RAMBOLL

ENVIRONMENT
& HEALTH

Transmitted via email

Ms. Nicole Sanabria and Ms. Christina Hebert
Materials Management Division
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Mr. Robert Ellis
Department of Public Works Manager
Genesee Township
7244 N. Genesee Road
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Ms. Melissa Glasgow
Genesee County Water and Waste Services
Anthony Ragnone Treatment Plant
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RE: **Stanley Road Sanitary Sewer Update**
RACER Trust – Coldwater Road Facility
FILE: 15388/1940103462/Corres

Dear **Ms. Sanabria, Ms. Hebert, 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 Stanley Road sanitary sewers in relation to 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 ASTMD7979-19 (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**. Order of sample locations below are presented upgradient to downgradient.

- SAN-09, which is upgradient of the impacted zone, had a detection of 3.0 ng/l for PFOS on April 6, 2023, which was a decrease in concentration compared to the previous result of 10 ng/l (12/13/2022) for PFOS.
- SAN-2 had a detection of 9.8 ng/l for PFOS on April 6, 2023, which was a decrease in concentration compared to the previous result of 29 ng/l (12/13/2022) for PFOS.
- 11-07C016 had a detection of 27 ng/l for PFOS on April 6, 2023, which was a decrease in concentration compared to the previous result of 31 ng/l (12/13/2022) for PFOS.
- SAN-08 had a detection of 7.6 ng/l for PFOS on April 6, 2023, which was a decrease in concentration compared to the previous result of 25 ng/l (12/13/2022) for PFOS.

We will continue to collect quarterly samples, with the next samples to be collected in June 2023. The results of the sampling will be presented in updates similar to this one within approximately four weeks of receipt of the analytical results from the laboratory.

If you would like a paper copy of any of the attached information let me know. 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

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ENCLOSURES:

Tables
Table 1 – Sanitary Sewer Analytical Results

Figures
Figure 1 – Additional Sewer/Manhole Sample and Repair 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)

TABLE

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: / Sample Date:	EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	II-07C016 (Sanitary Sewer) 5/20/2021	II-07C016 (Sanitary Sewer) 8/25/2021	II-07C016 (Sanitary Sewer) 12/9/2021	II-07C016 (Sanitary Sewer) 3/31/2022	II-07C016 (Sanitary Sewer) 9/7/2022	II-07C016 (Sanitary Sewer) 12/13/2022	II-07C016 (Sanitary Sewer) 4/6/2023	SAN-1 (Sanitary Sewer) 11/5/2019	SAN-1 (Sanitary Sewer) 3/17/2020	SAN-1 (Sanitary Sewer) 12/18/2020
Perfluorobutanoic Acid (PFBA)	--	<10	<10	<9.8 X	<21 X	<11	<10	<10	<20	<21	<10
Perfluoropentanoic Acid (PFPeA)	--	**1.1 J**	**1.9 J**	**2.2 J**	<4.1	<4.3	<4.1	**1.5 J**	<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	<9.9	<11	<2.1
Perfluorohexanoic Acid (PFHxA)	--	<2.0	<2.0	**2.0**	<2.1	<2.2	<2.0	**1.3 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**	<9.9	<11	**1.7 J**
Perfluoroheptanoic Acid (PFHpA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	**1.2 J**	<9.9	<11	<2.1
Perfluoropentane Sulfonic Acid (PFPeS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	**1.0 J**	<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	<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	<9.9	<11	<2.1
Perfluorohexane Sulfonic Acid (PFHxS)	--	**2.9**	**3.2**	**3.6**	<2.1	**4.7**	**4.0**	**2.5**	<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**	<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	<9.9	<11	<2.1
Perfluorononanoic Acid (PFNA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	**1.0 J**	<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	<9.9	<11	<2.1
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<9.9	<11	<2.1
Perfluorodecanoic Acid (PFDA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<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	<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	<9.9	<11	<4.1
Perfluorooctane Sulfonic Acid (**PFOS**)	**12**	**24**	**27**	**19**	**19**	**43**	**31**	**27**	**55**	**59**	**24**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**7.0**	**9.4**	**5.8**	**3.2**	**13**	**8.6**	**12**	**18**	**18**	**6.9**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	**17**	**18**	**14**	**15**	**30**	**22**	**13**	**36**	**42**	**16**
Perfluoroundecanoic Acid (PFUnDA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<9.9	<11	<2.1
Perfluorononane Sulfonic Acid (PFNS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<9.9	<11	<2.1
Perfluorododecanoic Acid (PFDoDA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<9.9	<11	<2.1
Perfluorodecane Sulfonic Acid (PFDS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<9.9	<11	<2.1
Perfluorotridecanoic Acid (PFTrDA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<9.9	<11	<2.1
Perfluorooctane Sulfonamide (FOSA)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<9.9	<11	<2.1
Perfluorotetradecanoic Acid (PFTeDA)	--	<4.1	<4.1	<3.9	<4.1	<4.3	<4.1	<4.0	<9.9	<11	<4.1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<9.9	<11	<2.1
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<2.0	<2.0	<2.0	<2.1	<2.2	<2.0	<2.0	<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	<9.9	<11	<2.1
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<10	<10	<9.8	<4.1	<11	<10	<2.0	<9.9	<11	<2.1
Total Per-and Polyfluoroalkyl Substances	--	**30.0**	**33.9**	**31.5**	**21.8**	**52.8**	**38.4**	**42.1**	**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: / Sample Date:	EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-2 (Sanitary Sewer) 11/5/2019	SAN-2 (Sanitary Sewer) 5/20/2021	SAN-2 (Sanitary Sewer) 8/25/2021	SAN-2 (Sanitary Sewer) 12/9/2021	SAN-2 (Sanitary Sewer) 3/31/2022	SAN-DUP-033122 SAN-2 (Sanitary Sewer) 3/31/2022	SAN-2 (Sanitary Sewer) 9/7/2022	SAN-2 (Sanitary Sewer) 12/13/2022	SAN-2 (Sanitary Sewer) 4/6/2023
Perfluorobutanoic Acid (PFBA)	--	<20	<10	<10	**13**	<21 X	<20 X	<11	<10	<9.7
Perfluoropentanoic Acid (PFPeA)	--	<9.9	<4.2	**4.3**	**1.5 J**	<4.2	<4.0	<4.2	**1.2 J**	**1.3 J**
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
Perfluorohexanoic Acid (PFHxA)	--	<9.9	<2.1	**7.4**	<1.9	<2.1	<2.0	<2.1	**1.5 J**	**1.2 J**
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**
Perfluoroheptanoic Acid (PFHpA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	**1.1 J**
Perfluoropentane Sulfonic Acid (PFPeS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	**1.0 J**
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
Perfluorooctanoic Acid (**PFOA**)	**170**	<9.9	<2.1	**3.2**	**2.3**	<2.1	<2.0	**2.5**	**1.8 J**	<1.9
Perfluorohexane Sulfonic Acid (PFHxS)	--	<9.9	**2.8**	**4.0**	**4.1**	**3.5**	**3.4**	**4.0**	**3.3**	**2.1**
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**
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
Perfluorononanoic Acid (PFNA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
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
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
Perfluorodecanoic Acid (PFDA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<9.9	<4.2	<4.1	<3.8	<4.2	<4.0	<4.2	<4.0	<3.9
Perfluorooctane Sulfonic Acid (**PFOS**)	**12**	**37**	**22**	**31**	**20**	**24**	**24**	**43**	**29**	**9.8**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**11**	**6.0**	**10**	**7.1**	**5.2**	**5.1**	**14**	**7.7**	**2.8**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	**23**	**16**	**21**	**13**	**19**	**20**	**29**	**20**	**7.2**
Perfluoroundecanoic Acid (PFUnDA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
Perfluorononane Sulfonic Acid (PFNS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
Perfluorododecanoic Acid (PFDoDA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
Perfluorodecane Sulfonic Acid (PFDS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
Perfluorotridecanoic Acid (PFTrDA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
Perfluorooctane Sulfonamide (FOSA)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
Perfluorotetradecanoic Acid (PFTeDA)	--	<9.9	<4.2	<4.1	<3.8	<4.2	<4.0	**2.1 J**	<4.0	<3.9
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<9.9	<2.1	<2.0	<1.9	<2.1	<2.0	<2.1	<2.0	<1.9
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
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<9.9	<10	<10	<9.6	<4.2	<4.0	<11	<10	<1.9
Total Per-and Polyfluoroalkyl Substances	--	**37.0**	**26.6**	**51.8**	**43.3**	**30.6**	**31.3**	**53.8**	**38.4**	**23.6**

Notes
1) Detections in **bold**.
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6) EGLE Part 201 Groundwater Generic Cleanup Criteria and Screening Levels, December 21, 2020.
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TABLE 1
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Sanitary Sewer Samples - Stanley Road

Coldwater Rd - Sanitary Sewer Samples - Stanley Road

Perfluorinated Compound / Well/Sample ID: / Sample Date:	EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-08 (Sanitary Sewer) 3/18/2020	SAN-08 (Sanitary Sewer) 9/22/2020	SAN-08 (Sanitary Sewer) 12/18/2020	SAN-08 (Sanitary Sewer) 5/20/2021	SAN-08 (Sanitary Sewer) 8/25/2021	SAN-08 (Sanitary Sewer) 12/9/2021	SAN-08 (Sanitary Sewer) 3/31/2022	SAN-08 (Sanitary Sewer) 9/7/2022	SAN-08 (Sanitary Sewer) 12/13/2022	SAN-08 (Sanitary Sewer) 4/6/2023
Perfluorobutanoic Acid (PFBA)	--	<20	<9.9	<9.9	<10	<10	<10 X	<21 X	<10	<10	<10
Perfluoropentanoic Acid (PFPeA)	--	<10	<3.9	<4.0	<4.0	**1.3 J**	<4.1	<4.1	<4.0	<4.0	**2.0 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
Perfluorohexanoic Acid (PFHxA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	**1.7 J**	**2.0 J**
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**
Perfluoroheptanoic Acid (PFHpA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	**1.3 J**
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<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
Perfluorooctanoic Acid (**PFOA**)	**170**	<10	<2.0	<2.0	<2.0	**2.3**	**2.2**	<2.1	**2.6**	**2.3**	**2.2**
Perfluorohexane Sulfonic Acid (PFHxS)	--	<10	**2.8**	**2.4**	**2.3**	**2.0**	**3.1**	<2.1	**3.3**	**3.5**	**3.4**
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**
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
Perfluorononanoic Acid (PFNA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<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
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<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
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
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
Perfluorooctane Sulfonic Acid (**PFOS**)	**12**	**42**	**17**	**14**	**16**	**16**	**25**	**9.2**	**24**	**25**	**7.6**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**12**	**5.0**	**3.6**	**4.1**	**5.3**	**8.7**	**2.5**	**6.0**	**6.4**	**2.0**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	**30**	**10**	**9.5**	**12**	**11**	**17**	**6.3**	**17**	**18**	**6.0**
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<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
Perfluorododecanoic Acid (PFDoDA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<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
Perfluorotridecanoic Acid (PFTrDA)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<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
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<3.9	<4.0	<4.0	<4.0	<4.1	<4.1	<4.0	<4.0	<4.0
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.1	<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
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<10	<2.0	<2.0	<10	<10	<10	<4.1	<10	<10	<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**

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.

RAMBOLL

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: / Sample Date:	EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	SAN-09 (Sanitary Sewer) 3/18/2020	SAN-09 (Sanitary Sewer) 5/20/2021	SAN-09 (Sanitary Sewer) 8/25/2021	SAN-09 (Sanitary Sewer) 12/9/2021	SAN-09 (Sanitary Sewer) 3/31/2022	SAN-09 (Sanitary Sewer) 9/7/2022	SAN-09 (Sanitary Sewer) 12/13/2022	SAN-09 (Sanitary Sewer) 4/6/2023	SAN-21 (Sanitary Sewer) *6/25/2020*	SAN-21 (Sanitary Sewer) *12/18/2020*
Perfluorobutanoic Acid (PFBA)	--	<19	<9.7	<10	<9.8	<9.9	<9.9	<9.9	<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**	<4.0	<4.0
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<9.7	<1.9	<2.1 I	<2.0 I	<2.0	<2.0	<2.0	<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**	<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**	<2.0	**2.4**
Perfluoroheptanoic Acid (PFHpA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	**1.2 J**	<2.0	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<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	<2.0	<2.0
Perfluorooctanoic Acid (**PFOA**)	**170**	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0
Perfluorohexane Sulfonic Acid (PFHxS)	--	<9.7	**3.0**	<2.1	<2.0	<2.0	**2.2**	**2.2**	**1.3**	**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	<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	<2.0	<2.0
Perfluorononanoic Acid (PFNA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<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
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorodecanoic Acid (PFDA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<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	<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	<4.0	<4.0
Perfluorooctane Sulfonic Acid (**PFOS**)	**12**	<9.7	**15**	**17**	**5.4**	**6.0**	**3.4**	**10**	**3.0**	**33**	**34**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	**4.8**	<1.9	**9.8**	**9.9**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	<9.7	**13**	**15**	**4.6**	**5.0**	**2.6**	**5.2**	**2.3**	**22**	**24**
Perfluoroundecanoic Acid (PFUnDA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<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	<2.0	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<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	<2.0	<2.0
Perfluorotridecanoic Acid (PFTrDA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<9.7	<3.9	<4.2	<3.9	<3.9	<3.9	<4.0	<3.8	<4.0	<4.0
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<9.7	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<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	<2.0	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<9.7	<9.7	<10	<9.8	<3.9	<9.9	<9.9	<1.9	<2.0	<2.0
Total Per-and Polyfluoroalkyl Substances	--	**0.0**	**22.2**	**18.4**	**7.5**	**14.0**	**7.6**	**12.2**	**20.1**	**48.0**	**38.4**

Notes
1) Detections in **bold**.
2) Concentrations in ng/L.
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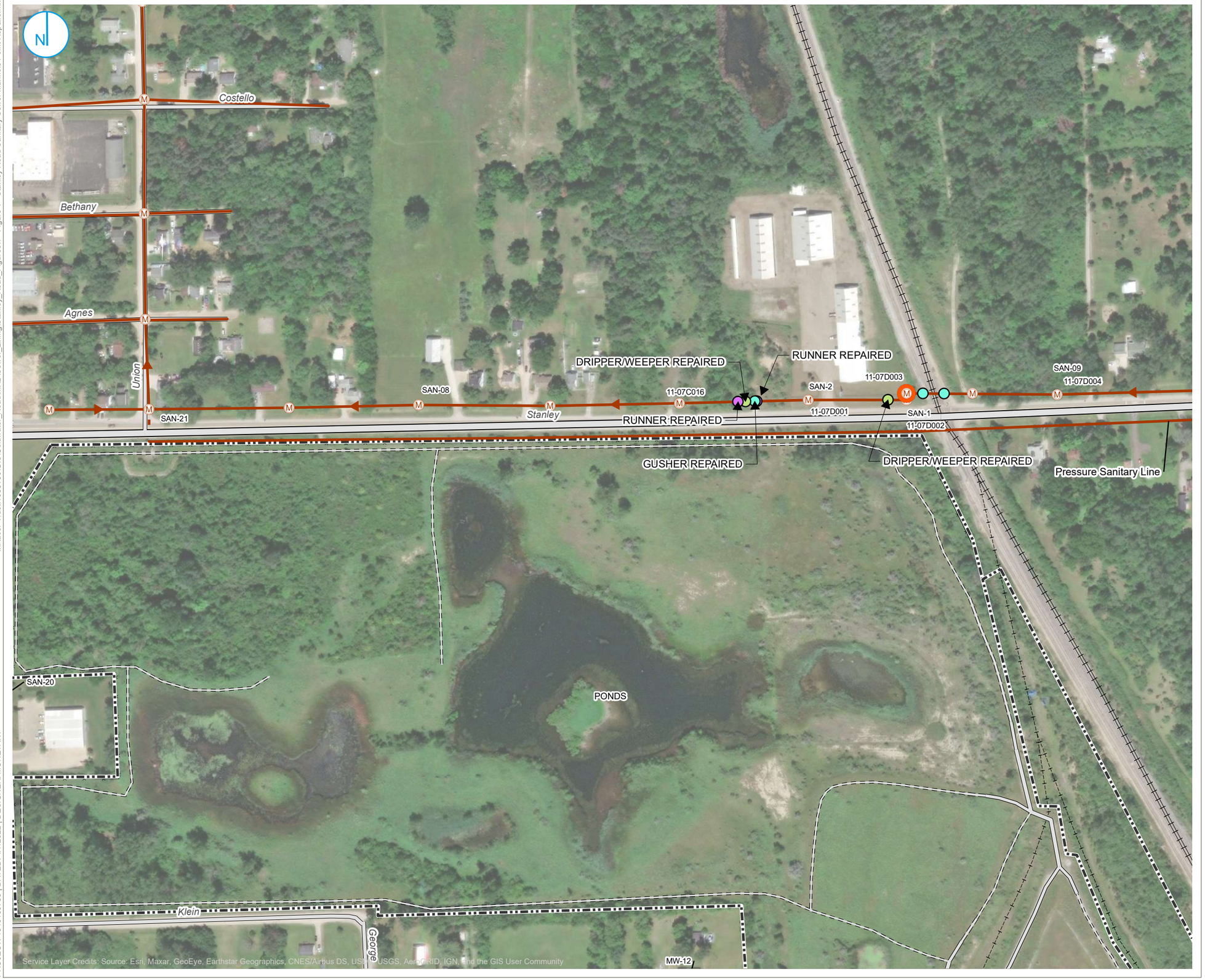
4) -- = Not analyzed/No criteria.
5) Dup = Duplicate sample.
6) EGLE Part 201 Groundwater Generic Cleanup Criteria and Screening Levels, December 21, 2020.
7) Concentration above the groundwater surface water interface (GSI) criteria are highlighted in yellow.
8) B - Compound also found in associated 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.

FIGURE



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

0 125 250
Feet

STANLEY ROAD SANITARY SEWER / MANHOLE POINT REPAIRS AND SAMPLE LOCATIONS

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 01

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.

RAMBOLL

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

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

ATTACHMENT A – ANALYTICAL LABORATORY RESULTS

Sample Event
September 7, 2022

Analytical Laboratory Report

Report ID: S40037.01(01)
Generated on 09/30/2022

Report to

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

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

Addtional 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 Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S40037.01-S40037.05
Project: RACER Coldwater Rd
Collected Date(s): 09/07/2022
Submitted Date/Time: 09/07/2022 14:15
Sampled by: Kevin Schneider
P.O. #: 1940002628 TASK37

Table of Contents

Maya Murshak
Technical Director

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.

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

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
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

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
PFTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafluoro-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

Analytical Laboratory Report

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S40037.01	San-08	Liquid	09/07/22 08:52
S40037.02	11-07CO16	Liquid	09/07/22 09:04
S40037.03	San-2	Liquid	09/07/22 09:15
S40037.04	San-09	Liquid	09/07/22 09:36
S40037.05	Field Blank-090722	Liquid	09/07/22 08:50

Analytical Laboratory Report

Lab Sample ID: S40037.01
Sample Tag: San-08
Collected Date/Time: 09/07/2022 08:52
Matrix: Liquid
COC Reference: 144819

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.01/7.04/12	ASTMD7979-19M	09/26/22 11:45	WTS	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 09/26/22 22:23, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.01	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2.01	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.01	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.01	307-24-4	
PFBS*	1.4	2.0	1.4	ng/L	2.01	375-73-5	J
PFHpA*	Not detected	2.0	1.4	ng/L	2.01	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.01	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2.01	27619-97-2	
PFOA*	2.6	2.0	1.6	ng/L	2.01	335-67-1	
PFHxS*	3.3	2.0	1.6	ng/L	2.01	355-46-4	
PFHxS-LN*	2.7	2.0	1.6	ng/L	2.01	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.01	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.01	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.01	39108-34-4	I
PFHpS*	Not detected	2.0	2.0	ng/L	2.01	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.01	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.01	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.01	2991-50-6	
PFOS*	24	2.0	2.0	ng/L	2.01	1763-23-1	
PFOS-LN*	6.0	2.0	2.0	ng/L	2.01	1763-23-1-LN	
PFOS-BR*	17	2.0	2.0	ng/L	2.01	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.01	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.01	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.01	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.01	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.01	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.01	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.01	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.01	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.01	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.01	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.01	13252-13-6	

J-Estimated value less than reporting limit, but greater than MDL
I-Matrix interference with internal standard

Analytical Laboratory Report

Lab Sample ID: S40037.02
Sample Tag: 11-07CO16
Collected Date/Time: 09/07/2022 09:04
Matrix: Liquid
COC Reference: 144819

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.01/6.89/11	ASTMD7979-19M	09/26/22 11:45	WTS	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 09/26/22 22:42, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	11	11	ng/L	2.15	375-22-4	
PFPeA*	Not detected	4.3	1.1	ng/L	2.15	2706-90-3	
4:2 FTSA*	Not detected	2.2	1.7	ng/L	2.15	757124-72-4	
PFHxA*	Not detected	2.2	1.5	ng/L	2.15	307-24-4	
PFBS*	2.0	2.2	1.5	ng/L	2.15	375-73-5	J
PFHpA*	Not detected	2.2	1.5	ng/L	2.15	375-85-9	
PFPeS*	Not detected	2.2	1.9	ng/L	2.15	2706-91-4	
6:2 FTSA*	Not detected	2.2	2.2	ng/L	2.15	27619-97-2	
PFOA*	3.1	2.2	1.7	ng/L	2.15	335-67-1	
PFHxS*	4.7	2.2	1.7	ng/L	2.15	355-46-4	
PFHxS-LN*	3.7	2.2	1.7	ng/L	2.15	355-46-4-LN	
PFHxS-BR*	Not detected	2.2	1.7	ng/L	2.15	355-46-4-BR	
PFNA*	Not detected	2.2	1.9	ng/L	2.15	375-95-1	
8:2 FTSA*	Not detected	2.2	1.1	ng/L	2.15	39108-34-4	
PFHpS*	Not detected	2.2	2.2	ng/L	2.15	375-92-8	
PFDA*	Not detected	2.2	2.2	ng/L	2.15	335-76-2	
N-MeFOSAA*	Not detected	2.2	2.2	ng/L	2.15	2355-31-9	
EtFOSAA*	Not detected	4.3	2.2	ng/L	2.15	2991-50-6	
PFOS*	43	2.2	2.1	ng/L	2.15	1763-23-1	
PFOS-LN*	13	2.2	2.1	ng/L	2.15	1763-23-1-LN	
PFOS-BR*	30	2.2	2.1	ng/L	2.15	1763-23-1-BR	
PFUnDA*	Not detected	2.2	1.5	ng/L	2.15	2058-94-8	
PFNS*	Not detected	2.2	1.5	ng/L	2.15	68259-12-1	
PFDoDA*	Not detected	2.2	1.7	ng/L	2.15	307-55-1	
PFDS*	Not detected	2.2	1.5	ng/L	2.15	335-77-3	
PFTrDA*	Not detected	2.2	1.3	ng/L	2.15	72629-94-8	
FOSA*	Not detected	2.2	1.9	ng/L	2.15	754-91-6	
PFTeDA*	Not detected	4.3	1.9	ng/L	2.15	376-06-7	
11Cl-PF3OUdS*	Not detected	2.2	1.9	ng/L	2.15	763051-92-9	
9Cl-PF3ONS*	Not detected	2.2	1.5	ng/L	2.15	756426-58-1	
ADONA*	Not detected	2.2	2.2	ng/L	2.15	919005-14-4	
HFPO-DA*	Not detected	11	2.2	ng/L	2.15	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S40037.03
Sample Tag: San-2
Collected Date/Time: 09/07/2022 09:15
Matrix: Liquid
COC Reference: 144819

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.75/7.05/12	ASTMD7979-19M	09/26/22 11:45	WTS	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 09/26/22 23:02, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	11	11	ng/L	2.11	375-22-4	
PFPeA*	Not detected	4.2	1.1	ng/L	2.11	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.11	757124-72-4	
PFHxA*	Not detected	2.1	1.5	ng/L	2.11	307-24-4	
PFBS*	2.2	2.1	1.5	ng/L	2.11	375-73-5	
PFHpA*	Not detected	2.1	1.5	ng/L	2.11	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.11	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.11	27619-97-2	
PFOA*	2.5	2.1	1.7	ng/L	2.11	335-67-1	
PFHxS*	4.0	2.1	1.7	ng/L	2.11	355-46-4	
PFHxS-LN*	3.0	2.1	1.7	ng/L	2.11	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.11	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.11	375-95-1	
8:2 FTSA*	Not detected	2.1	1.1	ng/L	2.11	39108-34-4	I
PFHpS*	Not detected	2.1	2.1	ng/L	2.11	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.11	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.11	2355-31-9	
EtFOSAA*	Not detected	4.2	2.1	ng/L	2.11	2991-50-6	
PFOS*	43	2.1	2.1	ng/L	2.11	1763-23-1	
PFOS-LN*	14	2.1	2.1	ng/L	2.11	1763-23-1-LN	
PFOS-BR*	29	2.1	2.1	ng/L	2.11	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.5	ng/L	2.11	2058-94-8	
PFNS*	Not detected	2.1	1.5	ng/L	2.11	68259-12-1	
PFDoDA*	Not detected	2.1	1.7	ng/L	2.11	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.11	335-77-3	
PFTrDA*	Not detected	2.1	1.3	ng/L	2.11	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.11	754-91-6	
PFTeDA*	2.1	4.2	1.9	ng/L	2.11	376-06-7	J
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.11	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.11	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.11	919005-14-4	
HFPO-DA*	Not detected	11	2.1	ng/L	2.11	13252-13-6	

I-Matrix interference with internal standard
J-Estimated value less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S40037.04
Sample Tag: San-09
Collected Date/Time: 09/07/2022 09:36
Matrix: Liquid
COC Reference: 144819

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.60/7.03/11	ASTMD7979-19M	09/26/22 11:45	WTS	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 09/26/22 23:21, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.9	9.9	ng/L	1.97	375-22-4	
PFPeA*	Not detected	3.9	0.99	ng/L	1.97	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.97	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.97	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	1.97	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.97	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.97	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.97	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.97	335-67-1	
PFHxS*	2.2	2.0	1.6	ng/L	1.97	355-46-4	
PFHxS-LN*	1.7	2.0	1.6	ng/L	1.97	355-46-4-LN	J
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.97	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.97	375-95-1	
8:2 FTSA*	Not detected	2.0	0.99	ng/L	1.97	39108-34-4	I
PFHpS*	Not detected	2.0	2.0	ng/L	1.97	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.97	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.97	2355-31-9	
EtFOSAA*	2.0	3.9	2.0	ng/L	1.97	2991-50-6	J
PFOS*	3.4	2.0	1.9	ng/L	1.97	1763-23-1	
PFOS-LN*	Not detected	2.0	1.9	ng/L	1.97	1763-23-1-LN	
PFOS-BR*	2.6	2.0	1.9	ng/L	1.97	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.97	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.97	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.97	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.97	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.97	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.97	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.97	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.97	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.97	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.97	919005-14-4	
HFPO-DA*	Not detected	9.9	2.0	ng/L	1.97	13252-13-6	

J-Estimated value less than reporting limit, but greater than MDL
I-Matrix interference with internal standard

Analytical Laboratory Report

Lab Sample ID: S40037.05
Sample Tag: Field Blank-090722
Collected Date/Time: 09/07/2022 08:50
Matrix: Liquid
COC Reference: 144819

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.36/7.10/11	ASTMD7979-19M	09/26/22 11:45	WTS	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 09/26/22 22:03, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.09	375-22-4	
PFPeA*	Not detected	4.2	1.0	ng/L	2.09	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.09	757124-72-4	
PFHxA*	Not detected	2.1	1.5	ng/L	2.09	307-24-4	
PFBS*	Not detected	2.1	1.5	ng/L	2.09	375-73-5	
PFHpA*	Not detected	2.1	1.5	ng/L	2.09	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.09	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.09	27619-97-2	
PFOA*	Not detected	2.1	1.7	ng/L	2.09	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.09	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.09	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.09	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.09	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.09	39108-34-4	I
PFHpS*	Not detected	2.1	2.1	ng/L	2.09	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.09	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.09	2355-31-9	
EtFOSAA*	Not detected	4.2	2.1	ng/L	2.09	2991-50-6	
PFOS*	Not detected	2.1	2.0	ng/L	2.09	1763-23-1	
PFOS-LN*	Not detected	2.1	2.0	ng/L	2.09	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.09	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.5	ng/L	2.09	2058-94-8	
PFNS*	Not detected	2.1	1.5	ng/L	2.09	68259-12-1	
PFDoDA*	Not detected	2.1	1.7	ng/L	2.09	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.09	335-77-3	
PFTrDA*	Not detected	2.1	1.3	ng/L	2.09	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.09	754-91-6	
PFTeDA*	Not detected	4.2	1.9	ng/L	2.09	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.09	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.09	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.09	919005-14-4	
HFPO-DA*	Not detected	10	2.1	ng/L	2.09	13252-13-6	

I-Matrix interference with internal standard

Merit Laboratories Login Checklist

Lab Set ID: S40037
Client: OBG02 (Ramboll Americas)
Project: RACER Coldwater Rd
Submitted: 09/07/2022 14:15 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.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.5
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] 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: _____

Merit Laboratories, Inc.

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

144819

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 2090 Commonwealth Blvd.
CITY: Ann Arbor | STATE: MI | ZIP CODE: 48105
PHONE NO.: 313-333-0611 | FAX NO.:
P.O. NO.: 1940026028 Task 37
E-MAIL ADDRESS: Clifford.Yantz@ramboll.com Kevin.Schreider@ramboll.com
QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Coldwater Rd.
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PFAS 7979

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG. IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS 7979	Special Instructions
40037.01	9/7/22	8:52	San-08	L	3	X							X	low level reporting limit with estimated values
.02	9/7/22	9:04	11-07C016	L	3	X							X	
.03	9/7/22	9:15	San-2	L	3	X							X	
.04	9/7/22	9:36	San-09	L	3	X							X	
.05	9/7/22	8:50	Field Blank-090722	L	1	X							X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 9/7/22	TIME 1637	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 9/7/22	TIME 1637	
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 9/7/22	TIME 1415	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 9/7/22	TIME 1415	

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME	

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 5.5

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

Rev. 5.18.12

Quality Control Report

Report ID: QC-S40037-01
Generated on 10/03/2022

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): S40037.01-S40037.05
Project: RACER Coldwater Rd
Submitted Date/Time: 09/07/2022 14:15
Sampled by: Kevin Schneider
P.O. #: 1940002628 TASK37

QC Report Sections

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: S40037.01
Sample Tag: San-08
Collected Date/Time: 09/07/2022 08:52
Matrix: Liquid
COC Reference: 144819

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	09/26/22 22:23	AK220926	PF220926W1	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S40037.02
Sample Tag: 11-07CO16
Collected Date/Time: 09/07/2022 09:04
Matrix: Liquid
COC Reference: 144819

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	09/26/22 22:42	AK220926	PF220926W1	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S40037.03

Sample Tag: San-2

Collected Date/Time: 09/07/2022 09:15

Matrix: Liquid

COC Reference: 144819

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	09/26/22 23:02	AK220926	PF220926W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S40037.04

Sample Tag: San-09

Collected Date/Time: 09/07/2022 09:36

Matrix: Liquid

COC Reference: 144819

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	09/26/22 23:21	AK220926	PF220926W1	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S40037.05

Sample Tag: Field Blank-090722

Collected Date/Time: 09/07/2022 08:50

Matrix: Liquid

COC Reference: 144819

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	09/26/22 22:03	AK220926	PF220926W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF220926W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S40037.01	28 PFAs	ASTMD7979-19M	09/26/22 22:23	AK220926
S40037.02	28 PFAs	ASTMD7979-19M	09/26/22 22:42	AK220926
S40037.03	28 PFAs	ASTMD7979-19M	09/26/22 23:02	AK220926
S40037.04	28 PFAs	ASTMD7979-19M	09/26/22 23:21	AK220926
S40037.05	28 PFAs	ASTMD7979-19M	09/26/22 22:03	AK220926

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S40037.01

Sample Tag: San-08

Collected Date/Time: 09/07/2022 08:52

Matrix: Liquid

COC Reference: 144819

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK220926, Run Date: 09/26/2022 22:23, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**87.8**	50.0	150.0
M2-6:2FTSA		**86.8**	50.0	150.0
M2-8:2FTSA	*	**152.9**	50.0	150.0
M2PFTeDA		**109.8**	12.0	218.0
M3PFBS		**97.3**	50.0	150.0
M3PFHxS		**97.0**	50.0	150.0
M4PFHpA		**104.4**	50.0	150.0
M5PFHxA		**103.5**	50.0	150.0
M5PFPeA		**100.9**	50.0	150.0
M6PFDA		**91.9**	50.0	150.0
M7PFUnDA		**92.7**	50.0	150.0
M8FOSA		**97.0**	50.0	150.0
M8PFOA		**87.8**	50.0	150.0
M8PFOS		**88.9**	50.0	150.0
M9-PFNA		**81.9**	50.0	150.0
MPFBA		**100.7**	50.0	150.0
MPFDoDA		**104.8**	50.0	150.0
d3N-MeFOSAA		**97.2**	50.0	150.0
d5EtFOSAA		**95.6**	50.0	150.0
MHFPO-DA		**120.5**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S40037.02

Sample Tag: 11-07CO16

Collected Date/Time: 09/07/2022 09:04

Matrix: Liquid

COC Reference: 144819

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK220926, Run Date: 09/26/2022 22:42, Matrix: WW, Dilution: 2.15

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**99.9**	50.0	150.0
M2-6:2FTSA		**82.8**	50.0	150.0
M2-8:2FTSA		**66.3**	50.0	150.0
M2PFTeDA		**109.3**	12.0	218.0
M3PFBS		**97.4**	50.0	150.0
M3PFHxS		**108.1**	50.0	150.0
M4PFHpA		**131.7**	50.0	150.0
M5PFHxA		**105.6**	50.0	150.0
M5PFPeA		**106.0**	50.0	150.0
M6PFDA		**102.6**	50.0	150.0
M7PFUnDA		**96.2**	50.0	150.0
M8FOSA		**107.5**	50.0	150.0
M8PFOA		**95.1**	50.0	150.0
M8PFOS		**93.7**	50.0	150.0
M9-PFNA		**88.3**	50.0	150.0
MPFBA		**104.3**	50.0	150.0
MPFDoDA		**103.6**	50.0	150.0
d3N-MeFOSAA		**100.1**	50.0	150.0
d5EtFOSAA		**82.7**	50.0	150.0
MHFPO-DA		**115.5**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S40037.03

Sample Tag: San-2

Collected Date/Time: 09/07/2022 09:15

Matrix: Liquid

COC Reference: 144819

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK220926, Run Date: 09/26/2022 23:02, Matrix: WW, Dilution: 2.11

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**118.0**	50.0	150.0
M2-6:2FTSA		**92.7**	50.0	150.0
M2-8:2FTSA	*	**169.4**	50.0	150.0
M2PFTeDA		**114.6**	12.0	218.0
M3PFBS		**94.4**	50.0	150.0
M3PFHxS		**106.4**	50.0	150.0
M4PFHpA		**120.5**	50.0	150.0
M5PFHxA		**103.6**	50.0	150.0
M5PFPeA		**104.0**	50.0	150.0
M6PFDA		**103.8**	50.0	150.0
M7PFUnDA		**87.7**	50.0	150.0
M8FOSA		**102.5**	50.0	150.0
M8PFOA		**105.2**	50.0	150.0
M8PFOS		**94.7**	50.0	150.0
M9-PFNA		**88.8**	50.0	150.0
MPFBA		**101.0**	50.0	150.0
MPFDoDA		**110.2**	50.0	150.0
d3N-MeFOSAA		**102.3**	50.0	150.0
d5EtFOSAA		**96.0**	50.0	150.0
MHFPO-DA		**121.9**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S40037.04

Sample Tag: San-09

Collected Date/Time: 09/07/2022 09:36

Matrix: Liquid

COC Reference: 144819

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK220926, Run Date: 09/26/2022 23:21, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**131.6**	50.0	150.0
M2-6:2FTSA		**102.4**	50.0	150.0
M2-8:2FTSA	*	**208.4**	50.0	150.0
M2PFTeDA		**83.1**	12.0	218.0
M3PFBS		**89.2**	50.0	150.0
M3PFHxS		**100.3**	50.0	150.0
M4PFHpA		**99.7**	50.0	150.0
M5PFHxA		**103.8**	50.0	150.0
M5PFPeA		**103.7**	50.0	150.0
M6PFDA		**99.9**	50.0	150.0
M7PFUnDA		**77.4**	50.0	150.0
M8FOSA		**98.3**	50.0	150.0
M8PFOA		**100.6**	50.0	150.0
M8PFOS		**97.4**	50.0	150.0
M9-PFNA		**90.7**	50.0	150.0
MPFBA		**106.2**	50.0	150.0
MPFDoDA		**96.6**	50.0	150.0
d3N-MeFOSAA		**96.9**	50.0	150.0
d5EtFOSAA		**88.3**	50.0	150.0
MHFPO-DA		**123.7**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S40037.05

Sample Tag: Field Blank-090722

Collected Date/Time: 09/07/2022 08:50

Matrix: Liquid

COC Reference: 144819

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK220926, Run Date: 09/26/2022 22:03, Matrix: WW, Dilution: 2.09

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**74.0**	50.0	150.0
M2-6:2FTSA		**81.0**	50.0	150.0
M2-8:2FTSA	*	**297.9**	50.0	150.0
M2PFTeDA		**115.5**	12.0	218.0
M3PFBS		**91.3**	50.0	150.0
M3PFHxS		**103.9**	50.0	150.0
M4PFHpA		**87.6**	50.0	150.0
M5PFHxA		**99.8**	50.0	150.0
M5PFPeA		**99.0**	50.0	150.0
M6PFDA		**100.5**	50.0	150.0
M7PFUnDA		**90.3**	50.0	150.0
M8FOSA		**106.5**	50.0	150.0
M8PFOA		**99.5**	50.0	150.0
M8PFOS		**94.7**	50.0	150.0
M9-PFNA		**90.8**	50.0	150.0
MPFBA		**101.4**	50.0	150.0
MPFDoDA		**104.8**	50.0	150.0
d3N-MeFOSAA		**99.9**	50.0	150.0
d5EtFOSAA		**85.1**	50.0	150.0
MHFPO-DA		**107.8**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF220926W1

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

Blank (BLK)

Lab Sample ID: AK220926.BLK220926A

Run in Batch: AK220926, Run Date: 09/26/2022 16:51, Prep Date: 09/26/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**77.9**	50.0	150.0
M2-6:2FTSA		**89.1**	50.0	150.0
M2-8:2FTSA		**92.0**	50.0	150.0
M2PFTeDA		**100.8**	12.0	218.0
M3PFBS		**87.3**	50.0	150.0
M3PFHxS		**89.3**	50.0	150.0
M4PFHpA		**95.9**	50.0	150.0
M5PFHxA		**100.0**	50.0	150.0
M5PFPeA		**95.2**	50.0	150.0
M6PFDA		**92.9**	50.0	150.0
M7PFUnDA		**83.3**	50.0	150.0
M8FOSA		**98.8**	50.0	150.0
M8PFOA		**95.1**	50.0	150.0
M8PFOS		**90.8**	50.0	150.0
M9-PFNA		**84.4**	50.0	150.0
MPFBA		**93.3**	50.0	150.0
MPFDoDA		**95.0**	50.0	150.0
d3N-MeFOSAA		**97.4**	50.0	150.0
d5EtFOSAA		**83.0**	50.0	150.0
MHFPO-DA		**108.1**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK220926.LCS220926A

Run in Batch: AK220926, Run Date: 09/26/2022 16:12, Prep Date: 09/26/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**74.4**	50.0	150.0
M2-6:2FTSA		**85.3**	50.0	150.0
M2-8:2FTSA		**91.5**	50.0	150.0
M2PFTeDA		**94.2**	12.0	218.0
M3PFBS		**87.2**	50.0	150.0
M3PFHxS		**85.5**	50.0	150.0
M4PFHpA		**104.4**	50.0	150.0
M5PFHxA		**94.7**	50.0	150.0
M5PFPeA		**93.3**	50.0	150.0
M6PFDA		**95.2**	50.0	150.0
M7PFUnDA		**92.0**	50.0	150.0
M8FOSA		**89.1**	50.0	150.0
M8PFOA		**92.6**	50.0	150.0
M8PFOS		**78.4**	50.0	150.0
M9-PFNA		**88.9**	50.0	150.0
MPFBA		**91.6**	50.0	150.0
MPFDoDA		**94.4**	50.0	150.0
d3N-MeFOSAA		**86.7**	50.0	150.0
d5EtFOSAA		**76.0**	50.0	150.0
MHFPO-DA		**111.2**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK220926.LCSD220926A, Parent Sample ID: AK220926.LCS220926A

Run in Batch: AK220926, Run Date: 09/26/2022 16:31, Prep Date: 09/26/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**82.2**	50.0	150.0
M2-6:2FTSA		**80.0**	50.0	150.0
M2-8:2FTSA		**128.0**	50.0	150.0
M2PFTeDA		**90.4**	12.0	218.0
M3PFBS		**87.4**	50.0	150.0
M3PFHxS		**89.6**	50.0	150.0
M4PFHpA		**92.9**	50.0	150.0
M5PFHxA		**89.5**	50.0	150.0
M5PFPeA		**95.3**	50.0	150.0
M6PFDA		**91.3**	50.0	150.0
M7PFUnDA		**82.4**	50.0	150.0
M8FOSA		**93.0**	50.0	150.0
M8PFOA		**96.5**	50.0	150.0
M8PFOS		**84.9**	50.0	150.0
M9-PFNA		**82.5**	50.0	150.0
MPFBA		**90.6**	50.0	150.0
MPFDoDA		**87.0**	50.0	150.0
d3N-MeFOSAA		**82.9**	50.0	150.0
d5EtFOSAA		**72.3**	50.0	150.0
MHFPO-DA		**106.8**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK220926.3997101M, Parent Sample ID: S39971.01

Run in Batch: AK220926, Run Date: 09/26/2022 17:50, Prep Date: 09/26/2022, Matrix: WW, Dilution: 2.06

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**81.6**	50.0	150.0
M2-6:2FTSA		**93.0**	50.0	150.0
M2-8:2FTSA		**67.9**	50.0	150.0
M2PFTeDA		**103.3**	12.0	218.0
M3PFBS		**94.8**	50.0	150.0
M3PFHxS		**95.4**	50.0	150.0
M4PFHpA		**96.7**	50.0	150.0
M5PFHxA		**94.1**	50.0	150.0
M5PFPeA		**94.1**	50.0	150.0
M6PFDA		**93.7**	50.0	150.0
M7PFUnDA		**88.7**	50.0	150.0
M8FOSA		**93.1**	50.0	150.0
M8PFOA		**91.5**	50.0	150.0
M8PFOS		**80.9**	50.0	150.0
M9-PFNA		**86.7**	50.0	150.0
MPFBA		**97.1**	50.0	150.0
MPFDoDA		**89.3**	50.0	150.0
d3N-MeFOSAA		**86.3**	50.0	150.0
d5EtFOSAA		**76.6**	50.0	150.0
MHFPO-DA		**119.8**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK220926.3997102D, Parent Sample ID: S39971.02

Run in Batch: AK220926, Run Date: 09/26/2022 18:29, Prep Date: 09/26/2022, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**90.2**	50.0	150.0
M2-6:2FTSA		**92.6**	50.0	150.0
M2-8:2FTSA		**60.7**	50.0	150.0
M2PFTeDA		**111.2**	12.0	218.0
M3PFBS		**86.5**	50.0	150.0
M3PFHxS		**104.5**	50.0	150.0
M4PFHpA		**103.3**	50.0	150.0
M5PFHxA		**87.0**	50.0	150.0
M5PFPeA		**97.6**	50.0	150.0
M6PFDA		**93.6**	50.0	150.0
M7PFUnDA		**92.3**	50.0	150.0
M8FOSA		**95.8**	50.0	150.0
M8PFOA		**98.4**	50.0	150.0
M8PFOS		**82.9**	50.0	150.0
M9-PFNA		**92.3**	50.0	150.0
MPFBA		**100.0**	50.0	150.0
MPFDoDA		**93.1**	50.0	150.0
d3N-MeFOSAA		**85.1**	50.0	150.0
d5EtFOSAA		**85.5**	50.0	150.0
MHFPO-DA		**116.0**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF220926W1

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

Blank (BLK)

Lab Sample ID: AK220926.BLK220926A

Run in Batch: AK220926, Run Date: 09/26/2022 16:51, Prep Date: 09/26/2022, Matrix: WW, Dilution: 1

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

Organics - Volatiles, Prep Batch ID: PF220926W1 (continued)

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

Laboratory Control Sample (LCS)

Lab Sample ID: AK220926.LCS220926A

Run in Batch: AK220926, Run Date: 09/26/2022 16:12, Prep Date: 09/26/2022, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		103.4	70.0	130.0
PFMPA		115.4	70.0	130.0
FPrPA (3:3 FTCA)		94.4	70.0	130.0
PFPrS		96.2	70.0	130.0
PFPeA		98.4	70.0	130.0
PFMBA		112.2	70.0	130.0
4:2 FTSA		110.2	70.0	130.0
NFDHA		115.8	70.0	130.0
PFHxA		95.4	70.0	130.0
PFBS		97.0	70.0	130.0
HFPO-DA		104.2	70.0	130.0
FPePA (5:3 FTCA)		107.4	70.0	130.0
PFEESA		106.6	70.0	130.0
PFHpA		99.4	70.0	130.0
PFPeS		102.0	70.0	130.0
ADONA		104.2	70.0	130.0
PFBSA		93.8	70.0	130.0
6:2 FTSA		109.6	70.0	130.0
PFOA		106.4	70.0	130.0
PFHxS		119.8	70.0	130.0
FHpPA (7:3 FTCA)		107.6	70.0	130.0
PFNA		90.0	70.0	130.0
8:2 FTSA		114.2	70.0	130.0
PFECHS		101.8	70.0	130.0
PFHpS		113.8	70.0	130.0
N-MeFOSAA		107.6	70.0	130.0
PFDA		108.8	70.0	130.0
EtFOSAA		113.8	70.0	130.0
PFOS		117.4	70.0	130.0
PFHxSA		99.8	70.0	130.0
PFUnDA		91.2	70.0	130.0
9CL-PF3ONS		113.8	70.0	130.0
PFNS		122.4	70.0	130.0
PFDoDA		100.2	70.0	130.0
PFDS		121.8	70.0	130.0
FOSA		105.0	70.0	130.0
PFTrDA		95.8	70.0	130.0
11CL-PF3OUdS		111.2	70.0	130.0
PFTeDA		122.2	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK220926.LCSD220926A, Parent Sample ID: AK220926.LCS220926A

Run in Batch: AK220926, Run Date: 09/26/2022 16:31, Prep Date: 09/26/2022, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		103.6	70.0	130.0	0.2	30.0
PFMPA		104.6	70.0	130.0	9.8	30.0

Organics - Volatiles, Prep Batch ID: PF220926W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK220926.LCSD220926A, Parent Sample ID: AK220926.LCS220926A

Run in Batch: AK220926, Run Date: 09/26/2022 16:31, Prep Date: 09/26/2022, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
FPrPA (3:3 FTCA)		90.4	70.0	130.0	4.3	30.0
PFPrS		96.8	70.0	130.0	0.6	30.0
PFPeA		96.0	70.0	130.0	2.5	30.0
PFMBA		99.4	70.0	130.0	12.1	30.0
4:2 FTSA		99.4	70.0	130.0	10.3	30.0
NFDHA		102.4	70.0	130.0	12.3	30.0
PFHxA		111.6	70.0	130.0	15.7	30.0
PFBS		102.4	70.0	130.0	5.4	30.0
HFPO-DA		105.8	70.0	130.0	1.5	30.0
FPePA (5:3 FTCA)		100.2	70.0	130.0	6.9	30.0
PFEESA		96.0	70.0	130.0	10.5	30.0
PFHpA		110.8	70.0	130.0	10.8	30.0
PFPeS		98.8	70.0	130.0	3.2	30.0
ADONA		96.2	70.0	130.0	8.0	30.0
PFBSA		95.6	70.0	130.0	1.9	30.0
6:2 FTSA		125.0	70.0	130.0	13.1	30.0
PFOA		110.2	70.0	130.0	3.5	30.0
PFHxS		114.6	70.0	130.0	4.4	30.0
FHpPA (7:3 FTCA)		99.0	70.0	130.0	8.3	30.0
PFNA		107.6	70.0	130.0	17.8	30.0
8:2 FTSA		95.6	70.0	130.0	17.7	30.0
PFECHS		85.4	70.0	130.0	17.5	30.0
PFHpS		100.0	70.0	130.0	12.9	30.0
N-MeFOSAA		116.6	70.0	130.0	8.0	30.0
PFDA		106.2	70.0	130.0	2.4	30.0
EtFOSAA		114.6	70.0	130.0	0.7	30.0
PFOS		109.2	70.0	130.0	7.2	30.0
PFHxSA		86.4	70.0	130.0	14.4	30.0
PFUnDA		89.4	70.0	130.0	2.0	30.0
9CL-PF3ONS		102.6	70.0	130.0	10.4	30.0
PFNS		102.6	70.0	130.0	17.6	30.0
PFDoDA		109.0	70.0	130.0	8.4	30.0
PFDS		106.0	70.0	130.0	13.9	30.0
FOSA		95.8	70.0	130.0	9.2	30.0
PFTrDA		93.8	70.0	130.0	2.1	30.0
11CL-PF3OUdS		96.0	70.0	130.0	14.7	30.0
PFTeDA		101.0	70.0	130.0	19.0	30.0

Matrix Spike (MS)

Lab Sample ID: AK220926.3997101M, Parent Sample ID: S39971.01

Run in Batch: AK220926, Run Date: 09/26/2022 17:50, Prep Date: 09/26/2022, Matrix: WW, Dilution: 2.06

Analyte	Flags	% Rec	LCL	UCL
PFBA		103.9	70.0	130.0
PFPeA		99.0	70.0	130.0
4:2 FTSA		116.5	70.0	130.0
PFHxA		104.9	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF220926W1 (continued)

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

Matrix Spike (MS) (continued)

Lab Sample ID: AK220926.3997101M, Parent Sample ID: S39971.01

Run in Batch: AK220926, Run Date: 09/26/2022 17:50, Prep Date: 09/26/2022, Matrix: WW, Dilution: 2.06

Analyte	Flags	% Rec	LCL	UCL
PFBS		83.5	70.0	130.0
PFHpA		111.7	70.0	130.0
PFPeS		88.3	70.0	130.0
6:2 FTSA		106.8	70.0	130.0
PFOA		120.4	70.0	130.0
PFHxS		106.8	70.0	130.0
PFNA		103.2	70.0	130.0
8:2 FTSA		97.1	70.0	130.0
PFHpS		102.9	70.0	130.0
PFDA		106.8	70.0	130.0
N-MeFOSAA		106.8	70.0	130.0
EtFOSAA		106.8	70.0	130.0
PFOS		106.8	70.0	130.0
PFUnDA		93.2	70.0	130.0
PFNS		126.2	70.0	130.0
PFDoDA		106.8	70.0	130.0
PFDS		116.5	70.0	130.0
PFTrDA		106.8	70.0	130.0
FOSA		106.8	70.0	130.0
PFTeDA		116.5	70.0	130.0
11CL-PF3OUdS		106.8	70.0	130.0
9CL-PF3ONS		116.5	70.0	130.0
ADONA		116.5	70.0	130.0
HFPO-DA		106.8	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK220926.3997102D, Parent Sample ID: S39971.02

Run in Batch: AK220926, Run Date: 09/26/2022 18:29, Prep Date: 09/26/2022, Matrix: WW, Dilution: 2.01

Analyte	Flags	RPD	RPD CL
PFBA		0.0	30.0
PFPeA		0.0	30.0
4:2 FTSA		NC	30.0
PFHxA		17.2	30.0
PFBS		7.4	30.0
PFHpA		19.4	30.0
PFPeS		20.0	30.0
6:2 FTSA		NC	30.0
PFOA		2.4	30.0
PFHxS		0.0	30.0
PFHxS-LN		0.0	30.0
PFHxS-BR		3.0	30.0
PFNA		9.0	30.0
8:2 FTSA		NC	30.0
PFHpS		14.3	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF220926W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK220926.3997102D, Parent Sample ID: S39971.02

Run in Batch: AK220926, Run Date: 09/26/2022 18:29, Prep Date: 09/26/2022, Matrix: WW, Dilution: 2.01

Analyte	Flags	RPD	RPD CL
EtFOSAA		NC	30.0
PFOS		6.6	30.0
PFOS-LN		8.3	30.0
PFOS-BR		4.7	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTrDA		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

Merit Laboratories, Inc.

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

144819

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 2090 Commonwealth Blvd.
CITY: Ann Arbor | STATE: MI | ZIP CODE: 48105
PHONE NO.: 313-333-0611 | FAX NO.:
P.O. NO.: 1940026028 Task 37
E-MAIL ADDRESS: Clifford.Yantz@ramboll.com Kevin.Schreider@ramboll.com
QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Coldwater Rd.
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PFAS 7979

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG. IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS 7979	Special Instructions
40037.01	9/7/22	8:52	San-08	L	3	X							X	low level reporting limit with estimated values
.02	9/7/22	9:04	11-07C016	L	3	X							X	
.03	9/7/22	9:15	San-2	L	3	X							X	
.04	9/7/22	9:36	San-09	L	3	X							X	
.05	9/7/22	8:50	Field Blank-090722	L	1	X							X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 9/7/22	TIME 1637	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 9/7/22	TIME 1637	
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 9/7/22	TIME 1415	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 9/7/22	TIME 1415	

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME	

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 5.5

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

Rev. 5.18.12

Sample Event
December 13, 2022

Analytical Laboratory Report

Report ID: S43402.01(01)
Generated on 01/17/2023

Report to

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

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

Addtional 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 Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43402.01-S43402.05
Project: RACER Coldwater Road
Collected Date(s): 12/13/2022
Submitted Date/Time: 12/13/2022 16:20
Sampled by: Kevin Schneider
P.O. #: 194002628 TASK

Table of Contents

Maya Murshak
Technical Director

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

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
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

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
PFTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafluoro-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

Analytical Laboratory Report

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S43402.01	Field Blank-121322	Liquid	12/13/22 10:00
S43402.02	SAN-08	Liquid	12/13/22 10:08
S43402.03	11-07CO16	Liquid	12/13/22 10:26
S43402.04	SAN-2	Liquid	12/13/22 10:43
S43402.05	SAN-09	Liquid	12/13/22 11:05

Analytical Laboratory Report

Lab Sample ID: S43402.01
Sample Tag: Field Blank-121322
Collected Date/Time: 12/13/2022 10:00
Matrix: Liquid
COC Reference: 154984

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.45/6.53/10	ASTMD7979-19M	01/03/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/03/23 19:55, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.03	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.03	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.03	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.03	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	2.03	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.03	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.03	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2.03	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2.03	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2.03	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	2.03	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.03	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.03	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.03	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2.03	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.03	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.03	2355-31-9	
EtFOSAA*	Not detected	4.1	2.0	ng/L	2.03	2991-50-6	
PFOS*	Not detected	2.0	2.0	ng/L	2.03	1763-23-1	
PFOS-LN*	Not detected	2.0	2.0	ng/L	2.03	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	2.0	ng/L	2.03	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.03	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.03	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.03	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.03	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.03	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.03	754-91-6	
PFTeDA*	Not detected	4.1	1.8	ng/L	2.03	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.03	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.03	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.03	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.03	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S43402.02
Sample Tag: SAN-08
Collected Date/Time: 12/13/2022 10:08
Matrix: Liquid
COC Reference: 154984

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.02/6.50/11	ASTMD7979-19M	01/03/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/03/23 20:14, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10.0	10.0	ng/L	1.99	375-22-4	
PFPeA*	Not detected	4.0	1.00	ng/L	1.99	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.99	757124-72-4	
PFHxA*	1.7	2.0	1.4	ng/L	1.99	307-24-4	J
PFBS*	2.4	2.0	1.4	ng/L	1.99	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.99	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.99	27619-97-2	
PFOA*	2.3	2.0	1.6	ng/L	1.99	335-67-1	
PFHxS*	3.5	2.0	1.6	ng/L	1.99	355-46-4	
PFHxS-LN*	2.7	2.0	1.6	ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0	1.00	ng/L	1.99	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.99	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.99	2991-50-6	
PFOS*	25	2.0	2.0	ng/L	1.99	1763-23-1	
PFOS-LN*	6.4	2.0	2.0	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	18	2.0	2.0	ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.99	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.99	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.99	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.99	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	10.0	2.0	ng/L	1.99	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S43402.03
Sample Tag: 11-07CO16
Collected Date/Time: 12/13/2022 10:26
Matrix: Liquid
COC Reference: 154984

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.45/6.54/10	ASTMD7979-19M	01/03/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/03/23 20:34, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.04	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.04	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.04	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.04	307-24-4	
PFBS*	1.6	2.0	1.4	ng/L	2.04	375-73-5	J
PFHpA*	Not detected	2.0	1.4	ng/L	2.04	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.04	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2.04	27619-97-2	
PFOA*	1.8	2.0	1.6	ng/L	2.04	335-67-1	J
PFHxS*	4.0	2.0	1.6	ng/L	2.04	355-46-4	
PFHxS-LN*	3.0	2.0	1.6	ng/L	2.04	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.04	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.04	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.04	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2.04	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.04	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.04	2355-31-9	
EtFOSAA*	Not detected	4.1	2.0	ng/L	2.04	2991-50-6	
PFOS*	31	2.0	2.0	ng/L	2.04	1763-23-1	
PFOS-LN*	8.6	2.0	2.0	ng/L	2.04	1763-23-1-LN	
PFOS-BR*	22	2.0	2.0	ng/L	2.04	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.04	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.04	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.04	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.04	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.04	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.04	754-91-6	
PFTeDA*	Not detected	4.1	1.8	ng/L	2.04	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.04	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.04	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.04	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.04	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S43402.04
Sample Tag: SAN-2
Collected Date/Time: 12/13/2022 10:43
Matrix: Liquid
COC Reference: 154984

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.51/6.51/10	ASTMD7979-19M	01/03/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/04/23 11:22, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2	375-22-4	
PFPeA*	1.2	4.0	1.0	ng/L	2	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2	757124-72-4	
PFHxA*	1.5	2.0	1.4	ng/L	2	307-24-4	J
PFBS*	1.6	2.0	1.4	ng/L	2	375-73-5	J
PFHpA*	Not detected	2.0	1.4	ng/L	2	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2	27619-97-2	
PFOA*	1.8	2.0	1.6	ng/L	2	335-67-1	J
PFHxS*	3.3	2.0	1.6	ng/L	2	355-46-4	
PFHxS-LN*	2.5	2.0	1.6	ng/L	2	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2	2991-50-6	
PFOS*	29	2.0	2.0	ng/L	2	1763-23-1	
PFOS-LN*	7.7	2.0	2.0	ng/L	2	1763-23-1-LN	
PFOS-BR*	20	2.0	2.0	ng/L	2	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S43402.05
Sample Tag: SAN-09
Collected Date/Time: 12/13/2022 11:05
Matrix: Liquid
COC Reference: 154984

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.52/6.48/10	ASTMD7979-19M	01/03/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/04/23 11:41, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.9	9.9	ng/L	1.98	375-22-4	
PFPeA*	Not detected	4.0	0.99	ng/L	1.98	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.98	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.98	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	1.98	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.98	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.98	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.98	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.98	335-67-1	
PFHxS*	2.2	2.0	1.6	ng/L	1.98	355-46-4	
PFHxS-LN*	1.7	2.0	1.6	ng/L	1.98	355-46-4-LN	J
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.98	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.98	375-95-1	
8:2 FTSA*	Not detected	2.0	0.99	ng/L	1.98	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.98	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.98	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.98	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.98	2991-50-6	
PFOS*	10	2.0	1.9	ng/L	1.98	1763-23-1	
PFOS-LN*	4.8	2.0	1.9	ng/L	1.98	1763-23-1-LN	
PFOS-BR*	5.2	2.0	1.9	ng/L	1.98	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.98	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.98	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.98	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.98	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.98	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.98	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.98	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.98	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.98	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.98	919005-14-4	
HFPO-DA*	Not detected	9.9	2.0	ng/L	1.98	13252-13-6	

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

Merit Laboratories Login Checklist

Lab Set ID: S43402
Client: OBG02 (Ramboll Americas - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 12/13/2022 16:20 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.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.8
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] 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: _____

Merit Laboratories, Inc.
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 154984

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 2090 Commonwealth Blvd.
CITY: Ann Arbor | STATE: MI | ZIP CODE: 48105
PHONE NO.: 313-333-0211 | CELL NO.: | P.O. NO.: 1940021628 Task
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com Kevin.Schneider@Ramboll.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: | ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (7979)	Special Instructions
43402.01	12/13/22	1000	Field Blank - 121322	L	3	X							X	Low Level Reporting with estimated values
.02		1008	SAN-08	L	3	X							X	
.03		1026	11-07C016	L	3	X							X	
.04		1043	SAN-2	L	3	X							X	
.05	↓	1105	SAN-09	L	3	X							X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 12/13/22	TIME 1215	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/13/22	TIME 1215	
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 12/13/22	TIME 1620	
RECEIVED BY: SIGNATURE/ORGANIZATION M Chilcott		DATE 12/13/22	TIME 1620	

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME	

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 4.8

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

Rev. 1.26.22

Quality Control Report

Report ID: QC-S43402-01
Generated on 01/17/2023

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): S43402.01-S43402.05
Project: RACER Coldwater Road
Submitted Date/Time: 12/13/2022 16:20
Sampled by: Kevin Schneider
P.O. #: 194002628 TASK

QC Report Sections

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

Lab Sample ID: S43402.01

Sample Tag: Field Blank-121322

Collected Date/Time: 12/13/2022 10:00

Matrix: Liquid

COC Reference: 154984

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/03/23 19:55	AK230103	PF230103W1	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S43402.02

Sample Tag: SAN-08

Collected Date/Time: 12/13/2022 10:08

Matrix: Liquid

COC Reference: 154984

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/03/23 20:14	AK230103	PF230103W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S43402.03
Sample Tag: 11-07CO16
Collected Date/Time: 12/13/2022 10:26
Matrix: Liquid
COC Reference: 154984

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/03/23 20:34	AK230103	PF230103W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S43402.04
Sample Tag: SAN-2
Collected Date/Time: 12/13/2022 10:43
Matrix: Liquid
COC Reference: 154984

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/04/23 11:22	AK230103	PF230103W1	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S43402.05

Sample Tag: SAN-09

Collected Date/Time: 12/13/2022 11:05

Matrix: Liquid

COC Reference: 154984

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/04/23 11:41	AK230103	PF230103W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF230103W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S43402.01	28 PFAs	ASTMD7979-19M	01/03/23 19:55	AK230103
S43402.02	28 PFAs	ASTMD7979-19M	01/03/23 20:14	AK230103
S43402.03	28 PFAs	ASTMD7979-19M	01/03/23 20:34	AK230103
S43402.04	28 PFAs	ASTMD7979-19M	01/04/23 11:22	AK230103
S43402.05	28 PFAs	ASTMD7979-19M	01/04/23 11:41	AK230103

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43402.01

Sample Tag: Field Blank-121322

Collected Date/Time: 12/13/2022 10:00

Matrix: Liquid

COC Reference: 154984

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230103, Run Date: 01/03/2023 19:55, Matrix: WW, Dilution: 2.03

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**121.2**	50.0	150.0
M2-6:2FTSA		**110.7**	50.0	150.0
M2-8:2FTSA		**123.6**	50.0	150.0
M2PFTeDA		**90.2**	12.0	218.0
M3PFBS		**97.3**	50.0	150.0
M3PFHxS		**99.4**	50.0	150.0
M4PFHpA		**107.5**	50.0	150.0
M5PFHxA		**92.4**	50.0	150.0
M5PFPeA		**97.1**	50.0	150.0
M6PFDA		**103.3**	50.0	150.0
M7PFUnDA		**96.6**	50.0	150.0
M8FOSA		**93.9**	50.0	150.0
M8PFOA		**94.3**	50.0	150.0
M8PFOS		**94.1**	50.0	150.0
M9-PFNA		**107.4**	50.0	150.0
MPFBA		**95.1**	50.0	150.0
MPFDoDA		**99.7**	50.0	150.0
d3N-MeFOSAA		**110.9**	50.0	150.0
d5EtFOSAA		**103.7**	50.0	150.0
MHFPO-DA		**84.0**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43402.02

Sample Tag: SAN-08

Collected Date/Time: 12/13/2022 10:08

Matrix: Liquid

COC Reference: 154984

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230103, Run Date: 01/03/2023 20:14, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**124.8**	50.0	150.0
M2-6:2FTSA		**127.7**	50.0	150.0
M2-8:2FTSA		**121.9**	50.0	150.0
M2PFTeDA		**90.8**	12.0	218.0
M3PFBS		**98.2**	50.0	150.0
M3PFHxS		**92.0**	50.0	150.0
M4PFHpA		**113.8**	50.0	150.0
M5PFHxA		**86.0**	50.0	150.0
M5PFPeA		**98.0**	50.0	150.0
M6PFDA		**106.4**	50.0	150.0
M7PFUnDA		**93.7**	50.0	150.0
M8FOSA		**93.0**	50.0	150.0
M8PFOA		**97.9**	50.0	150.0
M8PFOS		**97.9**	50.0	150.0
M9-PFNA		**101.0**	50.0	150.0
MPFBA		**102.9**	50.0	150.0
MPFDoDA		**108.4**	50.0	150.0
d3N-MeFOSAA		**112.8**	50.0	150.0
d5EtFOSAA		**98.1**	50.0	150.0
MHFPO-DA		**90.5**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43402.03

Sample Tag: 11-07CO16

Collected Date/Time: 12/13/2022 10:26

Matrix: Liquid

COC Reference: 154984

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230103, Run Date: 01/03/2023 20:34, Matrix: WW, Dilution: 2.04

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**142.0**	50.0	150.0
M2-6:2FTSA		**118.6**	50.0	150.0
M2-8:2FTSA		**130.5**	50.0	150.0
M2PFTeDA		**96.5**	12.0	218.0
M3PFBS		**89.8**	50.0	150.0
M3PFHxS		**92.4**	50.0	150.0
M4PFHpA		**120.1**	50.0	150.0
M5PFHxA		**93.4**	50.0	150.0
M5PFPeA		**96.9**	50.0	150.0
M6PFDA		**106.2**	50.0	150.0
M7PFUnDA		**103.7**	50.0	150.0
M8FOSA		**94.4**	50.0	150.0
M8PFOA		**88.0**	50.0	150.0
M8PFOS		**98.6**	50.0	150.0
M9-PFNA		**105.7**	50.0	150.0
MPFBA		**104.1**	50.0	150.0
MPFDoDA		**110.4**	50.0	150.0
d3N-MeFOSAA		**104.6**	50.0	150.0
d5EtFOSAA		**102.4**	50.0	150.0
MHFPO-DA		**79.4**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43402.04

Sample Tag: SAN-2

Collected Date/Time: 12/13/2022 10:43

Matrix: Liquid

COC Reference: 154984

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230103, Run Date: 01/04/2023 11:22, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**112.3**	50.0	150.0
M2-6:2FTSA		**92.7**	50.0	150.0
M2-8:2FTSA		**92.5**	50.0	150.0
M2PFTeDA		**144.5**	12.0	218.0
M3PFBS		**85.1**	50.0	150.0
M3PFHxS		**84.1**	50.0	150.0
M4PFHpA		**91.3**	50.0	150.0
M5PFHxA		**91.5**	50.0	150.0
M5PFPeA		**86.0**	50.0	150.0
M6PFDA		**92.1**	50.0	150.0
M7PFUnDA		**100.6**	50.0	150.0
M8FOSA		**85.3**	50.0	150.0
M8PFOA		**81.4**	50.0	150.0
M8PFOS		**84.7**	50.0	150.0
M9-PFNA		**73.3**	50.0	150.0
MPFBA		**81.0**	50.0	150.0
MPFDoDA		**114.8**	50.0	150.0
d3N-MeFOSAA		**89.4**	50.0	150.0
d5EtFOSAA		**102.4**	50.0	150.0
MHFPO-DA		**86.5**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43402.05

Sample Tag: SAN-09

Collected Date/Time: 12/13/2022 11:05

Matrix: Liquid

COC Reference: 154984

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230103, Run Date: 01/04/2023 11:41, Matrix: WW, Dilution: 1.98

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**147.8**	50.0	150.0
M2-6:2FTSA		**95.6**	50.0	150.0
M2-8:2FTSA		**91.2**	50.0	150.0
M2PFTeDA		**133.6**	12.0	218.0
M3PFBS		**94.9**	50.0	150.0
M3PFHxS		**79.8**	50.0	150.0
M4PFHpA		**99.6**	50.0	150.0
M5PFHxA		**91.5**	50.0	150.0
M5PFPeA		**92.6**	50.0	150.0
M6PFDA		**98.7**	50.0	150.0
M7PFUnDA		**114.1**	50.0	150.0
M8FOSA		**95.4**	50.0	150.0
M8PFOA		**90.7**	50.0	150.0
M8PFOS		**97.5**	50.0	150.0
M9-PFNA		**87.2**	50.0	150.0
MPFBA		**86.2**	50.0	150.0
MPFDoDA		**115.3**	50.0	150.0
d3N-MeFOSAA		**87.0**	50.0	150.0
d5EtFOSAA		**94.4**	50.0	150.0
MHFPO-DA		**82.8**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230103W1

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

Blank (BLK)

Lab Sample ID: AK230103.BLK230103

Run in Batch: AK230103, Run Date: 01/03/2023 16:59, Prep Date: 01/03/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**117.4**	50.0	150.0
M2-6:2FTSA		**120.5**	50.0	150.0
M2-8:2FTSA		**129.3**	50.0	150.0
M2PFTeDA		**95.2**	12.0	218.0
M3PFBS		**93.2**	50.0	150.0
M3PFHxS		**92.7**	50.0	150.0
M4PFHpA		**101.2**	50.0	150.0
M5PFHxA		**92.5**	50.0	150.0
M5PFPeA		**95.5**	50.0	150.0
M6PFDA		**102.8**	50.0	150.0
M7PFUnDA		**97.1**	50.0	150.0
M8FOSA		**95.2**	50.0	150.0
M8PFOA		**93.7**	50.0	150.0
M8PFOS		**101.1**	50.0	150.0
M9-PFNA		**108.1**	50.0	150.0
MPFBA		**96.0**	50.0	150.0
MPFDoDA		**98.1**	50.0	150.0
d3N-MeFOSAA		**102.1**	50.0	150.0
d5EtFOSAA		**95.0**	50.0	150.0
MHFPO-DA		**97.4**	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample (LCS)

Lab Sample ID: AK230103.LCS230103

Run in Batch: AK230103, Run Date: 01/03/2023 16:20, Prep Date: 01/03/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**118.7**	50.0	150.0
M2-6:2FTSA		**116.8**	50.0	150.0
M2-8:2FTSA		**118.0**	50.0	150.0
M2PFTeDA		**116.1**	12.0	218.0
M3PFBS		**96.7**	50.0	150.0
M3PFHxS		**97.6**	50.0	150.0
M4PFHpA		**106.1**	50.0	150.0
M5PFHxA		**96.7**	50.0	150.0
M5PFPeA		**91.5**	50.0	150.0
M6PFDA		**100.4**	50.0	150.0
M7PFUnDA		**89.0**	50.0	150.0
M8FOSA		**101.7**	50.0	150.0
M8PFOA		**95.9**	50.0	150.0
M8PFOS		**100.8**	50.0	150.0
M9-PFNA		**99.3**	50.0	150.0
MPFBA		**93.9**	50.0	150.0
MPFDoDA		**106.0**	50.0	150.0
d3N-MeFOSAA		**110.0**	50.0	150.0
d5EtFOSAA		**105.4**	50.0	150.0
MHFPO-DA		**97.8**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230103.LCSD230103, Parent Sample ID: AK230103.LCS230103

Run in Batch: AK230103, Run Date: 01/03/2023 16:39, Prep Date: 01/03/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**106.9**	50.0	150.0
M2-6:2FTSA		**109.9**	50.0	150.0
M2-8:2FTSA		**117.3**	50.0	150.0
M2PFTeDA		**108.2**	12.0	218.0
M3PFBS		**93.8**	50.0	150.0
M3PFHxS		**93.5**	50.0	150.0
M4PFHpA		**97.7**	50.0	150.0
M5PFHxA		**88.8**	50.0	150.0
M5PFPeA		**95.4**	50.0	150.0
M6PFDA		**108.8**	50.0	150.0
M7PFUnDA		**83.3**	50.0	150.0
M8FOSA		**99.1**	50.0	150.0
M8PFOA		**90.5**	50.0	150.0
M8PFOS		**98.8**	50.0	150.0
M9-PFNA		**98.1**	50.0	150.0
MPFBA		**91.9**	50.0	150.0
MPFDoDA		**101.0**	50.0	150.0
d3N-MeFOSAA		**97.3**	50.0	150.0
d5EtFOSAA		**96.0**	50.0	150.0
MHFPO-DA		**95.4**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK230103.4338701M, Parent Sample ID: S43387.01

Run in Batch: AK230103, Run Date: 01/03/2023 17:58, Prep Date: 01/03/2023, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**118.9**	50.0	150.0
M2-6:2FTSA		**116.9**	50.0	150.0
M2-8:2FTSA		**130.7**	50.0	150.0
M2PFTeDA		**76.9**	12.0	218.0
M3PFBS		**96.0**	50.0	150.0
M3PFHxS		**96.7**	50.0	150.0
M4PFHpA		**108.4**	50.0	150.0
M5PFHxA		**95.3**	50.0	150.0
M5PFPeA		**98.6**	50.0	150.0
M6PFDA		**98.0**	50.0	150.0
M7PFUnDA		**91.0**	50.0	150.0
M8FOSA		**89.2**	50.0	150.0
M8PFOA		**92.3**	50.0	150.0
M8PFOS		**101.1**	50.0	150.0
M9-PFNA		**109.6**	50.0	150.0
MPFBA		**98.9**	50.0	150.0
MPFDoDA		**91.5**	50.0	150.0
d3N-MeFOSAA		**104.0**	50.0	150.0
d5EtFOSAA		**93.9**	50.0	150.0
MHFPO-DA		**92.1**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK230103.4338702D, Parent Sample ID: S43387.02

Run in Batch: AK230103, Run Date: 01/03/2023 18:37, Prep Date: 01/03/2023, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**107.1**	50.0	150.0
M2-6:2FTSA		**110.7**	50.0	150.0
M2-8:2FTSA		**127.7**	50.0	150.0
M2PFTeDA		**80.9**	12.0	218.0
M3PFBS		**91.5**	50.0	150.0
M3PFHxS		**85.2**	50.0	150.0
M4PFHpA		**98.0**	50.0	150.0
M5PFHxA		**91.9**	50.0	150.0
M5PFPeA		**94.6**	50.0	150.0
M6PFDA		**101.9**	50.0	150.0
M7PFUnDA		**87.7**	50.0	150.0
M8FOSA		**92.6**	50.0	150.0
M8PFOA		**87.7**	50.0	150.0
M8PFOS		**97.5**	50.0	150.0
M9-PFNA		**98.3**	50.0	150.0
MPFBA		**97.7**	50.0	150.0
MPFDoDA		**88.5**	50.0	150.0
d3N-MeFOSAA		**102.3**	50.0	150.0
d5EtFOSAA		**105.5**	50.0	150.0
MHFPO-DA		**89.8**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230103W1

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

Blank (BLK)

Lab Sample ID: AK230103.BLK230103

Run in Batch: AK230103, Run Date: 01/03/2023 16:59, Prep Date: 01/03/2023, Matrix: WW, Dilution: 1

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

Organics - Volatiles, Prep Batch ID: PF230103W1 (continued)

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

Laboratory Control Sample (LCS)

Lab Sample ID: AK230103.LCS230103

Run in Batch: AK230103, Run Date: 01/03/2023 16:20, Prep Date: 01/03/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		102.8	70.0	130.0
PFMPA		108.6	70.0	130.0
FPrPA (3:3 FTCA)		96.8	70.0	130.0
PFPrS		102.6	70.0	130.0
PFPeA		106.8	70.0	130.0
PFMBA		110.2	70.0	130.0
4:2 FTSA		116.2	70.0	130.0
NFDHA		101.8	70.0	130.0
PFHxA		95.4	70.0	130.0
PFBS		98.2	70.0	130.0
HFPO-DA		88.8	70.0	130.0
FPePA (5:3 FTCA)		81.0	70.0	130.0
PFEESA		97.6	70.0	130.0
PFHpA		111.0	70.0	130.0
PFPeS		100.0	70.0	130.0
ADONA		98.2	70.0	130.0
6:2 FTSA		90.8	70.0	130.0
PFBSA		77.6	70.0	130.0
PFOA		105.6	70.0	130.0
PFHxS		101.2	70.0	130.0
FHpPA (7:3 FTCA)		99.2	70.0	130.0
PFNA		101.0	70.0	130.0
8:2 FTSA	*	132.8	70.0	130.0
PFECHS		84.6	70.0	130.0
PFHpS		102.2	70.0	130.0
N-MeFOSAA		97.0	70.0	130.0
PFDA		112.2	70.0	130.0
PFOS		107.2	70.0	130.0
EtFOSAA		105.8	70.0	130.0
PFHxSA		78.6	70.0	130.0
PFUnDA		100.8	70.0	130.0
9CL-PF3ONS		103.6	70.0	130.0
PFNS		101.4	70.0	130.0
PFDoDA		106.2	70.0	130.0
PFDS		109.2	70.0	130.0
PFTrDA		100.4	70.0	130.0
FOSA		93.6	70.0	130.0
11CL-PF3OUdS		87.0	70.0	130.0
PFTeDA		99.6	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230103.LCSD230103, Parent Sample ID: AK230103.LCS230103

Run in Batch: AK230103, Run Date: 01/03/2023 16:39, Prep Date: 01/03/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		106.4	70.0	130.0	3.4	30.0
PFMPA		111.8	70.0	130.0	2.9	30.0

Organics - Volatiles, Prep Batch ID: PF230103W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK230103.LCSD230103, Parent Sample ID: AK230103.LCS230103

Run in Batch: AK230103, Run Date: 01/03/2023 16:39, Prep Date: 01/03/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
FPrPA (3:3 FTCA)		95.4	70.0	130.0	1.5	30.0
PFPrS		102.0	70.0	130.0	0.6	30.0
PFPeA		101.2	70.0	130.0	5.4	30.0
PFMBA		111.2	70.0	130.0	0.9	30.0
4:2 FTSA		123.8	70.0	130.0	6.3	30.0
NFDHA		101.8	70.0	130.0	0.0	30.0
PFHxA		117.0	70.0	130.0	20.3	30.0
PFBS		105.2	70.0	130.0	6.9	30.0
HFPO-DA		89.6	70.0	130.0	0.9	30.0
FPePA (5:3 FTCA)		105.2	70.0	130.0	26.0	30.0
PFEESA		105.8	70.0	130.0	8.1	30.0
PFHpA		121.2	70.0	130.0	8.8	30.0
PFPeS		106.6	70.0	130.0	6.4	30.0
ADONA		95.6	70.0	130.0	2.7	30.0
6:2 FTSA		110.2	70.0	130.0	19.3	30.0
PFBSA		84.4	70.0	130.0	8.4	30.0
PFOA		111.8	70.0	130.0	5.7	30.0
PFHxS		110.0	70.0	130.0	8.3	30.0
FHpPA (7:3 FTCA)		96.4	70.0	130.0	2.9	30.0
PFNA		119.4	70.0	130.0	16.7	30.0
8:2 FTSA		113.0	70.0	130.0	16.1	30.0
PFECHS		87.8	70.0	130.0	3.7	30.0
PFHpS		110.2	70.0	130.0	7.5	30.0
N-MeFOSAA		120.4	70.0	130.0	21.5	30.0
PFDA		99.4	70.0	130.0	12.1	30.0
PFOS		101.6	70.0	130.0	5.4	30.0
EtFOSAA		108.6	70.0	130.0	2.6	30.0
PFHxSA		82.4	70.0	130.0	4.7	30.0
PFUnDA		120.6	70.0	130.0	17.9	30.0
9CL-PF3ONS		105.6	70.0	130.0	1.9	30.0
PFNS		108.0	70.0	130.0	6.3	30.0
PFDoDA		101.4	70.0	130.0	4.6	30.0
PFDS		115.6	70.0	130.0	5.7	30.0
PFTrDA		98.8	70.0	130.0	1.6	30.0
FOSA		100.4	70.0	130.0	7.0	30.0
11CL-PF3OUdS		108.0	70.0	130.0	21.5	30.0
PFTeDA		94.2	70.0	130.0	5.6	30.0

Matrix Spike (MS)

Lab Sample ID: AK230103.4338701M, Parent Sample ID: S43387.01

Run in Batch: AK230103, Run Date: 01/03/2023 17:58, Prep Date: 01/03/2023, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
PFBA		100.0	70.0	130.0
PFPeA		100.0	70.0	130.0
4:2 FTSA		110.0	70.0	130.0
PFHxA		95.3	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF230103W1 (continued)

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

Matrix Spike (MS) (continued)

Lab Sample ID: AK230103.4338701M, Parent Sample ID: S43387.01

Run in Batch: AK230103, Run Date: 01/03/2023 17:58, Prep Date: 01/03/2023, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
PFBS		103.8	70.0	130.0
PFHpA		107.7	70.0	130.0
PFPeS		100.0	70.0	130.0
6:2 FTSA		110.0	70.0	130.0
PFOA		114.4	70.0	130.0
PFHxS		99.0	70.0	130.0
PFNA		110.0	70.0	130.0
8:2 FTSA		100.0	70.0	130.0
PFHpS		110.0	70.0	130.0
PFDA		110.0	70.0	130.0
N-MeFOSAA		110.0	70.0	130.0
EtFOSAA		110.0	70.0	130.0
PFOS		106.9	70.0	130.0
PFUnDA		98.0	70.0	130.0
PFNS		100.0	70.0	130.0
PFDoDA		110.0	70.0	130.0
PFDS		110.0	70.0	130.0
PFTrDA		92.0	70.0	130.0
FOSA		110.0	70.0	130.0
PFTeDA		99.0	70.0	130.0
11CL-PF3OUdS		96.0	70.0	130.0
9CL-PF3ONS		100.0	70.0	130.0
ADONA		98.0	70.0	130.0
HFPO-DA		110.0	70.0	130.0
PFECHS		100.0	70.0	130.0
PFBSA		94.0	70.0	130.0
PFHxSA		94.0	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK230103.4338702D, Parent Sample ID: S43387.02

Run in Batch: AK230103, Run Date: 01/03/2023 18:37, Prep Date: 01/03/2023, Matrix: WW, Dilution: 1.99

Analyte	Flags	RPD	RPD CL
PFBA		5.7	30.0
PFPeA		5.3	30.0
4:2 FTSA		NC	30.0
PFHxA		0.0	30.0
PFBS		1.4	30.0
PFHpA		9.1	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		2.5	30.0
PFHxS		24.0	30.0
PFHxS-LN		17.6	30.0
PFHxS-BR	*	200.0	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF230103W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK230103.4338702D, Parent Sample ID: S43387.02

Run in Batch: AK230103, Run Date: 01/03/2023 18:37, Prep Date: 01/03/2023, Matrix: WW, Dilution: 1.99

Analyte	Flags	RPD	RPD CL
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		NC	30.0
PFOS-LN		NC	30.0
PFOS-BR		NC	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTrDA		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
PFECHS		NC	30.0
PFBSA		NC	30.0
PFHxSA		NC	30.0

Merit Laboratories, Inc.
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 154984

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 2090 Commonwealth Blvd.
CITY: Ann Arbor | STATE: MI | ZIP CODE: 48105
PHONE NO.: 313-333-0211 | CELL NO.: | P.O. NO.: 1940021628 Task
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com Kevin.Schneider@Ramboll.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: | ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (7979)	Special Instructions
43402.01	12/13/22	1000	Field Blank - 121322	L	3	X							X	Low Level Reporting with estimated values
.02		1008	SAN-08	L	3	X							X	
.03		1026	11-07C016	L	3	X							X	
.04		1043	SAN-2	L	3	X							X	
.05	↓	1105	SAN-09	L	3	X							X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 12/13/22	TIME 1215	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/13/22	TIME 1215	
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 12/13/22	TIME 1620	
RECEIVED BY: SIGNATURE/ORGANIZATION M Chilcott		DATE 12/13/22	TIME 1620	

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME	

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 4.8

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

Rev. 1.26.22

Sample Event
April 6, 2023

Analytical Laboratory Report

Report ID: S47143.01(01)
Generated on 05/03/2023

Report to

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

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

Addtional 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 Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S47143.01-S47143.05
Project: RACER Coldwater Road
Collected Date(s): 04/06/2023
Submitted Date/Time: 04/06/2023 14:10
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 36

Table of Contents

Maya Murshak
Technical Director

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.

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

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
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

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
PFTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafluoro-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

Analytical Laboratory Report

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S47143.01	SAN-08	Liquid	04/06/23 10:25
S47143.02	11-07C016	Liquid	04/06/23 10:45
S47143.03	SAN-2	Liquid	04/06/23 11:00
S47143.04	SAN-09	Liquid	04/06/23 11:18
S47143.05	Field Blank-040623	Liquid	04/06/23 12:20

Analytical Laboratory Report

Lab Sample ID: S47143.01
Sample Tag: SAN-08
Collected Date/Time: 04/06/2023 10:25
Matrix: Liquid
COC Reference: 153083

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.02/6.49/11	ASTMD7979-19M	04/18/23 15:00	AB	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/19/23 17:56, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10.0	1.6	ng/L	1.99	375-22-4	
PFPeA*	2.0	4.0	0.80	ng/L	1.99	2706-90-3	J
4:2 FTSA*	Not detected	2.0	0.80	ng/L	1.99	757124-72-4	
PFHxA*	2.0	2.0	0.40	ng/L	1.99	307-24-4	J
PFBS*	6.5	2.0	0.80	ng/L	1.99	375-73-5	
PFHpA*	1.3	2.0	1.00	ng/L	1.99	375-85-9	J
PFPeS*	Not detected	2.0	0.80	ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	2.0	1.2	ng/L	1.99	27619-97-2	
PFOA*	2.2	2.0	1.6	ng/L	1.99	335-67-1	
PFHxS*	3.4	2.0	1.2	ng/L	1.99	355-46-4	
PFHxS-LN*	2.8	2.0	1.2	ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.2	ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0	0.80	ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0	1.00	ng/L	1.99	39108-34-4	
PFHpS*	Not detected	2.0	1.2	ng/L	1.99	375-92-8	
PFDA*	Not detected	2.0	0.60	ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0	1.4	ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.99	2991-50-6	
PFOS*	7.6	2.0	1.2	ng/L	1.99	1763-23-1	
PFOS-LN*	2.0	2.0	1.2	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	6.0	2.0	1.2	ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.00	ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0	1.00	ng/L	1.99	68259-12-1	
PFDoDA*	Not detected	2.0	0.60	ng/L	1.99	307-55-1	
PFDS*	Not detected	2.0	1.2	ng/L	1.99	335-77-3	
PFTrDA*	Not detected	2.0	1.00	ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0	0.80	ng/L	1.99	754-91-6	
PFTeDA*	Not detected	4.0	0.40	ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	0.80	ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	0.80	ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0	1.00	ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	1.99	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S47143.02
Sample Tag: 11-07C016
Collected Date/Time: 04/06/2023 10:45
Matrix: Liquid
COC Reference: 153083

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.95/6.46/11	ASTMD7979-19M	04/18/23 15:00	AB	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/19/23 18:35, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	1.6	ng/L	2	375-22-4	
PFPeA*	1.5	4.0	0.80	ng/L	2	2706-90-3	J
4:2 FTSA*	Not detected	2.0	0.80	ng/L	2	757124-72-4	
PFHxA*	1.3	2.0	0.40	ng/L	2	307-24-4	J
PFBS*	6.6	2.0	0.80	ng/L	2	375-73-5	
PFHpA*	1.2	2.0	1.0	ng/L	2	375-85-9	J
PFPeS*	1.0	2.0	0.80	ng/L	2	2706-91-4	J
6:2 FTSA*	Not detected	2.0	1.2	ng/L	2	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2	335-67-1	
PFHxS*	2.5	2.0	1.2	ng/L	2	355-46-4	
PFHxS-LN*	2.1	2.0	1.2	ng/L	2	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.2	ng/L	2	355-46-4-BR	
PFNA*	1.0	2.0	0.80	ng/L	2	375-95-1	J
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2	39108-34-4	
PFHpS*	Not detected	2.0	1.2	ng/L	2	375-92-8	
PFDA*	Not detected	2.0	0.60	ng/L	2	335-76-2	
N-MeFOSAA*	Not detected	2.0	1.4	ng/L	2	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2	2991-50-6	
PFOS*	27	2.0	1.2	ng/L	2	1763-23-1	
PFOS-LN*	12	2.0	1.2	ng/L	2	1763-23-1-LN	
PFOS-BR*	13	2.0	1.2	ng/L	2	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.0	ng/L	2	2058-94-8	
PFNS*	Not detected	2.0	1.0	ng/L	2	68259-12-1	
PFDoDA*	Not detected	2.0	0.60	ng/L	2	307-55-1	
PFDS*	Not detected	2.0	1.2	ng/L	2	335-77-3	
PFTrDA*	Not detected	2.0	1.0	ng/L	2	72629-94-8	
FOSA*	Not detected	2.0	0.80	ng/L	2	754-91-6	
PFTeDA*	Not detected	4.0	0.40	ng/L	2	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	0.80	ng/L	2	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	0.80	ng/L	2	756426-58-1	
ADONA*	Not detected	2.0	1.0	ng/L	2	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	2	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S47143.03
Sample Tag: SAN-2
Collected Date/Time: 04/06/2023 11:00
Matrix: Liquid
COC Reference: 153083

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.22/6.51/11	ASTMD7979-19M	04/18/23 15:00	AB	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/19/23 18:55, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.7	1.5	ng/L	1.93	375-22-4	
PFPeA*	1.3	3.9	0.77	ng/L	1.93	2706-90-3	J
4:2 FTSA*	Not detected	1.9	0.77	ng/L	1.93	757124-72-4	
PFHxA*	1.2	1.9	0.39	ng/L	1.93	307-24-4	J
PFBS*	7.1	1.9	0.77	ng/L	1.93	375-73-5	
PFHpA*	1.1	1.9	0.97	ng/L	1.93	375-85-9	J
PFPeS*	1.0	1.9	0.77	ng/L	1.93	2706-91-4	J
6:2 FTSA*	Not detected	1.9	1.2	ng/L	1.93	27619-97-2	
PFOA*	Not detected	1.9	1.5	ng/L	1.93	335-67-1	
PFHxS*	2.1	1.9	1.2	ng/L	1.93	355-46-4	
PFHxS-LN*	1.7	1.9	1.2	ng/L	1.93	355-46-4-LN	J
PFHxS-BR*	Not detected	1.9	1.2	ng/L	1.93	355-46-4-BR	
PFNA*	Not detected	1.9	0.77	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	1.2	ng/L	1.93	375-92-8	
PFDA*	Not detected	1.9	0.58	ng/L	1.93	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.4	ng/L	1.93	2355-31-9	
EtFOSAA*	Not detected	3.9	1.9	ng/L	1.93	2991-50-6	
PFOS*	9.8	1.9	1.2	ng/L	1.93	1763-23-1	
PFOS-LN*	2.8	1.9	1.2	ng/L	1.93	1763-23-1-LN	
PFOS-BR*	7.2	1.9	1.2	ng/L	1.93	1763-23-1-BR	
PFUnDA*	Not detected	1.9	0.97	ng/L	1.93	2058-94-8	
PFNS*	Not detected	1.9	0.97	ng/L	1.93	68259-12-1	
PFDoDA*	Not detected	1.9	0.58	ng/L	1.93	307-55-1	
PFDS*	Not detected	1.9	1.2	ng/L	1.93	335-77-3	
PFTrDA*	Not detected	1.9	0.97	ng/L	1.93	72629-94-8	
FOSA*	Not detected	1.9	0.77	ng/L	1.93	754-91-6	
PFTeDA*	Not detected	3.9	0.39	ng/L	1.93	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	0.77	ng/L	1.93	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	0.77	ng/L	1.93	756426-58-1	
ADONA*	Not detected	1.9	0.97	ng/L	1.93	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.93	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S47143.04
Sample Tag: SAN-09
Collected Date/Time: 04/06/2023 11:18
Matrix: Liquid
COC Reference: 153083

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.25/6.52/11	ASTMD7979-19M	04/18/23 15:00	AB	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/19/23 19:14, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.6	1.5	ng/L	1.92	375-22-4	
PFPeA*	1.00	3.8	0.77	ng/L	1.92	2706-90-3	J
4:2 FTSA*	Not detected	1.9	0.77	ng/L	1.92	757124-72-4	
PFHxA*	1.6	1.9	0.38	ng/L	1.92	307-24-4	J
PFBS*	12	1.9	0.77	ng/L	1.92	375-73-5	
PFHpA*	1.2	1.9	0.96	ng/L	1.92	375-85-9	J
PFPeS*	Not detected	1.9	0.77	ng/L	1.92	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.2	ng/L	1.92	27619-97-2	
PFOA*	Not detected	1.9	1.5	ng/L	1.92	335-67-1	
PFHxS*	1.3	1.9	1.2	ng/L	1.92	355-46-4	J
PFHxS-LN*	Not detected	1.9	1.2	ng/L	1.92	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.2	ng/L	1.92	355-46-4-BR	
PFNA*	Not detected	1.9	0.77	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	1.2	ng/L	1.92	375-92-8	
PFDA*	Not detected	1.9	0.58	ng/L	1.92	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.3	ng/L	1.92	2355-31-9	
EtFOSAA*	Not detected	3.8	1.9	ng/L	1.92	2991-50-6	
PFOS*	3.0	1.9	1.2	ng/L	1.92	1763-23-1	
PFOS-LN*	Not detected	1.9	1.2	ng/L	1.92	1763-23-1-LN	
PFOS-BR*	2.3	1.9	1.2	ng/L	1.92	1763-23-1-BR	
PFUnDA*	Not detected	1.9	0.96	ng/L	1.92	2058-94-8	
PFNS*	Not detected	1.9	0.96	ng/L	1.92	68259-12-1	
PFDoDA*	Not detected	1.9	0.58	ng/L	1.92	307-55-1	
PFDS*	Not detected	1.9	1.2	ng/L	1.92	335-77-3	
PFTrDA*	Not detected	1.9	0.96	ng/L	1.92	72629-94-8	
FOSA*	Not detected	1.9	0.77	ng/L	1.92	754-91-6	
PFTeDA*	Not detected	3.8	0.38	ng/L	1.92	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	0.77	ng/L	1.92	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	0.77	ng/L	1.92	756426-58-1	
ADONA*	Not detected	1.9	0.96	ng/L	1.92	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.92	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S47143.05
Sample Tag: Field Blank-040623
Collected Date/Time: 04/06/2023 12:20
Matrix: Liquid
COC Reference: 153083

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.99/6.48/13	ASTMD7979-19M	04/18/23 15:00	AB	

Organics

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

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	1.6	ng/L	2	375-22-4	
PFPeA*	Not detected	4.0	0.80	ng/L	2	2706-90-3	
4:2 FTSA*	Not detected	2.0	0.80	ng/L	2	757124-72-4	
PFHxA*	Not detected	2.0	0.40	ng/L	2	307-24-4	
PFBS*	Not detected	2.0	0.80	ng/L	2	375-73-5	
PFHpA*	Not detected	2.0	1.0	ng/L	2	375-85-9	
PFPeS*	Not detected	2.0	0.80	ng/L	2	2706-91-4	
6:2 FTSA*	Not detected	2.0	1.2	ng/L	2	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2	335-67-1	
PFHxS*	Not detected	2.0	1.2	ng/L	2	355-46-4	
PFHxS-LN*	Not detected	2.0	1.2	ng/L	2	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.2	ng/L	2	355-46-4-BR	
PFNA*	Not detected	2.0	0.80	ng/L	2	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2	39108-34-4	
PFHpS*	Not detected	2.0	1.2	ng/L	2	375-92-8	
PFDA*	Not detected	2.0	0.60	ng/L	2	335-76-2	
N-MeFOSAA*	Not detected	2.0	1.4	ng/L	2	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2	2991-50-6	
PFOS*	Not detected	2.0	1.2	ng/L	2	1763-23-1	
PFOS-LN*	Not detected	2.0	1.2	ng/L	2	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	1.2	ng/L	2	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.0	ng/L	2	2058-94-8	
PFNS*	Not detected	2.0	1.0	ng/L	2	68259-12-1	
PFDoDA*	Not detected	2.0	0.60	ng/L	2	307-55-1	
PFDS*	Not detected	2.0	1.2	ng/L	2	335-77-3	
PFTrDA*	Not detected	2.0	1.0	ng/L	2	72629-94-8	
FOSA*	Not detected	2.0	0.80	ng/L	2	754-91-6	
PFTeDA*	Not detected	4.0	0.40	ng/L	2	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	0.80	ng/L	2	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	0.80	ng/L	2	756426-58-1	
ADONA*	Not detected	2.0	1.0	ng/L	2	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	2	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID: S47143
Client: RAMBOLL (Ramboll Americas - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 04/06/2023 14:10 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.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.8
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] 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: _____

Merit Laboratories, Inc.

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 — 153083

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Kenn Schneider | Clifford Yantz
COMPANY: Ramboll
ADDRESS: 2090 Commonwealth Blvd
CITY: Ann Arbor | STATE: MI | ZIP CODE: 48105
PHONE NO.: 313 333 0211 | CELL NO.: | P.O. NO.: 1940006516 Task 36
E-MAIL ADDRESS: clifford.yantz@ramboll.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: | X SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kenn Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (537)
471430.01	4/4/23	1025	SAN-08	L	3	X							X
.02		1045	11-07C016	L	3	X							X
.03		1100	SAN-2	L	3	X							X
.04		1118	SAN-09	L	3	X							X
.05		1220	Field Blank-040623	L	1	X							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler	DATE 4/4/23	TIME 1250
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 4/5/23	TIME 12:10
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 4/5/23	TIME 14:10
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 4/6/23	TIME 1410

RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS
SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS

NOTES: TEMP. ON ARRIVAL 4.8

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

Rev. 1.26.2

Quality Control Report

Report ID: QC-S47143-01
Generated on 05/03/2023

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): S47143.01-S47143.05
Project: RACER Coldwater Road
Submitted Date/Time: 04/06/2023 14:10
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 36

QC Report Sections

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: S47143.01
Sample Tag: SAN-08
Collected Date/Time: 04/06/2023 10:25
Matrix: Liquid
COC Reference: 153083

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/19/23 17:56	SE230419	PF230418W3	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S47143.02
Sample Tag: 11-07C016
Collected Date/Time: 04/06/2023 10:45
Matrix: Liquid
COC Reference: 153083

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/19/23 18:35	SE230419	PF230418W3	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S47143.03
Sample Tag: SAN-2
Collected Date/Time: 04/06/2023 11:00
Matrix: Liquid
COC Reference: 153083

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/19/23 18:55	SE230419	PF230418W3	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S47143.04
Sample Tag: SAN-09
Collected Date/Time: 04/06/2023 11:18
Matrix: Liquid
COC Reference: 153083

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/19/23 19:14	SE230419	PF230418W3	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S47143.05
Sample Tag: Field Blank-040623
Collected Date/Time: 04/06/2023 12:20
Matrix: Liquid
COC Reference: 153083

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/19/23 19:34	SE230419	PF230418W3	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF230418W3

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S47143.01	28 PFAs	ASTMD7979-19M	04/19/23 17:56	SE230419
S47143.02	28 PFAs	ASTMD7979-19M	04/19/23 18:35	SE230419
S47143.03	28 PFAs	ASTMD7979-19M	04/19/23 18:55	SE230419
S47143.04	28 PFAs	ASTMD7979-19M	04/19/23 19:14	SE230419
S47143.05	28 PFAs	ASTMD7979-19M	04/19/23 19:34	SE230419

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S47143.01

Sample Tag: SAN-08

Collected Date/Time: 04/06/2023 10:25

Matrix: Liquid

COC Reference: 153083

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: SE230419, Run Date: 04/19/2023 17:56, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**95.9**	50.0	150.0
M2-6:2FTSA		**93.5**	50.0	150.0
M2-8:2FTSA		**101.7**	50.0	150.0
M2PFTeDA		**114.0**	12.0	218.0
M3PFBS		**100.0**	50.0	150.0
M3PFHxS		**99.8**	50.0	150.0
M4PFHpA		**97.8**	50.0	150.0
M5PFHxA		**103.1**	50.0	150.0
M5PFPeA		**105.7**	50.0	150.0
M6PFDA		**106.4**	50.0	150.0
M7PFUnDA		**107.2**	50.0	150.0
M8FOSA		**99.4**	50.0	150.0
M8PFOA		**97.2**	50.0	150.0
M8PFOS		**100.3**	50.0	150.0
M9-PFNA		**96.6**	50.0	150.0
MPFBA		**111.9**	50.0	150.0
MPFDoDA		**108.5**	50.0	150.0
d3N-MeFOSAA		**90.9**	50.0	150.0
d5EtFOSAA		**93.6**	50.0	150.0
MHFPO-DA		**104.8**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S47143.02

Sample Tag: 11-07C016

Collected Date/Time: 04/06/2023 10:45

Matrix: Liquid

COC Reference: 153083

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: SE230419, Run Date: 04/19/2023 18:35, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**96.4**	50.0	150.0
M2-6:2FTSA		**90.0**	50.0	150.0
M2-8:2FTSA		**104.1**	50.0	150.0
M2PFTeDA		**107.7**	12.0	218.0
M3PFBS		**107.2**	50.0	150.0
M3PFHxS		**103.4**	50.0	150.0
M4PFHpA		**99.4**	50.0	150.0
M5PFHxA		**110.9**	50.0	150.0
M5PFPeA		**110.5**	50.0	150.0
M6PFDA		**111.7**	50.0	150.0
M7PFUnDA		**111.3**	50.0	150.0
M8FOSA		**105.1**	50.0	150.0
M8PFOA		**104.9**	50.0	150.0
M8PFOS		**105.9**	50.0	150.0
M9-PFNA		**98.1**	50.0	150.0
MPFBA		**118.7**	50.0	150.0
MPFDoDA		**109.5**	50.0	150.0
d3N-MeFOSAA		**96.3**	50.0	150.0
d5EtFOSAA		**96.1**	50.0	150.0
MHFPO-DA		**111.1**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S47143.03

Sample Tag: SAN-2

Collected Date/Time: 04/06/2023 11:00

Matrix: Liquid

COC Reference: 153083

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: SE230419, Run Date: 04/19/2023 18:55, Matrix: WW, Dilution: 1.93

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**81.9**	50.0	150.0
M2-6:2FTSA		**87.3**	50.0	150.0
M2-8:2FTSA		**92.3**	50.0	150.0
M2PFTeDA		**105.7**	12.0	218.0
M3PFBS		**96.6**	50.0	150.0
M3PFHxS		**94.1**	50.0	150.0
M4PFHpA		**97.0**	50.0	150.0
M5PFHxA		**97.0**	50.0	150.0
M5PFPeA		**98.9**	50.0	150.0
M6PFDA		**105.8**	50.0	150.0
M7PFUnDA		**103.4**	50.0	150.0
M8FOSA		**96.9**	50.0	150.0
M8PFOA		**95.1**	50.0	150.0
M8PFOS		**96.1**	50.0	150.0
M9-PFNA		**92.9**	50.0	150.0
MPFBA		**103.0**	50.0	150.0
MPFDoDA		**104.2**	50.0	150.0
d3N-MeFOSAA		**95.0**	50.0	150.0
d5EtFOSAA		**87.9**	50.0	150.0
MHFPO-DA		**105.3**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S47143.04

Sample Tag: SAN-09

Collected Date/Time: 04/06/2023 11:18

Matrix: Liquid

COC Reference: 153083

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: SE230419, Run Date: 04/19/2023 19:14, Matrix: WW, Dilution: 1.92

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**90.9**	50.0	150.0
M2-6:2FTSA		**81.8**	50.0	150.0
M2-8:2FTSA		**100.6**	50.0	150.0
M2PFTeDA		**104.4**	12.0	218.0
M3PFBS		**99.3**	50.0	150.0
M3PFHxS		**101.4**	50.0	150.0
M4PFHpA		**94.3**	50.0	150.0
M5PFHxA		**101.2**	50.0	150.0
M5PFPeA		**105.3**	50.0	150.0
M6PFDA		**106.0**	50.0	150.0
M7PFUnDA		**104.4**	50.0	150.0
M8FOSA		**102.7**	50.0	150.0
M8PFOA		**95.9**	50.0	150.0
M8PFOS		**102.9**	50.0	150.0
M9-PFNA		**99.9**	50.0	150.0
MPFBA		**111.5**	50.0	150.0
MPFDoDA		**107.8**	50.0	150.0
d3N-MeFOSAA		**92.5**	50.0	150.0
d5EtFOSAA		**95.4**	50.0	150.0
MHFPO-DA		**104.0**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S47143.05

Sample Tag: Field Blank-040623

Collected Date/Time: 04/06/2023 12:20

Matrix: Liquid

COC Reference: 153083

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: SE230419, Run Date: 04/19/2023 19:34, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**110.1**	50.0	150.0
M2-6:2FTSA		**107.6**	50.0	150.0
M2-8:2FTSA		**111.3**	50.0	150.0
M2PFTeDA		**108.5**	12.0	218.0
M3PFBS		**111.0**	50.0	150.0
M3PFHxS		**110.2**	50.0	150.0
M4PFHpA		**103.6**	50.0	150.0
M5PFHxA		**109.1**	50.0	150.0
M5PFPeA		**112.3**	50.0	150.0
M6PFDA		**113.3**	50.0	150.0
M7PFUnDA		**110.8**	50.0	150.0
M8FOSA		**111.5**	50.0	150.0
M8PFOA		**107.2**	50.0	150.0
M8PFOS		**112.6**	50.0	150.0
M9-PFNA		**110.7**	50.0	150.0
MPFBA		**110.9**	50.0	150.0
MPFDoDA		**118.9**	50.0	150.0
d3N-MeFOSAA		**107.1**	50.0	150.0
d5EtFOSAA		**110.0**	50.0	150.0
MHFPO-DA		**111.4**	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF230418W3

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

Blank (BLK)

Lab Sample ID: SE230419.BLK230418W

Run in Batch: SE230419, Run Date: 04/19/2023 17:17, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**108.8**	50.0	150.0
M2-6:2FTSA		**97.3**	50.0	150.0
M2-8:2FTSA		**112.0**	50.0	150.0
M2PFTeDA		**123.3**	12.0	218.0
M3PFBS		**106.3**	50.0	150.0
M3PFHxS		**104.3**	50.0	150.0
M4PFHpA		**101.9**	50.0	150.0
M5PFHxA		**104.3**	50.0	150.0
M5PFPeA		**107.0**	50.0	150.0
M6PFDA		**103.2**	50.0	150.0
M7PFUnDA		**103.4**	50.0	150.0
M8FOSA		**105.1**	50.0	150.0
M8PFOA		**104.4**	50.0	150.0
M8PFOS		**111.1**	50.0	150.0
M9-PFNA		**107.1**	50.0	150.0
MPFBA		**107.3**	50.0	150.0
MPFDoDA		**117.6**	50.0	150.0
d3N-MeFOSAA		**103.9**	50.0	150.0
d5EtFOSAA		**107.0**	50.0	150.0
MHFPO-DA		**109.0**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: SE230419.LCS230418WR

Run in Batch: SE230419, Run Date: 04/20/2023 12:39, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**77.2**	50.0	150.0
M2-6:2FTSA		**72.2**	50.0	150.0
M2-8:2FTSA		**85.6**	50.0	150.0
M2PFTeDA		**112.1**	12.0	218.0
M3PFBS		**77.5**	50.0	150.0
M3PFHxS		**77.7**	50.0	150.0
M4PFHpA		**75.9**	50.0	150.0
M5PFHxA		**74.2**	50.0	150.0
M5PFPeA		**82.2**	50.0	150.0
M6PFDA		**86.4**	50.0	150.0
M7PFUnDA		**92.4**	50.0	150.0
M8FOSA		**99.4**	50.0	150.0
M8PFOA		**75.8**	50.0	150.0
M8PFOS		**82.8**	50.0	150.0
M9-PFNA		**76.3**	50.0	150.0
MPFBA		**81.1**	50.0	150.0
MPFDoDA		**95.9**	50.0	150.0
d3N-MeFOSAA		**69.8**	50.0	150.0
d5EtFOSAA		**68.5**	50.0	150.0
MHFPO-DA		**83.3**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: SE230419.LCSD230418W, Parent Sample ID: SE230419.LCS230418WR

Run in Batch: SE230419, Run Date: 04/19/2023 16:58, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**106.0**	50.0	150.0
M2-6:2FTSA		**107.7**	50.0	150.0
M2-8:2FTSA		**107.2**	50.0	150.0
M2PFTeDA		**97.3**	12.0	218.0
M3PFBS		**107.5**	50.0	150.0
M3PFHxS		**107.5**	50.0	150.0
M4PFHpA		**107.6**	50.0	150.0
M5PFHxA		**104.4**	50.0	150.0
M5PFPeA		**108.1**	50.0	150.0
M6PFDA		**108.2**	50.0	150.0
M7PFUnDA		**108.7**	50.0	150.0
M8FOSA		**106.8**	50.0	150.0
M8PFOA		**105.8**	50.0	150.0
M8PFOS		**107.4**	50.0	150.0
M9-PFNA		**105.2**	50.0	150.0
MPFBA		**106.8**	50.0	150.0
MPFDoDA		**108.3**	50.0	150.0
d3N-MeFOSAA		**95.3**	50.0	150.0
d5EtFOSAA		**102.9**	50.0	150.0
MHFPO-DA		**108.2**	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike (MS)

Lab Sample ID: SE230419.4714301M, Parent Sample ID: S47143.01

Run in Batch: SE230419, Run Date: 04/19/2023 18:16, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**107.9**	50.0	150.0
M2-6:2FTSA		**99.1**	50.0	150.0
M2-8:2FTSA		**122.6**	50.0	150.0
M2PFTeDA		**139.0**	12.0	218.0
M3PFBS		**114.5**	50.0	150.0
M3PFHxS		**107.5**	50.0	150.0
M4PFHpA		**104.9**	50.0	150.0
M5PFHxA		**118.2**	50.0	150.0
M5PFPeA		**118.9**	50.0	150.0
M6PFDA		**123.3**	50.0	150.0
M7PFUnDA		**119.8**	50.0	150.0
M8FOSA		**115.4**	50.0	150.0
M8PFOA		**109.0**	50.0	150.0
M8PFOS		**112.2**	50.0	150.0
M9-PFNA		**111.5**	50.0	150.0
MPFBA		**124.7**	50.0	150.0
MPFDoDA		**127.1**	50.0	150.0
d3N-MeFOSAA		**104.8**	50.0	150.0
d5EtFOSAA		**111.4**	50.0	150.0
MHFPO-DA		**116.8**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: SE230419.4714402D, Parent Sample ID: S47144.02

Run in Batch: SE230419, Run Date: 04/19/2023 20:32, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**93.9**	50.0	150.0
M2-6:2FTSA		**91.1**	50.0	150.0
M2-8:2FTSA		**104.6**	50.0	150.0
M2PFTeDA		**82.1**	12.0	218.0
M3PFBS		**108.2**	50.0	150.0
M3PFHxS		**107.9**	50.0	150.0
M4PFHpA		**103.6**	50.0	150.0
M5PFHxA		**111.5**	50.0	150.0
M5PFPeA		**113.7**	50.0	150.0
M6PFDA		**111.4**	50.0	150.0
M7PFUnDA		**111.6**	50.0	150.0
M8FOSA		**105.1**	50.0	150.0
M8PFOA		**106.8**	50.0	150.0
M8PFOS		**111.5**	50.0	150.0
M9-PFNA		**110.1**	50.0	150.0
MPFBA		**121.9**	50.0	150.0
MPFDoDA		**113.6**	50.0	150.0
d3N-MeFOSAA		**104.3**	50.0	150.0
d5EtFOSAA		**105.1**	50.0	150.0
MHFPO-DA		**112.2**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230418W3

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

Blank (BLK)

Lab Sample ID: SE230419.BLK230418W

Run in Batch: SE230419, Run Date: 04/19/2023 17:17, Prep Date: 04/18/2023, 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
PFPrS		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
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
PFNA		ND	2	ng/l
FHpPA (7:3 FTCA)		ND	4	ng/l
PFECHS		ND	2	ng/l
8:2 FTSA		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
PFOS		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS-LN		ND	2	ng/l
PFUnDA		ND	2	ng/l
PFHxSA		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
PFTrDA		ND	2	ng/l
11CL-PF3OUdS		ND	2	ng/l
PFTeDA		ND	4	ng/l
FOSA		ND	2	ng/l

Organics - Volatiles, Prep Batch ID: PF230418W3 (continued)

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

Laboratory Control Sample (LCS)

Lab Sample ID: SE230419.LCS230418WR

Run in Batch: SE230419, Run Date: 04/20/2023 12:39, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		93.6	70.0	130.0
PFMPA		87.6	70.0	130.0
FPrPA (3:3 FTCA)		89.8	70.0	130.0
PFPrS		88.6	70.0	130.0
PFPeA		91.0	70.0	130.0
PFMBA		95.0	70.0	130.0
4:2 FTSA		101.8	70.0	130.0
NFDHA		84.4	70.0	130.0
PFHxA		93.2	70.0	130.0
PFBS		90.0	70.0	130.0
HFPO-DA		81.0	70.0	130.0
PFEESA		75.8	70.0	130.0
FPePA (5:3 FTCA)		81.0	70.0	130.0
PFHpA		77.0	70.0	130.0
PFPeS		73.2	70.0	130.0
ADONA		88.4	70.0	130.0
6:2 FTSA		93.6	70.0	130.0
PFBSA		72.6	70.0	130.0
PFOA		85.4	70.0	130.0
PFHxS		84.6	70.0	130.0
PFNA		89.0	70.0	130.0
FHpPA (7:3 FTCA)		87.0	70.0	130.0
PFECHS		105.4	70.0	130.0
8:2 FTSA		101.2	70.0	130.0
PFHpS		84.0	70.0	130.0
N-MeFOSAA		74.8	70.0	130.0
PFDA		83.2	70.0	130.0
PFOS		86.6	70.0	130.0
EtFOSAA		88.0	70.0	130.0
PFUnDA		90.2	70.0	130.0
PFHxSA		78.6	70.0	130.0
9CL-PF3ONS		85.6	70.0	130.0
PFNS		83.8	70.0	130.0
PFDoDA		82.0	70.0	130.0
PFDS		88.2	70.0	130.0
PFTrDA		71.4	70.0	130.0
11CL-PF3OUdS		106.8	70.0	130.0
PFTeDA		84.6	70.0	130.0
FOSA		89.4	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: SE230419.LCSD230418W, Parent Sample ID: SE230419.LCS230418WR

Run in Batch: SE230419, Run Date: 04/19/2023 16:58, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		96.8	70.0	130.0	3.4	30.0
PFMPA		95.2	70.0	130.0	8.3	30.0

Organics - Volatiles, Prep Batch ID: PF230418W3 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: SE230419.LCSD230418W, Parent Sample ID: SE230419.LCS230418WR

Run in Batch: SE230419, Run Date: 04/19/2023 16:58, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
FPrPA (3:3 FTCA)		101.2	70.0	130.0	11.9	30.0
PFPrS		90.2	70.0	130.0	1.8	30.0
PFPeA		93.0	70.0	130.0	2.2	30.0
PFMBA		92.2	70.0	130.0	3.0	30.0
4:2 FTSA		110.8	70.0	130.0	8.5	30.0
NFDHA		95.6	70.0	130.0	12.4	30.0
PFHxA		101.2	70.0	130.0	8.2	30.0
PFBS		91.0	70.0	130.0	1.1	30.0
HFPO-DA		88.0	70.0	130.0	8.3	30.0
PFEESA		89.8	70.0	130.0	16.9	30.0
FPePA (5:3 FTCA)		81.2	70.0	130.0	0.2	30.0
PFHpA		87.8	70.0	130.0	13.1	30.0
PFPeS		89.4	70.0	130.0	19.9	30.0
ADONA		91.0	70.0	130.0	2.9	30.0
6:2 FTSA		103.4	70.0	130.0	9.9	30.0
PFBSA		95.4	70.0	130.0	27.1	30.0
PFOA		88.6	70.0	130.0	3.7	30.0
PFHxS		89.8	70.0	130.0	6.0	30.0
PFNA		88.0	70.0	130.0	1.1	30.0
FHpPA (7:3 FTCA)		85.4	70.0	130.0	1.9	30.0
PFECHS		102.2	70.0	130.0	3.1	30.0
8:2 FTSA		110.6	70.0	130.0	8.9	30.0
PFHpS		86.6	70.0	130.0	3.0	30.0
N-MeFOSAA		85.8	70.0	130.0	13.7	30.0
PFDA		86.2	70.0	130.0	3.5	30.0
PFOS		89.8	70.0	130.0	3.6	30.0
EtFOSAA		88.4	70.0	130.0	0.5	30.0
PFUnDA		96.2	70.0	130.0	6.4	30.0
PFHxSA		98.4	70.0	130.0	22.4	30.0
9CL-PF3ONS		91.2	70.0	130.0	6.3	30.0
PFNS		85.8	70.0	130.0	2.4	30.0
PFDoDA		88.2	70.0	130.0	7.3	30.0
PFDS		83.8	70.0	130.0	5.1	30.0
PFTrDA		77.6	70.0	130.0	8.3	30.0
11CL-PF3OUdS		94.4	70.0	130.0	12.3	30.0
PFTeDA		85.2	70.0	130.0	0.7	30.0
FOSA		92.0	70.0	130.0	2.9	30.0

Matrix Spike (MS)

Lab Sample ID: SE230419.4714301M, Parent Sample ID: S47143.01

Run in Batch: SE230419, Run Date: 04/19/2023 18:16, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1.99

Analyte	Flags	% Rec	LCL	UCL
PFBA		92.5	70.0	130.0
PFPeA		94.5	70.0	130.0
4:2 FTSA		110.6	70.0	130.0
PFHxA		94.5	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF230418W3 (continued)

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

Matrix Spike (MS) (continued)

Lab Sample ID: SE230419.4714301M, Parent Sample ID: S47143.01

Run in Batch: SE230419, Run Date: 04/19/2023 18:16, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1.99

Analyte	Flags	% Rec	LCL	UCL
PFBS		89.9	70.0	130.0
PFHpA		93.2	70.0	130.0
PFPeS		91.5	70.0	130.0
6:2 FTSA		110.6	70.0	130.0
PFOA		88.2	70.0	130.0
PFHxS		91.1	70.0	130.0
PFNA		91.5	70.0	130.0
8:2 FTSA		96.5	70.0	130.0
PFHpS		92.5	70.0	130.0
PFDA		84.4	70.0	130.0
N-MeFOSAA		94.5	70.0	130.0
EtFOSAA		86.4	70.0	130.0
PFOS		92.9	70.0	130.0
PFUnDA		96.5	70.0	130.0
PFNS		89.4	70.0	130.0
PFDoDA		87.4	70.0	130.0
PFDS		84.4	70.0	130.0
PFTrDA		87.4	70.0	130.0
FOSA		99.5	70.0	130.0
PFTeDA		86.4	70.0	130.0
11CL-PF3OUdS		99.5	70.0	130.0
9CL-PF3ONS		97.5	70.0	130.0
ADONA		90.5	70.0	130.0
HFPO-DA		90.5	70.0	130.0

Duplicate (DUP)

Lab Sample ID: SE230419.4714402D, Parent Sample ID: S47144.02

Run in Batch: SE230419, Run Date: 04/19/2023 20:32, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1.97

Analyte	Flags	RPD	RPD CL
PFBA	J	3.9	30.0
PFPeA		2.4	30.0
4:2 FTSA		NC	30.0
PFHxA		2.4	30.0
PFBS		7.7	30.0
PFHpA		8.7	30.0
PFPeS	J	14.6	30.0
6:2 FTSA		NC	30.0
PFOA		15.0	30.0
PFHxS		6.9	30.0
PFHxS-LN		8.7	30.0
PFHxS-BR		3.1	30.0
PFNA	J	4.4	30.0
8:2 FTSA		NC	30.0
PFHpS	*	200.0	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF230418W3 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: SE230419.4714402D, Parent Sample ID: S47144.02

Run in Batch: SE230419, Run Date: 04/19/2023 20:32, Prep Date: 04/18/2023, Matrix: WW, Dilution: 1.97

Analyte	Flags	RPD	RPD CL
EtFOSAA		NC	30.0
PFOS		10.2	30.0
PFOS-LN		8.7	30.0
PFOS-BR		5.4	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTrDA		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

Merit Laboratories, Inc.

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www.meritlabs.com

C.O.C. PAGE # 1 OF 1 — 153083

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Kenn Schneider | Clifford Yantz
COMPANY: Ramboll
ADDRESS: 2090 Commonwealth Blvd
CITY: Ann Arbor | STATE: MI | ZIP CODE: 48105
PHONE NO.: 313 333 0211 | CELL NO.: | P.O. NO.: 1940006516 Task 36
E-MAIL ADDRESS: clifford.yantz@ramboll.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: | X SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kenn Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (537)
471430.01	4/4/23	1025	SAN-08	L	3	X							X
.02		1045	11-07C016	L	3	X							X
.03		1100	SAN-2	L	3	X							X
.04		1118	SAN-09	L	3	X							X
.05		1220	Field Blank-040623	L	1	X							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler	DATE 4/4/23	TIME 1250
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 4/5/23	TIME 12:10
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 4/5/23	TIME 14:10
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 4/6/23	TIME 1410

RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS
SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS

NOTES: TEMP. ON ARRIVAL 4.8

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

Rev. 1.26.2