

MEMORANDUM

September 3, 2021

To: New York State Department of Environmental Conservation
From: Thomas Drachenberg, Parsons
Subject: Dunn C&D Landfill Sampling Results

This memo serves to summarize the results of the sampling event conducted at the Dunn C&D site on 5/3/2021 through 5/5/2021, and on 6/25/2021.

Groundwater Sampling Event (5/04-05/2021)

Groundwater samples were collected from six onsite monitoring wells: MW-10S, MW-11S, MW-12S, MW-6S, MW-7S, and MW-8S. Groundwater samples were submitted for laboratory analysis for per- and polyfluoroalkyl substances (PFAS). The highest concentration of PFAS in groundwater was 7.2 ng/L of perfluorobutanoic acid (PFBA), which was observed in MW-8S.

Monitoring well locations are shown on Figure 1, and all validated analytical results for groundwater samples are included in Table 1.

A groundwater sample was collected from MW-9SR on 6/25/2021. The only compound detected above reporting limits in this sample was PFBA, which was detected at a concentration of 0.59 ng/L.

Leachate Sampling Event (5/05/2021)

Leachate samples were collected from five onsite spigots, identified as follows: WL-01, WL-02, WL-03, WL-04, and WL-05. Leachate samples were submitted for laboratory analysis for PFAS, 1,4 dioxane, volatile and semi-volatile organics, inorganics (metals and mercury), as well as general chemistry parameters.

The highest concentration of PFAS in leachate was 2,000 ng/L of perfluoropentanoic acid (PFPeA), which was observed in WL-02. Perfluorooctanesulfonic acid (PFOS) was observed above 10 ng/L in WL-01 and WL-03. Perfluorooctanoic acid (PFOA) was observed above 10 ng/L in WL-01, WL-02, WL-03, WL-04, and WL-05. The highest concentration of PFOA+PFOS was 343 ng/L, which was observed WL-01.

The highest concentration of 1,4 dioxane in leachate was 71 ug/L, which was observed in WL-01. All leachate sample results were observed above 1 ug/L.

All validated analytical results for leachate samples are included in Table 2.

Surface Water Sampling Event (5/03/2021)

Surface water samples were collected from five locations in Quackenderry Creek: SW-01, SW-02, SW-04, SW-05, and SW-06. Additionally, surface water samples were collected from a small unnamed tributary (SW-03), and from an on-site stormwater basin (SW-07). Surface water samples were submitted for laboratory analysis for

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PFAS, 1,4 dioxane, volatile and semi-volatile organics, inorganics (metals and mercury), as well as general chemistry parameters.

The highest concentration of PFAS in surface water was 33 ng/L of perfluorohexanoic acid (PFHxA), which was observed in SW-07. PFOS and PFOA were not observed above 10 ng/L at any of surface water sampling locations. The highest concentration of PFOA+PFOS was 18.7 ng/L, which was observed at SW-03.

The highest concentration of 1,4 dioxane, 0.17 ug/L, was observed at SW-07. All concentrations of 1,4 dioxane in surface water were below 1 ug/L.

Surface water sample locations are shown on Figure 1, all validated analytical results for surface water samples are included in Table 3.

Quality Control and Data Validation

Data validation was performed on the groundwater, surface water, and leachate samples referenced above in accordance with the analytical methodologies, USEPA SOPs, and *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs* (2021) guidance. All data were considered usable following data validation.

All validated analytical results for quality control samples are included in Table 4. A Data Usability and Summary Report (DUSR) has been prepared for this site and is included as Attachment 1.

Enc: Figure 1 – Site Plan
 Table 1 – Groundwater Sampling Results (May 2021)
 Table 2 – Leachate Sampling Results (May 2021)
 Table 3 – Surface Water Sampling Results (May 2021)
 Table 4 – QC Sampling Results (May 2021)
 Table 5 – Groundwater and QC Sampling Results (June 2021)
 Attachment 1 – Data Usability Summary Report (May and June 2021)

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Table 2
Dunn C&D
Leachate Sampling Results
May 2021

						Location Description		4-REN-004-WL-01	4-REN-004-WL-02	4-REN-004-WL-03	4-REN-004-WL-04	4-REN-004-WL-05
						Location ID	Sample ID	4-REN-004-03-12	4-REN-004-03-11	4-REN-004-03-10	4-REN-004-03-09	4-REN-004-03-08
						Matrix	Lab Sample ID	WL	WL	WL	WL	WL
						Sample Date	R210444-012	R210444-011	R210444-010	R210444-009	R210444-008	R210444-007
						Sample Type Code	N	N	N	N	N	N
Analytical Method	Chemical Name	Unit	NYSDC Class	CA	MCL	New York State						
1,4 Dioxane												
BUASIM	1,4-Dioxane (P-Dioxane)	ug/l	-	-	1	71	44	27	16	15		
Per- and Polyfluoroalkyl Substances												
E537	2-(N-methyl perfluorooctanesulfonamido) acetic acid	ug/l	-	-	-	31	47U	54U	44U	46U		
E537	6,2-Fluorotelonic sulfonate	ng/l	-	-	-	94	22	93	13	6.9		
E537	8,2-Fluorotelonic sulfonate	ng/l	-	-	-	0.440	0.383	0.440	0.440	0.440		
E537	N-Ethyl-N'-(heptafluoroisobutyryl)sulfonyl glycine	ng/l	-	-	-	4.6U	4.7U	5.4U	4.4U	4.4U		
E537	Perfluorobutanoic acid (PFBS)	ng/l	-	-	-	170	120	230	10	26		
E537	Perfluorobutanoic acid (PFBS)	ng/l	-	-	-	1000	510	510	190	190		
E537	Perfluorooctanoic acid (PFOS)	ng/l	-	-	-	-	4.6U	4.7U	5.4U	4.4U	4.6U	
E537	Perfluorodecanoic acid (PFDA)	ng/l	-	-	-	4.6U	4.7U	5.4U	1.3U	4.6U		
E537	Perfluorododecanoic acid (PFDA)	ng/l	-	-	-	4.6U	4.7U	5.4U	4.4U	4.4U		
E537	Perfluorooctanesulfonic acid (PFHxS)	ng/l	-	-	-	0.58U	5.4U	4.7U	4.4U	4.4U		
E537	Perfluorooctanesulfonic acid (PFHxS)	ng/l	-	-	-	300	200	320	43	46		
E537	Perfluorooctanesulfonic acid (PFHxS)	ng/l	-	-	-	120	110	110	15	15		
E537	Perfluorooctanoic acid (PFHxA)	ng/l	-	-	-	1700	1200	1600	230	350		
E537	Perfluorooctanoic acid (PFNA)	ng/l	-	-	-	8.6	2.3	8.6	1.8	1.5		
E537	Perfluorodecanoic acid (PFDA)	ng/l	-	-	-	0.73U	5.4U	4.7U	4.4U	4.4U		
E537	Perfluorododecanoic acid (PFDA)	ng/l	-	-	-	10	43	33	2.7	2.7		
E537	Perfluorooctanoic acid (PFDA)	ng/l	-	-	-	300	300	300	30	21		
E537	Perfluorooctanoic acid (PFDA)	ng/l	-	-	-	1700	1200	1800	190	190		
E537	Perfluorotetradecanoic acid (PFTrA)	ng/l	-	-	-	4.6U	4.7U	5.4U	4.4U	4.6U		
E537	Perfluorodecanoic acid (PFTrA)	ng/l	-	-	-	4.6U	4.7U	5.4U	4.4U	4.6U		
E537	Perfluorooctanoic acid (PFTrA)	ng/l	-	-	-	4.6U	4.7U	5.4U	4.4U	4.6U		
Volatile Organics												
SWR260C	1,1,1,2-Tetrachloroethane	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	1,1,1-Trichloroethane (TCA)	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	1,1,2,2-Tetrachloroethane	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	1,1,2-Trichloroethane	ug/l	1	-	-	10U	10U	10U	10U	10U		
SWR260C	1,1-Dichloroethane	ug/l	5	-	-	2.4U	5.4U	5.4U	8.6U	8.6U		
SWR260C	1,1-Dichloroethane	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	1,2-Dichloropropane	ug/l	0.04	-	-	10U	10U	10U	10U	10U		
SWR260C	1,2-Dibromo-2-Chloropropane	ug/l	0.04	-	-	20U	20U	20U	20U	20U		
SWR260C	1,2-Dibromomethane (Ethylene Dibromide)	ug/l	0.0006	-	-	10U	10U	10U	10U	10U		
SWR260C	1,2-Dichlorobenzene	ug/l	3	-	-	10U	10U	10U	10U	10U		
SWR260C	1,2-Dichlorobenzene	ug/l	1	-	-	10U	10U	10U	10U	10U		
SWR260C	1,2-Dichloropropane	ug/l	1	-	-	10U	10U	10U	10U	10U		
SWR260C	1,2-Dichlorobenzene	ug/l	3	-	-	10U	10U	10U	10U	10U		
SWR260C	2-Chlorobenzene	ug/l	50	-	-	50U	50U	50U	50U	50U		
SWR260C	Acetone	ug/l	50	-	-	52	50U	79	50U	10U	10U	
SWR260C	Acrylonitrile	ug/l	5	-	-	100U	100U	100U	100U	100U		
SWR260C	Benzene	ug/l	1	-	-	7.1	7.1	7.1	7.1	7.1		
SWR260C	Bromochloromethane	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Bromodichloromethane	ug/l	50	-	-	10U	10U	10U	10U	10U		
SWR260C	Bromomethane	ug/l	50	-	-	10U	10U	10U	10U	10U		
SWR260C	Bromomethane	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Carbon Disulfide	ug/l	60	-	-	10U	10U	10U	10U	10U		
SWR260C	Carbon Tetrachloride	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Chlorobenzene	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Chloroethane	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Chloroform	ug/l	7	-	-	2.8U	2.8U	2.8U	2.8U	2.8U		
SWR260C	Chloromethane	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Cis-1,2-Dichloroethylene	ug/l	5	-	-	7.1U	5.7U	7.3U	10U	10U		
SWR260C	Cis-1,3-Dichloroethylene	ug/l	0.4	-	-	10U	10U	10U	10U	10U		
SWR260C	Dibromochloromethane	ug/l	50	-	-	10U	10U	10U	10U	10U		
SWR260C	Dibromomethane	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Ethylbenzene	ug/l	5	-	-	7.1U	5.1U	5.1U	5.1U	5.1U		
SWR260C	Iodomethane (Methyl Iodide)	ug/l	5	-	-	50U	50U	50U	50U	50U		
SWR260C	m-Xylene	ug/l	5	-	-	20U	20U	20U	20U	20U		
SWR260C	Methyl Ethyl Ketone (2-Butanone)	ug/l	50	-	-	8U	8U	8U	8U	8U		
SWR260C	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ug/l	-	-	-	50U	50U	50U	50U	50U		
SWR260C	Methylene Chloride	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	O-Xylene (1,2-Dimethylbenzene)	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Styrene	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Tetrachloroethylene (PCE)	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Toluene	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Trans-1,2-Dichloroethene	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Trans-1,3-Dichloropropene	ug/l	0.4	-	-	10U	10U	10U	10U	10U		
SWR260C	Trans-1,4-Dichloro-2-Butene	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Trichloroethylene (TCE)	ug/l	5	-	-	10U	10U	10U	10U	10U		
SWR260C	Trichlorofluoromethane	ug/l	5	-	-	10U	10U	2.5U	2.5U	7.9U		
SWR260C	Vinyl Acetate	ug/l	5	-	-	20U	20U	20U	20U	20U		
SWR260C	Vinyl Chloride	ug/l	2	-	-	10U	10U	10U	10U	10U		
SWR260C	Xylenes, Total	ug/l	5	-	-	30U	30U	30U	30U	30U		
Semi-volatile Organics												
SWR270D	Aceophenone	ug/l	20	-	-	0.22	0.15U	0.19U	0.19U	0.21U		
SWR270D	Aceophenethylen	ug/l	-	-	-	0.2U	0.21U	0.19U	0.19U	0.21U		
SWR270D	Anthracene	ug/l	50	-	-	0.2U	0.19U	0.19U	0.19U	0.21U		
SWR270D	Benzo(a)Anthracene	ug/l	0.002	-	-	0.2U	0.21U	0.19U	0.19U	0.21U		
SWR270D	Benzo(a)Pyrene	ug/l	-	-	-	0.2U	0.21U	0.19U	0.19U	0.21U		
SWR270D	Benzo(b)Fluoranthene	ug/l	0.002	-	-	0.2U	0.19U	0.19U	0.19U	0.21U		
SWR270D	Benzo(k)Fluoranthene	ug/l	-	-	-	0.2U	0.21U	0.19U	0.19U	0.21U		
SWR270D	Chrysene	ug/l	0.002	-	-	0.21	0.21U	0.19U	0.19U	0.21U		
SWR270D	Dibenz(a,h)Anthracene	ug/l	-	-	-	0.2U	0.21U	0.19U	0.19U	0.21U		
SWR270D	Fluoranthene	ug/l	50	-	-	0.2U	0.21U	0.19U	0.19U	0.21U		
SWR270D	Fluorene	ug/l	50	-	-	0.19U	0.21U	0.19U	0.19U	0.21U		
SWR270D	Indeno(1,2,3-cd)Pyrene	ug/l	0.002	-	-	0.2U	0.21U	0.19U	0.19U	0.21U		
SWR270D	Naphthalene	ug/l	5	-	-	2.3	2.9	0.4U	0.19U	0.21U		
SWR270D	Phenanthrene	ug/l	50	-	-	0.2U	0.21U	0.19U	0.19U	0.21U		
SWR270D	Pyrene	ug/l	50	-	-	0.2U	0.21U	0.19U	0.19U	0.21U		
Inorganics												
SWR610	Aluminum	ug/l	-	-	-	100U	100U	220	100U	75.4U		
SWR610	Antimony	ug/l	3	-	-	60U	60U	60U	60U	60U		
SWR610	Arsenic	ug/l	25	-	-	10U	10U	10U	10U	10U		
SWR610	Barium	ug/l	1000	-	-	177	189	129	107	107		
SWR610	Berillium	ug/l	3	-	-	3U	3U	3U	3U	3U		
SWR610	Boron	ug/l	1000	-	-	970	4090	7830	1040	2490		
SWR610	Calcium	ug/l	5	-	-	5U	5U	5U	5U	5U		
SWR610	Calcium	ug/l	-	-	-	359000	424000	335000	368000	472000		
SWR610	Chromium, Total	ug/l	50	-	-	8.6U	1.1U	8.7U	10U	10U		
SWR610	Cobalt	ug/l	50	-	-	19U	13U	13U	27.7U	10U		
SWR610	Copper	ug/l	200	-	-	20U	20U	20U	20U	20U		
SWR610	Iron	ug/l	5000	-	-	1610	5160	4400	5370	9380		
SWR610	Lead	ug/l	25	-	-	50U	50U	50U	50U	50U		
SWR610	Magnesium	ug/l	35000	-	-	178000	153000	153000	111000	152000		
SWR610	Manganese	ug/l	300	-	-	7570	10600	6600	4980	7890		
SWR610	Nickel	ug/l	100	-	-	27.6U	27.6U	27.6U	42U	42U		
SWR610	Potassium	ug/l	-	-	-	25800	17200	22600	4430	7390		
SWR610	Selenium	ug/l	10	-	-	10U	10U	10U	10U	10U		
SWR610	Silver	ug/l	50	-	-	10U	10U	10U	10U	10U		
SWR610	Sodium	ug/l	20000	-	-	303000	151000	222000	63100	110000		
SWR610	Thallium	ug/l	0.5	-	-	10U	10U	10U	10U	10U		
SWR610	Vanadium	ug/l	3	-	-	3.2U	2.4U	2.4U	50U	1.2U		
SWR610	Zinc	ug/l	2000	-	-	30.8U	21U	20U	39.6U	25.1U		
SW1470	Mercury	ug/l	0.7	-	-	0.2U	0.2U	0.2U	0.2U	0.2U		
General Chemistry												
SH 2320 B	Alkalinity, Total (As CaCO3)	mg/l	-	-	-	1180	180	1160	1030	1050		
SH 2340 C	Hardness (As CaCO3)	mg/l	-	-	-	1000	680	1440	1440	1600		
SH2424C	Total Dissolved Solids (Residue, Filterable)	mg/l	-	-	-	2760	1260	1320	1710	1320		
SH4310C	Total Organic Carbon	mg/l	-	-	-	105	39.7	93	93	34.7		
E500 B	Bromide	mg/l	2	-	-	2.2	4.4	1.9	5.1U	2.5U		
E500 D	Chloride (As Cl)	mg/l	250	-	-	39U	39U	37U	87.3	94U		
E500 D	Sulfate (As SO4)	mg/l	250	-	-	632	687	495	379	643		
E500 A	Nitrogen, Ammonia (As N)	mg/l										

Notes:

- ¹ New York State Department of Environmental Conservation, 6NYCRR Part 703 and Technical and Operational Guidelines
- ² New York State Department of Health, State Sanitary Code (SSC) 10NYCRR Part 5 maximum contaminant levels
- ³ Green Highlighting = Exceeds NYDEC Case GA Standards and Guidance Values
- ⁴ Blue Highlighting = Exceeds NYDML

NA = Not analyzed, NC = criteria exists

Qualifiers = B = Compound was found in the blank and sample, BL = Compound was found in the blank and sample

Matrix ID: WO = Water Quality Control Sample, WG = Groundwater, VS = Surface Water

Equipment ID: N = Normal Environmental Sample, F = Field Duplicate, EB = Equipment Blank, FB = Field Blank

Fraction: Due to turbidity being >50 NTU, total and dissolved metals samples were collected in the field. T = Total

Results validated.

Table 4
Dunn C&D
QC Sampling Results
May 2021

Analytical Method	Chemical Name	CAS	NYDEC Class	Lab Sample ID	New York State PCL	Location Description										Lab Sample ID	NYDEC Class	Lab Sample ID	New York State PCL	
						Location ID														
						Sample ID														
						Date														
						4-REN-004-001-03	4-REN-004-001-04	4-REN-004-001-11	4-REN-004-002-02	4-REN-004-002-03	4-REN-004-002-03	4-REN-004-002-03	4-REN-004-003-01	4-REN-004-003-04	4-REN-004-003-13					
						WQ	WQ	WQ	WQ	WQ	WQ	WQ	WQ	WQ	WQ	WQ				
						8/23/2002-001	8/23/2002-004	8/23/2002-011	8/23/2002-002	8/23/2002-003	8/23/2002-003	8/23/2002-003	8/23/2002-002	8/23/2002-003	8/23/2002-013	8/23/2002-013				
						10/1/2002	10/1/2002	10/1/2002	10/1/2002	10/1/2002	10/1/2002	10/1/2002	10/1/2002	10/1/2002	10/1/2002	10/1/2002				
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² New York State Department of Environmental Conservation, 6NYCRR Part 703 and Technical and Operational Guidance Series (1.1.1) Class GA Standards and Guidance Values. Revised 1996.

² New York State Department of Health, State Sanitary Code (SSC) 10NYCRR Part 5 maximum contaminant levels for PFOA, PFOS, and 1,4 Dioxane

Orange Highlighting = Exceeds NYSDEC Class GA Standards and Guidance Values

Blue Highlighting = Exceeds NYS MCL

NA = Not analyzed; NC = criteria *ex ante*

NA = Not analyzed, NL = criteria exists

Qualifiers: B = Compound was found in the blank and sample, BJ = Compound was found

UJ = Approximate non-detect, U = Not detected at the detection limit shown, T = indicates that a quality control parameter has exceeded

Matrix ID: WO = Water Quality Control Matrix, WG = Groundwater, WS = Surface Water

Sample Type Code

Sample Type Code

Table 5
Dunn C&D
Groundwater and QC Sampling Results
June 2021
Dunn C&D Sampling Results
June 2021

		Location Description Location ID Sample ID Matrix Lab Sample ID Sample Date Sample Type Code		4-REN-004-004-01 WQ R2106422-001 6/25/2021 FB	4-REN-004-004-02 WQ R2106422-002 6/25/2021 EB	4-REN-004-MW-9SR 4-REN-004-004-03 WG R2106422-003 6/25/2021 N
Analytical Method	Chemical Name	Unit	New York State MCL ¹			
E537	2-(N-methyl perfluorooctanesulfonamido) acetic acid	ng/l	-	4.5 U	4.2 U	4.2 U
E537	6:2 Fluorotelomer sulfonate	ng/l	-	4.5 U	4.2 U	4.2 U
E537	8:2 Fluorotelomer sulfonate	ng/l	-	4.5 U	4.2 U	4.2 U
E537	N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluorobutanesulfonic acid (PFBS)	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluorobutanoic Acid	ng/l	-	4.5 U	4.2 U	0.59 J
E537	Perfluorodecane Sulfonic Acid	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluorodecanoic acid (PFDA)	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluorododecanoic acid (PFDoA)	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluoroheptane Sulfonate (PFHPS)	ng/l	-	4.5 UJ	4.2 UJ	4.2 UJ
E537	Perfluoroheptanoic acid (PFHpA)	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluorohexanesulfonic acid (PFHxS)	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluorohexanoic acid (PFHxA)	ng/l	-	9.2 U	9.2 U	9.2 U
E537	Perfluorononanoic acid (PFNA)	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluorooctane Sulfonamide (FOSA)	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluorooctanesulfonic acid (PFOS)	ng/l	10	1.8 U	1.7 U	1.7 U
E537	Perfluorooctanoic acid (PFOA)	ng/l	10	1.8 U	1.7 U	1.7 U
E537	Perfluoropentanoic Acid (PFPeA)	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluorotetradecanoic acid (PFTA)	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluorotridecanoic Acid (PFTriA)	ng/l	-	4.5 U	4.2 U	4.2 U
E537	Perfluoroundecanoic Acid (PFUnA)	ng/l	-	4.5 U	4.2 U	4.2 U

Notes:

¹ New York State Department of Health, State Sanitary Code (SSC) 10NYCRR Part 5 maximum contaminant levels for PFOA, PFOS, and 1,4 Dioxane

Orange Highlighting = Exceeds NYSDEC Class GA Standards and Guidance Values

Blue Highlighting = Exceeds NYS MCL

NA = Not analyzed, NC = criteria exists

Qualifiers: B = Compound was found in the blank and sample, BJ = Compound was found in the blank and sample at the estimated value, J = Estimated value, J- = Estimated biased low, J+ = Estimated biased high,

UJ = Approximate non-detect, U = Not detected at the detection limit shown, T = indicates that a quality control parameter has exceeded laboratory limits

Matrix ID: WO = Water Quality Control Matrix, WG = Groundwater, WS = Surface Water

Sample Type Code: N = Normal Environmental Sample, FD = Field Duplicate, EB = Equipment Blank, FB = Field Blank, TB = Trip Blank

Fraction: Due to turbidity being >50 NTU, total and dissolved metals samples were collected in the field. T = Total (unfiltered), D = Dissolved (filtered). NA = Not Applicable

Results validated.

DATA USABILITY SUMMARY REPORT

MAY AND JUNE 2021 GROUNDWATER, SURFACE WATER, AND LEACHATE SAMPLING REGION 4 – DUNN C&D LANDFILL

WORK ASSIGNMENT # D009811-02

Prepared For:



**Department of
Environmental
Conservation**

New York State Department of Environmental Conservation
Division of Environmental Remediation
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AUGUST 2021

TABLE OF CONTENTS

SECTION 1 DATA USABILITY SUMMARY	1-1
1.1 Laboratory Data Packages	1-1
1.2 Sampling and Chain-of-Custody	1-1
1.3 Laboratory Analytical Methods	1-1
1.3.1 Volatile Organic Analysis	1-2
1.3.2 PAHs and 1,4-Dioxane Organic Analysis	1-2
1.3.3 PFAS Organic Analysis	1-2
1.3.4 Metals Analysis	1-2
1.3.5 General Chemistry Analysis	1-2
SECTION 2 DATA VALIDATION REPORT	2-1
2.1 Groundwater, Surface Water, And Leachate	2-1
2.1.1 Volatiles	2-1
2.1.2 PAHs and 1,4-Dioxane	2-2
2.1.3 PFAS	2-3
2.1.4 Metals	2-4
2.1.5 Leachate Indicators	2-5

LIST OF ATTACHMENTS

ATTACHMENT A – VALIDATED LABORATORY DATA

SECTION 1 DATA USABILITY SUMMARY

Groundwater, surface water, and leachate samples were collected from the Dunn C&D Landfill site on May 3, 2021, May 5, 2021, and June 25, 2021. Analytical results from these samples were validated and reviewed by Parsons for usability with respect to the following requirements:

- Project Work Plan,
- USEPA analytical methodologies,
- USEPA Region II Standard Operating Procedures (SOPs) for organic and inorganic data review, and
- *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs*, dated January 2021.

The analytical laboratory for this project was ALS in Rochester, New York and Kelso, Washington. This laboratory is certified to perform project analyses through the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP).

1.1 Laboratory Data Packages

The laboratory data package turnaround time, defined as the time from sample receipt by the laboratory to receipt of the analytical data packages by Parsons, was 21-33 days for the project samples. The data packages received from ALS were paginated, complete, and overall were of good quality. Comments on specific quality control (QC) and other requirements are discussed in detail in the attached data validation report which is summarized in Section 2.

1.2 Sampling and Chain-of-Custody

The samples were collected, properly preserved, shipped under a chain-of-custody (COC) record, and received at ALS within one to three days of sampling. All samples were received intact and in good condition at the laboratory.

1.3 Laboratory Analytical Methods

Groundwater samples that were collected from the site were analyzed for per- and polyfluoroalkyl substances (PFAS). Surface water and leachate samples that were collected from the site were analyzed for baseline volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), 1,4-dioxane, PFAS, baseline metals, and modified baseline leachate indicators. Summaries of issues concerning these laboratory analyses are presented in Subsections 1.3.1 through 1.3.5. The data qualifications resulting from the data validation review and statements on the laboratory analytical precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) are discussed in Section 2. The laboratory data were reviewed and may be qualified with the following validation flags:

- "U" - not detected at the value given,
- "UJ" - estimated and not detected at the value given,
- "J" - estimated at the value given,
- "J+" - estimated biased high at the value given,
- "J-" - estimated biased low at the value given,
- "N" - presumptive evidence at the value given, and
- "R" - unusable value.

The validated laboratory data were tabulated and are presented in Attachment A.

1.3.1 Volatile Organic Analysis

The surface water and leachate samples were analyzed for baseline VOCs using the USEPA SW-846 8260C analytical method. Certain reported results for these samples were qualified as estimated based upon instrument calibrations. The reported VOC analytical results were 100% complete (i.e., usable) for the project data presented by ALS. PARCCS requirements were met.

1.3.2 PAHs and 1,4-Dioxane Organic Analysis

The surface water and leachate samples were analyzed for PAHs and 1,4-dioxane using the USEPA SW-846 8270D and 8270D SIM analytical method. Certain reported results for these samples were qualified as estimated based upon instrument calibrations. The reported PAHs and 1,4-dioxane analytical results were considered 100% complete (i.e., usable) for the project data presented by ALS. PARCCS requirements were met.

1.3.3 PFAS Organic Analysis

The project samples were analyzed for PFAS using the modified USEPA 537.1 analytical method. Certain reported results for these samples were qualified as estimated based upon surrogate recoveries and instrument calibrations; and qualified as not detected based upon blank contamination. The reported PFAS analytical results were considered 100% complete (i.e., usable) for the project data presented by ALS. PARCCS requirements were met.

1.3.4 Metals Analysis

The surface water and leachate samples were analyzed for baseline metals using the USEPA SW-846 6010C/7470A analytical methods. Certain reported results for these samples were qualified as estimated based upon serial dilutions. The reported metals analytical results were considered 100% complete (i.e., usable) for the project data presented by ALS. PARCCS requirements were met.

1.3.5 General Chemistry Analysis

The surface water and leachate samples were analyzed for the modified baseline leachate indicators of bromide, chloride, and sulfate using the USEPA 300.0 analytical method; ammonia using the USEPA 350.1 analytical method; chemical oxygen demand (COD) using the USEPA 410.4 analytical method; total alkalinity using the SM2320B analytical method; hardness using the SM2340C analytical method; total dissolved solids (TDS) using the SM2540C analytical method; and total organic carbon (TOC) using the SM5310C analytical method. Certain reported results for these samples were qualified as estimated based upon matrix spike recoveries. The reported leachate indicator analytical results were considered 100% complete (i.e., usable) for the project data presented by ALS. PARCCS requirements were met.

SECTION 2 DATA VALIDATION REPORT

2.1 Groundwater, Surface Water, And Leachate

Data review has been completed for data packages generated by ALS containing groundwater, surface water, and leachate samples collected from the site. Analytical results from these samples were contained within sample delivery groups (SDGs) R2104262, R2104444, R2104445, and R2106422. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratory. The validated laboratory data are presented in Attachment A.

Data validation was performed for all samples in accordance with the analytical methodologies, the most current editions of the USEPA Region II SOPs for organic and inorganic data review, and the *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs*, dated January 2021. This data validation and usability report is presented by analysis type.

2.1.1 Volatiles

The following items were reviewed for compliancy in the volatile analysis:

- Custody documentation
- Holding times
- Surrogate recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy
- Laboratory control sample (LCS) recoveries
- Laboratory method blank and trip blank contamination
- GC/MS instrument performance
- Initial and continuing calibrations
- Internal standard area counts and retention times
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of MS/MSD precision and accuracy, LCS recoveries, blank contamination, and continuing calibrations as discussed below.

MS/MSD Precision and Accuracy

All MS/MSD precision (relative percent difference; RPD) and accuracy (percent recovery; %R) measurements were considered acceptable and within QC limits for designated spiked project samples with the exception of the high MS/MSD accuracy results for 1,1-dichloroethene (123%R/125%R; QC limit 71-118%R) and the high MSD accuracy result for trans-1,2-dichloroethene (119%R; QC limit 73-118%R) during the spiked analyses of sample 4-REN-004-001-01. Validation qualification was not required for the affected parent sample.

LCS Recoveries

All LCS recoveries were considered acceptable and within QC limits with the exception of the high LCS recovery for 1,1-dichloroethene (119%R; QC limit 71-118%R) associated with samples collected on 5/5/21. Validation qualification was not required for the affected samples.

Blank Contamination

The laboratory method blank associated with samples collected on 5/3/21 contained chloromethane below the reporting limit at a concentration of 0.28 µg/L. Validation qualification was not required for the affected project samples.

Continuing Calibrations

All continuing calibration compounds were compliant with minimum relative response factors (RRFs) of 0.05 (0.01 for poor performers) and percent differences (%Ds) within $\pm 20\%$ ($\pm 40\%$ for poor performers) with the exception of bromomethane (-27.6%D) in the continuing calibration associated with samples collected on 5/5/21. Therefore, results for this compound which were nondetects were considered estimated and qualified "UJ" for the affected samples.

Usability

All volatile sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, comparability, and sensitivity. The volatile data presented by ALS were 100% complete (i.e., usable). The validated volatile laboratory data are tabulated and presented in Attachment A.

2.1.2 PAHs and 1,4-Dioxane

The following items were reviewed for compliancy in the PAHs and 1,4-dioxane analysis:

- Custody documentation
- Holding times
- Surrogate recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy
- Laboratory control sample (LCS) recoveries
- Laboratory method blank contamination
- GC/MS instrument performance
- Initial and continuing calibrations
- Internal standard area counts and retention times
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of continuing calibrations and internal standard responses as discussed below.

Continuing Calibrations

All continuing calibration compounds were compliant with minimum relative response factors (RRFs) of 0.05 (0.01 for poor performers) and percent differences (%Ds) within $\pm 20\%$ ($\pm 40\%$ for poor performers) with the exception of benzo(g,h,i)perylene (38.0%D, 32.8%D, 29.8%D) in the continuing calibration associated with samples collected on 5/3/21 and 5/5/21. Therefore, results for this compound which were nondetects were considered estimated and qualified "UJ" for the affected samples

Internal Standard Responses

It was noted that the laboratory double spiked internal standards (ISs) in PAH samples 4-REN-004-001-01, -02, -05, -06, and -07 and IS area counts were calculated to accommodate for this error. Sample 4-REN-004-001-05 experienced a high area count for the IS perylene-d12 after this calculation adjustment. All of these samples were reextracted and reanalyzed with ISs within QC limits and to confirm original sample results. However, these reextracted samples exceeded the 7-day extraction holding time requirement by 7 days. Therefore, results from the original sample analysis were reported in the validated laboratory data in Attachment A with no qualifications resulting from data validation.

Usability

All PAHs and 1,4-dioxane sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, comparability, and sensitivity. The PAHs and 1,4-dioxane data presented by ALS were 100% complete (i.e., usable). The validated PAHs and 1,4-dioxane laboratory data are tabulated and presented in Attachment A.

2.1.3 PFAS

The following items were reviewed for compliancy in the PFAS analysis:

- Custody documentation
- Holding times
- Surrogate recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy
- Laboratory control sample (LCS) recoveries
- Laboratory method blank and equipment/field blank contamination
- Instrument performance
- Initial and continuing calibrations
- Internal standard responses
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of surrogate recoveries, blank contamination, and continuing calibrations as discussed below.

Surrogate Recoveries

All sample surrogate recoveries were considered acceptable and within QC limits with the exception of the surrogate recoveries for 13C3-PFBS (QC limit 20-109%R) in sample 4-REN-004-003-05 (114%R); 1802-PFHxS (QC limit 26-122%R) in samples 4-REN-004-003-05 (124%R) and -07 (129%R); 13C5-PFPeA (QC limit 27-138%R) in samples 4-REN-004-003-05 (143%R), -10 (18%R), and -12 (20%R); 13C2-PFHxA (QC limit 28-132%R) in samples 4-REN-004-003-05 (158%R), -10 (19%R), and -12 (17%R); 13C4-PFBA (QC limit 27-124%R) in samples 4-REN-004-003-10 (21%R) and -12 (20%R); 13C4-PFHpA (QC limit 19-139%R) in samples 4-REN-004-004-01 (146%R) and -02 (151%R); and 13C5-PFNA (QC limit 20-127%R) in sample 4-REN-004-004-02 (129%R). Validation qualification was not required for those samples where surrogate recoveries exceeded the QC limit. However, associated results for those compounds where surrogate recoveries fell below the QC limit were

considered estimated, possibly biased low, with positive results qualified “J-” and nondetected results qualified “UJ” for the affected samples.

Blank Contamination

The laboratory method blank, the QC field blank, and the QC equipment blank associated with samples collected on 6/25/21 contained PFOA below the reporting limit at concentrations of 0.89, 0.88, and 0.79 ng/L, respectively. Therefore, PFOA results less than validation action concentrations were considered not detected and qualified “U” for the affected samples.

Continuing Calibrations

All continuing calibration compounds were compliant with percent differences (%Ds) within $\pm 30\%$ with the exception of PFHpS (46%D) in the continuing calibration associated with samples collected on 6/25/21. Therefore, results for this compound which were nondetects were considered estimated and qualified “UJ” for the affected samples.

Usability

All PFAS sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, comparability, and sensitivity. The PFAS data presented by ALS were 100% complete (i.e., usable). The validated PFAS laboratory data are tabulated and presented in Attachment A.

2.1.4 Metals

The following items were reviewed for compliancy in the metals analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration blank, and preparation blank contamination
- Interference check sample (ICS) recoveries
- MS/MSD recoveries
- LCS recoveries
- Laboratory duplicate precision
- Serial dilutions
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of serial dilutions as discussed below.

Serial Dilutions

All serial dilutions were considered acceptable with percent differences (%Ds) less than 10% with the exception of the serial dilution for potassium (15%D) associated with sample 4-REN-004-003-12. Therefore, the potassium result was considered estimated and qualified “J” for the affected sample.

Usability

All metals sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, comparability, and sensitivity. The metals data presented by ALS were 100% complete (i.e., usable). The validated metals laboratory data are tabulated and presented in Attachment A.

2.1.5 Leachate Indicators

The following items were reviewed for compliance in the general chemistry analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration blank, and preparation blank contamination
- MS/MSD recoveries
- LCS recoveries
- Laboratory duplicate precision
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of MS/MSD recoveries as discussed below.

MS/MSD Recoveries

All MS/MSD recoveries were considered acceptable and within QC limits with the exception of the low MS/MSD recoveries for chloride (76%R/74%R; QC limit 90-110%R), COD (88%R; QC limit 90-110%R), and sulfate (86%R/84%R; QC limit 90-110%R) associated with sample 4-REN-004-001-01. Therefore, the results for these analytes were considered estimated and qualified “J” for the affected parent sample.

Usability

All leachate indicator sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, comparability, and sensitivity. The leachate indicator data presented by ALS were 100% complete (i.e., usable). The validated laboratory data are tabulated and presented in Attachment A.

ATTACHMENT A – VALIDATED LABORATORY DATA

Location Description				4-REN-004-001-03 WQ R2104262-003 5/3/2021 EB	4-REN-004-001-04 WQ R2104262-004 5/3/2021 FB	4-REN-004-001-11 WQ R2104262-011 5/3/2021 TB	4-REN-004-002-02 WQ R2104445-002 5/4/2021 FB	4-REN-004-002-03 WQ R2104445-003 5/4/2021 EB	4-REN-004-003-03 WQ R2104444-003 5/5/2021 EB
Location ID	Sample ID	Matrix	Lab Sample ID						
Sample Date	Sample Type Code								
Analytical Method	Chemical Name	Unit	NYSDEC Class GA	New York State MCL					
BNASIM	1,4-Dioxane (P-Dioxane)	ug/l		1					
E300.0	Bromide	mg/l	2						
E300.0	Chloride (As Cl)	mg/l	250						
E300.0	Sulfate (As SO4)	mg/l	250						
E350.1	Nitrogen, Ammonia (As N)	mg/l	2						
E410.4	COD - Chemical Oxygen Demand	mg/l							
E537	2-(N-methyl perfluorooctanesulfonamido) acetic acid	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	6:2 Fluorotelomer sulfonate	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	8:2 Fluorotelomer sulfonate	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorobutanesulfonic acid (PFBS)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorobutanoic Acid	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorodecane Sulfonic Acid	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorodecanoic acid (PFDA)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorododecanoic acid (PFDoA)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorooheptane Sulfonate (PFHPS)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorooheptanoic acid (PFHpA)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorohexanesulfonic acid (PFHxS)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorohexanoic acid (PFHxA)	ng/l			9.2 U	9.2 U	9.2 U	9.6 U	9.2 U
E537	Perfluorononanoic acid (PFNA)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorooctane Sulfonamide (FOSA)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorooctanesulfonic acid (PFOS)	ng/l		10	1.7 U	1.8 U	1.7 U	1.9 U	1.8 U
E537	Perfluorooctanoic acid (PFOA)	ng/l		10	1.7 U	1.8 U	1.7 U	1.9 U	1.8 U
E537	Perfluoropentanoic Acid (PFPeA)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorotetradecanoic acid (PFTA)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluorotridecanoic Acid (PFTnA)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
E537	Perfluoroundecanoic Acid (PFUnA)	ng/l			4.2 U	4.5 U	4.3 U	4.8 U	4.5 U
SM 2320 B	Alkalinity, Total (As CaCO3)	mg/l							
SM 2340 C	Hardness (As CaCO3)	mg/l							
SM2540C	Total Dissolved Solids (Residue, Filterable)	mg/l							
SM5310C	Total Organic Carbon	mg/l							
SW6010	Aluminum	ug/l							
SW6010	Antimony	ug/l	3						
SW6010	Arsenic	ug/l	25						
SW6010	Barium	ug/l	1000						
SW6010	Beryllium	ug/l	3						
SW6010	Boron	ug/l	1000						
SW6010	Cadmium	ug/l	5						
SW6010	Calcium	ug/l							
SW6010	Chromium, Total	ug/l	50						
SW6010	Cobalt	ug/l							
SW6010	Copper	ug/l	200						
SW6010	Iron	ug/l	300						
SW6010	Lead	ug/l	25						
SW6010	Magnesium	ug/l	35000						
SW6010	Manganese	ug/l	300						
SW6010	Nickel	ug/l	100						
SW6010	Potassium	ug/l							
SW6010	Selenium	ug/l	10						
SW6010	Silver	ug/l	50						
SW6010	Sodium	ug/l	20000						
SW6010	Thallium	ug/l	0.5						
SW6010	Vanadium	ug/l							
SW6010	Zinc	ug/l	2000						
SW7470	Mercury	ug/l	0.7						
SW8260C	1,1,1,2-Tetrachloroethane	ug/l	5				1 U		
SW8260C	1,1,1-Trichloroethane (TCA)	ug/l	5				1 U		
SW8260C	1,1,2,2-Tetrachloroethane	ug/l	5				1 U		
SW8260C	1,1,2-Trichloroethane	ug/l	1				1 U		
SW8260C	1,1-Dichloroethane	ug/l	5				1 U		
SW8260C	1,1-Dichloroethene	ug/l	5				1 U		
SW8260C	1,2,3-Trichloropropane	ug/l	0.04				1 U		
SW8260C	1,2-Dibromo-3-Chloropropane	ug/l	0.04				2 U		
SW8260C	1,2-Dibromomethane (Ethylene Dibromide)	ug/l	0.0006				1 U		
SW8260C	1,2-Dichlorobenzene	ug/l	3				1 U		
SW8260C	1,2-Dichloroethane	ug/l	0.6				1 U		
SW8260C	1,2-Dichloropropane	ug/l	1				1 U		
SW8260C	1,4-Dichlorobenzene	ug/l	3				1 U		
SW8260C	2-Hexanone	ug/l	50				5 U		
SW8260C	Acetone	ug/l	50				5 U		
SW8260C	Acrylonitrile	ug/l	5				10 U		
SW8260C	Benzene	ug/l	1				1 U		
SW8260C	Bromodichloromethane	ug/l	5				1 U		
SW8260C	Bromodichloromethane	ug/l	50				1 U		
SW8260C	Bromoform	ug/l	50				1 U		
SW8260C	Bromomethane	ug/l	5				1 U		
SW8260C	Carbon Disulfide	ug/l	60				1 U		

Location Description				4-REN-004-001-03		4-REN-004-001-04		4-REN-004-001-11		4-REN-004-002-02		4-REN-004-002-03		4-REN-004-003-03	
Location ID				WQ		WQ		WQ		WQ		WQ		WQ	
Sample ID				R2104262-003		R2104262-004		R2104262-011		R2104445-002		R2104445-003		R2104444-003	
Matrix				5/3/2021		5/3/2021		5/3/2021		5/4/2021		5/4/2021		5/5/2021	
Lab Sample ID				EB		FB		TB		FB		EB		EB	
Sample Date															
Sample Type Code															
Analytical Method	Chemical Name	Unit	NYSDEC Class GA	New York State MCL											
SW8260C	Carbon Tetrachloride	ug/l	5							1 U					
SW8260C	Chlorobenzene	ug/l	5							1 U					
SW8260C	Chloroethane	ug/l	5							1 U					
SW8260C	Chloroform	ug/l	7							1 U					
SW8260C	Chloromethane	ug/l	5							1 U					
SW8260C	Cis-1,2-Dichloroethylene	ug/l	5							1 U					
SW8260C	Cis-1,3-Dichloropropene	ug/l	0.4							1 U					
SW8260C	Dibromochloromethane	ug/l	50							1 U					
SW8260C	Dibromomethane	ug/l	5							1 U					
SW8260C	Ethylbenzene	ug/l	5							1 U					
SW8260C	Iodomethane (Methyl Iodide)	ug/l	5							5 U					
SW8260C	m,p-Xylene	ug/l	5							2 U					
SW8260C	Methyl Ethyl Ketone (2-Butanone)	ug/l	50							5 U					
SW8260C	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ug/l								5 U					
SW8260C	Methylene Chloride	ug/l	5							1 U					
SW8260C	O-Xylene (1,2-Dimethylbenzene)	ug/l	5							1 U					
SW8260C	Styrene	ug/l	5							1 U					
SW8260C	Tetrachloroethylene (PCE)	ug/l	5							1 U					
SW8260C	Toluene	ug/l	5							1 U					
SW8260C	Trans-1,2-Dichloroethene	ug/l	5							1 U					
SW8260C	Trans-1,3-Dichloropropene	ug/l	0.4							1 U					
SW8260C	Trans-1,4-Dichloro-2-Butene	ug/l	5							1 U					
SW8260C	Trichloroethylene (TCE)	ug/l	5							1 U					
SW8260C	Trichlorofluoromethane	ug/l	5							1 U					
SW8260C	Vinyl Acetate	ug/l								2 U					
SW8260C	Vinyl Chloride	ug/l	2							1 U					
SW8260C	Xylenes, Total	ug/l	5							3 U					
SW8270D	Acenaphthene	ug/l	20												
SW8270D	Acenaphthylene	ug/l													
SW8270D	Anthracene	ug/l	50												
SW8270D	Benzo(A)Anthracene	ug/l	0.002												
SW8270D	Benzo(A)Pyrene	ug/l													
SW8270D	Benzo(B)Fluoranthene	ug/l	0.002												
SW8270D	Benzo(G,H,I)Perylene	ug/l													
SW8270D	Benzo(K)Fluoranthene	ug/l	0.002												
SW8270D	Chrysene	ug/l	0.002												
SW8270D	Dibenz(A,H)Anthracene	ug/l													
SW8270D	Fluoranthene	ug/l	50												
SW8270D	Fluorene	ug/l	50												
SW8270D	Indeno(1,2,3-C,D)Pyrene	ug/l	0.002												
SW8270D	Naphthalene	ug/l	10												
SW8270D	Phenanthrene	ug/l	50												
SW8270D	Pyrene	ug/l	50												

Location Description		Location ID		Sample ID		Matrix		Lab Sample ID		Sample Date		Sample Type Code			
4-REN-004-003-04		4-REN-004-003-13		4-REN-004-MW-11S		4-REN-004-MW-11S		4-REN-004-MW-12S		4-REN-004-MW-6S		4-REN-004-MW-7S		4-REN-004-MW-8S	
WQ		WQ		WG		WG		WG		WG		WG		WG	
R2104444-004		R2104444-013		R2104444-006		R2104445-001		R2104444-007		R2104444-002		R2104444-005		R2104444-001	
5/5/2021		5/5/2021		5/5/2021		5/4/2021		5/5/2021		5/5/2021		5/5/2021		5/5/2021	
FB		TB		N		N		N		N		N		N	
New York State															
Analytical Method	Chemical Name	Unit	NYSDEC Class GA	MCL											
BNASIM	1,4-Dioxane (P-Dioxane)	ug/l		1											
E300.0	Bromide	mg/l	2												
E300.0	Chloride (As Cl)	mg/l	250												
E300.0	Sulfate (As SO4)	mg/l	250												
E350.1	Nitrogen, Ammonia (As N)	mg/l	2												
E410.4	COD - Chemical Oxygen Demand	mg/l													
E537	2-(N-methyl perfluorooctanesulfonamido) acetic acid	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	6:2 Fluorotelomer sulfonate	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	8:2 Fluorotelomer sulfonate	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	N-Ethyl-N-[(heptadecafluorooctyl)sulphonyl] glycine	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	Perfluorobutanesulfonic acid (PFBS)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		0.63 U
E537	Perfluorobutanoic Acid	ng/l		4.6 U			4.7 U		1.4 U		4.5 U		0.56 U		0.74 U
E537	Perfluorodecane Sulfonic Acid	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	Perfluorodecanoic acid (PFDA)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	Perfluorododecanoic acid (PFDoA)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	Perfluorooheptane Sulfonate (PFHPS)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	Perfluorohexanoic acid (PFHpA)	ng/l		4.6 U			0.69 U		4.7 U		4.5 U		5 U		4.8 U
E537	Perfluorohexanesulfonic acid (PFHxS)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	Perfluorohexanoic acid (PFHxA)	ng/l		9.3 U			9.4 U		9.4 U		9.2 U		10 U		9.6 U
E537	Perfluorononanoic acid (PFNA)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	Perfluorooctane Sulfonamide (FOSA)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	Perfluorooctanesulfonic acid (PFOS)	ng/l		10			1.9 U		1.9 U		1.8 U		2 U		1.9 U
E537	Perfluorooctanoic acid (PFOA)	ng/l		10			1.9 U		0.36 U		1.8 U		2 U		1.9 U
E537	Perfluoropentanoic Acid (PFPeA)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		2.6 U
E537	Perfluorotetradecanoic acid (PFTA)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	Perfluorotridecanoic Acid (PFTriA)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
E537	Perfluoroundecanoic Acid (PFUnA)	ng/l		4.6 U			4.7 U		4.5 U		5 U		4.8 U		4.7 U
SM 2320 B	Alkalinity, Total (As CaCO3)	mg/l													
SM 2340 C	Hardness (As CaCO3)	mg/l													
SM2540C	Total Dissolved Solids (Residue, Filterable)	mg/l													
SM5310C	Total Organic Carbon	mg/l													
SW6010	Aluminum	ug/l													
SW6010	Antimony	ug/l	3												
SW6010	Arsenic	ug/l	25												
SW6010	Barium	ug/l	1000												
SW6010	Beryllium	ug/l	3												
SW6010	Boron	ug/l	1000												
SW6010	Cadmium	ug/l	5												
SW6010	Calcium	ug/l													
SW6010	Chromium, Total	ug/l	50												
SW6010	Cobalt	ug/l													
SW6010	Copper	ug/l	200												
SW6010	Iron	ug/l	300												
SW6010	Lead	ug/l	25												
SW6010	Magnesium	ug/l	35000												
SW6010	Manganese	ug/l	300												
SW6010	Nickel	ug/l	100												
SW6010	Potassium	ug/l													
SW6010	Selenium	ug/l	10												
SW6010	Silver	ug/l	50												
SW6010	Sodium	ug/l	20000												
SW6010	Thallium	ug/l	0.5												
SW6010	Vanadium	ug/l													
SW6010	Zinc	ug/l	2000												
SW7470	Mercury	ug/l	0.7												
SW8260C	1,1,1,2-Tetrachloroethane	ug/l	5				1 U								
SW8260C	1,1,1-Trichloroethane (TCA)	ug/l	5				1 U								
SW8260C	1,1,2,2-Tetrachloroethane	ug/l	5				1 U								
SW8260C	1,1,2-Trichloroethane	ug/l	1				1 U								
SW8260C	1,1-Dichloroethane	ug/l	5				1 U								
SW8260C	1,1-Dichloroethene	ug/l	5				1 U								
SW8260C	1,2,3-Trichloropropane	ug/l	0.04				1 U								
SW8260C	1,2-Dibromo-3-Chloropropane	ug/l	0.04				2 U								
SW8260C	1,2-Dibromoethane (Ethylene Dibromide)	ug/l	0.0006				1 U								
SW8260C	1,2-Dichlorobenzene	ug/l	3				1 U								
SW8260C	1,2-Dichloroethane	ug/l	0.6				1 U								
SW8260C	1,2-Dichloropropane	ug/l	1				1 U								
SW8260C	1,4-Dichlorobenzene	ug/l	3				1 U								
SW8260C	2-Hexanone	ug/l	50				5 U								
SW8260C	Acetone	ug/l	50				5 U								
SW8260C	Acrylonitrile	ug/l	5				10 U								
SW8260C	Benzene	ug/l	1				1 U								
SW8260C	Bromochloromethane	ug/l	5				1 U								
SW8260C	Bromodichloromethane	ug/l	50				1 U								
SW8260C	Bromoform	ug/l	50				1 U								
SW8260C	Bromomethane	ug/l	5				1 U								
SW8260C	Carbon Disulfide	ug/l	60				1 U								

		Location Description		4-REN-004-003-04		4-REN-004-003-13		4-REN-004-MW-105		4-REN-004-MW-115		4-REN-004-MW-125		4-REN-004-MW-65		4-REN-004-MW-75		4-REN-004-MW-85	
		Location ID	Sample ID	WQ	WQ	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	
		Matrix	Lab Sample ID	R2104444-004	R2104444-013	R2104444-006	R2104444-001	R2104444-007	R2104444-002	R2104444-005	R2104444-001	R2104444-007	R2104444-002	R2104444-005	R2104444-001	R2104444-007	R2104444-002		
		Sample Date	Sample Type Code	5/5/2021	5/5/2021	5/5/2021	5/4/2021	5/5/2021	5/5/2021	5/5/2021	5/5/2021	5/5/2021	5/5/2021	5/5/2021	5/5/2021	5/5/2021	5/5/2021	5/5/2021	
		New York State																	
		MCL																	
Analytical Method	Chemical Name	Unit	NYSDEC Class GA																
SW8260C	Carbon Tetrachloride	ug/l	5																
SW8260C	Chlorobenzene	ug/l	5																
SW8260C	Chloroethane	ug/l	5																
SW8260C	Chloroform	ug/l	7																
SW8260C	Chloromethane	ug/l	5																
SW8260C	Cis-1,2-Dichloroethylene	ug/l	5																
SW8260C	Cis-1,3-Dichloropropene	ug/l	0.4																
SW8260C	Dibromochloromethane	ug/l	50																
SW8260C	Dibromomethane	ug/l	5																
SW8260C	Ethylbenzene	ug/l	5																
SW8260C	Iodomethane (Methyl Iodide)	ug/l	5																
SW8260C	m,p-Xylene	ug/l	5																
SW8260C	Methyl Ethyl Ketone (2-Butanone)	ug/l	50																
SW8260C	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ug/l																	
SW8260C	Methylene Chloride	ug/l	5																
SW8260C	O-Xylene (1,2-Dimethylbenzene)	ug/l	5																
SW8260C	Styrene	ug/l	5																
SW8260C	Tetrachloroethylene (PCE)	ug/l	5																
SW8260C	Toluene	ug/l	5																
SW8260C	Trans-1,2-Dichloroethene	ug/l	5																
SW8260C	Trans-1,3-Dichloropropene	ug/l	0.4																
SW8260C	Trans-1,4-Dichloro-2-Butene	ug/l	5																
SW8260C	Trichloroethylene (TCE)	ug/l	5																
SW8260C	Trichlorofluoromethane	ug/l	5																
SW8260C	Vinyl Acetate	ug/l																	
SW8260C	Vinyl Chloride	ug/l	2																
SW8260C	Xylenes, Total	ug/l	5																
SW8270D	Acenaphthene	ug/l	20																
SW8270D	Acenaphthylene	ug/l																	
SW8270D	Anthracene	ug/l	50																
SW8270D	Benzo(A)Anthracene	ug/l	0.002																
SW8270D	Benzo(A)Pyrene	ug/l																	
SW8270D	Benzo(B)Fluoranthene	ug/l	0.002																
SW8270D	Benzo(G,H,I)Perylene	ug/l																	
SW8270D	Benzo(K)Fluoranthene	ug/l	0.002																
SW8270D	Chrysene	ug/l	0.002																
SW8270D	Dibenz(A,H)Anthracene	ug/l																	
SW8270D	Fluoranthene	ug/l	50																
SW8270D	Fluorene	ug/l	50																
SW8270D	Indeno(1,2,3-C,D)Pyrene	ug/l	0.002																
SW8270D	Naphthalene	ug/l	10																
SW8270D	Phenanthrene	ug/l	50																
SW8270D	Pyrene	ug/l	50																

Location Description				4-REN-004-SW-01	4-REN-004-SW-02	4-REN-004-SW-03	4-REN-004-SW-04	4-REN-004-SW-04
Location ID				4-REN-004-001-05	4-REN-004-001-07	4-REN-004-001-06	4-REN-004-001-01	4-REN-004-001-02
Sample ID				WS	WS	WS	WS	WS
Matrix				R2104262-005	R2104262-007	R2104262-006	R2104262-001	R2104262-002
Lab Sample ID				5/3/2021	5/3/2021	5/3/2021	5/3/2021	5/3/2021
Sample Date				N	N	N	N	FD
Sample Type Code								
New York State								
MCL								
Analytical Method	Chemical Name	Unit	NYSDEC Class GA					
BNASIM	1,4-Dioxane (P-Dioxane)	ua/l		0.038 J	0.043	0.04	0.054	0.058
E300.0	Bromide	mg/l	2	1 U	1 U	1 U	1 U	1 U
E300.0	Chloride (As Cl)	mg/l	250	178	258	95.3	165 J	166
E300.0	Sulfate (As SO4)	mg/l	250	83.9	45.7	47.4	78.8 J	79.4
E350.1	Nitroeen, Ammonia (As N)	mg/l	2	0.05 U	0.05 U	0.05 U	0.05 U	0.027 J
E410.4	COD - Chemical Oxygen Demand	mg/l		12.7	13.3	15.7	9.1 J	7.8
E537	2-(N-methyl perfluorooctanesulfonamido) acetic acid	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
E537	6:2 Fluorotelomer sulfonate	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
E537	8:2 Fluorotelomer sulfonate	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
E537	N-Ethyl-N-(heptadecafluorooctyl)sulphonyl glycine	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
E537	Perfluorobutanesulfonic acid (PFBS)	na/l		1.7 J	1.8 J	1.9 J	2 J	2.1 J
E537	Perfluorobutanoic Acid	na/l		2.6 J	4 J	6.9	3.6 J	3.7 J
E537	Perfluorodecane Sulfonic Acid	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
E537	Perfluorodecanoic acid (PFDA)	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
E537	Perfluorododecanoic acid (PFDoA)	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
E537	Perfluorooheptane Sulfonate (PFHpS)	na/l		4.2 U	4 U	0.55 J	4.5 U	4.7 U
E537	Perfluorooheptanoic acid (PFHpA)	na/l		0.86 J	1.7 J	6.1	1.5 J	1.5 J
E537	Perfluorohexanesulfonic acid (PFHxS)	na/l		2.2 J	1.8 J	8.6	1.8 J	2.5 J
E537	Perfluorohexanoic acid (PFHxA)	na/l		9.2 U	9.2 U	9.2 U	9.2 U	9.4 U
E537	Perfluorononanoic acid (PFNA)	na/l		4.2 U	4 U	1.2 J	4.5 U	4.7 U
E537	Perfluorooctane Sulfonamide (FOSA)	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
E537	Perfluorooctanesulfonic acid (PFOS)	na/l		2.7	2.9	9.4	6.6	6.2
E537	Perfluorooctanoic acid (PFOA)	na/l		10	2.9	9.3	3.7	3.6
E537	Perfluoropentanoic acid (PFPeA)	na/l		2.1	1.9 J	7.8	2.6 J	2.3 J
E537	Perfluorotetradecanoic acid (PFTA)	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
E537	Perfluorotridecanoic Acid (PTTrA)	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
E537	Perfluoroundecanoic Acid (PFUnA)	na/l		4.2 U	4 U	4.5 U	4.5 U	4.7 U
SM 2320 B	Alkalinity, Total (As CaCO3)	mg/l		192	167	314	211	210
SM 2340 C	Hardness (As CaCO3)	mg/l		330	290	400	390	340
SM2540C	Total Dissolved Solids (Residue, Filterable)	mg/l		590	666	531	570	565
SM5310C	Total Organic Carbon	mg/l		3.1	3.6	4.1	3	2.8
SW6010	Aluminum	ug/l		186	177	123	311	460
SW6010	Antimony	ug/l	3	60 U	60 U	60 U	60 U	60 U
SW6010	Arsenic	ug/l	25	10 U	10 U	10 U	10 U	10 U
SW6010	Barium	ug/l	1000	74	72.4	40	78.1	76.9
SW6010	Beryllium	ug/l	3	3 U	3 U	3 U	3 U	3 U
SW6010	Boron	ug/l	1000	16.3 J	200 U	40.6 J	21.8 J	22.8 J
SW6010	Cadmium	ug/l	5	5 U	5 U	5 U	5 U	5 U
SW6010	Calcium	ug/l		76700	80700	103000	81000	79800
SW6010	Chromium, Total	ug/l	50	10 U	10 U	10 U	10 U	10 U
SW6010	Cobalt	ug/l		50 U	50 U	50 U	1 J	50 U
SW6010	Copper	ug/l	200	20 U	20 U	20 U	20 U	20 U
SW6010	Iron	ug/l	300	275	310	171	409	524
SW6010	Lead	ug/l	25	50 U	50 U	50 U	50 U	50 U
SW6010	Magnesium	ug/l	35000	26600	21500	22900	26900	26500
SW6010	Manganese	ug/l	300	91.6	28	154	99.4	98.5
SW6010	Nickel	ug/l	100	40 U	40 U	40 U	40 U	40 U
SW6010	Potassium	ug/l		2090	2490	3740	2240	2230
SW6010	Selenium	ug/l	10	10 U	10 U	10 U	10 U	10 U
SW6010	Silver	ug/l	50	10 U	10 U	10 U	10 U	10 U
SW6010	Sodium	ug/l	20000	94700	128000	58300	87600	85900
SW6010	Thallium	ug/l	0.5	10 U	10 U	10 U	10 U	10 U
SW6010	Vanadium	ug/l		50 U	50 U	50 U	50 U	50 U
SW6010	Zinc	ug/l	2000	20 U	20 U	20 U	20 U	20 U
SW7470	Mercury	ug/l	0.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
SW8260C	1,1,1,2-Tetrachloromethane	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	1,1,1,1-Trichloroethane (TCA)	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	1,1,2,2,2-Tetrachloroethane	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	1,1,2-Trichloroethane	ug/l	1	1 U	1 U	1 U	1 U	1 U
SW8260C	1,1-Dichloroethane	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	1,1-Dichloroethene	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	1,2,3-Trichloropropane	ug/l	0.04	1 U	1 U	1 U	1 U	1 U
SW8260C	1,2-Dibromo-3-Chloropropane	ug/l	0.04	2 U	2 U	2 U	2 U	2 U
SW8260C	1,2-Dibromomethane (Ethylene Dibromide)	ug/l	0.0006	1 U	1 U	1 U	1 U	1 U
SW8260C	1,2-Dichlorobenzene	ug/l	3	1 U	1 U	1 U	1 U	1 U
SW8260C	1,2-Dichlorobenzene	ug/l	0.6	1 U	1 U	1 U	1 U	1 U
SW8260C	1,2-Dichloropropane	ug/l	1	1 U	1 U	1 U	1 U	1 U
SW8260C	1,4-Dichlorobenzene	ug/l	3	1 U	1 U	1 U	1 U	1 U
SW8260C	2-Hexanone	ug/l	50	5 U	5 U	5 U	5 U	5 U
SW8260C	Acetone	ug/l	50	5 U	5 U	5 U	5 U	5 U
SW8260C	Acrylonitrile	ug/l	5	10 U	10 U	10 U	10 U	10 U
SW8260C	Benzene	ug/l	1	1 U	1 U	1 U	1 U	1 U
SW8260C	Bromochloromethane	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Bromochloromethane	ug/l	50	1 U	1 U	1 U	1 U	1 U
SW8260C	Bromoform	ug/l	50	1 U	1 U	1 U	1 U	1 U
SW8260C	Bromomethane	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Carbon Disulfide	ug/l	60	1 U	1 U	1 U	1 U	1 U

Location Description				4-REN-004-SW-01 4-REN-004-001-05 WS R2104262-005 5/3/2021 N	4-REN-004-SW-02 4-REN-004-001-07 WS R2104262-007 5/3/2021 N	4-REN-004-SW-03 4-REN-004-001-06 WS R2104262-006 5/3/2021 N	4-REN-004-SW-04 4-REN-004-001-01 WS R2104262-001 5/3/2021 N	4-REN-004-SW-04 4-REN-004-001-02 WS R2104262-002 5/3/2021 FD
Analytical Method	Chemical Name	Unit	NYSDEC Class GA New York State MCL					
SW8260C	Carbon Tetrachloride	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Chlorobenzene	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Chloroethane	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Chloroform	ug/l	7	1 U	1 U	1 U	1 U	1 U
SW8260C	Chloromethane	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Cis-1,2-Dichloroethylene	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Cis-1,3-Dichloropropene	ug/l	0.4	1 U	1 U	1 U	1 U	1 U
SW8260C	Dibromochloromethane	ug/l	50	1 U	1 U	1 U	1 U	1 U
SW8260C	Dibromomethane	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Ethylbenzene	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Iodomethane (Methyl Iodide)	ug/l	5	5 U	5 U	5 U	5 U	5 U
SW8260C	m,p-Xylene	ug/l	5	2 U	2 U	2 U	2 U	2 U
SW8260C	Methyl Ethyl Ketone (2-Butanone)	ug/l	50	5 U	5 U	5 U	5 U	5 U
SW8260C	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ug/l		5 U	5 U	5 U	5 U	5 U
SW8260C	Methylene Chloride	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	O-Xylene (1,2-Dimethylbenzene)	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Styrene	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Tetrachloroethylene (PCE)	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Toluene	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Trans-1,2-Dichloroethene	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Trans-1,3-Dichloropropene	ug/l	0.4	1 U	1 U	1 U	1 U	1 U
SW8260C	Trans-1,4-Dichloro-2-Butene	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Trichloroethylene (TCE)	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Trichlorofluoromethane	ug/l	5	1 U	1 U	1 U	1 U	1 U
SW8260C	Vinyl Acetate	ug/l		2 U	2 U	2 U	2 U	2 U
SW8260C	Vinyl Chloride	ug/l	2	1 U	1 U	1 U	1 U	1 U
SW8260C	Xylenes, Total	ug/l	5	3 U	3 U	3 U	3 U	3 U
SW8270D	Acenaphthene	ug/l	20	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Acenaphthylene	ug/l		0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Anthracene	ug/l	50	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Benzo(A)Anthracene	ug/l	0.002	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Benzo(A)Pyrene	ug/l		0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Benzo(B)Fluoranthene	ug/l	0.002	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Benzo(G,H,I)Perylene	ug/l		0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Benzo(K)Fluoranthene	ug/l	0.002	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Chrysene	ug/l	0.002	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Dibenz(A,H)Anthracene	ug/l		0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Fluoranthene	ug/l	50	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Fluorene	ug/l	50	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Indeno(1,2,3-C,D)Pyrene	ug/l	0.002	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Naphthalene	ug/l	10	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Phenanthrene	ug/l	50	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U
SW8270D	Pyrene	ug/l	50	0.21 U	0.21 U	0.2 U	0.2 U	0.21 U

Location Description			4-REN-004-SW-05 4-REN-004-001-09 WS R2104262-009 5/3/2021 N	4-REN-004-SW-06 4-REN-004-001-08 WS R2104262-008 5/3/2021 N	4-REN-004-SW-07 4-REN-004-001-10 WS R2104262-010 5/3/2021 N	4-REN-004-WL-01 4-REN-004-003-12 WL R2104444-012 5/5/2021 N	4-REN-004-WL-02 4-REN-004-003-11 WL R2104444-011 5/5/2021 N	4-REN-004-WL-03 4-REN-004-003-10 WL R2104444-010 5/5/2021 N	4-REN-004-WL-04 4-REN-004-003-09 WL R2104444-009 5/5/2021 N	4-REN-004-WL-05 4-REN-004-003-08 WL R2104444-008 5/5/2021 N
Analytical Method	Chemical Name	Unit	NYSDEC Class GA MCL							
BNASIM	1,4-Dioxane (P-Dioxane)	ug/l	1	0.036 J	0.04 U	0.17	71	44	27	16
E300.0	Bromide	mg/l	2	1 U	1 U	0.8 J	2.2	1.9	1.9	0.5 J
E300.0	Chloride (As Cl)	mg/l	250	91.3	325	248	444	390	372	87.3
E300.0	Sulfate (As SO4)	mg/l	250	13.3	27.9	73.6	632	687	495	379
E350.1	Nitrogen, Ammonia (As N)	mg/l	2	0.05 U	0.05 U	0.05 U	24.3	12.9	21.6	0.448
E410.4	COD - Chemical Oxygen Demand	mg/l		19.1	12.1	12.7	347	141	328	44.3
E537	2-(N-methyl perfluorooctanesulfonamido) acetic acid	ng/l		4.2 U	4 U	4.2 U	3 J	4.7 U	5.4 U	4.4 U
E537	6:2 Fluorotelomer sulfonate	ng/l		4.2 U	4 U	12	94	22	93	13
E537	8:2 Fluorotelomer sulfonate	ng/l		4.2 U	4 U	4.2 U	0.44 J	0.18 J	0.36 J	4.4 U
E537	N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	ng/l		4.2 U	4 U	4.2 U	4.6 U	4.7 U	5.4 U	4.4 U
E537	Perfluorobutanesulfonic acid (PFBS)	ng/l		5.1	0.88 J	2.3 J	170	120	230	19
E537	Perfluorobutanoic Acid	ng/l		5.6	2.2 J	26	1000 J-	720	510 J-	190
E537	Perfluorodecane Sulfonic Acid	ng/l		4.2 U	4 U	4.2 U	4.6 U	4.7 U	5.4 U	4.4 U
E537	Perfluorodecanoic acid (PFDA)	ng/l		4.2 U	4 U	4.2 U	4.6 U	4.7 U	5.4 U	1.3 J
E537	Perfluorododecanoic acid (PFDoA)	ng/l		4.2 U	4 U	4.2 U	4.6 U	4.7 U	5.4 U	4.4 U
E537	Perfluorooheptane Sulfonate (PFHPS)	ng/l		4.2 U	4 U	1.1 J	0.58 J	4.7 U	5.4 U	4.4 U
E537	Perfluorooheptanoic acid (PFHpA)	ng/l		1.8 J	0.95 J	8.2	300	200	320	43
E537	Perfluorohexanesulfonic acid (PFHxS)	ng/l		1.6 J	4 U	33	120	30	110	15
E537	Perfluorohexanoic acid (PFHxA)	ng/l		9.2 U	9.2 U	33	1700 J-	1200	1600 J-	210
E537	Perfluorononanoic acid (PFNA)	ng/l		4.2 U	4 U	2.6 J	8.6	3.3 J	8.6	1.8 J
E537	Perfluorooctane Sulfonamide (FOSA)	ng/l		4.2 U	4 U	4.2 U	0.73 J	4.7 U	5.4 U	4.4 U
E537	Perfluorooctanesulfonic acid (PFOS)	ng/l	10	3.5	3.3	4.3	43	7.6	33	4.2
E537	Perfluorooctanoic acid (PFOA)	ng/l	10	3.3	1.6	9.1	300	120	300	35
E537	Perfluoropentanoic acid (PFPeA)	ng/l		2.5 J	4 U	32	1700 J-	2000	1800 J-	190
E537	Perfluorotetradecanoic acid (PFTA)	ng/l		4.2 U	4 U	4.2 U	4.6 U	4.7 U	5.4 U	4.4 U
E537	Perfluorotridecanoic Acid (PETriA)	ng/l		4.2 U	4 U	4.2 U	4.6 U	4.7 U	5.4 U	4.4 U
E537	Perfluoroundecanoic Acid (PFUnA)	ng/l		4.2 U	4 U	4.2 U	4.6 U	4.7 U	5.4 U	4.4 U
SM 2320 B	Alkalinity, Total (As CaCO3)	mg/l		205	53.4	1180	882	1160	1030	1050
SM 2340 C	Hardness (As CaCO3)	mg/l		210	315	280	1700	1680	1500	1440
SM2540C	Total Dissolved Solids (Residue, Filterable)	mg/l		392	733	547	2760	2540	2320	1710
SM5310C	Total Organic Carbon	mg/l		7.3	4.7	2.8	105	39.7	93	23.9
SW6010	Aluminum	ug/l		1160	78.6 J	340	100 U	51.3 J	100 U	270
SW6010	Antimony	ug/l	3	60 U	60 U	60 U	60 U	60 U	60 U	60 U
SW6010	Arsenic	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW6010	Barium	ug/l	1000	39	110	63.4	177	70.1	189	129
SW6010	Beryllium	ug/l	3	3 U	3 U	3 U	3 U	3 U	3 U	3 U
SW6010	Boron	ug/l	1000	13.6 J	200 U	89.3 J	9770	4090	7830	1040
SW6010	Cadmium	ug/l	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
SW6010	Calcium	ug/l		67900	81400	81500	359000	424000	335000	368000
SW6010	Chromium, Total	ug/l	50	1 J	10 U	10 U	8.6 J	1.1 J	8.7 J	10 U
SW6010	Cobalt	ug/l		50 U	50 U	50 U	1.9 J	1 J	5 J	13 J
SW6010	Copper	ug/l	200	20 U	20 U	20 U	20 U	20 U	20 U	20 U
SW6010	Iron	ug/l	300	821	294	280	1610	5160	4400	5370
SW6010	Lead	ug/l	25	50 U	50 U	50 U	50 U	50 U	50 U	50 U
SW6010	Magnesium	ug/l	35000	12500	16300	13800	178000	132000	153000	111000
SW6010	Manganese	ug/l	300	24.2	88.6	84.3	7570	10600	6600	4980
SW6010	Nickel	ug/l	100	40 U	40 U	2.8 J	37 J	22.9 J	32.4 J	29.3 J
SW6010	Potassium	ug/l		3810	2690	3630	25800	17200	22600	4430
SW6010	Selenium	ug/l	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW6010	Silver	ug/l	50	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW6010	Sodium	ug/l	20000	54200	165000	87000	303000	151000	222000	63100
SW6010	Thallium	ug/l	0.5	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW6010	Vanadium	ug/l		1.8 J	50 U	50 U	3.2 J	50 U	2.4 J	50 U
SW6010	Zinc	ug/l	2000	20 U	20 U	20 U	30.8	21	20 U	39.6
SW7470	Mercury	ug/l	0.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
SW8260C	1,1,1,2-Tetrachloroethane	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	1,1,1,2-Trichloroethane (TCA)	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	1,1,2,2-Tetrachloroethane	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	1,1,2,2-Trichloroethane	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	1,1-Dichloroethane	ug/l	1	1 U	1 U	1 U	2.4 J	10 U	5.6 J	8.6 J
SW8260C	1,1-Dichloroethene	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	1,2,3-Trichloropropane	ug/l	0.04	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	1,2-Dibromo-3-Chloropropane	ug/l	0.04	2 U	2 U	2 U	20 U	20 U	20 U	20 U
SW8260C	1,2-Dibromoethane (Ethylene Dibromide)	ug/l	0.0006	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	1,2-Dichlorobenzene	ug/l	3	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	1,2-Dichloroethane	ug/l	0.6	1 U	1 U	1 U	11	15	7.2 J	3.9 J
SW8260C	1,2-Dichloropropane	ug/l	1	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	1,4-Dichlorobenzene	ug/l	3	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	2-Hexanone	ug/l	50	5 U	5 U	5 U	50 U	50 U	50 U	50 U
SW8260C	Acetone	ug/l	50	5 U	5 U	5 U	52	50 U	79	50 U
SW8260C	Acrylonitrile	ug/l	5	10 U	10 U	10 U	100 U	100 U	100 U	100 U
SW8260C	Benzene	ug/l	1	1 U	1 U	1 U	7 J	7.7 J	5 J	10 U
SW8260C	Bromochloromethane	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	Bromodichloromethane	ug/l	50	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	Bromoform	ug/l	50	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	Bromomethane	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U
SW8260C	Carbon Disulfide	ug/l	60	1 U	1 U	1 U	10 U	10 U	10 U	10 U

Location Description				4-REN-004-SW-05 4-REN-004-001-09 WS R2104262-009 5/3/2021 N	4-REN-004-SW-06 4-REN-004-001-08 WS R2104262-008 5/3/2021 N	4-REN-004-SW-07 4-REN-004-001-10 WS R2104262-010 5/3/2021 N	4-REN-004-WL-01 4-REN-004-003-12 WL R2104444-012 5/5/2021 N	4-REN-004-WL-02 4-REN-004-003-11 WL R2104444-011 5/5/2021 N	4-REN-004-WL-03 4-REN-004-003-10 WL R2104444-010 5/5/2021 N	4-REN-004-WL-04 4-REN-004-003-09 WL R2104444-009 5/5/2021 N	4-REN-004-WL-05 4-REN-004-003-08 WL R2104444-008 5/5/2021 N
Analytical Method	Chemical Name	Unit	NYSDEC Class GA New York State MCL								
SW8260C	Carbon Tetrachloride	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Chlorobenzene	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Chloroethane	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Chloroform	ug/l	7	1 U	1 U	1 U	10 U	3.2 J	2.8 J	10 U	5.9 J
SW8260C	Chloromethane	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Cis-1,2-Dichloroethylene	ug/l	5	1 U	1 U	1 U	7.1 J	5.7 J	7.3 J	10 U	10 U
SW8260C	Cis-1,3-Dichloropropene	ug/l	0.4	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Dibromochloromethane	ug/l	50	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Dibromomethane	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Ethylbenzene	ug/l	5	1 U	1 U	1 U	7.7 J	7 J	5.2 J	10 U	10 U
SW8260C	Iodomethane (Methyl Iodide)	ug/l	5	5 U	5 U	5 U	50 U	50 U	50 U	50 U	50 U
SW8260C	m,p-Xylene	ug/l	5	2 U	2 U	2 U	20 U	2 J	20 U	20 U	20 U
SW8260C	Methyl Ethyl Ketone (2-Butanone)	ug/l	50	5 U	5 U	5 U	50 U	50 U	81	50 U	96
SW8260C	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ug/l		5 U	5 U	5 U	50 U	50 U	50 U	50 U	50 U
SW8260C	Methylene Chloride	ug/l	5	1 U	1 U	1 U	10 U	10 U	11	16	8 J
SW8260C	O-Xylene (1,2-Dimethylbenzene)	ug/l	5	1 U	1 U	1 U	10 U	10 U	2.6 J	10 U	10 U
SW8260C	Styrene	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Tetrachloroethylene (PCE)	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Toluene	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	2.6 J	10 U
SW8260C	Trans-1,2-Dichloroethene	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Trans-1,3-Dichloropropene	ug/l	0.4	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Trans-1,4-Dichloro-2-Butene	ug/l	5	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Trichloroethylene (TCE)	ug/l	5	1 U	1 U	1 U	10 U	3.1 J	10 U	3.2 J	10 U
SW8260C	Trichlorofluoromethane	ug/l	5	1 U	1 U	1 U	10 U	10 U	2.5 J	2.5 J	7.9 J
SW8260C	Vinyl Acetate	ug/l		2 U	2 U	2 U	20 U	20 U	20 U	20 U	20 U
SW8260C	Vinyl Chloride	ug/l	2	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
SW8260C	Xylenes, Total	ug/l	5	3 U	3 U	3 U	30 U	30 U	2.6 J	30 U	30 U
SW8270D	Acenaphthene	ug/l	20	0.2 U	0.2 U	0.2 U	0.22 U	0.15 J	0.19 U	0.19 U	0.2 U
SW8270D	Acenaphthylene	ug/l		0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Anthracene	ug/l	50	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Benzo(A)Anthracene	ug/l	0.002	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Benzo(A)Pyrene	ug/l		0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Benzo(B)Fluoranthene	ug/l	0.002	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Benzo(G,H,I)Perylene	ug/l		0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Benzo(K)Fluoranthene	ug/l	0.002	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Chrysene	ug/l	0.002	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U	0.15 J	0.19 U	0.2 U
SW8270D	Dibenz(A,H)Anthracene	ug/l		0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Fluoranthene	ug/l	50	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Fluorene	ug/l	50	0.2 U	0.2 U	0.2 U	0.19 J	0.21 U	0.084 J	0.19 U	0.2 U
SW8270D	Indeno(1,2,3-C,D)Pyrene	ug/l	0.002	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Naphthalene	ug/l	10	0.2 U	0.2 U	0.2 U	2.3	2.9	0.41	0.19 U	0.2 U
SW8270D	Phenanthrene	ug/l	50	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U
SW8270D	Pyrene	ug/l	50	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.19 U	0.19 U	0.2 U

				Location Description						
				Location ID						
				Sample ID	4-REN-004-004-01		4-REN-004-004-02		4-REN-004-MW-9SR	
				Matrix	WQ		WQ		WG	
				Lab Sample ID	R2106422-001		R2106422-002		R2106422-003	
				Sample Date	6/25/2021		6/25/2021		6/25/2021	
				Sample Type Code	FB		EB		N	
Analytical Method	Chemical Name	cas_rn	Unit	New York State MCL						
E537	2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9	ng/l		4.5	U	4.2	U	4.2	U
E537	6:2 Fluorotelomer sulfonate	27619-97-2	ng/l		4.5	U	4.2	U	4.2	U
E537	8:2 Fluorotelomer sulfonate	39108-34-4	ng/l		4.5	U	4.2	U	4.2	U
E537	N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluorobutanesulfonic acid (PFBS)	375-73-5	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluorobutanoic Acid	375-22-4	ng/l		4.5	U	4.2	U	0.59	J
E537	Perfluorodecane Sulfonic Acid	335-77-3	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluorodecanoic acid (PFDA)	335-76-2	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluorododecanoic acid (PFDoA)	307-55-1	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluoroheptane Sulfonate (PFHPS)	375-92-8	ng/l		4.5	UJ	4.2	UJ	4.2	UJ
E537	Perfluoroheptanoic acid (PFHpA)	375-85-9	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluorohexanoic acid (PFHxA)	307-24-4	ng/l		9.2	U	9.2	U	9.2	U
E537	Perfluorononanoic acid (PFNA)	375-95-1	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluorooctane Sulfonamide (FOSA)	754-91-6	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	ng/l	10	1.8	U	1.7	U	1.7	U
E537	Perfluorooctanoic acid (PFOA)	335-67-1	ng/l	10	1.8	U	1.7	U	1.7	U
E537	Perfluoropentanoic Acid (PFPeA)	2706-90-3	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluorotetradecanoic acid (PFTA)	376-06-7	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	ng/l		4.5	U	4.2	U	4.2	U
E537	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	ng/l		4.5	U	4.2	U	4.2	U