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ENVIRONMENT
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MEMO

Project name	**Coldwater Road**
Project no.	**15388/75178/5**
Client	**RACER Trust**
Memo no.	**01**
Version	**01**
To	**Jacob Runge**
From	**Clifford Yantz**
Copy (via email) to	**Ms. Nicole Sanabria – EGLE** **Mr. John McCabe – EGLE** **Mr. Richard Conforti – EGLE** **Mr. Brian Zuber – EGLE** **Mr. David Favero – RACER Trust** **Mr. Kevin Schneider – Ramboll**
Prepared by	**Kevin Schneider**
Checked by	**Clifford Yantz**
Approved by	**Clifford Yantz**

Date March 3, 2021

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This technical memorandum has been prepared by Ramboll Americas Engineering Solutions, Inc. (Ramboll), on behalf of the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) to document the per- and polyfluoroalkyl substances (PFAS) groundwater investigation activities conducted in December 2020 at the Coldwater Road facility located in Flint, Michigan (Site).

The groundwater investigation activities were conducted as a follow up to the October 16, 2020 meeting with the Michigan Department of Environment, Great Lakes, and Energy (EGLE) where we discussed the results of our recent activities to characterize PFAS impacts at and in the vicinity of the Site, and corrective measures to manage surface and storm water at the Site. A scope of work for additional groundwater activities was subsequently submitted to EGLE on November 29, 2020 and was approved on December 2, 2020.

Stormwater and sanitary sewer samples were also collected as part of the investigation. The results of the stormwater and sanitary sewer sampling were provided in a separate letter dated February 9, 2021 to EGLE, the Michigan Department of Health and Human Services (MDHHS), Genesee County Road Commission, Genesee County Drain Commission Water and Waste Service (GCDCWWS), Beecher Metropolitan District (BMD), and Genesee Township.

The activities were completed in accordance with the November 29, 2020 scope of work, the existing Site Health and Safety Plan (HASP), and the Job Safety Analysis (JSA) prepared for the Site for 2020.

Additional Drift Unit & Perched Zone PFAS Characterization

Western Property Boundary

Temporary Well Activities

Due to the concentrations of PFAS detected at monitoring well OBG MW-26 and at temporary well locations SBP-38 and SBP-66 in the perched zone and in

monitoring well OBG MW-27 in the drift unit, additional groundwater investigation activities were conducted to delineate the impacts detected in both the perched zone and drift unit to the west of the Site. **Figure 1** shows the perched zone data and locations, and **Figure 2** shows the drift zone data and locations.

Two perched zone temporary wells were installed south and southwest of SBP-66 within the road right of way on West Klein Street and one temporary drift unit well was installed west of OBG MW-27 within the road right of way on the westside of Saginaw Road.

Prior to initiation of the drilling activities the underground utilities were marked in the proposed work areas by coordinating with MISS DIG. A ROW permit was obtained from the Genesee County Road Commission to facilitate the off-Site boring locations.

The temporary wells were installed utilizing standard dual tube Geoprobe® temporary well sampling techniques previously used at the Site and approved by EGLE to collect the temporary groundwater samples. A Ramboll scientist was on-site during well advancement to describe soil samples (**Attachment A**). The temporary wells were constructed of 1-inch diameter polyvinyl chloride (PVC) well materials.

The eastern most perched zone boring (SBP-70) along West Klein Street was installed to a depth of 18 feet below grade (fbg). There were intermittent moist silty sand layers in the first 10 feet of the borings, and a temporary well was installed at 10 fbg (base of 5-foot-long well screen interval). No water was observed in the well approximately 24 hours after being installed so no sample could be collected. The well casing and screen were removed, the boring was backfilled with coarse granular bentonite, and the ground surface was restored to its original condition.

Approximately 142 feet to the west of SBP-70, the second perched zone boring (SBP-71) was installed along West Klein Street to a depth of 15 fbg. The boring was terminated at 15 fbg in order to not encounter the drift unit which is located at a shallower depth in this area. Also, the perched zone has been observed within the first 15 fbg at other borings in this area. No water bearing zone was observed during the installation of the soil boring and therefore collecting a groundwater sample was not attempted. The boring was backfilled with coarse granular bentonite and the ground surface was restored to its original condition.

The drift unit boring (SBP-72) west of OBG MW-27 along Saginaw Road was installed to a depth of 25 fbg. A temporary well was installed at 25 fbg and a groundwater sample was collected.

Sampling followed the protocols set forth in the EGLE Michigan PFAS Action Response Team (MPART) Groundwater PFAS Sampling Guidance dated October 2018, which have been utilized at the Site since 2018. In addition, Ramboll's Field Guidance Document No. 1.07 - PFAS Sampling was also adhered to, unless in conflict with the MPART guidance, which superseded Ramboll's guidance document. The grab sample was collected from the temporary drift unit well using new high-density polyethylene (HDPE) sample tubing lowered approximately to the midpoint of the well screen and connected to a peristaltic pump using new silicone tubing.
Field indicator parameters consisting of pH, conductivity, temperature, oxidation-reduction potential (ORP), dissolved oxygen (DO), and turbidity were collected prior to the sample collection at SBP-72.

The sample was labeled, packed on ice, and shipped via courier under routine chain-of-custody protocols to Merit Laboratories, Inc. (Merit) of East Lansing, Michigan. The groundwater sample was analyzed for PFAS by method ASTMD7979-19 Modified (no preservative) utilizing standard turn-around times. A Level II data report was provided by the laboratory.

Quality control (QC) samples consisted of a field (ambient) blank. Disposable equipment was used for sample collected at each well; therefore, an equipment blank was not necessary.

Temporary Well Result

PFAS were not detected above their reporting limits in temporary well groundwater sample SBP-72 (**Table 1**). There was one detection of perfluorobutane sulfonic acid (PFBS) at 1.7 ng/l which was an estimated value less than the reporting limit, but greater than the method detection limit. Laboratory analytical reports are in **Attachment B**.

Monitoring Well Activities

A drift unit monitoring well (MW-29) was installed at the southwest corner of the northwest arm of the Site south and downgradient of OBG MW-27 to monitor PFAS concentrations at the Site boundary (**Figure 1**). As well as being a replacement sentinel well for PZ-2 which was abandoned as part of the storm water management improvements project.

The monitoring well was installed in accordance with the methods contained in the Post-Closure Care Plan (PCCP) for the Site as specified in Section 5.1.4 Monitoring Well Installation Specifications. The monitoring well was installed using a Geoprobe® drill rig with 4.25-inch hollow stem augers (HSAs).

The monitoring well was constructed of 2-in diameter flush-joint PVC casing and a 5-ft length of 0.010-in slot well screen. The well screen and riser assembly were placed into the casing to the desired depth and a washed graded silica sand pack was placed around the well screen and extended 2 ft above the top of the screen. Coarse granular bentonite was then added to the annular space to just below grade where the monitoring well was completed. The HSAs were removed as appropriate during sand pack and bentonite placement. A standup protective casing was installed over the monitoring well. Well construction specifications are summarized on **Attachment C**.

On December 18, 2020, MW-29 was developed in accordance with the methods in our March 17, 2008 letter to EGLE that were approved by EGLE. The monitoring well was developed for approximately 3 hours and had a final turbidity of 20.6 Nephelometric Turbidity Units (NTUs). A groundwater sample was collected after the completion of the well development. The well development log is in **Attachment D**.

Monitoring Well Results

PFAS were not detected above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) in the groundwater sample from monitoring well MW-29 (**Table 1**). There were detections above reporting limits for perfluorohexanoic acid (PFHxA) 2.2 ng/l, perfluorobutane sulfonic acid (PFBS) 17 ng/l, perfluoropentane sulfonic acid (PFPeS) 18 ng/l, and perfluorohexane sulfonic acid (PFHxS) 27 ng/l and these compounds have also been detected in upgradient well OBG MW-27. Laboratory analytical reports are in **Attachment B**.

Summary / Path forward

Based on the temporary drift unit results being below the EGLE drinking water MCLs for PFAS, and no observable perched zone water along West Klein Street west of the Site, and in the area south and southwest of temporary well locations SBP-38 and SBP-66, it appears that the PFAS impacts in groundwater have been delineated offsite along the southwest corner of the northwest arm of the Site. With no perched zone water observed and minimal volume able to be collected during sampling at SBP-

66, no further groundwater investigations are necessary at this time with respect to this area. Drift unit monitoring well MW-29 will be monitored as part of the annual PFAS sampling event. The next PFAS sampling event is scheduled for June 2021.

If you have any questions or comments concerning this memo, please feel free to contact me at 313.333.0211 or clifford.yantz@ramboll.com, or Dave Favero with RACER Trust at 734.879.9525 or dfavero@racertrust.org.

Yours sincerely,

Clifford S. Yantz, PG
Managing Hydrogeologist
1943864 - MIDWEST EAST Resources 056

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ENCLOSURES:

Table 1 – Analytical Results

Figure 1 – Perched Zone Locations and Data
Figure 2 – Drift Unit Locations and Data

Attachment A – Soil Boring Logs
Attachment B – Laboratory Analytical Report
Attachment C – Well Construction Log
Attachment D – Well Development Log

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

On Behalf of RACER Trust

Clifford S. Yantz
Managing Hydrogeologist – Ramboll Americas Engineering Solutions, Inc.
Agent for RACER Trust

Date: March 3, 2021
cc: file

TABLES

TABLE 1
RACER Trust - Coldwater Road
Pre-and Polyfluroalkyl Substances Sampling Results - Western Property Boundary Results

Coldwater Rd - Western Property Boundary Results | **Perched Zone Results**

Perfluorinated Compound / Well/Sample ID: / Sample Date:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	OBG MW-26 6/6/2019	OBG MW-26 6/24/2020	SBP-38-GW (15') 10/29/2019	SBP-40-GW (15') 10/30/2019	SBP-66-GW (7') 3/16/2020	SBP-67-GW (20') 3/17/2020	SBP-68-GW (10') 3/16/2020	SBP-DUP-9/ SBP-68-GW (10') 3/16/2020	SBP-69-GW (10') 3/17/2020
Perfluorobutanoic Acid (PFBA)	--	**25**	48 U	<19	<19	<19	<20	<20	<19	<19
Perfluoropentanoic Acid (PFPeA)	--	**79**	**53**	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorohexanoic Acid (PFHxA)	**400,000**	**64**	**43**	<9.3	<9.5	**13**	<9.9	<9.8	<9.7	<9.6
Perfluorobutane Sulfonic Acid (PFBS)	**420**	<9.9	**5.4**	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluoroheptanoic Acid (PFHpA)	--	**11**	**7.5**	<9.3	<9.5	**11**	<9.9	<9.8	<9.7	<9.6
Perfluoropentane Sulfonic Acid (PFPeS)	--	<9.9	**8.5**	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorooctanoic Acid (**PFOA**)	**8**	**41**	**32**	<9.3	<9.5	**77**	<9.9	<9.8	<9.7	<9.6
Perfluorohexane Sulfonic Acid (PFHxS)	**51**	**40**	**34**	**19**	<9.5	**45**	<9.9	<9.8	<9.7	<9.6
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	**36**	**31**	**14**	<9.5	**37**	<9.9	<9.8	<9.7	<9.6
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<9.9	**3.1**	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorononanoic Acid (PFNA)	**6**	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluoroheptane Sulfonic Acid (PFHpS)	--	**18**	**12**	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorodecanoic Acid (PFDA)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<9.9	<3.8	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorooctane Sulfonic Acid (**PFOS**)	**16**	**490**	**530**	**280**	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	**170**	**190**	**160**	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	**320**	**330**	**110**	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluoroundecanoic Acid (PFUnDA)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorononane Sulfonic Acid (PFNS)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorododecanoic Acid (PFDoDA)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorodecane Sulfonic Acid (PFDS)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorotridecanoic Acid (PFTrDA)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorooctane Sulfonamide (FOSA)	--	<9.9	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Perfluorotetradecanoic Acid (PFTeDA)	--	<9.9	<3.8	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	--	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Hexafluoropropylene oxide dimer (HFPO-DA)	**370**	--	<1.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6
Total Per-and Polyfluoroalkyl Substances	--	**768.0**	**725.4**	**299.0**	**0.0**	**146.0**	**0.0**	**0.0**	**0.0**	**0.0**

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) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
7) The detection of PFBA in Field Blank-061820, Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
10) J - Estimated value less than reporting limit, but greater than MDL.
11) X - Elevated reporting limit due to matrix interference.
12) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.

TABLE 1
RACER Trust - Coldwater Road
Pre-and Polyfluroalkyl Substances Sampling Results - Western Property Boundary Results

Coldwater Rd - Western Property Boundary Results | **Drift Unit Results**

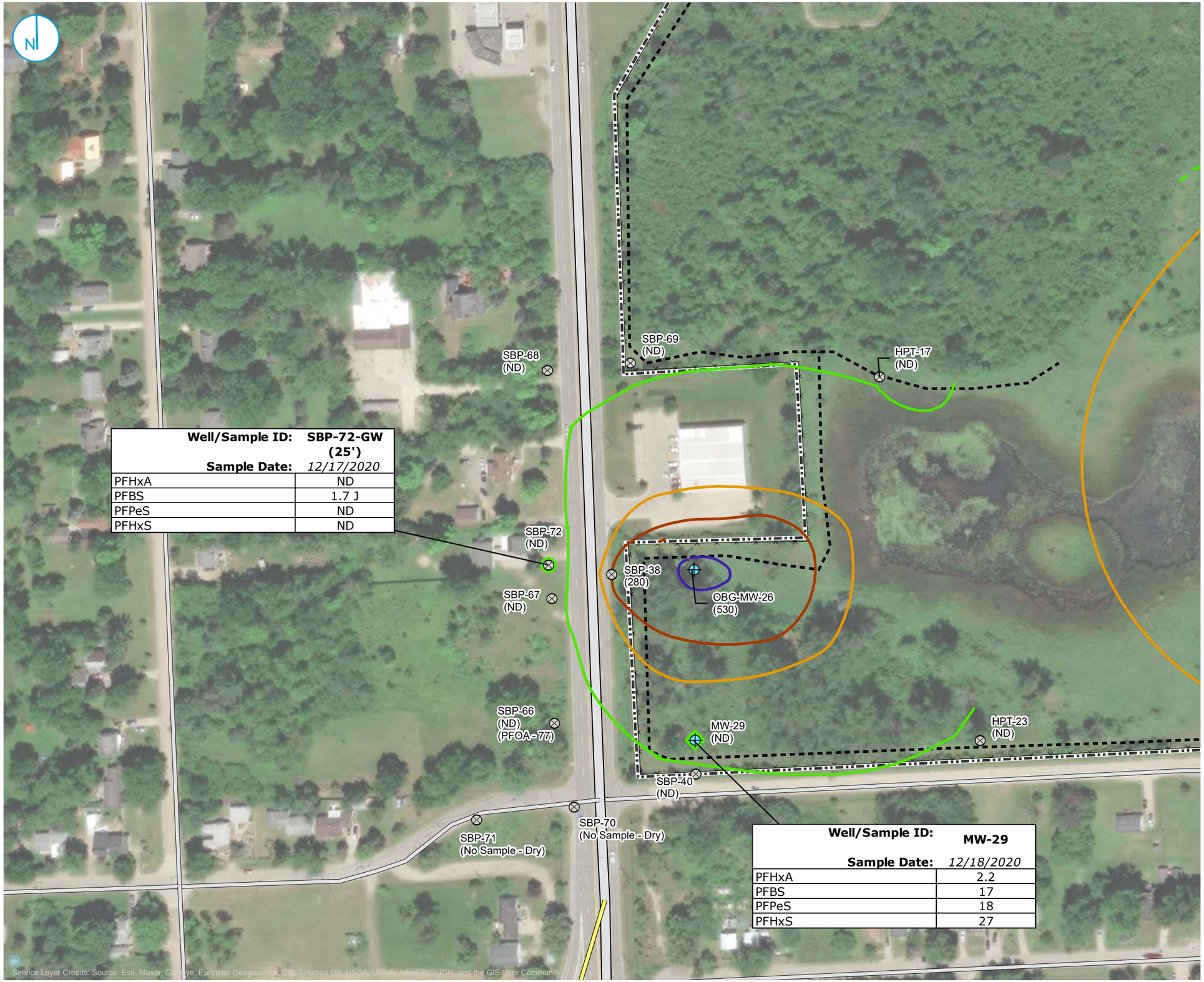
Perfluorinated Compound / Well/Sample ID: / Sample Date:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	SBP-72-GW (25') 12/17/2020	OBG MW-27 11/21/2019	OBG MW-27 1/16/2020	OBG MW-27 6/24/2020	MW-29 12/18/2020
Perfluorobutanoic Acid (PFBA)	--	<9.8	<20	<20	33 U	<10
Perfluoropentanoic Acid (PFPeA)	--	<3.9	**19**	<10	**3.3 J**	<4.0
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<2.0	<9.9	<10	<1.9	<2.0
Perfluorohexanoic Acid (PFHxA)	**400,000**	<2.0	**18**	<10	**3.5**	**2.2**
Perfluorobutane Sulfonic Acid (PFBS)	**420**	**1.7 J**	**12**	**12**	**18**	**17**
Perfluoroheptanoic Acid (PFHpA)	--	<2.0	<9.9	<10	<1.9	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)	--	<2.0	**17**	**18**	**21**	**18**
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<2.0	<9.9	<10	<1.9	<2.0
Perfluorooctanoic Acid (**PFOA**)	**8**	<2.0	**12**	<10	**5.6**	<2.0
Perfluorohexane Sulfonic Acid (PFHxS)	**51**	<2.0	**41**	**40**	**40**	**27**
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<2.0	**31**	**30**	**28**	**20**
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<2.0	**10**	<10	**9.7**	**6.7**
Perfluorononanoic Acid (PFNA)	**6**	<2.0	<9.9	<10	<1.9	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<2.0	<9.9	<10	<1.9	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<2.0	<9.9	<10	**1.9**	<2.0
Perfluorodecanoic Acid (PFDA)	--	<2.0	<9.9	<10	<1.9	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<2.0	<9.9	<10	<1.9	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<3.9	<9.9	<10	<3.9	<4.0
Perfluorooctane Sulfonic Acid (**PFOS**)	**16**	<2.0	**25**	**18**	**28**	<4.0 X
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	<2.0	<9.9	<10	**3.5**	<2.0
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	<2.0	**20**	**18**	**24**	<4.0 X
Perfluoroundecanoic Acid (PFUnDA)	--	<2.0	<9.9	<10	<1.9	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	<2.0	<9.9	<10	<1.9	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	<2.0	<9.9	<10	<1.9	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	<2.0	<9.9	<10	<1.9	<2.0
Perfluorotridecanoic Acid (PFTrDA)	--	<2.0	<9.9	<10	<1.9	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	<2.0	<9.9	<10	<1.9	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<3.9	<9.9	<10	<3.9	<2.0
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<2.0	<9.9	<10	<1.9	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<2.0	<9.9	<10	<1.9	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<2.0	<9.9	<10	<1.9	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	**370**	<2.0	<9.9	<10	<1.9	<2.0
Total Per-and Polyfluoroalkyl Substances	--	**1.7**	**144.0**	**88.0**	**121.3**	**64.2**

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) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
7) The detection of PFBA in Field Blank-061820, Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
10) J - Estimated value less than reporting limit, but greater than MDL.
11) X - Elevated reporting limit due to matrix interference.
12) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.

FIGURES

I:\Racer-Trust.153881\75178.Coldwater-2020\Docs\Reports\2020 PFAS Investigations\Investigation Memo-Dec 2020\1 - Figure 1 - Additional GW Invest. Locations.mxd

PROJECT: 169000XXXX | DATED: 2/8/2021 | DESIGNER: MONETANT



Well/Sample ID:	SBP-72-GW (25')
Sample Date:	12/17/2020
PFHxA	ND
PFBS	1.7 J
PFPeS	ND
PFHxS	ND

Well/Sample ID:	MW-29
Sample Date:	12/18/2020
PFHxA	2.2
PFBS	17
PFPeS	18
PFHxS	27

LEGEND

- MONITORING WELL
- TEMPORARY WELL LOCATION
- ABANDONED WELL
- NEW DRIFT SAMPLE LOCATION NOT EXCEEDING CRITERIA
- PROPERTY BOUNDARY
- FORMER BUILDING

PFOS Contours

10 70 250 500 >1000

Notes:
1. (4) - Highest PFOS value at individual locations were used.
2. For more detailed information refer to Figures 5.
3. (3.50) - Highest PFOS concentration.
4. Concentrations in ng/L.

0 75 150 Feet

ADDITIONAL GROUNDWATER INVESTIGATION LOCATIONS

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 1

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

RAMBOLL

ATTACHMENT A
SOIL BORING LOGS

RAMBOLL

BORING LOG

WELL NO. MW-29

PROJECT: Coldwater Road Landfill
CLIENT: RACER Trust
INSPECTOR: KevinSchneider

SHEET 1 OF 1

JOB NO. 75178

DRILLING CONTRACTOR: JSS
DRILLER: Ian Rahn
PURPOSE: PFAS Groundwater Investigation
DRILLING METHOD: Direct Push, HSA
DRILL RIG TYPE: Geoprobe 7822DT

	SAMPLE	CORE	CASING
TYPE	SS	Soil	Dual Tube
DIA.	---	3"	---

GROUND ELEV.

DATUM

DATE STARTED 12/17/2020

DATE FINISHED 12/17/2020

DEPTH (ft)	Sample Type	Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
0					moist, brown, medium stiff, silty clayey, TOPSOIL, little to some medium to fine sand, (fill)		CL		0		
0.5											
2		SS-1		5.0'/ 2.5'	moist, brown with little gray mottling, stiff, silty CLAY, little to some medium to fine sand, trace fine gravel		CL		0		
4									0		
6									0		
7.0											
8		SS-2		5.0'/ 3.8'	transition zone becoming silty medium to fine SAND, some clay, some bedding structure noticable		SC-SM		0		
7.7											
					moist, dense, brown, silty medium to fine SAND, trace to little clay		SM		0		
9.8											
10					moist, stiff to very stiff, gray, brown 9.8'-10', silty CLAY, some coarse to fine sand, trace to little fine gravel (glacial till)				0		
12		SS-3		5.0'/ 5.0'					0		
14									0		
16							CL		0		
18		SS-4		5.0'/ 5.0'					0		
20									0		
21.8											
22		SS-5		5.0'/ 5.0'	moist to wet, gray, soft to slightly stiff, silty CLAY, some medium to fine sand		CL		0		
23.0											
24					wet, light gray, medium to fine SAND, trace to little silt		SP-SM		0		
25.5											
26					same as above, becoming less silty, trace silt				0		
28		SS-6		5.0'/ 5.0'			SP		0		
30									0		
30.0					End of Borehole at 30.0'.						
32											

Notes: Boring location southwest corner of northern arm of site. Monitoring well installed.

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

RAMBOLL

BORING LOG

BORING NO. SBP-70

PROJECT: Coldwater Road Landfill
CLIENT: RACER Trust
INSPECTOR: KevinSchneider

SHEET 1 OF 1

JOB NO. 75178

DRILLING CONTRACTOR: JSS
DRILLER: Ian Rahn
PURPOSE: PFAS Groundwater Investigation
DRILLING METHOD: 5' Dual Tube Macrocore
DRILL RIG TYPE: Geoprobe 7822DT

GROUND ELEV.

DATUM

DATE STARTED 12/17/2020

DATE FINISHED 12/17/2020

	SAMPLE	CORE	CASING
TYPE	SS	Soil	Dual Tube
DIA.	---	3"	---

DEPTH (ft)	Sample Type	Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	REMARKS
0					moist, dark brown, clayey sandy, SILT, roots, grass, TOPSOIL		CL		0	
0.5										
0.6					concrete		CL			
1.1					moist, brown, silty sandy CLAY				0	
2		SS-1		5.0'/ 3.0'						
4					moist, brown, stiff, non-plastic, light gray mottling, sandy CLAY,		CL		0	
5.0										
5.9					moist, brown, medium to fine SAND		SP		0	
6					moist, brown, silty CLAY		CL			
7.8										
8		SS-2		5.0'/ 5.0'	moist, brown, silty SAND		SM		0	
8.2					moist, brown, silty CLAY, little sand, trace gravel		CL			
9.5										
10					moist, fine SAND		SM		0	
10.0					dry to moist, stiff to very stiff, low plastic, light gray, silty CLAY, trace gravel					
12		SS-3		5.0'/ 5.0'					0	
14							CL		0	
16		SS-4		3.0'/ 5.0'					0	
18									0	
18.0					End of Borehole at 18.0'.					
20										
22										
24										
26										
28										
30										
32										

Notes: Boring location corner of West Klein St. and Saginaw Rd.

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

BORING LOG

BORING NO. SBP-71

PROJECT: Coldwater Road Landfill
CLIENT: RACER Trust
INSPECTOR: KevinSchneider

SHEET 1 OF 1

JOB NO. 75178

DRILLING CONTRACTOR: JSS
DRILLER: Ian Rahn
PURPOSE: PFAS Groundwater Investigation
DRILLING METHOD: 5' Dual Tube Macrocore
DRILL RIG TYPE: Geoprobe 7822DT

GROUND ELEV.

DATUM

DATE STARTED 12/17/2020

DATE FINISHED 12/17/2020

	SAMPLE	CORE	CASING
TYPE	SS	Soil	Dual Tube
DIA.	---	3"	---

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	REMARKS
0				moist, very stiff, dark brown, silty clayey TOPSOIL, little coarse to fine sand				0	
0.8									
2	SS-1		5.0'/ 2.0'	moist, medium stiff, silty sandy CLAY, with concrete and other debris (FILL)		CL		0	
4								0	
4.8									
6				moist, brown, silty CLAY, little to some coarse to fine sand, trace gravel, (glacial till)				0	
8	SS-2		5.0'/ 5.0'			CL		0	
10				same as above, becomes gray				0	
12	SS-3		5.0'/ 5.0'			CL		0	
14								0	
15.0									
16				End of Borehole at 15.0'.					
18									
20									
22									
24									
26									
28									
30									
32									

Notes: Boring location 200 feet west of Saginaw Rd. north along West Klein St. west of SBP-70.

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

BORING LOG

BORING NO. SBP-72

PROJECT: Coldwater Road Landfill
CLIENT: RACER Trust
INSPECTOR: KevinSchneider

SHEET 1 OF 1

JOB NO. 75178

DRILLING CONTRACTOR: JSS
DRILLER: Ian Rahn
PURPOSE: PFAS Groundwater Investigation
DRILLING METHOD: 5' Dual Tube Macrocore
DRILL RIG TYPE: Geoprobe 7822DT

GROUND ELEV.

DATUM

DATE STARTED 12/17/2020

DATE FINISHED 12/17/2020

	SAMPLE	CORE	CASING
TYPE	SS	Soil	Dual Tube
DIA.	---	3"	---

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	REMARKS
0				moist, medium dense, brownish gray, silty, sandy, clayey TOPSOIL (0.3)				0	
2	SS-1		5.0'/ 2.3'	moist, stiff, brown with gray mottling, silty, sandy, CLAY (fill) (1.8)		CL		0	
4				moist, stiff, dark brown, silty, TOP SOIL, organic rich some medium to fine sand (2.3)				0	
6	SS-2		5.0'/ 4.5'	moist, stiff, brown with reddish brown, and gray mottling, silty CLAY, little to some medium to fine sand, trace fine gravel (5.1)		CL		0	
8				moist, stiff to very stiff, brown with gray mottling, silty CLAY, little to some coarse to fine sand, trace to little fine gravel (glacial till)				0	
10				same as above, becomes gray				0	
12	SS-3		5.0'/ 5.0'					0	
14						CL		0	
16								0	
18	SS-4		5.0'/ 5.0'					0	
20				(19.7)				0	
22	SS-5		3.0'/ 3.0'	moist, to wet, medium stiff, gray, silty, sandy CLAY, little to some fine gravel (21.7)		CL		0	
24	SS-6		2.0'/ 2.0'	wet, light grayish brown, medium to fine SAND, trace to little silt, some bedding observed (outwash) (25.0)		SP		0	
26				End of Borehole at 25.0'.					
28									
30									
32									

Notes: Boring location westside of Saginaw Rd. west of OBG MW-27.

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

ATTACHMENT B
LABORATORY ANALYTICAL REPORT

Analytical Laboratory Report

Report ID: S20213.01(01)
Generated on 01/14/2021

Report to

Attention: Clifford Yantz
Ramboll Americas
2260 East Saginaw Street
East Lansing, MI 48823

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): S20213.01-S20213.03
Project: RACER Coldwater Road
Collected Date(s): 12/17/2020 - 12/18/2020
Submitted Date/Time: 12/18/2020 16:55
Sampled by: Kevin Schneider
P.O. #: 12000277

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).
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 need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

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

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 (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S20213.01	Field Blank-121720	Water	12/17/20 14:08
S20213.02	SBP-72-GW	Groundwater	12/17/20 14:10
S20213.03	MW-29	Groundwater	12/18/20 12:12

Analytical Laboratory Report

Lab Sample ID: S20213.01
Sample Tag: Field Blank-121720
Collected Date/Time: 12/17/2020 14:08
Matrix: Water
COC Reference: 125025

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)*	12.24/6.95/11	ASTMD7979-19M	12/22/20 13:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/29/20 20:49, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.08	375-22-4	
PFPeA*	Not detected	4.2	1.0	ng/L	2.08	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.08	757124-72-4	
PFHxA*	Not detected	2.1	1.5	ng/L	2.08	307-24-4	
PFBS*	Not detected	2.1	1.5	ng/L	2.08	375-73-5	
PFHpA*	Not detected	2.1	1.5	ng/L	2.08	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.08	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.08	27619-97-2	
PFOA*	Not detected	2.1	1.7	ng/L	2.08	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.08	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.08	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.08	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.08	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.08	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.08	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.08	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.08	2355-31-9	
EtFOSAA*	Not detected	4.2	2.1	ng/L	2.08	2991-50-6	
PFOS*	Not detected	2.1	2.0	ng/L	2.08	1763-23-1	
PFOS-LN*	Not detected	2.1	2.0	ng/L	2.08	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.08	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.5	ng/L	2.08	2058-94-8	
PFNS*	Not detected	2.1	1.5	ng/L	2.08	68259-12-1	
PFDoDA*	Not detected	2.1	1.7	ng/L	2.08	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.08	335-77-3	
PFTrDA*	Not detected	2.1	1.2	ng/L	2.08	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.08	754-91-6	
PFTeDA*	Not detected	4.2	1.9	ng/L	2.08	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.08	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.08	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.08	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.08	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S20213.02
Sample Tag: SBP-72-GW
Collected Date/Time: 12/17/2020 14:10
Matrix: Groundwater
COC Reference: 125025

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)*	12.75/7.12/11	ASTMD7979-19M	12/22/20 13:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/28/20 21:57, 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*	Not detected	2.0	1.4	ng/L	1.95	307-24-4	
PFBS*	1.7	2.0	1.4	ng/L	1.95	375-73-5	J
PFHpA*	Not detected	2.0	1.4	ng/L	1.95	375-85-9	
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*	Not detected	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*	Not detected	2.0	1.9	ng/L	1.95	1763-23-1	
PFOS-LN*	Not detected	2.0	1.9	ng/L	1.95	1763-23-1-LN	
PFOS-BR*	Not detected	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	2.0	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: S20213.03
Sample Tag: MW-29
Collected Date/Time: 12/18/2020 12:12
Matrix: Groundwater
COC Reference: 125025

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)*	11.92/6.92/10	ASTMD7979-19M	12/22/20 13:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/28/20 22:16, 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*	2.2	2.0	1.4	ng/L	2	307-24-4	
PFBS*	17	2.0	1.4	ng/L	2	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2	375-85-9	
PFPeS*	18	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*	27	2.0	1.6	ng/L	2	355-46-4	
PFHxS-LN*	20	2.0	1.6	ng/L	2	355-46-4-LN	
PFHxS-BR*	6.7	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*	Not detected	4.0	2.0	ng/L	2	1763-23-1	X
PFOS-LN*	Not detected	2.0	2.0	ng/L	2	1763-23-1-LN	
PFOS-BR*	Not detected	4.0	2.0	ng/L	2	1763-23-1-BR	X
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	

X-Elevated reporting limit due to matrix interference

Merit Laboratories Login Checklist

Lab Set ID: S20213
Client: OBG02 (Ramboll Americas - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 12/18/2020 16:55 Login User: MMC

Attention: Clifford Yantz
Address: Ramboll Americas
2260 East Saginaw Street
East Lansing, MI 48823

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

125025

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com/KevinSchneider@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: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM 7979)
20243.01	12/17/20	1408	Field Blank-121720	QC	1	1							X
.02	12/17/20	1410	SBP-72-GW	GW	3	3							X
.03	12/18/20	1212	MW-29	GW	3	3							X

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions
ASTM D7979
low level Reporting limit with estimated values

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE	TIME
		12/18/20	1545
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/20	1545
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/20	1655
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/2020	1655

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. 5.18.12

Quality Control Report

Report ID: QC-S20213-01
Generated on 01/14/2021

Report to

Attention: Clifford Yantz
Ramboll Americas
2260 East Saginaw Street
East Lansing, MI 48823

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): S20213.01-S20213.03
Project: RACER Coldwater Road
Submitted Date/Time: 12/18/2020 16:55
Sampled by: Kevin Schneider
P.O. #: 12000277

QC Report Sections

Report Flag Descriptions

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

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

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S20213.01

Sample Tag: Field Blank-121720

Collected Date/Time: 12/17/2020 14:08

Matrix: Water

COC Reference: 125025

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/29/20 20:49	AK201229	PF201222W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S20213.02
Sample Tag: SBP-72-GW
Collected Date/Time: 12/17/2020 14:10
Matrix: Groundwater
COC Reference: 125025

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/28/20 21:57	AK201228	PF201222W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S20213.03
Sample Tag: MW-29
Collected Date/Time: 12/18/2020 12:12
Matrix: Groundwater
COC Reference: 125025

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/28/20 22:16	AK201228	PF201222W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF201222W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S20213.01	28 PFAs	ASTMD7979-19M	12/29/20 20:49	AK201229
S20213.02	28 PFAs	ASTMD7979-19M	12/28/20 21:57	AK201228
S20213.03	28 PFAs	ASTMD7979-19M	12/28/20 22:16	AK201228

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20213.01

Sample Tag: Field Blank-121720

Collected Date/Time: 12/17/2020 14:08

Matrix: Water

COC Reference: 125025

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201229, Run Date: 12/29/2020 20:49, Matrix: WW, Dilution: 2.08

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**116.1**	50.0	150.0
M2-6:2FTSA		**109.7**	50.0	150.0
M2-8:2FTSA		**107.8**	50.0	150.0
M2PFTeDA		**170.7**	12.0	218.0
M3PFBS		**124.9**	50.0	150.0
M3PFHxS		**126.0**	50.0	150.0
M4PFHpA		**116.3**	50.0	150.0
M5PFHxA		**115.6**	50.0	150.0
M5PFPeA		**120.8**	50.0	150.0
M6PFDA		**120.0**	50.0	150.0
M7PFUnDA		**124.7**	50.0	150.0
M8FOSA		**120.6**	50.0	150.0
M8PFOA		**121.1**	50.0	150.0
M8PFOS		**129.0**	50.0	150.0
M9-PFNA		**121.9**	50.0	150.0
MPFBA		**118.3**	50.0	150.0
MPFDoDA		**128.4**	50.0	150.0
d3N-MeFOSAA		**127.5**	50.0	150.0
d5EtFOSAA		**127.8**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20213.02

Sample Tag: SBP-72-GW

Collected Date/Time: 12/17/2020 14:10

Matrix: Groundwater

COC Reference: 125025

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201228, Run Date: 12/28/2020 21:57, Matrix: WW, Dilution: 1.95

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**103.9**	50.0	150.0
M2-6:2FTSA		**123.6**	50.0	150.0
M2-8:2FTSA		**111.9**	50.0	150.0
M2PFTeDA		**140.2**	12.0	218.0
M3PFBS		**121.8**	50.0	150.0
M3PFHxS		**128.5**	50.0	150.0
M4PFHpA		**110.2**	50.0	150.0
M5PFHxA		**108.6**	50.0	150.0
M5PFPeA		**108.1**	50.0	150.0
M6PFDA		**116.3**	50.0	150.0
M7PFUnDA		**121.7**	50.0	150.0
M8FOSA		**55.3**	50.0	150.0
M8PFOA		**112.3**	50.0	150.0
M8PFOS		**128.9**	50.0	150.0
M9-PFNA		**117.8**	50.0	150.0
MPFBA		**109.3**	50.0	150.0
MPFDoDA		**110.0**	50.0	150.0
d3N-MeFOSAA		**120.3**	50.0	150.0
d5EtFOSAA		**113.6**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20213.03

Sample Tag: MW-29

Collected Date/Time: 12/18/2020 12:12

Matrix: Groundwater

COC Reference: 125025

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201228, Run Date: 12/28/2020 22:16, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**118.7**	50.0	150.0
M2-6:2FTSA		**141.6**	50.0	150.0
M2-8:2FTSA		**128.0**	50.0	150.0
M2PFTeDA		**152.1**	12.0	218.0
M3PFBS		**124.5**	50.0	150.0
M3PFHxS		**128.5**	50.0	150.0
M4PFHpA		**118.0**	50.0	150.0
M5PFHxA		**115.0**	50.0	150.0
M5PFPeA		**113.5**	50.0	150.0
M6PFDA		**126.2**	50.0	150.0
M7PFUnDA		**146.9**	50.0	150.0
M8FOSA		**62.5**	50.0	150.0
M8PFOA		**122.8**	50.0	150.0
M8PFOS		**120.1**	50.0	150.0
M9-PFNA		**119.4**	50.0	150.0
MPFBA		**116.4**	50.0	150.0
MPFDoDA		**118.5**	50.0	150.0
d3N-MeFOSAA		**125.0**	50.0	150.0
d5EtFOSAA		**110.7**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF201222W1

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

Blank (BLK)

Lab Sample ID: AK201229.BLK201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:50, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**117.9**	50.0	150.0
M2-6:2FTSA		**119.2**	50.0	150.0
M2-8:2FTSA		**112.9**	50.0	150.0
M2PFTeDA		**181.0**	12.0	218.0
M3PFBS		**121.3**	50.0	150.0
M3PFHxS		**122.2**	50.0	150.0
M4PFHpA		**117.3**	50.0	150.0
M5PFHxA		**124.3**	50.0	150.0
M5PFPeA		**123.1**	50.0	150.0
M6PFDA		**128.7**	50.0	150.0
M7PFUnDA		**138.4**	50.0	150.0
M8FOSA		**123.2**	50.0	150.0
M8PFOA		**131.6**	50.0	150.0
M8PFOS		**128.3**	50.0	150.0
M9-PFNA		**125.0**	50.0	150.0
MPFBA		**120.6**	50.0	150.0
MPFDoDA		**134.3**	50.0	150.0
d3N-MeFOSAA		**127.4**	50.0	150.0
d5EtFOSAA		**124.4**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:11, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**110.8**	50.0	150.0
M2-6:2FTSA		**113.5**	50.0	150.0
M2-8:2FTSA		**104.0**	50.0	150.0
M2PFTeDA		**148.4**	12.0	218.0
M3PFBS		**119.2**	50.0	150.0
M3PFHxS		**112.0**	50.0	150.0
M4PFHpA		**114.5**	50.0	150.0
M5PFHxA		**115.1**	50.0	150.0
M5PFPeA		**116.2**	50.0	150.0
M6PFDA		**119.0**	50.0	150.0
M7PFUnDA		**118.7**	50.0	150.0
M8FOSA		**121.3**	50.0	150.0
M8PFOA		**121.6**	50.0	150.0
M8PFOS		**124.2**	50.0	150.0
M9-PFNA		**118.9**	50.0	150.0
MPFBA		**116.0**	50.0	150.0
MPFDoDA		**116.3**	50.0	150.0
d3N-MeFOSAA		**116.8**	50.0	150.0
d5EtFOSAA		**122.7**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK201229.LCSD201222A, Parent Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:31, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**114.0**	50.0	150.0
M2-6:2FTSA		**121.0**	50.0	150.0
M2-8:2FTSA		**108.4**	50.0	150.0
M2PFTeDA		**174.7**	12.0	218.0
M3PFBS		**122.9**	50.0	150.0
M3PFHxS		**113.9**	50.0	150.0
M4PFHpA		**109.2**	50.0	150.0
M5PFHxA		**114.8**	50.0	150.0
M5PFPeA		**118.1**	50.0	150.0
M6PFDA		**130.4**	50.0	150.0
M7PFUnDA		**122.6**	50.0	150.0
M8FOSA		**119.4**	50.0	150.0
M8PFOA		**119.2**	50.0	150.0
M8PFOS		**114.3**	50.0	150.0
M9-PFNA		**123.4**	50.0	150.0
MPFBA		**116.0**	50.0	150.0
MPFDoDA		**128.2**	50.0	150.0
d3N-MeFOSAA		**115.5**	50.0	150.0
d5EtFOSAA		**121.9**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK201228.2015601M, Parent Sample ID: S20156.01

Run in Batch: AK201228, Run Date: 12/28/2020 18:22, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**106.3**	50.0	150.0
M2-6:2FTSA		**122.8**	50.0	150.0
M2-8:2FTSA		**117.5**	50.0	150.0
M2PFTeDA		**106.4**	12.0	218.0
M3PFBS		**114.5**	50.0	150.0
M3PFHxS		**115.2**	50.0	150.0
M4PFHpA		**107.3**	50.0	150.0
M5PFHxA		**101.2**	50.0	150.0
M5PFPeA		**102.9**	50.0	150.0
M6PFDA		**109.9**	50.0	150.0
M7PFUnDA		**115.6**	50.0	150.0
M8FOSA		**52.4**	50.0	150.0
M8PFOA		**112.0**	50.0	150.0
M8PFOS		**116.4**	50.0	150.0
M9-PFNA		**109.1**	50.0	150.0
MPFBA		**105.4**	50.0	150.0
MPFDoDA		**97.6**	50.0	150.0
d3N-MeFOSAA		**106.1**	50.0	150.0
d5EtFOSAA		**109.8**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK201228.2015602D, Parent Sample ID: S20156.02

Run in Batch: AK201228, Run Date: 12/28/2020 19:01, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2.11

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**111.9**	50.0	150.0
M2-6:2FTSA		**130.5**	50.0	150.0
M2-8:2FTSA		**125.9**	50.0	150.0
M2PFTeDA		**137.4**	12.0	218.0
M3PFBS		**109.7**	50.0	150.0
M3PFHxS		**119.3**	50.0	150.0
M4PFHpA		**105.1**	50.0	150.0
M5PFHxA		**101.3**	50.0	150.0
M5PFPeA		**105.0**	50.0	150.0
M6PFDA		**115.5**	50.0	150.0
M7PFUnDA		**126.4**	50.0	150.0
M8FOSA		**58.5**	50.0	150.0
M8PFOA		**109.7**	50.0	150.0
M8PFOS		**117.3**	50.0	150.0
M9-PFNA		**109.4**	50.0	150.0
MPFBA		**107.1**	50.0	150.0
MPFDoDA		**108.7**	50.0	150.0
d3N-MeFOSAA		**115.0**	50.0	150.0
d5EtFOSAA		**112.4**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF201222W1

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

Blank (BLK)

Lab Sample ID: AK201229.BLK201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:50, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
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	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:11, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		109.0	70.0	130.0
PFPeA		104.0	70.0	130.0
4:2 FTSA		94.9	70.0	130.0
PFHxA		97.4	70.0	130.0
PFBS		102.0	70.0	130.0
HFPO-DA		79.2	70.0	130.0
PFHpA		90.8	70.0	130.0
PFPeS		109.0	70.0	130.0
ADONA		87.3	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF201222W1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:11, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		108.0	70.0	130.0
PFOA		96.6	70.0	130.0
PFHxS		104.0	70.0	130.0
PFNA		101.0	70.0	130.0
8:2 FTSA		85.1	70.0	130.0
PFHpS		97.5	70.0	130.0
N-MeFOSAA		105.0	70.0	130.0
PFDA		103.0	70.0	130.0
EtFOSAA		87.0	70.0	130.0
PFOS		96.6	70.0	130.0
PFUnDA		104.0	70.0	130.0
9CL-PF3ONS		93.4	70.0	130.0
PFNS		94.5	70.0	130.0
PFDoDA		102.0	70.0	130.0
PFDS		91.0	70.0	130.0
PFTrDA		95.4	70.0	130.0
FOSA		100.0	70.0	130.0
11CL-PF3OUdS		85.8	70.0	130.0
PFTeDA		106.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK201229.LCSD201222A, Parent Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:31, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		112.0	70.0	130.0	2.7	30.0
PFPeA		105.0	70.0	130.0	1.0	30.0
4:2 FTSA		93.7	70.0	130.0	1.3	30.0
PFHxA		97.3	70.0	130.0	0.1	30.0
PFBS		104.0	70.0	130.0	1.9	30.0
HFPO-DA		88.8	70.0	130.0	11.4	30.0
PFHpA		97.2	70.0	130.0	6.8	30.0
PFPeS		107.0	70.0	130.0	1.9	30.0
ADONA		98.3	70.0	130.0	11.9	30.0
6:2 FTSA		104.0	70.0	130.0	3.8	30.0
PFOA		103.0	70.0	130.0	6.4	30.0
PFHxS		105.0	70.0	130.0	1.0	30.0
PFNA		103.0	70.0	130.0	2.0	30.0
8:2 FTSA		84.4	70.0	130.0	0.8	30.0
PFHpS		108.0	70.0	130.0	10.2	30.0
N-MeFOSAA		118.0	70.0	130.0	11.7	30.0
PFDA		91.8	70.0	130.0	11.5	30.0
EtFOSAA		93.0	70.0	130.0	6.7	30.0
PFOS		111.0	70.0	130.0	13.9	30.0
PFUnDA		109.0	70.0	130.0	4.7	30.0
9CL-PF3ONS		101.0	70.0	130.0	7.8	30.0
PFNS		114.0	70.0	130.0	18.7	30.0

Organics - Volatiles, Prep Batch ID: PF201222W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK201229.LCSD201222A, Parent Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:31, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		98.0	70.0	130.0	4.0	30.0
PFDS		108.0	70.0	130.0	17.1	30.0
PFTrDA		100.0	70.0	130.0	4.7	30.0
FOSA		104.0	70.0	130.0	3.9	30.0
11CL-PF3OUdS		103.0	70.0	130.0	18.2	30.0
PFTeDA		103.0	70.0	130.0	2.9	30.0

Matrix Spike (MS)

Lab Sample ID: AK201228.2015601M, Parent Sample ID: S20156.01

Run in Batch: AK201228, Run Date: 12/28/2020 18:22, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
PFBA		126.0	70.0	130.0
PFPeA		118.0	70.0	130.0
4:2 FTSA		100.0	70.0	130.0
PFHxA		108.0	70.0	130.0
PFBS		117.4	70.0	130.0
PFHpA		107.0	70.0	130.0
PFPeS		120.0	70.0	130.0
6:2 FTSA		120.0	70.0	130.0
PFOA		110.0	70.0	130.0
PFHxS		110.0	70.0	130.0
PFNA		120.0	70.0	130.0
8:2 FTSA		93.0	70.0	130.0
PFHpS		110.0	70.0	130.0
PFDA		110.0	70.0	130.0
N-MeFOSAA		120.0	70.0	130.0
EtFOSAA		93.0	70.0	130.0
PFOS		120.0	70.0	130.0
PFUnDA		110.0	70.0	130.0
PFNS		110.0	70.0	130.0
PFDoDA		120.0	70.0	130.0
PFDS		110.0	70.0	130.0
PFTrDA		100.0	70.0	130.0
FOSA		120.0	70.0	130.0
PFTeDA		120.0	70.0	130.0
11CL-PF3OUdS		96.0	70.0	130.0
9CL-PF3ONS		100.0	70.0	130.0
ADONA		110.0	70.0	130.0
HFPO-DA		85.0	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK201228.2015602D, Parent Sample ID: S20156.02

Run in Batch: AK201228, Run Date: 12/28/2020 19:01, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2.11

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF201222W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK201228.2015602D, Parent Sample ID: S20156.02

Run in Batch: AK201228, Run Date: 12/28/2020 19:01, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2.11

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA		13.3	30.0
PFBS		NC	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		11.1	30.0
PFHxS		12.8	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		16.7	30.0
PFOS-LN		10.7	30.0
PFOS-BR		12.8	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

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

C.O.C. PAGE # 1 OF 1

125025

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com/KevinSchneider@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: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM 7979)
20243.01	12/17/20	1408	Field Blank-121720	QC	1	1							X
.02	12/17/20	1410	SBP-72-GW	GW	3	3							X
.03	12/18/20	1212	MW-29	GW	3	3							X

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions
ASTM D7979
low level Reporting limit with estimated values

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE	TIME
		12/18/20	1545
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/20	1545
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/20	1655
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/2020	1655

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. 5.18.12

ATTACHMENT C
WELL CONSTRUCTION LOG

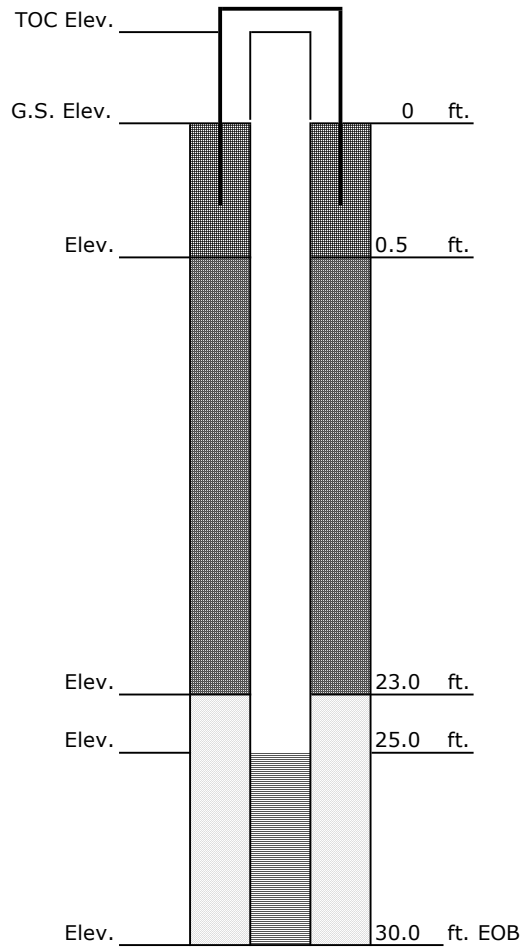
WELL CONSTRUCTION LOG

Well ID: MW-29

Project: Coldwater Rd Site
Location: Flint, MI
Project No.: 75178

Client: RACER Trust
Date Installed: 12/17/20

STICK-UP WELL DETAIL



Inspection Notes:

Inspector: Clifford Yantz
Drilling Contractor: Job Site Services Drilling
Type of Well: Environmental Monitoring Well

Drilling Method:
Type: Auger
Casing: Stainless Steel Diameter: 4.25 inch

Protective Casing:
Type: Stick-Up Diameter:

Surface Seal:
Type: Cement Interval: 0 - 0.5 fbg

Isolation Casing:
Casing: N/A Diameter: N/A
Interval:

Riser Pipe:
Material: Sch. 40 PVC Diameter: 2" ID
Interval: 0 fbg - 25 fbg

Grout
Type: N/A Interval: N/A

Bentonite Seal:
Type: Bentonite Chips Interval: 0.5 fbg - 23 fbg

Sand Pack:
Type: Silica Sand Interval: 23 fbg - 30 fbg

Screen Material:
Material: Sch. 40 PVC Diameter: 2" ID
Interval: 25 fbg - 30 fbg Slot Size: 0.010

Material Below Sand Pack:
Type: N/A Interval: N/A

Notes:
1. Steel protective casing has cement collar.
2. "NA" indicates not applicable.
3. "fbg" indicates feet below grade.

RAMBOLL

ATTACHMENT D
WELL DEVELOPMENT LOG

RAMBOLL

WELL DEVELOPMENT LOG **Well ID: MW-29**

Date	12/18/2020	Field Personnel	Clifford Yantz	Weather	cloudy 27 °F
Site Name	RACER Coldwater Rd	Contractor	N/A	Project No.	75178
Site Location	Flint, MI	Evacuation Method	Whale Pump		

Well information:

Depth to Bottom (Initial) *	33.95 ft.	Date(s) Install	12/17/2020	Date(s) Developed	12/18/2020
Depth to Bottom (Final)*	ft.	Driller	JSS	Development Time	Start: 9:10
Depth to Water (Initial)*	26.30 ft.	Well Diameter	2 in.		Stop: 12:10
Depth to Water (Final)*	ft.	Casing Volume	1.25 gal.		Total: 3 hours
* Measuring point	TOC	Pump setting* (intake)	31.5 ft.		

Elapsed Time	Volume of Water Removed (Gallons)	Temperature °C	pH s.u	Conductivity mS/cm	Turbidity (NTU)	Approximate Flow Rate (gal/min)	Depth to Water (ft.)	Appearance of Water
9:10-9:26	Surge	11.3	7.10	1.00	999+	--	26.30	turbid
9:35-9:50	Purge 6 gallons	11.7	6.90	1.05	213	300 ml/min	26.70	cloudy
9:58-10:14	Surge	10.3	7.30	1.00	999+	--	--	turbid
10:18-10:36	Purge 7 gallons	11.6	7.21	1.00	169	350 ml/min	26.63	cloudy
10:44-11:00	Surge	11.7	7.28	0.98	867	--	--	very cloudy
11:03-11:20	Purge 6.5 gallons	11.8	7.20	0.99	104	350 ml/min	26.70	slightly cloudy
11:25-11:41	Surge	11.8	7.23	0.90	808 (312 after 5 min)	--	--	very cloudy
11:44-12:10	Purge 8 gallons	11.8	7.16	0.99	87.9 @ 12:00	350 ml/min	26.72	
					40.6 @ 12:05			
					20.6 @ 12:10			

Note: Following development use the extra rows in the table above to monitor the ground water recovery, if possible to within 10% of initial DTW

Development Water Characteristics:

Total volume of Development water removed: 27.5 gallons

Physical appearance at start		Physical appearance at end	
Color	grayish brown	Color	clear
Odor	none	Odor	none
Sheen/Free Product	none	Sheen/Free Product	none

NOTES: Sample collected at 12:12

Geologist Signature: Clifford Scott Yantz