

Transmitted via email

Ms. Nicole Sanabria, Ms. Christina Hebert, and Ms. Oonagh McKenna

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

Mr. Robert Ellis

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

September 13, 2023

Ms. Melissa Glasgow

Genesee County Water and Waste Services
Anthony Ragnone Treatment Plant
9290 Farrand Road
Montrose, MI, 48457

RE: **Stanley Road Sanitary Sewer Update**

RACER Trust – Coldwater Road Facility
FILE: 15388/1940103462/Corres

Ramboll
2090 Commonwealth Blvd.
Ann Arbor, MI 48105
USA

T 734-761-4000
F 734-761-2050
<https://ramboll.com>

Dear **Ms. Sanabria, Ms. Hebert, Ms. McKenna, Mr. Ellis, & Ms. Glasgow**:

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) sanitary sewer sample results collected from the Genesee Township sanitary sewers along the north side of Stanley Road and north of the RACER Trust Coldwater Road Facility (Site) located in Flint, Michigan.

The samples from the Genesee Township sewer system were collected at SAN-2, SAN-8, SAN-9, and manhole 11-07C016. See **Figure 1** for sample and repair locations.

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

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 are included in **Appendix A**. The sample locations discussed below are presented upgradient to downgradient.

- SAN-09, which is upgradient of the PFAS-impacted shallow groundwater zone, had a detection of 13 ng/l for PFOS on June 27, 2023, which is near the high end of the range of previously detected concentrations and is higher compared to the previous result of 3.0 ng/l (4/6/2023) for PFOS.
- SAN-2 had a detection of 17 ng/l for PFOS on June 27, 2023, which is near the low end of the range of previously detected concentrations and is higher compared to the previous result of 9.8 ng/l (4/6/2023) for PFOS.
- 11-07C016 had a detection of 27 ng/l for PFOS on June 27, 2023, which is near the middle of the range of previously detected concentrations and is the same concentration as the April 6, 2023 sampling event.
- SAN-08 had a detection of 25 ng/l for PFOS on June 27, 2023, which is near the middle of the range of previously detected concentrations and is higher compared to the previous result of 7.6 ng/l (4/6/2023) for PFOS.

The observed flow rates during sampling were consistent with flow rates observed during previous post-repair (repairs completed, September 2020) sampling events and continue to be much lower than before sewer line repairs were completed. PFOS concentrations appear to be variable at a given sampling location but generally lower than before repairs were implemented.

Based on these results and to allow for evaluation of concentration variability and trends, we propose to collect samples in December 2023 from the upstream sample location SAN-09, SAN-2, 11-07C016, SAN-08, and downstream sample location SAN-21. 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 Dave Favero with RACER at dfavero@racertrust.org or 217-741-6235, if you have any questions.

Very truly yours,

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.



Clifford S. Yantz

Project Manager
1943864 - MIDWEST EAST Resources 056

M 313.333.0211
Clifford.yantz@ramboll.com



ENCLOSURES:

Tables

Table 1 – Sanitary Sewer Analytical Results – Stanley Road

Figures

Figure 1 – Stanley Road Sanitary Sewer/Manhole Point Repairs and Sample Locations

Attachments

Attachment A – Laboratory Analytical Reports

cc: Mr. Daniel K Eashoo - Genesee Township Supervisor (via email)
 Mr. Thad Domick – GCDCWWS (via email)
 Mr. Jim Thompson – GCDCWWS (via email)
 Mr. Brent Pittenger – GCDCWWS (via email)
 Ms. Carla Davidson – EGLE (via email)
 Mr. Brian Zuber – EGLE (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 - Stanley Road

Coldwater Rd - Sanitary Sewer Samples - Stanley Road

Perfluorinated Compound	Well/Sample ID: EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	II-07C016 (Sanitary Sewer)	II-07C016 (Sanitary Sewer)	II-07C016 (Sanitary Sewer)	II-07C016 (Sanitary Sewer)	II-07C016 (Sanitary Sewer)	II-07C016 (Sanitary Sewer)	II-07C016 (Sanitary Sewer)	II-07C016 (Sanitary Sewer)	SAN-1 (Sanitary Sewer)	SAN-1 (Sanitary Sewer)	SAN-1 (Sanitary Sewer)
	Sample Date:	5/20/2021	8/25/2021	12/9/2021	3/31/2022	9/7/2022	12/13/2022	4/6/2023	6/27/2023	11/5/2019	3/17/2020	12/18/2020
Perfluorobutanoic Acid (PFBA)	--	<10	<10	<9.8 X	<21 X	<11	<10	<10	<9.6	<20	<21	<10
Perfluoropentanoic Acid (PFPeA)	--	1.1 J	1.9 J	2.2 J	<4.1	<4.3	<4.1	1.5 J	<3.8	<9.9	<11	<4.1
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluorohexanoic Acid (PFHxA)	--	<2.0	<2.0	2.0	<2.1	<2.2	<2.0	1.3 J	1.5 J	<9.9	<11	<2.1
Perfluorobutane Sulfonic Acid (PFBS)	670,000	2.0 J	<2.0	2.4	2.8	2.0 J	1.6 J	6.6	4.0	<9.9	<11	1.7 J
Perfluoroheptanoic Acid (PFHpA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	1.2 J	<1.9	<9.9	<11	<2.1
Perfluoropentane Sulfonic Acid (PFPeS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	1.0 J	<1.9	<9.9	<11	<2.1
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<4.1	<4.1	<3.9	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluorooctanoic Acid (PFOA)	170	<2.0	1.8 J	2.3	<2.1	3.1	1.8 J	<2.0	3.2	<9.9	<11	<2.1
Perfluorohexane Sulfonic Acid (PFHxS)	--	2.9	3.2	3.6	<2.1	4.7	4.0	2.5	2.2	<9.9	<11	2.3
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	2.2	2.2	2.9	<2.1	3.7	3.0	2.1	2.2	<9.9	<11	1.7 J
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluorononanoic Acid (PFNA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	1.0 J	<1.9	<9.9	<11	<2.1
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<2.0	<4.1	<3.9	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluorodecanoic Acid (PFDA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<4.1	<4.1	<3.9	<4.1	<4.3	<4.1	<4.0	<3.8	<9.9	<11	<4.1
Perfluorooctane Sulfonic Acid (PFOS)	12	24	27	19	19	43	31	27	27	55	59	24
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	7.0	9.4	5.8	3.2	13	8.6	12	8.2	18	18	6.9
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	17	18	14	15	30	22	13	19	36	42	16
Perfluoroundecanoic Acid (PFUnDA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluorononane Sulfonic Acid (PFNS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluorododecanoic Acid (PFDDA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluorodecane Sulfonic Acid (PFDS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluorotridecanoic Acid (PFTrDA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluorooctane Sulfonamide (FOSA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Perfluorotetradecanoic Acid (PFTeDA)	--	<4.1	<4.1	<3.9	<4.1	<4.3	<4.1	<4.0	<3.8	<9.9	<11	<4.1
11-chloroicosafuoro-3-oxaundecane-1-sulfonic acid (11CI-PF30UdS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF30NS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<1.9	<9.9	<11	<2.1
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<10	<10	<9.8	<4.1	<11	<10	<2.0	<1.9	<9.9	<11	<2.1
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--	--	<3.8	--	--	--
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	--	--	<3.8	--	--	--
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--	--	--	--	<3.8	--	--	--
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--	--	<1.9	--	--	--
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	--	--	140	--	--	--
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--	--	<1.9	--	--	--
Total Per-and Polyfluoroalkyl Substances	--	30.0	33.9	31.5	21.8	52.8	38.4	42.1	177.9	55.0	59.0	28.0

- 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, December 21, 2020.
 - 7) Concentration above the groundwater surface water interface (GSI) criteria are highlighted in yellow.
 - 8) B - Compound also found in associated method blank.
 - 9) I - Matrix interference with internal standard.
 - 10) J - Estimated value less than reporting limit, but greater than MDL.
 - 11) X - Elevated reporting limit due to matrix interference.
 - 12) Light gray header is most recent sampling event result.
 - 13) 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 - Stanley Road

Coldwater Rd - Sanitary Sewer Samples - Stanley Road

Perfluorinated Compound	Well/Sample ID: EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-2 (Sanitary Sewer)	SAN-2 (Sanitary Sewer)	SAN-2 (Sanitary Sewer)	SAN-2 (Sanitary Sewer)	SAN-2 (Sanitary Sewer)	SAN-DUP-033122 SAN-2 (Sanitary Sewer)	SAN-2 (Sanitary Sewer)	SAN-2 (Sanitary Sewer)	SAN-2 (Sanitary Sewer)	SAN-2 (Sanitary Sewer)
	Sample Date:	11/5/2019	5/20/2021	8/25/2021	12/9/2021	3/31/2022	3/31/2022	9/7/2022	12/13/2022	4/6/2023	6/27/2023
Perfluorobutanoic Acid (PFBA)	--	<20	<10	<10	13	<21 X	<20 X	<11	<10	<9.7	<10
Perfluoropentanoic Acid (PFPeA)	--	<9.9	<4.2	4.3	1.5 J	<4.2	<4.0	<4.2	1.2 J	1.3 J	<4.1
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Perfluorohexanoic Acid (PFHxA)	--	<9.9	<2.1	7.4	<1.9	<2.1	<2.0	<2.1	1.5 J	1.2 J	<2.1
Perfluorobutane Sulfonic Acid (PFBS)	670,000	<9.9	1.8 J	1.9 J	2.4	3.1	3.9	2.2	1.6 J	7.1	2.0 J
Perfluoroheptanoic Acid (PFHpA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	1.1 J	<2.1
Perfluoropentane Sulfonic Acid (PFPeS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	1.0 J	<2.1
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<9.9	<4.2	<4.1	<3.8	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Perfluorooctanoic Acid (PFOA)	170	<9.9	<2.1	3.2	2.3	<2.1	<2.0	2.5	1.8 J	<1.9	2.4
Perfluorohexane Sulfonic Acid (PFHxS)	--	<9.9	2.8	4.0	4.1	3.5	3.4	4.0	3.3	2.1	1.9 J
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<9.9	1.7 J	3.1	2.5	<2.1	<2.0	3.0	2.5	1.7 J	1.9 J
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Perfluorononanoic Acid (PFNA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<9.9	<2.1	<4.1	<3.8	<2.1	<2.0	<2.1 I	<2.0	<1.9	<2.1
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Perfluorodecanoic Acid (PFDA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<9.9	<4.2	<4.1	<3.8	<4.2	<4.0	<4.2	<4.0	<3.9	<4.1
Perfluorooctane Sulfonic Acid (PFOS)	12	37	22	31	20	24	24	43	29	9.8	17
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	11	6.0	10	7.1	5.2	5.1	14	7.7	2.8	6.4
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	23	16	21	13	19	20	29	20	7.2	11
Perfluoroundecanoic Acid (PFUnDA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Perfluorononane Sulfonic Acid (PFNS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Perfluorododecanoic Acid (PFDoDA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Perfluorodecane Sulfonic Acid (PFDS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Perfluorotridecanoic Acid (PFTrDA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Perfluorooctane Sulfonamide (FOSA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Perfluorotetradecanoic Acid (PFTeDA)	--	<9.9	<4.2	<4.1	<3.8	<4.2	<4.0	2.1 J	<4.0	<3.9	<4.1
11-chloroicosafauro-3-oxaundecane-1-sulfonic acid (11CI-PF30UDS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF30NS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9	<2.1
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<9.9	<10	<10	<9.6	<4.2	<4.0	<11	<10	<1.9	<2.1
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--	--	--	--	<4.1
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	--	--	--	--	<4.1
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--	--	--	--	--	--	<4.1
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--	--	--	--	<2.1
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	--	--	--	--	90
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--	--	--	--	<2.1
Total Per-and Polyfluoroalkyl Substances	--	37.0	26.6	51.8	43.3	30.6	31.3	53.8	38.4	23.6	113.3

- 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, December 21, 2020.
 - 7) Concentration above the groundwater surface water interface (GSI) criteria are highlighted in yellow.
 - 8) B - Compound also found in associated method blank.
 - 9) I - Matrix interference with internal standard.
 - 10) J - Estimated value less than reporting limit, but greater than MDL.
 - 11) X - Elevated reporting limit due to matrix interference.
 - 12) Light gray header is most recent sampling event result.
 - 13) OA/OC 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 - Stanley Road

Coldwater Rd - Sanitary Sewer Samples - Stanley Road

Perfluorinated Compound	Well/Sample ID: EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-08 (Sanitary Sewer)	SAN-08 (Sanitary Sewer)	SAN-08 (Sanitary Sewer)	SAN-08 (Sanitary Sewer)	SAN-08 (Sanitary Sewer)	SAN-08 (Sanitary Sewer)	SAN-08 (Sanitary Sewer)	SAN-08 (Sanitary Sewer)	SAN-08 (Sanitary Sewer)	SAN-08 (Sanitary Sewer)	SAN-08 (Sanitary Sewer)
		3/18/2020	9/22/2020	12/18/2020	5/20/2021	8/25/2021	12/9/2021	3/31/2022	9/7/2022	12/13/2022	4/6/2023	6/27/2023
Perfluorobutanoic Acid (PFBA)	--	<20	<9.9	<9.9	<10	<10	<10 X	<21 X	<10	<10	<10	<9.8
Perfluoropentanoic Acid (PFPeA)	--	<10	<3.9	<4.0	<4.0	1.3 J	<4.1	<4.1	<4.0	<4.0	2.0 J	1.4 J
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluorohexanoic Acid (PFHxA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	1.7 J	2.0 J	<2.0
Perfluorobutane Sulfonic Acid (PFBS)	670,000	<10	<2.0	1.7 J	1.6 J	1.8 J	2.2	4.3	1.4 J	2.4	6.5	3.2
Perfluoroheptanoic Acid (PFHpA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	1.3 J	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<10	<2.0	<2.0	<4.0	<4.0	<4.1	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluorooctanoic Acid (PFOA)	170	<10	<2.0	<2.0	<2.0	2.3	2.2	<2.1	2.6	2.3	2.2	1.9 J
Perfluorohexane Sulfonic Acid (PFHxS)	--	<10	2.8	2.4	2.3	2.0	3.1	<2.1	3.3	3.5	3.4	1.9 J
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<10	2.0	1.6 J	1.6 J	<2.0	2.5	<2.1	2.7	2.7	2.8	1.9 J
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluorononanoic Acid (PFNA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<10	<2.0	<2.0	<2.0	<4.0	<4.1	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluorodecanoic Acid (PFDA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<10	<3.9	<4.0	<4.0	<4.0	<4.1	<4.1	<4.0	<4.0	<4.0	<3.9
Perfluorooctane Sulfonic Acid (PFOS)	12	42	17	14	16	16	25	9.2	24	25	7.6	25
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	12	5.0	3.6	4.1	5.3	8.7	2.5	6.0	6.4	2.0	7.3
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	30	10	9.5	12	11	17	6.3	17	18	6.0	17
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluorotridecanoic Acid (PFTrDA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<3.9	<4.0	<4.0	<4.0	<4.1	<4.1	<4.0	<4.0	<4.0	<3.9
11-chloroicosafuoro-3-oxaundecane-1-sulfonic acid (11CI-PF30UdS)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF3ONS)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<10	<2.0	<2.0	<10	<10	<10	<4.1	<10	<10	<2.0	<2.0
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--	--	--	--	--	<3.9
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	--	--	--	--	--	<3.9
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--	--	--	--	--	--	--	<3.9
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--	--	--	--	--	<2.0
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	--	--	--	--	--	110
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--	--	--	--	--	<2.0
Total Per-and Polyfluoroalkyl Substances	--	42.0	19.8	18.1	19.9	23.4	32.5	13.5	31.3	34.9	25.0	143.4

- 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, December 21, 2020.
 - 7) Concentration above the groundwater surface water interface (GSI) criteria are highlighted in yellow.
 - 8) B - Compound also found in associated method blank.
 - 9) I - Matrix interference with internal standard.
 - 10) J - Estimated value less than reporting limit, but greater than MDL.
 - 11) X - Elevated reporting limit due to matrix interference.
 - 12) Light gray header is most recent sampling event result.
 - 13) 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 - Stanley Road

Coldwater Rd - Sanitary Sewer Samples - Stanley Road

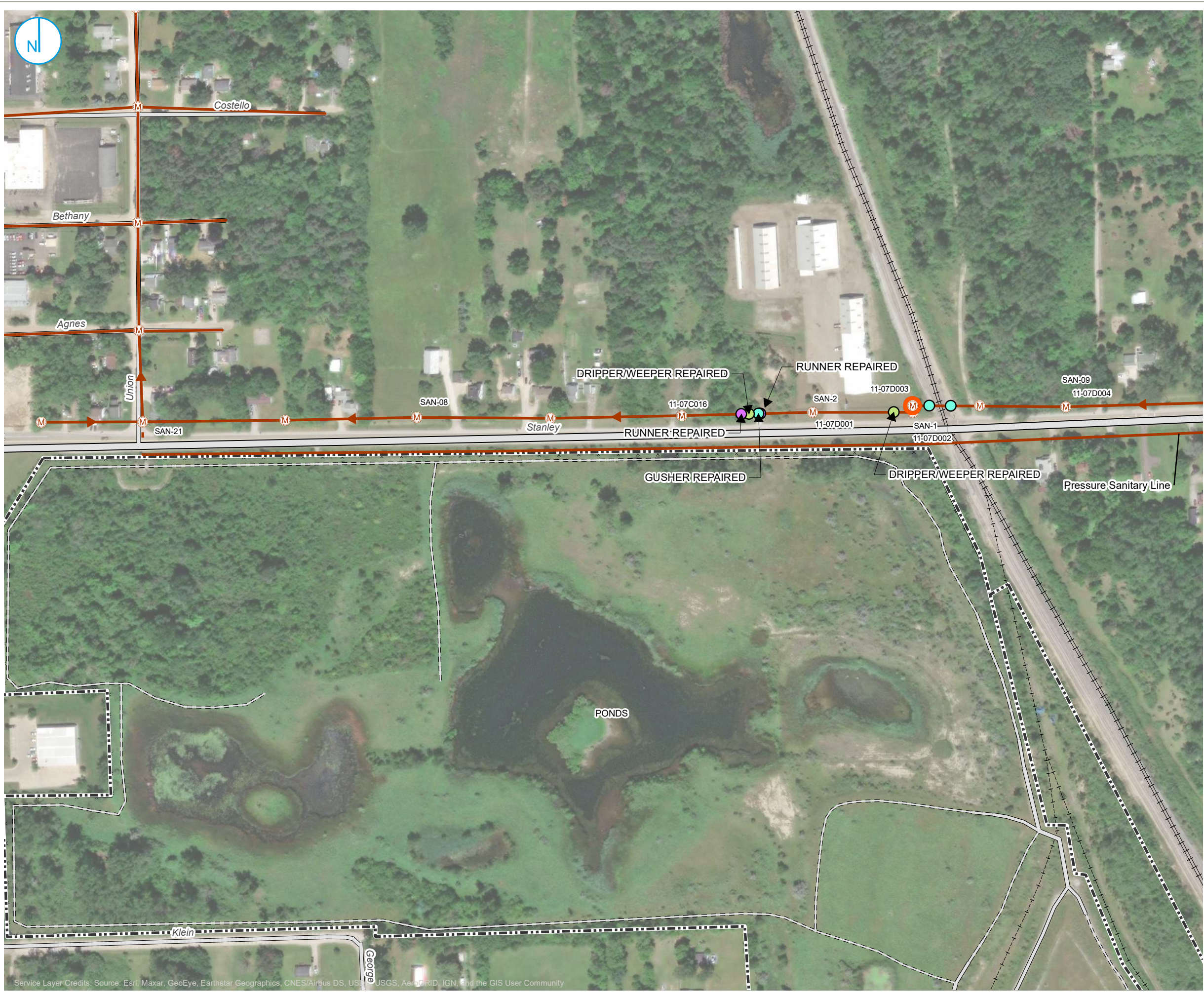
Perfluorinated Compound	Well/Sample ID: EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-09 (Sanitary Sewer)	SAN-09 (Sanitary Sewer)	SAN-09 (Sanitary Sewer)	SAN-09 (Sanitary Sewer)	SAN-09 (Sanitary Sewer)	SAN-09 (Sanitary Sewer)	SAN-09 (Sanitary Sewer)	SAN-09 (Sanitary Sewer)	SAN-09 (Sanitary Sewer)	SAN-09 (Sanitary Sewer)	SAN-21 (Sanitary Sewer)	SAN-21 (Sanitary Sewer)
	Sample Date:	3/18/2020	5/20/2021	8/25/2021	12/9/2021	3/31/2022	9/7/2022	12/13/2022	4/6/2023	6/27/2023	6/25/2020	12/18/2020	
Perfluorobutanoic Acid (PFBA)	--	<19	<9.7	<10	<9.8	<9.9	<9.9	<9.9	<9.6	<9.6	13 U	<10.0	
Perfluoropentanoic Acid (PFPeA)	--	<9.7	1.6 J	1.4 J	<3.9	<3.9	<3.9	<4.0	1.00 J	<3.8	<4.0	<4.0	
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<9.7	<1.9	<2.1 I	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	
Perfluorohexanoic Acid (PFHxA)	--	<9.7	2.6	<2.1	<2.0	<2.0	<2.0	<2.0	1.6 J	<1.9	<2.0	<2.0	
Perfluorobutane Sulfonic Acid (PFBS)	670,000	<9.7	<1.9	<2.1	2.1	8.0	<2.0	<2.0	12	2.6	<2.0	2.4	
Perfluoroheptanoic Acid (PFHpA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	1.2 J	<1.9	<2.0	<2.0	
Perfluoropentane Sulfonic Acid (PFPeS)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<9.7	<3.9	<4.2 I	<3.9 I	<2.0	<2.0	<2.0	<1.9	2.3	<2.0	<2.0	
Perfluorooctanoic Acid (PFOA)	170	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	2.9	<2.0	<2.0	
Perfluorohexane Sulfonic Acid (PFHxS)	--	<9.7	3.0	<2.1	<2.0	<2.0	2.2	2.2	1.3	1.7 J	2.0	2.0	
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<9.7	<1.9	<2.1	<2.0	<2.0	1.7 J	1.7 J	<1.9	1.7 J	<2.0	<2.0	
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	
Perfluorononanoic Acid (PFNA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<9.7	<1.9	<4.2 I	<3.9	<2.0	<2.0 I	<2.0	<2.0	2.0	<2.0	<2.0	
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	
Perfluorodecanoic Acid (PFDA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<9.7	<3.9	<4.2	<3.9 I	<3.9	2.0 J	<4.0	<3.8	<3.8	<4.0	<4.0	
Perfluorooctane Sulfonic Acid (PFOS)	12	<9.7	15	17	5.4	6.0	3.4	10	3.0	13	33	34	
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	4.8	<1.9	5.5	9.8	9.9	
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	<9.7	13	15	4.6	5.0	2.6	5.2	2.3	7.6	22	24	
Perfluoroundecanoic Acid (PFUnDA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	
Perfluorononane Sulfonic Acid (PFNS)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	
Perfluorododecanoic Acid (PFDDaA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	
Perfluorodecane Sulfonic Acid (PFDS)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	
Perfluorotridecanoic Acid (PFTrDA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	
Perfluorooctane Sulfonamide (FOSA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	
Perfluorotetradecanoic Acid (PFTeDA)	--	<9.7	<3.9	<4.2	<3.9	<3.9	<3.9	<4.0	<3.8	<3.8	<4.0	<4.0	
11-chloroicosafuoro-3-oxaundecane-1-sulfonic acid (11CI-PF30UdS)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF30NS)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<9.7	<9.7	<10	<9.8	<3.9	<9.9	<9.9	<1.9	<1.9	<2.0	<2.0	
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	--	0.0	22.2	18.4	7.5	14.0	7.6	12.2	20.1	57.5	48.0	38.4	

- 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, December 21, 2020.
 - 7) Concentration above the groundwater surface water interface (GSI) criteria are highlighted in yellow.
 - 8) B - Compound also found in associated method blank.
 - 9) I - Matrix interference with internal standard.
 - 10) J - Estimated value less than reporting limit, but greater than MDL.
 - 11) X - Elevated reporting limit due to matrix interference.
 - 12) Light gray header is most recent sampling event result.
 - 13) QA/QC Samples were either not detected above the reporting limit or below the EGLE Part 201 Groundwater Generic Cleanup Criteria.

FIGURES

I:\Racer-Trust\1088190\GIS\Coldwater_Road\MXD\Sewer_Lining\Stanley_Road_Figures\1 - Stanley Road Sanitary Sewer Manhole Point Repairs.mxd

PROJECT: 1940100783 | DATED: 1/7/2022 | DESIGNER: MONETANT



- M SANITARY SEWER MANHOLE - LINED
- M SANITARY SEWER MANHOLE
- DRIPPER/WEEPER REPAIRED
- GUSHER REPAIRED
- RUNNER REPAIRED
- PROPERTY BOUNDARY
- SANITARY SEWER



**STANLEY ROAD
SANITARY SEWER / MANHOLE
POINT REPAIRS AND SAMPLE
LOCATIONS**

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 01

RAMBOLL AMERICAS ENGINEERING
SOLUTIONS, INC.



Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ANALYTICAL LABORATORY RESULTS



Analytical Laboratory Report

Report ID: S50341.01(01)
Generated on 07/26/2023

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

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): S50341.01-S50341.05
Project: RACER Coldwater Road
Collected Date(s): 06/27/2023
Submitted Date/Time: 06/27/2023 15:30
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 37

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

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.

Full accreditation certificates are available upon request. Starred (*) analytes are not 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.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699
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
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
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 (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S50341.01	SAN-08	Liquid	06/27/23 13:26
S50341.02	11-07C016	Liquid	06/27/23 13:50
S50341.03	SAN-02	Liquid	06/27/23 14:00
S50341.04	SAN-09	Liquid	06/27/23 14:16
S50341.05	Field Blank-062723	Liquid	06/27/23 12:50



Analytical Laboratory Report

Lab Sample ID: S50341.01

Sample Tag: SAN-08

Collected Date/Time: 06/27/2023 13:26

Matrix: Liquid

COC Reference: 169191

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.16/6.55/11	ASTMD7979-19M	07/06/23 13:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 04:30, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.8	9.8	ng/L	1.96	375-22-4	
PFPeA*	1.4	3.9	0.98	ng/L	1.96	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.96	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.96	307-24-4	
PFBS*	3.2	2.0	1.4	ng/L	1.96	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.96	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.96	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.96	27619-97-2	
PFOA*	1.9	2.0	1.6	ng/L	1.96	335-67-1	J
PFHxS*	1.9	2.0	1.6	ng/L	1.96	355-46-4	J
PFHxS-LN*	1.9	2.0	1.6	ng/L	1.96	355-46-4-LN	J
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.96	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.96	375-95-1	
8:2 FTSA*	Not detected	2.0	0.98	ng/L	1.96	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.96	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.96	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.96	2355-31-9	
EtFOSAA*	Not detected	3.9	2.0	ng/L	1.96	2991-50-6	
PFOS*	25	2.0	1.9	ng/L	1.96	1763-23-1	
PFOS-LN*	7.3	2.0	1.9	ng/L	1.96	1763-23-1-LN	
PFOS-BR*	17	2.0	1.9	ng/L	1.96	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.96	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.96	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	1.96	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.96	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	1.96	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.96	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.96	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.96	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.96	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.96	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	1.96	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.9	2.9	ng/L	1.96	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.9	2.2	ng/L	1.96	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.9	1.2	ng/L	1.96	356-02-5	
PFBSA*	Not detected	2.0	1.2	ng/L	1.96	30334-69-1	

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



Analytical Laboratory Report

Lab Sample ID: S50341.01 (continued)

Sample Tag: SAN-08

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 04:30, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	110	2.0	1.2	ng/L	1.96	67584-42-3	
PFHxSA*	Not detected	2.0	0.98	ng/L	1.96	41997-13-1	



Analytical Laboratory Report

Lab Sample ID: S50341.02

Sample Tag: 11-07C016

Collected Date/Time: 06/27/2023 13:50

Matrix: Liquid

COC Reference: 169191

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.28/6.55/11	ASTMD7979-19M	07/06/23 13:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 04:49, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.6	9.6	ng/L	1.92	375-22-4	
PFPeA*	Not detected	3.8	0.96	ng/L	1.92	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.92	757124-72-4	
PFHxA*	1.5	1.9	1.3	ng/L	1.92	307-24-4	J
PFBS*	4.0	1.9	1.3	ng/L	1.92	375-73-5	
PFHpA*	Not detected	1.9	1.3	ng/L	1.92	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.92	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.92	27619-97-2	
PFOA*	3.2	1.9	1.5	ng/L	1.92	335-67-1	
PFHxS*	2.2	1.9	1.5	ng/L	1.92	355-46-4	
PFHxS-LN*	2.2	1.9	1.5	ng/L	1.92	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.92	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.92	375-95-1	
8:2 FTSA*	Not detected	1.9	0.96	ng/L	1.92	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.92	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.92	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.92	2355-31-9	
EtFOSAA*	Not detected	3.8	1.9	ng/L	1.92	2991-50-6	
PFOS*	27	1.9	1.9	ng/L	1.92	1763-23-1	
PFOS-LN*	8.2	1.9	1.9	ng/L	1.92	1763-23-1-LN	
PFOS-BR*	19	1.9	1.9	ng/L	1.92	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.3	ng/L	1.92	2058-94-8	
PFNS*	Not detected	1.9	1.3	ng/L	1.92	68259-12-1	
PFDODA*	Not detected	1.9	1.5	ng/L	1.92	307-55-1	
PFDS*	Not detected	1.9	1.3	ng/L	1.92	335-77-3	
PFTTrDA*	Not detected	1.9	1.2	ng/L	1.92	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.92	754-91-6	
PFTeDA*	Not detected	3.8	1.7	ng/L	1.92	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.92	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.3	ng/L	1.92	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.92	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.92	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.8	2.9	ng/L	1.92	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.8	2.1	ng/L	1.92	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.8	1.2	ng/L	1.92	356-02-5	
PFBSA*	Not detected	1.9	1.2	ng/L	1.92	30334-69-1	

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



Analytical Laboratory Report

Lab Sample ID: S50341.02 (continued)

Sample Tag: 11-07C016

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 04:49, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	140	1.9	1.2	ng/L	1.92	67584-42-3	
PFHxSA*	Not detected	1.9	0.96	ng/L	1.92	41997-13-1	



Analytical Laboratory Report

Lab Sample ID: S50341.03

Sample Tag: SAN-02

Collected Date/Time: 06/27/2023 14:00

Matrix: Liquid

COC Reference: 169191

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.38/6.54/12	ASTMD7979-19M	07/06/23 13:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 05:09, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.05	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.05	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.6	ng/L	2.05	757124-72-4	
PFHxA*	Not detected	2.1	1.4	ng/L	2.05	307-24-4	
PFBS*	2.0	2.1	1.4	ng/L	2.05	375-73-5	J
PFHpA*	Not detected	2.1	1.4	ng/L	2.05	375-85-9	
PFPeS*	Not detected	2.1	1.8	ng/L	2.05	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.05	27619-97-2	
PFOA*	2.4	2.1	1.6	ng/L	2.05	335-67-1	
PFHxS*	1.9	2.1	1.6	ng/L	2.05	355-46-4	J
PFHxS-LN*	1.9	2.1	1.6	ng/L	2.05	355-46-4-LN	J
PFHxS-BR*	Not detected	2.1	1.6	ng/L	2.05	355-46-4-BR	
PFNA*	Not detected	2.1	1.8	ng/L	2.05	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.05	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.05	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.05	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.05	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.05	2991-50-6	
PFOS*	17	2.1	2.0	ng/L	2.05	1763-23-1	
PFOS-LN*	6.4	2.1	2.0	ng/L	2.05	1763-23-1-LN	
PFOS-BR*	11	2.1	2.0	ng/L	2.05	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.05	2058-94-8	
PFNS*	Not detected	2.1	1.4	ng/L	2.05	68259-12-1	
PFDODA*	Not detected	2.1	1.6	ng/L	2.05	307-55-1	
PFDS*	Not detected	2.1	1.4	ng/L	2.05	335-77-3	
PFTTrDA*	Not detected	2.1	1.2	ng/L	2.05	72629-94-8	
FOSA*	Not detected	2.1	1.8	ng/L	2.05	754-91-6	
PFTeDA*	Not detected	4.1	1.8	ng/L	2.05	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.8	ng/L	2.05	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.05	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.05	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.05	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	4.1	3.1	ng/L	2.05	812-70-4	
FPePA (5:3 FTCA)*	Not detected	4.1	2.3	ng/L	2.05	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	4.1	1.2	ng/L	2.05	356-02-5	
PFBSA*	Not detected	2.1	1.2	ng/L	2.05	30334-69-1	

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



Analytical Laboratory Report

Lab Sample ID: S50341.03 (continued)

Sample Tag: SAN-02

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 05:09, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	90	2.1	1.2	ng/L	2.05	67584-42-3	
PFHxSA*	Not detected	2.1	1.0	ng/L	2.05	41997-13-1	



Analytical Laboratory Report

Lab Sample ID: S50341.04

Sample Tag: SAN-09

Collected Date/Time: 06/27/2023 14:16

Matrix: Liquid

COC Reference: 169191

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.30/6.56/11	ASTMD7979-19M	07/06/23 13:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 05:28, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.6	9.6	ng/L	1.92	375-22-4	
PFPeA*	Not detected	3.8	0.96	ng/L	1.92	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.92	757124-72-4	
PFHxA*	Not detected	1.9	1.3	ng/L	1.92	307-24-4	
PFBS*	2.6	1.9	1.3	ng/L	1.92	375-73-5	
PFHpA*	Not detected	1.9	1.3	ng/L	1.92	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.92	2706-91-4	
6:2 FTSA*	2.3	1.9	1.9	ng/L	1.92	27619-97-2	
PFOA*	2.9	1.9	1.5	ng/L	1.92	335-67-1	
PFHxS*	1.7	1.9	1.5	ng/L	1.92	355-46-4	J
PFHxS-LN*	1.7	1.9	1.5	ng/L	1.92	355-46-4-LN	J
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.92	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.92	375-95-1	
8:2 FTSA*	2.0	1.9	0.96	ng/L	1.92	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.92	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.92	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.92	2355-31-9	
EtFOSAA*	Not detected	3.8	1.9	ng/L	1.92	2991-50-6	
PFOS*	13	1.9	1.9	ng/L	1.92	1763-23-1	
PFOS-LN*	5.5	1.9	1.9	ng/L	1.92	1763-23-1-LN	
PFOS-BR*	7.6	1.9	1.9	ng/L	1.92	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.3	ng/L	1.92	2058-94-8	
PFNS*	Not detected	1.9	1.3	ng/L	1.92	68259-12-1	
PFDODA*	Not detected	1.9	1.5	ng/L	1.92	307-55-1	
PFDS*	Not detected	1.9	1.3	ng/L	1.92	335-77-3	
PFTTrDA*	Not detected	1.9	1.2	ng/L	1.92	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.92	754-91-6	
PFTeDA*	Not detected	3.8	1.7	ng/L	1.92	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.92	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.3	ng/L	1.92	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.92	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.92	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.8	2.9	ng/L	1.92	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.8	2.1	ng/L	1.92	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.8	1.2	ng/L	1.92	356-02-5	
PFBSA*	Not detected	1.9	1.2	ng/L	1.92	30334-69-1	

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



Analytical Laboratory Report

Lab Sample ID: S50341.04 (continued)

Sample Tag: SAN-09

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 05:28, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	33	1.9	1.2	ng/L	1.92	67584-42-3	
PFHxSA*	Not detected	1.9	0.96	ng/L	1.92	41997-13-1	



Analytical Laboratory Report

Lab Sample ID: S50341.05

Sample Tag: Field Blank-062723

Collected Date/Time: 06/27/2023 12:50

Matrix: Liquid

COC Reference: 153090

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.22/6.52/11	ASTMD7979-19M	07/06/23 13:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 05:48, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.7	9.7	ng/L	1.93	375-22-4	
PFPeA*	Not detected	3.9	0.97	ng/L	1.93	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.93	757124-72-4	
PFHxA*	Not detected	1.9	1.4	ng/L	1.93	307-24-4	
PFBS*	Not detected	1.9	1.4	ng/L	1.93	375-73-5	
PFHpA*	Not detected	1.9	1.4	ng/L	1.93	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.93	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.93	27619-97-2	
PFOA*	Not detected	1.9	1.5	ng/L	1.93	335-67-1	
PFHxS*	Not detected	1.9	1.5	ng/L	1.93	355-46-4	
PFHxS-LN*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.93	375-95-1	
8:2 FTSA*	Not detected	1.9	0.97	ng/L	1.93	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.93	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.93	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.93	2355-31-9	
EtFOSAA*	Not detected	3.9	1.9	ng/L	1.93	2991-50-6	
PFOS*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1	
PFOS-LN*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1-LN	
PFOS-BR*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.4	ng/L	1.93	2058-94-8	
PFNS*	Not detected	1.9	1.4	ng/L	1.93	68259-12-1	
PFDODA*	Not detected	1.9	1.5	ng/L	1.93	307-55-1	
PFDS*	Not detected	1.9	1.4	ng/L	1.93	335-77-3	
PFTTrDA*	Not detected	1.9	1.2	ng/L	1.93	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.93	754-91-6	
PFTeDA*	Not detected	3.9	1.7	ng/L	1.93	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.93	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.4	ng/L	1.93	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.93	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.93	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.9	2.9	ng/L	1.93	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.9	2.1	ng/L	1.93	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.9	1.2	ng/L	1.93	356-02-5	
PFBSA*	Not detected	1.9	1.2	ng/L	1.93	30334-69-1	
PFCHS*	Not detected	1.9	1.2	ng/L	1.93	67584-42-3	



Analytical Laboratory Report

Lab Sample ID: S50341.05 (continued)

Sample Tag: Field Blank-062723

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 05:48, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFHxSA*	Not detected	1.9	0.97	ng/L	1.93	41997-13-1	

Merit Laboratories Login Checklist

Lab Set ID:S50341

Client:RAMBOLL (Ramboll Americas)

Project: RACER Coldwater Road

Submitted:06/27/2023 15:30 Login User: PFD

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 3.3 |
| 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 or TOX bottles contain headspace |

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

Client Review By: _____ Date: _____



2680 East Lansing Dr., East Lansing, MI 48823
 Phone (517) 332-0167 Fax (517) 332-4034
 www.meritlabs.com

C.O.C. PAGE # 1 OF 1

169191

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Clifford Yantz / Kevin Sumner
 COMPANY Ramboll
 ADDRESS 2090 Commonwealth Blvd
 CITY Ann Arbor STATE Mi ZIP CODE 48105
 PHONE NO. CELL NO. 313-333-0211 P.O. NO. 1940006514 ⁴⁵⁴ ₃₁₀
 E-MAIL ADDRESS 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 Sumner *KS*
 TURNAROUND TIME REQUIRED 1 DAY 2 DAYS 3 DAYS STANDARD OTHER
 DELIVERABLES REQUIRED STD 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

Containers & Preservatives

MERIT LAB NO. <small>FOR LAB USE ONLY</small>	COLLECTION		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	PFAS (1979)	Certifications	Project Locations	Special Instructions
	DATE	TIME														
50341.01	6/27/03	1326	SAN-08	L	3	X							X	<input type="checkbox"/> OHIO VAP <input type="checkbox"/> Drinking Water <input type="checkbox"/> DoD <input type="checkbox"/> NPDES <input type="checkbox"/> Detroit <input type="checkbox"/> New York <input type="checkbox"/> Other _____ Low level reporting with estimated values 34 PFAS compound lost Please report sample "Field blank-062703" in same cooler from COL #153090		
-02	↓	1350	11-07C016	↓	↓								X			
-03	↓	1400	SAN-02	↓	↓								X			
-04	↓	1410	SAN-09	↓	↓								X			

RELINQUISHED BY: [Signature] Sampler DATE 6/27/03 TIME 1428
 RECEIVED BY: [Signature] DATE 6/27/03 TIME 1428
 RELINQUISHED BY: [Signature] DATE 6/27/03 TIME 15:27
 RECEIVED BY: [Signature] DATE 6/27/03 TIME 15:27

RELINQUISHED BY: _____ DATE _____ TIME _____
 RECEIVED BY: _____ DATE _____ TIME _____
 SEAL NO. SEAL INTACT YES NO INITIALS _____
 SEAL NO. SEAL INTACT YES NO INITIALS _____
 NOTES: TEMP. ON ARRIVAL 3.3

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



Quality Control Report

Report ID: QC-S50341-01
Generated on 07/26/2023

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): S50341.01-S50341.05
Project: RACER Coldwater Road
Submitted Date/Time: 06/27/2023 15:30
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 37

QC Report Sections

- Cover Page (Page 1)
- Analysis Summary (Pages 2-6)
- Prep Batch Summary (Page 7)
- Internal Standards per Lab Sample (Pages 8-12)
- Internal Standards per QC Sample (Pages 13-17)
- Batch QC Results (Pages 18-22)

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: S50341.01

Sample Tag: SAN-08

Collected Date/Time: 06/27/2023 13:26

Matrix: Liquid

COC Reference: 169191

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 04:30	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S50341.02

Sample Tag: 11-07C016

Collected Date/Time: 06/27/2023 13:50

Matrix: Liquid

COC Reference: 169191

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 04:49	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S50341.03

Sample Tag: SAN-02

Collected Date/Time: 06/27/2023 14:00

Matrix: Liquid

COC Reference: 169191

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 05:09	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S50341.04

Sample Tag: SAN-09

Collected Date/Time: 06/27/2023 14:16

Matrix: Liquid

COC Reference: 169191

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 05:28	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S50341.05

Sample Tag: Field Blank-062723

Collected Date/Time: 06/27/2023 12:50

Matrix: Liquid

COC Reference: 153090

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 05:48	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF230706W2

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S50341.01	34 PFAs	ASTMD7979-19M	07/15/23 04:30	AK230714B
S50341.02	34 PFAs	ASTMD7979-19M	07/15/23 04:49	AK230714B
S50341.03	34 PFAs	ASTMD7979-19M	07/15/23 05:09	AK230714B
S50341.04	34 PFAs	ASTMD7979-19M	07/15/23 05:28	AK230714B
S50341.05	34 PFAs	ASTMD7979-19M	07/15/23 05:48	AK230714B

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50341.01

Sample Tag: SAN-08

Collected Date/Time: 06/27/2023 13:26

Matrix: Liquid

COC Reference: 169191

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 04:30, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		135.0	50.0	150.0
M2-6:2FTSA		120.9	50.0	150.0
M2-8:2FTSA		109.5	50.0	150.0
M2PFTeDA		111.5	12.0	218.0
M3PFBS		103.9	50.0	150.0
M3PFHxS		98.3	50.0	150.0
M4PFHpA		110.4	50.0	150.0
M5PFHxA		123.0	50.0	150.0
M5PFPeA		107.0	50.0	150.0
M6PFDA		104.9	50.0	150.0
M7PFUnDA		109.6	50.0	150.0
M8FOSA		96.4	50.0	150.0
M8PFOA		108.7	50.0	150.0
M8PFOS		106.6	50.0	150.0
M9-PFNA		113.4	50.0	150.0
MPFBA		113.5	50.0	150.0
MPFDoDA		121.9	50.0	150.0
d3N-MeFOSAA		105.3	50.0	150.0
d5EtFOSAA		98.2	50.0	150.0
MHFPO-DA		94.3	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50341.02

Sample Tag: 11-07C016

Collected Date/Time: 06/27/2023 13:50

Matrix: Liquid

COC Reference: 169191

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 04:49, Matrix: WW, Dilution: 1.92

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		147.6	50.0	150.0
M2-6:2FTSA		128.8	50.0	150.0
M2-8:2FTSA		117.8	50.0	150.0
M2PFTeDA		118.4	12.0	218.0
M3PFBS		95.7	50.0	150.0
M3PFHxS		109.0	50.0	150.0
M4PFHpA		104.1	50.0	150.0
M5PFHxA		108.5	50.0	150.0
M5PFPeA		106.5	50.0	150.0
M6PFDA		96.1	50.0	150.0
M7PFUnDA		98.3	50.0	150.0
M8FOSA		90.2	50.0	150.0
M8PFOA		94.4	50.0	150.0
M8PFOS		99.8	50.0	150.0
M9-PFNA		102.5	50.0	150.0
MPFBA		108.4	50.0	150.0
MPFDoDA		117.6	50.0	150.0
d3N-MeFOSAA		98.2	50.0	150.0
d5EtFOSAA		102.3	50.0	150.0
MHFPO-DA		88.5	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50341.03

Sample Tag: SAN-02

Collected Date/Time: 06/27/2023 14:00

Matrix: Liquid

COC Reference: 169191

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 05:09, Matrix: WW, Dilution: 2.05

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		140.6	50.0	150.0
M2-6:2FTSA		109.7	50.0	150.0
M2-8:2FTSA		103.7	50.0	150.0
M2PFTeDA		136.5	12.0	218.0
M3PFBS		86.1	50.0	150.0
M3PFHxS		97.2	50.0	150.0
M4PFHpA		99.7	50.0	150.0
M5PFHxA		105.4	50.0	150.0
M5PFPeA		97.2	50.0	150.0
M6PFDA		85.0	50.0	150.0
M7PFUnDA		92.1	50.0	150.0
M8FOSA		85.0	50.0	150.0
M8PFOA		89.4	50.0	150.0
M8PFOS		99.5	50.0	150.0
M9-PFNA		101.3	50.0	150.0
MPFBA		99.1	50.0	150.0
MPFDoDA		116.3	50.0	150.0
d3N-MeFOSAA		102.8	50.0	150.0
d5EtFOSAA		107.8	50.0	150.0
MHFPO-DA		87.8	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50341.04

Sample Tag: SAN-09

Collected Date/Time: 06/27/2023 14:16

Matrix: Liquid

COC Reference: 169191

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 05:28, Matrix: WW, Dilution: 1.92

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		129.9	50.0	150.0
M2-6:2FTSA		110.3	50.0	150.0
M2-8:2FTSA		105.4	50.0	150.0
M2PFTeDA		141.6	12.0	218.0
M3PFBS		93.5	50.0	150.0
M3PFHxS		94.2	50.0	150.0
M4PFHpA		98.8	50.0	150.0
M5PFHxA		110.3	50.0	150.0
M5PFPeA		103.0	50.0	150.0
M6PFDA		110.7	50.0	150.0
M7PFUnDA		117.0	50.0	150.0
M8FOSA		95.6	50.0	150.0
M8PFOA		100.8	50.0	150.0
M8PFOS		98.0	50.0	150.0
M9-PFNA		103.9	50.0	150.0
MPFBA		108.9	50.0	150.0
MPFDoDA		147.6	50.0	150.0
d3N-MeFOSAA		112.7	50.0	150.0
d5EtFOSAA		115.3	50.0	150.0
MHFPO-DA		95.4	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50341.05

Sample Tag: Field Blank-062723

Collected Date/Time: 06/27/2023 12:50

Matrix: Liquid

COC Reference: 153090

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 05:48, Matrix: WW, Dilution: 1.93

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		97.8	50.0	150.0
M2-6:2FTSA		96.5	50.0	150.0
M2-8:2FTSA		106.4	50.0	150.0
M2PFTeDA		109.6	12.0	218.0
M3PFBS		101.3	50.0	150.0
M3PFHxS		109.3	50.0	150.0
M4PFHpA		101.0	50.0	150.0
M5PFHxA		94.7	50.0	150.0
M5PFPeA		99.3	50.0	150.0
M6PFDA		94.1	50.0	150.0
M7PFUnDA		91.3	50.0	150.0
M8FOSA		92.9	50.0	150.0
M8PFOA		85.9	50.0	150.0
M8PFOS		99.6	50.0	150.0
M9-PFNA		99.1	50.0	150.0
MPFBA		99.6	50.0	150.0
MPFDoDA		108.3	50.0	150.0
d3N-MeFOSAA		95.9	50.0	150.0
d5EtFOSAA		92.5	50.0	150.0
MHFPO-DA		94.9	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF230706W2

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

Blank (BLK)

Lab Sample ID: AK230714B.BLK230706

Run in Batch: AK230714B, Run Date: 07/15/2023 01:34, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		96.5	50.0	150.0
M2-6:2FTSA		95.8	50.0	150.0
M2-8:2FTSA		107.7	50.0	150.0
M2PFTeDA		109.3	12.0	218.0
M3PFBS		93.2	50.0	150.0
M3PFHxS		97.5	50.0	150.0
M4PFHpA		93.3	50.0	150.0
M5PFHxA		97.6	50.0	150.0
M5PFPeA		96.8	50.0	150.0
M6PFDA		98.6	50.0	150.0
M7PFUnDA		101.8	50.0	150.0
M8FOSA		89.8	50.0	150.0
M8PFOA		88.2	50.0	150.0
M8PFOS		100.5	50.0	150.0
M9-PFNA		102.7	50.0	150.0
MPFBA		96.4	50.0	150.0
MPFDoDA		110.5	50.0	150.0
d3N-MeFOSAA		106.0	50.0	150.0
d5EtFOSAA		94.5	50.0	150.0
MHFPO-DA		95.0	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample (LCS)

Lab Sample ID: AK230714B.LCS230706

Run in Batch: AK230714B, Run Date: 07/15/2023 00:55, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		99.1	50.0	150.0
M2-6:2FTSA		84.3	50.0	150.0
M2-8:2FTSA		100.5	50.0	150.0
M2PFTeDA		95.9	12.0	218.0
M3PFBS		90.7	50.0	150.0
M3PFHxS		99.1	50.0	150.0
M4PFHpA		104.4	50.0	150.0
M5PFHxA		94.2	50.0	150.0
M5PFPeA		93.2	50.0	150.0
M6PFDA		86.8	50.0	150.0
M7PFUnDA		85.4	50.0	150.0
M8FOSA		87.9	50.0	150.0
M8PFOA		97.4	50.0	150.0
M8PFOS		93.3	50.0	150.0
M9-PFNA		104.8	50.0	150.0
MPFBA		91.4	50.0	150.0
MPFDoDA		102.9	50.0	150.0
d3N-MeFOSAA		90.3	50.0	150.0
d5EtFOSAA		89.7	50.0	150.0
MHFPO-DA		93.8	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230714B.LCSD230706, Parent Sample ID: AK230714B.LCS230706

Run in Batch: AK230714B, Run Date: 07/15/2023 01:15, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		99.1	50.0	150.0
M2-6:2FTSA		98.9	50.0	150.0
M2-8:2FTSA		89.7	50.0	150.0
M2PFTeDA		100.8	12.0	218.0
M3PFBS		96.2	50.0	150.0
M3PFHxS		96.0	50.0	150.0
M4PFHpA		93.9	50.0	150.0
M5PFHxA		94.5	50.0	150.0
M5PFPeA		95.5	50.0	150.0
M6PFDA		101.6	50.0	150.0
M7PFUnDA		91.6	50.0	150.0
M8FOSA		88.7	50.0	150.0
M8PFOA		96.1	50.0	150.0
M8PFOS		93.2	50.0	150.0
M9-PFNA		94.9	50.0	150.0
MPFBA		88.7	50.0	150.0
MPFDoDA		101.2	50.0	150.0
d3N-MeFOSAA		101.1	50.0	150.0
d5EtFOSAA		86.7	50.0	150.0
MHFPO-DA		97.2	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike (MS)

Lab Sample ID: AK230714B.5033902M, Parent Sample ID: S50339.02

Run in Batch: AK230714B, Run Date: 07/15/2023 02:33, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		107.7	50.0	150.0
M2-6:2FTSA		96.0	50.0	150.0
M2-8:2FTSA		94.8	50.0	150.0
M2PFTeDA		112.1	12.0	218.0
M3PFBS		91.0	50.0	150.0
M3PFHxS		95.7	50.0	150.0
M4PFHpA		97.8	50.0	150.0
M5PFHxA		100.8	50.0	150.0
M5PFPeA		99.9	50.0	150.0
M6PFDA		95.7	50.0	150.0
M7PFUnDA		87.7	50.0	150.0
M8FOSA		87.7	50.0	150.0
M8PFOA		93.8	50.0	150.0
M8PFOS		102.5	50.0	150.0
M9-PFNA		97.9	50.0	150.0
MPFBA		101.5	50.0	150.0
MPFDoDA		113.1	50.0	150.0
d3N-MeFOSAA		106.6	50.0	150.0
d5EtFOSAA		99.2	50.0	150.0
MHFPO-DA		102.8	50.0	150.0

QC Report - Internal Standards per QC Sample

Duplicate (DUP)

Lab Sample ID: AK230714B.5033903D, Parent Sample ID: S50339.03

Run in Batch: AK230714B, Run Date: 07/15/2023 03:12, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		92.3	50.0	150.0
M2-6:2FTSA		92.3	50.0	150.0
M2-8:2FTSA		83.9	50.0	150.0
M2PFTeDA		102.1	12.0	218.0
M3PFBS		94.1	50.0	150.0
M3PFHxS		105.6	50.0	150.0
M4PFHpA		100.5	50.0	150.0
M5PFHxA		101.9	50.0	150.0
M5PFPeA		93.1	50.0	150.0
M6PFDA		87.7	50.0	150.0
M7PFUnDA		93.5	50.0	150.0
M8FOSA		91.9	50.0	150.0
M8PFOA		97.0	50.0	150.0
M8PFOS		100.8	50.0	150.0
M9-PFNA		97.0	50.0	150.0
MPFBA		101.0	50.0	150.0
MPFDoDA		101.3	50.0	150.0
d3N-MeFOSAA		95.2	50.0	150.0
d5EtFOSAA		93.4	50.0	150.0
MHFPO-DA		92.3	50.0	150.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF230706W2

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

Blank (BLK)

Lab Sample ID: AK230714B.BLK230706

Run in Batch: AK230714B, Run Date: 07/15/2023 01:34, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFMPA		ND	2	ng/l
FPrPA (3:3 FTCA)		ND	4	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	2	ng/l
PFEESA		ND	2	ng/l
FPePA (5:3 FTCA)		ND	4	ng/l
PFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
ADONA		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFBSA		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
PFNA		ND	2	ng/l
FHpPA (7:3 FTCA)		ND	4	ng/l
PFECHS		ND	2	ng/l
PFHpS		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
PFDA		ND	2	ng/l
PFOS		ND	2	ng/l
PFOS-BR		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS-LN		ND	2	ng/l
PFUnDA		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
PFNS		ND	2	ng/l
PFHxSA		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
PFTeDA		ND	4	ng/l
FOSA		ND	2	ng/l

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF230706W2 (continued)

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

Laboratory Control Sample (LCS)

Lab Sample ID: AK230714B.LCS230706

Run in Batch: AK230714B, Run Date: 07/15/2023 00:55, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		109.0	70.0	130.0
PFMPA		119.0	70.0	130.0
FPrPA (3:3 FTCA)		106.8	70.0	130.0
PFPPrS		76.6	70.0	130.0
PFPeA		99.8	70.0	130.0
PFMBA		109.0	70.0	130.0
4:2 FTSA		92.0	70.0	130.0
NFDHA		109.8	70.0	130.0
PFHxA		115.0	70.0	130.0
PFBS		113.2	70.0	130.0
HFPO-DA		108.4	70.0	130.0
PFEESA		96.4	70.0	130.0
FPePA (5:3 FTCA)		125.2	70.0	130.0
PFHpA		93.2	70.0	130.0
PFPeS		112.4	70.0	130.0
ADONA		95.8	70.0	130.0
6:2 FTSA		120.8	70.0	130.0
PFOA		96.4	70.0	130.0
PFBSA		107.2	70.0	130.0
PFHxS		104.2	70.0	130.0
PFNA		94.4	70.0	130.0
FHpPA (7:3 FTCA)		109.2	70.0	130.0
PFECHS		120.6	70.0	130.0
PFHpS		98.2	70.0	130.0
8:2 FTSA		97.0	70.0	130.0
N-MeFOSAA		104.6	70.0	130.0
PFDA		111.8	70.0	130.0
PFOS		99.6	70.0	130.0
EtFOSAA		94.2	70.0	130.0
PFUnDA		107.6	70.0	130.0
9CL-PF3ONS		102.2	70.0	130.0
PFNS		110.6	70.0	130.0
PFHxSA		94.2	70.0	130.0
PFDoDA		112.6	70.0	130.0
PFDS		121.0	70.0	130.0
PFTTrDA		129.6	70.0	130.0
11CL-PF3OUdS		97.6	70.0	130.0
PFTeDA		106.2	70.0	130.0
FOSA		100.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230714B.LCSD230706, Parent Sample ID: AK230714B.LCS230706

Run in Batch: AK230714B, Run Date: 07/15/2023 01:15, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		106.8	70.0	130.0	2.0	30.0
PFMPA		118.8	70.0	130.0	0.2	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF230706W2 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK230714B.LCSD230706, Parent Sample ID: AK230714B.LCS230706

Run in Batch: AK230714B, Run Date: 07/15/2023 01:15, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
FPrPA (3:3 FTCA)		102.6	70.0	130.0	4.0	30.0
PFPPrS		102.4	70.0	130.0	28.8	30.0
PFPeA		97.8	70.0	130.0	2.0	30.0
PFMBA		100.6	70.0	130.0	8.0	30.0
4:2 FTSA		99.8	70.0	130.0	8.1	30.0
NFDHA		100.0	70.0	130.0	9.3	30.0
PFHxA		115.8	70.0	130.0	0.7	30.0
PFBS		105.8	70.0	130.0	6.8	30.0
HFPO-DA		108.6	70.0	130.0	0.2	30.0
PFEESA		106.2	70.0	130.0	9.7	30.0
FPePA (5:3 FTCA)		110.4	70.0	130.0	12.6	30.0
PFHpA		97.4	70.0	130.0	4.4	30.0
PFPeS		106.6	70.0	130.0	5.3	30.0
ADONA		96.0	70.0	130.0	0.2	30.0
6:2 FTSA		94.0	70.0	130.0	25.0	30.0
PFOA		94.0	70.0	130.0	2.5	30.0
PFBSA		97.6	70.0	130.0	9.4	30.0
PFHxS		106.0	70.0	130.0	1.7	30.0
PFNA		97.6	70.0	130.0	3.3	30.0
FHpPA (7:3 FTCA)		100.8	70.0	130.0	8.0	30.0
PFECHS		107.8	70.0	130.0	11.2	30.0
PFHpS		106.8	70.0	130.0	8.4	30.0
8:2 FTSA		113.4	70.0	130.0	15.6	30.0
N-MeFOSAA		91.8	70.0	130.0	13.0	30.0
PFDA		86.4	70.0	130.0	25.6	30.0
PFOS		110.0	70.0	130.0	9.9	30.0
EtFOSAA		94.8	70.0	130.0	0.6	30.0
PFUnDA		99.6	70.0	130.0	7.7	30.0
9CL-PF3ONS		96.4	70.0	130.0	5.8	30.0
PFNS		100.8	70.0	130.0	9.3	30.0
PFHxSA		96.6	70.0	130.0	2.5	30.0
PFDoDA		106.6	70.0	130.0	5.5	30.0
PFDS		119.4	70.0	130.0	1.3	30.0
PFTTrDA	*	136.0	70.0	130.0	4.8	30.0
11CL-PF3OUdS		94.4	70.0	130.0	3.3	30.0
PFTeDA		101.4	70.0	130.0	4.6	30.0
FOSA		99.2	70.0	130.0	0.8	30.0

Matrix Spike (MS)

Lab Sample ID: AK230714B.5033902M, Parent Sample ID: S50339.02

Run in Batch: AK230714B, Run Date: 07/15/2023 02:33, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1.97

Analyte	Flags	% Rec	LCL	UCL
PFBA		101.5	70.0	130.0
FPrPA (3:3 FTCA)		111.7	70.0	130.0
PFPeA		93.5	70.0	130.0
4:2 FTSA		91.4	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF230706W2 (continued)

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

Matrix Spike (MS) (continued)

Lab Sample ID: AK230714B.5033902M, Parent Sample ID: S50339.02

Run in Batch: AK230714B, Run Date: 07/15/2023 02:33, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1.97

Analyte	Flags	% Rec	LCL	UCL
PFHxA		99.6	70.0	130.0
PFBS		117.5	70.0	130.0
HFPO-DA		95.4	70.0	130.0
FPePA (5:3 FTCA)		111.7	70.0	130.0
PFHpA		100.5	70.0	130.0
PFPeS		101.5	70.0	130.0
ADONA		98.5	70.0	130.0
6:2 FTSA		99.5	70.0	130.0
PFOA		98.3	70.0	130.0
PFBSA		110.5	70.0	130.0
PFHxS		111.7	70.0	130.0
PFNA		121.8	70.0	130.0
FHpPA (7:3 FTCA)		121.8	70.0	130.0
PFECHS		101.5	70.0	130.0
PFHpS		111.7	70.0	130.0
8:2 FTSA		111.7	70.0	130.0
N-MeFOSAA		97.5	70.0	130.0
PFDA		93.4	70.0	130.0
PFOS		105.6	70.0	130.0
EtFOSAA		84.3	70.0	130.0
PFUnDA		101.5	70.0	130.0
9CL-PF3ONS		96.4	70.0	130.0
PFNS		101.5	70.0	130.0
PFHxSA		101.5	70.0	130.0
PFDoDA		92.4	70.0	130.0
PFDS		101.5	70.0	130.0
PFTTrDA		121.8	70.0	130.0
11CL-PF3OUdS		97.5	70.0	130.0
PFTeDA		101.5	70.0	130.0
FOSA		111.7	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK230714B.5033903D, Parent Sample ID: S50339.03

Run in Batch: AK230714B, Run Date: 07/15/2023 03:12, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1.99

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
FPrPA (3:3 FTCA)		NC	30.0
PFPeA	J*	41.7	30.0
4:2 FTSA		NC	30.0
PFHxA		25.0	30.0
PFBS		22.2	30.0
HFPO-DA		NC	30.0
FPePA (5:3 FTCA)		NC	30.0
PFHpA	J	19.4	30.0
PFPeS		NC	30.0
ADONA		NC	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF230706W2 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK230714B.5033903D, Parent Sample ID: S50339.03

Run in Batch: AK230714B, Run Date: 07/15/2023 03:12, Prep Date: 07/06/2023, Matrix: WW, Dilution: 1.99

Analyte	Flags	RPD	RPD CL
6:2 FTSA		NC	30.0
PFOA		10.5	30.0
PFBSA	J	NC	30.0
PFHxS-BR		NC	30.0
PFHxS	J	NC	30.0
PFHxS-LN		NC	30.0
PFNA		NC	30.0
FHpPA (7:3 FTCA)		NC	30.0
PFECHS		5.1	30.0
PFHpS		NC	30.0
8:2 FTSA		NC	30.0
N-MeFOSAA		NC	30.0
PFDA		NC	30.0
PFOS		9.0	30.0
PFOS-BR		16.2	30.0
EtFOSAA		NC	30.0
PFOS-LN		8.3	30.0
PFUnDA		NC	30.0
9CL-PF3ONS		NC	30.0
PFNS		NC	30.0
PFHxSA		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTTrDA		NC	30.0
11CL-PF3OUdS		NC	30.0
PFTeDA		NC	30.0
FOSA		NC	30.0

