



Transmitted via email

Ms. Nicole Sanabria and Ms. Christina Hebert

Materials Management Division
Department of Environment, Great Lakes, and Energy
PO Box 30473
Lansing, MI 48909-7973

Mr. Kevin Forbes

Administrative Superintendent
Beecher Metropolitan District
G-1057 Louis Avenue
Flint, MI, 48505

Mr. Robert Ellis

Department of Public Works Manager
Genesee Township
7244 N. Genesee Road
Genesee, MI 48423

March 20, 2025

RE: **West of Site Sanitary Sewer Update**

RACER Trust – Coldwater Road Facility
FILE: 15388/1940113233/Corres

Ramboll
2090 Commonwealth Blvd.
Ann Arbor, MI 48105
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Dear **Ms. Sanabria, Ms. Hebert, Mr. Forbes, & Mr. Ellis:**

Ramboll Americas Engineering Solutions, Inc. (Ramboll), on behalf of the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) is providing this letter to summarize the per- and polyfluoroalkyl substances (PFAS) sample results collected from the Beecher Metropolitan District sanitary sewers west of the RACER Trust Coldwater Road Facility (Site) located in Flint, Michigan.

The samples were collected on December 19, 2024, at sample locations SAN-06, SAN-12, and SAN-14. See **Figure 1** for sample locations.

Sanitary sewer sampling was performed in accordance with the methods specified in EGLE's Wastewater PFAS Sampling Guidance.

Analytical Results

The sewer samples were analyzed for PFAS by method ASTM D7979-19 (no preservative). The analytical results for the recent sewer samples and historical

samples are summarized in **Table 1**, and the analytical laboratory reports for the most recent sampling event are included in **Appendix A**.

- SAN-06 had a detection of 28 nanograms per liter (ng/l) for perfluorooctane sulfonic acid (PFOS) on December 19, 2024, which is the middle of the range of previously detected concentrations and is a decrease compared to the previous result of 39 ng/l (6/27/2024) for PFOS.
- SAN-12 had a detection of 18 ng/l for PFOS on December 19, 2024, which is near the low end of the range of previously detected concentrations and is a decrease compared to the previous result of 52 ng/l (6/27/2024) for PFOS.
- SAN-14 had a detection of 11 ng/l for PFOS on December 19, 2024, which is near the low end of the range of previously detected concentrations and is a decrease compared to the previous result of 21 ng/l (6/27/2024) for PFOS.

The observed flow rates were similar to the reduced flow rates observed during previous post-lining (lining completed in February 2022) sampling events. PFOS concentrations appear to be variable at a given sampling location but are within a concentration range that is lower than before repairs were implemented.

Based on these results and to allow for continued evaluation of concentration variability and trends, we propose to collect another round of samples in June 2025 from sample locations SAN-06, SAN-12, and SAN-14. An update similar to this one will be provided within approximately four weeks of receipt of the analytical results from the laboratory.

Please contact me at 313-333-0211 or clifford.yantz@ramboll.com or Brendan Mullen at bmullen@racertrust.org or 201-247-4890, if you have any questions.

Very truly yours,

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.



Clifford S. Yantz

Project Manager

M 313.333.0211

Clifford.yantz@ramboll.com

ENCLOSURES:

Table 1 – Sanitary Sewer Analytical Results – West of Site

Figure 1 – Sanitary Sewer/Manhole Sample Locations

Attachment A – Laboratory Analytical Reports

cc: Mr. Daniel K Eashoo - Genesee Township Supervisor (via email)
Ms. Tiffany Minder – City of Flint (via email)
Ms. Carla Davidson – EGLE (via email)
Mr. Brian Zuber – EGLE (via email)
Mr. Brendan Mullen – RACER Trust (via email)
Mr. David Favero – RACER Trust (via email)
Mr. Kevin Schneider – Ramboll (via email)

TABLES

TABLE 1
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results
Sanitary Sewer Samples - West of Site

Coldwater Rd - Sanitary Sewer Samples West of Site

Perfluorinated Compound	Well/Sample ID: EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-3 (Sanitary Sewer)	SAN-3 (Sanitary Sewer)	SAN-3 (Sanitary Sewer)	SAN-3 (Sanitary Sewer)	SAN-4 (Sanitary Sewer)	SAN-5 (Sanitary Sewer)
		11/5/2019	6/25/2020	12/18/2020	3/11/2021	11/5/2019	11/5/2019
Perfluorobutanoic Acid (PFBA)	--	<19	25 U	<9.8	<10	<20	<20
Perfluoropentanoic Acid (PFPeA)	--	<9.7	5.0	1.2 J	1.8 J	<10	<10
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
Perfluorohexanoic Acid (PFHxA)	--	<9.7	5.4	1.6 J	1.8 J	<10	<10
Perfluorobutane Sulfonic Acid (PFBS)	670,000	<9.7	9.3	8.6	8.3	<10	<10
Perfluoroheptanoic Acid (PFHpA)	--	<9.7	3.1	<2.0	<2.0	<10	<10
Perfluoropentane Sulfonic Acid (PFPeS)	--	<9.7	11	10	9.4	<10	<10
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
Perfluorooctanoic Acid (PFOA)	170	<9.7	9.8	3.3	3.5	<10	<10
Perfluorohexane Sulfonic Acid (PFHxS)	210	40	63	52	42	<10	20
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	33	55	46	35	<10	16
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<9.7	7.9	6.5	6.5	<10	<10
Perfluorononanoic Acid (PFNA)	30	<9.7	<2.0	<2.0	<2.0	<10	<10
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<9.7	9.9	9.4	4.4	<10	<10
Perfluorodecanoic Acid (PFDA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<9.7	<4.1	<3.9	<4.1	<10	<10
Perfluorooctane Sulfonic Acid (PFOS)	12	110	230	210	96	61	170
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	21	55	38	17	17	69
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	85	170	170	79	33	100
Perfluoroundecanoic Acid (PFUnDA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
Perfluorononane Sulfonic Acid (PFNS)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
Perfluorododecanoic Acid (PFDoDA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
Perfluorodecane Sulfonic Acid (PFDS)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
Perfluorotridecanoic Acid (PFTrDA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
Perfluorooctane Sulfonamide (FOSA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
Perfluorotetradecanoic Acid (PFTeDA)	--	<9.7	<4.1	<3.9	<4.1	<10	<10
11-chloroicosadecafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF30UdS)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF30NS)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<9.7	<2.0	<2.0	<2.0	<10	<10
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	--
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--	--	--
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	--
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--
Total Per-and Polyfluoroalkyl Substances	--	150.0	371.5	296.1	167.2	61.0	190.0

- Notes
- 1) Detections in **bold**.
 - 2) Concentrations in ng/L.
 - 3) < = Not detected at specified reporting limit.
 - 4) -- = Not analyzed/No criteria.
 - 5) Dup = Duplicate sample.
 - 6) EGLE Part 201 Groundwater Generic Cleanup Criteria and Screening Levels, October 12, 2023.
 - 7) Concentration above the groundwater surface water interface (GSI) criteria are highlighted in yellow.
 - 8) The detection of PFBA in Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
 - 9) 1 - Biased high -- matrix interference
 - 10) B - Compound also found in associated method blank.
 - 11) I - Matrix interference with internal standard.
 - 12) J - Estimated value less than reporting limit, but greater than MDL.
 - 13) X - Elevated reporting limit due to matrix interference.
 - 14) Light gray header is most recent sampling event result.
 - 15) QA/QC Samples were either not detected above the reporting limit or below the EGLE Part 201 Groundwater Generic Cleanup Criteria.

TABLE 1
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results
Sanitary Sewer Samples - West of Site

Coldwater Rd - Sanitary Sewer Samples West of Site

Perfluorinated Compound	Well/Sample ID: EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)	SAN-06 (Sanitary Sewer)
		3/17/2020	6/25/2020	12/18/2020	3/11/2021	3/31/2022	9/7/2022	12/13/2022	4/6/2023	6/27/2023	12/19/2023	6/27/2024	12/19/2024
Perfluorobutanoic Acid (PFBA)	--	<21	13 U	<10	<11	<10	<10	<9.6	2.8 J	<11 x	<9.9	8.0 J	<10
Perfluoropentanoic Acid (PFPeA)	--	<10	1.3 J	<4.0	1.9 J	3.2 J	<4.0	<3.8	3.1 J	1.2 J	1.5 J	5.8	<4.1
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<10	<2.0 I	<2.0 I	<2.1	<2.1	<2.0 I	<1.9	<2.0	<1.9 I	<2.0	<2.0	<2.0
Perfluorohexanoic Acid (PFHxA)	--	<10	<2.0	<2.0	1.9 J	3.1	3.4	2.1	3.2	2.2	1.6 J	5.9	2.3
Perfluorobutane Sulfonic Acid (PFBS)	670,000	<10	3.1	3.7	4.5	11	<2.0	<1.9	5.8	<1.9	5.2	6.7	2.7
Perfluoroheptanoic Acid (PFHpA)	--	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	1.9 J	<1.9	1.3 J	1.3 J	1.6 J
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	<2.0	<2.0	2.3	6.7	<2.0	<1.9	3.3	<1.9	2.8	2.5	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<10	<2.0 I	<2.0 I	<2.1	<2.1	<2.0 I	<1.9	<2.0	<1.9 I	<2.0	<2.0	3.2 I
Perfluorooctanoic Acid (PFOA)	170	<10	<2.0	<2.0	<2.1	2.7	<2.0	<1.9	3.0	<1.9	1.8 J	5.3	4.7
Perfluorohexane Sulfonic Acid (PFHxS)	210	<10	11	6.3	10	18	5.6	<1.9	10	1.7 J	8.4	13	8
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<10	9.0	5.0	8.1	14	2.5	<1.9	8.2	1.7 J	6.8	9.0	5.2
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<10	<2.0	<2.0	<2.1	3.7	2.7	<1.9	2.6	<1.9	1.2 J	2.8	<2.0
Perfluorononanoic Acid (PFNA)	30	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	1.1 J	<1.9	<2.0	<2.0	2.1
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<10	<2.0	<2.0 I	<2.1	<2.1	<2.0 I	<1.9	<2.0	<1.9	<2.0	<2.0	86.0 I
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	1.4 J	<1.9	0.97 J	2.6	1.6 J
Perfluorodecanoic Acid (PFDA)	--	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	0.76 J	<1.9	<2.0	<2.0	3.3
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	2.7	<1.9	<2.0	<2.0	<2.0
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	--	<10	<3.9 I	<4.0 I	<4.2	<4.1	<4.0	<3.8	<4.0	<3.9 I	<3.9	<3.9	<4.1
Perfluorooctane Sulfonic Acid (PFOS)	12	14	21	26	34	38	13	4.5	32	11	21	39	28
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	<10	5.7	5.0	5.7	5.7	3.6	2.0	7.0	3.1	4.3	10	7.0
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	<10	16	19	27	31	9.1	2.4	25	8.0	17	28	20
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	<2.0	<1.9	<2.0	<2.0	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	<2.0	<1.9	<2.0	<2.0	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	<10	<2.0 I	<2.0	<2.1	<2.1	<2.0	<1.9	1.2 J	<1.9	<2.0	<2.0	1.1 J
Perfluorodecane Sulfonic Acid (PFDS)	--	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	<2.0	<1.9	<2.0	<2.0	<2.0
Perfluorotridecanoic Acid (PFTrDA)	--	<10	<2.0 I	<2.0	<2.1	<2.1	<2.0	<1.9	<2.0	<1.9	<2.0	<2.0	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	<10	<2.0	<2.0 I	<2.1	<2.1	<2.0	<1.9	<2.0	<1.9	<2.0	<2.0	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<3.9	<4.0	<4.2	<4.1	<4.0	<3.8	<4.0	<3.9	<3.9	<3.9	<4.1
11-chloroicosafauro-3-oxaundecanoic acid (11CI-PF3OUdS)	--	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	<2.0	<1.9	<2.0	<2.0	<2.0
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	--	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	<2.0	<1.9	<2.0	<2.0	<2.0
4,8-dioxo-3H-perfluorononanoic acid (ADONA)	--	<10	<2.0	<2.0	<2.1	<2.1	<2.0	<1.9	<2.0	<1.9	<2.0	<2.0	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<10	<2.0	<2.0	<2.1	<4.1	<10	<9.6	<2.0	<1.9	<9.9	<9.9	<10
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--	--	--	<3.9	<9.9	<9.9	<10
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	--	--	--	5.0	<9.9	<9.9	<10
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--	--	--	--	--	<3.9	<9.9	<9.9	<10
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--	--	--	<1.9	<2.0	<2.0	<2.0
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	--	--	--	64	120	190	140
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--	--	--	<1.9	<2.0	<2.0	<2.0
Total Per-and Polyfluoroalkyl Substances	--	14.0	49.4	36.0	54.6	82.7	22.0	6.6	72.3	85.1	164.6	280.1	284.4

- Notes
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 - 6) EGLE Part 201 Groundwater Generic Cleanup Criteria and Screening Levels, October 12, 2023.
 - 7) Concentration above the groundwater surface water interface (GSI) criteria are highlighted in yellow.
 - 8) The detection of PFBA in Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
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TABLE 1
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results
Sanitary Sewer Samples - West of Site

Coldwater Rd - Sanitary Sewer Samples West of Site

Perfluorinated Compound	Well/Sample ID: EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-07 (Sanitary Sewer)	SAN-10 (Sanitary Sewer)	SAN-10 (Sanitary Sewer)	SAN-10 (Sanitary Sewer)	SAN-DUP-121820 (SAN-10) Sanitary Sewer	SAN-10 (Sanitary Sewer)	SAN-DUP-031121 (SAN-10) Sanitary Sewer	SAN-11 (Sanitary Sewer)
		3/18/2020	3/18/2020	6/25/2020	12/18/2020	12/18/2020	3/11/2021	3/11/2021	3/18/2020
Perfluorobutanoic Acid (PFBA)	--	<21	<20	10 U	<9.9	<10	<11	<10	<19
Perfluoropentanoic Acid (PFPeA)	--	<11	<10	<3.9	<4.0	<4.1	2.2 J	1.8 J	<9.7
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<11	<10	<2.0 I	<2.0 I	<2.0 I	<2.1	<2.0	<9.7
Perfluorohexanoic Acid (PFHxA)	--	<11	<10	<2.0	<2.0	<2.0	1.6 J	1.7 J	<9.7
Perfluorobutane Sulfonic Acid (PFBS)	670,000	<11	<10	5.2	5.0	4.0	6.2	6.9	9.9
Perfluoroheptanoic Acid (PFHpA)	--	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
Perfluoropentane Sulfonic Acid (PFPeS)	--	<11	<10	<2.0	2.2	2.1	4.1	5.0	<9.7
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<11	<10	<2.0 I	<2.0	<2.0	<2.1	<2.0	<9.7
Perfluorooctanoic Acid (PF ₈ OA)	170	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
Perfluorohexane Sulfonic Acid (PFHxS)	210	<11	<10	9.5	9.4	9.1	13	15	25
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<11	<10	7.7	7.7	7.2	11	11	21
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<11	<10	<2.0	<2.0	<2.0	2.4	3.2	<9.7
Perfluorononanoic Acid (PFNA)	30	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<11	<10	<2.0 I	<2.0 I	<2.0	<2.1	<2.0	<9.7
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<11	<10	<2.0	<2.0	<2.0	<2.1	2.3	<9.7
Perfluorodecanoic Acid (PFDA)	--	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<11	<10	<2.0 I	<2.0	<2.0	<2.1	<2.0	<9.7
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<11	<10	<3.9 I	<4.0 I	<4.0 I	<4.3	<4.1	<9.7
Perfluorooctane Sulfonic Acid (PFOS)	12	<11	29	26	31	33	43	45	160
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	<11	<10	6.2	4.7	4.9	7.2	8.2	62
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	<11	24	19	25	26	34	36	100
Perfluoroundecanoic Acid (PFUnDA)	--	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
Perfluorononane Sulfonic Acid (PFNS)	--	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
Perfluorododecanoic Acid (PFDoDA)	--	<11	<10	<2.0 I	<2.0	<2.0	<2.1	<2.0	<9.7
Perfluorodecane Sulfonic Acid (PFDS)	--	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
Perfluorotridecanoic Acid (PFTrDA)	--	<11	<10	<2.0 I	<2.0	<2.0	<2.1	<2.0	<9.7
Perfluorooctane Sulfonamide (FOSA)	--	<11	<10	<2.0 I	<2.0 I	<2.0	<2.1	<2.0	<9.7
Perfluorotetradecanoic Acid (PFTeDA)	--	<11	<10	<3.9	<4.0	<4.1	<4.3	<4.1	<9.7
11-chloroicosafafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<11	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<9.7
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--	--	--
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	--	--	--
3-Perfluoropropyl propanoic acid (FPpPA (3:3 FTCA))	--	--	--	--	--	--	--	--	--
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--	--	--
Perfluoro-4-ethylcyclohexanesulfonate (PFECBS)	--	--	--	--	--	--	--	--	--
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--	--	--
Total Per-and Polyfluoroalkyl Substances	--	0.0	29.0	50.7	47.6	48.2	70.1	77.7	194.9

- Notes
- 1) Detections in bold.
 - 2) Concentrations in ng/L.
 - 3) < = Not detected at specified reporting limit.
 - 4) -- = Not analyzed/No criteria.
 - 5) Dup = Duplicate sample.
 - 6) EGLE Part 201 Groundwater Generic Cleanup Criteria and Screening Levels, October 12, 2023.
 - 7) Concentration above the groundwater surface water interface (GSI) criteria are highlighted in yellow.
 - 8) The detection of PFBA in Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
 - 9) 1 - Biased high -- matrix interference
 - 10) B - Compound also found in associated method blank.
 - 11) I - Matrix interference with internal standard.
 - 12) J - Estimated value less than reporting limit, but greater than MDL.
 - 13) X - Elevated reporting limit due to matrix interference.
 - 14) Light gray header is most recent sampling event result.
 - 15) QA/QC Samples were either not detected above the reporting limit or below the EGLE Part 201 Groundwater Generic Cleanup Criteria.

TABLE 1
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results
Sanitary Sewer Samples - West of Site

Coldwater Rd - Sanitary Sewer Samples West of Site

Perfluorinated Compound	Well/Sample ID: EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)	SAN-12 (Sanitary Sewer)
		3/18/2020	6/25/2020	12/18/2020	3/11/2021	3/31/2022	9/7/2022	12/13/2022	4/6/2023	6/27/2023	12/19/2023	6/27/2024	12/19/2024
Perfluorobutanoic Acid (PFBA)	--	<20	15 U	<9.8	<10	<10	<10	<9.8	2.6 J	<10	6.7 J	6.9 J	<10
Perfluoropentanoic Acid (PFPeA)	--	<10	<4.1	<3.9	7.3	7.1	<4.1	14	4.1	<4.1	9.9	18	2.7 J
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<10	<2.0 I	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0 I	<2.0	<1.9	<2.0
Perfluorohexanoic Acid (PFHxA)	--	<10	<2.0	<2.0	5.6	6.0	1.6 J	12	4.1	2.3	4.5	17	2.3
Perfluorobutane Sulfonic Acid (PFBS)	670,000	<10	<2.0	2.3	5.6	8.4	<2.0	2.0	5.4	<2.0	7.5	4.9	<2.0 X
Perfluoroheptanoic Acid (PFHpA)	--	<10	<2.0	<2.0	1.9 J	2.0 J	<2.0	<2.0	2.4	<2.0	2.0	1.5 J	0.85 J
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	<2.0	<2.0	<2.0	5.0	<2.0	<2.0	2.2	<2.0	2.0 J	<1.9	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<10	<2.0 I	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	2.2 I	<2.0	<1.9	<2.0
Perfluorooctanoic Acid (PFOA)	170	<10	<2.0	<2.0	5.0	7.0	<2.0	2.6	4.3	<2.0	4.3	4.9	0.89 J
Perfluorohexane Sulfonic Acid (PFHxS)	210	16	2.1	3.8	5.6	22	<2.0	2.3	15	3.4	7.6	7.2	1.9 J
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	12	<2.0	2.8	3.6	18	<2.0	1.7 J	12	3.4	5.9	5.2	1.3 J
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<10	<2.0	<2.0	<2.0	3.5	<2.0	<2.0	3.2	<2.0	1.4 J	1.3 J	<2.0
Perfluorononanoic Acid (PFNA)	30	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	0.89 J	<2.0	<2.0	<1.9	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<10	<2.0	<2.0	<2.0	<2.1	<2.0 I	<2.0	<2.0	<2.0 I	<2.0	<1.9	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<10	<2.0	<2.0	<2.0	4.8	<2.0	<2.0	1.3 J	<2.0	1.2 J	1.1 J	<2.0
Perfluorodecanoic Acid (PFDA)	--	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<10	<4.1 I	<3.9	<4.1	<4.1	<4.1	<3.9	<3.9	<4.1	<4.0	<3.9	<4.1
Perfluorooctane Sulfonic Acid (PFOS)	12	110	55	55	48	120	19	18	31	36 1	33	52	18
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	48	32	33	24	50	12	7.2	12	5.8	13	23	8.6
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	66	21	21	22	69	4.8	10	19	29 1	20	26	8.0
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	<10	<2.0 I	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
Perfluorotridecanoic Acid (PFTrDA)	--	<10	<2.0 I	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<4.1	<3.9	<4.1	<4.1	<4.1	<3.9	<3.9	<4.1	<4.0	<3.9	<4.1
11-chloroicosafauro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	--	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	--	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
4,8-dioxo-3H-perfluorononanoic acid (ADONA)	--	<10	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<10	<2.0	<2.0	<2.0	<4.1	<10	<9.8	<2.0	<2.0	<10	<9.7	<10
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--	--	--	--	<4.1	<10	<9.7
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	--	--	--	--	<4.1	<10	<9.7
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--	--	--	--	--	--	<4.1	<10	<9.7
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--	--	--	--	<2.0	0.75 J	<1.9
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	--	--	--	18	85	88	19
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--	--	--	--	<2.0	<1.9	<2.0
Total Per-and Polyfluoroalkyl Substances	--	126.0	72.1	61.1	79.0	182.3	20.6	50.9	73.3	61.9	164.5	201.5	45.6

- Notes
- 1) Detections in bold.
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 - 5) Dup = Duplicate sample.
 - 6) EGLE Part 201 Groundwater Generic Cleanup Criteria and Screening Levels, October 12, 2023.
 - 7) Concentration above the groundwater surface water interface (GSI) criteria are highlighted in yellow.
 - 8) The detection of PFBA in Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
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 - 12) J - Estimated value less than reporting limit, but greater than MDL.
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TABLE 1
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results
Sanitary Sewer Samples - West of Site

Coldwater Rd - Sanitary Sewer Samples West of Site

Perfluorinated Compound	Well/Sample ID: EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-13 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)	SAN-14 (Sanitary Sewer)
		3/19/2020	3/19/2020	6/25/2020	12/18/2020	3/11/2021	3/31/2022	9/7/2022	12/13/2022	4/6/2023	6/27/2023	12/19/2023	6/27/2024	12/19/2024
Perfluorobutanoic Acid (PFBA)	--	<100	<100	12 U	<10.0	<11	<11	<11	<9.9	4.1 J	<10.0	<10	<11	<12 X
Perfluoropentanoic Acid (PFPeA)	--	<10	<10	2.1 J	3.6 J	11	3.2 J	<4.3	<3.9	5.9	<4.0	<4.1	2.2 J	<4.1
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<10	<10	<2.0	<2.0 I	<2.1	<2.1	<2.1	<2.0	<2.0 I	<2.0	<2.1	<2.1 I	<2.1 I
Perfluorohexanoic Acid (PFHxA)	--	<10	<10	1.8 J	3.8	8.0	2.8	2.5	1.5 J	7.4	<2.0	2.5	5.3	<2.1
Perfluorobutane Sulfonic Acid (PFBS)	670,000	<10	<10	2.5	11	10.0	7.6	2.5	3.0	5.9	<2.0	6.8	4.2	2.2
Perfluoroheptanoic Acid (PFHpA)	--	<10	<10	1.6 J	2.8	5.5	1.6 J	<2.1	<2.0	4.3	<2.0	2.2	<2.1	1.2 J
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	1.5 J	<2.0	<2.0	<2.1	<2.1
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<10	<10	<2.0	<2.0 I	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1 I	<2.1 I
Perfluorooctanoic Acid (PFOA)	170	<10	<10	4.4	9.4	12	4.7	3.2	<2.0	12	<2.0	5.0	4.9	1.2 J
Perfluorohexane Sulfonic Acid (PFHxS)	210	19	<10	2.9	6.2	4.6	3.0	3.3	4.0	4.3	<2.0	3.1	2.1 J	2.0 J
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	16	<10	2.0	4.3	3.4	2.1	2.4	2.6	3.5	<2.0	3.1	2.1 J	2.0 J
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	1.3 J	<2.0	<2.0	<2.1	<2.1
Perfluorononanoic Acid (PFNA)	30	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	1.3 J	<2.0	<2.0	<2.1	<2.1
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1 I	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1
Perfluorodecanoic Acid (PFDA)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	0.65 J	<2.0	<2.0	<2.1	<2.1
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0 I	<2.0	<2.1	<2.1
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<10	<10	<4.0	<4.0 I	<4.2	<4.2	<4.3	<3.9	<4.0	<2.0	<4.1	<4.2	<4.1
Perfluorooctane Sulfonic Acid (PFOS)	12	150	29	23	52	40	15	14	6.3	28	8.4	17	21	11
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	75	<10	9	21	17	3.7	6.6	2.4	9.9	3.4	6.3	8.1	5.0
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	75	20	13	30	23	11	8.1	3.8	18	5.0	11	11	5.5
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1
Perfluorononane Sulfonic Acid (PFNS)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1
Perfluorododecanoic Acid (PFDoDA)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1
Perfluorodecane Sulfonic Acid (PFDS)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	1.1 J	<2.1	<2.1
Perfluorotridecanoic Acid (PFTrDA)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1
Perfluorooctane Sulfonamide (FOSA)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<10	<4.0	<4.0	<4.2	<4.2	<4.3	<3.9	<4.0	<4.0	<4.1	<4.2	<4.1
11-chloroicosafauro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1
9-chlorohexadecafluoro-3-oxanonel-1-sulfonic acid (9Cl-PF3ONS)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1
4,8-dioxo-3H-perfluorononanoic acid (ADONA)	--	<10	<10	<2.0	<2.0	<2.1	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<10	<10	<2.0	<2.0	<2.1	<4.2	<11	<9.9	<2.0	<2.0	<10	<11	<10
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--	--	--	--	<4.0	<10	<11	<10
3-Perfluoropentyl propanoic acid (FPpPA (5:3 FTCA))	--	--	--	--	--	--	--	--	--	--	<4.0	<10	<11	<10
3-Perfluoropropyl propanoic acid (FPpPA (3:3 FTCA))	--	--	--	--	--	--	--	--	--	--	<4.0	<10	<11	<10
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--	--	--	--	<4.0	0.77 J	<2.1	<2.1
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	--	--	--	--	8.9	18	8.2	9.8
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--	--	--	--	<2.0	<2.0	<2.1	<2.1
Total Per-and Polyfluoroalkyl Substances	--	169.0	29.0	50.3	88.8	91.1	37.9	25.5	14.8	75.4	17.3	56.5	47.9	27.4

- Notes
- 1) Detections in bold.
 - 2) Concentrations in ng/L.
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 - 4) -- = Not analyzed/No criteria.
 - 5) Dup = Duplicate sample.
 - 6) EGLE Part 201 Groundwater Generic Cleanup Criteria and Screening Levels, October 12, 2023.
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 - 8) The detection of PFBA in Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
 - 9) 1 - Biased high -- matrix interference
 - 10) B - Compound also found in associated method blank.
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Per-and Polyfluoroalkyl Substances Sampling Results
Sanitary Sewer Samples - West of Site

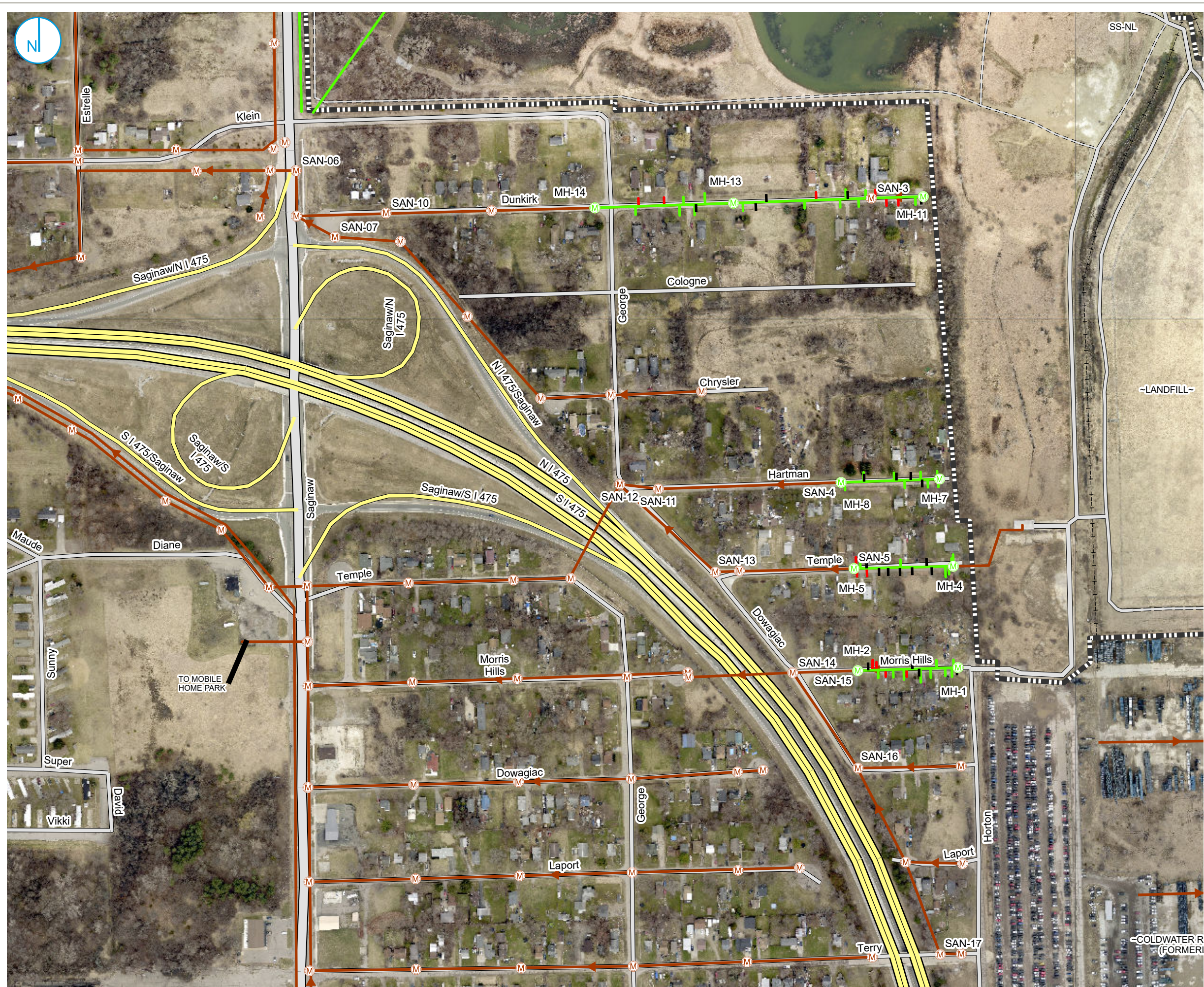
Coldwater Rd - Sanitary Sewer Samples West of Site

Perfluorinated Compound	Well/Sample ID: EGLE Part 201 Generic Cleanup Criteria and Screening Levels	SAN-15 (Sanitary Sewer)	SAN-16 (Sanitary Sewer)	SAN-17 (Sanitary Sewer)	SAN-DUP-1/SAN-17 (Sanitary Sewer)	SAN-19 (Sanitary Sewer)	SAN-20 (Sanitary Sewer)
	GSI	3/19/2020	3/19/2020	3/19/2020	3/19/2020	3/19/2020	3/19/2020
Perfluorobutanoic Acid (PFBA)	--	<98	<100	<96	<99	<100	<100
Perfluoropentanoic Acid (PFPeA)	--	<9.8	<10	<9.6	<9.9	<10	<10
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorohexanoic Acid (PFHxA)	--	<9.8	<10	<9.6	<9.9	<10	10
Perfluorobutane Sulfonic Acid (PFBS)	670,000	<9.8	12	<9.6	<9.9	<10	<10
Perfluoroheptanoic Acid (PFHpA)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluoropentane Sulfonic Acid (PFPeS)	--	<9.8	<10	<9.6	<9.9	<10	<10
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorooctanoic Acid (PFOA)	170	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorohexane Sulfonic Acid (PFHxS)	210	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorononanoic Acid (PFNA)	30	<9.8	<10	<9.6	<9.9	<10	<10
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorodecanoic Acid (PFDA)	--	<9.8	<10	<9.6	<9.9	<10	<10
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<9.8	<10	<9.6	<9.9	<10	<10
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorooctane Sulfonic Acid (PFOS)	12	35	13	<9.6	<9.9	<10	11
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	12	<10	<9.6	<9.9	<10	<10
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	20	<10	<9.6	<9.9	<10	<10
Perfluoroundecanoic Acid (PFUnDA)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorononane Sulfonic Acid (PFNS)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorododecanoic Acid (PFDoDA)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorodecane Sulfonic Acid (PFDS)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorotridecanoic Acid (PFTrDA)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorooctane Sulfonamide (FOSA)	--	<9.8	<10	<9.6	<9.9	<10	<10
Perfluorotetradecanoic Acid (PFTeDA)	--	<9.8	<10	<9.6	<9.9	<10	<10
11-chloroicoisafuoro-3-oxadecane-1-sulfonic acid (11CI-PF30UDS)	--	<9.8	<10	<9.6	<9.9	<10	<10
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF30NS)	--	<9.8	<10	<9.6	<9.9	<10	<10
4,8-dioxa-3H-perfluorononanoic acid (ADDNA)	--	<9.8	<10	<9.6	<9.9	<10	<10
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<9.8	<10	<9.6	<9.9	<10	<10
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--
3-Perfluoropentyl propanoic acid (FPpPA (5:3 FTCA))	--	--	--	--	--	--	--
3-Perfluoropropyl propanoic acid (FPpPA (3:3 FTCA))	--	--	--	--	--	--	--
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	--
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--
Total Per-and Polyfluoroalkyl Substances	--	35.0	25.0	0.0	0.0	0.0	21.0

Notes

- 1) Detections in **bold**.
- 2) Concentrations in ng/L.
- 3) < = Not detected at specified reporting limit.
- 4) -- = Not analyzed/No criteria.
- 5) Dup = Duplicate sample.
- 6) EGLE Part 201 Groundwater Generic Cleanup Criteria and Screening Levels, October 12, 2023.
- 7) Concentration above the groundwater surface water interface (GSI) criteria are highlighted in yellow.
- 8) The detection of PFBA in Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U" undetected.
- 9) 1 - Biased high -- matrix interference
- 10) B - Compound also found in associated method blank.
- 11) I - Matrix interference with internal standard.
- 12) J - Estimated value less than reporting limit, but greater than MDL.
- 13) X - Elevated reporting limit due to matrix interference.
- 14) Light gray header is most recent sampling event result.
- 15) QA/QC Samples were either not detected above the reporting limit or below the EGLE Part 201 Groundwater Generic Cleanup Criteria.

FIGURES



- M SANITARY SEWER MANHOLE
- M SANITARY SEWER MANHOLE LINED (FEBRUARY 2022)
- NOT LINED
- CIPP LINED
- CAPPED LATERAL

Note
Lining was completed in February 2022.



**SANITARY SEWER / MANHOLE
SAMPLE LOCATIONS**

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 01

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY



**APPENDIX A
LABORATORY ANALYTICAL REPORTS**



Analytical Laboratory Report

Report ID: S69831.01(01)
Generated on 12/30/2024

Report to

Attention: Clifford Yantz
Ramboll Americas
2090 Commonwealth Blvd
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Additional Contacts: Kevin Schneider, Nicole Pitkorchemny

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:

John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S69831.01-S69831.03
Project: RACER Coldwater Road
Collected Date(s): 12/19/2024
Submitted Date/Time: 12/19/2024 13:10
Sampled by: Kevin Schneider
P.O. #: 1940008845 TASK37

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Sample Summary (Page 6)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



Analytical Laboratory Report

Method Summary

Method	Version
ASTMD7979-19M	ASTM Method D7979 - 19 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone1-sulfonic acid	756426-58-1
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
HFPO-DA	Hexafluoropropylene oxide dimer	13252-13-6
FHpPA (7:3 FTCA)	3-Perfluoroheptyl propanoic acid	812-70-4
FPePA (5:3 FTCA)	3-Perfluoropentyl propanoic acid	914637-49-3
FPrPA (3:3 FTCA)	3-Perfluoropropyl propanoic acid	356-02-5
PFBSA	Perfluorobutanesulfonamide	30334-69-1
PFECHS	Perfluoro-4-ethylcyclohexanesulfonate	67584-42-3
PFHxSA	Perfluorohexanesulfonamide	41997-13-1



Analytical Laboratory Report

Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S69831.01	SAN-06-20241219	Liquid	12/19/24 11:38
S69831.02	SAN-12-20241219	Liquid	12/19/24 11:48
S69831.03	SAN-14-20241219	Liquid	12/19/24 12:00



Analytical Laboratory Report

Lab Sample ID: S69831.01

Sample Tag: SAN-06-20241219

Collected Date/Time: 12/19/2024 11:38

Matrix: Liquid

COC Reference: 172717

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15mL Centrifuge Tube	None	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.41/6.48/10	ASTMD7979-19M	12/23/24 11:00	CED	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/23/24 21:05, Analyst: CED

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	2.0	ng/L	2.03	375-22-4	
PFPeA*	Not detected	4.1	1.2	ng/L	2.03	2706-90-3	
4:2 FTSA*	Not detected	2.0	0.20	ng/L	2.03	757124-72-4	
PFHxA*	2.3	2.0	1.2	ng/L	2.03	307-24-4	
PFBS*	2.7	2.0	0.61	ng/L	2.03	375-73-5	
PFHpA*	1.6	2.0	0.81	ng/L	2.03	375-85-9	J
PFPeS*	Not detected	2.0	1.8	ng/L	2.03	2706-91-4	
6:2 FTSA*	3.2	2.0	1.0	ng/L	2.03	27619-97-2	I
PFOA*	4.7	2.0	0.81	ng/L	2.03	335-67-1	
PFHxS*	7.8	2.0	1.0	ng/L	2.03	355-46-4	
PFHxS-LN*	5.2	2.0	1.0	ng/L	2.03	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.0	ng/L	2.03	355-46-4-BR	
PFNA*	2.1	2.0	1.0	ng/L	2.03	375-95-1	
8:2 FTSA*	86	2.0	1.2	ng/L	2.03	39108-34-4	I
PFHpS*	1.6	2.0	0.81	ng/L	2.03	375-92-8	J
PFDA*	3.3	2.0	1.2	ng/L	2.03	335-76-2	
N-MeFOSAA*	Not detected	2.0	1.0	ng/L	2.03	2355-31-9	
EtFOSAA*	Not detected	4.1	1.0	ng/L	2.03	2991-50-6	
PFOS*	28	2.0	0.81	ng/L	2.03	1763-23-1	
PFOS-LN*	7.0	2.0	0.81	ng/L	2.03	1763-23-1-LN	
PFOS-BR*	20	2.0	0.81	ng/L	2.03	1763-23-1-BR	
PFUnDA*	Not detected	2.0	0.81	ng/L	2.03	2058-94-8	
PFNS*	Not detected	2.0	1.0	ng/L	2.03	68259-12-1	
PFDoDA*	1.1	2.0	0.61	ng/L	2.03	307-55-1	J
PFDS*	Not detected	2.0	1.0	ng/L	2.03	335-77-3	
PFTTrDA*	Not detected	2.0	0.81	ng/L	2.03	72629-94-8	
FOSA*	Not detected	2.0	0.81	ng/L	2.03	754-91-6	
PFTeDA*	Not detected	4.1	0.61	ng/L	2.03	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.0	ng/L	2.03	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.0	ng/L	2.03	756426-58-1	
ADONA*	Not detected	2.0	0.61	ng/L	2.03	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.03	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	10	8.1	ng/L	2.03	812-70-4	
FPePA (5:3 FTCA)*	Not detected	10	4.1	ng/L	2.03	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	10	4.1	ng/L	2.03	356-02-5	

J-Estimated value less than reporting limit, but greater than MDL

I-Matrix interference with internal standard



Analytical Laboratory Report

Lab Sample ID: S69831.01 (continued)

Sample Tag: SAN-06-20241219

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/23/24 21:05, Analyst: CED (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBSA*	Not detected	2.0	0.61	ng/L	2.03	30334-69-1	
PFECHS*	140	2.0	0.81	ng/L	2.03	67584-42-3	
PFHxSA*	Not detected	2.0	0.61	ng/L	2.03	41997-13-1	



Analytical Laboratory Report

Lab Sample ID: S69831.02

Sample Tag: SAN-12-20241219

Collected Date/Time: 12/19/2024 11:48

Matrix: Liquid

COC Reference: 172717

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15mL Centrifuge Tube	None	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.91/6.48/11	ASTMD7979-19M	12/23/24 11:00	CED	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/23/24 21:25, Analyst: CED

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	2.0	ng/L	2.03	375-22-4	
PFPeA*	2.7	4.1	1.2	ng/L	2.03	2706-90-3	J
4:2 FTSA*	Not detected	2.0	0.20	ng/L	2.03	757124-72-4	
PFHxA*	2.3	2.0	1.2	ng/L	2.03	307-24-4	
PFBS*	Not detected	2.8	0.61	ng/L	2.03	375-73-5	X
PFHpA*	0.85	2.0	0.81	ng/L	2.03	375-85-9	J
PFPeS*	Not detected	2.0	1.8	ng/L	2.03	2706-91-4	
6:2 FTSA*	Not detected	2.0	1.0	ng/L	2.03	27619-97-2	
PFOA*	0.89	2.0	0.81	ng/L	2.03	335-67-1	J
PFHxS*	1.9	2.0	1.0	ng/L	2.03	355-46-4	J
PFHxS-LN*	1.3	2.0	1.0	ng/L	2.03	355-46-4-LN	J
PFHxS-BR*	Not detected	2.0	1.0	ng/L	2.03	355-46-4-BR	
PFNA*	Not detected	2.0	1.0	ng/L	2.03	375-95-1	
8:2 FTSA*	Not detected	2.0	1.2	ng/L	2.03	39108-34-4	
PFHpS*	Not detected	2.0	0.81	ng/L	2.03	375-92-8	
PFDA*	Not detected	2.0	1.2	ng/L	2.03	335-76-2	
N-MeFOSAA*	Not detected	2.0	1.0	ng/L	2.03	2355-31-9	
EtFOSAA*	Not detected	4.1	1.0	ng/L	2.03	2991-50-6	
PFOS*	18	2.0	0.81	ng/L	2.03	1763-23-1	
PFOS-LN*	8.6	2.0	0.81	ng/L	2.03	1763-23-1-LN	
PFOS-BR*	8.0	2.0	0.81	ng/L	2.03	1763-23-1-BR	
PFUnDA*	Not detected	2.0	0.81	ng/L	2.03	2058-94-8	
PFNS*	Not detected	2.0	1.0	ng/L	2.03	68259-12-1	
PFDODA*	Not detected	2.0	0.61	ng/L	2.03	307-55-1	
PFDS*	Not detected	2.0	1.0	ng/L	2.03	335-77-3	
PFTTrDA*	Not detected	2.0	0.81	ng/L	2.03	72629-94-8	
FOSA*	Not detected	2.0	0.81	ng/L	2.03	754-91-6	
PFTeDA*	Not detected	4.1	0.61	ng/L	2.03	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.0	ng/L	2.03	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.0	ng/L	2.03	756426-58-1	
ADONA*	Not detected	2.0	0.61	ng/L	2.03	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.03	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	10	8.1	ng/L	2.03	812-70-4	
FPePA (5:3 FTCA)*	Not detected	10	4.1	ng/L	2.03	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	10	4.1	ng/L	2.03	356-02-5	

J-Estimated value less than reporting limit, but greater than MDL

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S69831.02 (continued)

Sample Tag: SAN-12-20241219

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/23/24 21:25, Analyst: CED (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBSA*	Not detected	2.0	0.61	ng/L	2.03	30334-69-1	
PFECHS*	19	2.0	0.81	ng/L	2.03	67584-42-3	
PFHxSA*	Not detected	2.0	0.61	ng/L	2.03	41997-13-1	



Analytical Laboratory Report

Lab Sample ID: S69831.03

Sample Tag: SAN-14-20241219

Collected Date/Time: 12/19/2024 12:00

Matrix: Liquid

COC Reference: 172717

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15mL Centrifuge Tube	None	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.83/6.48/11	ASTMD7979-19M	12/23/24 11:00	CED	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/26/24 13:46, Analyst: CED

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	12	2.1	ng/L	2.06	375-22-4	X
PFPeA*	Not detected	4.1	1.2	ng/L	2.06	2706-90-3	
4:2 FTSA*	Not detected	2.1	0.21	ng/L	2.06	757124-72-4	I
PFHxA*	Not detected	2.1	1.2	ng/L	2.06	307-24-4	
PFBS*	2.2	2.1	0.62	ng/L	2.06	375-73-5	
PFHpA*	1.2	2.1	0.82	ng/L	2.06	375-85-9	J
PFPeS*	Not detected	2.1	1.9	ng/L	2.06	2706-91-4	
6:2 FTSA*	Not detected	2.1	1.0	ng/L	2.06	27619-97-2	I
PFOA*	1.2	2.1	0.82	ng/L	2.06	335-67-1	J
PFHxS*	2.0	2.1	1.0	ng/L	2.06	355-46-4	J
PFHxS-LN*	2.0	2.1	1.0	ng/L	2.06	355-46-4-LN	J
PFHxS-BR*	Not detected	2.1	1.0	ng/L	2.06	355-46-4-BR	
PFNA*	Not detected	2.1	1.0	ng/L	2.06	375-95-1	
8:2 FTSA*	Not detected	2.1	1.2	ng/L	2.06	39108-34-4	
PFHpS*	Not detected	2.1	0.82	ng/L	2.06	375-92-8	
PFDA*	Not detected	2.1	1.2	ng/L	2.06	335-76-2	
N-MeFOSAA*	Not detected	2.1	1.0	ng/L	2.06	2355-31-9	
EtFOSAA*	Not detected	4.1	1.0	ng/L	2.06	2991-50-6	
PFOS*	11	2.1	0.82	ng/L	2.06	1763-23-1	
PFOS-LN*	5.0	2.1	0.82	ng/L	2.06	1763-23-1-LN	
PFOS-BR*	5.5	2.1	0.82	ng/L	2.06	1763-23-1-BR	
PFUnDA*	Not detected	2.1	0.82	ng/L	2.06	2058-94-8	
PFNS*	Not detected	2.1	1.0	ng/L	2.06	68259-12-1	
PFDODA*	Not detected	2.1	0.62	ng/L	2.06	307-55-1	
PFDS*	Not detected	2.1	1.0	ng/L	2.06	335-77-3	
PFTTrDA*	Not detected	2.1	0.82	ng/L	2.06	72629-94-8	
FOSA*	Not detected	2.1	0.82	ng/L	2.06	754-91-6	
PFTeDA*	Not detected	4.1	0.62	ng/L	2.06	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.0	ng/L	2.06	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.0	ng/L	2.06	756426-58-1	
ADONA*	Not detected	2.1	0.62	ng/L	2.06	919005-14-4	
HFPO-DA*	Not detected	10	2.1	ng/L	2.06	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	10	8.2	ng/L	2.06	812-70-4	
FPePA (5:3 FTCA)*	Not detected	10	4.1	ng/L	2.06	914637-49-3	

X-Elevated reporting limit due to matrix interference

I-Matrix interference with internal standard

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S69831.03 (continued)

Sample Tag: SAN-14-20241219

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/26/24 13:46, Analyst: CED (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
FPrPA (3:3 FTCA)*	Not detected	10	4.1	ng/L	2.06	356-02-5	
PFBSA*	Not detected	2.1	0.62	ng/L	2.06	30334-69-1	
PFECHS*	9.8	2.1	0.82	ng/L	2.06	67584-42-3	
PFHxSA*	Not detected	2.1	0.62	ng/L	2.06	41997-13-1	

Merit Laboratories Login Checklist

Lab Set ID:S69831

Client:RAMBOLL (Ramboll Americas)

Project: RACER Coldwater Road

Submitted: 12/19/2024 13:10 Login User: MMC

Attention: Clifford Yantz

Address: Ramboll Americas
2090 Commonwealth Blvd
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Selection	Description	Note
-----------	-------------	------

Sample Receiving

- | | | |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.2 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

Chain of Custody

- | | | |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |

Preservation

- | | | |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |

Bottle Conditions

- | | | |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC, TOX, DO or Alkalinity bottles contain |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____



Quality Control Report

Report ID: QC-S69831-01
Generated on 01/02/2025

Report to

Attention: Clifford Yantz
Ramboll Americas
2090 Commonwealth Blvd
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S69831.01-S69831.03
Project: RACER Coldwater Road
Submitted Date/Time: 12/19/2024 13:10
Sampled by: Kevin Schneider
P.O. #: 1940008845 TASK37

QC Report Sections

- Cover Page (Page 1)
- Analysis Summary (Pages 2-4)
- Prep Batch Summary (Page 5)
- Internal Standards per Lab Sample (Pages 6-8)
- Internal Standards per QC Sample (Pages 9-13)
- Batch QC Results (Pages 14-18)

Report Flag Descriptions

- *: QC result is outside of indicated control limits
- W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S69831.01

Sample Tag: SAN-06-20241219

Collected Date/Time: 12/19/2024 11:38

Matrix: Liquid

COC Reference: 172717

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	12/23/24 21:05	AK241223	PF241223W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S69831.02

Sample Tag: SAN-12-20241219

Collected Date/Time: 12/19/2024 11:48

Matrix: Liquid

COC Reference: 172717

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	12/23/24 21:25	AK241223W1	PF241223W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S69831.03

Sample Tag: SAN-14-20241219

Collected Date/Time: 12/19/2024 12:00

Matrix: Liquid

COC Reference: 172717

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	12/26/24 13:46	AK241226RR	PF241223W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF241223W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S69831.01	34 PFAs	ASTMD7979-19M	12/23/24 21:05	AK241223
S69831.02	34 PFAs	ASTMD7979-19M	12/23/24 21:25	AK241223W1
S69831.03	34 PFAs	ASTMD7979-19M	12/26/24 13:46	AK241226RR

QC Report - Internal Standards per Lab Sample

Lab Sample ID: **S69831.01**

Sample Tag: SAN-06-20241219

Collected Date/Time: 12/19/2024 11:38

Matrix: Liquid

COC Reference: 172717

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK241223, Run Date: 12/23/2024 21:05, Matrix: WW, Dilution: 2.03

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		143.0	50.0	150.0
M2-6:2FTSA	*	254.4	50.0	150.0
M2-8:2FTSA	*	160.4	50.0	150.0
M2PFTeDA		130.1	12.0	218.0
M3PFBS		126.2	50.0	150.0
M3PFHxS		111.2	50.0	150.0
M4PFHpA		119.3	50.0	150.0
M5PFHxA		114.2	50.0	150.0
M5PFPeA		119.3	50.0	150.0
M6PFDA		127.3	50.0	150.0
M7PFUnDA		130.1	50.0	150.0
M8FOSA		117.9	50.0	150.0
M8PFOA		130.1	50.0	150.0
M8PFOS		124.0	50.0	150.0
M9-PFNA		114.0	50.0	150.0
MPFBA		122.4	50.0	150.0
MPFDoDA		117.6	50.0	150.0
d3N-MeFOSAA		111.4	50.0	150.0
d5EtFOSAA		139.4	50.0	150.0
MHFPO-DA		120.9	50.0	150.0
d-N-EtFOSA-M		115.7	50.0	150.0
d-N-MeFOSA-M		107.0	50.0	150.0
d7-N-MeFOSE-M		121.5	50.0	150.0
d9-N-EtFOSE-M		101.5	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S69831.02

Sample Tag: SAN-12-20241219

Collected Date/Time: 12/19/2024 11:48

Matrix: Liquid

COC Reference: 172717

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK241223W1, Run Date: 12/23/2024 21:25, Matrix: WW, Dilution: 2.03

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		118.0	50.0	150.0
M2-6:2FTSA		132.1	50.0	150.0
M2-8:2FTSA		118.0	50.0	150.0
M2PFTeDA		117.1	12.0	218.0
M3PFBS		119.1	50.0	150.0
M3PFHxS		115.5	50.0	150.0
M4PFHpA		109.4	50.0	150.0
M5PFHxA		111.8	50.0	150.0
M5PFPeA		114.5	50.0	150.0
M6PFDA		113.3	50.0	150.0
M7PFUnDA		107.7	50.0	150.0
M8FOSA		110.8	50.0	150.0
M8PFOA		113.0	50.0	150.0
M8PFOS		120.2	50.0	150.0
M9-PFNA		105.0	50.0	150.0
MPFBA		114.6	50.0	150.0
MPFDoDA		100.5	50.0	150.0
d3N-MeFOSAA		101.5	50.0	150.0
d5EtFOSAA		118.7	50.0	150.0
MHFPO-DA		123.5	50.0	150.0
d-N-EtFOSA-M		106.7	50.0	150.0
d-N-MeFOSA-M		100.7	50.0	150.0
d7-N-MeFOSE-M		105.3	50.0	150.0
d9-N-EtFOSE-M		101.9	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S69831.03

Sample Tag: SAN-14-20241219

Collected Date/Time: 12/19/2024 12:00

Matrix: Liquid

COC Reference: 172717

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK241226RR, Run Date: 12/26/2024 13:46, Matrix: WW, Dilution: 2.06

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	191.9	50.0	150.0
M2-6:2FTSA	*	166.6	50.0	150.0
M2-8:2FTSA		139.1	50.0	150.0
M2PFTeDA		128.9	12.0	218.0
M3PFBS		113.6	50.0	150.0
M3PFHxS		120.8	50.0	150.0
M4PFHpA		109.1	50.0	150.0
M5PFHxA		125.5	50.0	150.0
M5PFPeA		105.8	50.0	150.0
M6PFDA		113.1	50.0	150.0
M7PFUnDA		96.4	50.0	150.0
M8FOSA		128.0	50.0	150.0
M8PFOA		111.9	50.0	150.0
M8PFOS		110.1	50.0	150.0
M9-PFNA		113.8	50.0	150.0
MPFBA		54.7	50.0	150.0
MPFDoDA		87.7	50.0	150.0
d3N-MeFOSAA		127.6	50.0	150.0
d5EtFOSAA		144.0	50.0	150.0
MHFPO-DA		89.0	50.0	150.0
d-N-EtFOSA-M		134.3	50.0	150.0
d-N-MeFOSA-M		124.8	50.0	150.0
d7-N-MeFOSE-M		112.8	50.0	150.0
d9-N-EtFOSE-M		114.5	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF241223W1

QC Types: BLK/LCS/LCSD/MS/DUP

Blank (BLK)

Lab Sample ID: AK241223W1.BLK241223

Run in Batch: AK241223W1, Run Date: 12/23/2024 15:05, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		105.0	50.0	150.0
M2-6:2FTSA		111.0	50.0	150.0
M2-8:2FTSA		116.5	50.0	150.0
M2PFTeDA		83.5	12.0	218.0
M3PFBS		105.6	50.0	150.0
M3PFHxS		100.3	50.0	150.0
M4PFHpA		97.1	50.0	150.0
M5PFHxA		105.3	50.0	150.0
M5PFPeA		100.5	50.0	150.0
M6PFDA		100.8	50.0	150.0
M7PFUnDA		100.4	50.0	150.0
M8FOSA		96.6	50.0	150.0
M8PFOA		97.8	50.0	150.0
M8PFOS		117.5	50.0	150.0
M9-PFNA		93.4	50.0	150.0
MPFBA		103.2	50.0	150.0
MPFDoDA		93.7	50.0	150.0
d3N-MeFOSAA		101.3	50.0	150.0
d5EtFOSAA		103.8	50.0	150.0
MHFPO-DA		108.7	50.0	150.0
d-N-EtFOSA-M		92.1	50.0	150.0
d-N-MeFOSA-M		88.5	50.0	150.0
d7-N-MeFOSE-M		101.0	50.0	150.0
d9-N-EtFOSE-M		88.6	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample (LCS)

Lab Sample ID: AK241223W1.LCS241223

Run in Batch: AK241223W1, Run Date: 12/23/2024 14:25, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		106.8	50.0	150.0
M2-6:2FTSA		112.9	50.0	150.0
M2-8:2FTSA		105.7	50.0	150.0
M2PFTeDA		90.9	12.0	218.0
M3PFBS		108.7	50.0	150.0
M3PFHxS		105.3	50.0	150.0
M4PFHpA		100.9	50.0	150.0
M5PFHxA		111.4	50.0	150.0
M5PFPeA		107.9	50.0	150.0
M6PFDA		104.4	50.0	150.0
M7PFUnDA		109.8	50.0	150.0
M8FOSA		102.1	50.0	150.0
M8PFOA		102.1	50.0	150.0
M8PFOS		107.3	50.0	150.0
M9-PFNA		104.8	50.0	150.0
MPFBA		102.6	50.0	150.0
MPFDoDA		96.8	50.0	150.0
d3N-MeFOSAA		108.9	50.0	150.0
d5EtFOSAA		110.5	50.0	150.0
MHFPO-DA		107.9	50.0	150.0
d-N-EtFOSA-M		103.0	50.0	150.0
d-N-MeFOSA-M		91.9	50.0	150.0
d7-N-MeFOSE-M		104.9	50.0	150.0
d9-N-EtFOSE-M		87.3	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK241223W1.LCSD241223, Parent Sample ID: AK241223W1.LCS241223

Run in Batch: AK241223W1, Run Date: 12/23/2024 14:45, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		100.8	50.0	150.0
M2-6:2FTSA		107.8	50.0	150.0
M2-8:2FTSA		115.0	50.0	150.0
M2PFTeDA		98.0	12.0	218.0
M3PFBS		106.0	50.0	150.0
M3PFHxS		104.1	50.0	150.0
M4PFHpA		103.7	50.0	150.0
M5PFHxA		112.0	50.0	150.0
M5PFPeA		105.6	50.0	150.0
M6PFDA		101.2	50.0	150.0
M7PFUnDA		98.9	50.0	150.0
M8FOSA		102.8	50.0	150.0
M8PFOA		106.2	50.0	150.0
M8PFOS		115.5	50.0	150.0
M9-PFNA		99.8	50.0	150.0
MPFBA		104.4	50.0	150.0
MPFDoDA		93.1	50.0	150.0
d3N-MeFOSAA		100.6	50.0	150.0
d5EtFOSAA		102.3	50.0	150.0
MHFPO-DA		104.1	50.0	150.0
d-N-EtFOSA-M		100.3	50.0	150.0
d-N-MeFOSA-M		100.5	50.0	150.0
d7-N-MeFOSE-M		97.7	50.0	150.0
d9-N-EtFOSE-M		91.8	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike (MS)

Lab Sample ID: AK241223W1.6982801M, Parent Sample ID: S69828.01

Run in Batch: AK241223W1, Run Date: 12/23/2024 18:25, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1.92

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		126.2	50.0	150.0
M2-6:2FTSA		112.7	50.0	150.0
M2-8:2FTSA		98.7	50.0	150.0
M2PFTeDA		111.6	12.0	218.0
M3PFBS		106.2	50.0	150.0
M3PFHxS		109.0	50.0	150.0
M4PFHpA		96.0	50.0	150.0
M5PFHxA		109.3	50.0	150.0
M5PFPeA		100.6	50.0	150.0
M6PFDA		110.4	50.0	150.0
M7PFUnDA		94.8	50.0	150.0
M8FOSA		106.5	50.0	150.0
M8PFOA		100.2	50.0	150.0
M8PFOS		113.1	50.0	150.0
M9-PFNA		110.1	50.0	150.0
MPFBA		96.9	50.0	150.0
MPFDoDA		98.9	50.0	150.0
d3N-MeFOSAA		102.4	50.0	150.0
d5EtFOSAA		91.5	50.0	150.0
MHFPO-DA		103.5	50.0	150.0
d-N-EtFOSA-M		101.0	50.0	150.0
d-N-MeFOSA-M		99.9	50.0	150.0
d7-N-MeFOSE-M		104.2	50.0	150.0
d9-N-EtFOSE-M		100.1	50.0	150.0

QC Report - Internal Standards per QC Sample

Duplicate (DUP)

Lab Sample ID: AK241223W1.6982802D, Parent Sample ID: S69828.02

Run in Batch: AK241223W1, Run Date: 12/23/2024 19:05, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1.92

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		94.9	50.0	150.0
M2-6:2FTSA		114.2	50.0	150.0
M2-8:2FTSA		109.3	50.0	150.0
M2PFTeDA		104.9	12.0	218.0
M3PFBS		101.6	50.0	150.0
M3PFHxS		103.3	50.0	150.0
M4PFHpA		98.0	50.0	150.0
M5PFHxA		113.7	50.0	150.0
M5PFPeA		102.9	50.0	150.0
M6PFDA		101.5	50.0	150.0
M7PFUnDA		112.8	50.0	150.0
M8FOSA		107.5	50.0	150.0
M8PFOA		105.0	50.0	150.0
M8PFOS		119.4	50.0	150.0
M9-PFNA		101.0	50.0	150.0
MPFBA		100.0	50.0	150.0
MPFDoDA		106.7	50.0	150.0
d3N-MeFOSAA		90.2	50.0	150.0
d5EtFOSAA		102.5	50.0	150.0
MHFPO-DA		119.0	50.0	150.0
d-N-EtFOSA-M		106.8	50.0	150.0
d-N-MeFOSA-M		100.2	50.0	150.0
d7-N-MeFOSE-M		105.9	50.0	150.0
d9-N-EtFOSE-M		102.6	50.0	150.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF241223W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Blank (BLK)

Lab Sample ID: AK241223W1.BLK241223

Run in Batch: AK241223W1, Run Date: 12/23/2024 15:05, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFMPA		ND	2	ng/l
FPrPA (3:3 FTCA)		ND	10	ng/l
PFPPrS		ND	2	ng/l
PFPeA		ND	4	ng/l
PFMBA		ND	2	ng/l
4:2 FTSA		ND	2	ng/l
NFDHA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
HFPO-DA		ND	10	ng/l
FPePA (5:3 FTCA)		ND	10	ng/l
PFEESA		ND	2	ng/l
PFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
ADONA		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFBSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
FHpPA (7:3 FTCA)		ND	10	ng/l
PFNA		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFECHS		ND	2	ng/l
PFHpS		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
PFDA		ND	2	ng/l
PFOS-BR		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS		ND	2	ng/l
PFOS-LN		ND	2	ng/l
PFHxSA		ND	2	ng/l
PFUnDA		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
PFNS		ND	2	ng/l
PFDoDA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTTrDA		ND	2	ng/l
11CL-PF3OUdS		ND	2	ng/l
FOSA		ND	2	ng/l
PFTTeDA		ND	4	ng/l
PFDOS		ND	6	ng/l
NMeFOSE		ND	4	ng/l
NMeFOSAM		ND	2	ng/l

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF241223W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Blank (BLK) (continued)

Lab Sample ID: AK241223W1.BLK241223

Run in Batch: AK241223W1, Run Date: 12/23/2024 15:05, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
NEtFOSE		ND	4	ng/l
NEtFOSAM		ND	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK241223W1.LCS241223

Run in Batch: AK241223W1, Run Date: 12/23/2024 14:25, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		96.2	70.0	130.0
PFMPA		88.0	70.0	130.0
FPrPA (3:3 FTCA)		87.4	70.0	130.0
PFPPrS		97.8	70.0	130.0
PFPeA		89.8	70.0	130.0
PFMBA		88.6	70.0	130.0
4:2 FTSA		107.8	70.0	130.0
NFDHA		83.0	70.0	130.0
PFHxA		91.6	70.0	130.0
PFBS		87.6	70.0	130.0
HFPO-DA		102.0	70.0	130.0
FPePA (5:3 FTCA)		84.4	70.0	130.0
PFEESA		83.6	70.0	130.0
PFHpA		80.2	70.0	130.0
PFPeS		95.8	70.0	130.0
ADONA		81.4	70.0	130.0
6:2 FTSA		77.6	70.0	130.0
PFBSA		92.6	70.0	130.0
PFOA		78.8	70.0	130.0
PFHxS		88.8	70.0	130.0
FHpPA (7:3 FTCA)		71.0	70.0	130.0
PFNA		91.2	70.0	130.0
8:2 FTSA		94.2	70.0	130.0
PFECHS		95.8	70.0	130.0
PFHpS		82.8	70.0	130.0
N-MeFOSAA		95.4	70.0	130.0
PFDA		94.2	70.0	130.0
EtFOSAA		86.0	70.0	130.0
PFOS		93.2	70.0	130.0
PFHxSA		98.8	70.0	130.0
PFUnDA		102.2	70.0	130.0
9CL-PF3ONS		101.8	70.0	130.0
PFNS		103.0	70.0	130.0
PFDoDA		94.2	70.0	130.0
PFDS		107.8	70.0	130.0
PFTTrDA		98.6	70.0	130.0
11CL-PF3OUdS		99.8	70.0	130.0
FOSA		96.6	70.0	130.0
PFTeDA		110.2	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF241223W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK241223W1.LCS241223

Run in Batch: AK241223W1, Run Date: 12/23/2024 14:25, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFDOS		103.6	70.0	130.0
NMeFOSE		81.2	70.0	130.0
NMeFOSAM		84.4	70.0	130.0
NEtFOSE		101.2	70.0	130.0
NEtFOSAM		101.2	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK241223W1.LCSD241223, Parent Sample ID: AK241223W1.LCS241223

Run in Batch: AK241223W1, Run Date: 12/23/2024 14:45, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		95.8	70.0	130.0	0.4	30.0
PFMPA		87.0	70.0	130.0	1.1	30.0
FPrPA (3:3 FTCA)		90.8	70.0	130.0	3.8	30.0
PFPPrS		98.2	70.0	130.0	0.4	30.0
PFPeA		94.6	70.0	130.0	5.2	30.0
PFMBA		88.6	70.0	130.0	0.0	30.0
4:2 FTSA		110.8	70.0	130.0	2.7	30.0
NFDHA		78.6	70.0	130.0	5.4	30.0
PFHxA		91.2	70.0	130.0	0.4	30.0
PFBS		95.0	70.0	130.0	8.1	30.0
HFPO-DA		102.8	70.0	130.0	0.8	30.0
FPePA (5:3 FTCA)		92.2	70.0	130.0	8.8	30.0
PFEESA		81.0	70.0	130.0	3.2	30.0
PFHpA		94.4	70.0	130.0	16.3	30.0
PFPeS		92.0	70.0	130.0	4.0	30.0
ADONA		81.2	70.0	130.0	0.2	30.0
6:2 FTSA		93.0	70.0	130.0	18.1	30.0
PFBSA		93.4	70.0	130.0	0.9	30.0
PFOA		88.6	70.0	130.0	11.7	30.0
PFHxS		89.8	70.0	130.0	1.1	30.0
FHpPA (7:3 FTCA)		84.6	70.0	130.0	17.5	30.0
PFNA		85.2	70.0	130.0	6.8	30.0
8:2 FTSA		85.6	70.0	130.0	9.6	30.0
PFECHS		98.8	70.0	130.0	3.1	30.0
PFHpS		87.6	70.0	130.0	5.6	30.0
N-MeFOSAA		96.6	70.0	130.0	1.2	30.0
PFDA		99.2	70.0	130.0	5.2	30.0
EtFOSAA		103.4	70.0	130.0	18.4	30.0
PFOS		84.2	70.0	130.0	10.1	30.0
PFHxSA		98.6	70.0	130.0	0.2	30.0
PFUnDA		116.2	70.0	130.0	12.8	30.0
9CL-PF3ONS		97.2	70.0	130.0	4.6	30.0
PFNS		99.2	70.0	130.0	3.8	30.0
PFDODA		102.0	70.0	130.0	8.0	30.0
PFDS		105.8	70.0	130.0	1.9	30.0
PFTTrDA		105.6	70.0	130.0	6.9	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF241223W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK241223W1.LCSD241223, Parent Sample ID: AK241223W1.LCS241223

Run in Batch: AK241223W1, Run Date: 12/23/2024 14:45, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
11CL-PF3OUdS		102.2	70.0	130.0	2.4	30.0
FOSA		95.8	70.0	130.0	0.8	30.0
PFTeDA		110.6	70.0	130.0	0.4	30.0
PFDOS		96.6	70.0	130.0	7.0	30.0
NMeFOSE		89.0	70.0	130.0	9.2	30.0
NMeFOSAM		85.0	70.0	130.0	0.7	30.0
NEtFOSE		100.8	70.0	130.0	0.4	30.0
NEtFOSAM		105.8	70.0	130.0	4.4	30.0

Matrix Spike (MS)

Lab Sample ID: AK241223W1.6982801M, Parent Sample ID: S69828.01

Run in Batch: AK241223W1, Run Date: 12/23/2024 18:25, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1.92

Analyte	Flags	% Rec	LCL	UCL
PFBA		80.2	70.0	130.0
PFPeA	*	145.8	70.0	130.0
4:2 FTSA		104.2	70.0	130.0
PFHxA		96.9	70.0	130.0
PFBS		95.8	70.0	130.0
PFHpA		89.6	70.0	130.0
PFPeS		102.1	70.0	130.0
6:2 FTSA		93.8	70.0	130.0
PFOA		76.0	70.0	130.0
PFHxS	*	52.1	70.0	130.0
PFNA		80.1	70.0	130.0
8:2 FTSA		93.8	70.0	130.0
PFHpS		78.1	70.0	130.0
PFDA		95.8	70.0	130.0
N-MeFOSAA		92.7	70.0	130.0
EtFOSAA		103.1	70.0	130.0
PFOS	*	-104.2	70.0	130.0
PFUnDA	*	135.4	70.0	130.0
PFNS		102.9	70.0	130.0
PFDoDA		96.9	70.0	130.0
PFDS		114.6	70.0	130.0
PFTTrDA		114.6	70.0	130.0
FOSA		101.4	70.0	130.0
PFTeDA		114.6	70.0	130.0
11CL-PF3OUdS		100.0	70.0	130.0
9CL-PF3ONS		96.9	70.0	130.0
ADONA		84.4	70.0	130.0
HFPO-DA		104.2	70.0	130.0
FHpPA (7:3 FTCA)		88.5	70.0	130.0
FPePA (5:3 FTCA)		103.1	70.0	130.0
FPrPA (3:3 FTCA)		85.4	70.0	130.0
PFBSA		100.2	70.0	130.0
PFECHS	*	-416.7	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF241223W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Matrix Spike (MS) (continued)

Lab Sample ID: AK241223W1.6982801M, Parent Sample ID: S69828.01

Run in Batch: AK241223W1, Run Date: 12/23/2024 18:25, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1.92

Analyte	Flags	% Rec	LCL	UCL
PFHxSA		99.0	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK241223W1.6982802D, Parent Sample ID: S69828.02

Run in Batch: AK241223W1, Run Date: 12/23/2024 19:05, Prep Date: 12/23/2024, Matrix: WW, Dilution: 1.92

Analyte	Flags	RPD	RPD CL
PFBA	J	21.3	30.0
PFPeA		NC	30.0
4:2 FTSA		NC	30.0
PFHxA		NC	30.0
PFBS		NC	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		NC	30.0
PFHxS		NC	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		16.7	30.0
PFOS-LN		17.8	30.0
PFOS-BR		14.0	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTTrDA		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0
11CL-PF3OUdS		NC	30.0
9CL-PF3ONS		NC	30.0
ADONA		NC	30.0
HFPO-DA		NC	30.0
FHpPA (7:3 FTCA)		NC	30.0
FPePA (5:3 FTCA)		NC	30.0
FPrPA (3:3 FTCA)		NC	30.0
PFBSA		NC	30.0
PFECHS		9.3	30.0
PFHxSA		NC	30.0



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 www.meritlabs.com

C.O.C. PAGE # 1 OF 1

172717

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Clifford Yantz / Kevin Schneider
 COMPANY Ramboll
 ADDRESS 2090 Commonwealth Blvd
 CITY Ann Arbor STATE MI ZIP CODE 48105
 PHONE NO. _____ CELL NO. 313-333-0211 P.O. NO. 1940008845 Task 37
 E-MAIL ADDRESS Kevin.Schneider@Ramboll.com Clifford.Yantz@Ramboll.com QUOTE NO. _____

CONTACT NAME SAME
 COMPANY _____
 ADDRESS _____
 CITY _____ STATE _____ ZIP CODE _____
 PHONE NO. _____ E-MAIL ADDRESS _____

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME RACER Coldwater Road SAMPLER(S) - PLEASE PRINT/SIGN NAME Kevin Schneider K SKL
 TURNAROUND TIME REQUIRED 1 DAY 2 DAYS 3 DAYS STANDARD OTHER _____
 DELIVERABLES REQUIRED LEVEL II LEVEL III LEVEL IV EDD OTHER _____
 MATRIX W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID
 CODE: SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

MTRX	# OF BOTTLES	# Containers & Preservatives							OTHER	PFAS (nm)	Certifications	Project Locations	Special Instructions
		NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH						
69831.01	3	X							X			low level reporting with estimated values	
.02	3	X							X				
.03	3	X							X			34 PFAS list	
												Please provide EDD	

RELINQUISHED BY: [Signature] DATE 12/19/24 TIME 1225
 RECEIVED BY: [Signature] DATE 12/19/24 TIME 1225
 RELINQUISHED BY: [Signature] DATE 12/19/24 TIME 1310
 RECEIVED BY: [Signature] DATE 12/19/24 TIME 1310

RELINQUISHED BY: _____ DATE _____ TIME _____
 RECEIVED BY: _____ DATE _____ TIME _____
 SEAL NO. _____ SEAL INTACT _____ INITIALS _____ NOTES: _____ TEMP. ON ARRIVAL 4.2
 SEAL NO. _____ SEAL INTACT _____ INITIALS _____

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE