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ENVIRONMENT
& HEALTH

Mr. Brian Zuber
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Emerging Pollutants Section, WRD
Department of Environment, Great Lakes, and Energy
PO Box 30473
Lansing, MI 48909-7974

Ms. Nicole Sanabria, Ms. Christina Hebert, & Ms. Oonagh McKenna
Geologist, Environmental Quality Analyst and Environmental Engineer
Materials Management Division
Department of Environment, Great Lakes, and Energy
PO Box 30241
Lansing, MI 48909-7741

RE: Corrective Action Plan – South of Site Evaluation Update
Coldwater Road Site
6220 Horton Street, Mount Morris, MI
MID 005 356 860

Date September 11, 2023

Dear Mr. Zuber, Ms. Sanabria, Ms. Hebert, and Ms. McKenna:

On behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust, Ramboll Americas Engineering Solutions, Inc. (Ramboll) is providing the following update to the December 2, 2022, South of Site Evaluation Supplement letter related to the storm sewer system south of Coldwater Road at the RACER Coldwater Road Facility located at 6220 Horton Street, Mount Morris, Genesee County, Michigan (Site).

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Additional storm water sample collection and historical property search were completed to provide further information to the South of Site Evaluation Letter and Task 1 of the June 3, 2022, Corrective Action Plan (CAP) submitted to the Michigan Department of Environmental, Great Lakes, and Energy (EGLE) Water Resources Division, via MiEnviro to address Violation Notice (No. VN-012757) dated May 4, 2022.

The evaluation was also conducted in response to the analytical results from per- and polyfluoroalkyl substances (PFAS), specifically perfluorooctanesulfonic acid (PFOS), from samples collected on September 22, 2021 by EGLE along the Cornwell Drain.

The purpose of this letter is to provide updated information which has been collected related to the storm sewer system along the southern Site boundary east of the middle entry drive and south of Coldwater Road, provide results, information, and recommendations for additional investigation and evaluation activities.

Historical Property Information

A request was submitted to Environmental Data Resources Inc. (EDR) to receive historical aerial photographs. The aerial photographs received were dated from 1937 to 2020. Commercial and/or industrial activities were visible starting in

1941. In the 1957 aerial the General Motors Coldwater Road facility is visible. In the 1967 aerial there are commercial business' visible along Coldwater Road. No new information was gained regarding the former operations at the northwest corner of Coldwater Road and Harry Street, which are of most interest due to the proximity to the storm sewer along Harry Street. In the 1972 aerial in the area east of the intersection of Harry Street and Princeton Avenue, south of where the Cornwall Drain flow to the east, there appears to be two small buildings and a concrete pad. In 1982, large areas of vegetation were removed north and east of the Cornwell Drain in that area. Some vegetation appears to have grown back in the 1999 aerial and there are paths or trails present from the south/southwest to the northeast of the property. The activities that occurred on this property is unknown. The area appears to have been vacant since approximately 2006.

Sample Collection

On January 4, 2023, five storm water samples were collected from SS-12, SS-14, SS-15, SS-16, and MW-10E-W. On March 23, 2023, seven storm water samples were collected from SS-12, SS-14, SS-15, SS-16, SS-19, SS-20, and MW-10E-W. On June 27, 2023, five storm water samples were collected from SS-12, SS-14, SS-15, SS-16, and MW-10E-W. Upon further review of the pipes entering the manhole where SS-02/SS-14 are located, samples were collected after a rain event on August 7, 2023 from a clay tile road base/gravel drain entering the manhole from the northeast (SS-22) and of the southern discharge from the manhole (SS-23) in order to allow for evaluation of possible other causes of the PFOS concentrations observed downstream. Samples were also collected at locations SS-12 and SS-14 during this event. See Figure 1 for sample locations.

Prior to collecting the samples for the events there was approximately 0.28 inches of precipitation on January 3, 2023, 0.39 inches of precipitation on March 23, 2023, 0.18 inches of precipitation on June 26, 2023, and 0.43 inches of precipitation on August 7, 2023 in the area. The sample location SS-11 on East Kurtz Avenue west of Harry Street (and EGLE's CD-10 sample location) had no flow or standing water and was not sampled.

SS-12 is located just north of Kurtz Avenue, on Harry Street and the sample was collected from the water flowing from the north to the south. The approximate flow rate during sampling on January 4, 2023 was estimated to be 1.4 gallons per minute (gpm), 45 gpm on March 23, 2023, and 2.8 gpm on June 27, 2023. No flow rate was estimated during the August sampling event.

SS-13 is located in the manhole 64 feet to the east of manhole SS-02 from the northeast pipe coming into the manhole from the Site. Water was not flowing from the pipe on any of the sampling dates so no samples were collected.

SS-14 is located in the same manhole as SS-02 and samples were collected from the city storm sewer pipe that flows into manhole SS-02 from the west. The estimated flow rate during sampling on January 4, 2023 sampling was 2.2 gpm, 4.5 gpm on March 23, 2023, and 1.5 gpm on June 27, 2023. No flow rate was estimated during the August sampling event.

SS-15 is located in the open storm water ditch along the westside of Harry Street at the intersection of East Grand Boulevard and was collected from the water flowing from the north to the south through a drainage culvert. The estimated flow rates during sampling on January 4, 2023 and June 27, 2023

sampling events was respectively 2.5 gpm. During sampling on March 23, 2023 the estimated flow rate was 18 gpm.

SS-16 is located in the storm sewer opening along the eastside of Harry Street at the intersection of Princeton Avenue and was collected from the water flowing from the west to the east through the sewer. The estimated flow rate during the January 4, 2023 and June 27, 2023 sampling events was 3.2 gpm. During sampling on March 23, 2023 the estimated flow rate was 135 gpm.

SS-19 is located in an open storm sewer along the eastside of Harry Street at the intersection of Princeton Avenue adjacent to the SS-16 sewer opening. The sample was collected from the water flowing from the southwest. The flow rate was not estimated during the January 4, 2023 sampling event. The sewer opening was flooded with no water movement during the March 23, 2023 and June 27, 2023 sampling events and no samples were collected.

SS-20 is located in the manhole along the south side of Coldwater Road at the intersection of Harry Street, which is the short east-west line that connects to the north-south sewer line, and the sample was collected from storm water flowing from the west. There was no flow during the January 4, 2023 sampling event and was observed as a trickle during the March 23, 2023 sampling event.

SS-22 is located in the same manhole as SS-02 and the sample was collected from a clay tile road base/gravel drain entering the manhole from the northeast. No flow rate was estimated during the August sampling event.

SS-23 is located in the same manhole as SS-02 and the sample was collected of the southern discharge from the manhole. SS-22 and SS-23 were collected based on further review of the pipes entering and leaving the manhole where SS-02/SS-14 are located, to allow for evaluation of possible other causes of the concentrations of PFOS observed downstream. No flow rate was estimated during the August sampling event.

MH-10E-W is located along the northside of Coldwater Road west of SS-02 and was collected from the municipal water flowing east. The flow rate was not estimated during the January and March sampling events due to the depth of manhole. The approximate flow rate at SS-14 which is further downstream was during the January 4, 2023 sampling was 2.2 gpm, 4.5 gpm on March 23, 2023, and 1.5 gpm on June 27, 2023. No flow was observed from the plug within manhole MH-10E which is a plugged pipe from the Site that formerly discharged into manhole MH-10E. The pipe from the Site entering manhole MH-10E was plugged and the manhole is sealed where the pipe entered the manhole. One upstream, on-Site storm sewer catch basin was capped in May 2020 to mitigate stormwater leaving the Site from this line into the municipal system.

The sample team followed the protocol set forth in the EGLE Michigan PFAS Action Response Team (MPART) Surface Water PFAS Sampling Guidance dated October 2022 and Ramboll's PFAS Sampling Field Guidance Document Number 1.07.

Samples were collected either by using the direct sampling method of collecting the water directly into the sample container or by using a peristaltic pump and high-density polyethylene tubing that was weighted down with a stainless-steel weight and lowered into the manhole.

Because the concentration of PFOS detected in the samples from SS-12 are higher than concentrations detected closer to the Site, a sample was collected on February 14, 2023 of the concrete pipe from the storm sewer pipe just south of SS-12 before it flows underneath Kurtz Avenue to evaluate whether PFAS may be retained in and leaching from the concrete pipe contributing to the increased PFOS detections further downstream.

The samples from the concrete pipe were collected under dry conditions by drilling a 1-3/8 to 1-1/2-inch diameter hole using a rotary hammer drill. The powder produced during drilling was collected and placed in a laboratory-provided jar. A shallow and deep sample were collected (CON-01S and CON-01D). CON-01S was collected from zero to approximately ½ inch deep, and CON-01D was collected approximately 1/2 to 1-inch deep.

The samples were labeled, packed on ice, and shipped via courier under routine chain-of-custody protocols to Merit Laboratories, Inc. (Merit) of East Lansing, Michigan.

Analytical Results

The storm water samples were analyzed for PFAS by method ASTMD7979-19 (no preservative). The analytical results for the recent storm water samples and historical storm water samples collected south of the Site are summarized in **Table 1**, and the analytical laboratory reports are included in **Appendix B**.

The maximum concentrations for the January 4, 2023 event exceeding the Rule 57 Water Quality Value of 12 ng/l for PFOS, were detected at the three samples located furthest downstream from the Site along Harry Street at SS-12 (86 ng/l PFOS), SS-15 (100 ng/l PFOS), and SS-16 (99 ng/l PFOS). The upstream samples collected near the Site (MH-10E-W [8.1 ng/l PFOS] and SS-14 [12 ng/l PFOS]) were detected at a concentration at and below criteria.

The sample results collected on March 23, 2023 from the three downstream locations at SS-12 (34 ng/l PFOS), SS-15 (29 ng/l PFOS), and SS-16 (27 ng/l PFOS) were detected above criteria, but decreased in concentration compared to the January 4, 2023 event. SS-19 which is just to the south of SS-16 had a PFOS detection below criteria. The upstream samples from MH-10E-W (5.7 ng/l PFOS) and SS-14 (6.3 ng/l PFOS) were detected at a lower concentration than the Rule 57 Water Quality Value of 12 ng/l for PFOS. SS-20 along the south side of Coldwater Road at the intersection of Harry Street had a PFOS detection below criteria.

During the June 27, 2023 sampling event the downstream samples SS-12 (64 ng/l PFOS), SS-15 (86 ng/l PFOS), and SS-16 (63 ng/l PFOS), and upstream samples MH-10E-W (58 ng/l PFOS), and SS-14 (24 ng/l PFOS) were detected above criteria and increased in concentration compared to the March 23, 2023 event.

During the August 7, 2023 sampling event the downstream sample SS-12 (93 ng/l PFOS), and upstream sample SS-14 (33 ng/l PFOS) were detected above criteria and increased in concentration compared to the June 27, 2023 event. The new location SS-22 was detected at a concentration of 320 ng/l for PFOS, and SS-23 was detected at a concentration of 60 ng/l for PFOS.

Results from the samples from the concrete pipe include PFOS detected in CON-01S (0 to 1/2 half-inch sample) at 490 ng/kg and CON-01D (1/2 to 1-inch sample) at 46 ng/kg. The concrete analytical results are presented in **Table 2** and **Appendix B**.

Conclusions and Recommendations

The sampling locations were selected to evaluate locations near the property boundary most likely to receive storm water from the Site. Based on the data collected, the concentrations of PFOS in the upstream samples collected near the property boundary (MH-10E-W and SS-14) are typically below that of SS-12, SS-15, and SS-16 which were located further downstream. It was unclear why downstream PFOS concentrations are higher than PFOS concentrations at the Site perimeter except for SS-19 which is located adjacent to SS-16 (from the water flowing from the southwest) and was detected below criteria.

However, the apparent cause of the majority of PFOS concentrations from stormwater flowing away from the Site are the PFOS concentrations detected in the sample from the clay tile (SS-22) entering the manhole where SS-02/SS-14 are located. Therefore, the clay tile pipe will be inspected via closed-circuit television (CCTV) in order to help understand where the pipe leads and allow for evaluating the most effective way to plug the pipe. This could include exposing the pipe further upstream, then breaching the pipe, and filling it with a cement mixture to seal it similar to what was done for SS-02. If breaching the pipe is not feasible an alternative method would be to install a tremie pipe into the pipe and filling it with a cement mixture. No leaks have been observed in the manhole. The CCTV inspection will be scheduled as soon as possible.

To allow for evaluation of concentration variability and trends, we propose to continue collect another round of samples from sample locations SS-12, SS-14, SS-15, SS-16, MW-10E-W, SS-22, and SS-23 after the clay tile has been plugged. An update similar to this one will be provided 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.

Yours sincerely,

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.

Clifford Yantz
Project Manager
1943864 - MIDWEST EAST Resources 056

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cc:

David Favero (RACER Trust)

Kevin Schneider (Ramboll)

Enclosures:

Table 1 **-** Storm Water PFAS Sample Results
Table 2 – Concrete PFAS Sample Results
Figure 1 – Storm Water Sewers – Horton Street to Dort Highway
Appendix A – Historical Aerial Photographs
Appendix B – Analytical Laboratory Report

TABLE

TABLE 1
RACER Trust - Coldwater Road Peregrine Facilities
Per-and Polyfluoroalkyl Substances Sampling Results - Storm Water Samples South Portion of Site

Coldwater Road - Storm Water Samples - South Portion of Site

Perfluorinated Compound / Well/Sample ID: / Sample Date:	EGLE Part 201 Generic Groundwater Surface Water Interface Criteria / Rule 57 Surface Water Quality Values	SS-02 (Storm Sewer) 11/12/2018	SS-02 (DUP-1) (Storm Sewer) 11/12/2018	SS-02 (Storm Sewer) 12/21/2021	SS-04 (Storm Sewer) 3/19/2020	SS-DUP-2/SS-04 (Storm Sewer) 3/19/2020	SS-08 (Storm Sewer) 8/28/2020	SS-11 (Storm Water) 4/14/2022
Perfluorobutanoic Acid (PFBA)	--	**20**	**20**	**13**	<100	<100	<10	<9.8
Perfluoropentanoic Acid (PFPeA)	--	<10	<10	**6.1**	<10	<10	<4.1	<3.9
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
Perfluorohexanoic Acid (PFHxA)	--	**10**	**10**	**4.5**	<10	<10	<2.1	<2.0
Perfluorobutane Sulfonic Acid (PFBS)	**670,000**	<10	<10	**3.1**	<10	<10	<2.1	**82**
Perfluoroheptanoic Acid (PFHpA)	--	<10	<10	**2.2**	<10	<10	<2.1	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<10	<10	<4.2	<10	<10	<2.1	<2.0
Perfluorooctanoic Acid (**PFOA**)	**170**	**20**	**20**	**4.8**	<10	<10	**1.9 J**	<2.0
Perfluorohexane Sulfonic Acid (PFHxS)	--	**20**	**20**	**3.7**	<10	<10	<2.1	<2.0
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	**20**	**20**	**2.8**	<10	<10	<2.1	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
Perfluorononanoic Acid (PFNA)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<10	<10	<4.2	<10	<10	<2.1	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	**10**	<10	<2.1	<10	<10	<2.1	<2.0
Perfluorodecanoic Acid (PFDA)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<10	<10	<4.2	<10	<10	<4.1	<3.9
Perfluorooctane Sulfonic Acid (**PFOS**)	**12**	**1520**	**1250**	**86**	<10	<10	**7.3**	**4.8**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**1160**	**950**	**62**	<10	<10	**4.1**	<2.0
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	**380**	**280**	**24**	<10	<10	**2.8**	**4.1**
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
Perfluorotridecanoic Acid (PFTrDA)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	<10	<10	<2.1	<10	<10	<2.1	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<10	<4.2	<10	<10	<4.1	<3.9
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	--	<2.1	<10	<10	<2.1	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	--	--	<2.1	<10	<10	<2.1	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	<2.1	<10	<10	<2.1	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	--	--	--	<10	<10	<10	<2.1	<3.9
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--	--
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	--	--
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--	--	--	--
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--	--
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	--	--
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--	--
Total Per-and Polyfluoroalkyl Substances	--	**1600.0**	**1320.0**	**123.4**	**0.0**	**0.0**	**9.2**	**86.8**

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 and Rule 57 Surface Water Quality Values.
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 Peregrine Facilities
Per-and Polyfluoroalkyl Substances Sampling Results - Storm Water Samples South Portion of Site

Coldwater Road - Storm Water Samples - South Portion of Site

Perfluorinated Compound / Well/Sample ID: / Sample Date:	EGLE Part 201 Generic Groundwater Surface Water Interface Criteria / Rule 57 Surface Water Quality Values	SS-12 (Storm Sewer) 4/14/2022	SS-12 (Storm Sewer) 6/22/2022	SS-12 (Storm Sewer) 8/4/2022	SS-12 (Storm Sewer) 1/4/2023	SS-12 (Storm Sewer) 3/23/2023	SS-12 (Storm Sewer) 6/27/2023	SS-12 (Storm Sewer) 8/7/2023
Perfluorobutanoic Acid (PFBA)	--	<9.8	<11	<10	<10.0	<10	<10.0	<15 X
Perfluoropentanoic Acid (PFPeA)	--	**2.1 J**	**4.0 J**	**4.2**	**1.1 J**	<4.0	**2.9 J**	<3.9
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorohexanoic Acid (PFHxA)	--	**3.3**	**5.2**	**4.2**	**2.6**	**2.0 J**	**2.7**	<2.0
Perfluorobutane Sulfonic Acid (PFBS)	**670,000**	**2.0**	**5.6**	**3.9**	**2.6**	<2.0	**4.4**	**2.3**
Perfluoroheptanoic Acid (PFHpA)	--	**2.1**	**2.7**	**2.7**	<2.0	<2.0	**1.7**	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctanoic Acid (**PFOA**)	**170**	**5.8**	**11**	**7.5**	**2.1**	<2.0	**3.6**	**4.2**
Perfluorohexane Sulfonic Acid (PFHxS)	--	**2.8**	**3.5**	**3.0**	**1.6 J**	<2.0	<2.0	<2.0
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	**1.7 J**	**2.8**	**2.4**	<2.0	<2.0	<2.0	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorononanoic Acid (PFNA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorodecanoic Acid (PFDA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<3.9	<4.2	<4.1	<4.0	<4.0	<4.0	<3.9
Perfluorooctane Sulfonic Acid (**PFOS**)	**12**	**140**	**91**	**190**	**86**	**34**	**64**	**93**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**100**	**63**	**140**	**68**	**28**	**46**	**71**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	**34**	**28**	**44**	**17**	**6**	**17**	**19**
Perfluoroundecanoic Acid (PFUnDA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorotridecanoic Acid (PFTrDA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<3.9	<4.2	<4.1	<4.0	<4.0	<4.0	<3.9
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<3.9	<11	<10	<10.0	<2.0	<2.0	<2.0
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	<4.0	<3.9
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	<4.0	<3.9
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--	--	<4.0	<3.9
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	<2.0	<2.0
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	**19**	**17**
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	<2.0	<2.0
Total Per-and Polyfluoroalkyl Substances	--	**158.1**	**123.0**	**215.5**	**96.0**	**36.0**	**98.3**	**116.5**

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 and Rule 57 Surface Water Quality Values.
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 Peregrine Facilities
Per-and Polyfluoroalkyl Substances Sampling Results - Storm Water Samples South Portion of Site

Coldwater Road - Storm Water Samples - South Portion of Site

Perfluorinated Compound / Well/Sample ID: / Sample Date:	EGLE Part 201 Generic Groundwater Surface Water Interface Criteria / Rule 57 Surface Water Quality Values	SS-13 (Storm Sewer) 5/16/2022	SS-13 (Storm Sewer) 8/4/2022	SS-14 (Storm Sewer) 5/16/2022	SS-14 (Storm Sewer) 6/22/2022	SS-14 (Storm Sewer) 8/4/2022	SS-14 (Storm Sewer) 1/4/2023	SS-14 (Storm Sewer) 3/23/2023	SS-14 (Storm Sewer) 6/27/2023	SS-14 (Storm Sewer) 8/7/2023
Perfluorobutanoic Acid (PFBA)	--	<39	<10	**14**	**12**	<10	<10	<10	<9.7	<21 X
Perfluoropentanoic Acid (PFPeA)	--	<3.9	**1.6 J**	**2.1 J**	**5.2**	**3.5 J**	<4.0	<4.0	**3.0 J**	<3.8
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorohexanoic Acid (PFHxA)	--	**2.5**	**3.2**	**4.3**	**7.0**	**3.5**	**2.2**	**2.0**	**2.7**	**3.0**
Perfluorobutane Sulfonic Acid (PFBS)	**670,000**	<2.0	**3.5**	**2.8**	**6.7**	**3.5**	**2.5**	<2.0	**6.3**	**3.3**
Perfluoroheptanoic Acid (PFHpA)	--	<2.0	**1.8 J**	**2.3**	**5.0**	**2.9**	<2.0	<2.0	**2.4**	**2.7**
Perfluoropentane Sulfonic Acid (PFPeS)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorooctanoic Acid (**PFOA**)	**170**	<2.0	**4.8**	**8.4**	**15**	**5.1**	**2.1**	<2.0	**4.7**	**6.0**
Perfluorohexane Sulfonic Acid (PFHxS)	--	<2.0	**3.5**	**1.8 J**	**4.5**	**2.1**	<2.0	<2.0	<1.9	<1.9
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<2.0	**2.5**	<2.1	**3.7**	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorononanoic Acid (PFNA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorodecanoic Acid (PFDA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<3.9	<4.0	<4.1	<4.1	<4.0	<4.0	<4.0	<3.9	<3.8
Perfluorooctane Sulfonic Acid (**PFOS**)	**12**	**20**	**25**	**30**	**39**	**21**	**12**	**6.3**	**24**	**33**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**16**	**17**	**20**	**24**	**13**	**7.1**	**3.8**	**14**	**22**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	**4.0**	**6.7**	**9.1**	**14**	**8**	**5.4**	**2.5**	**9.3**	**10**
Perfluoroundecanoic Acid (PFUnDA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorononane Sulfonic Acid (PFNS)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorododecanoic Acid (PFDoDA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorodecane Sulfonic Acid (PFDS)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorotridecanoic Acid (PFTrDA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorooctane Sulfonamide (FOSA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Perfluorotetradecanoic Acid (PFTeDA)	--	<3.9	<4.0	<4.1	<4.1	<4.0	<4.0	<4.0	<3.9	<3.8
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<2.0	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9	<1.9
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<3.9	<10	<4.1	<10	<10	<10	<2.0	<1.9	<1.9
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	--	--	<3.9	<3.8
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	--	--	<3.9	<3.8
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--	--	--	--	<3.9	<3.8
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	--	--	<1.9	<1.9
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	--	--	**9.0**	**5.4**
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	--	--	<1.9	<1.9
Total Per-and Polyfluoroalkyl Substances	--	**22.5**	**43.4**	**65.7**	**94.4**	**41.6**	**18.8**	**8.3**	**52.1**	**53.4**

Notes
1) Detections in **bold**.
2) Concentrations in ng/L.
3) < = Not detected at specified reporting limit.
4) -- = Not analyzed/No criteria.
5) Dup = Duplicate sample.
6) EGLE Part 201 Groundwater Generic Cleanup Criteria and Screening Levels, December 21, 2020 and Rule 57 Surface Water Quality Values.
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 Peregrine Facilities
Per-and Polyfluoroalkyl Substances Sampling Results - Storm Water Samples South Portion of Site

Coldwater Road - Storm Water Samples - South Portion of Site

Perfluorinated Compound / Well/Sample ID: / Sample Date:	EGLE Part 201 Generic Groundwater Surface Water Interface Criteria / Rule 57 Surface Water Quality Values	SS-15 (Storm Sewer) 8/4/2022	SS-15 (Storm Sewer) 1/4/2023	SS-15 (Storm Sewer) 3/23/2023	SS-15 (Storm Sewer) 6/27/2023	SS-16 (Storm Sewer) 1/4/2023	SS-16 (Storm Sewer) 3/23/2023	SS-16 (Storm Sewer) 6/27/2023
Perfluorobutanoic Acid (PFBA)	--	<10	<10	<9.8	**10**	<10	<11	**10**
Perfluoropentanoic Acid (PFPeA)	--	**4.1 J**	**1.8 J**	<3.9	<3.9	<4.2	<4.3	<3.8
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorohexanoic Acid (PFHxA)	--	**3.5**	**3.2**	**1.7 J**	**1.9 J**	**2.8**	<2.1	<1.9
Perfluorobutane Sulfonic Acid (PFBS)	**670,000**	**3.5**	**3.1**	**1.7 J**	**4.3**	**2.3**	<2.1	**2.5**
Perfluoroheptanoic Acid (PFHpA)	--	**1.8 J**	**1.6 J**	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluoropentane Sulfonic Acid (PFPeS)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorooctanoic Acid (**PFOA**)	**170**	**5.5**	**2.9**	<2.0	**3.2**	**3.2**	<2.1	**2.0**
Perfluorohexane Sulfonic Acid (PFHxS)	--	**2.9**	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	**2.2**	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorononanoic Acid (PFNA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorodecanoic Acid (PFDA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<4.1	<4.1	<3.9	<3.9	<4.2	<4.3	<3.8
Perfluorooctane Sulfonic Acid (**PFOS**)	**12**	**220**	**100**	**29**	**86**	**99**	**27**	**63**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**170**	**72**	**22**	**56**	**72**	**21**	**39**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	**50**	**27**	**6.8**	**28**	**27**	**5.1**	**23**
Perfluoroundecanoic Acid (PFUnDA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorononane Sulfonic Acid (PFNS)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorododecanoic Acid (PFDoDA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorodecane Sulfonic Acid (PFDS)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorotridecanoic Acid (PFTrDA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorooctane Sulfonamide (FOSA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Perfluorotetradecanoic Acid (PFTeDA)	--	<4.1	<4.1	<4.1	<3.9	<4.2	<4.3	<3.8
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<10	<10	<2.0	<2.0	<10	<2.0	<1.9
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	<3.9	--	--	<3.8
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	<3.9	--	--	<3.8
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	<3.9	--	--	<3.8
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	**1.2 J**	--	--	<1.9
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	**20**	--	--	**15**
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	<2.0	--	--	<1.9
Total Per-and Polyfluoroalkyl Substances	--	**241.3**	**112.6**	**32.4**	**126.6**	**107.3**	**27.0**	**92.5**

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 and Rule 57 Surface Water Quality Values.
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 Peregrine Facilities
Per-and Polyfluoroalkyl Substances Sampling Results - Storm Water Samples South Portion of Site

Coldwater Road - Storm Water Samples - South Portion of Site

Perfluorinated Compound / Well/Sample ID: / Sample Date:	EGLE Part 201 Generic Groundwater Surface Water Interface Criteria / Rule 57 Surface Water Quality Values	SS-19 (Storm Sewer) 3/23/2023	SS-20 (Storm Sewer) 3/23/2023	SS-22 (Storm Sewer) 8/7/2023	SS-23 (Storm Sewer) 8/7/2023	MH-10E (Storm Sewer) 3/19/2020	MH-10E (Storm Sewer) 8/3/2020
Perfluorobutanoic Acid (PFBA)	--	<10	<9.7	<10	<15 X	<98	<9.9
Perfluoropentanoic Acid (PFPeA)	--	**1.9 J**	<3.9	<4.0	**2.2 J**	<9.8	**1.4 J**
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorohexanoic Acid (PFHxA)	--	**2.0 J**	<1.9	**2.0 J**	**1.8 J**	<9.8	**2.9**
Perfluorobutane Sulfonic Acid (PFBS)	**670,000**	<2.0	<1.9	**2.3**	**2.5**	<9.8	**1.9 J**
Perfluoroheptanoic Acid (PFHpA)	--	**1.5 J**	<2.3 X	<2.0	**1.9 J**	<9.8	**2.0**
Perfluoropentane Sulfonic Acid (PFPeS)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<2.0	**4.3**	<2.0	<2.0	<9.8	<2.0
Perfluorooctanoic Acid (**PFOA**)	**170**	<2.0	<1.9	**3.2**	**5.3**	<9.8	**4.8**
Perfluorohexane Sulfonic Acid (PFHxS)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorononanoic Acid (PFNA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorodecanoic Acid (PFDA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<4.0	<3.9	<4.0	<3.9	<9.8	<3.9
Perfluorooctane Sulfonic Acid (**PFOS**)	**12**	**5.6**	**3.6**	**320**	**60**	**70**	**61**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**3.3**	**1.9 J**	**260**	**45**	**49**	**44**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	**2.2**	<1.9	**61**	**14**	**19**	**14**
Perfluoroundecanoic Acid (PFUnDA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorotridecanoic Acid (PFTrDA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<4.0	<3.9	<4.0	<3.9	<9.8	<3.9
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<2.0	<1.9	<2.0	<2.0	<9.8	<2.0
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	<4.0	<3.9	--	--
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	<4.0	<3.9	--	--
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	<4.0	<3.9	--	--
Perfluorobutanesulfonamide (PFBSA)	--	--	--	<2.0	<2.0	--	--
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	**49**	**14**	--	--
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	<2.0	<2.0	--	--
Total Per-and Polyfluoroalkyl Substances	--	**11.0**	**7.9**	**376.5**	**87.7**	**70.0**	**74.0**

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 and Rule 57 Surface Water Quality Values.
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.
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12) Light gray header is most recent sampling event result.
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RACER Trust - Coldwater Road Peregrine Facilities
Per-and Polyfluoroalkyl Substances Sampling Results - Storm Water Samples South Portion of Site

Coldwater Road - Storm Water Samples - South Portion of Site

Perfluorinated Compound / Well/Sample ID: / Sample Date:	EGLE Part 201 Generic Groundwater Surface Water Interface Criteria / Rule 57 Surface Water Quality Values	MH-10E-W (Storm Sewer) 8/3/2020	MH-10E-W (Storm Sewer) 12/18/2020	MH-10E-W (Storm Sewer) 3/11/2021	MH-10E-W (Storm Sewer) 8/4/2022	MH-10E-W (Storm Sewer) 1/4/2023	MH-10E-W (Storm Sewer) 3/23/2023	MH-10E-W (Storm Sewer) 6/27/2023
Perfluorobutanoic Acid (PFBA)	--	<9.8	<10	<10	<9.8	<9.8	<10	**10**
Perfluoropentanoic Acid (PFPeA)	--	**1.3 J**	<4.2	<4.1	**3.5 J**	<3.9	**1.1 J**	**3.5 J**
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluorohexanoic Acid (PFHxA)	--	**2.2**	<2.1	<2.1	**3.2**	**2.9**	<2.0	**3.5**
Perfluorobutane Sulfonic Acid (PFBS)	**670,000**	**4.0**	**4.7**	<2.1	**3.5**	**1.9 J**	<2.0	**7.2**
Perfluoroheptanoic Acid (PFHpA)	--	**1.6 J**	<2.1	<2.1	**2.1**	**1.4 J**	<2.0	**2.5**
Perfluoropentane Sulfonic Acid (PFPeS)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluorooctanoic Acid (**PFOA**)	**170**	**5.8**	<2.1	<2.1	**6.6**	**2.7**	<2.0	**6.9**
Perfluorohexane Sulfonic Acid (PFHxS)	--	**2.2**	<2.1	<2.1	<2.0	<2.0	<2.0	**1.5 J**
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	**1.7 J**	<2.1	<2.1	<2.0	<2.0	<2.0	**1.5 J**
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluorononanoic Acid (PFNA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	**2.0**
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluorodecanoic Acid (PFDA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<3.9	<4.2	<4.1	<3.9	<3.9	<4.0	<3.8
Perfluorooctane Sulfonic Acid (**PFOS**)	**12**	**39**	**10**	**3.2**	**15**	**8.1**	**5.7**	**58**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**24**	**3.5**	<2.1	**8.3**	**4.5**	**3.9**	**39**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	**12**	**5.9**	<2.1	**6.1**	**3.4**	<2.0	**18**
Perfluoroundecanoic Acid (PFUnDA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluorononane Sulfonic Acid (PFNS)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluorododecanoic Acid (PFDoDA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluorodecane Sulfonic Acid (PFDS)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluorotridecanoic Acid (PFTrDA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluorooctane Sulfonamide (FOSA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Perfluorotetradecanoic Acid (PFTeDA)	--	<3.9	<4.2	<4.1	<3.9	<3.9	<4.0	<3.8
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<1.9
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<2.0	<2.0	<2.1	<9.8	<9.8	<2.0	<1.9
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--	--	**--**	<3.8
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--	--	**--**	<3.8
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--	--	**--**	<3.8
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--	--	**--**	<1.9
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--	--	**--**	**9.5**
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--	--	**--**	<1.9
Total Per-and Polyfluoroalkyl Substances	--	**56.1**	**14.7**	**3.2**	**33.9**	**17.0**	**6.8**	**104.6**

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 and Rule 57 Surface Water Quality Values.
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 2
RACER Trust - Coldwater Road Peregrine Facilities
Per-and Polyfluoroalkyl Substances Sampling Results - Concrete Samples South Portion of Site

Coldwater Road - Concrete Samples - South Portion of Site

Perfluorinated Compound Well/Sample ID: Sample Date:	EGLE Part 201 Generic Residential Groundwater Surface Water Interface Protection Criteria (for soils) (GSIPC)	CON-01S (0-0.5") 2/14/2023	CON-01S (Replicate 01) (0-0.5") 2/14/2023	CON-01D (0.5-1") 2/14/2023	CON-01D (Replicate 01) (0.5-1") 2/14/2023
Perfluorobutanoic Acid (PFBA)	--	<480	<530	<430	<610
Perfluoropentanoic Acid (PFPeA)	--	<240	<270	<210	<300
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<240	<270	<210	<300
Perfluorohexanoic Acid (PFHxA)	--	<240	<270	<210	<300
Perfluorobutane Sulfonic Acid (PFBS)	--	<240	<270	<210	<300
Perfluoroheptanoic Acid (PFHpA)	--	<240	<270	<210	<300
Perfluoropentane Sulfonic Acid (PFPeS)	--	<240	<270	<210	<300
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<240	<270	<210	<300
Perfluorooctanoic Acid (**PFOA**)	**10,000,000**	<240	<270	<210	<300
Perfluorohexane Sulfonic Acid (PFHxS)	--	<240	<270	<210	<300
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<240	<270	<210	<300
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<240	<270	<210	<300
Perfluorononanoic Acid (PFNA)	--	<240	<270	<210	<300
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<240	<270	<210	<300
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<240	<270	<210	<300
Perfluorodecanoic Acid (PFDA)	--	<240	<270	<210	<300
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<240	<270	<210	<300
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<240	<270	<210	<300
Perfluorooctane Sulfonic Acid (**PFOS**)	**240**	**490**	**350**	**46** J	<300
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**460**	**320**	**40** J	<300
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	<240	<270	<210	<300
Perfluoroundecanoic Acid (PFUnDA)	--	<240	<270	<210	<300
Perfluorononane Sulfonic Acid (PFNS)	--	<240	<270	<210	<300
Perfluorododecanoic Acid (PFDoDA)	--	<240	<270	<210	<300
Perfluorodecane Sulfonic Acid (PFDS)	--	<240	<270	<210	<300
Perfluorotridecanoic Acid (PFTrDA)	--	<240	<270	<210	<300
Perfluorooctane Sulfonamide (FOSA)	--	<240	<270	<210	<300
Perfluorotetradecanoic Acid (PFTeDA)	--	<240	<270	<210	<300
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<240	<270	<210	<300
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<240	<270	<210	<300
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<240	<270	<210	<300
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<240	<270	<210	<300
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))	--	--	--	--	--
3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA))	--	--	--	--	--
3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA))	--	--	--	--	--
Perfluorobutanesulfonamide (PFBSA)	--	--	--	--	--
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	--	--	--	--	--
Perfluorohexanesulfonamide (PFHxSA)	--	--	--	--	--
Total Per-and Polyfluoroalkyl Substances	--	**490.0**	**350.0**	**46.0**	**0.0**

Notes
1) Detections in **bold**.
2) Concentrations in ng/kg.
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) J - Estimated value less than reporting limit, but greater than MDL.
9) QA/QC Samples were either not detected above the reporting limit or below the EGLE Part 201 Groundwater Generic Cleanup Criteria.

FIGURE

- MONITORING WELL / PIEZOMETER
- ABANDONED WELL
- BORING
- PROPOSED CONCRETE SAMPLE
- PROPOSED STORM SEWER SAMPLE
- PROPOSED SURFACE WATER SAMPLE
- ABANDONED MANHOLE
- STORM SEWER DRAIN
- STORM SEWER MANHOLE
- PIPE PLUG
- SURFACE WATER
- OPEN DRAINAGE DITCH
- STORM SEWER FORMER
- BUILDING PROPERTY
- BOUNDARY

0 175 350
Feet

GENESEE STORM SEWERS (HORTON ST TO N DORT HWY)

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 01

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

I:\Racer-Trust.1088190\GIS\Coldwater_Road\MXD\2022_PFAS_OMMFigure 1 - Genesee Storm Sewers Horton to N Dort Hwy_rev11152022.mxd

PROJECT: 75178 | DATED: 11/15/2022 | DESIGNER: MONETANT

APPENDIX A
Aerial Photographs

INQUIRY #: 7295101.1

YEAR: 1937

= 750'

N

EDR


INQUIRY #: 7295101.1
YEAR: 1941
= 750'
N
EDR


INQUIRY #: 7295101.1
YEAR: 1950
= 750'
N
EDR


INQUIRY #: 7295101.1
YEAR: 1957
= 750'
N
EDR

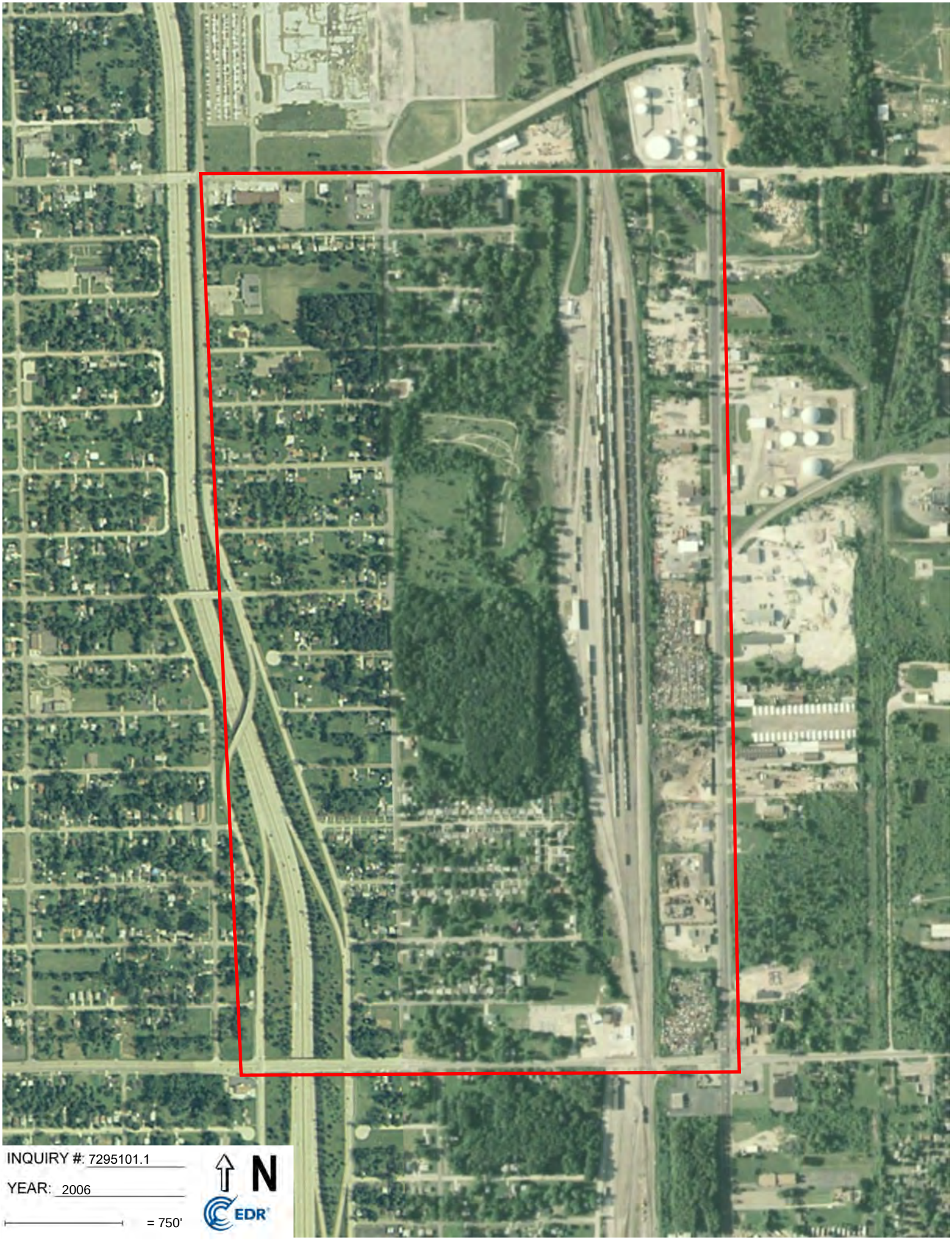

INQUIRY #: 7295101.1
YEAR: 1967
= 750'
N
EDR

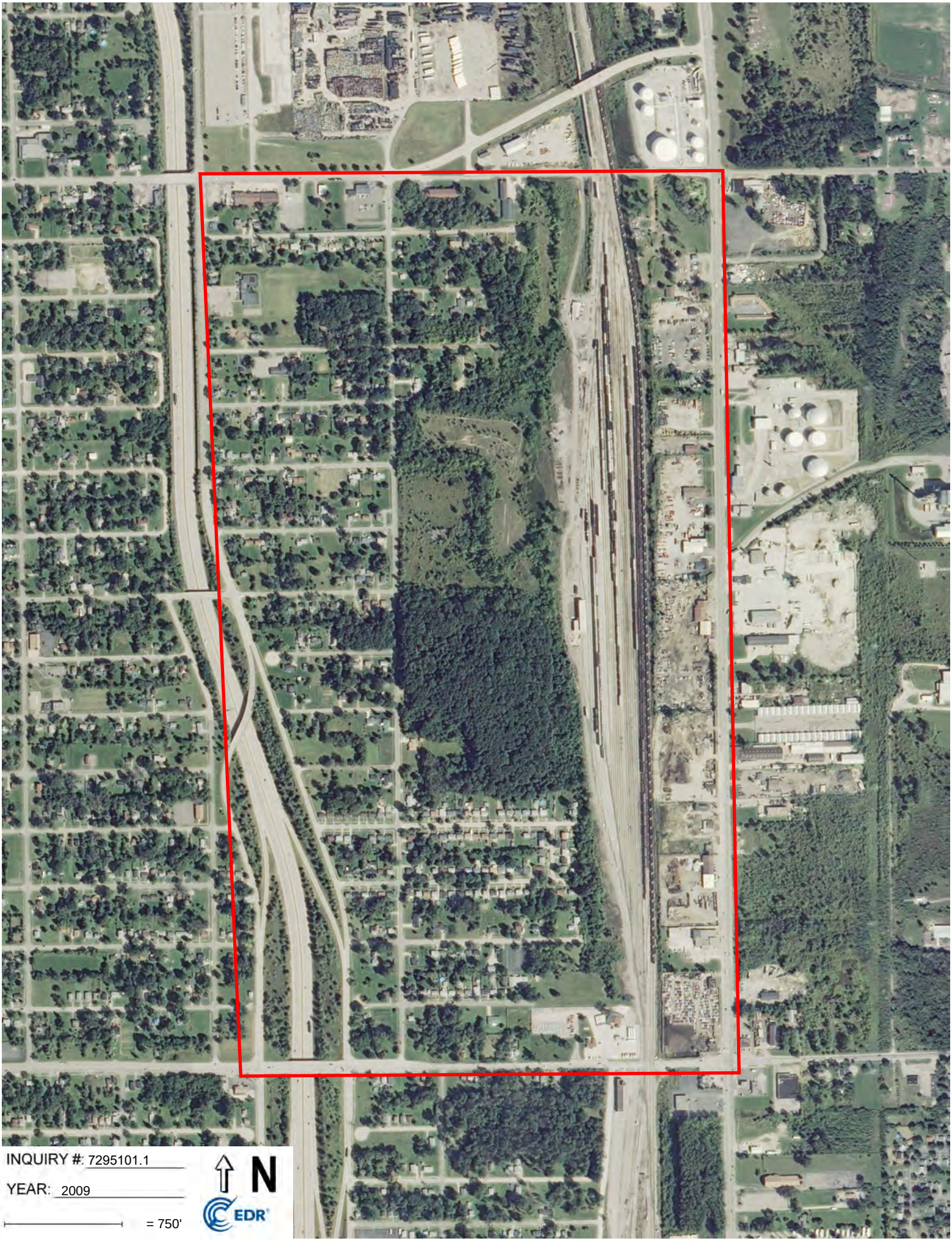

INQUIRY #: 7295101.1
YEAR: 1972
= 750'
N
EDR

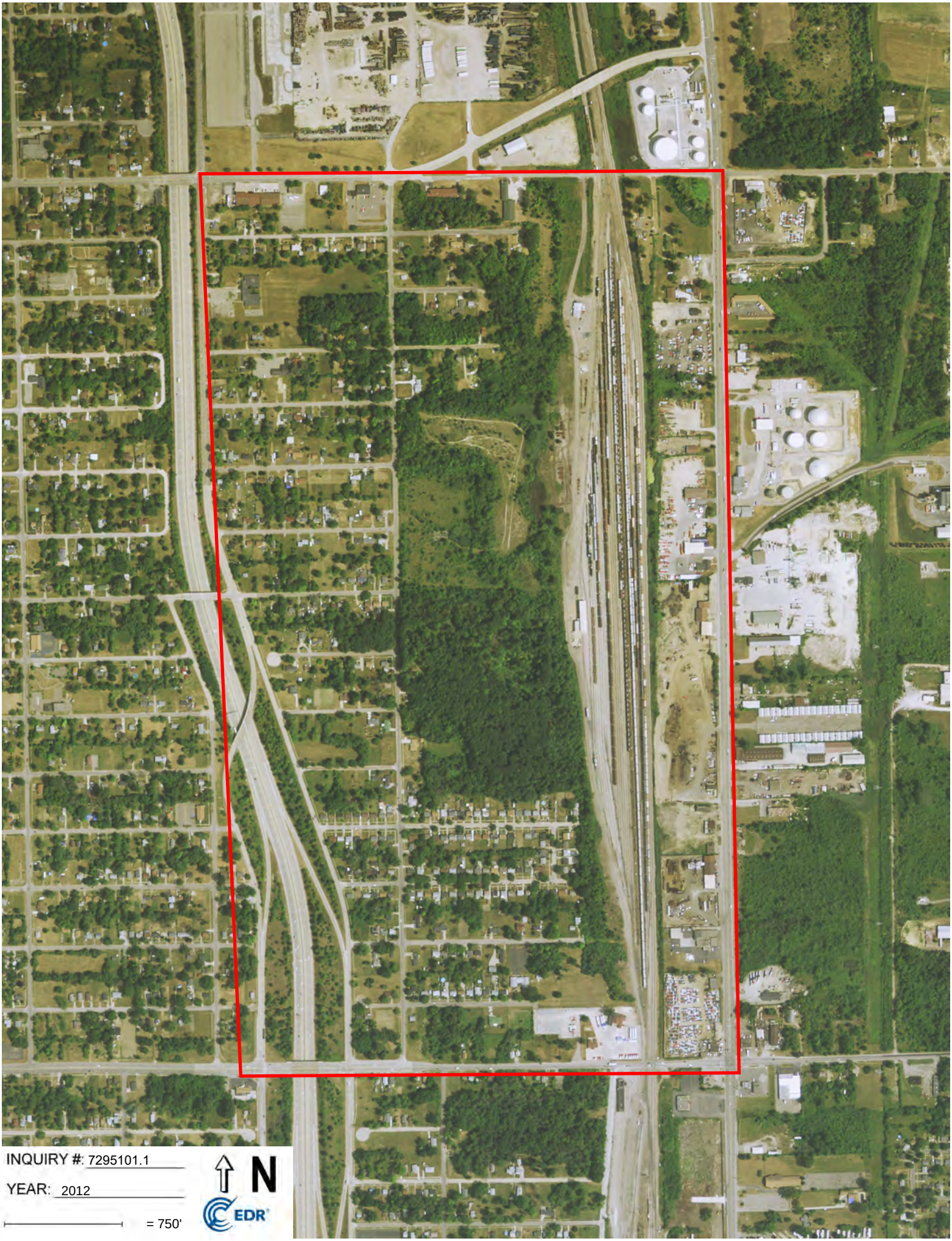

INQUIRY #: 7295101.1
YEAR: 1975
= 750'
N
EDR

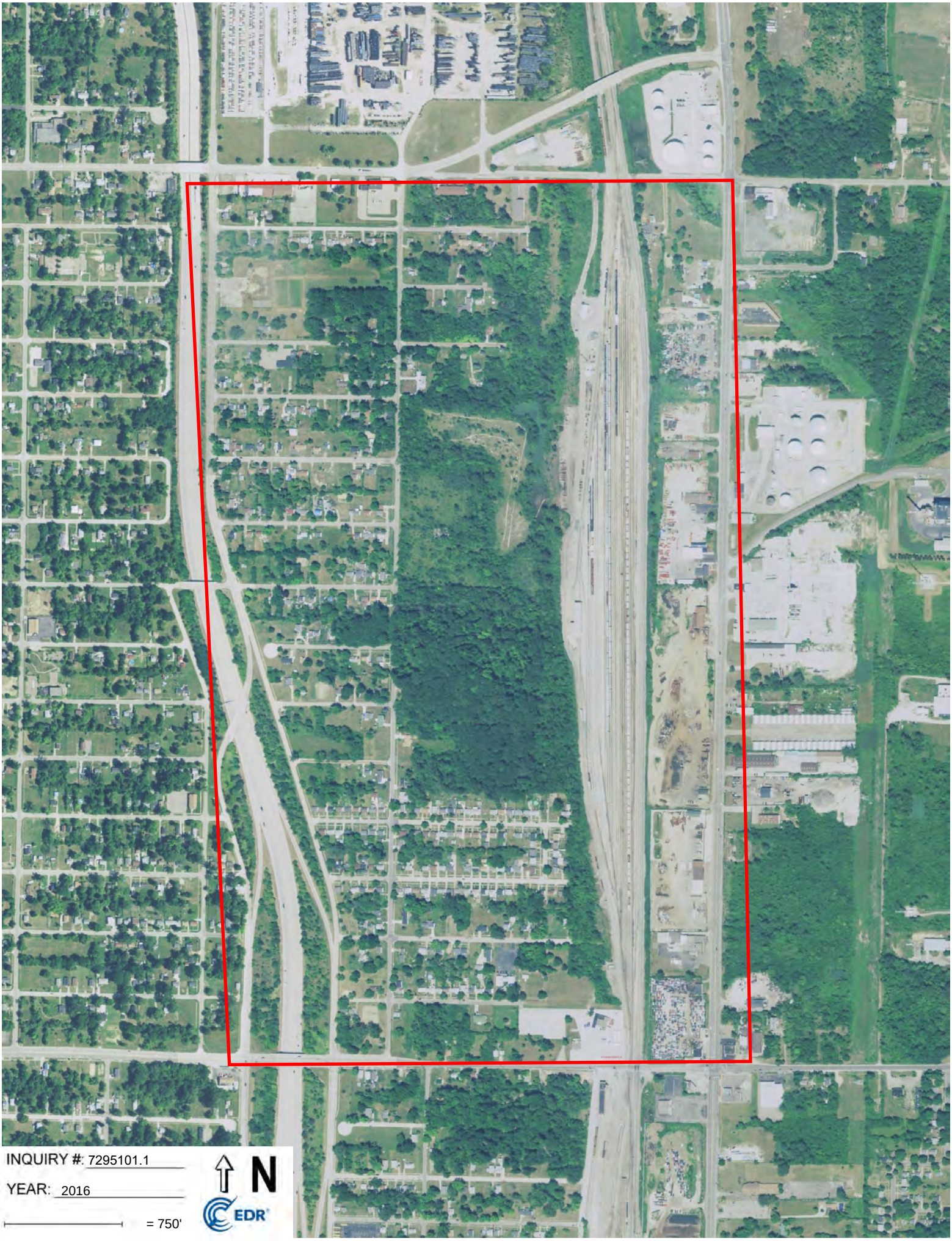

INQUIRY #: 7295101.1
YEAR: 1982
= 750'
N
EDR

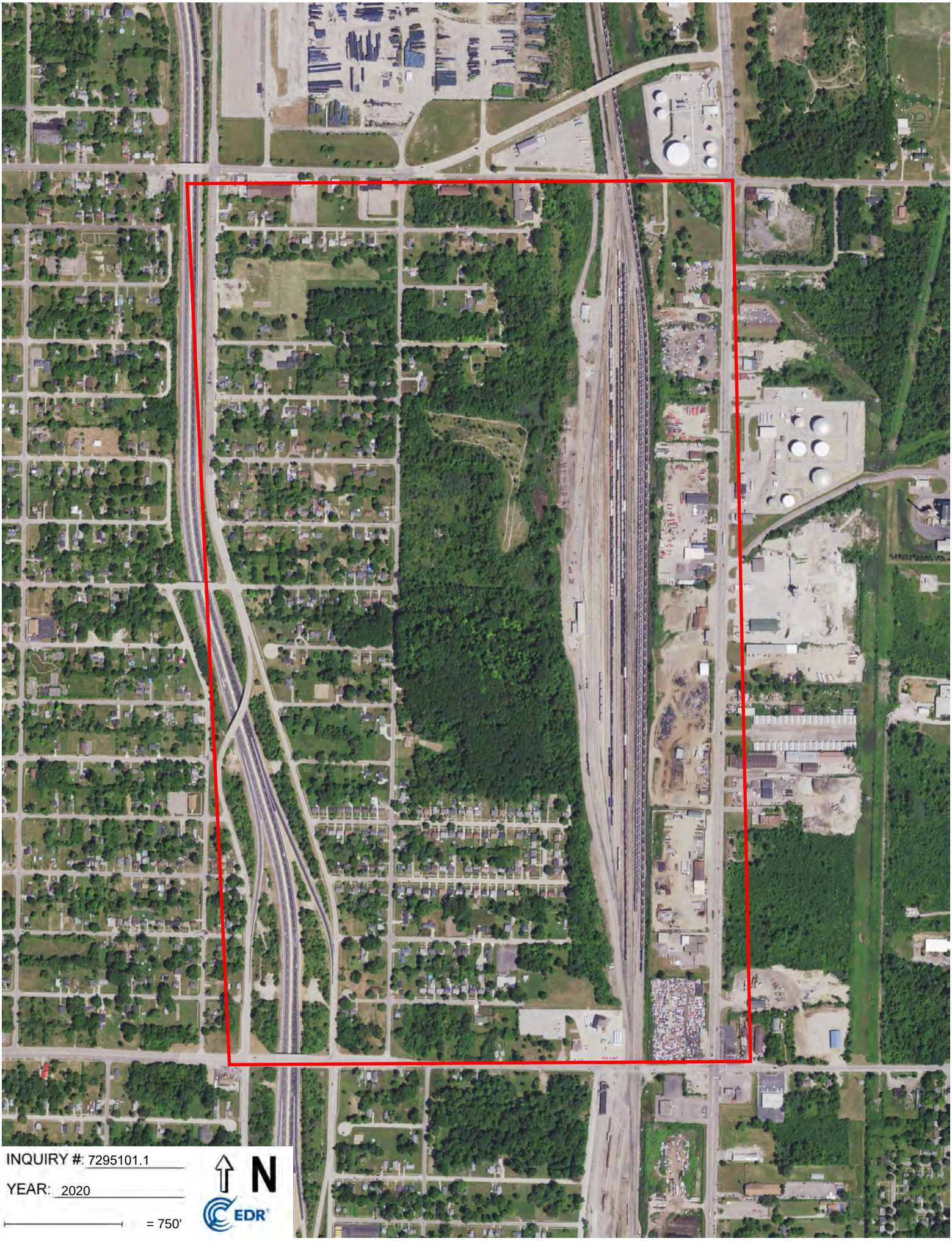

INQUIRY #: 7295101.1
YEAR: 1999
= 750'
N
EDR


INQUIRY #: 7295101.1
YEAR: 2006
= 750'
N
EDR


INQUIRY #: 7295101.1
YEAR: 2009
= 750'
N
EDR


INQUIRY #: 7295101.1
YEAR: 2012
= 750'
N
EDR


INQUIRY #: 7295101.1
YEAR: 2016
= 750'
N
EDR


INQUIRY #: 7295101.1
YEAR: 2020
= 750'
N
EDR

APPENDIX B
ANALYTICAL LABORATORY REPORT

Analytical Laboratory Report

Report ID: S43963.01(01)
Generated on 01/31/2023

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): S43963.01-S43963.06
Project: RACER Coldwater Road
Collected Date(s): 01/04/2023
Submitted Date/Time: 01/04/2023 14:40
Sampled by: Kevin Schneider
P.O. #: 194002628 TASK 31

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 (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S43963.01	SS-12	Liquid	01/04/23 11:20
S43963.02	SS-14	Liquid	01/04/23 11:32
S43963.03	SS-15	Liquid	01/04/23 11:11
S43963.04	SS-16	Liquid	01/04/23 11:05
S43963.05	MH-10E-W	Liquid	01/04/23 11:50
S43963.06	Field Blank-010423	Liquid	01/04/23 13:00

Analytical Laboratory Report

Lab Sample ID: S43963.01
Sample Tag: SS-12
Collected Date/Time: 01/04/2023 11:20
Matrix: Liquid
COC Reference: 154992

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.49/6.47/12	ASTMD7979-19M	01/17/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/18/23 18:38, 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*	1.1	4.0	1.00	ng/L	1.99	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.99	757124-72-4	
PFHxA*	2.6	2.0	1.4	ng/L	1.99	307-24-4	
PFBS*	2.6	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*	2.1	2.0	1.6	ng/L	1.99	335-67-1	
PFHxS*	1.6	2.0	1.6	ng/L	1.99	355-46-4	J
PFHxS-LN*	Not detected	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*	86	2.0	2.0	ng/L	1.99	1763-23-1	
PFOS-LN*	68	2.0	2.0	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	17	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: S43963.02
Sample Tag: SS-14
Collected Date/Time: 01/04/2023 11:32
Matrix: Liquid
COC Reference: 154992

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.40/6.45/10	ASTMD7979-19M	01/17/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/18/23 18:58, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.02	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2.02	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.02	757124-72-4	
PFHxA*	2.2	2.0	1.4	ng/L	2.02	307-24-4	
PFBS*	2.5	2.0	1.4	ng/L	2.02	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.02	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.02	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2.02	27619-97-2	
PFOA*	2.1	2.0	1.6	ng/L	2.02	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2.02	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	2.02	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.02	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.02	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.02	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2.02	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.02	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.02	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.02	2991-50-6	
PFOS*	12	2.0	2.0	ng/L	2.02	1763-23-1	
PFOS-LN*	7.1	2.0	2.0	ng/L	2.02	1763-23-1-LN	
PFOS-BR*	5.4	2.0	2.0	ng/L	2.02	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.02	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.02	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.02	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.02	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.02	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.02	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.02	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.02	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.02	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.02	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.02	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S43963.03
Sample Tag: SS-15
Collected Date/Time: 01/04/2023 11:11
Matrix: Liquid
COC Reference: 154992

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.91/6.49/11	ASTMD7979-19M	01/17/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/18/23 19:17, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.03	375-22-4	
PFPeA*	1.8	4.1	1.0	ng/L	2.03	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.03	757124-72-4	
PFHxA*	3.2	2.0	1.4	ng/L	2.03	307-24-4	
PFBS*	3.1	2.0	1.4	ng/L	2.03	375-73-5	
PFHpA*	1.6	2.0	1.4	ng/L	2.03	375-85-9	J
PFPeS*	Not detected	2.0	1.8	ng/L	2.03	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2.03	27619-97-2	
PFOA*	2.9	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*	100	2.0	2.0	ng/L	2.03	1763-23-1	
PFOS-LN*	72	2.0	2.0	ng/L	2.03	1763-23-1-LN	
PFOS-BR*	27	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	

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

Analytical Laboratory Report

Lab Sample ID: S43963.04
Sample Tag: SS-16
Collected Date/Time: 01/04/2023 11:05
Matrix: Liquid
COC Reference: 154992

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.31/6.56/12	ASTMD7979-19M	01/17/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/18/23 19:37, 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*	2.8	2.1	1.5	ng/L	2.09	307-24-4	
PFBS*	2.3	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*	3.2	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	
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*	99	2.1	2.0	ng/L	2.09	1763-23-1	
PFOS-LN*	72	2.1	2.0	ng/L	2.09	1763-23-1-LN	
PFOS-BR*	27	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	

Analytical Laboratory Report

Lab Sample ID: S43963.05
Sample Tag: MH-10E-W
Collected Date/Time: 01/04/2023 11:50
Matrix: Liquid
COC Reference: 154992

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.11/6.48/11	ASTMD7979-19M	01/17/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/18/23 19:56, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.8	9.8	ng/L	1.95	375-22-4	
PFPeA*	Not detected	3.9	0.98	ng/L	1.95	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.95	757124-72-4	
PFHxA*	2.9	2.0	1.4	ng/L	1.95	307-24-4	
PFBS*	1.9	2.0	1.4	ng/L	1.95	375-73-5	J
PFHpA*	1.4	2.0	1.4	ng/L	1.95	375-85-9	J
PFPeS*	Not detected	2.0	1.8	ng/L	1.95	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.95	27619-97-2	
PFOA*	2.7	2.0	1.6	ng/L	1.95	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.95	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.95	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.95	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.95	375-95-1	
8:2 FTSA*	Not detected	2.0	0.98	ng/L	1.95	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.95	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.95	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.95	2355-31-9	
EtFOSAA*	Not detected	3.9	2.0	ng/L	1.95	2991-50-6	
PFOS*	8.1	2.0	1.9	ng/L	1.95	1763-23-1	
PFOS-LN*	4.5	2.0	1.9	ng/L	1.95	1763-23-1-LN	
PFOS-BR*	3.4	2.0	1.9	ng/L	1.95	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.95	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.95	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.95	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.95	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.95	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.95	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.95	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.95	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.95	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.95	919005-14-4	
HFPO-DA*	Not detected	9.8	2.0	ng/L	1.95	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S43963.06
Sample Tag: Field Blank-010423
Collected Date/Time: 01/04/2023 13:00
Matrix: Liquid
COC Reference: 154992

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.22/6.54/10	ASTMD7979-19M	01/17/23 10:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 01/18/23 20:16, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	11	11	ng/L	2.14	375-22-4	
PFPeA*	Not detected	4.3	1.1	ng/L	2.14	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.14	757124-72-4	
PFHxA*	Not detected	2.1	1.5	ng/L	2.14	307-24-4	
PFBS*	Not detected	2.1	1.5	ng/L	2.14	375-73-5	
PFHpA*	1.6	2.1	1.5	ng/L	2.14	375-85-9	J
PFPeS*	Not detected	2.1	1.9	ng/L	2.14	2706-91-4	
6:2 FTSA*	30	2.1	2.1	ng/L	2.14	27619-97-2	
PFOA*	2.2	2.1	1.7	ng/L	2.14	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.14	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.14	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.14	355-46-4-BR	
PFNA*	2.0	2.1	1.9	ng/L	2.14	375-95-1	J
8:2 FTSA*	32	2.1	1.1	ng/L	2.14	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.14	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.14	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.14	2355-31-9	
EtFOSAA*	Not detected	4.3	2.1	ng/L	2.14	2991-50-6	
PFOS*	Not detected	2.1	2.1	ng/L	2.14	1763-23-1	
PFOS-LN*	Not detected	2.1	2.1	ng/L	2.14	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.1	ng/L	2.14	1763-23-1-BR	
PFUnDA*	2.6	2.1	1.5	ng/L	2.14	2058-94-8	
PFNS*	Not detected	2.1	1.5	ng/L	2.14	68259-12-1	
PFDoDA*	4.3	2.1	1.7	ng/L	2.14	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.14	335-77-3	
PFTrDA*	2.2	2.1	1.3	ng/L	2.14	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.14	754-91-6	
PFTeDA*	3.1	4.3	1.9	ng/L	2.14	376-06-7	J
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.14	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.14	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.14	919005-14-4	
HFPO-DA*	Not detected	11	2.1	ng/L	2.14	13252-13-6	

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

Merit Laboratories Login Checklist

Lab Set ID: S43963
Client: OBG02 (Ramboll Americas - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 01/04/2023 14:40 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 2.4
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 — 154992

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: 313-373-0211 | CELL NO. | P.O. NO.: 1940002628 (Task 31)
E-MAIL ADDRESS: clifford.yantz@Ramboll.com; kevin.schneider@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: 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)
43963.01	1/4/23	1120	SS-12	L	3	3							X
.02		1132	SS-14	L	3	3							X
.03		1111	SS-15	L	3	3							X
.04		1105	SS-16	L	3	3							X
.05		1150	MH-10E-W	L	3	3							X
.06	↓	1300	Field Blank-016423	L	3	3							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	☒ Sampler	1/4/23	1330
RECEIVED BY: SIGNATURE/ORGANIZATION		1/4/23	1730
RELINQUISHED BY: SIGNATURE/ORGANIZATION		1/4/23	1440
RECEIVED BY: SIGNATURE/ORGANIZATION		1/4/23	1440

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 2.4

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

Rev. 1.26.22

Quality Control Report

Report ID: QC-S43963-01
Generated on 02/01/2023

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): S43963.01-S43963.06
Project: RACER Coldwater Road
Submitted Date/Time: 01/04/2023 14:40
Sampled by: Kevin Schneider
P.O. #: 194002628 TASK 31

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: S43963.01
Sample Tag: SS-12
Collected Date/Time: 01/04/2023 11:20
Matrix: Liquid
COC Reference: 154992

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/18/23 18:38	AK230118	PF230117W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S43963.02
Sample Tag: SS-14
Collected Date/Time: 01/04/2023 11:32
Matrix: Liquid
COC Reference: 154992

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/18/23 18:58	AK230118	PF230117W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S43963.03
Sample Tag: SS-15
Collected Date/Time: 01/04/2023 11:11
Matrix: Liquid
COC Reference: 154992

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/18/23 19:17	AK230118	PF230117W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S43963.04
Sample Tag: SS-16
Collected Date/Time: 01/04/2023 11:05
Matrix: Liquid
COC Reference: 154992

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/18/23 19:37	AK230118	PF230117W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S43963.05
Sample Tag: MH-10E-W
Collected Date/Time: 01/04/2023 11:50
Matrix: Liquid
COC Reference: 154992

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/18/23 19:56	AK230118	PF230117W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S43963.06
Sample Tag: Field Blank-010423
Collected Date/Time: 01/04/2023 13:00
Matrix: Liquid
COC Reference: 154992

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	01/18/23 20:16	AK230118	PF230117W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF230117W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S43963.01	28 PFAs	ASTMD7979-19M	01/18/23 18:38	AK230118
S43963.02	28 PFAs	ASTMD7979-19M	01/18/23 18:58	AK230118
S43963.03	28 PFAs	ASTMD7979-19M	01/18/23 19:17	AK230118
S43963.04	28 PFAs	ASTMD7979-19M	01/18/23 19:37	AK230118
S43963.05	28 PFAs	ASTMD7979-19M	01/18/23 19:56	AK230118
S43963.06	28 PFAs	ASTMD7979-19M	01/18/23 20:16	AK230118

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43963.01

Sample Tag: SS-12

Collected Date/Time: 01/04/2023 11:20

Matrix: Liquid

COC Reference: 154992

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230118, Run Date: 01/18/2023 18:38, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**131.7**	50.0	150.0
M2-6:2FTSA		**119.9**	50.0	150.0
M2-8:2FTSA		**91.5**	50.0	150.0
M2PFTeDA		**92.9**	12.0	218.0
M3PFBS		**114.1**	50.0	150.0
M3PFHxS		**124.2**	50.0	150.0
M4PFHpA		**103.5**	50.0	150.0
M5PFHxA		**101.7**	50.0	150.0
M5PFPeA		**107.9**	50.0	150.0
M6PFDA		**94.8**	50.0	150.0
M7PFUnDA		**117.3**	50.0	150.0
M8FOSA		**113.5**	50.0	150.0
M8PFOA		**121.6**	50.0	150.0
M8PFOS		**106.4**	50.0	150.0
M9-PFNA		**112.4**	50.0	150.0
MPFBA		**119.2**	50.0	150.0
MPFDoDA		**96.0**	50.0	150.0
d3N-MeFOSAA		**108.8**	50.0	150.0
d5EtFOSAA		**116.5**	50.0	150.0
MHFPO-DA		**111.9**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43963.02

Sample Tag: SS-14

Collected Date/Time: 01/04/2023 11:32

Matrix: Liquid

COC Reference: 154992

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230118, Run Date: 01/18/2023 18:58, Matrix: WW, Dilution: 2.02

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**134.7**	50.0	150.0
M2-6:2FTSA		**105.8**	50.0	150.0
M2-8:2FTSA		**113.6**	50.0	150.0
M2PFTeDA		**85.3**	12.0	218.0
M3PFBS		**114.9**	50.0	150.0
M3PFHxS		**123.6**	50.0	150.0
M4PFHpA		**117.3**	50.0	150.0
M5PFHxA		**111.2**	50.0	150.0
M5PFPeA		**108.5**	50.0	150.0
M6PFDA		**98.1**	50.0	150.0
M7PFUnDA		**120.2**	50.0	150.0
M8FOSA		**112.5**	50.0	150.0
M8PFOA		**115.8**	50.0	150.0
M8PFOS		**100.6**	50.0	150.0
M9-PFNA		**109.2**	50.0	150.0
MPFBA		**120.2**	50.0	150.0
MPFDoDA		**83.1**	50.0	150.0
d3N-MeFOSAA		**115.6**	50.0	150.0
d5EtFOSAA		**119.5**	50.0	150.0
MHFPO-DA		**90.3**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43963.03

Sample Tag: SS-15

Collected Date/Time: 01/04/2023 11:11

Matrix: Liquid

COC Reference: 154992

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230118, Run Date: 01/18/2023 19:17, Matrix: WW, Dilution: 2.03

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**125.0**	50.0	150.0
M2-6:2FTSA		**113.3**	50.0	150.0
M2-8:2FTSA		**100.1**	50.0	150.0
M2PFTeDA		**88.0**	12.0	218.0
M3PFBS		**107.3**	50.0	150.0
M3PFHxS		**119.1**	50.0	150.0
M4PFHpA		**101.9**	50.0	150.0
M5PFHxA		**104.8**	50.0	150.0
M5PFPeA		**105.3**	50.0	150.0
M6PFDA		**93.2**	50.0	150.0
M7PFUnDA		**113.3**	50.0	150.0
M8FOSA		**107.3**	50.0	150.0
M8PFOA		**110.6**	50.0	150.0
M8PFOS		**96.1**	50.0	150.0
M9-PFNA		**97.6**	50.0	150.0
MPFBA		**114.3**	50.0	150.0
MPFDoDA		**93.4**	50.0	150.0
d3N-MeFOSAA		**103.9**	50.0	150.0
d5EtFOSAA		**120.1**	50.0	150.0
MHFPO-DA		**93.0**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43963.04

Sample Tag: SS-16

Collected Date/Time: 01/04/2023 11:05

Matrix: Liquid

COC Reference: 154992

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230118, Run Date: 01/18/2023 19:37, Matrix: WW, Dilution: 2.09

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**121.4**	50.0	150.0
M2-6:2FTSA		**98.6**	50.0	150.0
M2-8:2FTSA		**98.8**	50.0	150.0
M2PFTeDA		**104.6**	12.0	218.0
M3PFBS		**115.9**	50.0	150.0
M3PFHxS		**113.0**	50.0	150.0
M4PFHpA		**102.5**	50.0	150.0
M5PFHxA		**101.3**	50.0	150.0
M5PFPeA		**106.8**	50.0	150.0
M6PFDA		**95.3**	50.0	150.0
M7PFUnDA		**123.2**	50.0	150.0
M8FOSA		**118.9**	50.0	150.0
M8PFOA		**104.0**	50.0	150.0
M8PFOS		**101.2**	50.0	150.0
M9-PFNA		**106.0**	50.0	150.0
MPFBA		**117.5**	50.0	150.0
MPFDoDA		**94.3**	50.0	150.0
d3N-MeFOSAA		**111.2**	50.0	150.0
d5EtFOSAA		**119.4**	50.0	150.0
MHFPO-DA		**116.0**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43963.05

Sample Tag: MH-10E-W

Collected Date/Time: 01/04/2023 11:50

Matrix: Liquid

COC Reference: 154992

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230118, Run Date: 01/18/2023 19:56, Matrix: WW, Dilution: 1.95

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**125.6**	50.0	150.0
M2-6:2FTSA		**117.1**	50.0	150.0
M2-8:2FTSA		**107.2**	50.0	150.0
M2PFTeDA		**96.0**	12.0	218.0
M3PFBS		**106.9**	50.0	150.0
M3PFHxS		**116.1**	50.0	150.0
M4PFHpA		**103.7**	50.0	150.0
M5PFHxA		**96.5**	50.0	150.0
M5PFPeA		**109.2**	50.0	150.0
M6PFDA		**100.2**	50.0	150.0
M7PFUnDA		**126.2**	50.0	150.0
M8FOSA		**113.0**	50.0	150.0
M8PFOA		**119.9**	50.0	150.0
M8PFOS		**97.4**	50.0	150.0
M9-PFNA		**103.7**	50.0	150.0
MPFBA		**115.4**	50.0	150.0
MPFDoDA		**100.3**	50.0	150.0
d3N-MeFOSAA		**113.6**	50.0	150.0
d5EtFOSAA		**110.0**	50.0	150.0
MHFPO-DA		**93.4**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S43963.06

Sample Tag: Field Blank-010423

Collected Date/Time: 01/04/2023 13:00

Matrix: Liquid

COC Reference: 154992

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230118, Run Date: 01/18/2023 20:16, Matrix: WW, Dilution: 2.14

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**113.2**	50.0	150.0
M2-6:2FTSA		**95.1**	50.0	150.0
M2-8:2FTSA		**115.1**	50.0	150.0
M2PFTeDA		**92.2**	12.0	218.0
M3PFBS		**109.7**	50.0	150.0
M3PFHxS		**116.8**	50.0	150.0
M4PFHpA		**114.8**	50.0	150.0
M5PFHxA		**104.0**	50.0	150.0
M5PFPeA		**104.3**	50.0	150.0
M6PFDA		**116.4**	50.0	150.0
M7PFUnDA		**121.8**	50.0	150.0
M8FOSA		**100.7**	50.0	150.0
M8PFOA		**110.6**	50.0	150.0
M8PFOS		**95.9**	50.0	150.0
M9-PFNA		**112.2**	50.0	150.0
MPFBA		**117.5**	50.0	150.0
MPFDoDA		**97.4**	50.0	150.0
d3N-MeFOSAA		**118.0**	50.0	150.0
d5EtFOSAA		**123.8**	50.0	150.0
MHFPO-DA		**108.1**	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF230117W1

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

Blank (BLK)

Lab Sample ID: AK230118.BLK230117W1

Run in Batch: AK230118, Run Date: 01/18/2023 17:59, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**105.3**	50.0	150.0
M2-6:2FTSA		**115.9**	50.0	150.0
M2-8:2FTSA		**101.2**	50.0	150.0
M2PFTeDA		**85.8**	12.0	218.0
M3PFBS		**106.4**	50.0	150.0
M3PFHxS		**121.2**	50.0	150.0
M4PFHpA		**113.5**	50.0	150.0
M5PFHxA		**110.5**	50.0	150.0
M5PFPeA		**102.9**	50.0	150.0
M6PFDA		**95.7**	50.0	150.0
M7PFUnDA		**118.5**	50.0	150.0
M8FOSA		**116.4**	50.0	150.0
M8PFOA		**116.6**	50.0	150.0
M8PFOS		**114.8**	50.0	150.0
M9-PFNA		**112.1**	50.0	150.0
MPFBA		**112.5**	50.0	150.0
MPFDoDA		**84.6**	50.0	150.0
d3N-MeFOSAA		**99.3**	50.0	150.0
d5EtFOSAA		**124.0**	50.0	150.0
MHFPO-DA		**96.1**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK230118.LCS230117W1

Run in Batch: AK230118, Run Date: 01/18/2023 17:20, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**102.5**	50.0	150.0
M2-6:2FTSA		**104.5**	50.0	150.0
M2-8:2FTSA		**106.5**	50.0	150.0
M2PFTeDA		**95.2**	12.0	218.0
M3PFBS		**111.9**	50.0	150.0
M3PFHxS		**119.4**	50.0	150.0
M4PFHpA		**105.2**	50.0	150.0
M5PFHxA		**98.9**	50.0	150.0
M5PFPeA		**105.2**	50.0	150.0
M6PFDA		**101.2**	50.0	150.0
M7PFUnDA		**114.1**	50.0	150.0
M8FOSA		**104.0**	50.0	150.0
M8PFOA		**115.1**	50.0	150.0
M8PFOS		**89.4**	50.0	150.0
M9-PFNA		**100.4**	50.0	150.0
MPFBA		**108.8**	50.0	150.0
MPFDoDA		**89.9**	50.0	150.0
d3N-MeFOSAA		**114.2**	50.0	150.0
d5EtFOSAA		**120.2**	50.0	150.0
MHFPO-DA		**103.1**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230118.LCSD230117W1, Parent Sample ID: AK230118.LCS230117W1

Run in Batch: AK230118, Run Date: 01/18/2023 17:40, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**96.2**	50.0	150.0
M2-6:2FTSA		**103.3**	50.0	150.0
M2-8:2FTSA		**96.8**	50.0	150.0
M2PFTeDA		**102.4**	12.0	218.0
M3PFBS		**103.8**	50.0	150.0
M3PFHxS		**123.6**	50.0	150.0
M4PFHpA		**109.6**	50.0	150.0
M5PFHxA		**104.8**	50.0	150.0
M5PFPeA		**100.3**	50.0	150.0
M6PFDA		**93.5**	50.0	150.0
M7PFUnDA		**112.8**	50.0	150.0
M8FOSA		**114.0**	50.0	150.0
M8PFOA		**104.4**	50.0	150.0
M8PFOS		**95.3**	50.0	150.0
M9-PFNA		**110.8**	50.0	150.0
MPFBA		**110.3**	50.0	150.0
MPFDoDA		**93.5**	50.0	150.0
d3N-MeFOSAA		**120.4**	50.0	150.0
d5EtFOSAA		**119.9**	50.0	150.0
MHFPO-DA		**107.0**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK230118.4381903REBM, Parent Sample ID: S43819.02

Run in Batch: AK230118, Run Date: 01/18/2023 23:50, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**114.5**	50.0	150.0
M2-6:2FTSA		**107.7**	50.0	150.0
M2-8:2FTSA		**97.4**	50.0	150.0
M2PFTeDA		**87.4**	12.0	218.0
M3PFBS		**111.1**	50.0	150.0
M3PFHxS		**123.5**	50.0	150.0
M4PFHpA		**111.7**	50.0	150.0
M5PFHxA		**102.4**	50.0	150.0
M5PFPeA		**107.6**	50.0	150.0
M6PFDA		**106.4**	50.0	150.0
M7PFUnDA		**114.9**	50.0	150.0
M8FOSA		**119.8**	50.0	150.0
M8PFOA		**111.9**	50.0	150.0
M8PFOS		**102.7**	50.0	150.0
M9-PFNA		**118.3**	50.0	150.0
MPFBA		**120.4**	50.0	150.0
MPFDoDA		**96.1**	50.0	150.0
d3N-MeFOSAA		**109.5**	50.0	150.0
d5EtFOSAA		**125.5**	50.0	150.0
MHFPO-DA		**121.8**	50.0	150.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK230118.4381904REBN, Parent Sample ID: AK230118.4381903REBM

Run in Batch: AK230118, Run Date: 01/19/2023 00:10, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**112.4**	50.0	150.0
M2-6:2FTSA		**98.8**	50.0	150.0
M2-8:2FTSA		**82.3**	50.0	150.0
M2PFTeDA		**87.3**	12.0	218.0
M3PFBS		**120.6**	50.0	150.0
M3PFHxS		**124.8**	50.0	150.0
M4PFHpA		**107.1**	50.0	150.0
M5PFHxA		**115.1**	50.0	150.0
M5PFPeA		**107.8**	50.0	150.0
M6PFDA		**97.0**	50.0	150.0
M7PFUnDA		**117.9**	50.0	150.0
M8FOSA		**118.0**	50.0	150.0
M8PFOA		**120.9**	50.0	150.0
M8PFOS		**104.2**	50.0	150.0
M9-PFNA		**103.2**	50.0	150.0
MPFBA		**122.7**	50.0	150.0
MPFDoDA		**87.4**	50.0	150.0
d3N-MeFOSAA		**123.2**	50.0	150.0
d5EtFOSAA		**120.5**	50.0	150.0
MHFPO-DA		**122.6**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230117W1

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

Blank (BLK)

Lab Sample ID: AK230118.BLK230117W1

Run in Batch: AK230118, Run Date: 01/18/2023 17:59, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFMPA		ND	2	ng/l
PFPrS		ND	2	ng/l
PFMBA		ND	2	ng/l
NFDHA		ND	2	ng/l
PFEESA		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
FHpPA (7:3 FTCA)		ND	4	ng/l
FPePA (5:3 FTCA)		ND	4	ng/l
FPrPA (3:3 FTCA)		ND	4	ng/l
PFBSA		ND	2	ng/l
PFECHS		ND	2	ng/l
PFHxSA		ND	2	ng/l

Organics - Volatiles, Prep Batch ID: PF230117W1 (continued)

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

Laboratory Control Sample (LCS)

Lab Sample ID: AK230118.LCS230117W1

Run in Batch: AK230118, Run Date: 01/18/2023 17:20, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		106.6	70.0	130.0
PFMPA	*	149.4	70.0	130.0
FPrPA (3:3 FTCA)		90.4	70.0	130.0
PFPrS		100.8	70.0	130.0
PFPeA		99.4	70.0	130.0
PFMBA	*	160.0	70.0	130.0
4:2 FTSA		114.2	70.0	130.0
NFDHA	*	140.4	70.0	130.0
PFHxA		96.6	70.0	130.0
PFBS		99.0	70.0	130.0
HFPO-DA		103.2	70.0	130.0
FPePA (5:3 FTCA)		105.8	70.0	130.0
PFEESA	*	137.8	70.0	130.0
PFHpA		106.4	70.0	130.0
ADONA		87.6	70.0	130.0
PFPeS		98.2	70.0	130.0
PFBSA		97.6	70.0	130.0
6:2 FTSA		115.8	70.0	130.0
PFOA		107.2	70.0	130.0
PFHxS		109.8	70.0	130.0
FHpPA (7:3 FTCA)		96.8	70.0	130.0
PFNA		100.6	70.0	130.0
8:2 FTSA		96.4	70.0	130.0
PFECHS		126.8	70.0	130.0
PFHpS		91.8	70.0	130.0
N-MeFOSAA		100.8	70.0	130.0
PFDA		99.8	70.0	130.0
EtFOSAA		87.6	70.0	130.0
PFOS		117.2	70.0	130.0
PFHxSA		94.2	70.0	130.0
PFUnDA		88.2	70.0	130.0
9CL-PF3ONS		116.0	70.0	130.0
PFNS		110.2	70.0	130.0
PFDoDA		102.4	70.0	130.0
PFDS		110.0	70.0	130.0
PFTrDA		92.6	70.0	130.0
FOSA		98.4	70.0	130.0
11CL-PF3OUdS		106.8	70.0	130.0
PFTeDA		103.6	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230118.LCSD230117W1, Parent Sample ID: AK230118.LCS230117W1

Run in Batch: AK230118, Run Date: 01/18/2023 17:40, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		101.4	70.0	130.0	5.0	30.0
PFMPA	*	138.6	70.0	130.0	7.5	30.0

Organics - Volatiles, Prep Batch ID: PF230117W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK230118.LCSD230117W1, Parent Sample ID: AK230118.LCS230117W1

Run in Batch: AK230118, Run Date: 01/18/2023 17:40, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
FPrPA (3:3 FTCA)		93.2	70.0	130.0	3.1	30.0
PFPrS		105.0	70.0	130.0	4.1	30.0
PFPeA		103.2	70.0	130.0	3.8	30.0
PFMBA	*	138.8	70.0	130.0	14.2	30.0
4:2 FTSA		127.0	70.0	130.0	10.6	30.0
NFDHA		125.4	70.0	130.0	11.3	30.0
PFHxA		106.8	70.0	130.0	10.0	30.0
PFBS		106.2	70.0	130.0	7.0	30.0
HFPO-DA		102.6	70.0	130.0	0.6	30.0
FPePA (5:3 FTCA)		86.2	70.0	130.0	20.4	30.0
PFEESA		126.0	70.0	130.0	8.9	30.0
PFHpA		110.6	70.0	130.0	3.9	30.0
ADONA		101.0	70.0	130.0	14.2	30.0
PFPeS		104.2	70.0	130.0	5.9	30.0
PFBSA		83.0	70.0	130.0	16.2	30.0
6:2 FTSA		97.2	70.0	130.0	17.5	30.0
PFOA		118.0	70.0	130.0	9.6	30.0
PFHxS		90.4	70.0	130.0	19.4	30.0
FHpPA (7:3 FTCA)		101.8	70.0	130.0	5.0	30.0
PFNA		94.6	70.0	130.0	6.1	30.0
8:2 FTSA		116.6	70.0	130.0	19.0	30.0
PFECHS		123.0	70.0	130.0	3.0	30.0
PFHpS		100.6	70.0	130.0	9.1	30.0
N-MeFOSAA		91.2	70.0	130.0	10.0	30.0
PFDA		110.2	70.0	130.0	9.9	30.0
EtFOSAA		93.2	70.0	130.0	6.2	30.0
PFOS		114.2	70.0	130.0	2.6	30.0
PFHxSA		85.8	70.0	130.0	9.3	30.0
PFUnDA		89.2	70.0	130.0	1.1	30.0
9CL-PF3ONS		108.8	70.0	130.0	6.4	30.0
PFNS		100.4	70.0	130.0	9.3	30.0
PFDoDA		97.6	70.0	130.0	4.8	30.0
PFDS		102.0	70.0	130.0	7.5	30.0
PFTrDA		97.4	70.0	130.0	5.1	30.0
FOSA		89.8	70.0	130.0	9.1	30.0
11CL-PF3OUdS		97.8	70.0	130.0	8.8	30.0
PFTeDA		88.4	70.0	130.0	15.8	30.0

Matrix Spike (MS)

Lab Sample ID: AK230118.4381903REBM, Parent Sample ID: S43819.02

Run in Batch: AK230118, Run Date: 01/18/2023 23:50, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1.96

Analyte	Flags	% Rec	LCL	UCL
PFBA		101.0	70.0	130.0
PFPeA		101.0	70.0	130.0
4:2 FTSA		112.2	70.0	130.0
PFHxA		100.0	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF230117W1 (continued)

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

Matrix Spike (MS) (continued)

Lab Sample ID: AK230118.4381903REBM, Parent Sample ID: S43819.02

Run in Batch: AK230118, Run Date: 01/18/2023 23:50, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1.96

Analyte	Flags	% Rec	LCL	UCL
PFBS		102.0	70.0	130.0
PFHpA		112.2	70.0	130.0
PFPeS		102.0	70.0	130.0
6:2 FTSA		112.2	70.0	130.0
PFOA		122.4	70.0	130.0
PFHxS		84.7	70.0	130.0
PFNA		84.7	70.0	130.0
8:2 FTSA	*	132.7	70.0	130.0
PFHpS		95.9	70.0	130.0
PFDA		112.2	70.0	130.0
N-MeFOSAA		112.2	70.0	130.0
EtFOSAA		89.8	70.0	130.0
PFOS		102.0	70.0	130.0
PFUnDA		86.7	70.0	130.0
PFNS		102.0	70.0	130.0
PFDoDA		92.9	70.0	130.0
PFDS		96.9	70.0	130.0
PFTrDA		88.8	70.0	130.0
FOSA		91.8	70.0	130.0
PFTeDA		102.0	70.0	130.0
11CL-PF3OUdS		93.9	70.0	130.0
9CL-PF3ONS		95.9	70.0	130.0
ADONA		98.0	70.0	130.0
HFPO-DA		96.9	70.0	130.0
FHpPA (7:3 FTCA)		102.0	70.0	130.0
FPePA (5:3 FTCA)		100.0	70.0	130.0
FPrPA (3:3 FTCA)		96.9	70.0	130.0
PFBSA		83.7	70.0	130.0
PFECHS	*	132.7	70.0	130.0
PFHxSA		82.7	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK230118.4381904REBN, Parent Sample ID: AK230118.4381903REBM

Run in Batch: AK230118, Run Date: 01/19/2023 00:10, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1.99

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		97.5	70.0	130.0	2.0	30.0
PFPeA		100.5	70.0	130.0	1.0	30.0
4:2 FTSA		99.5	70.0	130.0	10.5	30.0
PFHxA		88.4	70.0	130.0	10.8	30.0
PFBS		99.5	70.0	130.0	1.0	30.0
PFHpA		120.6	70.0	130.0	8.7	30.0
PFPeS		90.5	70.0	130.0	10.5	30.0
6:2 FTSA		110.6	70.0	130.0	0.0	30.0
PFOA		98.5	70.0	130.0	20.2	30.0
PFHxS		100.5	70.0	130.0	18.6	30.0
PFNA		99.5	70.0	130.0	17.6	30.0

Organics - Volatiles, Prep Batch ID: PF230117W1 (continued)

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

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: AK230118.4381904REBN, Parent Sample ID: AK230118.4381903REBM

Run in Batch: AK230118, Run Date: 01/19/2023 00:10, Prep Date: 01/17/2023, Matrix: WW, Dilution: 1.99

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
8:2 FTSA	*	140.7	70.0	130.0	7.4	30.0
PFHpS		110.6	70.0	130.0	15.7	30.0
PFDA		100.5	70.0	130.0	9.5	30.0
N-MeFOSAA		91.5	70.0	130.0	18.9	30.0
EtFOSAA		91.5	70.0	130.0	3.4	30.0
PFOS		100.5	70.0	130.0	0.0	30.0
PFUnDA		90.5	70.0	130.0	5.7	30.0
PFNS		95.5	70.0	130.0	5.1	30.0
PFDoDA		92.5	70.0	130.0	1.1	30.0
PFDS		89.4	70.0	130.0	6.5	30.0
PFTrDA		94.5	70.0	130.0	7.7	30.0
FOSA		87.4	70.0	130.0	3.4	30.0
PFTeDA		93.5	70.0	130.0	7.3	30.0
11CL-PF3OUdS		86.4	70.0	130.0	6.7	30.0
9CL-PF3ONS		98.5	70.0	130.0	4.2	30.0
ADONA		89.4	70.0	130.0	7.6	30.0
HFPO-DA		99.5	70.0	130.0	4.1	30.0
FHpPA (7:3 FTCA)		88.4	70.0	130.0	12.8	30.0
FPePA (5:3 FTCA)		83.4	70.0	130.0	16.6	30.0
FPrPA (3:3 FTCA)		97.5	70.0	130.0	2.1	30.0
PFBSA		85.4	70.0	130.0	3.6	30.0
PFECHS		120.6	70.0	130.0	8.0	30.0
PFHxSA		81.4	70.0	130.0	0.0	30.0

Merit Laboratories, Inc.

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www.meritlabs.com

C.O.C. PAGE # 1 OF 1 — 154992

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: 313-373-0211 | CELL NO. | P.O. NO.: 1940002628 (Task 31)
E-MAIL ADDRESS: clifford.yantz@Ramboll.com; kevin.schneider@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: 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)
43963.01	1/4/23	1120	SS-12	L	3	3							X
.02		1132	SS-14	L	3	3							X
.03		1111	SS-15	L	3	3							X
.04		1105	SS-16	L	3	3							X
.05		1150	MH-10E-W	L	3	3							X
.06	↓	1300	Field Blank-016423	L	3	3							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	☒ Sampler	1/4/23	1330
RECEIVED BY: SIGNATURE/ORGANIZATION		1/4/23	1730
RELINQUISHED BY: SIGNATURE/ORGANIZATION		1/4/23	1440
RECEIVED BY: SIGNATURE/ORGANIZATION		1/4/23	1440

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 2.4

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

Rev. 1.26.22

Analytical Laboratory Report

Report ID: S46623.01(01)
Generated on 04/19/2023

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): S46623.01-S46623.08
Project: RACER Coldwater Road
Collected Date(s): 03/23/2023
Submitted Date/Time: 03/24/2023 09:51
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 31

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 (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S46623.01	SS-16	Liquid	03/23/23 11:06
S46623.02	SS-19	Liquid	03/23/23 11:12
S46623.03	SS-15	Liquid	03/23/23 11:20
S46623.04	SS-12	Liquid	03/23/23 11:30
S46623.05	SS-14	Liquid	03/23/23 11:45
S46623.06	SS-20	Liquid	03/23/23 12:35
S46623.07	MH-10E-W	Liquid	03/23/23 12:00
S46623.08	Field Blank-032323	Liquid	03/23/23 13:00

Analytical Laboratory Report

Lab Sample ID: S46623.01
Sample Tag: SS-16
Collected Date/Time: 03/23/2023 11:06
Matrix: Liquid
COC Reference: 154995

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.13/6.46/10	ASTMD7979-19M	04/13/23 15:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/13/23 23:39, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	11	11	ng/L	2.14	375-22-4	
PFPeA*	Not detected	4.3	1.1	ng/L	2.14	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.14	757124-72-4	
PFHxA*	Not detected	2.1	1.5	ng/L	2.14	307-24-4	
PFBS*	Not detected	2.1	1.5	ng/L	2.14	375-73-5	
PFHpA*	Not detected	2.1	1.5	ng/L	2.14	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.14	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.14	27619-97-2	
PFOA*	Not detected	2.1	1.7	ng/L	2.14	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.14	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.14	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.14	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.14	375-95-1	
8:2 FTSA*	Not detected	2.1	1.1	ng/L	2.14	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.14	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.14	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.14	2355-31-9	
EtFOSAA*	Not detected	4.3	2.1	ng/L	2.14	2991-50-6	
PFOS*	27	2.1	2.1	ng/L	2.14	1763-23-1	
PFOS-LN*	21	2.1	2.1	ng/L	2.14	1763-23-1-LN	
PFOS-BR*	5.1	2.1	2.1	ng/L	2.14	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.5	ng/L	2.14	2058-94-8	
PFNS*	Not detected	2.1	1.5	ng/L	2.14	68259-12-1	
PFDoDA*	Not detected	2.1	1.7	ng/L	2.14	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.14	335-77-3	
PFTrDA*	Not detected	2.1	1.3	ng/L	2.14	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.14	754-91-6	
PFTeDA*	Not detected	4.3	1.9	ng/L	2.14	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.14	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.14	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.14	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.14	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S46623.02
Sample Tag: SS-19
Collected Date/Time: 03/23/2023 11:12
Matrix: Liquid
COC Reference: 154995

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.46/6.48/10	ASTMD7979-19M	04/13/23 15:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/13/23 23:59, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.01	375-22-4	
PFPeA*	1.9	4.0	1.0	ng/L	2.01	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.01	757124-72-4	
PFHxA*	2.0	2.0	1.4	ng/L	2.01	307-24-4	J
PFBS*	Not detected	2.0	1.4	ng/L	2.01	375-73-5	
PFHpA*	1.5	2.0	1.4	ng/L	2.01	375-85-9	J
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*	Not detected	2.0	1.6	ng/L	2.01	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2.01	355-46-4	
PFHxS-LN*	Not detected	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	
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*	5.6	2.0	2.0	ng/L	2.01	1763-23-1	
PFOS-LN*	3.3	2.0	2.0	ng/L	2.01	1763-23-1-LN	
PFOS-BR*	2.2	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	2.0	2.0	ng/L	2.01	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S46623.03
Sample Tag: SS-15
Collected Date/Time: 03/23/2023 11:20
Matrix: Liquid
COC Reference: 154995

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.59/6.50/10	ASTMD7979-19M	04/13/23 15:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/14/23 00:38, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.8	9.8	ng/L	1.96	375-22-4	
PFPeA*	Not detected	3.9	0.98	ng/L	1.96	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.96	757124-72-4	
PFHxA*	1.7	2.0	1.4	ng/L	1.96	307-24-4	J
PFBS*	1.7	2.0	1.4	ng/L	1.96	375-73-5	J
PFHpA*	Not detected	2.0	1.4	ng/L	1.96	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.96	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.96	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.96	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.96	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.96	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.96	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.96	375-95-1	
8:2 FTSA*	Not detected	2.0	0.98	ng/L	1.96	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.96	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.96	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.96	2355-31-9	
EtFOSAA*	Not detected	3.9	2.0	ng/L	1.96	2991-50-6	
PFOS*	29	2.0	1.9	ng/L	1.96	1763-23-1	
PFOS-LN*	22	2.0	1.9	ng/L	1.96	1763-23-1-LN	
PFOS-BR*	6.8	2.0	1.9	ng/L	1.96	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.96	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.96	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.96	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.96	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.96	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.96	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.96	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.96	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.96	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.96	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	1.96	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S46623.04
Sample Tag: SS-12
Collected Date/Time: 03/23/2023 11:30
Matrix: Liquid
COC Reference: 154995

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.01/6.50/11	ASTMD7979-19M	04/13/23 15:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/14/23 00:57, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2	757124-72-4	
PFHxA*	2.0	2.0	1.4	ng/L	2	307-24-4	J
PFBS*	Not detected	2.0	1.4	ng/L	2	375-73-5	
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*	Not detected	2.0	1.6	ng/L	2	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2	355-46-4	
PFHxS-LN*	Not detected	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*	34	2.0	2.0	ng/L	2	1763-23-1	
PFOS-LN*	28	2.0	2.0	ng/L	2	1763-23-1-LN	
PFOS-BR*	5.9	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	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: S46623.05
Sample Tag: SS-14
Collected Date/Time: 03/23/2023 11:45
Matrix: Liquid
COC Reference: 154995

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.98/6.47/11	ASTMD7979-19M	04/13/23 15:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/14/23 01:17, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2	757124-72-4	
PFHxA*	2.0	2.0	1.4	ng/L	2	307-24-4	J
PFBS*	Not detected	2.0	1.4	ng/L	2	375-73-5	
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*	Not detected	2.0	1.6	ng/L	2	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2	355-46-4	
PFHxS-LN*	Not detected	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*	6.3	2.0	2.0	ng/L	2	1763-23-1	
PFOS-LN*	3.8	2.0	2.0	ng/L	2	1763-23-1-LN	
PFOS-BR*	2.5	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	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: S46623.06
Sample Tag: SS-20
Collected Date/Time: 03/23/2023 12:35
Matrix: Liquid
COC Reference: 154995

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.16/6.45/11	ASTMD7979-19M	04/13/23 15:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/14/23 01:36, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.7	9.7	ng/L	1.93	375-22-4	
PFPeA*	Not detected	3.9	0.97	ng/L	1.93	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.93	757124-72-4	
PFHxA*	Not detected	1.9	1.4	ng/L	1.93	307-24-4	
PFBS*	Not detected	1.9	1.4	ng/L	1.93	375-73-5	
PFHpA*	Not detected	2.3	1.4	ng/L	1.93	375-85-9	X
PFPeS*	Not detected	1.9	1.7	ng/L	1.93	2706-91-4	
6:2 FTSA*	4.3	1.9	1.9	ng/L	1.93	27619-97-2	
PFOA*	Not detected	1.9	1.5	ng/L	1.93	335-67-1	
PFHxS*	Not detected	1.9	1.5	ng/L	1.93	355-46-4	
PFHxS-LN*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.93	375-95-1	
8:2 FTSA*	Not detected	1.9	0.97	ng/L	1.93	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.93	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.93	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.93	2355-31-9	
EtFOSAA*	Not detected	3.9	1.9	ng/L	1.93	2991-50-6	
PFOS*	3.6	1.9	1.9	ng/L	1.93	1763-23-1	
PFOS-LN*	1.9	1.9	1.9	ng/L	1.93	1763-23-1-LN	J
PFOS-BR*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.4	ng/L	1.93	2058-94-8	
PFNS*	Not detected	1.9	1.4	ng/L	1.93	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.93	307-55-1	
PFDS*	Not detected	1.9	1.4	ng/L	1.93	335-77-3	
PFTrDA*	Not detected	1.9	1.2	ng/L	1.93	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.93	754-91-6	
PFTeDA*	Not detected	3.9	1.7	ng/L	1.93	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.93	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.4	ng/L	1.93	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.93	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.93	13252-13-6	

X-Elevated reporting limit due to matrix interference
J-Estimated value less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S46623.07
Sample Tag: MH-10E-W
Collected Date/Time: 03/23/2023 12:00
Matrix: Liquid
COC Reference: 154995

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.90/6.45/11	ASTMD7979-19M	04/13/23 15:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/14/23 01:56, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.02	375-22-4	
PFPeA*	1.1	4.0	1.0	ng/L	2.02	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.02	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.02	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	2.02	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.02	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.02	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2.02	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2.02	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2.02	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	2.02	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.02	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.02	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.02	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2.02	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.02	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.02	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.02	2991-50-6	
PFOS*	5.7	2.0	2.0	ng/L	2.02	1763-23-1	
PFOS-LN*	3.9	2.0	2.0	ng/L	2.02	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	2.0	ng/L	2.02	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.02	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.02	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.02	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.02	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.02	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.02	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.02	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.02	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.02	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.02	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	2.02	13252-13-6	

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

Analytical Laboratory Report

Lab Sample ID: S46623.08
Sample Tag: Field Blank-032323
Collected Date/Time: 03/23/2023 13:00
Matrix: Liquid
COC Reference: 154995

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.88/6.45/11	ASTMD7979-19M	04/13/23 15:00	PTW	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/14/23 02:15, 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	2.0	2.0	ng/L	2.03	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID: S46623
Client: OBG02 (Ramboll Americas - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 03/24/2023 09:51 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 2.3
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 154995

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.: 1944000656 TASK 31
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: RALER 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 (1979)	Special Instructions
466623.01	3/23/23	1106	SS-16	L	3	X							X	Low level reporting with estimated values
.02		1117	SS-19		3	X							X	
.03		1120	SS-15		3	X							X	
.04		1130	SS-12		3	X							X	
.05		1145	SS-14		3	X							X	
.06		1235	SS-20		3	X							X	
.07		1200	MH-10E-W		3	X							X	
.08	↓	1300	Field Blank-032323	↓	1	X							X	

loss

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 3/24/23	TIME 951
RECEIVED BY: SIGNATURE/ORGANIZATION Johanna Murray		DATE 3/24/23	TIME 0951
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

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 2.3

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

Rev. 1.26.22

Quality Control Report

Report ID: QC-S46623-01
Generated on 04/20/2023

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): S46623.01-S46623.08
Project: RACER Coldwater Road
Submitted Date/Time: 03/24/2023 09:51
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 31

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: S46623.01
Sample Tag: SS-16
Collected Date/Time: 03/23/2023 11:06
Matrix: Liquid
COC Reference: 154995

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/13/23 23:39	AK230413	PF230413W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S46623.02
Sample Tag: SS-19
Collected Date/Time: 03/23/2023 11:12
Matrix: Liquid
COC Reference: 154995

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/13/23 23:59	AK230413	PF230413W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S46623.03
Sample Tag: SS-15
Collected Date/Time: 03/23/2023 11:20
Matrix: Liquid
COC Reference: 154995

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/14/23 00:38	AK230413	PF230413W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S46623.04
Sample Tag: SS-12
Collected Date/Time: 03/23/2023 11:30
Matrix: Liquid
COC Reference: 154995

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/14/23 00:57	AK230413	PF230413W1	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S46623.05

Sample Tag: SS-14

Collected Date/Time: 03/23/2023 11:45

Matrix: Liquid

COC Reference: 154995

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/14/23 01:17	AK230413	PF230413W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S46623.06
Sample Tag: SS-20
Collected Date/Time: 03/23/2023 12:35
Matrix: Liquid
COC Reference: 154995

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/14/23 01:36	AK230413	PF230413W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S46623.07
Sample Tag: MH-10E-W
Collected Date/Time: 03/23/2023 12:00
Matrix: Liquid
COC Reference: 154995

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/14/23 01:56	AK230413	PF230413W1	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S46623.08

Sample Tag: Field Blank-032323

Collected Date/Time: 03/23/2023 13:00

Matrix: Liquid

COC Reference: 154995

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/14/23 02:15	AK230413	PF230413W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF230413W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S46623.01	28 PFAs	ASTMD7979-19M	04/13/23 23:39	AK230413
S46623.02	28 PFAs	ASTMD7979-19M	04/13/23 23:59	AK230413
S46623.03	28 PFAs	ASTMD7979-19M	04/14/23 00:38	AK230413
S46623.04	28 PFAs	ASTMD7979-19M	04/14/23 00:57	AK230413
S46623.05	28 PFAs	ASTMD7979-19M	04/14/23 01:17	AK230413
S46623.06	28 PFAs	ASTMD7979-19M	04/14/23 01:36	AK230413
S46623.07	28 PFAs	ASTMD7979-19M	04/14/23 01:56	AK230413
S46623.08	28 PFAs	ASTMD7979-19M	04/14/23 02:15	AK230413

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S46623.01

Sample Tag: SS-16

Collected Date/Time: 03/23/2023 11:06

Matrix: Liquid

COC Reference: 154995

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230413, Run Date: 04/13/2023 23:39, Matrix: WW, Dilution: 2.14

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**101.6**	50.0	150.0
M2-6:2FTSA		**105.6**	50.0	150.0
M2-8:2FTSA		**105.4**	50.0	150.0
M2PFTeDA		**101.0**	12.0	218.0
M3PFBS		**106.4**	50.0	150.0
M3PFHxS		**109.7**	50.0	150.0
M4PFHpA		**115.3**	50.0	150.0
M5PFHxA		**109.5**	50.0	150.0
M5PFPeA		**105.5**	50.0	150.0
M6PFDA		**106.3**	50.0	150.0
M7PFUnDA		**83.8**	50.0	150.0
M8FOSA		**99.1**	50.0	150.0
M8PFOA		**97.4**	50.0	150.0
M8PFOS		**103.8**	50.0	150.0
M9-PFNA		**94.6**	50.0	150.0
MPFBA		**102.8**	50.0	150.0
MPFDoDA		**101.7**	50.0	150.0
d3N-MeFOSAA		**97.0**	50.0	150.0
d5EtFOSAA		**94.5**	50.0	150.0
MHFPO-DA		**104.0**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S46623.02

Sample Tag: SS-19

Collected Date/Time: 03/23/2023 11:12

Matrix: Liquid

COC Reference: 154995

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230413, Run Date: 04/13/2023 23:59, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**107.2**	50.0	150.0
M2-6:2FTSA		**95.1**	50.0	150.0
M2-8:2FTSA		**115.6**	50.0	150.0
M2PFTeDA		**94.6**	12.0	218.0
M3PFBS		**96.8**	50.0	150.0
M3PFHxS		**115.2**	50.0	150.0
M4PFHpA		**114.1**	50.0	150.0
M5PFHxA		**105.6**	50.0	150.0
M5PFPeA		**103.3**	50.0	150.0
M6PFDA		**105.3**	50.0	150.0
M7PFUnDA		**70.4**	50.0	150.0
M8FOSA		**92.6**	50.0	150.0
M8PFOA		**104.4**	50.0	150.0
M8PFOS		**102.9**	50.0	150.0
M9-PFNA		**93.4**	50.0	150.0
MPFBA		**102.3**	50.0	150.0
MPFDoDA		**96.8**	50.0	150.0
d3N-MeFOSAA		**96.2**	50.0	150.0
d5EtFOSAA		**85.3**	50.0	150.0
MHFPO-DA		**91.6**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S46623.03

Sample Tag: SS-15

Collected Date/Time: 03/23/2023 11:20

Matrix: Liquid

COC Reference: 154995

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230413, Run Date: 04/14/2023 00:38, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**106.9**	50.0	150.0
M2-6:2FTSA		**112.2**	50.0	150.0
M2-8:2FTSA		**104.2**	50.0	150.0
M2PFTeDA		**92.9**	12.0	218.0
M3PFBS		**98.9**	50.0	150.0
M3PFHxS		**111.6**	50.0	150.0
M4PFHpA		**111.0**	50.0	150.0
M5PFHxA		**100.8**	50.0	150.0
M5PFPeA		**106.5**	50.0	150.0
M6PFDA		**98.7**	50.0	150.0
M7PFUnDA		**84.0**	50.0	150.0
M8FOSA		**90.8**	50.0	150.0
M8PFOA		**100.7**	50.0	150.0
M8PFOS		**95.8**	50.0	150.0
M9-PFNA		**84.3**	50.0	150.0
MPFBA		**102.9**	50.0	150.0
MPFDoDA		**102.1**	50.0	150.0
d3N-MeFOSAA		**88.6**	50.0	150.0
d5EtFOSAA		**82.9**	50.0	150.0
MHFPO-DA		**103.9**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S46623.04

Sample Tag: SS-12

Collected Date/Time: 03/23/2023 11:30

Matrix: Liquid

COC Reference: 154995

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230413, Run Date: 04/14/2023 00:57, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**113.7**	50.0	150.0
M2-6:2FTSA		**106.7**	50.0	150.0
M2-8:2FTSA		**96.5**	50.0	150.0
M2PFTeDA		**94.4**	12.0	218.0
M3PFBS		**99.8**	50.0	150.0
M3PFHxS		**104.7**	50.0	150.0
M4PFHpA		**118.2**	50.0	150.0
M5PFHxA		**107.2**	50.0	150.0
M5PFPeA		**106.1**	50.0	150.0
M6PFDA		**99.5**	50.0	150.0
M7PFUnDA		**85.5**	50.0	150.0
M8FOSA		**92.6**	50.0	150.0
M8PFOA		**96.8**	50.0	150.0
M8PFOS		**100.6**	50.0	150.0
M9-PFNA		**102.3**	50.0	150.0
MPFBA		**104.8**	50.0	150.0
MPFDoDA		**99.2**	50.0	150.0
d3N-MeFOSAA		**91.3**	50.0	150.0
d5EtFOSAA		**97.9**	50.0	150.0
MHFPO-DA		**101.4**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S46623.05

Sample Tag: SS-14

Collected Date/Time: 03/23/2023 11:45

Matrix: Liquid

COC Reference: 154995

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230413, Run Date: 04/14/2023 01:17, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**113.5**	50.0	150.0
M2-6:2FTSA		**114.7**	50.0	150.0
M2-8:2FTSA		**107.0**	50.0	150.0
M2PFTeDA		**81.9**	12.0	218.0
M3PFBS		**105.0**	50.0	150.0
M3PFHxS		**105.5**	50.0	150.0
M4PFHpA		**115.2**	50.0	150.0
M5PFHxA		**104.9**	50.0	150.0
M5PFPeA		**106.6**	50.0	150.0
M6PFDA		**104.3**	50.0	150.0
M7PFUnDA		**83.7**	50.0	150.0
M8FOSA		**97.3**	50.0	150.0
M8PFOA		**99.3**	50.0	150.0
M8PFOS		**102.4**	50.0	150.0
M9-PFNA		**92.0**	50.0	150.0
MPFBA		**105.3**	50.0	150.0
MPFDoDA		**93.9**	50.0	150.0
d3N-MeFOSAA		**92.3**	50.0	150.0
d5EtFOSAA		**84.8**	50.0	150.0
MHFPO-DA		**102.7**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S46623.06

Sample Tag: SS-20

Collected Date/Time: 03/23/2023 12:35

Matrix: Liquid

COC Reference: 154995

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230413, Run Date: 04/14/2023 01:36, Matrix: WW, Dilution: 1.93

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**149.7**	50.0	150.0
M2-6:2FTSA		**118.2**	50.0	150.0
M2-8:2FTSA		**107.5**	50.0	150.0
M2PFTeDA		**96.5**	12.0	218.0
M3PFBS		**103.2**	50.0	150.0
M3PFHxS		**114.3**	50.0	150.0
M4PFHpA		**122.3**	50.0	150.0
M5PFHxA		**110.5**	50.0	150.0
M5PFPeA		**111.0**	50.0	150.0
M6PFDA		**99.8**	50.0	150.0
M7PFUnDA		**85.0**	50.0	150.0
M8FOSA		**101.7**	50.0	150.0
M8PFOA		**110.3**	50.0	150.0
M8PFOS		**107.0**	50.0	150.0
M9-PFNA		**95.3**	50.0	150.0
MPFBA		**107.5**	50.0	150.0
MPFDoDA		**96.8**	50.0	150.0
d3N-MeFOSAA		**89.4**	50.0	150.0
d5EtFOSAA		**93.1**	50.0	150.0
MHFPO-DA		**103.0**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S46623.07

Sample Tag: MH-10E-W

Collected Date/Time: 03/23/2023 12:00

Matrix: Liquid

COC Reference: 154995

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230413, Run Date: 04/14/2023 01:56, Matrix: WW, Dilution: 2.02

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**107.2**	50.0	150.0
M2-6:2FTSA		**117.1**	50.0	150.0
M2-8:2FTSA		**101.9**	50.0	150.0
M2PFTeDA		**96.4**	12.0	218.0
M3PFBS		**106.2**	50.0	150.0
M3PFHxS		**106.0**	50.0	150.0
M4PFHpA		**123.3**	50.0	150.0
M5PFHxA		**102.6**	50.0	150.0
M5PFPeA		**104.7**	50.0	150.0
M6PFDA		**100.4**	50.0	150.0
M7PFUnDA		**79.2**	50.0	150.0
M8FOSA		**100.4**	50.0	150.0
M8PFOA		**99.6**	50.0	150.0
M8PFOS		**101.9**	50.0	150.0
M9-PFNA		**88.9**	50.0	150.0
MPFBA		**103.7**	50.0	150.0
MPFDoDA		**96.6**	50.0	150.0
d3N-MeFOSAA		**94.5**	50.0	150.0
d5EtFOSAA		**96.3**	50.0	150.0
MHFPO-DA		**99.3**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S46623.08

Sample Tag: Field Blank-032323

Collected Date/Time: 03/23/2023 13:00

Matrix: Liquid

COC Reference: 154995

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230413, Run Date: 04/14/2023 02:15, Matrix: WW, Dilution: 2.03

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**100.8**	50.0	150.0
M2-6:2FTSA		**103.3**	50.0	150.0
M2-8:2FTSA		**89.2**	50.0	150.0
M2PFTeDA		**90.7**	12.0	218.0
M3PFBS		**104.2**	50.0	150.0
M3PFHxS		**96.8**	50.0	150.0
M4PFHpA		**118.2**	50.0	150.0
M5PFHxA		**106.8**	50.0	150.0
M5PFPeA		**105.8**	50.0	150.0
M6PFDA		**98.3**	50.0	150.0
M7PFUnDA		**77.8**	50.0	150.0
M8FOSA		**91.5**	50.0	150.0
M8PFOA		**94.6**	50.0	150.0
M8PFOS		**94.9**	50.0	150.0
M9-PFNA		**82.7**	50.0	150.0
MPFBA		**101.9**	50.0	150.0
MPFDoDA		**88.0**	50.0	150.0
d3N-MeFOSAA		**85.2**	50.0	150.0
d5EtFOSAA		**87.0**	50.0	150.0
MHFPO-DA		**96.1**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230413W1

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

Blank (BLK)

Lab Sample ID: AK230413.BLK230413

Run in Batch: AK230413, Run Date: 04/13/2023 20:44, Prep Date: 04/13/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**103.7**	50.0	150.0
M2-6:2FTSA		**102.4**	50.0	150.0
M2-8:2FTSA		**97.6**	50.0	150.0
M2PFTeDA		**81.8**	12.0	218.0
M3PFBS		**108.1**	50.0	150.0
M3PFHxS		**104.9**	50.0	150.0
M4PFHpA		**116.2**	50.0	150.0
M5PFHxA		**104.9**	50.0	150.0
M5PFPeA		**100.6**	50.0	150.0
M6PFDA		**89.6**	50.0	150.0
M7PFUnDA		**82.9**	50.0	150.0
M8FOSA		**90.7**	50.0	150.0
M8PFOA		**90.3**	50.0	150.0
M8PFOS		**101.4**	50.0	150.0
M9-PFNA		**85.0**	50.0	150.0
MPFBA		**99.1**	50.0	150.0
MPFDoDA		**91.5**	50.0	150.0
d3N-MeFOSAA		**87.3**	50.0	150.0
d5EtFOSAA		**77.2**	50.0	150.0
MHFPO-DA		**110.0**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK230413.LCS230413

Run in Batch: AK230413, Run Date: 04/13/2023 20:05, Prep Date: 04/13/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**99.5**	50.0	150.0
M2-6:2FTSA		**108.7**	50.0	150.0
M2-8:2FTSA		**93.8**	50.0	150.0
M2PFTeDA		**92.5**	12.0	218.0
M3PFBS		**103.2**	50.0	150.0
M3PFHxS		**102.6**	50.0	150.0
M4PFHpA		**113.2**	50.0	150.0
M5PFHxA		**99.9**	50.0	150.0
M5PFPeA		**100.2**	50.0	150.0
M6PFDA		**100.0**	50.0	150.0
M7PFUnDA		**73.3**	50.0	150.0
M8FOSA		**92.8**	50.0	150.0
M8PFOA		**89.6**	50.0	150.0
M8PFOS		**98.5**	50.0	150.0
M9-PFNA		**89.9**	50.0	150.0
MPFBA		**98.3**	50.0	150.0
MPFDoDA		**86.8**	50.0	150.0
d3N-MeFOSAA		**87.4**	50.0	150.0
d5EtFOSAA		**89.6**	50.0	150.0
MHFPO-DA		**109.1**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230413.LCSD230413, Parent Sample ID: AK230413.LCS230413

Run in Batch: AK230413, Run Date: 04/13/2023 20:24, Prep Date: 04/13/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**88.4**	50.0	150.0
M2-6:2FTSA		**102.4**	50.0	150.0
M2-8:2FTSA		**84.3**	50.0	150.0
M2PFTeDA		**80.8**	12.0	218.0
M3PFBS		**104.3**	50.0	150.0
M3PFHxS		**110.7**	50.0	150.0
M4PFHpA		**111.6**	50.0	150.0
M5PFHxA		**101.9**	50.0	150.0
M5PFPeA		**100.1**	50.0	150.0
M6PFDA		**103.4**	50.0	150.0
M7PFUnDA		**80.9**	50.0	150.0
M8FOSA		**92.5**	50.0	150.0
M8PFOA		**99.2**	50.0	150.0
M8PFOS		**101.7**	50.0	150.0
M9-PFNA		**77.6**	50.0	150.0
MPFBA		**98.3**	50.0	150.0
MPFDoDA		**85.5**	50.0	150.0
d3N-MeFOSAA		**86.6**	50.0	150.0
d5EtFOSAA		**76.1**	50.0	150.0
MHFPO-DA		**97.3**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK230413.4658010M, Parent Sample ID: S46580.10

Run in Batch: AK230413, Run Date: 04/13/2023 22:41, Prep Date: 04/13/2023, Matrix: WW, Dilution: 2.05

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**96.1**	50.0	150.0
M2-6:2FTSA		**93.0**	50.0	150.0
M2-8:2FTSA		**105.0**	50.0	150.0
M2PFTeDA		**87.5**	12.0	218.0
M3PFBS		**106.8**	50.0	150.0
M3PFHxS		**105.8**	50.0	150.0
M4PFHpA		**123.5**	50.0	150.0
M5PFHxA		**109.5**	50.0	150.0
M5PFPeA		**106.1**	50.0	150.0
M6PFDA		**100.7**	50.0	150.0
M7PFUnDA		**80.0**	50.0	150.0
M8FOSA		**101.5**	50.0	150.0
M8PFOA		**98.6**	50.0	150.0
M8PFOS		**113.3**	50.0	150.0
M9-PFNA		**90.0**	50.0	150.0
MPFBA		**102.4**	50.0	150.0
MPFDoDA		**99.8**	50.0	150.0
d3N-MeFOSAA		**89.7**	50.0	150.0
d5EtFOSAA		**91.6**	50.0	150.0
MHFPO-DA		**100.9**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK230413.4662302D, Parent Sample ID: S46623.02

Run in Batch: AK230413, Run Date: 04/14/2023 00:18, Prep Date: 04/13/2023, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**103.6**	50.0	150.0
M2-6:2FTSA		**91.0**	50.0	150.0
M2-8:2FTSA		**96.0**	50.0	150.0
M2PFTeDA		**70.5**	12.0	218.0
M3PFBS		**102.1**	50.0	150.0
M3PFHxS		**98.5**	50.0	150.0
M4PFHpA		**104.9**	50.0	150.0
M5PFHxA		**97.3**	50.0	150.0
M5PFPeA		**99.9**	50.0	150.0
M6PFDA		**92.6**	50.0	150.0
M7PFUnDA		**73.2**	50.0	150.0
M8FOSA		**88.0**	50.0	150.0
M8PFOA		**89.2**	50.0	150.0
M8PFOS		**89.5**	50.0	150.0
M9-PFNA		**84.7**	50.0	150.0
MPFBA		**94.5**	50.0	150.0
MPFDoDA		**88.1**	50.0	150.0
d3N-MeFOSAA		**90.4**	50.0	150.0
d5EtFOSAA		**86.5**	50.0	150.0
MHFPO-DA		**89.7**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230413W1

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

Blank (BLK)

Lab Sample ID: AK230413.BLK230413

Run in Batch: AK230413, Run Date: 04/13/2023 20:44, Prep Date: 04/13/2023, 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
FPePA (5:3 FTCA)		ND	4	ng/l
PFEESA		ND	2	ng/l
PFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
ADONA		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFBSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
FHpPA (7:3 FTCA)		ND	4	ng/l
PFNA		ND	2	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
PFHxSA		ND	2	ng/l
PFUnDA		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
PFNS		ND	2	ng/l
PFDoDA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTrDA		ND	2	ng/l
11CL-PF3OUdS		ND	2	ng/l
FOSA		ND	2	ng/l
PFTeDA		ND	4	ng/l

Organics - Volatiles, Prep Batch ID: PF230413W1 (continued)

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

Laboratory Control Sample (LCS)

Lab Sample ID: AK230413.LCS230413

Run in Batch: AK230413, Run Date: 04/13/2023 20:05, Prep Date: 04/13/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		101.6	70.0	130.0
PFMPA		106.6	70.0	130.0
FPrPA (3:3 FTCA)		119.6	70.0	130.0
PFPrS		97.2	70.0	130.0
PFPeA		96.6	70.0	130.0
PFMBA		100.6	70.0	130.0
4:2 FTSA		89.8	70.0	130.0
NFDHA		110.2	70.0	130.0
PFHxA		101.8	70.0	130.0
PFBS		97.0	70.0	130.0
HFPO-DA		78.0	70.0	130.0
FPePA (5:3 FTCA)		128.0	70.0	130.0
PFEESA		91.0	70.0	130.0
PFHpA		100.0	70.0	130.0
PFPeS		90.4	70.0	130.0
ADONA		100.2	70.0	130.0
6:2 FTSA		89.8	70.0	130.0
PFBSA		108.6	70.0	130.0
PFOA		100.8	70.0	130.0
PFHxS		110.0	70.0	130.0
FHpPA (7:3 FTCA)		121.0	70.0	130.0
PFNA		109.2	70.0	130.0
PFECHS		88.6	70.0	130.0
8:2 FTSA		97.8	70.0	130.0
PFHpS		100.8	70.0	130.0
N-MeFOSAA		98.2	70.0	130.0
PFDA		109.8	70.0	130.0
PFOS		101.6	70.0	130.0
EtFOSAA		91.8	70.0	130.0
PFHxSA		99.0	70.0	130.0
PFUnDA		98.4	70.0	130.0
9CL-PF3ONS		94.8	70.0	130.0
PFNS		101.0	70.0	130.0
PFDoDA		109.4	70.0	130.0
PFDS		95.2	70.0	130.0
PFTrDA		117.4	70.0	130.0
11CL-PF3OUdS		107.0	70.0	130.0
FOSA		104.6	70.0	130.0
PFTeDA		98.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230413.LCSD230413, Parent Sample ID: AK230413.LCS230413

Run in Batch: AK230413, Run Date: 04/13/2023 20:24, Prep Date: 04/13/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		103.8	70.0	130.0	2.1	30.0
PFMPA		105.6	70.0	130.0	0.9	30.0

Organics - Volatiles, Prep Batch ID: PF230413W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK230413.LCSD230413, Parent Sample ID: AK230413.LCS230413

Run in Batch: AK230413, Run Date: 04/13/2023 20:24, Prep Date: 04/13/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
FPrPA (3:3 FTCA)		111.4	70.0	130.0	7.1	30.0
PFPrS		104.8	70.0	130.0	7.5	30.0
PFPeA		98.2	70.0	130.0	1.6	30.0
PFMBA		94.8	70.0	130.0	5.9	30.0
4:2 FTSA		109.4	70.0	130.0	19.7	30.0
NFDHA		101.2	70.0	130.0	8.5	30.0
PFHxA		96.2	70.0	130.0	5.7	30.0
PFBS		107.8	70.0	130.0	10.5	30.0
HFPO-DA		103.8	70.0	130.0	28.4	30.0
FPePA (5:3 FTCA)		101.4	70.0	130.0	23.2	30.0
PFEESA		84.0	70.0	130.0	8.0	30.0
PFHpA		108.0	70.0	130.0	7.7	30.0
PFPeS		99.6	70.0	130.0	9.7	30.0
ADONA		89.6	70.0	130.0	11.2	30.0
6:2 FTSA		94.8	70.0	130.0	5.4	30.0
PFBSA		110.2	70.0	130.0	1.5	30.0
PFOA		87.8	70.0	130.0	13.8	30.0
PFHxS		91.0	70.0	130.0	18.9	30.0
FHpPA (7:3 FTCA)		108.2	70.0	130.0	11.2	30.0
PFNA		119.6	70.0	130.0	9.1	30.0
PFECHS		97.6	70.0	130.0	9.7	30.0
8:2 FTSA		111.4	70.0	130.0	13.0	30.0
PFHpS		91.6	70.0	130.0	9.6	30.0
N-MeFOSAA		102.2	70.0	130.0	4.0	30.0
PFDA		101.0	70.0	130.0	8.3	30.0
PFOS		97.2	70.0	130.0	4.4	30.0
EtFOSAA		124.0	70.0	130.0	29.8	30.0
PFHxSA		105.0	70.0	130.0	5.9	30.0
PFUnDA		98.0	70.0	130.0	0.4	30.0
9CL-PF3ONS		89.4	70.0	130.0	5.9	30.0
PFNS		110.2	70.0	130.0	8.7	30.0
PFDoDA		107.0	70.0	130.0	2.2	30.0
PFDS		103.6	70.0	130.0	8.5	30.0
PFTrDA		110.4	70.0	130.0	6.1	30.0
11CL-PF3OUdS		98.8	70.0	130.0	8.0	30.0
FOSA		105.0	70.0	130.0	0.4	30.0
PFTeDA		102.2	70.0	130.0	4.2	30.0

Matrix Spike (MS)

Lab Sample ID: AK230413.4658010M, Parent Sample ID: S46580.10

Run in Batch: AK230413, Run Date: 04/13/2023 22:41, Prep Date: 04/13/2023, Matrix: WW, Dilution: 2.05

Analyte	Flags	% Rec	LCL	UCL
PFBA		106.8	70.0	130.0
PFPeA		97.1	70.0	130.0
4:2 FTSA		106.8	70.0	130.0
PFHxA		94.2	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF230413W1 (continued)

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

Matrix Spike (MS) (continued)

Lab Sample ID: AK230413.4658010M, Parent Sample ID: S46580.10

Run in Batch: AK230413, Run Date: 04/13/2023 22:41, Prep Date: 04/13/2023, Matrix: WW, Dilution: 2.05

Analyte	Flags	% Rec	LCL	UCL
PFBS		88.2	70.0	130.0
PFHpA		83.5	70.0	130.0
PFPeS		97.1	70.0	130.0
6:2 FTSA		106.8	70.0	130.0
PFOA		100.0	70.0	130.0
PFHxS		91.0	70.0	130.0
PFNA		106.8	70.0	130.0
8:2 FTSA		96.1	70.0	130.0
PFHpS		94.2	70.0	130.0
PFDA		116.5	70.0	130.0
N-MeFOSAA		97.1	70.0	130.0
EtFOSAA		106.8	70.0	130.0
PFOS		94.2	70.0	130.0
PFUnDA		97.1	70.0	130.0
PFNS		93.2	70.0	130.0
PFDoDA		97.1	70.0	130.0
PFDS		97.1	70.0	130.0
PFTrDA		106.8	70.0	130.0
FOSA		97.1	70.0	130.0
PFTeDA		116.5	70.0	130.0
11CL-PF3OUdS		95.1	70.0	130.0
9CL-PF3ONS		85.4	70.0	130.0
ADONA		106.8	70.0	130.0
HFPO-DA		97.1	70.0	130.0
PFECHS		89.3	70.0	130.0
PFBSA		96.1	70.0	130.0
PFHxSA		89.3	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK230413.4662302D, Parent Sample ID: S46623.02

Run in Batch: AK230413, Run Date: 04/14/2023 00:18, Prep Date: 04/13/2023, Matrix: WW, Dilution: 2.01

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA	J	5.1	30.0
4:2 FTSA		NC	30.0
PFHxA	J	16.2	30.0
PFBS		NC	30.0
PFHpA	J	6.5	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		NC	30.0
PFHxS		NC	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF230413W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK230413.4662302D, Parent Sample ID: S46623.02

Run in Batch: AK230413, Run Date: 04/14/2023 00:18, Prep Date: 04/13/2023, Matrix: WW, Dilution: 2.01

Analyte	Flags	RPD	RPD CL
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		17.5	30.0
PFOS-LN	*	40.0	30.0
PFOS-BR		8.7	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 154995

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.: 1944000656 TASK 31
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: RALER 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 (1979)	Special Instructions
466623.01	3/23/23	1106	SS-16	L	3	X							X	Low level reporting with estimated values
.02		1117	SS-19		3	X							X	
.03		1120	SS-15		3	X							X	
.04		1130	SS-12		3	X							X	
.05		1145	SS-14		3	X							X	
.06		1235	SS-20		3	X							X	
.07		1200	MH-10E-W		3	X							X	
.08	↓	1300	Field Blank-032323	↓	1	X							X	

loss

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 3/24/23	TIME 951
RECEIVED BY: SIGNATURE/ORGANIZATION Johanna Murray		DATE 3/24/23	TIME 0951
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

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 2.3

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

Rev. 1.26.22

Analytical Laboratory Report

Report ID: S50339.01(01)
Generated on 07/26/2023

Report to

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

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

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): S50339.01-S50339.06
Project: RACER Coldwater Road
Collected Date(s): 06/27/2023
Submitted Date/Time: 06/27/2023 15:30
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 37

Table of Contents

Maya Murshak
Technical Director

Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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

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
FHpPA (7:3 FTCA)	3-Perfluoroheptyl propanoic acid	812-70-4
FPePA (5:3 FTCA)	3-Perfluoropentyl propanoic acid	914637-49-3
FPrPA (3:3 FTCA)	3-Perfluoropropyl propanoic acid	356-02-5
PFBSA	Perfluorobutanesulfonamide	30334-69-1
PFECHS	Perfluoro-4-ethylcyclohexanesulfonate	67584-42-3
PFHxSA	Perfluorohexanesulfonamide	41997-13-1

Analytical Laboratory Report

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S50339.01	SS-16	Liquid	06/27/23 11:38
S50339.02	SS-15	Liquid	06/27/23 11:45
S50339.03	SS-12	Liquid	06/27/23 11:58
S50339.04	SS-14	Liquid	06/27/23 12:16
S50339.05	MH-10E-W	Liquid	06/27/23 12:25
S50339.06	Field Blank-062723	Liquid	06/27/23 12:50

Analytical Laboratory Report

Lab Sample ID: S50339.01
Sample Tag: SS-16
Collected Date/Time: 06/27/2023 11:38
Matrix: Liquid
COC Reference: 153090

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.30/6.54/11	ASTMD7979-19M	07/06/23 13:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 01:54, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	10	9.6	9.6	ng/L	1.91	375-22-4	
PFPeA*	Not detected	3.8	0.96	ng/L	1.91	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.91	757124-72-4	
PFHxA*	Not detected	1.9	1.3	ng/L	1.91	307-24-4	
PFBS*	2.5	1.9	1.3	ng/L	1.91	375-73-5	
PFHpA*	Not detected	1.9	1.3	ng/L	1.91	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.91	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.91	27619-97-2	
PFOA*	2.0	1.9	1.5	ng/L	1.91	335-67-1	
PFHxS*	Not detected	1.9	1.5	ng/L	1.91	355-46-4	
PFHxS-LN*	Not detected	1.9	1.5	ng/L	1.91	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.91	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.91	375-95-1	
8:2 FTSA*	Not detected	1.9	0.96	ng/L	1.91	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.91	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.91	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.91	2355-31-9	
EtFOSAA*	Not detected	3.8	1.9	ng/L	1.91	2991-50-6	
PFOS*	63	1.9	1.9	ng/L	1.91	1763-23-1	
PFOS-LN*	39	1.9	1.9	ng/L	1.91	1763-23-1-LN	
PFOS-BR*	23	1.9	1.9	ng/L	1.91	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.3	ng/L	1.91	2058-94-8	
PFNS*	Not detected	1.9	1.3	ng/L	1.91	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.91	307-55-1	
PFDS*	Not detected	1.9	1.3	ng/L	1.91	335-77-3	
PFTrDA*	Not detected	1.9	1.1	ng/L	1.91	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.91	754-91-6	
PFTeDA*	Not detected	3.8	1.7	ng/L	1.91	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.91	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.3	ng/L	1.91	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.91	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.91	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.8	2.9	ng/L	1.91	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.8	2.1	ng/L	1.91	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.8	1.1	ng/L	1.91	356-02-5	
PFBSA*	Not detected	1.9	1.1	ng/L	1.91	30334-69-1	
PFECHS*	15	1.9	1.1	ng/L	1.91	67584-42-3	

Lab Sample ID: S50339.01 (continued)

Sample Tag: SS-16

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 01:54, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFHxSA*	Not detected	1.9	0.96	ng/L	1.91	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S50339.02
Sample Tag: SS-15
Collected Date/Time: 06/27/2023 11:45
Matrix: Liquid
COC Reference: 153090

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.14/6.56/11	ASTMD7979-19M	07/06/23 13:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 02:13, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	10	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*	1.9	2.0	1.4	ng/L	1.97	307-24-4	J
PFBS*	4.3	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*	3.2	2.0	1.6	ng/L	1.97	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.97	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.97	355-46-4-LN	
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	
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*	Not detected	3.9	2.0	ng/L	1.97	2991-50-6	
PFOS*	86	2.0	1.9	ng/L	1.97	1763-23-1	
PFOS-LN*	56	2.0	1.9	ng/L	1.97	1763-23-1-LN	
PFOS-BR*	28	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	2.0	2.0	ng/L	1.97	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.9	3.0	ng/L	1.97	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.9	2.2	ng/L	1.97	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.9	1.2	ng/L	1.97	356-02-5	
PFBSA*	1.2	2.0	1.2	ng/L	1.97	30334-69-1	J

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

Lab Sample ID: S50339.02 (continued)

Sample Tag: SS-15

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 02:13, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	20	2.0	1.2	ng/L	1.97	67584-42-3	
PFHxSA*	Not detected	2.0	0.99	ng/L	1.97	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S50339.03
Sample Tag: SS-12
Collected Date/Time: 06/27/2023 11:58
Matrix: Liquid
COC Reference: 153090

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.08/6.55/11	ASTMD7979-19M	07/06/23 13:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 02:52, 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*	2.9	4.0	1.00	ng/L	1.99	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.99	757124-72-4	
PFHxA*	2.7	2.0	1.4	ng/L	1.99	307-24-4	
PFBS*	4.4	2.0	1.4	ng/L	1.99	375-73-5	
PFHpA*	1.7	2.0	1.4	ng/L	1.99	375-85-9	J
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*	3.6	2.0	1.6	ng/L	1.99	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.99	355-46-4	
PFHxS-LN*	Not detected	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*	64	2.0	2.0	ng/L	1.99	1763-23-1	
PFOS-LN*	46	2.0	2.0	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	17	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	2.0	2.0	ng/L	1.99	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	4.0	3.0	ng/L	1.99	812-70-4	
FPePA (5:3 FTCA)*	Not detected	4.0	2.2	ng/L	1.99	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	4.0	1.2	ng/L	1.99	356-02-5	
PFBSA*	Not detected	2.0	1.2	ng/L	1.99	30334-69-1	

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

Lab Sample ID: S50339.03 (continued)

Sample Tag: SS-12

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 02:52, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	19	2.0	1.2	ng/L	1.99	67584-42-3	
PFHxSA*	Not detected	2.0	1.00	ng/L	1.99	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S50339.04
Sample Tag: SS-14
Collected Date/Time: 06/27/2023 12:16
Matrix: Liquid
COC Reference: 153090

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.24/6.54/11	ASTMD7979-19M	07/06/23 13:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 03:31, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.7	9.7	ng/L	1.93	375-22-4	
PFPeA*	3.0	3.9	0.97	ng/L	1.93	2706-90-3	J
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.93	757124-72-4	
PFHxA*	2.7	1.9	1.4	ng/L	1.93	307-24-4	
PFBS*	6.3	1.9	1.4	ng/L	1.93	375-73-5	
PFHpA*	2.4	1.9	1.4	ng/L	1.93	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.93	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.93	27619-97-2	
PFOA*	4.7	1.9	1.5	ng/L	1.93	335-67-1	
PFHxS*	Not detected	1.9	1.5	ng/L	1.93	355-46-4	
PFHxS-LN*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.93	375-95-1	
8:2 FTSA*	Not detected	1.9	0.97	ng/L	1.93	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.93	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.93	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.93	2355-31-9	
EtFOSAA*	Not detected	3.9	1.9	ng/L	1.93	2991-50-6	
PFOS*	24	1.9	1.9	ng/L	1.93	1763-23-1	
PFOS-LN*	14	1.9	1.9	ng/L	1.93	1763-23-1-LN	
PFOS-BR*	9.3	1.9	1.9	ng/L	1.93	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.4	ng/L	1.93	2058-94-8	
PFNS*	Not detected	1.9	1.4	ng/L	1.93	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.93	307-55-1	
PFDS*	Not detected	1.9	1.4	ng/L	1.93	335-77-3	
PFTrDA*	Not detected	1.9	1.2	ng/L	1.93	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.93	754-91-6	
PFTeDA*	Not detected	3.9	1.7	ng/L	1.93	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.93	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.4	ng/L	1.93	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.93	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.93	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.9	2.9	ng/L	1.93	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.9	2.1	ng/L	1.93	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.9	1.2	ng/L	1.93	356-02-5	
PFBSA*	Not detected	1.9	1.2	ng/L	1.93	30334-69-1	

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

Lab Sample ID: S50339.04 (continued)

Sample Tag: SS-14

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 03:31, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	9.0	1.9	1.2	ng/L	1.93	67584-42-3	
PFHxSA*	Not detected	1.9	0.97	ng/L	1.93	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S50339.05
Sample Tag: MH-10E-W
Collected Date/Time: 06/27/2023 12:25
Matrix: Liquid
COC Reference: 153090

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.86/6.55/12	ASTMD7979-19M	07/06/23 13:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 03:51, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	10	9.5	9.5	ng/L	1.9	375-22-4	
PFPeA*	3.5	3.8	0.95	ng/L	1.9	2706-90-3	J
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.9	757124-72-4	
PFHxA*	3.5	1.9	1.3	ng/L	1.9	307-24-4	
PFBS*	7.2	1.9	1.3	ng/L	1.9	375-73-5	
PFHpA*	2.5	1.9	1.3	ng/L	1.9	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.9	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.9	27619-97-2	
PFOA*	6.9	1.9	1.5	ng/L	1.9	335-67-1	
PFHxS*	1.5	1.9	1.5	ng/L	1.9	355-46-4	J
PFHxS-LN*	1.5	1.9	1.5	ng/L	1.9	355-46-4-LN	J
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.9	355-46-4-BR	
PFNA*	2.0	1.9	1.7	ng/L	1.9	375-95-1	
8:2 FTSA*	Not detected	1.9	0.95	ng/L	1.9	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.9	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.9	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.9	2355-31-9	
EtFOSAA*	Not detected	3.8	1.9	ng/L	1.9	2991-50-6	
PFOS*	58	1.9	1.9	ng/L	1.9	1763-23-1	
PFOS-LN*	39	1.9	1.9	ng/L	1.9	1763-23-1-LN	
PFOS-BR*	18	1.9	1.9	ng/L	1.9	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.3	ng/L	1.9	2058-94-8	
PFNS*	Not detected	1.9	1.3	ng/L	1.9	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.9	307-55-1	
PFDS*	Not detected	1.9	1.3	ng/L	1.9	335-77-3	
PFTrDA*	Not detected	1.9	1.1	ng/L	1.9	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.9	754-91-6	
PFTeDA*	Not detected	3.8	1.7	ng/L	1.9	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.9	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.3	ng/L	1.9	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.9	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.9	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.8	2.9	ng/L	1.9	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.8	2.1	ng/L	1.9	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.8	1.1	ng/L	1.9	356-02-5	
PFBSA*	Not detected	1.9	1.1	ng/L	1.9	30334-69-1	

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

Lab Sample ID: S50339.05 (continued)
Sample Tag: MH-10E-W

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 03:51, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	9.5	1.9	1.1	ng/L	1.9	67584-42-3	
PFHxSA*	Not detected	1.9	0.95	ng/L	1.9	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S50339.06
Sample Tag: Field Blank-062723
Collected Date/Time: 06/27/2023 12:50
Matrix: Liquid
COC Reference: 153090

Sample Containers

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

Extraction / Prep.

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

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 04:10, Analyst: KCV

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

Lab Sample ID: S50339.06 (continued)

Sample Tag: Field Blank-062723

34 PFAs, Method: ASTMD7979-19M, Run Date: 07/15/23 04:10, Analyst: KCV (continued)

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

Merit Laboratories Login Checklist

Lab Set ID: S50339
Client: RAMBOLL (Ramboll Americas)
Project: RACER Coldwater Road
Submitted: 06/27/2023 15:30 Login User: PFD

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

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

	Selection			Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 3.3
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 153090

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. CELL NO. 313-333-0211 P.O. NO. 1940006516 TASK 36
E-MAIL ADDRESS clifford.yantz@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
503~~39~~.01	6/27/23	1138	SS-16	L	3	X							X	Low level
.02		1145	SS-15										X	Reporting with
.03		1158	SS-12										X	estimated
.04		1216	SS-14										X	values
.05		1225	MH-16E-W										X	
.06		1250	Field Blank-062723		1								X	34 PFAS compound
														List

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 6/27/23	TIME 1428
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 6/27/23	TIME 1428
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 6/27/23	TIME 1530
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 6/27/23	TIME 1530

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 3.3

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

Rev. 1.26.22

Quality Control Report

Report ID: QC-S50339-01
Generated on 07/26/2023

Report to

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

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S50339.01-S50339.06
Project: RACER Coldwater Road
Submitted Date/Time: 06/27/2023 15:30
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 37

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: S50339.01
Sample Tag: SS-16
Collected Date/Time: 06/27/2023 11:38
Matrix: Liquid
COC Reference: 153090

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 01:54	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S50339.02
Sample Tag: SS-15
Collected Date/Time: 06/27/2023 11:45
Matrix: Liquid
COC Reference: 153090

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 02:13	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S50339.03
Sample Tag: SS-12
Collected Date/Time: 06/27/2023 11:58
Matrix: Liquid
COC Reference: 153090

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 02:52	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S50339.04
Sample Tag: SS-14
Collected Date/Time: 06/27/2023 12:16
Matrix: Liquid
COC Reference: 153090

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 03:31	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S50339.05
Sample Tag: MH-10E-W
Collected Date/Time: 06/27/2023 12:25
Matrix: Liquid
COC Reference: 153090

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 03:51	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S50339.06
Sample Tag: Field Blank-062723
Collected Date/Time: 06/27/2023 12:50
Matrix: Liquid
COC Reference: 153090

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	07/15/23 04:10	AK230714B	PF230706W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF230706W2

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S50339.01	34 PFAs	ASTMD7979-19M	07/15/23 01:54	AK230714B
S50339.02	34 PFAs	ASTMD7979-19M	07/15/23 02:13	AK230714B
S50339.03	34 PFAs	ASTMD7979-19M	07/15/23 02:52	AK230714B
S50339.04	34 PFAs	ASTMD7979-19M	07/15/23 03:31	AK230714B
S50339.05	34 PFAs	ASTMD7979-19M	07/15/23 03:51	AK230714B
S50339.06	34 PFAs	ASTMD7979-19M	07/15/23 04:10	AK230714B

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50339.01

Sample Tag: SS-16

Collected Date/Time: 06/27/2023 11:38

Matrix: Liquid

COC Reference: 153090

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 01:54, Matrix: WW, Dilution: 1.91

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**106.3**	50.0	150.0
M2-6:2FTSA		**103.5**	50.0	150.0
M2-8:2FTSA		**117.8**	50.0	150.0
M2PFTeDA		**107.2**	12.0	218.0
M3PFBS		**97.8**	50.0	150.0
M3PFHxS		**102.9**	50.0	150.0
M4PFHpA		**103.1**	50.0	150.0
M5PFHxA		**107.6**	50.0	150.0
M5PFPeA		**101.8**	50.0	150.0
M6PFDA		**101.1**	50.0	150.0
M7PFUnDA		**105.3**	50.0	150.0
M8FOSA		**91.3**	50.0	150.0
M8PFOA		**98.6**	50.0	150.0
M8PFOS		**107.8**	50.0	150.0
M9-PFNA		**107.9**	50.0	150.0
MPFBA		**103.2**	50.0	150.0
MPFDoDA		**108.0**	50.0	150.0
d3N-MeFOSAA		**100.5**	50.0	150.0
d5EtFOSAA		**100.5**	50.0	150.0
MHFPO-DA		**107.6**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50339.02

Sample Tag: SS-15

Collected Date/Time: 06/27/2023 11:45

Matrix: Liquid

COC Reference: 153090

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 02:13, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**99.1**	50.0	150.0
M2-6:2FTSA		**98.1**	50.0	150.0
M2-8:2FTSA		**100.8**	50.0	150.0
M2PFTeDA		**111.2**	12.0	218.0
M3PFBS		**94.3**	50.0	150.0
M3PFHxS		**93.9**	50.0	150.0
M4PFHpA		**103.1**	50.0	150.0
M5PFHxA		**101.1**	50.0	150.0
M5PFPeA		**103.8**	50.0	150.0
M6PFDA		**100.1**	50.0	150.0
M7PFUnDA		**105.7**	50.0	150.0
M8FOSA		**90.8**	50.0	150.0
M8PFOA		**92.8**	50.0	150.0
M8PFOS		**100.5**	50.0	150.0
M9-PFNA		**100.7**	50.0	150.0
MPFBA		**102.3**	50.0	150.0
MPFDoDA		**108.7**	50.0	150.0
d3N-MeFOSAA		**105.5**	50.0	150.0
d5EtFOSAA		**100.6**	50.0	150.0
MHFPO-DA		**85.4**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50339.03

Sample Tag: SS-12

Collected Date/Time: 06/27/2023 11:58

Matrix: Liquid

COC Reference: 153090

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 02:52, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**95.5**	50.0	150.0
M2-6:2FTSA		**95.1**	50.0	150.0
M2-8:2FTSA		**106.6**	50.0	150.0
M2PFTeDA		**104.3**	12.0	218.0
M3PFBS		**99.5**	50.0	150.0
M3PFHxS		**103.2**	50.0	150.0
M4PFHpA		**97.2**	50.0	150.0
M5PFHxA		**96.9**	50.0	150.0
M5PFPeA		**97.2**	50.0	150.0
M6PFDA		**88.4**	50.0	150.0
M7PFUnDA		**100.8**	50.0	150.0
M8FOSA		**94.9**	50.0	150.0
M8PFOA		**91.6**	50.0	150.0
M8PFOS		**102.8**	50.0	150.0
M9-PFNA		**90.9**	50.0	150.0
MPFBA		**102.3**	50.0	150.0
MPFDoDA		**101.7**	50.0	150.0
d3N-MeFOSAA		**96.4**	50.0	150.0
d5EtFOSAA		**103.2**	50.0	150.0
MHFPO-DA		**96.3**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50339.04

Sample Tag: SS-14

Collected Date/Time: 06/27/2023 12:16

Matrix: Liquid

COC Reference: 153090

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 03:31, Matrix: WW, Dilution: 1.93

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**95.1**	50.0	150.0
M2-6:2FTSA		**92.8**	50.0	150.0
M2-8:2FTSA		**98.7**	50.0	150.0
M2PFTeDA		**105.0**	12.0	218.0
M3PFBS		**91.1**	50.0	150.0
M3PFHxS		**105.1**	50.0	150.0
M4PFHpA		**99.1**	50.0	150.0
M5PFHxA		**96.7**	50.0	150.0
M5PFPeA		**95.0**	50.0	150.0
M6PFDA		**99.1**	50.0	150.0
M7PFUnDA		**102.8**	50.0	150.0
M8FOSA		**90.0**	50.0	150.0
M8PFOA		**90.3**	50.0	150.0
M8PFOS		**97.2**	50.0	150.0
M9-PFNA		**101.5**	50.0	150.0
MPFBA		**101.0**	50.0	150.0
MPFDoDA		**100.8**	50.0	150.0
d3N-MeFOSAA		**96.0**	50.0	150.0
d5EtFOSAA		**103.2**	50.0	150.0
MHFPO-DA		**79.2**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50339.05

Sample Tag: MH-10E-W

Collected Date/Time: 06/27/2023 12:25

Matrix: Liquid

COC Reference: 153090

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 03:51, Matrix: WW, Dilution: 1.9

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**95.5**	50.0	150.0
M2-6:2FTSA		**95.6**	50.0	150.0
M2-8:2FTSA		**107.6**	50.0	150.0
M2PFTeDA		**86.0**	12.0	218.0
M3PFBS		**93.5**	50.0	150.0
M3PFHxS		**98.1**	50.0	150.0
M4PFHpA		**96.0**	50.0	150.0
M5PFHxA		**93.8**	50.0	150.0
M5PFPeA		**95.5**	50.0	150.0
M6PFDA		**88.9**	50.0	150.0
M7PFUnDA		**81.6**	50.0	150.0
M8FOSA		**90.2**	50.0	150.0
M8PFOA		**91.6**	50.0	150.0
M8PFOS		**86.8**	50.0	150.0
M9-PFNA		**94.7**	50.0	150.0
MPFBA		**96.2**	50.0	150.0
MPFDoDA		**95.2**	50.0	150.0
d3N-MeFOSAA		**91.4**	50.0	150.0
d5EtFOSAA		**87.9**	50.0	150.0
MHFPO-DA		**95.3**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S50339.06

Sample Tag: Field Blank-062723

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

Matrix: Liquid

COC Reference: 153090

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230714B, Run Date: 07/15/2023 04:10, Matrix: WW, Dilution: 1.93

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**102.9**	50.0	150.0
M2-6:2FTSA		**90.3**	50.0	150.0
M2-8:2FTSA		**99.2**	50.0	150.0
M2PFTeDA		**99.8**	12.0	218.0
M3PFBS		**97.0**	50.0	150.0
M3PFHxS		**95.0**	50.0	150.0
M4PFHpA		**97.2**	50.0	150.0
M5PFHxA		**99.3**	50.0	150.0
M5PFPeA		**96.6**	50.0	150.0
M6PFDA		**96.2**	50.0	150.0
M7PFUnDA		**91.8**	50.0	150.0
M8FOSA		**90.4**	50.0	150.0
M8PFOA		**86.5**	50.0	150.0
M8PFOS		**103.4**	50.0	150.0
M9-PFNA		**95.9**	50.0	150.0
MPFBA		**99.3**	50.0	150.0
MPFDoDA		**107.5**	50.0	150.0
d3N-MeFOSAA		**98.3**	50.0	150.0
d5EtFOSAA		**98.1**	50.0	150.0
MHFPO-DA		**90.1**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230706W2

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

Blank (BLK)

Lab Sample ID: AK230714B.BLK230706

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

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

QC Report - Internal Standards per QC Sample

Laboratory Control Sample (LCS)

Lab Sample ID: AK230714B.LCS230706

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

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

Laboratory Control Sample Duplicate (LCSD)

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

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

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

Matrix Spike (MS)

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

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

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

Duplicate (DUP)

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

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

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

Organics - Volatiles, Prep Batch ID: PF230706W2

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

Blank (BLK)

Lab Sample ID: AK230714B.BLK230706

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

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFMPA		ND	2	ng/l
FPrPA (3:3 FTCA)		ND	4	ng/l
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
PFOA		ND	2	ng/l
PFBSA		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
PFNA		ND	2	ng/l
FHpPA (7:3 FTCA)		ND	4	ng/l
PFECHS		ND	2	ng/l
PFHpS		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
PFDA		ND	2	ng/l
PFOS		ND	2	ng/l
PFOS-BR		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS-LN		ND	2	ng/l
PFUnDA		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
PFNS		ND	2	ng/l
PFHxSA		ND	2	ng/l
PFDoDA		ND	2	ng/l
PFDS		ND	2	ng/l
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: PF230706W2 (continued)

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

Laboratory Control Sample (LCS)

Lab Sample ID: AK230714B.LCS230706

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

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

Laboratory Control Sample Duplicate (LCSD)

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

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

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

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

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

Laboratory Control Sample Duplicate (LCSD) (continued)

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

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

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

Matrix Spike (MS)

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

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

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

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

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

Matrix Spike (MS) (continued)

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

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

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

Duplicate (DUP)

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

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

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

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

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

Duplicate (DUP) (continued)

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

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

Analyte	Flags	RPD	RPD CL
6:2 FTSA		NC	30.0
PFOA		10.5	30.0
PFBSA	J	NC	30.0
PFHxS-BR		NC	30.0
PFHxS	J	NC	30.0
PFHxS-LN		NC	30.0
PFNA		NC	30.0
FHpPA (7:3 FTCA)		NC	30.0
PFECHS		5.1	30.0
PFHpS		NC	30.0
8:2 FTSA		NC	30.0
N-MeFOSAA		NC	30.0
PFDA		NC	30.0
PFOS		9.0	30.0
PFOS-BR		16.2	30.0
EtFOSAA		NC	30.0
PFOS-LN		8.3	30.0
PFUnDA		NC	30.0
9CL-PF3ONS		NC	30.0
PFNS		NC	30.0
PFHxSA		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTrDA		NC	30.0
11CL-PF3OUdS		NC	30.0
PFTeDA		NC	30.0
FOSA		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 153090

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. CELL NO. 313-333-0211 P.O. NO. 1940006516 TASK 36
E-MAIL ADDRESS clifford.yantz@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
503~~39~~.01	6/27/23	1138	SS-16	L	3	X							X	Low level
.02		1145	SS-15										X	Reporting with
.03		1158	SS-12										X	estimated
.04		1216	SS-14										X	values
.05		1225	MH-16E-W										X	
.06		1250	Field Blank-062723		1								X	34 PFAS compound
														List

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 6/27/23	TIME 1428
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 6/27/23	TIME 1428
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 6/27/23	TIME 1530
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 6/27/23	TIME 1530

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 3.3

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

Rev. 1.26.22

Analytical Laboratory Report

Report ID: S51989.01(01)
Generated on 08/31/2023

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): S51989.01-S51989.05
Project: RACER Coldwater Road
Collected Date(s): 08/07/2023
Submitted Date/Time: 08/09/2023 13:30
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.
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/IEC 17025:2017	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

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

Glossary of Abbreviations

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

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
FHpPA (7:3 FTCA)	3-Perfluoroheptyl propanoic acid	812-70-4
FPePA (5:3 FTCA)	3-Perfluoropentyl propanoic acid	914637-49-3
FPrPA (3:3 FTCA)	3-Perfluoropropyl propanoic acid	356-02-5
PFBSA	Perfluorobutanesulfonamide	30334-69-1
PFECHS	Perfluoro-4-ethylcyclohexanesulfonate	67584-42-3
PFHxSA	Perfluorohexanesulfonamide	41997-13-1

Analytical Laboratory Report

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S51989.01	Field Blank - 080723	Liquid	08/07/23 13:35
S51989.02	SS-14	Liquid	08/07/23 13:43
S51989.03	SS-12	Liquid	08/07/23 14:12
S51989.04	SS-22	Liquid	08/07/23 13:52
S51989.05	SS-23	Liquid	08/07/23 13:58

Analytical Laboratory Report

Lab Sample ID: S51989.01
Sample Tag: Field Blank - 080723
Collected Date/Time: 08/07/2023 13:35
Matrix: Liquid
COC Reference: 155542

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)*	11.13/6.55/9	ASTMD7979-19M	08/16/23 10:00	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 08/19/23 09:00, 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*	Not detected	2.0	1.6	ng/L	1.97	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.97	355-46-4-LN	
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	
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*	Not detected	3.9	2.0	ng/L	1.97	2991-50-6	
PFOS*	Not detected	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*	Not detected	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	2.0	2.0	ng/L	1.97	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.9	3.0	ng/L	1.97	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.9	2.2	ng/L	1.97	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.9	1.2	ng/L	1.97	356-02-5	
PFBSA*	Not detected	2.0	1.2	ng/L	1.97	30334-69-1	
PFECHS*	Not detected	2.0	1.2	ng/L	1.97	67584-42-3	

Lab Sample ID: S51989.01 (continued)

Sample Tag: Field Blank - 080723

34 PFAs, Method: ASTMD7979-19M, Run Date: 08/19/23 09:00, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFHxSA*	Not detected	2.0	0.99	ng/L	1.97	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S51989.02
Sample Tag: SS-14
Collected Date/Time: 08/07/2023 13:43
Matrix: Liquid
COC Reference: 155542

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)*	12.40/6.56/11	ASTMD7979-19M	08/16/23 10:00	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 08/19/23 09:20, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	21	9.4	ng/L	1.88	375-22-4	X
PFPeA*	Not detected	3.8	0.94	ng/L	1.88	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.88	757124-72-4	
PFHxA*	3.0	1.9	1.3	ng/L	1.88	307-24-4	
PFBS*	3.3	1.9	1.3	ng/L	1.88	375-73-5	
PFHpA*	2.7	1.9	1.3	ng/L	1.88	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.88	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.88	27619-97-2	
PFOA*	6.0	1.9	1.5	ng/L	1.88	335-67-1	
PFHxS*	Not detected	1.9	1.5	ng/L	1.88	355-46-4	
PFHxS-LN*	Not detected	1.9	1.5	ng/L	1.88	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.88	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.88	375-95-1	
8:2 FTSA*	Not detected	1.9	0.94	ng/L	1.88	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.88	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.88	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.88	2355-31-9	
EtFOSAA*	Not detected	3.8	1.9	ng/L	1.88	2991-50-6	
PFOS*	33	1.9	1.8	ng/L	1.88	1763-23-1	
PFOS-LN*	22	1.9	1.8	ng/L	1.88	1763-23-1-LN	
PFOS-BR*	10	1.9	1.8	ng/L	1.88	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.3	ng/L	1.88	2058-94-8	
PFNS*	Not detected	1.9	1.3	ng/L	1.88	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.88	307-55-1	
PFDS*	Not detected	1.9	1.3	ng/L	1.88	335-77-3	
PFTrDA*	Not detected	1.9	1.1	ng/L	1.88	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.88	754-91-6	
PFTeDA*	Not detected	3.8	1.7	ng/L	1.88	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.88	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.3	ng/L	1.88	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.88	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.88	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.8	2.8	ng/L	1.88	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.8	2.1	ng/L	1.88	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.8	1.1	ng/L	1.88	356-02-5	
PFBSA*	Not detected	1.9	1.1	ng/L	1.88	30334-69-1	

X-Elevated reporting limit due to matrix interference

Lab Sample ID: S51989.02 (continued)

Sample Tag: SS-14

34 PFAs, Method: ASTMD7979-19M, Run Date: 08/19/23 09:20, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	5.4	1.9	1.1	ng/L	1.88	67584-42-3	
PFHxSA*	Not detected	1.9	0.94	ng/L	1.88	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S51989.03
Sample Tag: SS-12
Collected Date/Time: 08/07/2023 14:12
Matrix: Liquid
COC Reference: 155542

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)*	12.63/6.55/12	ASTMD7979-19M	08/16/23 10:00	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 08/19/23 09:39, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	15	9.9	ng/L	1.97	375-22-4	X
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*	2.3	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*	4.2	2.0	1.6	ng/L	1.97	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.97	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.97	355-46-4-LN	
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	
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*	Not detected	3.9	2.0	ng/L	1.97	2991-50-6	
PFOS*	93	2.0	1.9	ng/L	1.97	1763-23-1	
PFOS-LN*	71	2.0	1.9	ng/L	1.97	1763-23-1-LN	
PFOS-BR*	19	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	2.0	2.0	ng/L	1.97	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.9	3.0	ng/L	1.97	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.9	2.2	ng/L	1.97	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.9	1.2	ng/L	1.97	356-02-5	
PFBSA*	Not detected	2.0	1.2	ng/L	1.97	30334-69-1	

X-Elevated reporting limit due to matrix interference

Lab Sample ID: S51989.03 (continued)

Sample Tag: SS-12

34 PFAs, Method: ASTMD7979-19M, Run Date: 08/19/23 09:39, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	17	2.0	1.2	ng/L	1.97	67584-42-3	
PFHxSA*	Not detected	2.0	0.99	ng/L	1.97	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S51989.04
Sample Tag: SS-22
Collected Date/Time: 08/07/2023 13:52
Matrix: Liquid
COC Reference: 155542

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)*	11.54/6.54/10	ASTMD7979-19M	08/16/23 10:00	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 08/19/23 10:18, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2	757124-72-4	
PFHxA*	2.0	2.0	1.4	ng/L	2	307-24-4	J
PFBS*	2.3	2.0	1.4	ng/L	2	375-73-5	
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*	3.2	2.0	1.6	ng/L	2	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2	355-46-4	
PFHxS-LN*	Not detected	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*	320	2.0	2.0	ng/L	2	1763-23-1	
PFOS-LN*	260	2.0	2.0	ng/L	2	1763-23-1-LN	
PFOS-BR*	61	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	2.0	2.0	ng/L	2	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	4.0	3.0	ng/L	2	812-70-4	
FPePA (5:3 FTCA)*	Not detected	4.0	2.2	ng/L	2	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	4.0	1.2	ng/L	2	356-02-5	
PFBSA*	Not detected	2.0	1.2	ng/L	2	30334-69-1	

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

Lab Sample ID: S51989.04 (continued)

Sample Tag: SS-22

34 PFAs, Method: ASTMD7979-19M, Run Date: 08/19/23 10:18, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	49	2.0	1.2	ng/L	2	67584-42-3	
PFHxSA*	Not detected	2.0	1.0	ng/L	2	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S51989.05
Sample Tag: SS-23
Collected Date/Time: 08/07/2023 13:58
Matrix: Liquid
COC Reference: 155542

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)*	12.67/6.54/12	ASTMD7979-19M	08/16/23 10:00	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 08/19/23 10:38, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	15	9.8	ng/L	1.96	375-22-4	X
PFPeA*	2.2	3.9	0.98	ng/L	1.96	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.96	757124-72-4	
PFHxA*	1.8	2.0	1.4	ng/L	1.96	307-24-4	J
PFBS*	2.5	2.0	1.4	ng/L	1.96	375-73-5	
PFHpA*	1.9	2.0	1.4	ng/L	1.96	375-85-9	J
PFPeS*	Not detected	2.0	1.8	ng/L	1.96	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.96	27619-97-2	
PFOA*	5.3	2.0	1.6	ng/L	1.96	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.96	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.96	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.96	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.96	375-95-1	
8:2 FTSA*	Not detected	2.0	0.98	ng/L	1.96	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.96	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.96	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.96	2355-31-9	
EtFOSAA*	Not detected	3.9	2.0	ng/L	1.96	2991-50-6	
PFOS*	60	2.0	1.9	ng/L	1.96	1763-23-1	
PFOS-LN*	45	2.0	1.9	ng/L	1.96	1763-23-1-LN	
PFOS-BR*	14	2.0	1.9	ng/L	1.96	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.96	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.96	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.96	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.96	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.96	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.96	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.96	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.96	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.96	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.96	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	1.96	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.9	2.9	ng/L	1.96	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.9	2.2	ng/L	1.96	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.9	1.2	ng/L	1.96	356-02-5	

X-Elevated reporting limit due to matrix interference
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S51989.05 (continued)

Sample Tag: SS-23

34 PFAs, Method: ASTMD7979-19M, Run Date: 08/19/23 10:38, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBSA*	Not detected	2.0	1.2	ng/L	1.96	30334-69-1	
PFECHS*	14	2.0	1.2	ng/L	1.96	67584-42-3	
PFHxSA*	Not detected	2.0	0.98	ng/L	1.96	41997-13-1	

Merit Laboratories Login Checklist

Lab Set ID: S51989
Client: RAMBOLL (Ramboll Americas)
Project: RACER Coldwater Road
Submitted: 08/09/2023 13:30 Login User: BJB

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

155542

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.: CELL NO.: 313-333-0211 P.O. NO.: PO0006516 Task 36
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: RALER 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 (3779)	Special Instructions
51989.01	8/7/23	1335	Field Blank - 080723	L	1	X							X	Low level Reporting with estimated values
.02		1343	SS-14		3	X							X	
.03		1412	SS-12		3	X							X	
.04		1352	SS-22		3	X							X	
.05	↓	1358	SS-23	↓	3	X							X	34 PFAS compound List

RELINQUISHED BY: SIGNATURE/ORGANIZATION (Sampler) DATE 8/9/23 TIME 1132
RECEIVED BY: SIGNATURE/ORGANIZATION DATE 8/9/23 TIME 1337
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE 8/9/23 TIME 17:10
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION Barbe Bull DATE 8/9/2023 TIME 1330

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-S51989-01
Generated on 08/31/2023

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): S51989.01-S51989.05
Project: RACER Coldwater Road
Submitted Date/Time: 08/09/2023 13:30
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: S51989.01
Sample Tag: Field Blank - 080723
Collected Date/Time: 08/07/2023 13:35
Matrix: Liquid
COC Reference: 155542

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	08/19/23 09:00	AK230818B	PF230816W1	Yes	BLK/LCS/LCSD/DUP

QC Report - Analysis Summary

Lab Sample ID: S51989.02
Sample Tag: SS-14
Collected Date/Time: 08/07/2023 13:43
Matrix: Liquid
COC Reference: 155542

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	08/19/23 09:20	AK230818B	PF230816W1	Yes	BLK/LCS/LCSD/DUP

QC Report - Analysis Summary

Lab Sample ID: S51989.03
Sample Tag: SS-12
Collected Date/Time: 08/07/2023 14:12
Matrix: Liquid
COC Reference: 155542

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	08/19/23 09:39	AK230818B	PF230816W1	Yes	BLK/LCS/LCSD/DUP

QC Report - Analysis Summary

Lab Sample ID: S51989.04
Sample Tag: SS-22
Collected Date/Time: 08/07/2023 13:52
Matrix: Liquid
COC Reference: 155542

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	08/19/23 10:18	AK230818B	PF230816W1	Yes	BLK/LCS/LCSD/DUP

QC Report - Analysis Summary

Lab Sample ID: S51989.05
Sample Tag: SS-23
Collected Date/Time: 08/07/2023 13:58
Matrix: Liquid
COC Reference: 155542

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	08/19/23 10:38	AK230818B	PF230816W1	Yes	BLK/LCS/LCSD/DUP

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF230816W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S51989.01	34 PFAs	ASTMD7979-19M	08/19/23 09:00	AK230818B
S51989.02	34 PFAs	ASTMD7979-19M	08/19/23 09:20	AK230818B
S51989.03	34 PFAs	ASTMD7979-19M	08/19/23 09:39	AK230818B
S51989.04	34 PFAs	ASTMD7979-19M	08/19/23 10:18	AK230818B
S51989.05	34 PFAs	ASTMD7979-19M	08/19/23 10:38	AK230818B

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S51989.01

Sample Tag: Field Blank - 080723

Collected Date/Time: 08/07/2023 13:35

Matrix: Liquid

COC Reference: 155542

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230818B, Run Date: 08/19/2023 09:00, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**117.8**	50.0	150.0
M2-6:2FTSA		**117.8**	50.0	150.0
M2-8:2FTSA		**143.4**	50.0	150.0
M2PFTeDA		**94.9**	12.0	218.0
M3PFBS		**95.3**	50.0	150.0
M3PFHxS		**111.2**	50.0	150.0
M4PFHpA		**106.2**	50.0	150.0
M5PFHxA		**115.0**	50.0	150.0
M5PFPeA		**105.2**	50.0	150.0
M6PFDA		**99.4**	50.0	150.0
M7PFUnDA		**98.0**	50.0	150.0
M8FOSA		**106.5**	50.0	150.0
M8PFOA		**102.7**	50.0	150.0
M8PFOS		**106.0**	50.0	150.0
M9-PFNA		**109.1**	50.0	150.0
MPFBA		**105.8**	50.0	150.0
MPFDoDA		**94.3**	50.0	150.0
d3N-MeFOSAA		**93.9**	50.0	150.0
d5EtFOSAA		**106.3**	50.0	150.0
MHFPO-DA		**109.6**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S51989.02

Sample Tag: SS-14

Collected Date/Time: 08/07/2023 13:43

Matrix: Liquid

COC Reference: 155542

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230818B, Run Date: 08/19/2023 09:20, Matrix: WW, Dilution: 1.88

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**167.7**	50.0	150.0
M2-6:2FTSA		**144.5**	50.0	150.0
M2-8:2FTSA		**128.3**	50.0	150.0
M2PFTeDA		**110.2**	12.0	218.0
M3PFBS		**95.6**	50.0	150.0
M3PFHxS		**107.4**	50.0	150.0
M4PFHpA		**102.6**	50.0	150.0
M5PFHxA		**107.0**	50.0	150.0
M5PFPeA		**106.0**	50.0	150.0
M6PFDA		**104.5**	50.0	150.0
M7PFUnDA		**102.4**	50.0	150.0
M8FOSA		**105.7**	50.0	150.0
M8PFOA		**105.2**	50.0	150.0
M8PFOS		**96.4**	50.0	150.0
M9-PFNA		**112.5**	50.0	150.0
MPFBA		**105.0**	50.0	150.0
MPFDoDA		**103.7**	50.0	150.0
d3N-MeFOSAA		**113.6**	50.0	150.0
d5EtFOSAA		**104.6**	50.0	150.0
MHFPO-DA		**88.3**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S51989.03

Sample Tag: SS-12

Collected Date/Time: 08/07/2023 14:12

Matrix: Liquid

COC Reference: 155542

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230818B, Run Date: 08/19/2023 09:39, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**170.4**	50.0	150.0
M2-6:2FTSA	*	**150.4**	50.0	150.0
M2-8:2FTSA		**118.9**	50.0	150.0
M2PFTeDA		**113.6**	12.0	218.0
M3PFBS		**103.3**	50.0	150.0
M3PFHxS		**124.7**	50.0	150.0
M4PFHpA		**100.0**	50.0	150.0
M5PFHxA		**98.6**	50.0	150.0
M5PFPeA		**103.4**	50.0	150.0
M6PFDA		**105.8**	50.0	150.0
M7PFUnDA		**102.3**	50.0	150.0
M8FOSA		**104.4**	50.0	150.0
M8PFOA		**106.6**	50.0	150.0
M8PFOS		**103.9**	50.0	150.0
M9-PFNA		**119.1**	50.0	150.0
MPFBA		**104.2**	50.0	150.0
MPFDoDA		**101.4**	50.0	150.0
d3N-MeFOSAA		**100.4**	50.0	150.0
d5EtFOSAA		**104.4**	50.0	150.0
MHFPO-DA		**103.0**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S51989.04

Sample Tag: SS-22

Collected Date/Time: 08/07/2023 13:52

Matrix: Liquid

COC Reference: 155542

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230818B, Run Date: 08/19/2023 10:18, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**137.1**	50.0	150.0
M2-6:2FTSA		**129.2**	50.0	150.0
M2-8:2FTSA		**118.4**	50.0	150.0
M2PFTeDA		**101.2**	12.0	218.0
M3PFBS		**100.5**	50.0	150.0
M3PFHxS		**118.1**	50.0	150.0
M4PFHpA		**101.2**	50.0	150.0
M5PFHxA		**110.8**	50.0	150.0
M5PFPeA		**100.8**	50.0	150.0
M6PFDA		**99.8**	50.0	150.0
M7PFUnDA		**102.2**	50.0	150.0
M8FOSA		**104.5**	50.0	150.0
M8PFOA		**106.6**	50.0	150.0
M8PFOS		**107.6**	50.0	150.0
M9-PFNA		**121.6**	50.0	150.0
MPFBA		**107.6**	50.0	150.0
MPFDoDA		**98.9**	50.0	150.0
d3N-MeFOSAA		**96.7**	50.0	150.0
d5EtFOSAA		**111.1**	50.0	150.0
MHFPO-DA		**113.4**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S51989.05

Sample Tag: SS-23

Collected Date/Time: 08/07/2023 13:58

Matrix: Liquid

COC Reference: 155542

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230818B, Run Date: 08/19/2023 10:38, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**173.7**	50.0	150.0
M2-6:2FTSA		**133.6**	50.0	150.0
M2-8:2FTSA		**130.1**	50.0	150.0
M2PFTeDA		**110.3**	12.0	218.0
M3PFBS		**94.8**	50.0	150.0
M3PFHxS		**110.9**	50.0	150.0
M4PFHpA		**113.5**	50.0	150.0
M5PFHxA		**99.9**	50.0	150.0
M5PFPeA		**111.3**	50.0	150.0
M6PFDA		**103.3**	50.0	150.0
M7PFUnDA		**101.3**	50.0	150.0
M8FOSA		**107.3**	50.0	150.0
M8PFOA		**98.7**	50.0	150.0
M8PFOS		**100.0**	50.0	150.0
M9-PFNA		**112.4**	50.0	150.0
MPFBA		**105.8**	50.0	150.0
MPFDoDA		**106.9**	50.0	150.0
d3N-MeFOSAA		**107.5**	50.0	150.0
d5EtFOSAA		**110.3**	50.0	150.0
MHFPO-DA		**108.8**	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF230816W1

QC Types: BLK/LCS/LCSD/DUP

Blank (BLK)

Lab Sample ID: SE230817RUSH.BLK230816

Run in Batch: SE230817RUSH, Run Date: 08/17/2023 12:47, Prep Date: 08/16/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**113.9**	50.0	150.0
M2-6:2FTSA		**109.7**	50.0	150.0
M2-8:2FTSA		**131.1**	50.0	150.0
M2PFTeDA		**127.2**	12.0	218.0
M3PFBS		**101.2**	50.0	150.0
M3PFHxS		**105.9**	50.0	150.0
M4PFHpA		**102.8**	50.0	150.0
M5PFHxA		**108.2**	50.0	150.0
M5PFPeA		**107.1**	50.0	150.0
M6PFDA		**97.5**	50.0	150.0
M7PFUnDA		**110.6**	50.0	150.0
M8FOSA		**104.5**	50.0	150.0
M8PFOA		**113.2**	50.0	150.0
M8PFOS		**99.6**	50.0	150.0
M9-PFNA		**107.5**	50.0	150.0
MPFBA		**106.3**	50.0	150.0
MPFDoDA		**103.5**	50.0	150.0
d3N-MeFOSAA		**129.8**	50.0	150.0
d5EtFOSAA		**117.4**	50.0	150.0
MHFPO-DA		**98.5**	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample (LCS)

Lab Sample ID: SE230817RUSH.LCS230816

Run in Batch: SE230817RUSH, Run Date: 08/17/2023 12:08, Prep Date: 08/16/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**103.3**	50.0	150.0
M2-6:2FTSA		**103.8**	50.0	150.0
M2-8:2FTSA		**112.0**	50.0	150.0
M2PFTeDA		**131.9**	12.0	218.0
M3PFBS		**99.2**	50.0	150.0
M3PFHxS		**101.6**	50.0	150.0
M4PFHpA		**102.0**	50.0	150.0
M5PFHxA		**102.2**	50.0	150.0
M5PFPeA		**104.8**	50.0	150.0
M6PFDA		**101.8**	50.0	150.0
M7PFUnDA		**104.9**	50.0	150.0
M8FOSA		**100.3**	50.0	150.0
M8PFOA		**107.4**	50.0	150.0
M8PFOS		**97.1**	50.0	150.0
M9-PFNA		**104.1**	50.0	150.0
MPFBA		**102.8**	50.0	150.0
MPFDoDA		**97.9**	50.0	150.0
d3N-MeFOSAA		**118.2**	50.0	150.0
d5EtFOSAA		**118.5**	50.0	150.0
MHFPO-DA		**96.5**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: SE230817RUSH.LCSD230816, Parent Sample ID: SE230817RUSH.LCS230816

Run in Batch: SE230817RUSH, Run Date: 08/17/2023 12:28, Prep Date: 08/16/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**104.0**	50.0	150.0
M2-6:2FTSA		**101.1**	50.0	150.0
M2-8:2FTSA		**119.0**	50.0	150.0
M2PFTeDA		**141.3**	12.0	218.0
M3PFBS		**100.8**	50.0	150.0
M3PFHxS		**101.0**	50.0	150.0
M4PFHpA		**103.1**	50.0	150.0
M5PFHxA		**105.3**	50.0	150.0
M5PFPeA		**104.3**	50.0	150.0
M6PFDA		**103.2**	50.0	150.0
M7PFUnDA		**109.3**	50.0	150.0
M8FOSA		**98.4**	50.0	150.0
M8PFOA		**104.5**	50.0	150.0
M8PFOS		**98.5**	50.0	150.0
M9-PFNA		**102.3**	50.0	150.0
MPFBA		**101.4**	50.0	150.0
MPFDoDA		**100.6**	50.0	150.0
d3N-MeFOSAA		**118.3**	50.0	150.0
d5EtFOSAA		**116.7**	50.0	150.0
MHFPO-DA		**100.5**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: SE230817RUSH.5225801D, Parent Sample ID: S52258.01

Run in Batch: SE230817RUSH, Run Date: 08/17/2023 13:46, Prep Date: 08/16/2023, Matrix: WW, Dilution: 1.9

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**135.1**	50.0	150.0
M2-6:2FTSA		**142.4**	50.0	150.0
M2-8:2FTSA		**147.0**	50.0	150.0
M2PFTeDA		**87.2**	12.0	218.0
M3PFBS		**108.3**	50.0	150.0
M3PFHxS		**112.3**	50.0	150.0
M4PFHpA		**112.6**	50.0	150.0
M5PFHxA		**111.4**	50.0	150.0
M5PFPeA		**114.0**	50.0	150.0
M6PFDA		**109.6**	50.0	150.0
M7PFUnDA		**114.9**	50.0	150.0
M8FOSA		**116.3**	50.0	150.0
M8PFOA		**114.5**	50.0	150.0
M8PFOS		**98.3**	50.0	150.0
M9-PFNA		**109.5**	50.0	150.0
MPFBA		**112.3**	50.0	150.0
MPFDoDA		**89.7**	50.0	150.0
d3N-MeFOSAA		**124.8**	50.0	150.0
d5EtFOSAA	*	**162.2**	50.0	150.0
MHFPO-DA		**105.8**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230816W1

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

Blank (BLK)

Lab Sample ID: SE230817RUSH.BLK230816

Run in Batch: SE230817RUSH, Run Date: 08/17/2023 12:47, Prep Date: 08/16/2023, 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: PF230816W1 (continued)

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

Laboratory Control Sample (LCS)

Lab Sample ID: SE230817RUSH.LCS230816

Run in Batch: SE230817RUSH, Run Date: 08/17/2023 12:08, Prep Date: 08/16/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		83.6	70.0	130.0
PFMPA		81.2	70.0	130.0
FPrPA (3:3 FTCA)		103.8	70.0	130.0
PFPrS		79.6	70.0	130.0
PFPeA		88.6	70.0	130.0
PFMBA		80.8	70.0	130.0
4:2 FTSA		88.4	70.0	130.0
NFDHA		89.8	70.0	130.0
PFHxA		91.8	70.0	130.0
PFBS		89.6	70.0	130.0
HFPO-DA		85.4	70.0	130.0
PFEESA		90.6	70.0	130.0
FPePA (5:3 FTCA)		112.0	70.0	130.0
PFHpA		92.6	70.0	130.0
PFPeS		98.4	70.0	130.0
ADONA		89.0	70.0	130.0
6:2 FTSA		81.8	70.0	130.0
PFBSA		100.8	70.0	130.0
PFOA		92.4	70.0	130.0
PFHxS		87.0	70.0	130.0
PFNA		92.0	70.0	130.0
FHpPA (7:3 FTCA)		100.2	70.0	130.0
PFECHS		86.4	70.0	130.0
8:2 FTSA		90.2	70.0	130.0
PFHpS		87.0	70.0	130.0
N-MeFOSAA		75.4	70.0	130.0
PFDA		86.8	70.0	130.0
PFOS		85.2	70.0	130.0
EtFOSAA		78.0	70.0	130.0
PFUnDA		90.0	70.0	130.0
PFHxSA		107.4	70.0	130.0
9CL-PF3ONS		88.8	70.0	130.0
PFNS		84.6	70.0	130.0
PFDoDA		102.6	70.0	130.0
PFDS		79.8	70.0	130.0
PFTrDA		124.0	70.0	130.0
11CL-PF3OUdS		83.2	70.0	130.0
PFTeDA		88.8	70.0	130.0
FOSA		86.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: SE230817RUSH.LCSD230816, Parent Sample ID: SE230817RUSH.LCS230816

Run in Batch: SE230817RUSH, Run Date: 08/17/2023 12:28, Prep Date: 08/16/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		87.2	70.0	130.0	4.2	30.0
PFMPA		80.0	70.0	130.0	1.5	30.0

Organics - Volatiles, Prep Batch ID: PF230816W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: SE230817RUSH.LCSD230816, Parent Sample ID: SE230817RUSH.LCS230816

Run in Batch: SE230817RUSH, Run Date: 08/17/2023 12:28, Prep Date: 08/16/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
FPrPA (3:3 FTCA)		122.8	70.0	130.0	16.8	30.0
PFPrS		80.6	70.0	130.0	1.2	30.0
PFPeA		90.6	70.0	130.0	2.2	30.0
PFMBA		81.6	70.0	130.0	1.0	30.0
4:2 FTSA		91.4	70.0	130.0	3.3	30.0
NFDHA		87.4	70.0	130.0	2.7	30.0
PFHxA		86.6	70.0	130.0	5.8	30.0
PFBS		88.4	70.0	130.0	1.3	30.0
HFPO-DA		83.2	70.0	130.0	2.6	30.0
PFEESA		89.2	70.0	130.0	1.6	30.0
FPePA (5:3 FTCA)		110.4	70.0	130.0	1.4	30.0
PFHpA		94.2	70.0	130.0	1.7	30.0
PFPeS		99.4	70.0	130.0	1.0	30.0
ADONA		92.2	70.0	130.0	3.5	30.0
6:2 FTSA		90.2	70.0	130.0	9.8	30.0
PFBSA		104.8	70.0	130.0	3.9	30.0
PFOA		99.8	70.0	130.0	7.7	30.0
PFHxS		86.0	70.0	130.0	1.2	30.0
PFNA		94.8	70.0	130.0	3.0	30.0
FHpPA (7:3 FTCA)		111.8	70.0	130.0	10.9	30.0
PFECHS		89.4	70.0	130.0	3.4	30.0
8:2 FTSA		81.0	70.0	130.0	10.7	30.0
PFHpS		76.2	70.0	130.0	13.2	30.0
N-MeFOSAA		80.2	70.0	130.0	6.2	30.0
PFDA		88.8	70.0	130.0	2.3	30.0
PFOS		84.8	70.0	130.0	0.5	30.0
EtFOSAA		84.0	70.0	130.0	7.4	30.0
PFUnDA		90.4	70.0	130.0	0.4	30.0
PFHxSA		108.8	70.0	130.0	1.3	30.0
9CL-PF3ONS		89.8	70.0	130.0	1.1	30.0
PFNS		87.4	70.0	130.0	3.3	30.0
PFDoDA		99.8	70.0	130.0	2.8	30.0
PFDS		82.0	70.0	130.0	2.7	30.0
PFTrDA		126.8	70.0	130.0	2.2	30.0
11CL-PF3OUdS		82.8	70.0	130.0	0.5	30.0
PFTeDA		94.6	70.0	130.0	6.3	30.0
FOSA		91.8	70.0	130.0	6.5	30.0

Duplicate (DUP)

Lab Sample ID: SE230817RUSH.5225801D, Parent Sample ID: S52258.01

Run in Batch: SE230817RUSH, Run Date: 08/17/2023 13:46, Prep Date: 08/16/2023, Matrix: WW, Dilution: 1.9

Analyte	Flags	RPD	RPD CL
PFOS		10.0	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

155542

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.: CELL NO.: 313-333-0211 P.O. NO.: PO0006516 Task 36
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: RALER 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 (3779)	Special Instructions
51989.01	8/7/23	1335	Field Blank - 080723	L	1	X							X	Low level Reporting with estimated values
.02		1343	SS-14		3	X							X	
.03		1412	SS-12		3	X							X	
.04		1352	SS-22		3	X							X	
.05	↓	1358	SS-23	↓	3	X							X	34 PFAS compound List

RELINQUISHED BY: SIGNATURE/ORGANIZATION (Sampler) DATE 8/9/23 TIME 1132
RECEIVED BY: SIGNATURE/ORGANIZATION DATE 8/9/23 TIME 1337
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE 8/9/23 TIME 17:10
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION Barbe Bull DATE 8/9/2023 TIME 1330

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

Analytical Laboratory Report

Report ID: S45339.01(01)
Generated on 03/07/2023

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): S45339.01-S45339.02
Project: RACER Coldwater Road
Collected Date(s): 02/14/2023
Submitted Date/Time: 02/14/2023 15:30
Sampled by: Kevin Schneider
P.O. #: 194002628 TASK 31

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
ASTM D7968-17M	ASTM Method D7968 - 17 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 (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S45339.01	CON-01S	Solid	02/14/23 12:00
S45339.02	CON-01D	Solid	02/14/23 12:08

Analytical Laboratory Report

Lab Sample ID: S45339.01
Sample Tag: CON-01S
Collected Date/Time: 02/14/2023 12:00
Matrix: Solid
COC Reference: 155000

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	6.92/ 6.50/10	ASTM D7968-17M	02/16/23 11:00	PTW	
Initial wt. (g) / Final wt. (g) / Volume (ml) (Rep*	6.884/6.510/10	ASTM D7968-17M	02/23/23 11:00	PTW	

Organics

28 PFAs, Method: ASTM D7968-17M, Run Date: 02/16/23 19:27, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	480	38	ng/kg	23.8	375-22-4	
PFPeA*	Not detected	240	19	ng/kg	23.8	2706-90-3	
4:2 FTSA*	Not detected	240	38	ng/kg	23.8	757124-72-4	
PFHxA*	Not detected	240	26	ng/kg	23.8	307-24-4	
PFBS*	Not detected	240	33	ng/kg	23.8	375-73-5	
PFHpA*	Not detected	240	48	ng/kg	23.8	375-85-9	
PFPeS*	Not detected	240	40	ng/kg	23.8	2706-91-4	
6:2 FTSA*	Not detected	240	60	ng/kg	23.8	27619-97-2	
PFOA*	Not detected	240	45	ng/kg	23.8	335-67-1	
PFHxS*	Not detected	240	43	ng/kg	23.8	355-46-4	
PFHxS-LN*	Not detected	240	43	ng/kg	23.8	355-46-4-LN	
PFHxS-BR*	Not detected	240	43	ng/kg	23.8	355-46-4-BR	
PFNA*	Not detected	240	33	ng/kg	23.8	375-95-1	
8:2 FTSA*	Not detected	240	69	ng/kg	23.8	39108-34-4	
PFHpS*	Not detected	240	31	ng/kg	23.8	375-92-8	
PFDA*	Not detected	240	38	ng/kg	23.8	335-76-2	
N-MeFOSAA*	Not detected	240	74	ng/kg	23.8	2355-31-9	
EtFOSAA*	Not detected	240	29	ng/kg	23.8	2991-50-6	
PFOS*	490	240	33	ng/kg	23.8	1763-23-1	
PFOS-LN*	460	240	33	ng/kg	23.8	1763-23-1-LN	
PFOS-BR*	Not detected	240	33	ng/kg	23.8	1763-23-1-BR	
PFUnDA*	Not detected	240	45	ng/kg	23.8	2058-94-8	
PFNS*	Not detected	240	52	ng/kg	23.8	68259-12-1	
PFDoDA*	Not detected	240	26	ng/kg	23.8	307-55-1	
PFDS*	Not detected	240	33	ng/kg	23.8	335-77-3	
PFTrDA*	Not detected	240	48	ng/kg	23.8	72629-94-8	
FOSA*	Not detected	240	29	ng/kg	23.8	754-91-6	
PFTeDA*	Not detected	240	40	ng/kg	23.8	376-06-7	
11Cl-PF3OUdS*	Not detected	240	29	ng/kg	23.8	763051-92-9	
9Cl-PF3ONS*	Not detected	240	45	ng/kg	23.8	756426-58-1	
ADONA*	Not detected	240	33	ng/kg	23.8	919005-14-4	
HFPO-DA*	Not detected	240	62	ng/kg	23.8	13252-13-6	

Lab Sample ID: S45339.01 (continued)
Sample Tag: CON-01S

28 PFAs (Replicate 01), Method: ASTM D7968-17M, Run Date: 02/24/23 20:05, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	530	43	ng/kg	26.7	375-22-4	
PFPeA*	Not detected	270	21	ng/kg	26.7	2706-90-3	
4:2 FTSA*	Not detected	270	43	ng/kg	26.7	757124-72-4	
PFHxA*	Not detected	270	29	ng/kg	26.7	307-24-4	
PFBS*	Not detected	270	37	ng/kg	26.7	375-73-5	
PFHpA*	Not detected	270	53	ng/kg	26.7	375-85-9	
PFPeS*	Not detected	270	45	ng/kg	26.7	2706-91-4	
6:2 FTSA*	Not detected	270	67	ng/kg	26.7	27619-97-2	
PFOA*	Not detected	270	51	ng/kg	26.7	335-67-1	
PFHxS*	Not detected	270	48	ng/kg	26.7	355-46-4	
PFHxS-LN*	Not detected	270	48	ng/kg	26.7	355-46-4-LN	
PFHxS-BR*	Not detected	270	48	ng/kg	26.7	355-46-4-BR	
PFNA*	Not detected	270	37	ng/kg	26.7	375-95-1	
8:2 FTSA*	Not detected	270	77	ng/kg	26.7	39108-34-4	
PFHpS*	Not detected	270	35	ng/kg	26.7	375-92-8	
PFDA*	Not detected	270	43	ng/kg	26.7	335-76-2	
N-MeFOSAA*	Not detected	270	83	ng/kg	26.7	2355-31-9	
EtFOSAA*	Not detected	270	32	ng/kg	26.7	2991-50-6	
PFOS*	350	270	37	ng/kg	26.7	1763-23-1	
PFOS-LN*	320	270	37	ng/kg	26.7	1763-23-1-LN	
PFOS-BR*	Not detected	270	37	ng/kg	26.7	1763-23-1-BR	
PFUnDA*	Not detected	270	51	ng/kg	26.7	2058-94-8	
PFNS*	Not detected	270	59	ng/kg	26.7	68259-12-1	
PFDoDA*	Not detected	270	29	ng/kg	26.7	307-55-1	
PFDS*	Not detected	270	37	ng/kg	26.7	335-77-3	
PFTrDA*	Not detected	270	53	ng/kg	26.7	72629-94-8	
FOSA*	Not detected	270	32	ng/kg	26.7	754-91-6	
PFTeDA*	Not detected	270	45	ng/kg	26.7	376-06-7	
11Cl-PF3OUdS*	Not detected	270	32	ng/kg	26.7	763051-92-9	
9Cl-PF3ONS*	Not detected	270	51	ng/kg	26.7	756426-58-1	
ADONA*	Not detected	270	37	ng/kg	26.7	919005-14-4	
HFPO-DA*	Not detected	270	69	ng/kg	26.7	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S45339.02
Sample Tag: CON-01D
Collected Date/Time: 02/14/2023 12:08
Matrix: Solid
COC Reference: 155000

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	6.96/6.49/10	ASTM D7968-17M	02/16/23 11:00	PTW	
Initial wt. (g) / Final wt. (g) / Volume (ml) (Rep*	6.880/6.550/10	ASTM D7968-17M	02/23/23 11:00	PTW	

Organics

28 PFAs, Method: ASTM D7968-17M, Run Date: 02/16/23 20:06, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	430	34	ng/kg	21.3	375-22-4	
PFPeA*	Not detected	210	17	ng/kg	21.3	2706-90-3	
4:2 FTSA*	Not detected	210	34	ng/kg	21.3	757124-72-4	
PFHxA*	Not detected	210	23	ng/kg	21.3	307-24-4	
PFBS*	Not detected	210	30	ng/kg	21.3	375-73-5	
PFHpA*	Not detected	210	43	ng/kg	21.3	375-85-9	
PFPeS*	Not detected	210	36	ng/kg	21.3	2706-91-4	
6:2 FTSA*	Not detected	210	53	ng/kg	21.3	27619-97-2	
PFOA*	Not detected	210	40	ng/kg	21.3	335-67-1	
PFHxS*	Not detected	210	38	ng/kg	21.3	355-46-4	
PFHxS-LN*	Not detected	210	38	ng/kg	21.3	355-46-4-LN	
PFHxS-BR*	Not detected	210	38	ng/kg	21.3	355-46-4-BR	
PFNA*	Not detected	210	30	ng/kg	21.3	375-95-1	
8:2 FTSA*	Not detected	210	62	ng/kg	21.3	39108-34-4	
PFHpS*	Not detected	210	28	ng/kg	21.3	375-92-8	
PFDA*	Not detected	210	34	ng/kg	21.3	335-76-2	
N-MeFOSAA*	Not detected	210	66	ng/kg	21.3	2355-31-9	
EtFOSAA*	Not detected	210	26	ng/kg	21.3	2991-50-6	
PFOS*	46	210	30	ng/kg	21.3	1763-23-1	J
PFOS-LN*	40	210	30	ng/kg	21.3	1763-23-1-LN	J
PFOS-BR*	Not detected	210	30	ng/kg	21.3	1763-23-1-BR	
PFUnDA*	Not detected	210	40	ng/kg	21.3	2058-94-8	
PFNS*	Not detected	210	47	ng/kg	21.3	68259-12-1	
PFDoDA*	Not detected	210	23	ng/kg	21.3	307-55-1	
PFDS*	Not detected	210	30	ng/kg	21.3	335-77-3	
PFTrDA*	Not detected	210	43	ng/kg	21.3	72629-94-8	
FOSA*	Not detected	210	26	ng/kg	21.3	754-91-6	
PFTeDA*	Not detected	210	36	ng/kg	21.3	376-06-7	
11Cl-PF3OUdS*	Not detected	210	26	ng/kg	21.3	763051-92-9	
9Cl-PF3ONS*	Not detected	210	40	ng/kg	21.3	756426-58-1	
ADONA*	Not detected	210	30	ng/kg	21.3	919005-14-4	
HFPO-DA*	Not detected	210	55	ng/kg	21.3	13252-13-6	

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

Lab Sample ID: S45339.02 (continued)
Sample Tag: CON-01D

28 PFAs (Replicate 01), Method: ASTM D7968-17M, Run Date: 02/24/23 20:44, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	610	48	ng/kg	30.3	375-22-4	
PFPeA*	Not detected	300	24	ng/kg	30.3	2706-90-3	
4:2 FTSA*	Not detected	300	48	ng/kg	30.3	757124-72-4	
PFHxA*	Not detected	300	33	ng/kg	30.3	307-24-4	
PFBS*	Not detected	300	42	ng/kg	30.3	375-73-5	
PFHpA*	Not detected	300	61	ng/kg	30.3	375-85-9	
PFPeS*	Not detected	300	52	ng/kg	30.3	2706-91-4	
6:2 FTSA*	Not detected	300	76	ng/kg	30.3	27619-97-2	
PFOA*	Not detected	300	58	ng/kg	30.3	335-67-1	
PFHxS*	Not detected	300	55	ng/kg	30.3	355-46-4	
PFHxS-LN*	Not detected	300	55	ng/kg	30.3	355-46-4-LN	
PFHxS-BR*	Not detected	300	55	ng/kg	30.3	355-46-4-BR	
PFNA*	Not detected	300	42	ng/kg	30.3	375-95-1	
8:2 FTSA*	Not detected	300	88	ng/kg	30.3	39108-34-4	
PFHpS*	Not detected	300	39	ng/kg	30.3	375-92-8	
PFDA*	Not detected	300	48	ng/kg	30.3	335-76-2	
N-MeFOSAA*	Not detected	300	94	ng/kg	30.3	2355-31-9	
EtFOSAA*	Not detected	300	36	ng/kg	30.3	2991-50-6	
PFOS*	Not detected	300	42	ng/kg	30.3	1763-23-1	
PFOS-LN*	Not detected	300	42	ng/kg	30.3	1763-23-1-LN	
PFOS-BR*	Not detected	300	42	ng/kg	30.3	1763-23-1-BR	
PFUnDA*	Not detected	300	58	ng/kg	30.3	2058-94-8	
PFNS*	Not detected	300	67	ng/kg	30.3	68259-12-1	
PFDoDA*	Not detected	300	33	ng/kg	30.3	307-55-1	
PFDS*	Not detected	300	42	ng/kg	30.3	335-77-3	
PFTrDA*	Not detected	300	61	ng/kg	30.3	72629-94-8	
FOSA*	Not detected	300	36	ng/kg	30.3	754-91-6	
PFTeDA*	Not detected	300	52	ng/kg	30.3	376-06-7	
11Cl-PF3OUdS*	Not detected	300	36	ng/kg	30.3	763051-92-9	
9Cl-PF3ONS*	Not detected	300	58	ng/kg	30.3	756426-58-1	
ADONA*	Not detected	300	42	ng/kg	30.3	919005-14-4	
HFPO-DA*	Not detected	300	79	ng/kg	30.3	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID: S45339
Client: OBG02 (Ramboll Americas - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 02/14/2023 15:30 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 3.4
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 155000

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.	
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	RAER 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

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 (1929)	Special Instructions
45339.01	2/14/23	1200	CON-01S	SD	3	X							X	Low level
.02	2/14/23	1058	CON-01D	SD	3	X							X	Reporting with estimated values

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 2/14/23	TIME 1352
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 2/14/23	TIME 13:52
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 2/14/23	TIME 15:30
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 2/14/23	TIME 1530

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 3, 4

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

Rev. 1.26.22

Quality Control Report

Report ID: QC-S45339-01
Generated on 03/08/2023

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): S45339.01-S45339.02
Project: RACER Coldwater Road
Submitted Date/Time: 02/14/2023 15:30
Sampled by: Kevin Schneider
P.O. #: 194002628 TASK 31

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: S45339.01
Sample Tag: CON-01S
Collected Date/Time: 02/14/2023 12:00
Matrix: Solid
COC Reference: 155000

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTM D7968-17M	02/16/23 19:27	AK230216S	PF230216S1	Yes	BLK/LCS/LCSD/MS/DU
28 PFAs (Replicate 01)	ASTM D7968-17M	02/24/23 20:05	DQ230224	PF230223S1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S45339.02
Sample Tag: CON-01D
Collected Date/Time: 02/14/2023 12:08
Matrix: Solid
COC Reference: 155000

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTM D7968-17M	02/16/23 20:06	AK230216S	PF230216S1	Yes	BLK/LCS/LCSD/MS/DU
28 PFAs (Replicate 01)	ASTM D7968-17M	02/24/23 20:44	DQ230224	PF230223S1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF230216S1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S45339.01	28 PFAs	ASTM D7968-17M	02/16/23 19:27	AK230216S
S45339.02	28 PFAs	ASTM D7968-17M	02/16/23 20:06	AK230216S

Organics - Volatiles, Prep Batch ID: PF230223S1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S45339.01	28 PFAs (Replicate 01)	ASTM D7968-17M	02/24/23 20:05	DQ230224
S45339.02	28 PFAs (Replicate 01)	ASTM D7968-17M	02/24/23 20:44	DQ230224

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S45339.01

Sample Tag: CON-01S

Collected Date/Time: 02/14/2023 12:00

Matrix: Solid

COC Reference: 155000

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230216S, Run Date: 02/16/2023 19:27, Matrix: SO, Dilution: 23.8

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**136.2**	50.0	150.0
M2-6:2FTSA		**98.4**	50.0	150.0
M2-8:2FTSA		**92.9**	50.0	150.0
M2PFTeDA		**88.5**	12.0	218.0
M3PFBS		**101.1**	50.0	150.0
M3PFHxS		**97.6**	50.0	150.0
M4PFHpA		**115.0**	50.0	150.0
M5PFHxA		**104.0**	50.0	150.0
M5PFPeA		**106.3**	50.0	150.0
M6PFDA		**103.1**	50.0	150.0
M7PFUnDA		**115.6**	50.0	150.0
M8FOSA		**109.9**	50.0	150.0
M8PFOA		**108.5**	50.0	150.0
M8PFOS		**109.0**	50.0	150.0
M9-PFNA		**108.2**	50.0	150.0
MPFBA		**108.7**	50.0	150.0
MPFDoDA		**104.3**	50.0	150.0
d3N-MeFOSAA		**123.4**	50.0	150.0
d5EtFOSAA		**106.6**	50.0	150.0
MHFPO-DA		**101.8**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Organics - Volatiles, Analysis: 28 PFAs (Replicate 01)

Run in Batch: DQ230224, Run Date: 02/24/2023 20:05, Matrix: SO, Dilution: 26.7

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**96.3**	50.0	150.0
M2-6:2FTSA		**112.5**	50.0	150.0
M2-8:2FTSA		**89.9**	50.0	150.0
M2PFTeDA		**22.7**	12.0	218.0
M3PFBS		**113.2**	50.0	150.0
M3PFHxS		**106.8**	50.0	150.0
M4PFHpA		**121.5**	50.0	150.0
M5PFHxA		**104.8**	50.0	150.0
M5PFPeA		**114.0**	50.0	150.0
M6PFDA		**106.2**	50.0	150.0
M7PFUnDA		**83.2**	50.0	150.0
M8FOSA		**98.5**	50.0	150.0
M8PFOA		**113.4**	50.0	150.0
M8PFOS		**111.3**	50.0	150.0
M9-PFNA		**104.9**	50.0	150.0
MPFBA		**118.6**	50.0	150.0
MPFDoDA		**54.1**	50.0	150.0
d3N-MeFOSAA		**90.8**	50.0	150.0
d5EtFOSAA		**97.1**	50.0	150.0
MHFPO-DA		**107.1**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S45339.02

Sample Tag: CON-01D

Collected Date/Time: 02/14/2023 12:08

Matrix: Solid

COC Reference: 155000

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK230216S, Run Date: 02/16/2023 20:06, Matrix: SO, Dilution: 21.3

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**134.4**	50.0	150.0
M2-6:2FTSA		**90.3**	50.0	150.0
M2-8:2FTSA		**110.3**	50.0	150.0
M2PFTeDA		**91.2**	12.0	218.0
M3PFBS		**112.8**	50.0	150.0
M3PFHxS		**100.2**	50.0	150.0
M4PFHpA		**110.9**	50.0	150.0
M5PFHxA		**108.5**	50.0	150.0
M5PFPeA		**111.4**	50.0	150.0
M6PFDA		**102.1**	50.0	150.0
M7PFUnDA		**113.6**	50.0	150.0
M8FOSA		**119.7**	50.0	150.0
M8PFOA		**106.4**	50.0	150.0
M8PFOS		**99.8**	50.0	150.0
M9-PFNA		**116.6**	50.0	150.0
MPFBA		**107.7**	50.0	150.0
MPFDoDA		**99.5**	50.0	150.0
d3N-MeFOSAA		**116.8**	50.0	150.0
d5EtFOSAA		**91.9**	50.0	150.0
MHFPO-DA		**109.0**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Organics - Volatiles, Analysis: 28 PFAs (Replicate 01)

Run in Batch: DQ230224, Run Date: 02/24/2023 20:44, Matrix: SO, Dilution: 30.3

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**93.8**	50.0	150.0
M2-6:2FTSA		**99.7**	50.0	150.0
M2-8:2FTSA		**80.0**	50.0	150.0
M2PFTeDA		**43.7**	12.0	218.0
M3PFBS		**113.0**	50.0	150.0
M3PFHxS		**102.9**	50.0	150.0
M4PFHpA		**116.1**	50.0	150.0
M5PFHxA		**105.2**	50.0	150.0
M5PFPeA		**112.6**	50.0	150.0
M6PFDA		**86.8**	50.0	150.0
M7PFUnDA		**83.2**	50.0	150.0
M8FOSA		**92.0**	50.0	150.0
M8PFOA		**108.4**	50.0	150.0
M8PFOS		**100.8**	50.0	150.0
M9-PFNA		**101.9**	50.0	150.0
MPFBA		**119.6**	50.0	150.0
MPFDoDA		**64.6**	50.0	150.0
d3N-MeFOSAA		**84.1**	50.0	150.0
d5EtFOSAA		**96.9**	50.0	150.0
MHFPO-DA		**106.5**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230216S1

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

Blank (BLK)

Lab Sample ID: AK230216S.BLK230216S

Run in Batch: AK230216S, Run Date: 02/16/2023 18:48, Prep Date: 02/16/2023, Matrix: SO, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**121.1**	50.0	150.0
M2-6:2FTSA		**114.4**	50.0	150.0
M2-8:2FTSA		**100.8**	50.0	150.0
M2PFTeDA		**145.1**	12.0	218.0
M3PFBS		**106.5**	50.0	150.0
M3PFHxS		**108.7**	50.0	150.0
M4PFHpA		**112.1**	50.0	150.0
M5PFHxA		**109.9**	50.0	150.0
M5PFPeA		**108.5**	50.0	150.0
M6PFDA		**104.6**	50.0	150.0
M7PFUnDA		**109.1**	50.0	150.0
M8FOSA		**109.0**	50.0	150.0
M8PFOA		**117.6**	50.0	150.0
M8PFOS		**111.4**	50.0	150.0
M9-PFNA		**111.8**	50.0	150.0
MPFBA		**115.4**	50.0	150.0
MPFDoDA		**113.9**	50.0	150.0
d3N-MeFOSAA		**127.1**	50.0	150.0
d5EtFOSAA		**101.9**	50.0	150.0
MHFPO-DA		**100.0**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK230216S.LCS230216S

Run in Batch: AK230216S, Run Date: 02/16/2023 18:09, Prep Date: 02/16/2023, Matrix: SO, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**104.4**	50.0	150.0
M2-6:2FTSA		**123.2**	50.0	150.0
M2-8:2FTSA		**97.8**	50.0	150.0
M2PFTeDA		**130.0**	12.0	218.0
M3PFBS		**104.6**	50.0	150.0
M3PFHxS		**91.2**	50.0	150.0
M4PFHpA		**102.0**	50.0	150.0
M5PFHxA		**106.9**	50.0	150.0
M5PFPeA		**103.6**	50.0	150.0
M6PFDA		**96.3**	50.0	150.0
M7PFUnDA		**105.0**	50.0	150.0
M8FOSA		**103.7**	50.0	150.0
M8PFOA		**112.0**	50.0	150.0
M8PFOS		**102.8**	50.0	150.0
M9-PFNA		**111.1**	50.0	150.0
MPFBA		**109.3**	50.0	150.0
MPFDoDA		**122.2**	50.0	150.0
d3N-MeFOSAA		**109.7**	50.0	150.0
d5EtFOSAA		**110.9**	50.0	150.0
MHFPO-DA		**101.2**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230216S.LCSD230216S, Parent Sample ID: AK230216S.LCS230216S

Run in Batch: AK230216S, Run Date: 02/16/2023 18:28, Prep Date: 02/16/2023, Matrix: SO, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**117.3**	50.0	150.0
M2-6:2FTSA		**101.7**	50.0	150.0
M2-8:2FTSA		**102.7**	50.0	150.0
M2PFTeDA		**127.9**	12.0	218.0
M3PFBS		**104.5**	50.0	150.0
M3PFHxS		**101.8**	50.0	150.0
M4PFHpA		**106.8**	50.0	150.0
M5PFHxA		**104.8**	50.0	150.0
M5PFPeA		**108.1**	50.0	150.0
M6PFDA		**107.6**	50.0	150.0
M7PFUnDA		**92.5**	50.0	150.0
M8FOSA		**102.3**	50.0	150.0
M8PFOA		**113.1**	50.0	150.0
M8PFOS		**102.1**	50.0	150.0
M9-PFNA		**98.8**	50.0	150.0
MPFBA		**111.2**	50.0	150.0
MPFDoDA		**106.1**	50.0	150.0
d3N-MeFOSAA		**117.3**	50.0	150.0
d5EtFOSAA		**102.8**	50.0	150.0
MHFPO-DA		**99.0**	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike (MS)

Lab Sample ID: AK230216S.4533901M, Parent Sample ID: S45339.01

Run in Batch: AK230216S, Run Date: 02/16/2023 19:46, Prep Date: 02/16/2023, Matrix: SO, Dilution: 29.4

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**125.0**	50.0	150.0
M2-6:2FTSA		**101.1**	50.0	150.0
M2-8:2FTSA		**95.0**	50.0	150.0
M2PFTeDA		**84.1**	12.0	218.0
M3PFBS		**112.1**	50.0	150.0
M3PFHxS		**97.0**	50.0	150.0
M4PFHpA		**111.8**	50.0	150.0
M5PFHxA		**110.7**	50.0	150.0
M5PFPeA		**106.4**	50.0	150.0
M6PFDA		**96.0**	50.0	150.0
M7PFUnDA		**118.4**	50.0	150.0
M8FOSA		**113.8**	50.0	150.0
M8PFOA		**106.2**	50.0	150.0
M8PFOS		**101.5**	50.0	150.0
M9-PFNA		**111.6**	50.0	150.0
MPFBA		**107.6**	50.0	150.0
MPFDoDA		**97.0**	50.0	150.0
d3N-MeFOSAA		**114.7**	50.0	150.0
d5EtFOSAA		**108.7**	50.0	150.0
MHFPO-DA		**106.1**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK230216S.4533902D, Parent Sample ID: S45339.02

Run in Batch: AK230216S, Run Date: 02/16/2023 20:25, Prep Date: 02/16/2023, Matrix: SO, Dilution: 22.7

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**125.3**	50.0	150.0
M2-6:2FTSA		**105.8**	50.0	150.0
M2-8:2FTSA		**101.7**	50.0	150.0
M2PFTeDA		**65.8**	12.0	218.0
M3PFBS		**104.9**	50.0	150.0
M3PFHxS		**95.8**	50.0	150.0
M4PFHpA		**120.1**	50.0	150.0
M5PFHxA		**97.4**	50.0	150.0
M5PFPeA		**111.5**	50.0	150.0
M6PFDA		**96.3**	50.0	150.0
M7PFUnDA		**111.9**	50.0	150.0
M8FOSA		**113.9**	50.0	150.0
M8PFOA		**103.0**	50.0	150.0
M8PFOS		**98.1**	50.0	150.0
M9-PFNA		**109.7**	50.0	150.0
MPFBA		**106.3**	50.0	150.0
MPFDoDA		**97.5**	50.0	150.0
d3N-MeFOSAA		**115.9**	50.0	150.0
d5EtFOSAA		**102.8**	50.0	150.0
MHFPO-DA		**112.2**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230223S1

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

Blank (BLK)

Lab Sample ID: DQ230224.BLK230223S

Run in Batch: DQ230224, Run Date: 02/24/2023 19:45, Prep Date: 02/23/2023, Matrix: SO, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**95.9**	50.0	150.0
M2-6:2FTSA		**122.4**	50.0	150.0
M2-8:2FTSA		**101.6**	50.0	150.0
M2PFTeDA		**124.6**	12.0	218.0
M3PFBS		**121.5**	50.0	150.0
M3PFHxS		**110.9**	50.0	150.0
M4PFHpA		**125.4**	50.0	150.0
M5PFHxA		**117.1**	50.0	150.0
M5PFPeA		**117.6**	50.0	150.0
M6PFDA		**116.4**	50.0	150.0
M7PFUnDA		**124.1**	50.0	150.0
M8FOSA		**109.4**	50.0	150.0
M8PFOA		**120.2**	50.0	150.0
M8PFOS		**113.0**	50.0	150.0
M9-PFNA		**116.4**	50.0	150.0
MPFBA		**120.5**	50.0	150.0
MPFDoDA		**109.2**	50.0	150.0
d3N-MeFOSAA		**106.8**	50.0	150.0
d5EtFOSAA		**126.3**	50.0	150.0
MHFPO-DA		**113.8**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: DQ230224.LCS230223S

Run in Batch: DQ230224, Run Date: 02/24/2023 19:06, Prep Date: 02/23/2023, Matrix: SO, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**96.9**	50.0	150.0
M2-6:2FTSA		**112.3**	50.0	150.0
M2-8:2FTSA		**106.9**	50.0	150.0
M2PFTeDA		**125.8**	12.0	218.0
M3PFBS		**109.4**	50.0	150.0
M3PFHxS		**104.3**	50.0	150.0
M4PFHpA		**119.0**	50.0	150.0
M5PFHxA		**102.4**	50.0	150.0
M5PFPeA		**113.9**	50.0	150.0
M6PFDA		**114.6**	50.0	150.0
M7PFUnDA		**117.7**	50.0	150.0
M8FOSA		**111.3**	50.0	150.0
M8PFOA		**112.0**	50.0	150.0
M8PFOS		**118.7**	50.0	150.0
M9-PFNA		**106.9**	50.0	150.0
MPFBA		**116.0**	50.0	150.0
MPFDoDA		**117.0**	50.0	150.0
d3N-MeFOSAA		**97.3**	50.0	150.0
d5EtFOSAA		**113.1**	50.0	150.0
MHFPO-DA		**124.9**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: DQ230224.LCSD230223S, Parent Sample ID: DQ230224.LCS230223S

Run in Batch: DQ230224, Run Date: 02/24/2023 19:26, Prep Date: 02/23/2023, Matrix: SO, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**94.6**	50.0	150.0
M2-6:2FTSA		**110.2**	50.0	150.0
M2-8:2FTSA		**97.3**	50.0	150.0
M2PFTeDA		**118.7**	12.0	218.0
M3PFBS		**108.8**	50.0	150.0
M3PFHxS		**106.6**	50.0	150.0
M4PFHpA		**113.8**	50.0	150.0
M5PFHxA		**111.5**	50.0	150.0
M5PFPeA		**110.4**	50.0	150.0
M6PFDA		**106.2**	50.0	150.0
M7PFUnDA		**113.8**	50.0	150.0
M8FOSA		**109.9**	50.0	150.0
M8PFOA		**107.0**	50.0	150.0
M8PFOS		**115.9**	50.0	150.0
M9-PFNA		**119.6**	50.0	150.0
MPFBA		**117.2**	50.0	150.0
MPFDoDA		**111.4**	50.0	150.0
d3N-MeFOSAA		**100.8**	50.0	150.0
d5EtFOSAA		**117.8**	50.0	150.0
MHFPO-DA		**125.3**	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike (MS)

Lab Sample ID: DQ230224.4542303M, Parent Sample ID: S45423.03

Run in Batch: DQ230224, Run Date: 02/24/2023 22:41, Prep Date: 02/23/2023, Matrix: SO, Dilution: 5.39

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**92.1**	50.0	150.0
M2-6:2FTSA		**105.5**	50.0	150.0
M2-8:2FTSA		**89.1**	50.0	150.0
M2PFTeDA		**33.8**	12.0	218.0
M3PFBS		**111.2**	50.0	150.0
M3PFHxS		**106.6**	50.0	150.0
M4PFHpA		**117.4**	50.0	150.0
M5PFHxA		**107.7**	50.0	150.0
M5PFPeA		**111.5**	50.0	150.0
M6PFDA		**103.4**	50.0	150.0
M7PFUnDA		**103.6**	50.0	150.0
M8FOSA		**102.2**	50.0	150.0
M8PFOA		**114.9**	50.0	150.0
M8PFOS		**108.2**	50.0	150.0
M9-PFNA		**104.7**	50.0	150.0
MPFBA		**117.1**	50.0	150.0
MPFDoDA		**71.8**	50.0	150.0
d3N-MeFOSAA		**95.4**	50.0	150.0
d5EtFOSAA		**91.2**	50.0	150.0
MHFPO-DA		**102.8**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: DQ230224.4542306D, Parent Sample ID: S45423.06

Run in Batch: DQ230224, Run Date: 02/24/2023 23:20, Prep Date: 02/23/2023, Matrix: SO, Dilution: 6.11

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**102.6**	50.0	150.0
M2-6:2FTSA		**123.0**	50.0	150.0
M2-8:2FTSA		**98.9**	50.0	150.0
M2PFTeDA		**75.8**	12.0	218.0
M3PFBS		**117.6**	50.0	150.0
M3PFHxS		**118.9**	50.0	150.0
M4PFHpA		**128.8**	50.0	150.0
M5PFHxA		**126.5**	50.0	150.0
M5PFPeA		**119.6**	50.0	150.0
M6PFDA		**108.6**	50.0	150.0
M7PFUnDA		**112.1**	50.0	150.0
M8FOSA		**117.7**	50.0	150.0
M8PFOA		**118.3**	50.0	150.0
M8PFOS		**110.8**	50.0	150.0
M9-PFNA		**115.9**	50.0	150.0
MPFBA		**126.6**	50.0	150.0
MPFDoDA		**103.7**	50.0	150.0
d3N-MeFOSAA		**103.0**	50.0	150.0
d5EtFOSAA		**115.1**	50.0	150.0
MHFPO-DA		**109.9**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230216S1

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

Blank (BLK)

Lab Sample ID: AK230216S.BLK230216S

Run in Batch: AK230216S, Run Date: 02/16/2023 18:48, Prep Date: 02/16/2023, Matrix: SO, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBSA		ND	30	ng/kg
PFECHS		ND	30	ng/kg
PFHxSA		ND	30	ng/kg
PFBA		ND	30	ng/kg
PFPeA		ND	30	ng/kg
4:2 FTSA		ND	30	ng/kg
PFHxA		ND	30	ng/kg
PFBS		ND	30	ng/kg
PFHpA		ND	30	ng/kg
PFPeS		ND	30	ng/kg
6:2 FTSA		ND	30	ng/kg
PFOA		ND	30	ng/kg
PFHxS		ND	30	ng/kg
PFHxS-LN		ND	30	ng/kg
PFHxS-BR		ND	30	ng/kg
PFNA		ND	30	ng/kg
8:2 FTSA		ND	30	ng/kg
PFHpS		ND	30	ng/kg
PFDA		ND	30	ng/kg
N-MeFOSAA		ND	30	ng/kg
EtFOSAA		ND	30	ng/kg
PFOS		ND	30	ng/kg
PFOS-LN		ND	30	ng/kg
PFOS-BR		ND	30	ng/kg
PFUnDA		ND	30	ng/kg
PFNS		ND	30	ng/kg
PFDoDA		ND	30	ng/kg
PFDS		ND	30	ng/kg
PFTrDA		ND	30	ng/kg
FOSA		ND	30	ng/kg
PFTeDA		ND	30	ng/kg
11CL-PF3OUdS		ND	30	ng/kg
9CL-PF3ONS		ND	30	ng/kg
ADONA		ND	30	ng/kg
HFPO-DA		ND	30	ng/kg

Laboratory Control Sample (LCS)

Lab Sample ID: AK230216S.LCS230216S

Run in Batch: AK230216S, Run Date: 02/16/2023 18:09, Prep Date: 02/16/2023, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		94.4	70.0	130.0
PFMPA		94.2	70.0	130.0
FPrPA (3:3 FTCA)		106.0	70.0	130.0
PFPrS		99.8	70.0	130.0
PFPeA		91.2	70.0	130.0
PFMBA		90.6	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF230216S1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK230216S.LCS230216S

Run in Batch: AK230216S, Run Date: 02/16/2023 18:09, Prep Date: 02/16/2023, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
4:2 FTSA		103.0	70.0	130.0
NFDHA		100.4	70.0	130.0
PFHxA		89.2	70.0	130.0
PFBS		91.8	70.0	130.0
HFPO-DA		91.8	70.0	130.0
FPePA (5:3 FTCA)		91.2	70.0	130.0
PFEESA		88.4	70.0	130.0
PFHpA		104.6	70.0	130.0
PFPeS		100.4	70.0	130.0
ADONA		97.0	70.0	130.0
6:2 FTSA		72.0	70.0	130.0
PFBSA		101.6	70.0	130.0
PFOA		93.4	70.0	130.0
PFHxS		95.8	70.0	130.0
FHpPA (7:3 FTCA)		103.4	70.0	130.0
PFNA		82.2	70.0	130.0
PFECHS		99.4	70.0	130.0
8:2 FTSA		89.6	70.0	130.0
PFHpS		101.6	70.0	130.0
N-MeFOSAA		101.6	70.0	130.0
PFDA		109.2	70.0	130.0
EtFOSAA		94.0	70.0	130.0
PFOS		93.4	70.0	130.0
PFHxSA		98.2	70.0	130.0
PFUnDA		92.8	70.0	130.0
9CL-PF3ONS		91.4	70.0	130.0
PFNS		102.6	70.0	130.0
PFDoDA		91.2	70.0	130.0
PFDS		101.4	70.0	130.0
PFTrDA		96.2	70.0	130.0
FOSA		112.0	70.0	130.0
11CL-PF3OUdS		107.6	70.0	130.0
PFTeDA		101.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230216S.LCSD230216S, Parent Sample ID: AK230216S.LCS230216S

Run in Batch: AK230216S, Run Date: 02/16/2023 18:28, Prep Date: 02/16/2023, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		94.6	70.0	130.0	0.2	30.0
PFMPA		96.6	70.0	130.0	2.5	30.0
FPrPA (3:3 FTCA)		99.8	70.0	130.0	6.0	30.0
PFPrS		96.4	70.0	130.0	3.5	30.0
PFPeA		91.8	70.0	130.0	0.7	30.0
PFMBA		96.2	70.0	130.0	6.0	30.0
4:2 FTSA		97.8	70.0	130.0	5.2	30.0
NFDHA		105.0	70.0	130.0	4.5	30.0

Organics - Volatiles, Prep Batch ID: PF230216S1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK230216S.LCSD230216S, Parent Sample ID: AK230216S.LCS230216S

Run in Batch: AK230216S, Run Date: 02/16/2023 18:28, Prep Date: 02/16/2023, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFHxA		98.4	70.0	130.0	9.8	30.0
PFBS		96.6	70.0	130.0	5.1	30.0
HFPO-DA		104.2	70.0	130.0	12.7	30.0
FPePA (5:3 FTCA)		94.4	70.0	130.0	3.4	30.0
PFEESA		88.4	70.0	130.0	0.0	30.0
PFHpA		104.2	70.0	130.0	0.4	30.0
PFPeS		95.2	70.0	130.0	5.3	30.0
ADONA		99.8	70.0	130.0	2.8	30.0
6:2 FTSA	*	97.8	70.0	130.0	30.4	30.0
PFBSA		103.6	70.0	130.0	1.9	30.0
PFOA		87.2	70.0	130.0	6.9	30.0
PFHxS		92.0	70.0	130.0	4.0	30.0
FHpPA (7:3 FTCA)		117.6	70.0	130.0	12.9	30.0
PFNA		97.2	70.0	130.0	16.7	30.0
PFECHS		87.2	70.0	130.0	13.1	30.0
8:2 FTSA		102.6	70.0	130.0	13.5	30.0
PFHpS		89.0	70.0	130.0	13.2	30.0
N-MeFOSAA		106.2	70.0	130.0	4.4	30.0
PFDA		88.2	70.0	130.0	21.3	30.0
EtFOSAA		100.2	70.0	130.0	6.4	30.0
PFOS		95.0	70.0	130.0	1.7	30.0
PFHxSA		95.4	70.0	130.0	2.9	30.0
PFUnDA		104.8	70.0	130.0	12.1	30.0
9CL-PF3ONS		91.4	70.0	130.0	0.0	30.0
PFNS		98.2	70.0	130.0	4.4	30.0
PFDoDA		101.4	70.0	130.0	10.6	30.0
PFDS		105.6	70.0	130.0	4.1	30.0
PFTrDA		95.8	70.0	130.0	0.4	30.0
FOSA		100.6	70.0	130.0	10.7	30.0
11CL-PF3OUdS		105.2	70.0	130.0	2.3	30.0
PFTeDA		94.2	70.0	130.0	7.8	30.0

Matrix Spike (MS)

Lab Sample ID: AK230216S.4533901M, Parent Sample ID: S45339.01

Run in Batch: AK230216S, Run Date: 02/16/2023 19:46, Prep Date: 02/16/2023, Matrix: SO, Dilution: 29.4

Analyte	Flags	% Rec	LCL	UCL
PFBA		95.2	70.0	130.0
PFPeA		88.4	70.0	130.0
4:2 FTSA		95.2	70.0	130.0
PFHxA		88.4	70.0	130.0
PFBS		88.4	70.0	130.0
PFHpA		95.2	70.0	130.0
PFPeS		88.4	70.0	130.0
6:2 FTSA		95.2	70.0	130.0
PFOA		102.0	70.0	130.0
PFHxS		95.2	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF230216S1 (continued)

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

Matrix Spike (MS) (continued)

Lab Sample ID: AK230216S.4533901M, Parent Sample ID: S45339.01

Run in Batch: AK230216S, Run Date: 02/16/2023 19:46, Prep Date: 02/16/2023, Matrix: SO, Dilution: 29.4

Analyte	Flags	% Rec	LCL	UCL
PFNA		95.2	70.0	130.0
8:2 FTSA		102.0	70.0	130.0
PFHpS		95.2	70.0	130.0
PFDA		102.0	70.0	130.0
N-MeFOSAA		88.4	70.0	130.0
EtFOSAA		95.2	70.0	130.0
PFOS		89.1	70.0	130.0
PFUnDA		88.4	70.0	130.0
PFNS		102.0	70.0	130.0
PFDoDA		108.8	70.0	130.0
PFDS		95.2	70.0	130.0
PFTrDA		102.0	70.0	130.0
FOSA		95.2	70.0	130.0
PFTeDA		108.8	70.0	130.0
11CL-PF3OUdS		95.2	70.0	130.0
9CL-PF3ONS		95.2	70.0	130.0
ADONA		102.0	70.0	130.0
HFPO-DA		95.2	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK230216S.4533902D, Parent Sample ID: S45339.02

Run in Batch: AK230216S, Run Date: 02/16/2023 20:25, Prep Date: 02/16/2023, Matrix: SO, Dilution: 22.7

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0
4:2 FTSA		NC	30.0
PFHxA		NC	30.0
PFBS		NC	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		NC	30.0
PFHxS		NC	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS	*	200.0	30.0
PFOS-LN	*	200.0	30.0
PFOS-BR		NC	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0

Organics - Volatiles, Prep Batch ID: PF230216S1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK230216S.4533902D, Parent Sample ID: S45339.02

Run in Batch: AK230216S, Run Date: 02/16/2023 20:25, Prep Date: 02/16/2023, Matrix: SO, Dilution: 22.7

Analyte	Flags	RPD	RPD CL
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

Organics - Volatiles, Prep Batch ID: PF230223S1

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

Blank (BLK)

Lab Sample ID: DQ230224.BLK230223S

Run in Batch: DQ230224, Run Date: 02/24/2023 19:45, Prep Date: 02/23/2023, Matrix: SO, Dilution: 1

Analyte	Flags	Conc	RDL	Units
HFPO-DA		ND	50	ng/kg
ADONA		ND	50	ng/kg
PFBSA		ND	50	ng/kg
PFECHS		ND	50	ng/kg
PFHxSA		ND	50	ng/kg
9CL-PF3ONS		ND	50	ng/kg
11CL-PF3OUdS		ND	50	ng/kg
PFBA		ND	100	ng/kg
PFPeA		ND	50	ng/kg
4:2 FTSA		ND	50	ng/kg
PFHxA		ND	50	ng/kg
PFBS		ND	50	ng/kg
PFHpA		ND	50	ng/kg
PFPeS		ND	50	ng/kg
6:2 FTSA		ND	50	ng/kg
PFOA		ND	50	ng/kg
PFHxS		ND	50	ng/kg
PFHxS-LN		ND	50	ng/kg
PFHxS-BR		ND	50	ng/kg
PFNA		ND	50	ng/kg
8:2 FTSA		ND	50	ng/kg
PFHpS		ND	50	ng/kg
PFDA		ND	50	ng/kg
N-MeFOSAA		ND	50	ng/kg
EtFOSAA		ND	50	ng/kg
PFOS		ND	50	ng/kg
PFOS-LN		ND	50	ng/kg
PFOS-BR		ND	50	ng/kg
PFUnDA		ND	50	ng/kg
PFNS		ND	50	ng/kg
PFDoDA		ND	50	ng/kg
PFDS		ND	50	ng/kg
PFTrDA		ND	50	ng/kg
FOSA		ND	50	ng/kg
PFTeDA		ND	50	ng/kg

Laboratory Control Sample (LCS)

Lab Sample ID: DQ230224.LCS230223S

Run in Batch: DQ230224, Run Date: 02/24/2023 19:06, Prep Date: 02/23/2023, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		99.8	70.0	130.0
PFMPA		99.8	70.0	130.0
FPrPA (3:3 FTCA)		80.2	70.0	130.0
PFPrS		106.6	70.0	130.0
PFPeA		98.2	70.0	130.0
PFMBA		97.0	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF230223S1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: DQ230224.LCS230223S

Run in Batch: DQ230224, Run Date: 02/24/2023 19:06, Prep Date: 02/23/2023, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
4:2 FTSA		89.8	70.0	130.0
NFDHA		111.0	70.0	130.0
PFHxA		95.6	70.0	130.0
PFBS		112.0	70.0	130.0
HFPO-DA		101.8	70.0	130.0
FPePA (5:3 FTCA)		88.6	70.0	130.0
PFEESA		103.4	70.0	130.0
PFHpA		85.4	70.0	130.0
PFPeS		115.0	70.0	130.0
ADONA		88.2	70.0	130.0
PFBSA		85.8	70.0	130.0
6:2 FTSA		100.4	70.0	130.0
PFOA		82.8	70.0	130.0
PFHxS		99.6	70.0	130.0
FHpPA (7:3 FTCA)		92.6	70.0	130.0
PFNA		99.6	70.0	130.0
8:2 FTSA		99.0	70.0	130.0
PFECHS		99.6	70.0	130.0
PFHpS		104.6	70.0	130.0
N-MeFOSAA		108.4	70.0	130.0
PFDA		90.8	70.0	130.0
EtFOSAA		103.4	70.0	130.0
PFOS		90.8	70.0	130.0
PFHxSA		83.6	70.0	130.0
PFUnDA		91.8	70.0	130.0
9CL-PF3ONS		85.0	70.0	130.0
PFNS		94.6	70.0	130.0
PFDoDA		97.6	70.0	130.0
PFDS		88.2	70.0	130.0
PFTrDA		110.4	70.0	130.0
FOSA		89.6	70.0	130.0
11CL-PF3OUdS		91.2	70.0	130.0
PFTeDA		93.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: DQ230224.LCSD230223S, Parent Sample ID: DQ230224.LCS230223S

Run in Batch: DQ230224, Run Date: 02/24/2023 19:26, Prep Date: 02/23/2023, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		103.4	70.0	130.0	3.5	30.0
PFMPA		107.6	70.0	130.0	7.5	30.0
FPrPA (3:3 FTCA)		84.0	70.0	130.0	4.6	30.0
PFPrS		108.8	70.0	130.0	2.0	30.0
PFPeA		106.8	70.0	130.0	8.4	30.0
PFMBA		106.4	70.0	130.0	9.2	30.0
4:2 FTSA		98.8	70.0	130.0	9.5	30.0
NFDHA		104.8	70.0	130.0	5.7	30.0

Organics - Volatiles, Prep Batch ID: PF230223S1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: DQ230224.LCSD230223S, Parent Sample ID: DQ230224.LCS230223S

Run in Batch: DQ230224, Run Date: 02/24/2023 19:26, Prep Date: 02/23/2023, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFHxA		90.4	70.0	130.0	5.6	30.0
PFBS		116.8	70.0	130.0	4.2	30.0
HFPO-DA		103.4	70.0	130.0	1.6	30.0
FPePA (5:3 FTCA)		82.8	70.0	130.0	6.8	30.0
PFEESA		104.6	70.0	130.0	1.2	30.0
PFHpA		92.2	70.0	130.0	7.7	30.0
PFPeS		103.0	70.0	130.0	11.0	30.0
ADONA		91.6	70.0	130.0	3.8	30.0
PFBSA		97.6	70.0	130.0	12.9	30.0
6:2 FTSA		108.6	70.0	130.0	7.8	30.0
PFOA		88.4	70.0	130.0	6.5	30.0
PFHxS		101.2	70.0	130.0	1.6	30.0
FHpPA (7:3 FTCA)		95.2	70.0	130.0	2.8	30.0
PFNA		85.6	70.0	130.0	15.1	30.0
8:2 FTSA		108.2	70.0	130.0	8.9	30.0
PFECHS		97.8	70.0	130.0	1.8	30.0
PFHpS		102.4	70.0	130.0	2.1	30.0
N-MeFOSAA		104.0	70.0	130.0	4.1	30.0
PFDA		105.0	70.0	130.0	14.5	30.0
EtFOSAA		92.2	70.0	130.0	11.5	30.0
PFOS		96.6	70.0	130.0	6.2	30.0
PFHxSA		88.4	70.0	130.0	5.6	30.0
PFUnDA		101.4	70.0	130.0	9.9	30.0
9CL-PF3ONS		87.8	70.0	130.0	3.2	30.0
PFNS		89.6	70.0	130.0	5.4	30.0
PFDoDA		98.8	70.0	130.0	1.2	30.0
PFDS		100.4	70.0	130.0	12.9	30.0
PFTrDA		106.2	70.0	130.0	3.9	30.0
FOSA		87.4	70.0	130.0	2.5	30.0
11CL-PF3OUdS		91.0	70.0	130.0	0.2	30.0
PFTeDA		102.6	70.0	130.0	9.8	30.0

Matrix Spike (MS)

Lab Sample ID: DQ230224.4542303M, Parent Sample ID: S45423.03

Run in Batch: DQ230224, Run Date: 02/24/2023 22:41, Prep Date: 02/23/2023, Matrix: SO, Dilution: 5.39

Analyte	Flags	% Rec	LCL	UCL
PFBA		103.7	70.0	130.0
PFPeA		103.7	70.0	130.0
4:2 FTSA		88.9	70.0	130.0
PFHxA		96.3	70.0	130.0
PFBS		103.7	70.0	130.0
PFHpA		88.9	70.0	130.0
PFPeS		107.4	70.0	130.0
6:2 FTSA		100.0	70.0	130.0
PFOA		81.5	70.0	130.0
PFHxS		103.7	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF230223S1 (continued)

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

Matrix Spike (MS) (continued)

Lab Sample ID: DQ230224.4542303M, Parent Sample ID: S45423.03

Run in Batch: DQ230224, Run Date: 02/24/2023 22:41, Prep Date: 02/23/2023, Matrix: SO, Dilution: 5.39

Analyte	Flags	% Rec	LCL	UCL
PFNA		100.0	70.0	130.0
8:2 FTSA		96.3	70.0	130.0
PFHpS		100.0	70.0	130.0
PFDA		100.0	70.0	130.0
N-MeFOSAA		96.3	70.0	130.0
EtFOSAA		111.1	70.0	130.0
PFOS		96.3	70.0	130.0
PFUnDA		88.9	70.0	130.0
PFNS		96.3	70.0	130.0
PFDoDA		100.0	70.0	130.0
PFDS		77.8	70.0	130.0
PFTrDA		77.8	70.0	130.0
FOSA		92.6	70.0	130.0
PFTeDA		92.6	70.0	130.0
11CL-PF3OUdS		77.8	70.0	130.0
9CL-PF3ONS		85.2	70.0	130.0
ADONA		92.6	70.0	130.0
HFPO-DA		129.6	70.0	130.0

Duplicate (DUP)

Lab Sample ID: DQ230224.4542306D, Parent Sample ID: S45423.06

Run in Batch: DQ230224, Run Date: 02/24/2023 23:20, Prep Date: 02/23/2023, Matrix: SO, Dilution: 6.11

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0
4:2 FTSA		NC	30.0
PFHxA		NC	30.0
PFBS		NC	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		NC	30.0
PFHxS		NC	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		NC	30.0
PFOS-LN		NC	30.0
PFOS-BR		NC	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0

Organics - Volatiles, Prep Batch ID: PF230223S1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: DQ230224.4542306D, Parent Sample ID: S45423.06

Run in Batch: DQ230224, Run Date: 02/24/2023 23:20, Prep Date: 02/23/2023, Matrix: SO, Dilution: 6.11

Analyte	Flags	RPD	RPD CL
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

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Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1 155000

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.	
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	RAER 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

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 (1929)	Special Instructions
45339.01	2/14/23	1200	CON-01S	SD	3	X							X	Low level
.02	2/14/23	1058	CON-01D	SD	3	X							X	Reporting with estimated values

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 2/14/23	TIME 1352
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 2/14/23	TIME 13:52
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 2/14/23	TIME 15:30
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 2/14/23	TIME 1530

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 3, 4

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

Rev. 1.26.22