652,642.00	4.072667	45	50 - 150	0.0000	+/-0.50	*
d5-NEtFOSAA	144222.5	3.945517	192,397.00	3.945517	75	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	161445.5	3.873767	237,533.00	3.873767	68	50 - 150	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	580924	10.515	502,960.00	10.519	116	50 - 200	-0.0040	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Equipment Blank (22I0695-05)			Lab File ID: 22I0695-05.d			Analyzed: 10/01/22 07:02			
M8FOSA	149701.9	3.988567	222,202.00	3.988567	67	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	149140.2	2.463967	184,995.00	2.45575	81	50 - 150	0.0082	+/-0.50	
M2PFTA	457500.8	4.313416	1,027,328.00	4.313416	45	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	85296.89	3.794833	78,592.00	3.794833	109	50 - 150	0.0000	+/-0.50	
MPFBA	248046	1.075083	289,248.00	1.066783	86	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	66554.54	2.798383	89,068.00	2.7902	75	50 - 150	0.0082	+/-0.50	
M6PFDA	463327.8	3.79535	488,110.00	3.79535	95	50 - 150	0.0000	+/-0.50	
M3PFBS	107568.5	1.878383	110,121.00	1.878383	98	50 - 150	0.0000	+/-0.50	
M7PFUnA	493965.3	3.938033	597,631.00	3.938033	83	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	90454.14	3.4373	74,640.00	3.4373	121	50 - 150	0.0000	+/-0.50	
M5PFPeA	281963.9	1.706567	309,485.00	1.698283	91	50 - 150	0.0083	+/-0.50	
M5PFHxA	619292.8	2.5477	675,491.00	2.539483	92	50 - 150	0.0082	+/-0.50	
M3PFHxS	90549.91	3.201883	88,759.00	3.201883	102	50 - 150	0.0000	+/-0.50	
M4PFHpA	740645.4	3.1627	786,080.00	3.1627	94	50 - 150	0.0000	+/-0.50	
M8PFOA	652910.9	3.453817	640,379.00	3.445833	102	50 - 150	0.0080	+/-0.50	
M8PFOS	72278.25	3.644167	74,322.00	3.644167	97	50 - 150	0.0000	+/-0.50	
M9PFNA	459750.8	3.6452	488,356.00	3.6452	94	50 - 150	0.0000	+/-0.50	
MPFDoA	475025.8	4.07265	652,642.00	4.072667	73	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	146582.8	3.945517	192,397.00	3.945517	76	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	174632.2	3.873767	237,533.00	3.873767	74	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-4 (22I0695-06)			Lab File ID: 22I0695-06.d			Analyzed: 10/01/22 18:33			
M8FOSA	197889.3	3.980583	228,677.00	3.980567	87	50 - 150	0.0000	+/-0.50	
M2PFTA	792756.9	4.313416	999,234.00	4.313416	79	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	136034	3.794833	96,818.00	3.794833	141	50 - 150	0.0000	+/-0.50	
MPFBA	207302.5	1.058467	342,606.00	1.066783	61	50 - 150	-0.0083	+/-0.50	
M6PFDA	469802.5	3.79535	555,822.00	3.79535	85	50 - 150	0.0000	+/-0.50	
M3PFBS	83861.61	1.861817	112,203.00	1.8701	75	50 - 150	-0.0083	+/-0.50	
M7PFUnA	530075	3.93805	610,238.00	3.938033	87	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	154545	3.4373	135,771.00	3.4373	114	50 - 150	0.0000	+/-0.50	
M5PFPeA	217972.3	1.681733	334,724.00	1.698283	65	50 - 150	-0.0166	+/-0.50	
M5PFHxA	525908.6	2.523067	703,339.00	2.539483	75	50 - 150	-0.0164	+/-0.50	
M3PFHxS	84313.45	3.193817	107,730.00	3.201883	78	50 - 150	-0.0081	+/-0.50	
M4PFHpA	683093.8	3.154633	853,310.00	3.1627	80	50 - 150	-0.0081	+/-0.50	
M8PFOA	623368.4	3.445833	786,154.00	3.445833	79	50 - 150	0.0000	+/-0.50	
M8PFOS	70187.57	3.644167	89,122.00	3.644167	79	50 - 150	0.0000	+/-0.50	
M9PFNA	503650.8	3.637217	556,502.00	3.637217	91	50 - 150	0.0000	+/-0.50	
MPFDoA	500095.3	4.072667	639,514.00	4.072667	78	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	179259.4	3.945517	206,434.00	3.945517	87	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	193051.3	3.865617	238,758.00	3.865617	81	50 - 150	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	528194	10.515	533,335.00	10.519	99	50 - 200	-0.0040	+/-0.50	
Blank (B317373-BLK1)			Lab File ID: F21S264004.D			Analyzed: 09/21/22 13:48			
1,4-Dichlorobenzene-d4	356396	10.522	533,335.00	10.519	67	50 - 200	0.0030	+/-0.50	
LCS (B317373-BS1)			Lab File ID: F21S264005.D			Analyzed: 09/21/22 14:08			
1,4-Dichlorobenzene-d4	281528	10.525	533,335.00	10.519	53	50 - 200	0.0060	+/-0.50	
LCS Dup (B317373-BSD1)			Lab File ID: F21S264006.D			Analyzed: 09/21/22 14:27			
1,4-Dichlorobenzene-d4	440333	10.519	533,335.00	10.519	83	50 - 200	0.0000	+/-0.50	
Matrix Spike (B317373-MS1)			Lab File ID: F21S264007.D			Analyzed: 09/21/22 14:47			
1,4-Dichlorobenzene-d4	527179	10.519	533,335.00	10.519	99	50 - 200	0.0000	+/-0.50	
Matrix Spike Dup (B317373-MSD1)			Lab File ID: F21S265004B.D			Analyzed: 09/22/22 10:54			
1,4-Dichlorobenzene-d4	552803	10.515	502,960.00	10.519	110	50 - 200	-0.0040	+/-0.50	
Blank (B317557-BLK1)			Lab File ID: F22S269005.D			Analyzed: 09/26/22 11:22			
1,4-Dichlorobenzene-d4	611977	10.515	637,925.00	10.515	96	50 - 200	0.0000	+/-0.50	
LCS (B317557-BS1)			Lab File ID: F22S269007.D			Analyzed: 09/26/22 12:02			
1,4-Dichlorobenzene-d4	627305	10.512	637,925.00	10.515	98	50 - 200	-0.0030	+/-0.50	
LCS Dup (B317557-BSD1)			Lab File ID: F22S269008.D			Analyzed: 09/26/22 12:22			
1,4-Dichlorobenzene-d4	643977	10.512	637,925.00	10.515	101	50 - 200	-0.0030	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B317692-BLK1)			Lab File ID: B317692-BLK1.d			Analyzed: 10/01/22 04:59			
M8FOSA	134856	3.988567	222,202.00	3.980567	61	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	177809.8	2.463967	184,995.00	2.45575	96	50 - 150	0.0082	+/-0.50	
M2PFTA	755965.2	4.313416	1,027,328.00	4.313416	74	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	104983.8	3.794833	78,592.00	3.794833	134	50 - 150	0.0000	+/-0.50	
MPFBA	273000.7	1.066783	289,248.00	1.066783	94	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	93687.77	2.798383	89,068.00	2.7902	105	50 - 150	0.0082	+/-0.50	
M6PFDA	426441.4	3.79535	488,110.00	3.79535	87	50 - 150	0.0000	+/-0.50	
M3PFBS	101053.2	1.878383	110,121.00	1.878383	92	50 - 150	0.0000	+/-0.50	
M7PFUnA	494295.7	3.938033	597,631.00	3.938033	83	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	125396.8	3.4373	74,640.00	3.4373	168	50 - 150	0.0000	+/-0.50	*
M5PFPeA	265802.9	1.698283	309,485.00	1.698283	86	50 - 150	0.0000	+/-0.50	
M5PFHxA	582385.3	2.5477	675,491.00	2.539483	86	50 - 150	0.0082	+/-0.50	
M3PFHxS	81066	3.201883	88,759.00	3.201883	91	50 - 150	0.0000	+/-0.50	
M4PFHpA	686388.6	3.1627	786,080.00	3.1627	87	50 - 150	0.0000	+/-0.50	
M8PFOA	625983.6	3.453817	640,379.00	3.445833	98	50 - 150	0.0080	+/-0.50	
M8PFOS	71567.22	3.644167	74,322.00	3.644167	96	50 - 150	0.0000	+/-0.50	
M9PFNA	453077.1	3.6452	488,356.00	3.6452	93	50 - 150	0.0000	+/-0.50	
MPFDoA	467869.6	4.07265	652,642.00	4.072667	72	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	127312.3	3.945517	192,397.00	3.945517	66	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	165305.7	3.873767	237,533.00	3.873767	70	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B317692-BS1)			Lab File ID: B317692-BS1.d			Analyzed: 10/01/22 04:52			
M8FOSA	136775.6	3.988567	222,202.00	3.980567	62	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	195697.9	2.463967	184,995.00	2.45575	106	50 - 150	0.0082	+/-0.50	
M2PFTA	828032.3	4.313416	1,027,328.00	4.313416	81	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	111769.9	3.794817	78,592.00	3.794833	142	50 - 150	0.0000	+/-0.50	
MPFBA	284241.6	1.066783	289,248.00	1.066783	98	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	84598.15	2.798383	89,068.00	2.7902	95	50 - 150	0.0082	+/-0.50	
M6PFDA	462716.3	3.79535	488,110.00	3.79535	95	50 - 150	0.0000	+/-0.50	
M3PFBS	108158.9	1.878383	110,121.00	1.878383	98	50 - 150	0.0000	+/-0.50	
M7PFUnA	533114.6	3.938033	597,631.00	3.938033	89	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	145068.6	3.4373	74,640.00	3.4373	194	50 - 150	0.0000	+/-0.50	*
M5PFPeA	283398.4	1.698283	309,485.00	1.698283	92	50 - 150	0.0000	+/-0.50	
M5PFHxA	629786.9	2.539483	675,491.00	2.539483	93	50 - 150	0.0000	+/-0.50	
M3PFHxS	87891.38	3.201883	88,759.00	3.201883	99	50 - 150	0.0000	+/-0.50	
M4PFHpA	762635.1	3.1627	786,080.00	3.1627	97	50 - 150	0.0000	+/-0.50	
M8PFOA	675157.6	3.453817	640,379.00	3.445833	105	50 - 150	0.0080	+/-0.50	
M8PFOS	77384.57	3.644167	74,322.00	3.644167	104	50 - 150	0.0000	+/-0.50	
M9PFNA	478771.5	3.6452	488,356.00	3.6452	98	50 - 150	0.0000	+/-0.50	
MPFDoA	519148.6	4.07265	652,642.00	4.072667	80	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	156429.5	3.9455	192,397.00	3.945517	81	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	192067.8	3.873767	237,533.00	3.873767	81	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B317999-BLK1)			Lab File ID: B317999-BLK1.d			Analyzed: 10/01/22 18:11			
M8FOSA	163346.5	3.980567	228,677.00	3.980567	71	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	138092.1	2.45575	183,152.00	2.45575	75	50 - 150	0.0000	+/-0.50	
M2PFTA	746191.1	4.313416	999,234.00	4.313416	75	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	73121.97	3.794817	96,818.00	3.794833	76	50 - 150	0.0000	+/-0.50	
MPFBA	321805.9	1.066783	342,606.00	1.066783	94	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	87606.61	2.7902	95,581.00	2.7902	92	50 - 150	0.0000	+/-0.50	
M6PFDA	473979.1	3.79535	555,822.00	3.79535	85	50 - 150	0.0000	+/-0.50	
M3PFBS	97460	1.8701	112,203.00	1.8701	87	50 - 150	0.0000	+/-0.50	
M7PFUnA	469767.6	3.938033	610,238.00	3.938033	77	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	81885.33	3.4373	135,771.00	3.4373	60	50 - 150	0.0000	+/-0.50	
M5PFPeA	287017.6	1.698283	334,724.00	1.698283	86	50 - 150	0.0000	+/-0.50	
M5PFHxA	617009.9	2.539483	703,339.00	2.539483	88	50 - 150	0.0000	+/-0.50	
M3PFHxS	94443.8	3.201883	107,730.00	3.201883	88	50 - 150	0.0000	+/-0.50	
M4PFHpA	751039.1	3.1627	853,310.00	3.1627	88	50 - 150	0.0000	+/-0.50	
M8PFOA	705994.6	3.445833	786,154.00	3.445833	90	50 - 150	0.0000	+/-0.50	
M8PFOS	78365.7	3.644167	89,122.00	3.644167	88	50 - 150	0.0000	+/-0.50	
M9PFNA	540194.1	3.637217	556,502.00	3.637217	97	50 - 150	0.0000	+/-0.50	
MPFDoA	471334.3	4.07265	639,514.00	4.072667	74	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	138122	3.9455	206,434.00	3.945517	67	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	185668.8	3.865617	238,758.00	3.865617	78	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B317999-BS1)			Lab File ID: B317999-BS1.d			Analyzed: 10/01/22 18:04			
M8FOSA	158496.3	3.980567	228,677.00	3.980567	69	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	148275.5	2.45575	183,152.00	2.45575	81	50 - 150	0.0000	+/-0.50	
M2PFTA	771075.6	4.313416	999,234.00	4.313416	77	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	79369.38	3.794833	96,818.00	3.794833	82	50 - 150	0.0000	+/-0.50	
MPFBA	329143	1.066783	342,606.00	1.066783	96	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	93001.44	2.7902	95,581.00	2.7902	97	50 - 150	0.0000	+/-0.50	
M6PFDA	501083	3.79535	555,822.00	3.79535	90	50 - 150	0.0000	+/-0.50	
M3PFBS	100444.1	1.8701	112,203.00	1.8701	90	50 - 150	0.0000	+/-0.50	
M7PFUnA	483133.7	3.938033	610,238.00	3.938033	79	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	87442.55	3.4373	135,771.00	3.4373	64	50 - 150	0.0000	+/-0.50	
M5PFPeA	297486.3	1.698283	334,724.00	1.698283	89	50 - 150	0.0000	+/-0.50	
M5PFHxA	617821.4	2.539483	703,339.00	2.539483	88	50 - 150	0.0000	+/-0.50	
M3PFHxS	93498.1	3.201883	107,730.00	3.201883	87	50 - 150	0.0000	+/-0.50	
M4PFHpA	774522.3	3.1627	853,310.00	3.1627	91	50 - 150	0.0000	+/-0.50	
M8PFOA	725914.8	3.445833	786,154.00	3.445833	92	50 - 150	0.0000	+/-0.50	
M8PFOS	81349.69	3.644167	89,122.00	3.644167	91	50 - 150	0.0000	+/-0.50	
M9PFNA	532918.1	3.6452	556,502.00	3.637217	96	50 - 150	0.0080	+/-0.50	
MPFDoA	474544.4	4.072667	639,514.00	4.072667	74	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	139148	3.945517	206,434.00	3.945517	67	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	174643.1	3.865617	238,758.00	3.865617	73	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B317999-MS1)			Lab File ID: B317999-MS1.d			Analyzed: 10/01/22 18:18			
M8FOSA	225782.9	3.980583	228,677.00	3.980567	99	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	219167.4	2.439333	183,152.00	2.45575	120	50 - 150	-0.0164	+/-0.50	
M2PFTA	865623.4	4.313416	999,234.00	4.313416	87	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	152703.5	3.794833	96,818.00	3.794833	158	50 - 150	0.0000	+/-0.50	*
MPFBA	231846.7	1.058467	342,606.00	1.066783	68	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	56705.36	2.782017	95,581.00	2.7902	59	50 - 150	-0.0082	+/-0.50	
M6PFDA	533060.5	3.79535	555,822.00	3.79535	96	50 - 150	0.0000	+/-0.50	
M3PFBS	93568.7	1.861817	112,203.00	1.8701	83	50 - 150	-0.0083	+/-0.50	
M7PFUnA	576415.4	3.93805	610,238.00	3.938033	94	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	169556.1	3.4373	135,771.00	3.4373	125	50 - 150	0.0000	+/-0.50	
M5PFPeA	240317.5	1.68175	334,724.00	1.698283	72	50 - 150	-0.0165	+/-0.50	
M5PFHxA	585975.1	2.523067	703,339.00	2.539483	83	50 - 150	-0.0164	+/-0.50	
M3PFHxS	93164.91	3.193817	107,730.00	3.201883	86	50 - 150	-0.0081	+/-0.50	
M4PFHpA	734175.3	3.154633	853,310.00	3.1627	86	50 - 150	-0.0081	+/-0.50	
M8PFOA	707944.6	3.445833	786,154.00	3.445833	90	50 - 150	0.0000	+/-0.50	
M8PFOS	79466.31	3.644167	89,122.00	3.644167	89	50 - 150	0.0000	+/-0.50	
M9PFNA	528856.9	3.637217	556,502.00	3.637217	95	50 - 150	0.0000	+/-0.50	
MPFDoA	572771.9	4.072667	639,514.00	4.072667	90	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	193213.7	3.945517	206,434.00	3.945517	94	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	229102.4	3.865617	238,758.00	3.865617	96	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B317999-MSD1)			Lab File ID: B317999-MSD1.d			Analyzed: 10/01/22 18:25			
M8FOSA	194607.1	3.980583	228,677.00	3.980567	85	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	187803.1	2.439333	183,152.00	2.45575	103	50 - 150	-0.0164	+/-0.50	
M2PFTA	721401.2	4.313416	999,234.00	4.313416	72	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	129357.9	3.794833	96,818.00	3.794833	134	50 - 150	0.0000	+/-0.50	
MPFBA	199959.6	1.058467	342,606.00	1.066783	58	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	65532.09	2.782017	95,581.00	2.7902	69	50 - 150	-0.0082	+/-0.50	
M6PFDA	455402	3.79535	555,822.00	3.79535	82	50 - 150	0.0000	+/-0.50	
M3PFBS	84537.13	1.861817	112,203.00	1.8701	75	50 - 150	-0.0083	+/-0.50	
M7PFUnA	493955.1	3.93805	610,238.00	3.938033	81	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	155887	3.4373	135,771.00	3.4373	115	50 - 150	0.0000	+/-0.50	
M5PFPeA	208666.5	1.681733	334,724.00	1.698283	62	50 - 150	-0.0166	+/-0.50	
M5PFHxA	502734.6	2.523067	703,339.00	2.539483	71	50 - 150	-0.0164	+/-0.50	
M3PFHxS	78939.33	3.193817	107,730.00	3.201883	73	50 - 150	-0.0081	+/-0.50	
M4PFHpA	613692.8	3.154633	853,310.00	3.1627	72	50 - 150	-0.0081	+/-0.50	
M8PFOA	601637.1	3.445833	786,154.00	3.445833	77	50 - 150	0.0000	+/-0.50	
M8PFOS	67585.65	3.644167	89,122.00	3.644167	76	50 - 150	0.0000	+/-0.50	
M9PFNA	458676.1	3.637217	556,502.00	3.637217	82	50 - 150	0.0000	+/-0.50	
MPFDoA	486062.3	4.072667	639,514.00	4.072667	76	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	173429.8	3.945517	206,434.00	3.945517	84	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	194470.5	3.865617	238,758.00	3.865617	81	50 - 150	0.0000	+/-0.50	

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA	NH-P
N-MeFOSAA	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
Perfluorodecanesulfonic acid (PFDS)	NH-P
Perfluorooctanesulfonamide (FOSA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
Perfluorononanoic acid (PFNA)	NH-P
SW-846 6010D in Soil	
Sodium	CT,NH,NY,ME,VA,NC
SW-846 6010D in Water	
Aluminum	CT,NH,NY,ME,VA,NC
Calcium	CT,NH,NY,ME,VA,NC
Iron	CT,NH,NY,ME,VA,NC
Magnesium	CT,NH,NY,ME,VA,NC
Potassium	CT,NH,NY,ME,VA,NC
Sodium	CT,NH,NY,ME,VA,NC
SW-846 6020B in Water	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,RI,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Cobalt	CT,NH,NY,ME,VA,NC
Copper	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,ME,VA,NC
Manganese	CT,NH,NY,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Vanadium	CT,NH,NY,ME,VA,NC

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 6020B in Water	
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7470A in Water	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8082A in Water	
Aroclor-1016	CT,NH,NY,NC,ME,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1262	NH,NY,NC,ME,VA,PA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA,PA
Aroclor-1268	NH,NY,NC,ME,VA,PA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA,PA
SW-846 8270E in Water	
1,4-Dioxane	NY,NH

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO 17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2023
CT	Connecticut Department of Public Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
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	06/30/2023
FL	Florida Department of Health	E871027 NELAP	06/30/2023
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2023
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2023
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023
NC-DW	North Carolina Department of Health and Human Services	25703	07/31/2023
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2023
MI	Dept. of Env, Great Lakes, and Energy	9100	06/30/2023
NB-CT	Connecticut Department of Public Health	PH-0554	09/30/2023
NB-NJ	New Jersey DEP	NY015 NELAP	06/30/2023
NB-NY	New York State Department of Health	10142 NELAP	04/1/2023

220695

CHAIN OF CUSTODY

Client: New York State Dept. of Environme

PAGE OF

NYSDEC Site #915145, LAB CALLOUT: 145618- DEC Manager Megan Kucka

FED-EX Tracking # | Bottle Order Control #

Lab Quote # | Lab Job #

CLIENT/REPORTING INFORMATION	PROJECT INFORMATION	BILLING INFORMATION
Groundwater & Environmental Services, Inc. 415 Lawrence Bell Drive, Williamsville, NY 14221 **Project Manager:** Thomas Palmer TPalmer@gesonline.com **Phone #:** 800-287-7857 fax 866-902-2187	**Project Name:** NYSDEC/Lackawanna/NY/SouthSt/31 **Project Address:** 31 South Street, Lackawanna, NY **Project PSID #:** 949325 **Project #:** 0901824	GES Project Number: 0901824 DEC PM: Megan Kuczka **Invoice Instructions** **NYSDEC Site No.** 915145 **Lab Project Manager:** Michael Buttrick

Sampler(s) Name: **Barbara Delaney**

Sampler(s) Name:

Lab Sample #	Field ID / Point of Collection (Sys_loc_code)	Depth Interval (ft)	Date Sampled	Time Sampled	Sampler	Matrix	Total # Bottles	number of preserved bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Amber	PFA's Standard List (21) Analytes 537 mod	1,4 Dioxane 8270D	TAL Metals	PCB's (8082)	MS /MSD	REQUESTED ANALYSIS (see Test Code sheet)	LAB USE ONLY
1	MW-2	NA	9/12/22	1520	BD	WG	4					X				X	X	X		X			
2	MW-4	NA	9/12/22	1255	BD	WG	6			X		X				X	X	X	X	X			
3	MW2	NA	9/13/22	0820	BD	WG	3			X		X				X		X	X	X			
	~~Field Blank~~	~~NA~~	~~9/12/22~~		~~BD~~	~~WG~~															UNBD 9/13/22		
4	DUP-1	NA	9/12/22	0820	BD	WG	7			X		X				X	X	X	X	X			
5	Equipment Blank	NA	9/12/22	1210	BD	WG	2					X	X										
6	~~MW-3BD~~ MW-4	NA	9/13/22	1025	BD	WG	5			X		X				X	X	X	X	X	X		

Turnaround Time (Business Days) — **Approved By (Lab PM) / Date**

- ☐ Standard 14 Days
- ☐ 1 day RUSH
- ☑ Other **10 day**

Laboratory Information

- **Lab:** Con-Test Pace Analytical
- **Address:** 39 Spruce Street, East Longmeadow, MA 01028
- **Phone:** 413-525-2332
- **Lab PM:** Kaitlyn Feliciano
- **Lab PM Email:** Kaitlyn.feliciano@pacelabs.com

Please Email the EQ EDD Package to ges@equisonline.com

GES EQEDD Name: NYSDEC/Lackawanna/NY/SouthSt/31_LabReport#.915145.EQEDD.zip

Data Deliverable Information

- ☐ Commercial 'A' (Level 1) = Results Only
- ☐ Commercial 'B' (Level 2) = Results + QC Summary
- ☐ FULLT1 (Level 3 & 4)
- ☐ NJ Reduced = Results + QC Summary + Partial Raw Data
- ☐ Commercial 'C'
- ☐ *NJ Data of Known Quality Protocol Reporting*
- ☐ NYASP Category A
- ☑ NYASP Category B
- ☐ State Forms
- ☑ EDD Format NYSDEC, GES
- ☐ Other

Sample Custody must be documented below each time samples change possession, including courier.

	Date / Time:	Received By:
1 Relinquished By Sampler: Barbara Delaney	1 9/12/22 ~~1715~~ 1415	1 GES Fridge
2 Relinquished By: Barbara Delaney	2 9/13/22 1450	2 [illegible] 5.5/3.4 9/14 7:02
3 Relinquished By:	3 Date / Time:	3 Received By:

Custody Seal Number: ☐ Intact ☐ Not Intact ☐ Preserved where applicable ☐ On Ice Cooler Temp _____

NYSDEC EDD naming convention should be followed for DEC EDDs
Distribution List: francine.gallego@dec.ny.gov, tpalmer@gesonline.com, nlindner@gesonline.com and GESInbox@gesonline.com
Please include project number on lab report

MW-4 has limited supply for PCB
MW-4 MS/MSD has limited supply for PCB and 1,4 Dioxane
~~MW~~ DUP-1 has limited supply for PCB
- All wells went dry during sampling

FedEx® Tracking

DELIVERED

Wednesday

9/14/2022 at 9:50 am

Signed for by: R.PETRAITIS

Obtain Proof of delivery

DELIVERY STATUS

Delivered

Get Status Updates

TRACKING ID

812589700838

FROM
WILLIAMSVILLE, US

PACKAGE RECEIVED BY FEDEX
CHEEKTOWAGA, NY
9/13/2022 6:10 PM

IN TRANSIT
WINDSOR LOCKS, CT
9/14/2022 7:07 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
9/14/2022 7:15 AM

DELIVERED
MA US

DELIVERED
9/14/2022 at 9:50 AM

View travel history

Manage Delivery

Shipment facts

Shipment overview

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East Longmeadow, MA. 01028
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Pace PEOPLE ADVANCING SCIENCE

Doc# 277 Rev 6 July 2022

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 VR Date 9/14 Time 950

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____

Direct From Sample ____ Ambient ____ Melted Ice ____

Were samples within Tempurature? Within 2-6°C T By Gun # 3 Actual Temp - 5.5, 3.4 By Blank # ____ Actual Temp - ____

Was Custody Seal In tact? 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? ____

Samples are received within holding time? T Is there enough Volume? F

Is there Headspace where applicable? F MS/MSD? T

Proper Media/Containers Used? T splitting samples require F

Were trip blanks receive F On COC? F

Do All Samples Have the proper pH? Acid T Base

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.	16	1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	17	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			

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:

Appendix C - DUSR Report

RemVēr

Quality Assessment
Data Usability Summary Report

			RemVēr Project #2022GE72 Client Project # 0901824-02-206
Site:	31 South St., Lackawanna, NY	**Site #:**	Spill #915145
Client:	NYSDEC via GES, Inc.	**Site Owner:**	–N/A–
Sample Delivery Groups (SDGs)	See Table #1		
Sample Matrix:	☐ Drinking water ☒ Groundwater ☐ Surface water ☐ Soil ☐ Sediment ☐ Air ☐ Biota (tissue, type: _____) ☐ Other: _____		

Introduction

Groundwater & Environmental Services (GES) contracted RemVēr to perform a data quality assessment (DQA) on analytical laboratory data of environmental samples. Pace Analytical—Con-Test Analytical Laboratory (Con-Test) reported the data as Sample Delivery Groups (SDGs, see Table 1). Table 2 provides a list of samples correlated with each SDG.

A DQA is an evaluation of the performance of analytical procedures and quality of the resulting data. Following the requirements of the New York State Department of Environmental Conservation (NYSDEC) Data Usability Summary Report (DUSR) guidelines for an Analytical Services Protocol (ASP) Category B Data Deliverable, RemVēr prepared a separate DQA/DUSR sub-report for each SDG, evaluating the performance of the analytical procedures and the quality of the resulting data. Each sub-report includes a narrative discussion of qualified sample, a DQA Detail Worksheet, and a Non-Conformance Summary Worksheet describing the final reported qualification flags applied to the data during the DQA. Additionally, a validated EXCEL electronic data deliverable (EDD) is included with this deliverable for each SDG discussed herein.

Intended Use of Data Under Review

NYSDEC contracted GES to perform an environmental sampling event at the former Roblin Steel Company Scrap Metal Yard and Scrap Processing site. The purpose of sampling (September-2022) was a groundwater monitoring event. Laboratory analysis of these environmental samples included various Metals, Polychlorinated Biphenyls (PCBSs), 1,4-Dioxane, and perfluoroalkyl and polyfluoroalkyl substances/compounds (PFAS or PFCs).

Significant Data Usability Issues in This Group of SDGs

Overall, the review process deemed this groundwater monitoring project data acceptable for use and representative of site conditions at the locations and times obtained. Based on this review, no samples or data were rejected as unusable arising from QC failures (sample handling, laboratory accuracy, or precision issues). Other than certain results flagged as estimated (or for other issues), the quality of the analytical data for this project does not appear compromised due to analytical irregularities. Therefore, these data are usable for the stated purpose(s). Refer to the individual SDG Lab Results and the respective Data Usability Narrative section of each DUSR sub-report for further detail. Note several analytes performed poorly and the results flagged with PM. Additionally, the replicate pair performed poorly for many metals/metalloids and for PFAS; thus, we recommend that the Project Manager review the results and consider next steps.

Reported Methods

☐ Method 1311 TCLP
☐ Method 1312 SPLP
☒ Method 6010A/B/C/D or 6020 Trace Metals
☐ Method 7000 Metals
☐ Method 7196 Hexavalent Chromium (other:_____)
☒ Method 7470A or 7471 Mercury
☐ Method 8021 VOCs GC
☐ Method 8081B or ☐ 608 Pesticides
☒ Method 8082 or ☐ 608 PCBs
☐ Method 8151 Chlorinated Herbicides
☐ Method 8260D VOCs GC/MS or ☒ Method 524.2
☒ Method 8270D/E Semi-VOCs (sVOCs) GC/MS &/or SIM-ID
☐ Method 9010/9012/9014 Cyanides (_____)
☐ Method TO-13A PAHs (air)
☐ Method TO-14A / -15 VOCs (air, summa) (_____)
☐ Method TO-17 VOCs (air, sorbent)
☒ Method 537.1 PFCs via SPE & LC/MS-MS
☒ Method SOP-454 PFAS
☒ Other Methods:
☑ Method 3535 Solid-Phase Extraction (SPE)
☑ Method 5030C/5035A (-H / -L)/B/C Purge & Trap

Quality Control Requirements Summary

☒ Duplicate
☒ Matrix Spike [MS] / Matrix Spike Duplicate [MSD]
☐ Trip Blanks (as appropriate)
☒ Equipment, Method, &/or Rinsate Blank
☒ Other Field QC: See Field Notes regarding sampling
☐ Special QAPP Requirements: _____
_____

Table 1. Sample Data Group (SDG) List

Appendix	SDG	# of Samples	Media	QA	Sample Date	METHOD ANALYTES								
						VOCs	SVOCs	Metals	Hg	Cr^{6+}	Pest.	PCB	1,4-Dioxane	PFAS
3	22I0695	4	Water	d / EB	9/12-13/22	—	—	X	X	—	—	X	X	X

Notes regarding QA Samples: "d" = duplicate EB = equipment blank TB = trip blank

Table 2. SDG and Sample List

Count	SDG	Sample #	Sample Name	Sample Date	Received
1	22I0695	#–1	MW-2	09/12/22 15:20	09/14/22 09:50
2		#–2	MW-4	09/12/22 12:55	09/14/22 09:50
3		#–3	MW-2	09/13/22 08:20	09/14/22 09:50
4		#–4	Dup-1 (#3)	09/12/22 08:20	09/14/22 09:50
5		#–5	EB	09/12/22 12:10	09/14/22 09:50
6		#–6	MW-4	09/13/22 10:25	09/14/22 09:50

The DUSR sub-reports attached hereto use the following PFAS compound abbreviations:

Perfluorobutanoic acid (PFBA)
Perfluoropentanoic acid (PFPeA)
Perfluorohexanoic acid (PFHxA)
Perfluoroheptanoic acid (PFHpA)
Perfluorooctanoic acid (PFOA)
Perfluorononanoic acid (PFNA)
Perfluorodecanoic acid (PFDA)
Perfluoroundecanoic acid (PFUnA)
Perfluorododecanoic acid (PFDoA)
Perfluorotridecanoic Acid (PFTriA)
Perfluorotetradecanoic acid (PFTeA)
Perfluorobutanesulfonic acid (PFBS)
Perfluorohexanesulfonic acid (PFHxS)
Perfluoroheptanesulfonic Acid (PFHpS)
Perfluorooctanesulfonic acid (PFOS)
Perfluorodecanesulfonic acid (PFDS)
Perfluorooctane Sulfonamide (PFOSA)
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2FTS)
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2FTS)

References

NYSDEC, 2010, *Technical Guidance for Site Investigation and Remediation*, "DER-10," Division of Environmental Remediation: Albany, NY, May, 232p

NYSDEC, 2010, *Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, Appendix 2B IN *Technical Guidance for Site Investigation and Remediation*, Division of Environmental Remediation: Albany, NY, May, 232p

NYSDEC, 2021, *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs*, Division of Environmental Remediation: Albany, NY, January, 33p

USEPA, 2008, *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, OSWER 9240.1-48, USEPA-540-R-08-01, Office of Superfund Remediation and Technology Innovation: Washington, DC, June, 225p

USEPA, 2010, *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, OSWER 9240.1-51, USEPA-540-R-10-011, Office of Superfund Remediation and Technology Innovation: Washington, DC, January, 110p

USEPA, 2012, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Current Online Revision: http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm, accessed April 2012

USEPA, 2018, Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537, EPA 910-R-18-001. November, 39p

USEPA, 2019, Technical Brief: Per- and Polyfluoroalkyl Substances (PFAS): Reviewing Analytical Methods Data for Environmental Samples, EPA 600-F-19-056, April, 5p.

USEPA, 2020a, National Functional Guidelines for Organic Superfund Methods Data Review. EPA 540-R-20-005, Washington, DC: U.S Environmental Protection Agency, November, 190p, https://www.epa.gov/sites/default/files/2021-03/documents/nfg_for_organic_superfund_methods_data

USEPA, 2020b, National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA 542-R-20-006, Washington, DC: U.S Environmental Protection Agency, November, 174p, https://www.epa.gov/sites/default/files/2021-03/documents/nfg_for_inorganic_superfund_methods_data

USEPA, 2020c, National Functional Guidelines for High Resolution Superfund Methods Data Review. EPA 542-R-20-007. Washington, DC: U.S. Environmental Protection Agency, November, 86p, https://www.epa.gov/sites/default/files/2021-03/documents/nfg_for_hrsm_superfund_methods_data_review_november_2020.pdf

Attachments

1. Qualifier Flags
2. Data Usability Reviewer Biography
3. DUSR Sub-Report for SDG #22I0695

NOTE: Each DUSR Sub-Report has an associated (separate) annotated EDD (with validation) attached hereto (Excel File Name Format: SDG-#_EquaNysdec-V.xls).

Prepared by: Kurt A. Frantzen, PhD
January 4, 2023

GES PO #1124498-1100

Attachment 1. Qualifier Flags

Qualifier	Quality Implication
0–9	Use with Coeluting Congeners
A	Tentatively Identified Compound (TIC) suspected to be an aldol condensation product
B | EB **TB | BB** **RB** **BH/BL**	An analyte identified in method blank (B), aqueous equipment (EB), rinsate (RB), trip (TB), or bottle blanks (BB) used to assess field contamination associated with soil or sediment samples mandates these qualifiers for only soil and sediment sample results. Analyte detected in Blank at level >10X/5-10X that of the Sample
D	Sample analysis from dilution of original sample
E	Analyte concentration exceeds calibration range. Reported amount is estimated.
H	Biased High
HT	Holding time violation
I	Analyte concentration is an estimated maximum possible concentration (EMPC) due to transition mass ratio and likely to have a high bias (see J+ below)
J	Analyte positively identified at a numerical value that is the approximate concentration of the analyte in the sample
J +	Sample likely to have a high bias
J –	Sample likely to have a low bias
L	Biased Low
N	The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
R	Sample result rejected due to serious deficiency in ability to analyze sample and meet quality control criteria; the presence or absence of the analyte cannot be confirmed. This qualifier also may apply when more than one sample result is generated for a target analyte (*i.e.*, dilutions or re-analyses), the most technically acceptable result is considered acceptable.
P	Use professional judgment based on data use. It usually has an "M" with it, which indicates that a manual check should be made if the data that are qualified with the "P" are important to the data user. In addition, "PM" also means a decision is necessary from the Project Manager (or a delegate) concerning the need for further review of the data (*see below*).
PM	A manual review of the raw data is recommended to determine if the defect affects data use, as in "R" above. This review should include consideration of potential affects that could result from using the "P" qualified data. For example, in the case of holding-time exceedance, the Project Manager or delegate can decide to use the data with no qualification when analytes of interest are known not to be adversely affected by holding-time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria; because this is likely due to sample non-homogeneity rather than contract laboratory error, then the manager or delegate must decide how to use the data.
U	The analyte was analyzed for but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.
UJ	Analyte analyzed for but not detected. Reported quantitation limit is approximate and may be inaccurate or imprecise

Attachment 2. Data Usability Reviewer: Kurt A. Frantzen, PhD

Experience

2013-Present	d/b/a RemVēr	Owner
2014-2019	AECC	Senior EHS Consultant
2011-2012	RemVēr, Inc.	President
2006-2011	Kleinfelder	Senior Principal Scientist
2005	Kleinfelder	Principal Scientist, Part-Time/On Call
2004-2006	d/b/a Environmental Risk Group	Owner
2004-2006	RemVēr, Inc., Larchmont, NY	Founder, President
1999-2004	VHB, Inc.	ERM Director & Associate
1997-1998	GEI Consultants, Inc.	Senior Project Manager
1992-1997	Ecology and Environment, Inc.	Technical Chief
1991-1992	EA Engineering, Science, & Technology, Inc.	Project Manager III
1990-1991	Ecology and Environment, Inc.	Technical Group Manager
1986-1990	Ecology and Environment, Inc.	Senior Environmental Scientist

Education

Am Cancer Soc. Post-Doctoral Fellow, U Washington 1985-1986

PhD—Life Sci. / Biochem, NU—Lincoln	1985
MS—Plant Pathology, Kansas State Univ.	1980
BS—Biology, NU—Omaha	1978

Other

- CERCLA & RCRA experience, as well as DOD (Air Force & Army) & DOE (INEL)
- NE Regional Experience—NY BCP; Mass MCP; & various sites in CT, RI & NH
- National Experience: NE, SE, Gulf & West Coast, Mid-west, Inter-mountain, California, Alaska
- International: Germany, Israel, Kuwait, Australia
- Selected Publications
    - *Using Risk Appraisals to Manage Environmentally Impaired Properties*, 2000, VHB Site Works, Report 108
    - *Risk-Based Analysis for Environmental Managers*, 2001, CRC/Lewis
    - Chapter 7 Risk Assessment, *Managing Hazardous Materials*, 2002 & 2009, IHMM
    - Chapter 22 Cleanup Goals, *Brownfields Law & Practice*, 2004-Present, Lexis/Nexis
    - *Use of Risk Assessment in Risk Management of Contaminated Sites*, 2008, ITRC
- 61 Conference Papers & Invited Professional Presentations
    - 1999-2022, Visiting Lecturer, Brownfields Prgm. & Options Studio, Harvard Univ. Graduate School of Design
    - 2010-2013, Invited Lecturer, Pace University Law School
    - 2014-2015, Adjunct Professor, Pace University Law School

Attachment 3. Data Usability Sub-Report for SDG #22I0695

Detailed Quality Review

Field Notes Review

	Y	N	NA	COMMENTS
Sampling notes	☒	☐	☐	
Field meteorological data	☐	☐	☒	No review required under QAPP
Associated sampling location and plan included	☐	☒	☐	See RAP/QAPP
Associated drilling logs available, reviewed	☐	☐	☒	No review required under QAPP
Identification of QC samples in notes	☒	☐	☐	Sample IDs
Sampling instrument decontamination records	☐	☐	☒	No review required under QAPP
Sampling instrument calibration logs	☐	☐	☒	No review required under QAPP
Chain of custody included	☒	☐	☐	With analytical report
Notes include communication logs	☐	☒	☐	
Any corrective action (CA) reports	☐	☒	☐	If so, CA documentation of results required.
Any deviation from methods noted? If so, explain	☐	☒	☐	None
Any electronic data deliverables	☒	☐	☐	Yes
Sampling Report (by Field Team Leader)	☐	☒	☐	Field Notes

Lab Report Contents

☒ SDG Narrative
☒ Contract Lab Sample Information Sheets
☒ Data Package Summary Forms
☒ Chain-of-Custody (COC) Forms
☒ Test Results (no tentatively identified compounds [TICs])
☒ Calibration standards
☒ Surrogate recoveries
☒ Blank results
☒ Spike recoveries
☒ Duplicate results
☒ Confirmation (lab check/QC) samples
☒ Internal standard area & retention time summary
☒ Chromatograms
☒ Raw data files
☒ Other specific information

Is the data package complete as defined under the requirements for the NYSDEC ASP Category B?		
Laboratory Report	**Complete (Y/N)**	**Comments**
22I0695	Y	None

Sample Preservation Requirements & Holding Times Met?			
Laboratory Report	**Hold Times (Y/N)**	**Preservation (Y/N)**	**Exception Comment**
22I0695	Y	Y	None

Do the QC data fall within the protocol required limits and specifications?
(1) blanks, (2) instrument tunings, (3) calibration standards, (4) calibration verifications, (5) surrogate recoveries/ISD, (6) spike recoveries, (7) replicate analyses, (8) laboratory controls, (9) and sample data

SDG	1	2	3	4	5	6	7	8	9
22I0695	☒	☐	☐	☒	☒	☒	☒	☒	☒

The narrative section, below, discusses these deficiencies in detail, see detail/summary worksheets as well.

Were the data generated using established and agreed upon analytical protocols?		
Laboratory Report	**Protocols (Y/N)**	**Exception Comment**
22I0695	Y	No

Do the raw data confirm the results provided in the data summary sheets and quality control verification forms?		
Laboratory Report	**Confirmation (Y/N)**	**Exception Comment**
22I0695	Y	No

Were correct data qualifiers used and are they consistent with the most current guidance?		
Laboratory Report	**Qualifiers (Y/N)**	**Comment**
22I0695	Y	The laboratory generally applied appropriate qualifiers.

Were quality control (QC) exceedances specifically noted in this DUSR and the corresponding QC summary sheets from the data packages referenced?		
Laboratory Report	**QC Exceedances Documented (Y/N)**	**Comment**
22I0695	Y	Data qualifications applied as described below

Data Quality and Usability Narrative

Field Notes Inspection

The groundwater samples came from a collection event on/about September 12, 2013. RemVēr reviewed the field notes as part of this DUSR, which indicated no issues.

Laboratory Report Inspection

Con-Test produced an SDG report #22I0695 (dated 7-Oct-22). The SDG report had the required data and information.

Chain of Custody (COC) Evaluation

NYSDEC/GES produced a single, one-page COC for SDG: #22I0695. The laboratory noted no issues at the time of acceptance. RemVēr reviewed the COC and noted some typographical errors regarding the collection date of Sample #-4 (Dup-1); it should be 13-Sept. Sample #-5 had no analyses indicated, but the laboratory analyzed it for PFAS.

Sample Preservation & Holding Time Evaluation

Laboratory received a cooler with samples on 9/14/2022 @ 09:50 (designated as SDG-#22I0695). The samples arrived in good condition, properly preserved, and where necessary under ice (cooler(s) were 3.4 and 5.5ºC). Holding times and preservation requirements were met.

Sample Preparation & Analyses

Each sample had specifically requested analytical requirements as indicated in the table:

SDG #22I0695			Analysis / Method / Analytes			
			8082	**6010 / 6020 & 7470**	**454**	**8270E**
#	**—**	**QA**	**PCBs**	**Metals & Mercury (Hg)**	**PFAS**	**1,4-Dioxane**
#-1	MW-2	—	X	—	X	X
#-2	MW-4	—	X	X	X	X
#-3	MW-2	—	X	X	—	X
#-4	Dup-1 (1/3)	Dup	X	X	X	X
#-5	EB	Blank	—	—	X	—
#-6	MW-4	MS/MSD	X	X	X	X
		Batch #:	317558	317317/ 317398/317622/317628 (Hg—316769/317319])	317692 / 317999	317373 / 317557

Sample preparation and the analyses were within acceptable parameters other than those items discussed in the following sections.

Detection Limits

If an analyte was below the method detection limit (MDL), then a "U" flag was set to indicate non-detection (undetected); whereas if an analyte was below the reporting limit (RL), then a "J" flag was set to indicate detection with an estimated result. Reported results were from undiluted samples and analytical detection limits (DLs) met requirements for the reported analytes.

Sample #-2 metals analysis (Batch B317622) required dilution for certain analytes, resulting in elevated RLs for Antimony, Beryllium, Lead, and Manganese. RemVēr set a D-flag designation for these results.

If an analyte concentration exceeded the calibration range, the laboratory set an "E" flag, and associated reported results were estimates.

Calibration Standards (Initial) and Initial/Continuing Calibration Verification (ICV/CCV)

Calibration standards (external or internal) were acceptable for all analytes. Initial and Continuing Calibration Verifications (ICV/CCVs) were acceptable for all methods and analytes, with the following exceptions:

- *Method 454*—Batch B317999 had CCV recovery beyond control limits (<LCL) with low bias for 8:2FTS and Nonafluoro-3,6-dioxaheptanoic acid (NFDHA). RemVēr flagged the 8:2 results as UJ- or J- (non-detect/detect) as appropriate in Sample #-6.

Blank Evaluation

SDG #22I0695 had Method Blanks (MBs) for each method. The MBs were acceptable (no detectable analytes) with several exceptions:

- *Method 8270*—Batch B317557 reported the analyte above the method detection limit (DL) but below the RL, thus the lab set a J-flag. RemVēr set a J-flag designation for the Sample #4 results.
- *Method 6010*—Batch B317317 reported Manganese and Zinc above the DL but below the RL, thus the lab set a J-flag. RemVēr set a J-flag designation for Sample #-3, -4, and -6 results.
- *Method 6010*—Batch B317622 reported Copper, Manganese, and Zinc above the DL but below the RL, thus the lab set a J-flag. RemVēr set a J-flag designation for the Sample #-2, -3RE1, and -4RE1 results. Note: RE1 indicates a sample re-extraction.

Laboratory Control Samples (LCS)

The various method LCS' (LCS & LCS duplicates [LCSD]) were within the acceptable control ranges and relative percent differences (RPDs) for their respective analyses in SDG 22I0695 with the following exception:

- *Method 454*—Batch B317692 had spike recovery beyond control limits (>UCL) with high bias for NEtFOSAA. RemVēr flagged the results as UJ+ or J+ (non-detect/detect) as appropriate in Samples #-1, 2, 4, and 5.

Surrogates and Isotope Dilution

Surrogates added to a sample allow testing of preparatory and instrument behavior resulting in recoveries within appropriate method ranges for the analytes. Surrogates behaved in this SDG within acceptable performance criteria.

Analysis of 1,4-Dioxane and PFAS used Isotope Dilution Analyte (IDA), which employs internal isotopic standards. In this case, the IDA results were within acceptable performance limits, save for the following:

- *Method 454*—extracted internal standards were beyond control limits with high bias impacting 6:2FTS in Samples #-2 and #-4, and 8:2FTS in Sample #-2. RemVēr set quality flags (J+) for the appropriate detected results. EPA guidance requires no qualifier for undetected analytes; however, DEC guidance recommends a J-flag for FTS compounds.
- *Method 454*—some PFAS internal standard areas were beyond control limits (>UCL) as indicated below. RemVēr flagged the results as UJ or J as appropriate.
    - Sample #-2: 8:2 FTS & 6:2FTS
    - Sample #-4: PFTA, PFPeA, FOSA, PFBA, & PFDoA
    - Sample #-5: PFTA

Site-Specific Matrix Spikes and Matrix Spike Duplicates

The matrix spike/matrix spike duplicate (MS/MSD) runs (using Sample #-6) were performed for all analyses The MS/MSD runs behaved within acceptable performance criteria, save for the following:

- *Method 6010/6020*—Batch 317398 MS/MSD spike ratio beyond 4:1, with spike unrepresentative of native concentration for Calcium and Magnesium. MS/MSD results unmeaningful, rely on LCS. RemVēr set J flags for Sample #6 results.
- *Method 522*—Batch B317373 MS spike recovery was <10%, a significant violation, while the MSD was acceptable. RPD was beyond control limits as well. RemVēr set quality flags (J if detected, NDs flagged UPM) for sample (#1–4 - 6) results. NOTE: guidance indicates if MS/MSD is <10% (a severe violation) then non-detects should be rejected; however, professional judgment is allowed. For this reason, RemVēr set a PM flag for non-detects.
- *Method 454*—Batch B317999 either MS/MSD spike recoveries were beyond control limits, while the RPDs were within limits. RemVēr set quality flags (J or UJ) for Samples #1-2 & #-4-6.
    - MS recovery >UCL for: PFOS
    - MSD recovery >UCL for: PFBS, PFBA, PFDA, PFHpS, PFHpA, PFNA, PFOA, PFPeA, PFUnA, NEtFOSAA, NMeFOSAA, 6:2FTS, & 8:2FTS

Duplicates

The analytical Method Duplicates met their RPD performance criteria.

GES submitted one field duplicate sample (#-4 [Dup-1]) for this SDG. It was a replicate of Sample #-3. The laboratory performed all reported analyses, and the respective analytes met the RPD performance criteria of <20% (<30% for PFAS) except for:

- Ag, Al, As, Ba, Be, Cd, Co, Cu, Fe, Hg, Mn, Ni, Pb, Sb, Se, Th, Va, & Zn
- NOTE that Sample #-3 was not tested for PFAS, therefore, no evaluation of precision was possible.

RemVēr flagged (UJ or J & PM) those analytes beyond performance criteria only in the replicate sample pair. Note many analytes performed poorly; therefore, we recommend that the Project Manager review the results and consider next steps.

Other Analytical Issues

Guidance cites the following items as additional analytical matters of concern for PFAS:

- Secondary Ion Transition Monitoring—
  - PFBS in Sample #-4 had qualifier ion ratio <50% of its associated calibration; therefore, any detection is suspect. Flag UJ or J as appropriate.
- Signal to Noise Ratio (3:1)—No issues.
  - PFBS in Samples #-4 & #-6 had quantifying ion signal : noise ratio of <10; therefore, any detection is suspect. Flag UJ or J as appropriate.
- Branched and Linear Isomers—No issues.
- Peak Integrations—No issues.

The laboratory reported no other analytical issues.

Tentatively Identified Compounds (TICs)

This SDG did not include Volatile Organics TIC analysis.

Sample Result and Usability Evaluation

Due to sampling issues or laboratory performance, RemVēr qualified certain results; however, the data are usable. No data received an R (rejected) flag.

Note several analytes performed poorly and the results flagged with PM. Additionally the replicate pair performed poorly for many metals/metalloids and for PFAS; thus, we recommend that the Project Manager review the results and consider next steps.

DQA Detail Worksheet for SDG #22I0695

BLANKS	>RL?	Compounds	Notes
PCBs (8082)	No	All	No Comment
Metals (6010/6020)	No DL>[X]<RL DL>[X]<RL	All Mn & Zn Cu, Mn & Zn	No Comment Flag J (#-3/4/6) Flag J (#-2)
Mercury (7470)	No	Hg	No Comment
SVOC (8270) SIM	No	1,4-Dioxane	No Comment
PFAS (454)	No	All	No Comment

LCS	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
PCBs (8082)	—	—	—	All	No Comment
Metals (6010/6020)	—	—	—	All	No Comment
Mercury (7470)	—	—	—	Hg total	No Comment
SVOC (8270) SIM	—	—	—	1,4-Dioxane	No Comment
PFAS (454)	—	—	—	All Others	No Comment
#-1, 2, 4, & 5	—	—	X	NEtFOSAA	Flag UJ+ or J+
—	—			—	—

SURROGATES / IDA	SV <10%	> 10% & < LCL	>UCL	Compound(s)	Notes
PCBs (8082)	—	—	—	All	No Comment
Metals (6010/6020)	—	—	—	All	No Comment
Mercury (7470)	—	—	—	Hg	No Comment
SVOC (8270) SIM	—	—	—	1,4-Dioxane	No Comment
PFAS (454)	—	—	—	All Others	No Comment
#-2	—	—	X	6:2 & 8:2	Flag J
#-4	—	—	X	6:2	Flag J
#-2	—	—	X	6:2 & 8:2	Flag UJ or J
#-4	—	X	X	PFTA, PFPeA, FOSA, PFBA, & PFDoA	Flag UJ or J
#-5	—	X	—	PFTA	Flag UJ or J

DQA Detail Worksheet Continued

MS/MSDs	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	QC Source	RPDs	Notes
PCBs (8082)				#-6		No Comment
Metals (6010/6020)	—	—	—	#-6		No Comment
#-6 Ca & Mg	—	—	—	#-6	<>	No Flag
Mercury (7470)	—	—	—	#-6	—	No Comment
SVOC (8270) SIM	MS	—	—	#-6	X	Flag J, if ND then UPM
PFAS (454)	—	—	—	#-6	—	No Comment
#1-2 & #-4-6: PFOS	—	—	MS	#-6	—	Flag UJ or J
#1-2 & #-4-6: PFBS, PFBA, PFDA, PFHpS, PFHpA, PFNA, PFOA, PFPeA, PFUnA, NEtFOSAA, NMeFOSAA, 6:2FTS, & 8:2FTS	—	—	MSD	#-6	—	Flag UJ or J

FIELD DUPLICATES RPDs	QC Source	Soil RPD > 50%	Water RPD > 20%	Compounds	Notes
#-4	#-3	N/A	X	Ag, Al, As, Ba, Be, Cd, Co, Cu, Fe, Hg, Mn, Ni, Pb, Sb, Se, Th, Va, & Zn	Flag UJ / J PM
		N/A	RPD > 30%	PFAS Analytes	
LAB DUPLICATES					
All Methods	Batch	—	N/A	As listed	None

Reasonable Confidence Achieved ☐ Y ☐ N—Not Applic.
Significant QC Variances Noted ☒ Y ☐ N Preservation Requirements Met ☒ Y ☐ N
Requested Reporting Limits Achieved ☒ Y ☐ N Holding Time Requirements Met ☒ Y ☐ N

Abbreviations:
RL = Reporting Limit LCS = Laboratory Control Sample SV = Significant QC Variance
RPD = Relative Percent Difference LCL= RCP Lower Control Limit UCL= RCP Upper Control Limit
VOCs = Volatile Organic Compounds SVOCs = Semi-volatile Organic Compounds Pest = Pesticides
EPH = Extractable Petroleum Hydrocarbons VPH = Volatile Petroleum Hydrocarbons ETPH = EPH-Total
PCBs = Polychlorinated Biphenyls N/A = Not Applicable N/C = Not Collected -- = nothing to report
Notes: * Typical lab contaminants, not site-related

DQA Non-Conformance Summary Worksheet for SDG #22I0695

Only Flagged Results Shown Below

Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
All	Any	Analyte Not Detected				Flag U
	Any	MDL > result < RDL	—	—	—	Flag J
#-2	Sb, Be, Pb, & Mn	Elevated RLs	Dilution			Flag D
#-1, 2, 4, & 5	NEtFOSAA	LCS	>UCL	—	Hi	Flag UJ+ or J+
#-2	6:2 & 8:2	Surrogates/IDA	>UCL	—	Hi	Flag J
#-4	6:2	Surrogates/IDA	>UCL	—	Hi	Flag J
#-2	6:2 & 8:2	Internal Stnd.	>UCL	—	—	Flag UJ or J
#-4	PFTA, PFPeA, FOSA, PFBA, & PFDoA		>UCL or <LCL	—	—	Flag UJ or J
#-5	PFTA		>UCL	—	—	Flag UJ or J
#-4	PFBS	2° Ion Transition	Poor qualifier ion ratio			Flag UJ or J
#-4 & 6	PFBS	Signal : Noise	Poor ratio			Flag UJ or J
#-6	8:2FTS	CCV	<LCL	—	Lo	Flag UJ- or J-
#-6	Ca & Mg	MS/MSD	Poor ratio >4:1			Flag J
#-1–4, & 6	1,4-Dioxane	MS/MSD	MS <10%	—	Lo	Flag J or UPM if ND
#1-2 & #-4-6	PFOS	MS	>UCL	—	—	Flag UJ or J
	PFBS, PFBA, PFDA, PFHpS, PFHpA, PFNA, PFOA, PFPeA, PFUnA, NEtFOSAA, NMeFOSAA, 6:2FTS, & 8:2FTS	MSD	>UCL	—	—	Flag UJ or J
#-4 & #-3 PPFAS #-4/6	Ag, Al, As, Ba, Be, Cd, Co, Cu, Fe, Hg, Mn, Ni, Pb, Sb, Se, Th, Va, & Zn All PFAS Cmpds	Replicate Performance	—	>CL	—	Flag UJ / J PM

Notes: † RPD—Relative Percent Difference

‡ Bias High—Reported result may be lower, Reporting Limit (RL) is acceptable as reported. Bias Low—Reported results may be higher, RL may be higher than reported.