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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. Abiy Mussa – MDHHS** **Mr. Kevin Forbes, BMD** **Mr. Corey Jarbeau, GCRC** **Mr. Thad Domick, GCDCWWS** **Ms. Melissa Glasgow, GCDCWWS** **Mr. Mark Horgan, GCDCWWS** **Mr. Aaron Rivard, GCDCWWS** **Mr. Brian Ross, GCDCWWS** **Mr. Tim Davidek, GCDCWWS** **Mr. Joe Goergen, GCDCWWS** **Mr. David Favero – RACER Trust** **Mr. Kevin Schneider – O'Brien & Gere**
Prepared by	**Kevin Schneider**
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Approved by	**Clifford Yantz**

Date May 29, 2020

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This technical memorandum has been prepared by O'Brien & Gere, a Ramboll Company, on behalf of the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) to document the per- and polyfluoroalkyl substances (PFAS) groundwater and storm water/sanitary sewer delineation sampling activities conducted in March 2020 at the Coldwater Road facility located in Flint, Michigan (Site).

The delineation activities was conducted as a follow up to the January 28, 2020 meeting with the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the Michigan Department of Health and Human Services (MDHHS) 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.

Additional Perched Zone PFAS Characterization

Western and Northern Property Boundary

Temporary Well Activities

Due to the elevated perfluorooctane sulfonic acid (PFOS) results at SBP-38 (280 ng/l) along the northwestern property line, four perched zone temporary wells were installed to evaluate/delineate PFAS along the western property line and further west off-site.

One temporary well was installed north of the Dollar General store property along the western property line and three temporary wells were installed further west of SBP-38 on the west side of Saginaw Street within the road right of way (ROW) (**Figure 1**).

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 direct push (*i.e.*, Geoprobe®) soil boring techniques for each of the temporary well boring locations to collect perched zone groundwater samples north and west of SBP-38. An OBG 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.

Temporary well samples were collected at the following locations and intervals:

- SBP-66 – 7 feet below grade (fbg) (base of 5-foot-long well screen intervals)
- SBP-67 – 20 fbg
- SBP-68 – 10 fbg
- SBP-69 – 10 fbg

Sampling was performed in accordance with the methods specified in EGLE's Groundwater PFAS Sampling Guidance. Grab samples were collected from the temporary perched zone wells 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.

An attempt to purge the temporary wells and collect field indicator parameters consisting of pH, conductivity, temperature, oxidation-reduction potential (ORP), dissolved oxygen (DO), and turbidity was made. In the temporary wells that did not produce sufficient water, the samples were collected without purging.

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. The groundwater samples were 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 field duplicates, and field (ambient) blanks. Disposable equipment was used for sample collected at each well; therefore, an equipment blank was not necessary.

Soil borings were backfilled with coarse granular bentonite following the sample collection. The ground surface at each boring location was restored to its original condition.

PFAS were not detected above their reporting limit in temporary well groundwater samples SBP-67, SBP-68, and SBP-69. Temporary well SBP-66 had detections of perfluorohexanoic acid (PFHxA) at 13 ng/L, perfluoroheptanoic acid (PFHpA) at 11 ng/L, and perfluorooctanoic acid (PFOA) at 77 ng/L. The PFOA detection of 77 ng/L was above the proposed EGLE drinking water maximum contaminant level (MCL) of 8 ng/L. Laboratory analytical reports are in **Attachment B**.

The relative percent difference (RPD) for the duplicate sample results for SBP-68 and SBP-Dup-9 (SBP-68) were within acceptable limits.

Monitoring Well Activities

To mark the northern edge of PFAS impacts north of the Site along East Stanley Road, a monitoring well (OBG-MW-28) was installed (at sample location SBP-61) at the property owned by the Michigan Pipe & Valve Company located at 1217 East Stanley Road, Mt. Morris, Michigan (**Figure 1**).

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 hollow stem auger (HSA) attachment.

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 was 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**.

OBG MW-28 will be developed two weeks prior to sampling. The monitoring well will be sampled during the next scheduled sampling event which is currently scheduled for June 2020.

Additional Storm Water and Sanitary Sewer Characterization

Storm water and sanitary sewer sampling was performed in accordance with the methods specified in EGLE's Wastewater PFAS Sampling Guidance. The samples were collected with a peristaltic pump and high-density polyethylene tubing (HDPE) that has been weighted down with a stainless-steel weight and lowered into the manhole. Approval was granted by the appropriate local agencies prior to sample collection.

Storm Water Sewer Sampling and Results

Due to elevated PFOS results at storm water manholes along Klein Road (MH-18 [210 ng/l] and MH-17A [770 ng/l]), additional storm water samples were collected west and south of the Site to further evaluate PFAS concentrations within storm water sewers (**Figure 2** & **Figure 4**). Due to a minimal amount of rainfall immediately before and during sampling there was not enough water to sample at five of the nine proposed locations.

A storm water sample was collected at sample location SS-03 along George Street, which was previously non-detect for PFOS on November 5, 2019, and represents the storm water coming from the neighborhoods west of the Site before it discharges to the 72-inch sewer at MH-17A.

The second storm water sample (SS-04) was collected from a manhole at the intersection of Horton Street and Coldwater Road south of the Site.

The third storm water sample (SS-05) was collected from where the municipal storm water sewer joins the 72-inch sewer at the vault at the corner of Saginaw and Klein Roads west of the Site. The sample was collected from the sewer flowing from the south to the north.

The fourth storm water sample (MH-10E) was collected from the storm water manhole on the north side of Coldwater Road south of the Site.

In the proposed samples along Saginaw Road and Coldwater Road there was either no flow in the catch basin or the manhole could not be located or accessed.

PFAS were not detected above their reporting limit in storm water samples SS-03, SS-04, and SS-05. MH-10E had a detection of PFOS at 70 ng/L, which is above the EGLE Part 4, Water Quality Standards, Rule 57 Water Quality Value (Water Quality Value) for PFOS of 12 ng/l for non-drinking water. Laboratory analytical reports are in **Attachment B** and **Table 1**.

The relative percent difference (RPD) for the duplicate sample results for SS-04 and SS-Dup-2 (SS-04) were within acceptable limits.

Sanitary Sewer Sampling and Results

To further evaluate/delineate elevated PFOS results in the sanitary sewer system north, south, and west of the Site, 16 samples from sanitary sewer manholes (**Figure 3** and **Figure 5**).

Three sanitary sewer samples (SBP-1, SBP-08, & SBP-09) were collected north of the Site along East Stanley Road, within the Genesee County Drain Commission Water and Waste Service's (GCDCWWS) Anthony Ragnone WWTP system. The samples were collected approximately one week after the sewer was cleaned by GCDCWWS. The remaining thirteen sanitary sewer samples were collected from west and south of the Site, within the Beecher Metropolitan District (BMD) sewer system.

The sanitary sewer samples collected from the following locations had a concentration that was either below the reporting limit or below the Water Quality Value for PFOS of 12 ng/l for non-drinking water. Laboratory analytical reports are in **Attachment B** and **Table 1**.

- SAN-09 was collected east of SAN-1 along Stanley Road to provide a background sample upstream form the groundwater impacts observed immediately north of the Site. The manhole furthest to the east had no flow at the time of sampling
- SAN-19 & SAN-20 were collected on the west side of Saginaw Road north of Klein Road just west of the Site to evaluate PFAS concentrations west of the Site within the sanitary sewers.
- SAN-07 was collected just south of Dunkirk Avenue from the sewer that services residences along Chrysler Street west of the Site to evaluate whether there are PFAS impacts within this sewer, which is located outside of PFAS-impacts groundwater at the Site.
- SAN-17 was collected along Terry Avenue southwest of PFAS impacts identified at the Site to evaluate background conditions.
- SAN-18 was collected at the intersection of Coldwater Road and Harry Street to evaluate background conditions south of the Site.

Sanitary sewer samples collected from the following locations had concentrations that were above the Water Quality Value for PFOS of 12 ng/l for non-drinking water.

- SAN-1 was collected (previous result 55 ng/l PFOS) to evaluate whether the recent cleaning by the GCDCWWS reduced PFAS impacts within this sewer and had a detection of 59 ng/l for PFOS.
- SAN-08 was collected west of SAN-2 (37 ng/l PFOS) along Stanley Road to evaluate PFAS concentrations further downstream within this sewer and had a detection of 42 ng/l for PFOS.
- SAN-06 was collected on the east side of Saginaw Road Saginaw Road south of Klein Road to evaluate the combined flow (concentration) from the sanitary sewers emanating from Chrysler Street and Dunkirk Avenue and had a detection of 14 ng/l for PFOS.
- SAN-10 was collected at the west end of Dunkirk Avenue west downstream from SAN-03, which is west of the Site, to evaluate PFAS concentrations further downstream within this sewer and had a detection of 29 ng/l for PFOS.
- SAN-11 was collected at the west end of Hartman Street west of SAN-4 (61 ng/l PFOS) and had a detection of 160 ng/l for PFOS.

- San-12 was collected along Hartman Street to evaluate the combined flow from Hartman Street and Temple Avenue before the combined sewer goes under I-475 and had a detection of 110 ng/l for PFOS.
- SAN-13 was collected at the west end of Temple Avenue west of SAN-5 (170 ng/l PFOS) and had a detection of 150 ng/l.
- SAN-14 was collected along Morris Hills Parkway from the combined flow from the sewer along Morris Hills Parkway and the three short streets south of Morris Hills Parkway east of I-475 and had a detection of 29 ng/l for PFOS.
- SAN-15 was collected at the west end of Morris Hills Parkway west of the Site and had a detection of 35 ng/l for PFOS. The eastern manhole was dry at the time of sampling.
- SAN-16 was collected along Dowagiac Avenue southwest of the PFAS impacts identified at the Site to evaluate background conditions and had a detection of 13 ng/l for PFOS.
- In the additional proposed sampling locations along Coldwater Road there was either no flow in the manhole or the manhole could not be accessed by the sampling team.

The relative percent difference (RPD) for the duplicate sample results for SAN-17 and SAN-Dup-1 (SAN-17) were within acceptable limits.

GCDCWWS also collected sanitary sewer samples from manholes SBP-1, SBP-08, and SBP-09 located north of the Site along East Stanley Road within their WWTP system on April 30, 2020. The PFOS results were similar to the results we obtained from our March 2020 samples. The concentrations of PFOS in SBP-1, SBP-08, and SBP-09 were 42 ng/l, 40 ng/l, and 5.4 ng/l, respectively compared to 59 ng/l, 42 ng/l, and <9.7 ng/l in March 2020. Several other PFAS were detected in the samples, but these detections were all less than <7 ng/l (trace levels). The laboratory report for these samples is contained in **Attachment B**.

Proposed Activities

Based on the above described results the following activities are proposed.

- Plug storm sewers leaving the Site along Coldwater Road. Per our discussions on May 6, 2020 and to take advantage of an opening in the subcontractor's schedule, the storm water line coming from the Site within manhole MH-10E was plugged on May 28, 2020 by first using sand bags pushed up the 10-inch pipe approximately 2 feet to cut off any flow, and then hand-packed hydraulic cement in the pipe from the sand bags to the end of the pipe at the manhole. SS-02 was plugged in a similar manner and there has been no observed leakage. In addition, to relieve pressure on this plug and the plug in SS-02, and to minimize stormwater entering the storm water piping system in the first place, we filled (plugged) the storm water catch basins/manholes on the south end of the Site. We identified four manholes that were filled with the same concrete mixture used by the Michigan Department of Transportation (MDOT) for bridge foundations and is hydraulic concrete that can be placed under water. It is also a low slump concrete mixture, so it only flows a small distance into the associated pipes. This mixture has been used successfully at the Site several times to fill several manholes on the 72-inch storm sewer.
- Additional sampling of storm sewers south of the Site. Following plugging the Site discharge to manhole MH-10E and filling the catch basins/manholes, collecting a storm water sample from the storm water within MH-10E is proposed. This sample will be taken a week or so after the plugging activities to get a representative of the post-plugging conditions within the municipal system.
- Collect samples from sanitary sewer manholes SAN-06, SAN-12 and SAN-14, and the manhole along Stanley Road where the Ragnone system turns to the north to provide data to allow for evaluation of variability of PFAS concentrations in the sewer systems and of potential use of these locations as compliance monitoring points.

- Continue to inventory sanitary sewers and manholes, and complete inspection of sewers. An important factor in the evaluation of lining the sewers is the current condition of the sewers and manholes. If the sewers and manholes are not in reasonably good condition, in other words, if they are collapsed, broken, and/or off-set or otherwise in disrepair, then lining that portion may not be feasible. Therefore, inspection of the sewers to assess their condition is proposed.

  First foreign materials (sediment, grease, broken pipe, roots, calcium deposits, etc.) would be flushed/removed from the lines using hydraulic high-pressure sewer cleaners and cutting tools, as necessary, specifically designed and constructed for such cleaning. Once a section of the sewers has been properly cleaned, they will be inspected using closed circuit television (CCTV) equipment. The sewer sections proposed for inspection/evaluation are based on the results of the samples from sanitary sewer manholes and the interpreted extent of PFOS groundwater impacts. **Figure 6** provides the sections of sewers proposed for inspection/evaluation. The inspection shall be performed one pipe section at a time and the flow in the section being inspected will be suitably isolated from the remainder of the sanitary sewer system as required. The isolation of the sewer will only be for a short time and should not require bypass pumping as the sewer should have enough storage capacity for the several hour time frame the CCTV work will take. The manhole risers will be visually inspected during the performance of the other inspection activities to evaluate the current conditions of the manholes.

  Based on discussion with representatives of GCDCWWS, GCDCWWS inspected with CCTV the portion of the sanitary sewer along Stanley Road in conjunction with cleaning. GCDCWWS will provide the video to OBG for review.

  Based on discussion with a representative of BMD, BMD has agreed to clean select portions of sewers in coordination with an OBG CCTV subcontractor to facilitate the inspection.

- The data gathered during the sanitary sewer cleaning and CCTV inspection activities will be evaluated to determine if lining is a cost-effective corrective measure to mitigate PFAS impacts infiltrating into the sanitary sewer system, including manholes. Other corrective measures may also need to be evaluated. The results of the evaluation will be presented to EGLE and the municipalities for consideration. It is possible that a pilot project may need to be implemented to allow for evaluation/demonstration of the recommended corrective measure prior to full-scale implementation.

  Following selection of corrective measures for the sanitary sewer system, some design work and procurement activities will be necessary.

- Evaluate potential source of atypical PFAS impacts in SBP-66. A Freedom of Information Act (FOIA) request will be submitted to the local fire department to request information for any firefighting along Saginaw Street in the general area of SBP-66. In addition, other publicly available records will be searched to assess if properties along Saginaw might have occupants that may have used PFAS.

The proposed activities are already being partially implemented and the schedule to implement field activities will be firmed up upon receipt of EGLE approval.

We will try to keep the various stakeholders informed of progress but if anyone has any questions or comments concerning this memo or any other aspect of the on-going work, 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.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

Clifford S. Yantz, PG
Senior Hydrogeologist

ENCLOSURES:

Figure 1 – Additional Groundwater Investigation Activities
Figure 2 – Additional Storm Sewer/Manhole Sample Locations
Figure 3 – Additional Sanitary Sewer/Manhole Sample Locations
Figure 4 – Storm Sewer/Manhole Sample Locations along Coldwater Road
Figure 5 – Sanitary Sewer/Manhole Sample Locations along Coldwater Road
Figure 6 – Sewers Being Inspected

Table 1 – Analytical Results

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

FIGURES

Well/Sample ID:	SBP-68-GW
Approximate Depth to Sample Date:	(10') 3/16/2020
PFAS	ND

Well/Sample ID:	SBP-DUP-9/SBP-68-GW
Approximate Depth to Sample Date:	3/16/2020
PFAS	ND

Well/Sample ID:	SBP-69-GW
Approximate Depth to Sample Date:	(10') 3/17/2020
PFAS	ND

Well/Sample ID:	SBP-67-GW
Approximate Depth to Sample Date:	(20') 3/17/2020
PFAS	ND

Well/Sample ID:	SBP-66-GW
Approximate Depth to Sample Date:	(7') 3/16/2020
PFHxA	13
PFHpA	11
PFOA	77
PFHxS	45

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

PFOS Contours

10 — 70 — 250 — 500 — >1000

Notes

(4) - Highest PFOS value at individual locations were used.
(3.50) - Highest PFOS concentration.
Concentrations in ng/L.
Dup = Duplicate sample.
Concentrations above the EGLE Draft Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
Results shown are all detected results at a location.

0 275 550 Feet

ADDITIONAL GROUNDWATER INVESTIGATION ACTIVITIES

Racer Trust
Coldwater Road
Flint, Michigan

FIGURE 01

O'BRIEN & GERE ENGINEERS, INC.
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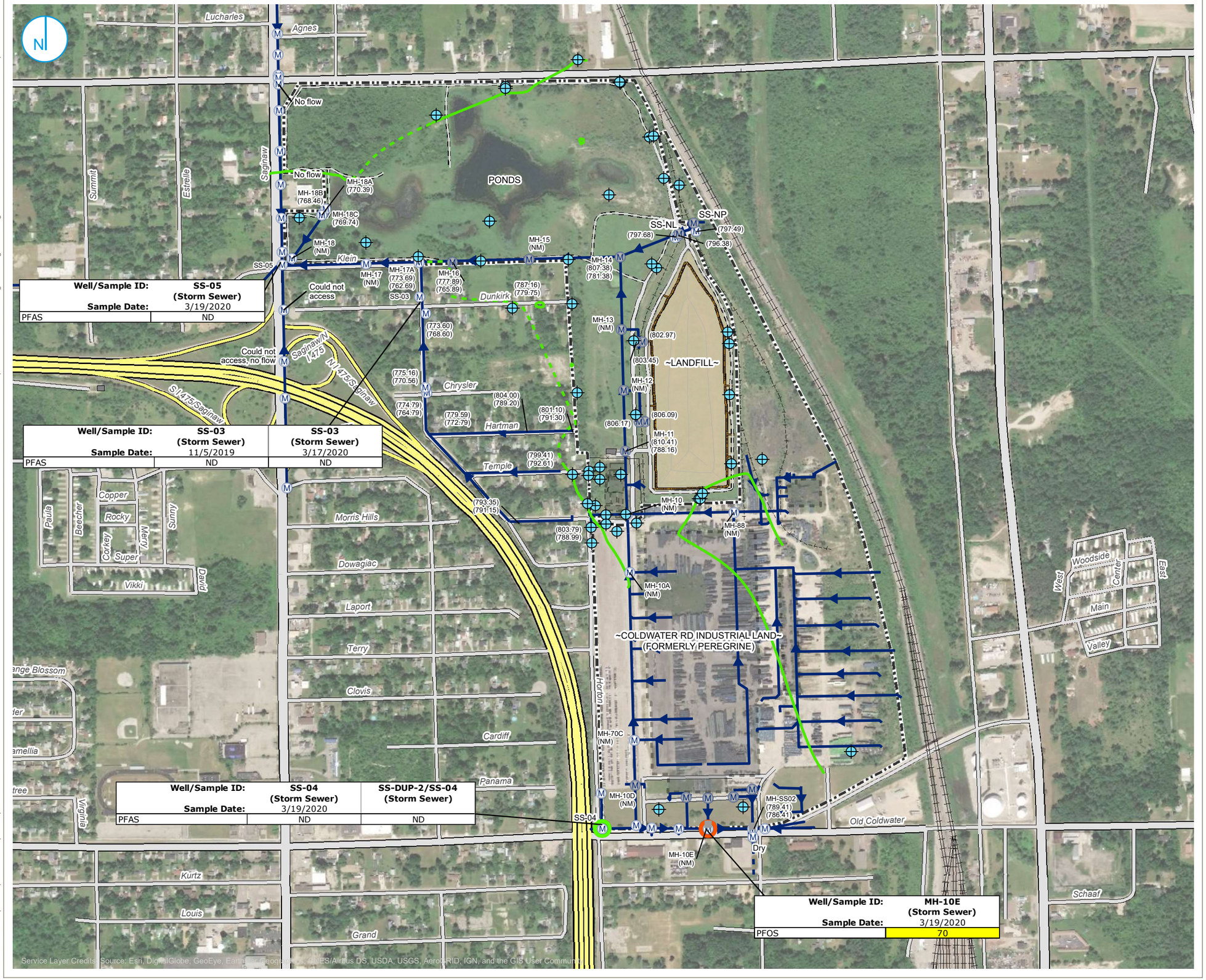

MONITORING WELL / PIEZOMETER
STORM SEWER MANHOLE
MANHOLE ABANDONED AND PLUGGED
STORM SEWER SAMPLE LOCATION NOT EXCEEDING CRITERIA
STORM SEWER SAMPLE LOCATION EXCEEDING CRITERIA
STORM SEWER PIPE PLUG
STORM SEWER
PROPERTY BOUNDARY
FORMER BUILDING
(800.93) GROUND ELEVATION
(798.00) INVERT ELEVATION
10 ng/L - PFOS CONTOURS

Notes

NM indicates not measured.
Locations that do not have an invert measurement only the ground elevation is listed.
Concentrations in ng/L.
Dup = Duplicate sample.
Concentrations above theEGLE Rule 57 Surface Water Quality Values (12 ng/l for PFOS) are highlighted in yellow.
Results shown are all detected results at a location.

0 325 650
Feet

ADDITIONAL STORM SEWER / MANHOLE SAMPLE LOCATIONS

Racer Trust
Coldwater Road
Flint, Michigan

FIGURE 02

O'BRIEN & GERE ENGINEERS, INC.
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PROJECT: 76980\75178.Coldwater-2020\Docs\Reports\2020 PFAS Investigations\Figures\2- Figure 2 - Additional Storm Sewer Manhole Sample Locations.mxd
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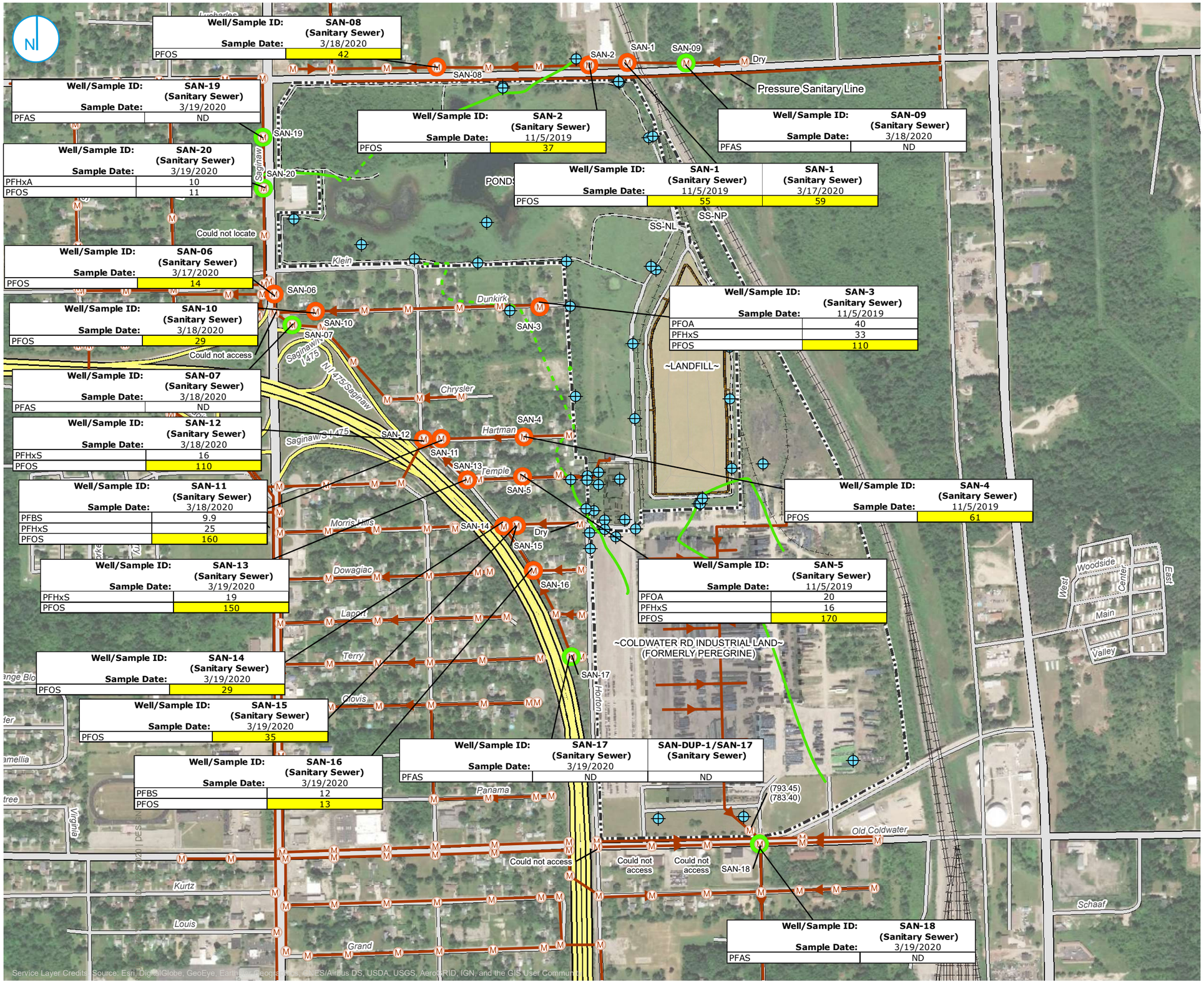

- MONITORING WELL / PIEZOMETER
- SANITARY SEWER MANHOLE
- MANHOLE ABANDONED AND PLUGGED
- SANITARY SEWER SAMPLE LOCATION NOT EXCEEDING CRITERIA
- SANITARY SEWER SAMPLE LOCATION EXCEEDING CRITERIA
- SANITARY SEWER
- PROPERTY BOUNDARY
- FORMER BUILDING
- 10 ng/L - PFOS CONTOURS

Notes

NM indicates not measured.
Locations that do not have an invert measurement only the ground elevation is listed.
Concentrations in ng/L.
Dup = Duplicate sample.
Concentrations above theEGLE Rule 57 Surface Water Quality Values (12 ng/l for PFOS) are highlighted in yellow.
Results shown are all detected results at a location.

0 325 650 Feet

ADDITIONAL SANITARY SEWER / MANHOLE SAMPLE LOCATIONS

Racer Trust
Coldwater Road
Flint, Michigan

FIGURE 03

O'BRIEN & GERE ENGINEERS, INC.
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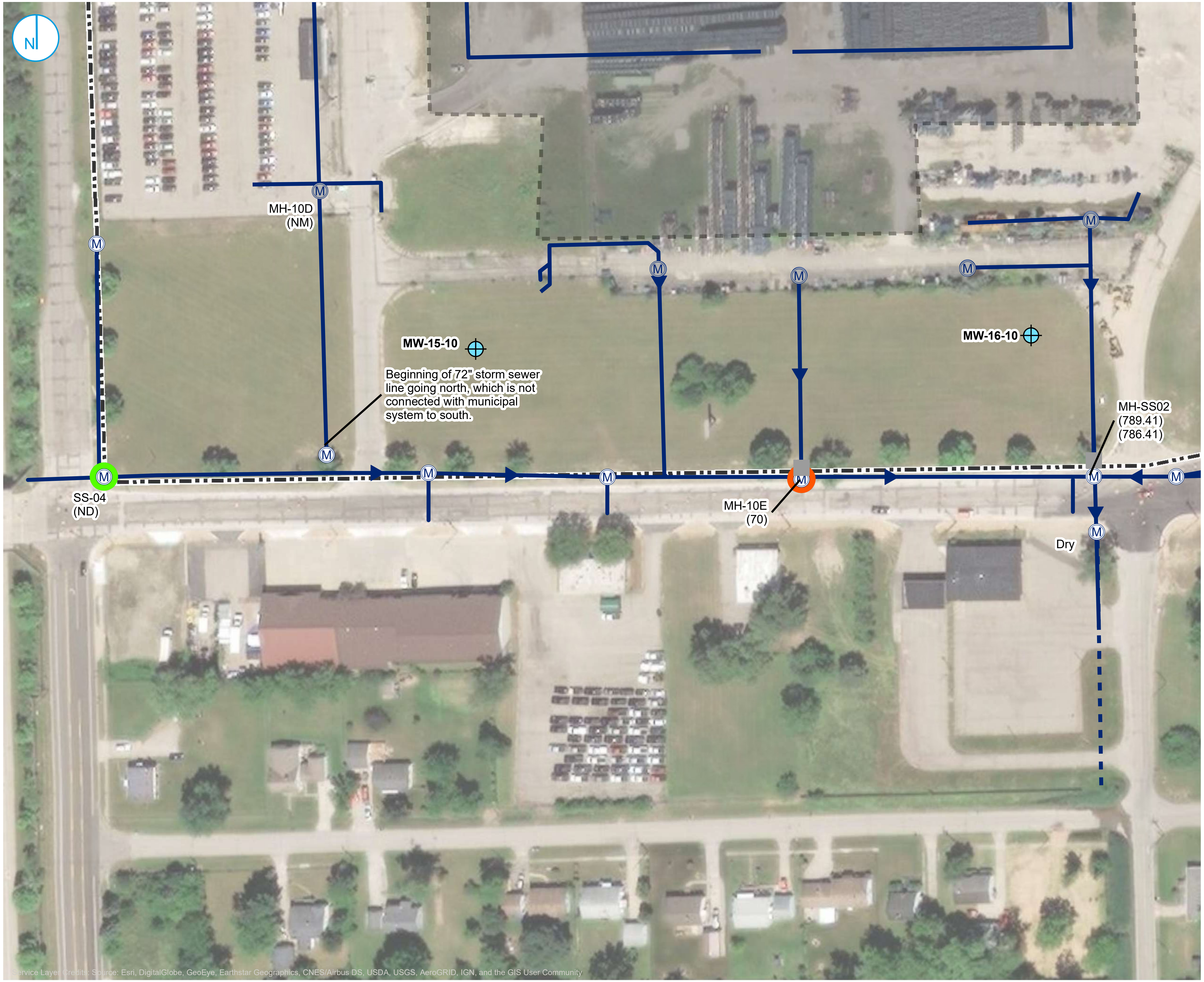
I:\Racer-Trust\15388\75178.Coldwater-2020\Docs\Reports\2020 PFAS Investigations\Figures\3 - Figure 3 - Additional Sanitary Sewer Manhole Sample Locations.mxd



MONITORING WELL / PIEZOMETER
STORM SEWER MANHOLE
MANHOLE ABANDONED AND PLUGGED
STORM SEWER SAMPLE LOCATION NOT EXCEEDING CRITERIA
STORM SEWER SAMPLE LOCATION EXCEEDING CRITERIA
STORM SEWER PIPE PLUG
STORM SEWER
PROPERTY BOUNDARY
FORMER BUILDING
(800.93) GROUND ELEVATION
(798.00) INVERT ELEVATION

Notes
Locations that do not have an invert measurement only the ground elevation is listed.
Concentrations in ng/L.

0 50 100 Feet

STORM SEWER / MANHOLE SAMPLE LOCATIONS ALONG COLDWATER ROAD

Racer Trust
Coldwater Road
Flint, Michigan

FIGURE 04

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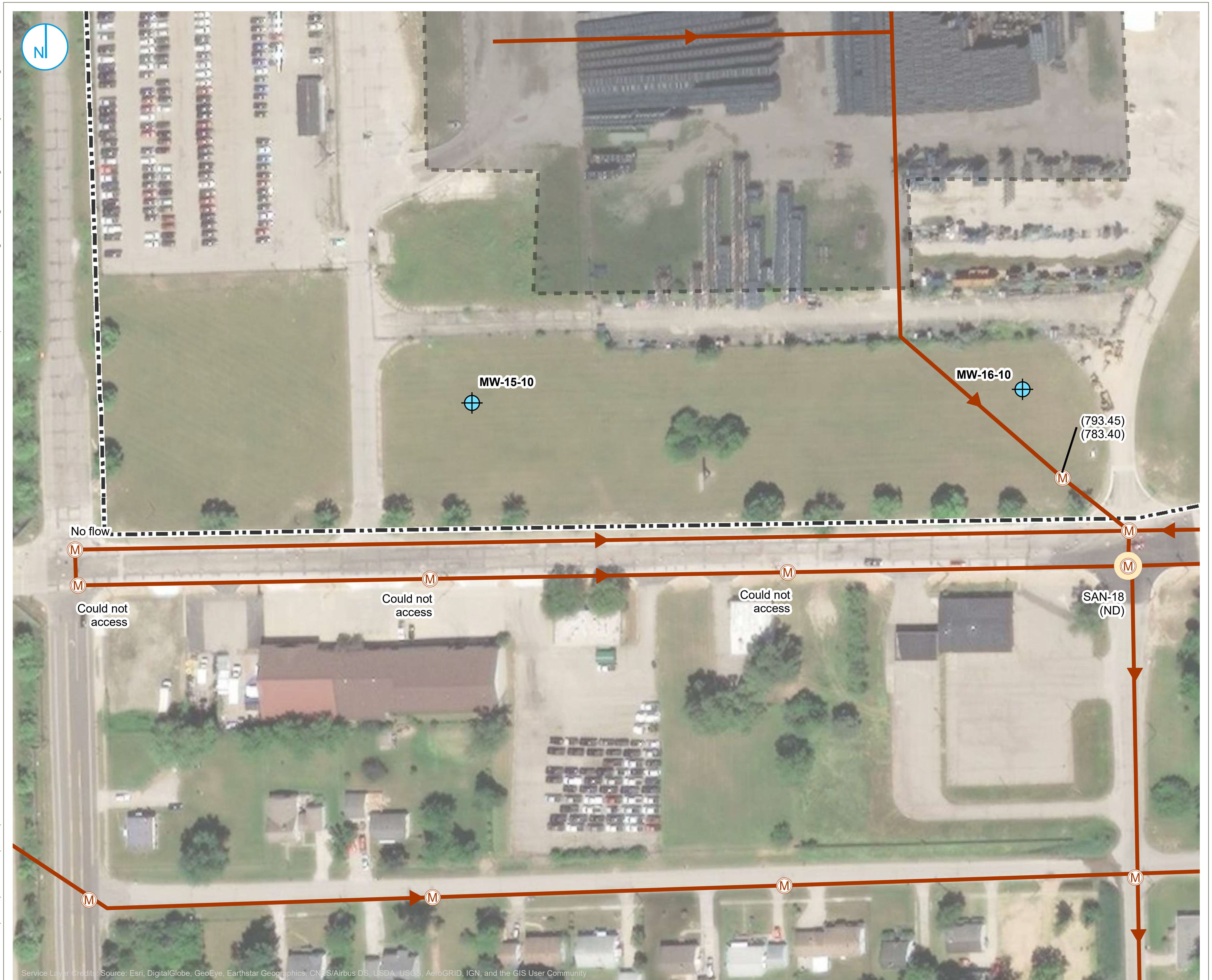

MONITORING WELL / PIEZOMETER
SANITARY SEWER MANHOLE
SANITARY SEWER SAMPLE LOCATION NOT EXCEEDING CRITERIA
SANITARY SEWER
PROPERTY BOUNDARY
FORMER BUILDING

Notes

Locations that do not have an invert measurement only the ground elevation is listed.
Concentrations in ng/L.

0 50 100 Feet

SANITARY SEWER / MANHOLE SAMPLE LOCATIONS ALONG COLDWATER ROAD

Racer Trust
Coldwater Road
Flint, Michigan

FIGURE 05

O'BRIEN & GERE ENGINEERS, INC.
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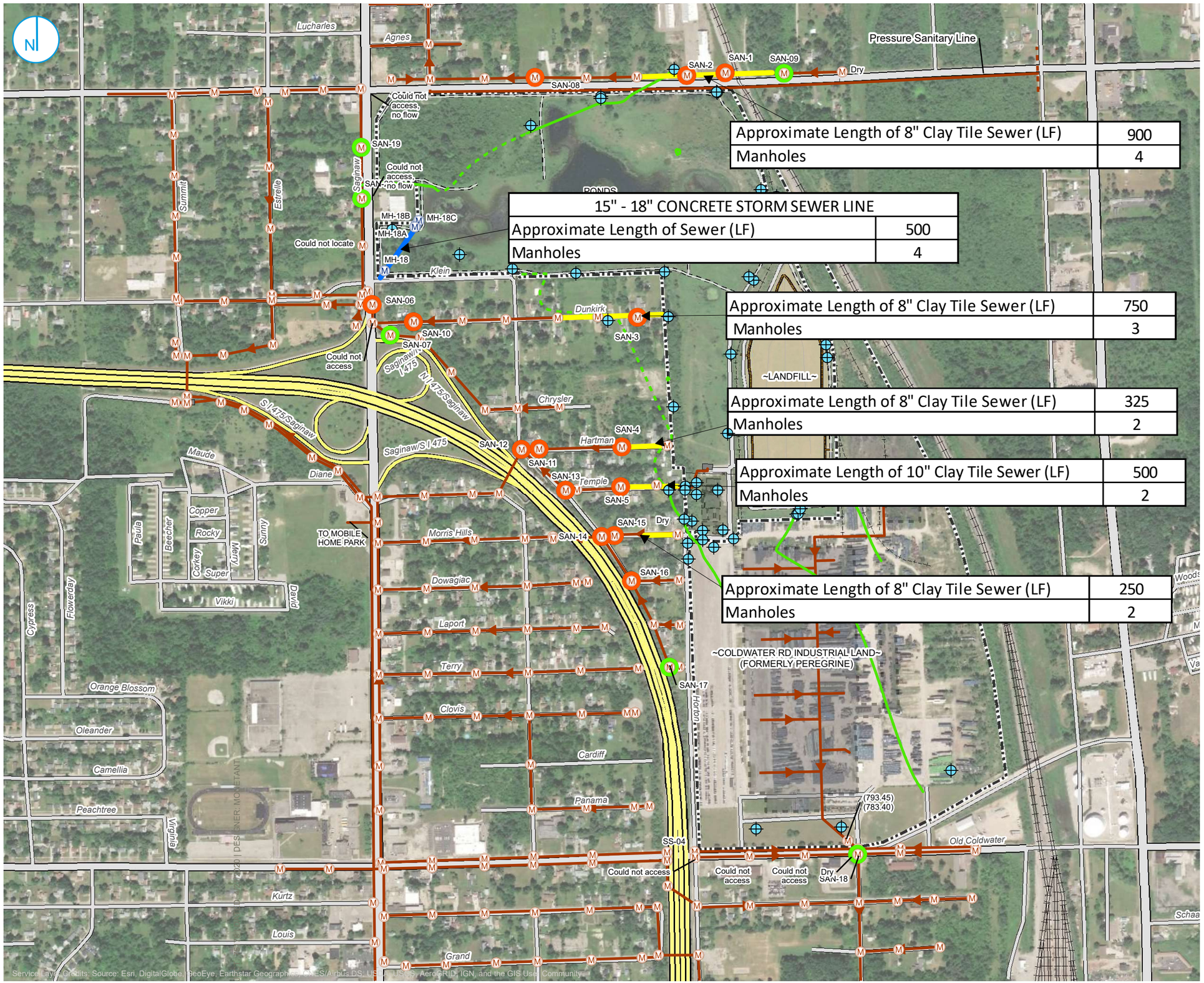
I:\Racer-Trust.15388\75178.Coldwater-2020\Docs\Reports\2020 PFAS Investigations\Figures\5 - Figure 5 - Sanitary Sewer Along Coldwater Rd.mxd



Approximate Length of 8" Clay Tile Sewer (LF)	900
Manholes	4

15" - 18" CONCRETE STORM SEWER LINE	
Approximate Length of Sewer (LF)	500
Manholes	4

Approximate Length of 8" Clay Tile Sewer (LF)	750
Manholes	3

Approximate Length of 8" Clay Tile Sewer (LF)	325
Manholes	2

Approximate Length of 10" Clay Tile Sewer (LF)	500
Manholes	2

Approximate Length of 8" Clay Tile Sewer (LF)	250
Manholes	2

- MONITORING WELL / PIEZOMETER
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- MANHOLE ABANDONED AND PLUGGED
- SANITARY SEWER SAMPLE LOCATION NOT EXCEEDING CRITERIA
- SANITARY SEWER SAMPLE LOCATION EXCEEDING CRITERIA
- SANITARY SEWER
- PROPERTY BOUNDARY
- FORMER BUILDING
- 10 ng/L - PFOS CONTOURS
- PROPOSED SANITARY SEWER TO BE LINED
- PROPOSED EXTENSION OF SANITARY SEWER TO BE LINED
- PROPOSED STORM SEWER TO BE LINED

Notes

NM indicates not measured.
Locations that do not have an invert measurement only the ground elevation is listed.
EGLE Rule 57 Surface Water Quality Values (12 ng/l for PFOS)

0 325 650
Feet

SANITARY SEWERS BEING INSPECTED

Racer Trust
Coldwater Road
Flint, Michigan

FIGURE 06

O'BRIEN & GERE ENGINEERS, INC.
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TABLE

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TABLE 1
RACER Trust - Coldwater Road Site
Per-and Polyfluroalkyl Substances Sampling Results - March 2020

Coldwater Road - Monitoring Well Groundwater Samples

Perfluorinated Compound / Well/Sample ID: / Approximate Depth to Water: / Sample Date:	OBG MW-26 6/6/2019	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	EGLE Draft Drinking Water Maximum Contaminant Levels (MCLs)
Perfluorobutanoic Acid (PFBA)	**25**	<19	<19	<19	<20	<20	<19	<19	--
Perfluoropentanoic Acid (PFPeA)	**79**	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorohexanoic Acid (PFHxA)	**64**	<9.3	<9.5	**13**	<9.9	<9.8	<9.7	<9.6	**400,000**
Perfluorobutane Sulfonic Acid (PFBS)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	**420**
Perfluoroheptanoic Acid (PFHpA)	**11**	<9.3	<9.5	**11**	<9.9	<9.8	<9.7	<9.6	--
Perfluoropentane Sulfonic Acid (PFPeS)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorooctanoic Acid (**PFOA**)	**41**	<9.3	<9.5	**77**	<9.9	<9.8	<9.7	<9.6	**8**
Perfluorohexane Sulfonic Acid (PFHxS)	**40**	**19**	<9.5	**45**	<9.9	<9.8	<9.7	<9.6	**51**
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	**36**	**14**	<9.5	**37**	<9.9	<9.8	<9.7	<9.6	--
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorononanoic Acid (PFNA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	**6**
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluoroheptane Sulfonic Acid (PFHpS)	**18**	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorodecanoic Acid (PFDA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorooctane Sulfonic Acid (**PFOS**)	**490**	**280**	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	**16**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	**170**	**160**	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	**320**	**110**	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluoroundecanoic Acid (PFUnDA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorononane Sulfonic Acid (PFNS)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorododecanoic Acid (PFDoDA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorodecane Sulfonic Acid (PFDS)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorotridecanoic Acid (PFTrDA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorooctane Sulfonamide (FOSA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Perfluorotetradecanoic Acid (PFTeDA)	<9.9	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	--
Hexafluoropropylene oxide dimer (HFPO-DA)	--	<9.3	<9.5	<9.5	<9.9	<9.8	<9.7	<9.6	**370**
Combined PFOA - PFOS	**531.0**	**280.0**	**0.0**	**77.0**	**0.0**	**0.0**	**0.0**	**0.0**	--
Total Other Per-and Polyfluroalkyl Substances	**237.0**	**19.0**	**0.0**	**69.0**	**0.0**	**0.0**	**0.0**	**0.0**	--

Coldwater Road - Storm Water Samples

Perfluorinated Compound / Well/Sample ID: / Sample Date:	SS-03 (Storm Sewer) 3/17/2020	SS-04 (Storm Sewer) 3/19/2020	SS-DUP-2/SS-04 (Storm Sewer) 3/19/2020	SS-05 (Storm Sewer) 3/19/2020	MH-10E (Storm Sewer) 3/19/2020
Perfluorobutanoic Acid (PFBA)	<20	<100	<100	<97	<98
Perfluoropentanoic Acid (PFPeA)	<9.8	<10	<10	<9.7	<9.8
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	<9.8	<10	<10	<9.7	<9.8
Perfluorohexanoic Acid (PFHxA)	<9.8	<10	<10	<9.7	<9.8
Perfluorobutane Sulfonic Acid (PFBS)	<9.8	<10	<10	<9.7	<9.8
Perfluoroheptanoic Acid (PFHpA)	<9.8	<10	<10	<9.7	<9.8
Perfluoropentane Sulfonic Acid (PFPeS)	<9.8	<10	<10	<9.7	<9.8
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	<9.8	<10	<10	<9.7	<9.8
Perfluorooctanoic Acid (**PFOA**)	<9.8	<10	<10	<9.7	<9.8
Perfluorohexane Sulfonic Acid (PFHxS)	<9.8	<10	<10	<9.7	<9.8
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	<9.8	<10	<10	<9.7	<9.8
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	<9.8	<10	<10	<9.7	<9.8
Perfluorononanoic Acid (PFNA)	<9.8	<10	<10	<9.7	<9.8
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	<9.8	<10	<10	<9.7	<9.8
Perfluoroheptane Sulfonic Acid (PFHpS)	<9.8	<10	<10	<9.7	<9.8
Perfluorodecanoic Acid (PFDA)	<9.8	<10	<10	<9.7	<9.8
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	<9.8	<10	<10	<9.7	<9.8
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	<9.8	<10	<10	<9.7	<9.8
Perfluorooctane Sulfonic Acid (**PFOS**)	<9.8	<10	<10	<9.7	**70**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	<9.8	<10	<10	<9.7	**49**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	<9.8	<10	<10	<9.7	**19**
Perfluoroundecanoic Acid (PFUnDA)	<9.8	<10	<10	<9.7	<9.8
Perfluorononane Sulfonic Acid (PFNS)	<9.8	<10	<10	<9.7	<9.8
Perfluorododecanoic Acid (PFDoDA)	<9.8	<10	<10	<9.7	<9.8
Perfluorodecane Sulfonic Acid (PFDS)	<9.8	<10	<10	<9.7	<9.8
Perfluorotridecanoic Acid (PFTrDA)	<9.8	<10	<10	<9.7	<9.8
Perfluorooctane Sulfonamide (FOSA)	<9.8	<10	<10	<9.7	<9.8
Perfluorotetradecanoic Acid (PFTeDA)	<9.8	<10	<10	<9.7	<9.8
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<9.8	<10	<10	<9.7	<9.8
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	<9.8	<10	<10	<9.7	<9.8
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	<9.8	<10	<10	<9.7	<9.8
Hexafluoropropylene oxide dimer (HFPO-DA)	<9.8	<10	<10	<9.7	<9.8
Total Other Per-and Polyfluroalkyl Substances	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Coldwater Road - Sanitary Sewer Samples

Perfluorinated Compound / Well/Sample ID: / Sample Date:	SAN-1 (Sanitary Sewer) 11/5/2019	SAN-1 (Sanitary Sewer) 3/17/2020	SAN-2 (Sanitary Sewer) 11/5/2019	SAN-3 (Sanitary Sewer) 11/5/2019	SAN-4 (Sanitary Sewer) 11/5/2019	SAN-5 (Sanitary Sewer) 11/5/2019	EGLE Part 4, Water Quality Standards, Rule 57 Water Quality Value
Perfluorobutanoic Acid (PFBA)	<20	<21	<20	<19	<20	<20	--
Perfluoropentanoic Acid (PFPeA)	<9.9	<11	<9.9	<9.7	<10	<10	--
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorohexanoic Acid (PFHxA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorobutane Sulfonic Acid (PFBS)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluoroheptanoic Acid (PFHpA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluoropentane Sulfonic Acid (PFPeS)	<9.9	<11	<9.9	<9.7	<10	<10	--
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorooctanoic Acid (**PFOA**)	<9.9	<11	<9.9	<9.7	<10	<10	**12,000**
Perfluorohexane Sulfonic Acid (PFHxS)	<9.9	<11	<9.9	**40**	<10	**20**	--
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	<9.9	<11	<9.9	**33**	<10	**16**	--
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorononanoic Acid (PFNA)	<9.9	<11	<9.9	<9.7	<10	<10	--
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluoroheptane Sulfonic Acid (PFHpS)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorodecanoic Acid (PFDA)	<9.9	<11	<9.9	<9.7	<10	<10	--
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	<9.9	<11	<9.9	<9.7	<10	<10	--
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorooctane Sulfonic Acid (**PFOS**)	**55**	**59**	**37**	**110**	**61**	**170**	**12**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	**18**	**18**	**11**	**21**	**17**	**69**	--
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	**36**	**42**	**23**	**85**	**33**	**100**	--
Perfluoroundecanoic Acid (PFUnDA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorononane Sulfonic Acid (PFNS)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorododecanoic Acid (PFDoDA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorodecane Sulfonic Acid (PFDS)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorotridecanoic Acid (PFTrDA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorooctane Sulfonamide (FOSA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Perfluorotetradecanoic Acid (PFTeDA)	<9.9	<11	<9.9	<9.7	<10	<10	--
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<9.9	<11	<9.9	<9.7	<10	<10	--
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	<9.9	<11	<9.9	<9.7	<10	<10	--
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Hexafluoropropylene oxide dimer (HFPO-DA)	<9.9	<11	<9.9	<9.7	<10	<10	--
Total Other Per-and Polyfluroalkyl Substances	**0.0**	**0.0**	**0.0**	**40.0**	**0.0**	**20.0**	--

see page 3 for notes.

Ramboll

TABLE 1
RACER Trust - Coldwater Road Site
Per-and Polyfluroalkyl Substances Sampling Results - March 2020

Coldwater Road - Sanitary Sewer Samples

Perfluorinated Compound / Well/Sample ID: / Sample Date:	SAN-06 (Sanitary Sewer) 3/17/2020	SAN-07 (Sanitary Sewer) 3/18/2020	SAN-08 (Sanitary Sewer) 3/18/2020	SAN-09 (Sanitary Sewer) 3/18/2020	SAN-10 (Sanitary Sewer) 3/18/2020	SAN-11 (Sanitary Sewer) 3/18/2020	SAN-12 (Sanitary Sewer) 3/18/2020	SAN-13 (Sanitary Sewer) 3/19/2020	SAN-14 (Sanitary Sewer) 3/19/2020	EGLE Part 4, Water Quality Standards, Rule 57 Water Quality Value
Perfluorobutanoic Acid (PFBA)	<21	<21	<20	<19	<20	<19	<20	<100	<100	--
Perfluoropentanoic Acid (PFPeA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorohexanoic Acid (PFHxA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorobutane Sulfonic Acid (PFBS)	<10	<11	<10	<9.7	<10	**9.9**	<10	<10	<10	--
Perfluoroheptanoic Acid (PFHpA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluoropentane Sulfonic Acid (PFPeS)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorooctanoic Acid (**PFOA**)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	**12,000**
Perfluorohexane Sulfonic Acid (PFHxS)	<10	<11	<10	<9.7	<10	**25**	**16**	**19**	<10	--
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	<10	<11	<10	<9.7	<10	**21**	**12**	**16**	<10	--
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorononanoic Acid (PFNA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluoroheptane Sulfonic Acid (PFHpS)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorodecanoic Acid (PFDA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorooctane Sulfonic Acid (**PFOS**)	**14**	<11	**42**	<9.7	**29**	**160**	**110**	**150**	**29**	**12**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	<10	<11	**12**	<9.7	<10	**62**	**48**	**75**	<10	--
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	<10	<11	**30**	<9.7	**24**	**100**	**66**	**75**	**20**	--
Perfluoroundecanoic Acid (PFUnDA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorononane Sulfonic Acid (PFNS)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorododecanoic Acid (PFDoDA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorodecane Sulfonic Acid (PFDS)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorotridecanoic Acid (PFTrDA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorooctane Sulfonamide (FOSA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Perfluorotetradecanoic Acid (PFTeDA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Hexafluoropropylene oxide dimer (HFPO-DA)	<10	<11	<10	<9.7	<10	<9.7	<10	<10	<10	--
Total Other Per-and Polyfluroalkyl Substances	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**34.9**	**16.0**	**19.0**	**0.0**	--

Coldwater Road - Sanitary Sewer Samples

Perfluorinated Compound / Well/Sample ID: / Sample Date:	SAN-15 (Sanitary Sewer) 3/19/2020	SAN-16 (Sanitary Sewer) 3/19/2020	SAN-17 (Sanitary Sewer) 3/19/2020	SAN-DUP-1/SAN-17 (Sanitary Sewer) 3/19/2020	SAN-18 (Sanitary Sewer) 3/19/2020	SAN-19 (Sanitary Sewer) 3/19/2020	SAN-20 (Sanitary Sewer) 3/19/2020	EGLE Part 4, Water Quality Standards, Rule 57 Water Quality Value
Perfluorobutanoic Acid (PFBA)	<98	<100	<96	<99	<99	<100	<100	--
Perfluoropentanoic Acid (PFPeA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorohexanoic Acid (PFHxA)	<9.8	<10	<9.6	<9.9	<9.9	<10	**10**	--
Perfluorobutane Sulfonic Acid (PFBS)	<9.8	**12**	<9.6	<9.9	<9.9	<10	<10	--
Perfluoroheptanoic Acid (PFHpA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluoropentane Sulfonic Acid (PFPeS)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorooctanoic Acid (**PFOA**)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	**12,000**
Perfluorohexane Sulfonic Acid (PFHxS)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorononanoic Acid (PFNA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluoroheptane Sulfonic Acid (PFHpS)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorodecanoic Acid (PFDA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorooctane Sulfonic Acid (**PFOS**)	**35**	**13**	<9.6	<9.9	<9.9	<10	**11**	**12**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	**12**	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	**20**	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluoroundecanoic Acid (PFUnDA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorononane Sulfonic Acid (PFNS)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorododecanoic Acid (PFDoDA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorodecane Sulfonic Acid (PFDS)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorotridecanoic Acid (PFTrDA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorooctane Sulfonamide (FOSA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Perfluorotetradecanoic Acid (PFTeDA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Hexafluoropropylene oxide dimer (HFPO-DA)	<9.8	<10	<9.6	<9.9	<9.9	<10	<10	--
Total Other Per-and Polyfluroalkyl Substances	**0.0**	**12.0**	**0.0**	**0.0**	**0.0**	**0.0**	**10.0**	--

see page 3 for notes.

TABLE 1
RACER Trust - Coldwater Road Site
Per-and Polyfluroalkyl Substances Sampling Results - March 2020

Coldwater Road - Quality Assurance / Quality Control Samples

Perfluorinated Compound	Well/Sample ID:	Field Blank-031620	Field Blank-031820	Field Blank-031920	EGLE Draft Drinking Water Maximum Contaminant Levels (MCLs)
	Sample Date:	*3/16/2020*	*3/18/2020*	*3/19/2020*	
Perfluorobutanoic Acid (PFBA)		<21	<21	<100	--
Perfluoropentanoic Acid (PFPeA)		<10	<10	<10	--
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)		<10	<10	<10	--
Perfluorohexanoic Acid (PFHxA)		<10	<10	<10	**400,000**
Perfluorobutane Sulfonic Acid (PFBS)		<10	<10	<10	**420**
Perfluoroheptanoic Acid (PFHpA)		<10	<10	<10	--
Perfluoropentane Sulfonic Acid (PFPeS)		<10	<10	<10	--
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		<10	<10	<10	--
Perfluorooctanoic Acid (**PFOA**)		<10	<10	<10	**8**
Perfluorohexane Sulfonic Acid (PFHxS)		<10	<10	<10	**51**
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)		<10	<10	<10	--
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)		<10	<10	<10	--
Perfluorononanoic Acid (PFNA)		<10	<10	<10	**6**
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		<10	<10	<10	--
Perfluoroheptane Sulfonic Acid (PFHpS)		<10	<10	<10	--
Perfluorodecanoic Acid (PFDA)		<10	<10	<10	--
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)		<10	<10	<10	--
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		<10	<10	<10	--
Perfluorooctane Sulfonic Acid (**PFOS**)		<10	<10	<10	**16**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)		<10	<10	<10	--
Perfluorooctane Sulfonic Acid (**PFOS**-BR)		<10	<10	<10	--
Perfluoroundecanoic Acid (PFUnDA)		<10	<10	<10	--
Perfluorononane Sulfonic Acid (PFNS)		<10	<10	<10	--
Perfluorododecanoic Acid (PFDoDA)		<10	<10	<10	--
Perfluorodecane Sulfonic Acid (PFDS)		<10	<10	<10	--
Perfluorotridecanoic Acid (PFTrDA)		<10	<10	<10	--
Perfluorooctane Sulfonamide (FOSA)		<10	<10	<10	--
Perfluorotetradecanoic Acid (PFTeDA)		<10	<10	<10	--
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		<10	<10	<10	--
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)		<10	<10	<10	--
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		<10	<10	<10	--
Hexafluoropropylene oxide dimer (HFPO-DA)		<10	<10	<10	**370**
Total Other Per-and Polyfluroalkyl Substances		**0.0**	**0.0**	**0.0**	--

Notes
1) Concentrations in ng/L.
2) < = Not detected at specified reporting limit.
3) -- = Not analyzed/No criteria.
4) Dup = Duplicate sample.
5) BWS = Below water surface.
6) Groundwater results are compared to the proposed EGLE Draft Drinking Water Maximum Contaminant Levels (MCLs). Concentrations above the criteria are highlighted in yellow.
7) Storm water and sanitary sewer results are compared to the EGLE Part 4, Water Quality Standard, Rule 57 Water Quality Value. Concentrations above the criteria are highlighted in yellow.

ATTACHMENT A – SOIL BORING LOGS

RAMBOLL

BORING LOG

WELL NO. SBP-61 / OBGMW-28

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

SHEET 1 OF 1

JOB NO. 75178

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

GROUND ELEV.

DATUM

DATE STARTED 3/16/2020

DATE FINISHED 3/16/2020

	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)	Well Graphic	REMARKS
0					moist to wet, gray to light gray, fine gravel and coarse to fine SAND, little to some silt and clay		SM-GM		0		
0.5					moist, tan to light brown to slightly reddish brown, medium dense, medium to fine SAND, trace to little silt						
2	SS	SS-1		5.0'/ 3.0'					0		
4									0		
6							SP-SM		0		
8	SS	SS-2		5.0'/ 4.8'					0		
10					same as above		SP-SM		0		
12	SS	SS-3		5.0'/ 5.0'	becomes wet		SP-SM		0		
14					1" silty seam at 13.8'		SP-SM		0		
15.0					End of Borehole at 15.0'.						
16											
18											
20											
22											
24											

Notes: Boring location north of Site along East Stanley Road. Monitoring well installed.

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

RAMBOLL

BORING LOG

BORING NO. SBP-66

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

SHEET 1 OF 1

JOB NO. 75178

DRILLING CONTRACTOR: JSS
DRILLER: Rob Scott
PURPOSE: PFAS Groundwater Investigation
DRILLING METHOD: Direct Push
DRILL RIG TYPE: Geoprobe 7822DT

GROUND ELEV.

DATUM

DATE STARTED 3/16/2020

DATE FINISHED 3/16/2020

	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				dry, dark yellowish brown, sandy SILT, roots, grass, top soil				0	
				0.6					
				moist, moderate yellowish brown, silty sandy CLAY		SP-SC			
2				2.0					
	SS-1		5.0'/ 3.3'	moist, fine to medium SAND				0	
				2.2		SP-SC			
				moist to wet, moderate yellowish brown, clayey SAND					
4				2.8					
				moist to wet, moderate yellowish brown, sandy CLAY, light gray mottling, trace gravel				0	
				5.0					
6				wet, moderate yellowish brown, clayey silty SAND		SM		0	
				7.0					
	SS-2		5.0'/ 5.0'	moist, moderate yellowish brown, silty CLAY, little sand, trace gravel					
8				7.9					
				fine to medium SAND				0	
				8.0		CL			
10				moist, light gray, silty CLAY, trace sand and gravel, stiff to very stiff, non-plastic		CL		0	
				same as above					
12	SS-3		5.0'/ 5.0'			CL		0	
14								0	
				moist, light gray, silty CLAY, trace gravel, very stiff					
16								0	
18	SS-4		5.0'/ 5.0'			CL		0	
20				less stiff		CL		0	
				20.0					
22				End of Borehole at 20.0'.					
24									

Notes: Boring location north of Klien Road along westside of Sagniaw Road. Temporary well screened 3-7 fbg.

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

BORING LOG

BORING NO. SBP-67

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

SHEET 1 OF 1

JOB NO. 75178

DRILLING CONTRACTOR: JSS
DRILLER: Rob Scott
PURPOSE: PFAS Groundwater Investigation
DRILLING METHOD: Direct Push
DRILL RIG TYPE: Geoprobe 7822DT

GROUND ELEV.

DATUM

DATE STARTED 3/16/2020

DATE FINISHED 3/16/2020

	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				dry, light gray, silty sandy CLAY, trace gravel (fill)				0	
				dry, moderate yellowish brown, clayey SAND, trace gravel (fill)					
				1.6					
2				dry, dark yellowish brown, sandy SILT, trace gravel		MLS		0	
	SS-1		5.0'/ 3.1'	2.3					
				dry, moderate yellowish brown, silty CLAY, little sand, rust and light gray mottling, stiff		CL			
4						CL		0	
				same as above		CL			
6								0	
				coal pieces					
	SS-2		5.0'/ 5.0'						
8				moist, moderate yellowish brown, silty CLAY, stiff to very stiff, low to non plastic				0	
						CL			
10				same as above				0	
						CL			
12	SS-3		5.0'/ 5.0'					0	
				light gray		CL			
				13.6					
14				wet, light gray, SILT		ML		0	
				14.3					
				dry, light gray, silty CLAY, trace gravel, very stiff, low to non plastic					
						CL			
16								0	
				17.4					
	SS-4		5.0'/ 5.0'	moist, light gray, clayey SILT, little sand		ML			
18				18.1				0	
				wet, very fine SAND		SP			
				18.4					
				silty CLAY		CL			
				18.6					
				fine to medium SAND		SP			
				18.8					
20				19.5					
				moist, light gray, silty very fine SAND		MLS			
				20.0					
				moist, light gray, silty CLAY, very stiff to hard, trace gravel		CL		0	
				End of Borehole at 20.0'.					
22									
24									

Notes: Boring location north of Klien Road along westside of Sagniaw Road. Temporary well screened 15-20 fbg.

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

BORING LOG

BORING NO. SBP-68

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

SHEET 1 OF 1

JOB NO. 75178

DRILLING CONTRACTOR: JSS
DRILLER: Rob Scott
PURPOSE: PFAS Groundwater Investigation
DRILLING METHOD: Direct Push
DRILL RIG TYPE: Geoprobe 7822DT

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

GROUND ELEV.

DATUM

DATE STARTED 3/16/2020

DATE FINISHED 3/16/2020

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				dry to moist, dark yellowish brown, silty SAND (fill)				0	
2	SS-1		5.0'/ 4.0'	dry, moderate yellowish brown, silty CLAY, trace gravel, very stiff, non plastic (fill)				0	
				gravel 1.8					
				moist, dark yellowish brown, silty CLAY 2.3		CL		0	
4				moist to wet, moderate yellowish brown, silty SAND		MLS		0	
				5.0					
6	SS-2		5.0'/ 4.0'	moist, moderate yellowish brown, silty CLAY, trace gravel, light gray mottling		CL		0	
				7.1					
8				moist to wet, fine to medium SAND 7.8		SP		0	
				moist to wet, silty CLAY 8.1		CL			
				moist to wet, moderate yellowish brown, fine to medium SAND		SP			
10				10.0				0	
				End of Borehole at 10.0'.					
12									
14									
16									
18									
20									
22									
24									

Notes: Boring location north of Klien Road along westside of Sagniaw Road. Temporary well screened 5-10 fbg.

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

RAMBOLL

BORING LOG

BORING NO. SBP-69

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

SHEET 1 OF 1

JOB NO. 75178

DRILLING CONTRACTOR: JSS
DRILLER: Rob Scott
PURPOSE: PFAS Groundwater Investigation
DRILLING METHOD: Direct Push
DRILL RIG TYPE: Geoprobe 7822DT

GROUND ELEV.

DATUM

DATE STARTED 3/16/2020

DATE FINISHED 3/16/2020

	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 yellowish brown, silty SAND, roots, grass, top soil (0.6)				0	
				moist, moderate yellowish brown, very fine to fine SAND (1.1)		SP			
2	SS-1		5.0'/ 3.2'	moist, moderate yellowish brown, sandy CLAY, rust mottling (1.6)		CLS		0	
				moist, moderate yellowish brown, very fine to fine SAND (1.9)		SP			
4				moist, moderate yellowish brown, sandy CLAY (2.6)		CLS		0	
				moist, moderate yellowish brown, silty CLAY (5.0)		CL			
6				moist, moderate yellowish brown, clayey SILT, some sand, trace gravel (6.8)		ML-CL		0	
	SS-2		5.0'/ 4.7'	moist, moderate yellowish brown, silty CLAY (7.0)		CL			
8				wet, moderate yellowish brown, medium to fine SAND, little coarse sand, trace gravel at 7' (7.8)		SP		0	
				moist, moderate yellowish brown, silty CLAY, trace gravel, very stiff, non plastic		CL			
10				(10.0)		CL		0	
				moist, moderate yellowish brown, sandy CLAY, little gravel (10.7)		CLS			
12	SS-3		5.0'/ 5.0'	moist, light gray, silty CLAY (11.7)		CL		0	
				moist, light gray, clayey SILT, some sand 12.1 to 12.3', trace gravel		ML-CL			
14				(14.0)				0	
				moist, light gray, silty CLAY (15.0)		CL			
16				End of Borehole at 15.0'.					
18									
20									
22									
24									

Notes: Boring location north of Klien Road along eastside of Sagniaw Road. Temporary well screened 5-10 fbg.

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

ATTACHMENT B – LABORATORY ANALYTICAL REPORT

Analytical Laboratory Report

Report ID: S12771.01(01)
Generated on 03/24/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

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

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): S12771.01-S12771.06
Project: RACER Coldwater Rd.
Collected Date(s): 03/16/2020 - 03/17/2020
Submitted Date/Time: 03/17/2020 14:30
Sampled by: Kevin Schneider
P.O. #: 11900504

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)

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

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
S12771.01	Field Blank - 031620	Liquid	03/16/20 13:20
S12771.02	SBP-66-GW	Groundwater	03/16/20 13:25
S12771.03	SBP-68-GW	Groundwater	03/16/20 15:10
S12771.04	SBP-DUP-9	Groundwater	03/16/20 00:01
S12771.05	SBP-67-GW	Groundwater	03/17/20 08:50
S12771.06	SBP-69-GW	Groundwater	03/17/20 10:00

Analytical Laboratory Report

Lab Sample ID: S12771.01
Sample Tag: Field Blank - 031620
Collected Date/Time: 03/16/2020 13:20
Matrix: Liquid
COC Reference: 129293

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/18/20 00:03, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	21		ng/L	2.06	375-22-4	
PFPeA*	Not detected	10		ng/L	2.06	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.06	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.06	307-24-4	
PFBS*	Not detected	10		ng/L	2.06	375-73-5	
PFHpA*	Not detected	10		ng/L	2.06	375-85-9	
PFPeS*	Not detected	10		ng/L	2.06	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.06	27619-97-2	
PFOA*	Not detected	10		ng/L	2.06	335-67-1	
PFHxS*	Not detected	10		ng/L	2.06	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2.06	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.06	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.06	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.06	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.06	375-92-8	
PFDA*	Not detected	10		ng/L	2.06	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.06	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2.06	2991-50-6	
PFOS*	Not detected	10		ng/L	2.06	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2.06	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2.06	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.06	2058-94-8	
PFNS*	Not detected	10		ng/L	2.06	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2.06	307-55-1	
PFDS*	Not detected	10		ng/L	2.06	335-77-3	
PFTrDA*	Not detected	10		ng/L	2.06	72629-94-8	
FOSA*	Not detected	10		ng/L	2.06	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.06	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.06	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.06	756426-58-1	
ADONA*	Not detected	10		ng/L	2.06	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.06	13252-13-6	

Lab Sample ID: S12771.02
Sample Tag: SBP-66-GW
Collected Date/Time: 03/16/2020 13:25
Matrix: Groundwater
COC Reference: 129293

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 10:49, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.9	375-22-4	
PFPeA*	Not detected	9.5		ng/L	1.9	2706-90-3	
4:2 FTSA*	Not detected	9.5		ng/L	1.9	757124-72-4	
PFHxA*	13	9.5		ng/L	1.9	307-24-4	
PFBS*	Not detected	9.5		ng/L	1.9	375-73-5	
PFHpA*	11	9.5		ng/L	1.9	375-85-9	
PFPeS*	Not detected	9.5		ng/L	1.9	2706-91-4	
6:2 FTSA*	Not detected	9.5		ng/L	1.9	27619-97-2	
PFOA*	77	9.5		ng/L	1.9	335-67-1	
PFHxS*	45	9.5		ng/L	1.9	355-46-4	
PFHxS-LN*	37	9.5		ng/L	1.9	355-46-4-LN	
PFHxS-BR*	Not detected	9.5		ng/L	1.9	355-46-4-BR	
PFNA*	Not detected	9.5		ng/L	1.9	375-95-1	
8:2 FTSA*	Not detected	9.5		ng/L	1.9	39108-34-4	
PFHpS*	Not detected	9.5		ng/L	1.9	375-92-8	
PFDA*	Not detected	9.5		ng/L	1.9	335-76-2	
N-MeFOSAA*	Not detected	9.5		ng/L	1.9	2355-31-9	
EtFOSAA*	Not detected	9.5		ng/L	1.9	2991-50-6	
PFOS*	Not detected	9.5		ng/L	1.9	1763-23-1	
PFOS-LN*	Not detected	9.5		ng/L	1.9	1763-23-1-LN	
PFOS-BR*	Not detected	9.5		ng/L	1.9	1763-23-1-BR	
PFUnDA*	Not detected	9.5		ng/L	1.9	2058-94-8	
PFNS*	Not detected	9.5		ng/L	1.9	68259-12-1	
PFDoDA*	Not detected	9.5		ng/L	1.9	307-55-1	
PFDS*	Not detected	9.5		ng/L	1.9	335-77-3	
PFTrDA*	Not detected	9.5		ng/L	1.9	72629-94-8	
FOSA*	Not detected	9.5		ng/L	1.9	754-91-6	
PFTeDA*	Not detected	9.5		ng/L	1.9	376-06-7	
11Cl-PF3OUdS*	Not detected	9.5		ng/L	1.9	763051-92-9	
9Cl-PF3ONS*	Not detected	9.5		ng/L	1.9	756426-58-1	
ADONA*	Not detected	9.5		ng/L	1.9	919005-14-4	
HFPO-DA*	Not detected	9.5		ng/L	1.9	13252-13-6	

Lab Sample ID: S12771.03
Sample Tag: SBP-68-GW
Collected Date/Time: 03/16/2020 15:10
Matrix: Groundwater
COC Reference: 129293

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/18/20 00:48, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	1.95	375-22-4	
PFPeA*	Not detected	9.8		ng/L	1.95	2706-90-3	
4:2 FTSA*	Not detected	9.8		ng/L	1.95	757124-72-4	
PFHxA*	Not detected	9.8		ng/L	1.95	307-24-4	
PFBS*	Not detected	9.8		ng/L	1.95	375-73-5	
PFHpA*	Not detected	9.8		ng/L	1.95	375-85-9	
PFPeS*	Not detected	9.8		ng/L	1.95	2706-91-4	
6:2 FTSA*	Not detected	9.8		ng/L	1.95	27619-97-2	
PFOA*	Not detected	9.8		ng/L	1.95	335-67-1	
PFHxS*	Not detected	9.8		ng/L	1.95	355-46-4	
PFHxS-LN*	Not detected	9.8		ng/L	1.95	355-46-4-LN	
PFHxS-BR*	Not detected	9.8		ng/L	1.95	355-46-4-BR	
PFNA*	Not detected	9.8		ng/L	1.95	375-95-1	
8:2 FTSA*	Not detected	9.8		ng/L	1.95	39108-34-4	
PFHpS*	Not detected	9.8		ng/L	1.95	375-92-8	
PFDA*	Not detected	9.8		ng/L	1.95	335-76-2	
N-MeFOSAA*	Not detected	9.8		ng/L	1.95	2355-31-9	
EtFOSAA*	Not detected	9.8		ng/L	1.95	2991-50-6	
PFOS*	Not detected	9.8		ng/L	1.95	1763-23-1	
PFOS-LN*	Not detected	9.8		ng/L	1.95	1763-23-1-LN	
PFOS-BR*	Not detected	9.8		ng/L	1.95	1763-23-1-BR	
PFUnDA*	Not detected	9.8		ng/L	1.95	2058-94-8	
PFNS*	Not detected	9.8		ng/L	1.95	68259-12-1	
PFDoDA*	Not detected	9.8		ng/L	1.95	307-55-1	
PFDS*	Not detected	9.8		ng/L	1.95	335-77-3	
PFTrDA*	Not detected	9.8		ng/L	1.95	72629-94-8	
FOSA*	Not detected	9.8		ng/L	1.95	754-91-6	
PFTeDA*	Not detected	9.8		ng/L	1.95	376-06-7	
11Cl-PF3OUdS*	Not detected	9.8		ng/L	1.95	763051-92-9	
9Cl-PF3ONS*	Not detected	9.8		ng/L	1.95	756426-58-1	
ADONA*	Not detected	9.8		ng/L	1.95	919005-14-4	
HFPO-DA*	Not detected	9.8		ng/L	1.95	13252-13-6	

Lab Sample ID: S12771.04
Sample Tag: SBP-DUP-9
Collected Date/Time: 03/16/2020 00:01
Matrix: Groundwater
COC Reference: 129293

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/18/20 01:10, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.93	375-22-4	
PFPeA*	Not detected	9.7		ng/L	1.93	2706-90-3	
4:2 FTSA*	Not detected	9.7		ng/L	1.93	757124-72-4	
PFHxA*	Not detected	9.7		ng/L	1.93	307-24-4	
PFBS*	Not detected	9.7		ng/L	1.93	375-73-5	
PFHpA*	Not detected	9.7		ng/L	1.93	375-85-9	
PFPeS*	Not detected	9.7		ng/L	1.93	2706-91-4	
6:2 FTSA*	Not detected	9.7		ng/L	1.93	27619-97-2	
PFOA*	Not detected	9.7		ng/L	1.93	335-67-1	
PFHxS*	Not detected	9.7		ng/L	1.93	355-46-4	
PFHxS-LN*	Not detected	9.7		ng/L	1.93	355-46-4-LN	
PFHxS-BR*	Not detected	9.7		ng/L	1.93	355-46-4-BR	
PFNA*	Not detected	9.7		ng/L	1.93	375-95-1	
8:2 FTSA*	Not detected	9.7		ng/L	1.93	39108-34-4	
PFHpS*	Not detected	9.7		ng/L	1.93	375-92-8	
PFDA*	Not detected	9.7		ng/L	1.93	335-76-2	
N-MeFOSAA*	Not detected	9.7		ng/L	1.93	2355-31-9	
EtFOSAA*	Not detected	9.7		ng/L	1.93	2991-50-6	
PFOS*	Not detected	9.7		ng/L	1.93	1763-23-1	
PFOS-LN*	Not detected	9.7		ng/L	1.93	1763-23-1-LN	
PFOS-BR*	Not detected	9.7		ng/L	1.93	1763-23-1-BR	
PFUnDA*	Not detected	9.7		ng/L	1.93	2058-94-8	
PFNS*	Not detected	9.7		ng/L	1.93	68259-12-1	
PFDoDA*	Not detected	9.7		ng/L	1.93	307-55-1	
PFDS*	Not detected	9.7		ng/L	1.93	335-77-3	
PFTrDA*	Not detected	9.7		ng/L	1.93	72629-94-8	
FOSA*	Not detected	9.7		ng/L	1.93	754-91-6	
PFTeDA*	Not detected	9.7		ng/L	1.93	376-06-7	
11Cl-PF3OUdS*	Not detected	9.7		ng/L	1.93	763051-92-9	
9Cl-PF3ONS*	Not detected	9.7		ng/L	1.93	756426-58-1	
ADONA*	Not detected	9.7		ng/L	1.93	919005-14-4	
HFPO-DA*	Not detected	9.7		ng/L	1.93	13252-13-6	

Lab Sample ID: S12771.05
Sample Tag: SBP-67-GW
Collected Date/Time: 03/17/2020 08:50
Matrix: Groundwater
COC Reference: 129293

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/18/20 01:32, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	1.97	375-22-4	
PFPeA*	Not detected	9.9		ng/L	1.97	2706-90-3	
4:2 FTSA*	Not detected	9.9		ng/L	1.97	757124-72-4	
PFHxA*	Not detected	9.9		ng/L	1.97	307-24-4	
PFBS*	Not detected	9.9		ng/L	1.97	375-73-5	
PFHpA*	Not detected	9.9		ng/L	1.97	375-85-9	
PFPeS*	Not detected	9.9		ng/L	1.97	2706-91-4	
6:2 FTSA*	Not detected	9.9		ng/L	1.97	27619-97-2	
PFOA*	Not detected	9.9		ng/L	1.97	335-67-1	
PFHxS*	Not detected	9.9		ng/L	1.97	355-46-4	
PFHxS-LN*	Not detected	9.9		ng/L	1.97	355-46-4-LN	
PFHxS-BR*	Not detected	9.9		ng/L	1.97	355-46-4-BR	
PFNA*	Not detected	9.9		ng/L	1.97	375-95-1	
8:2 FTSA*	Not detected	9.9		ng/L	1.97	39108-34-4	
PFHpS*	Not detected	9.9		ng/L	1.97	375-92-8	
PFDA*	Not detected	9.9		ng/L	1.97	335-76-2	
N-MeFOSAA*	Not detected	9.9		ng/L	1.97	2355-31-9	
EtFOSAA*	Not detected	9.9		ng/L	1.97	2991-50-6	
PFOS*	Not detected	9.9		ng/L	1.97	1763-23-1	
PFOS-LN*	Not detected	9.9		ng/L	1.97	1763-23-1-LN	
PFOS-BR*	Not detected	9.9		ng/L	1.97	1763-23-1-BR	
PFUnDA*	Not detected	9.9		ng/L	1.97	2058-94-8	
PFNS*	Not detected	9.9		ng/L	1.97	68259-12-1	
PFDoDA*	Not detected	9.9		ng/L	1.97	307-55-1	
PFDS*	Not detected	9.9		ng/L	1.97	335-77-3	
PFTrDA*	Not detected	9.9		ng/L	1.97	72629-94-8	
FOSA*	Not detected	9.9		ng/L	1.97	754-91-6	
PFTeDA*	Not detected	9.9		ng/L	1.97	376-06-7	
11Cl-PF3OUdS*	Not detected	9.9		ng/L	1.97	763051-92-9	
9Cl-PF3ONS*	Not detected	9.9		ng/L	1.97	756426-58-1	
ADONA*	Not detected	9.9		ng/L	1.97	919005-14-4	
HFPO-DA*	Not detected	9.9		ng/L	1.97	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S12771.06
Sample Tag: SBP-69-GW
Collected Date/Time: 03/17/2020 10:00
Matrix: Groundwater
COC Reference: 129293

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/18/20 01:55, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.92	375-22-4	
PFPeA*	Not detected	9.6		ng/L	1.92	2706-90-3	
4:2 FTSA*	Not detected	9.6		ng/L	1.92	757124-72-4	
PFHxA*	Not detected	9.6		ng/L	1.92	307-24-4	
PFBS*	Not detected	9.6		ng/L	1.92	375-73-5	
PFHpA*	Not detected	9.6		ng/L	1.92	375-85-9	
PFPeS*	Not detected	9.6		ng/L	1.92	2706-91-4	
6:2 FTSA*	Not detected	9.6		ng/L	1.92	27619-97-2	
PFOA*	Not detected	9.6		ng/L	1.92	335-67-1	
PFHxS*	Not detected	9.6		ng/L	1.92	355-46-4	
PFHxS-LN*	Not detected	9.6		ng/L	1.92	355-46-4-LN	
PFHxS-BR*	Not detected	9.6		ng/L	1.92	355-46-4-BR	
PFNA*	Not detected	9.6		ng/L	1.92	375-95-1	
8:2 FTSA*	Not detected	9.6		ng/L	1.92	39108-34-4	
PFHpS*	Not detected	9.6		ng/L	1.92	375-92-8	
PFDA*	Not detected	9.6		ng/L	1.92	335-76-2	
N-MeFOSAA*	Not detected	9.6		ng/L	1.92	2355-31-9	
EtFOSAA*	Not detected	9.6		ng/L	1.92	2991-50-6	
PFOS*	Not detected	9.6		ng/L	1.92	1763-23-1	
PFOS-LN*	Not detected	9.6		ng/L	1.92	1763-23-1-LN	
PFOS-BR*	Not detected	9.6		ng/L	1.92	1763-23-1-BR	
PFUnDA*	Not detected	9.6		ng/L	1.92	2058-94-8	
PFNS*	Not detected	9.6		ng/L	1.92	68259-12-1	
PFDoDA*	Not detected	9.6		ng/L	1.92	307-55-1	
PFDS*	Not detected	9.6		ng/L	1.92	335-77-3	
PFTrDA*	Not detected	9.6		ng/L	1.92	72629-94-8	
FOSA*	Not detected	9.6		ng/L	1.92	754-91-6	
PFTeDA*	Not detected	9.6		ng/L	1.92	376-06-7	
11Cl-PF3OUdS*	Not detected	9.6		ng/L	1.92	763051-92-9	
9Cl-PF3ONS*	Not detected	9.6		ng/L	1.92	756426-58-1	
ADONA*	Not detected	9.6		ng/L	1.92	919005-14-4	
HFPO-DA*	Not detected	9.6		ng/L	1.92	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID: S12771
Client: OBG02 (O'Brien & Gere Engineers, Inc. - East Lansing, MI)
Project: RACER Coldwater Rd.
Submitted: 03/17/2020 14:30 Login User: SRS

Attention: Clifford Yantz
Address: O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

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

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.1
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.	[ ] Yes	[ ] No	[X] 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

129293

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere Part of 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@obg.com QUOTE NO.:

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (7976)
12711 .01	3/16/20	1320	Field Blank-031620	L	1	1							X
.02		1325	SBP-66-GW	GW	3	3							X
.03		1510	SBP-68-GW										X
.04		—	SBP-DUP-9										X
.05	3/17/20	850	SBP-67-GW										X
.06	3/17/20	1000	SBP-69-GW	↓	↓	↓							X

TBS

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
☒ Sampler OBG	3/17/20	1230
RECEIVED BY: SIGNATURE/ORGANIZATION	3/17/20	12:30
RELINQUISHED BY: SIGNATURE/ORGANIZATION	3/17/20	14:30
RECEIVED BY: SIGNATURE/ORGANIZATION	3/17/20	1430

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

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

NOTES: TEMP. ON ARRIVAL 4.1

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S12787.01(01)
Generated on 03/24/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

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

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): S12787.01-S12787.03, S12787.07-S12787.10
Project: RACER Coldwater Rd.
Collected Date(s): 03/17/2020 - 03/18/2020
Submitted Date/Time: 03/18/2020 13:40
Sampled by: Kevin Schneider
P.O. #: 11900504

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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)

Report Narrative

Report all samples except .04-.06 per client

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

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 (7 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S12787.01	SS-03	Liquid	03/17/20 14:52
S12787.02	SAN-06	Liquid	03/17/20 16:15
S12787.03	SAN-07	Liquid	03/18/20 09:35
S12787.07	Field Blank-031820	Liquid	03/18/20 11:45
S12787.08	SAN-10	Liquid	03/18/20 11:48
S12787.09	SAN-11	Liquid	03/18/20 12:11
S12787.10	SAN-12	Liquid	03/18/20 12:28

Analytical Laboratory Report

Lab Sample ID: S12787.01
Sample Tag: SS-03
Collected Date/Time: 03/17/2020 14:52
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 00:27, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	1.95	375-22-4	
PFPeA*	Not detected	9.8		ng/L	1.95	2706-90-3	
4:2 FTSA*	Not detected	9.8		ng/L	1.95	757124-72-4	
PFHxA*	Not detected	9.8		ng/L	1.95	307-24-4	
PFBS*	Not detected	9.8		ng/L	1.95	375-73-5	
PFHpA*	Not detected	9.8		ng/L	1.95	375-85-9	
PFPeS*	Not detected	9.8		ng/L	1.95	2706-91-4	
6:2 FTSA*	Not detected	9.8		ng/L	1.95	27619-97-2	
PFOA*	Not detected	9.8		ng/L	1.95	335-67-1	
PFHxS*	Not detected	9.8		ng/L	1.95	355-46-4	
PFHxS-LN*	Not detected	9.8		ng/L	1.95	355-46-4-LN	
PFHxS-BR*	Not detected	9.8		ng/L	1.95	355-46-4-BR	
PFNA*	Not detected	9.8		ng/L	1.95	375-95-1	
8:2 FTSA*	Not detected	9.8		ng/L	1.95	39108-34-4	
PFHpS*	Not detected	9.8		ng/L	1.95	375-92-8	
PFDA*	Not detected	9.8		ng/L	1.95	335-76-2	
N-MeFOSAA*	Not detected	9.8		ng/L	1.95	2355-31-9	
EtFOSAA*	Not detected	9.8		ng/L	1.95	2991-50-6	
PFOS*	Not detected	9.8		ng/L	1.95	1763-23-1	
PFOS-LN*	Not detected	9.8		ng/L	1.95	1763-23-1-LN	
PFOS-BR*	Not detected	9.8		ng/L	1.95	1763-23-1-BR	
PFUnDA*	Not detected	9.8		ng/L	1.95	2058-94-8	
PFNS*	Not detected	9.8		ng/L	1.95	68259-12-1	
PFDoDA*	Not detected	9.8		ng/L	1.95	307-55-1	
PFDS*	Not detected	9.8		ng/L	1.95	335-77-3	
PFTrDA*	Not detected	9.8		ng/L	1.95	72629-94-8	
FOSA*	Not detected	9.8		ng/L	1.95	754-91-6	
PFTeDA*	Not detected	9.8		ng/L	1.95	376-06-7	
11Cl-PF3OUdS*	Not detected	9.8		ng/L	1.95	763051-92-9	
9Cl-PF3ONS*	Not detected	9.8		ng/L	1.95	756426-58-1	
ADONA*	Not detected	9.8		ng/L	1.95	919005-14-4	
HFPO-DA*	Not detected	9.8		ng/L	1.95	13252-13-6	

Lab Sample ID: S12787.02
Sample Tag: SAN-06
Collected Date/Time: 03/17/2020 16:15
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 00:49, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	21		ng/L	2.06	375-22-4	
PFPeA*	Not detected	10		ng/L	2.06	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.06	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.06	307-24-4	
PFBS*	Not detected	10		ng/L	2.06	375-73-5	
PFHpA*	Not detected	10		ng/L	2.06	375-85-9	
PFPeS*	Not detected	10		ng/L	2.06	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.06	27619-97-2	
PFOA*	Not detected	10		ng/L	2.06	335-67-1	
PFHxS*	Not detected	10		ng/L	2.06	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2.06	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.06	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.06	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.06	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.06	375-92-8	
PFDA*	Not detected	10		ng/L	2.06	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.06	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2.06	2991-50-6	
PFOS*	14	10		ng/L	2.06	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2.06	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2.06	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.06	2058-94-8	
PFNS*	Not detected	10		ng/L	2.06	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2.06	307-55-1	
PFDS*	Not detected	10		ng/L	2.06	335-77-3	
PFTrDA*	Not detected	10		ng/L	2.06	72629-94-8	
FOSA*	Not detected	10		ng/L	2.06	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.06	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.06	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.06	756426-58-1	
ADONA*	Not detected	10		ng/L	2.06	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.06	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S12787.03
Sample Tag: SAN-07
Collected Date/Time: 03/18/2020 09:35
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 01:11, Analyst: KCV

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

Analytical Laboratory Report

Lab Sample ID: S12787.07
Sample Tag: Field Blank-031820
Collected Date/Time: 03/18/2020 11:45
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 22:57, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	21		ng/L	2.08	375-22-4	
PFPeA*	Not detected	10		ng/L	2.08	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.08	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.08	307-24-4	
PFBS*	Not detected	10		ng/L	2.08	375-73-5	
PFHpA*	Not detected	10		ng/L	2.08	375-85-9	
PFPeS*	Not detected	10		ng/L	2.08	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.08	27619-97-2	
PFOA*	Not detected	10		ng/L	2.08	335-67-1	
PFHxS*	Not detected	10		ng/L	2.08	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2.08	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.08	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.08	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.08	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.08	375-92-8	
PFDA*	Not detected	10		ng/L	2.08	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.08	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2.08	2991-50-6	
PFOS*	Not detected	10		ng/L	2.08	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2.08	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2.08	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.08	2058-94-8	
PFNS*	Not detected	10		ng/L	2.08	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2.08	307-55-1	
PFDS*	Not detected	10		ng/L	2.08	335-77-3	
PFTrDA*	Not detected	10		ng/L	2.08	72629-94-8	
FOSA*	Not detected	10		ng/L	2.08	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.08	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.08	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.08	756426-58-1	
ADONA*	Not detected	10		ng/L	2.08	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.08	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S12787.08
Sample Tag: SAN-10
Collected Date/Time: 03/18/2020 11:48
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 03:02, Analyst: KCV

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

Analytical Laboratory Report

Lab Sample ID: S12787.09
Sample Tag: SAN-11
Collected Date/Time: 03/18/2020 12:11
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 03:24, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.94	375-22-4	
PFPeA*	Not detected	9.7		ng/L	1.94	2706-90-3	
4:2 FTSA*	Not detected	9.7		ng/L	1.94	757124-72-4	
PFHxA*	Not detected	9.7		ng/L	1.94	307-24-4	
PFBS*	9.9	9.7		ng/L	1.94	375-73-5	
PFHpA*	Not detected	9.7		ng/L	1.94	375-85-9	
PFPeS*	Not detected	9.7		ng/L	1.94	2706-91-4	
6:2 FTSA*	Not detected	9.7		ng/L	1.94	27619-97-2	
PFOA*	Not detected	9.7		ng/L	1.94	335-67-1	
PFHxS*	25	9.7		ng/L	1.94	355-46-4	
PFHxS-LN*	21	9.7		ng/L	1.94	355-46-4-LN	
PFHxS-BR*	Not detected	9.7		ng/L	1.94	355-46-4-BR	
PFNA*	Not detected	9.7		ng/L	1.94	375-95-1	
8:2 FTSA*	Not detected	9.7		ng/L	1.94	39108-34-4	
PFHpS*	Not detected	9.7		ng/L	1.94	375-92-8	
PFDA*	Not detected	9.7		ng/L	1.94	335-76-2	
N-MeFOSAA*	Not detected	9.7		ng/L	1.94	2355-31-9	
EtFOSAA*	Not detected	9.7		ng/L	1.94	2991-50-6	
PFOS*	160	9.7		ng/L	1.94	1763-23-1	
PFOS-LN*	62	9.7		ng/L	1.94	1763-23-1-LN	
PFOS-BR*	100	9.7		ng/L	1.94	1763-23-1-BR	
PFUnDA*	Not detected	9.7		ng/L	1.94	2058-94-8	
PFNS*	Not detected	9.7		ng/L	1.94	68259-12-1	
PFDoDA*	Not detected	9.7		ng/L	1.94	307-55-1	
PFDS*	Not detected	9.7		ng/L	1.94	335-77-3	
PFTrDA*	Not detected	9.7		ng/L	1.94	72629-94-8	
FOSA*	Not detected	9.7		ng/L	1.94	754-91-6	
PFTeDA*	Not detected	9.7		ng/L	1.94	376-06-7	
11Cl-PF3OUdS*	Not detected	9.7		ng/L	1.94	763051-92-9	
9Cl-PF3ONS*	Not detected	9.7		ng/L	1.94	756426-58-1	
ADONA*	Not detected	9.7		ng/L	1.94	919005-14-4	
HFPO-DA*	Not detected	9.7		ng/L	1.94	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S12787.10
Sample Tag: SAN-12
Collected Date/Time: 03/18/2020 12:28
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 04:09, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	1.99	375-22-4	
PFPeA*	Not detected	10.0		ng/L	1.99	2706-90-3	
4:2 FTSA*	Not detected	10.0		ng/L	1.99	757124-72-4	
PFHxA*	Not detected	10.0		ng/L	1.99	307-24-4	
PFBS*	Not detected	10.0		ng/L	1.99	375-73-5	
PFHpA*	Not detected	10.0		ng/L	1.99	375-85-9	
PFPeS*	Not detected	10.0		ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	10.0		ng/L	1.99	27619-97-2	
PFOA*	Not detected	10.0		ng/L	1.99	335-67-1	
PFHxS*	16	10.0		ng/L	1.99	355-46-4	
PFHxS-LN*	12	10.0		ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	10.0		ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	10.0		ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	10.0		ng/L	1.99	39108-34-4	
PFHpS*	Not detected	10.0		ng/L	1.99	375-92-8	
PFDA*	Not detected	10.0		ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	10.0		ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	10.0		ng/L	1.99	2991-50-6	
PFOS*	110	10.0		ng/L	1.99	1763-23-1	
PFOS-LN*	48	10.0		ng/L	1.99	1763-23-1-LN	
PFOS-BR*	66	10.0		ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	10.0		ng/L	1.99	2058-94-8	
PFNS*	Not detected	10.0		ng/L	1.99	68259-12-1	
PFDoDA*	Not detected	10.0		ng/L	1.99	307-55-1	
PFDS*	Not detected	10.0		ng/L	1.99	335-77-3	
PFTrDA*	Not detected	10.0		ng/L	1.99	72629-94-8	
FOSA*	Not detected	10.0		ng/L	1.99	754-91-6	
PFTeDA*	Not detected	10.0		ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	10.0		ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	10.0		ng/L	1.99	756426-58-1	
ADONA*	Not detected	10.0		ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	10.0		ng/L	1.99	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID: S12787
Client: OBG02 (O'Brien & Gere Engineers, Inc. - East Lansing, MI)
Project: RACER Coldwater Rd.
Submitted: 03/18/2020 13:40 Login User: SRS

Attention: Clifford Yantz
Address: O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

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

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.1
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.	[ ] Yes	[ ] No	[X] 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

129296

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME	Clifford Yantz
COMPANY	O'Brien & Gere Part of 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
QUOTE NO.	

INVOICE TO

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

PROJECT NO./NAME: RALER Coldwater Rd

SAMPLER(S) - PLEASE PRINT/SIGN NAME: Nina Schmidt

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (537.1)
12787.01	3/17/20	1452	SS-03	L	3	3							X
.02	3/17/20	1615	SAN-06										X
.03	3/18/20	935	SAN-07										X
.04	3/18/20	1008	SAN-08										X
.05	3/18/20	1025	SAN-1										X
.06	3/18/20	1100	SAN-09										X
.07	3/18/20	1145	Field Blank-031820		1	1							X
.08	3/18/20	1148	SAN-10		3	3							X
.09	3/18/20	1211	SAN-11										X
.10	3/18/20	1228	SAN-12										X

PFAS

RELINQUISHED BY: SIGNATURE/ORGANIZATION	OBG ☒ Sampler	DATE 3/18/20	TIME 1237
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 3/18/20	TIME 18:37
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 3/18/20	TIME 19:40
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 3/18/20	TIME 1946

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

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 5.1

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S12787.04(01)
Generated on 03/24/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

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

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): S12787.04-S12787.07
Project: RACER Coldwater Rd.
Collected Date(s): 03/18/2020
Submitted Date/Time: 03/18/2020 13:40
Sampled by: Kevin Schneider
P.O. #: 11900504

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)

Report Narrative

Report samples .04-.07 only per client request

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

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 (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S12787.04	SAN-08	Liquid	03/18/20 10:08
S12787.05	SAN-1	Liquid	03/18/20 10:25
S12787.06	SAN-09	Liquid	03/18/20 11:00
S12787.07	Field Blank-031820	Liquid	03/18/20 11:45

Analytical Laboratory Report

Lab Sample ID: S12787.04
Sample Tag: SAN-08
Collected Date/Time: 03/18/2020 10:08
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 22:35, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	2.04	375-22-4	
PFPeA*	Not detected	10		ng/L	2.04	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.04	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.04	307-24-4	
PFBS*	Not detected	10		ng/L	2.04	375-73-5	
PFHpA*	Not detected	10		ng/L	2.04	375-85-9	
PFPeS*	Not detected	10		ng/L	2.04	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.04	27619-97-2	
PFOA*	Not detected	10		ng/L	2.04	335-67-1	
PFHxS*	Not detected	10		ng/L	2.04	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2.04	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.04	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.04	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.04	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.04	375-92-8	
PFDA*	Not detected	10		ng/L	2.04	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.04	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2.04	2991-50-6	
PFOS*	42	10		ng/L	2.04	1763-23-1	
PFOS-LN*	12	10		ng/L	2.04	1763-23-1-LN	
PFOS-BR*	30	10		ng/L	2.04	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.04	2058-94-8	
PFNS*	Not detected	10		ng/L	2.04	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2.04	307-55-1	
PFDS*	Not detected	10		ng/L	2.04	335-77-3	
PFTrDA*	Not detected	10		ng/L	2.04	72629-94-8	
FOSA*	Not detected	10		ng/L	2.04	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.04	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.04	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.04	756426-58-1	
ADONA*	Not detected	10		ng/L	2.04	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.04	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S12787.05
Sample Tag: SAN-1
Collected Date/Time: 03/18/2020 10:25
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 01:56, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	21		ng/L	2.14	375-22-4	
PFPeA*	Not detected	11		ng/L	2.14	2706-90-3	
4:2 FTSA*	Not detected	11		ng/L	2.14	757124-72-4	
PFHxA*	Not detected	11		ng/L	2.14	307-24-4	
PFBS*	Not detected	11		ng/L	2.14	375-73-5	
PFHpA*	Not detected	11		ng/L	2.14	375-85-9	
PFPeS*	Not detected	11		ng/L	2.14	2706-91-4	
6:2 FTSA*	Not detected	11		ng/L	2.14	27619-97-2	
PFOA*	Not detected	11		ng/L	2.14	335-67-1	
PFHxS*	Not detected	11		ng/L	2.14	355-46-4	
PFHxS-LN*	Not detected	11		ng/L	2.14	355-46-4-LN	
PFHxS-BR*	Not detected	11		ng/L	2.14	355-46-4-BR	
PFNA*	Not detected	11		ng/L	2.14	375-95-1	
8:2 FTSA*	Not detected	11		ng/L	2.14	39108-34-4	
PFHpS*	Not detected	11		ng/L	2.14	375-92-8	
PFDA*	Not detected	11		ng/L	2.14	335-76-2	
N-MeFOSAA*	Not detected	11		ng/L	2.14	2355-31-9	
EtFOSAA*	Not detected	11		ng/L	2.14	2991-50-6	
PFOS*	59	11		ng/L	2.14	1763-23-1	
PFOS-LN*	18	11		ng/L	2.14	1763-23-1-LN	
PFOS-BR*	42	11		ng/L	2.14	1763-23-1-BR	
PFUnDA*	Not detected	11		ng/L	2.14	2058-94-8	
PFNS*	Not detected	11		ng/L	2.14	68259-12-1	
PFDoDA*	Not detected	11		ng/L	2.14	307-55-1	
PFDS*	Not detected	11		ng/L	2.14	335-77-3	
PFTrDA*	Not detected	11		ng/L	2.14	72629-94-8	
FOSA*	Not detected	11		ng/L	2.14	754-91-6	
PFTeDA*	Not detected	11		ng/L	2.14	376-06-7	
11Cl-PF3OUdS*	Not detected	11		ng/L	2.14	763051-92-9	
9Cl-PF3ONS*	Not detected	11		ng/L	2.14	756426-58-1	
ADONA*	Not detected	11		ng/L	2.14	919005-14-4	
HFPO-DA*	Not detected	11		ng/L	2.14	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S12787.06
Sample Tag: SAN-09
Collected Date/Time: 03/18/2020 11:00
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 02:18, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.93	375-22-4	
PFPeA*	Not detected	9.7		ng/L	1.93	2706-90-3	
4:2 FTSA*	Not detected	9.7		ng/L	1.93	757124-72-4	I
PFHxA*	Not detected	9.7		ng/L	1.93	307-24-4	
PFBS*	Not detected	9.7		ng/L	1.93	375-73-5	
PFHpA*	Not detected	9.7		ng/L	1.93	375-85-9	
PFPeS*	Not detected	9.7		ng/L	1.93	2706-91-4	
6:2 FTSA*	Not detected	9.7		ng/L	1.93	27619-97-2	I
PFOA*	Not detected	9.7		ng/L	1.93	335-67-1	
PFHxS*	Not detected	9.7		ng/L	1.93	355-46-4	
PFHxS-LN*	Not detected	9.7		ng/L	1.93	355-46-4-LN	
PFHxS-BR*	Not detected	9.7		ng/L	1.93	355-46-4-BR	
PFNA*	Not detected	9.7		ng/L	1.93	375-95-1	
8:2 FTSA*	Not detected	9.7		ng/L	1.93	39108-34-4	
PFHpS*	Not detected	9.7		ng/L	1.93	375-92-8	
PFDA*	Not detected	9.7		ng/L	1.93	335-76-2	
N-MeFOSAA*	Not detected	9.7		ng/L	1.93	2355-31-9	
EtFOSAA*	Not detected	9.7		ng/L	1.93	2991-50-6	
PFOS*	Not detected	9.7		ng/L	1.93	1763-23-1	
PFOS-LN*	Not detected	9.7		ng/L	1.93	1763-23-1-LN	
PFOS-BR*	Not detected	9.7		ng/L	1.93	1763-23-1-BR	
PFUnDA*	Not detected	9.7		ng/L	1.93	2058-94-8	
PFNS*	Not detected	9.7		ng/L	1.93	68259-12-1	
PFDoDA*	Not detected	9.7		ng/L	1.93	307-55-1	
PFDS*	Not detected	9.7		ng/L	1.93	335-77-3	
PFTrDA*	Not detected	9.7		ng/L	1.93	72629-94-8	
FOSA*	Not detected	9.7		ng/L	1.93	754-91-6	
PFTeDA*	Not detected	9.7		ng/L	1.93	376-06-7	
11Cl-PF3OUdS*	Not detected	9.7		ng/L	1.93	763051-92-9	
9Cl-PF3ONS*	Not detected	9.7		ng/L	1.93	756426-58-1	
ADONA*	Not detected	9.7		ng/L	1.93	919005-14-4	
HFPO-DA*	Not detected	9.7		ng/L	1.93	13252-13-6	

I-Matrix interference with internal standard

Analytical Laboratory Report

Lab Sample ID: S12787.07
Sample Tag: Field Blank-031820
Collected Date/Time: 03/18/2020 11:45
Matrix: Liquid
COC Reference: 129296

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/19/20 22:57, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	21		ng/L	2.08	375-22-4	
PFPeA*	Not detected	10		ng/L	2.08	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.08	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.08	307-24-4	
PFBS*	Not detected	10		ng/L	2.08	375-73-5	
PFHpA*	Not detected	10		ng/L	2.08	375-85-9	
PFPeS*	Not detected	10		ng/L	2.08	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.08	27619-97-2	
PFOA*	Not detected	10		ng/L	2.08	335-67-1	
PFHxS*	Not detected	10		ng/L	2.08	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2.08	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.08	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.08	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.08	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.08	375-92-8	
PFDA*	Not detected	10		ng/L	2.08	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.08	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2.08	2991-50-6	
PFOS*	Not detected	10		ng/L	2.08	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2.08	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2.08	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.08	2058-94-8	
PFNS*	Not detected	10		ng/L	2.08	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2.08	307-55-1	
PFDS*	Not detected	10		ng/L	2.08	335-77-3	
PFTrDA*	Not detected	10		ng/L	2.08	72629-94-8	
FOSA*	Not detected	10		ng/L	2.08	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.08	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.08	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.08	756426-58-1	
ADONA*	Not detected	10		ng/L	2.08	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.08	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID: S12787
Client: OBG02 (O'Brien & Gere Engineers, Inc. - East Lansing, MI)
Project: RACER Coldwater Rd.
Submitted: 03/18/2020 13:40 Login User: SRS

Attention: Clifford Yantz
Address: O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

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

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.1
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.	[ ] Yes	[ ] No	[X] 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

129296

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME	Clifford Yantz
COMPANY	O'Brien & Gere Part of 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
QUOTE NO.	

INVOICE TO

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

PROJECT NO./NAME: RALER Coldwater Rd

SAMPLER(S) - PLEASE PRINT/SIGN NAME: Nina Schmidt

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (537.1)
12787.01	3/17/20	1452	SS-03	L	3	3							X
.02	3/17/20	1615	SAN-06										X
.03	3/18/20	935	SAN-07										X
.04	3/18/20	1008	SAN-08										X
.05	3/18/20	1025	SAN-1										X
.06	3/18/20	1100	SAN-09										X
.07	3/18/20	1145	Field Blank-031820		1	1							X
.08	3/18/20	1148	SAN-10		3	3							X
.09	3/18/20	1211	SAN-11										X
.10	3/18/20	1228	SAN-12										X

PFAS

RELINQUISHED BY: SIGNATURE/ORGANIZATION	OBG ☒ Sampler	DATE 3/18/20	TIME 1237
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 3/18/20	TIME 18:37
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 3/18/20	TIME 19:40
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 3/18/20	TIME 1946

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

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 5.1

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S12850.01(01)
Generated on 03/27/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

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

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): S12850.01-S12850.14
Project: RACER Coldwater Rd.
Collected Date(s): 03/19/2020
Submitted Date/Time: 03/19/2020 15:10
Sampled by: Kevin Schneider
P.O. #: 11900504

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)

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

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 (14 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S12850.01	SAN-13	Liquid	03/19/20 08:34
S12850.02	SAN-14	Liquid	03/19/20 08:45
S12850.03	SAN-15	Liquid	03/19/20 08:55
S12850.04	SAN-16	Liquid	03/19/20 09:10
S12850.05	SAN-17	Liquid	03/19/20 09:27
S12850.06	SAN-18	Liquid	03/19/20 10:10
S12850.07	MH-10E	Liquid	03/19/20 11:22
S12850.08	SS-04	Liquid	03/19/20 11:34
S12850.09	SS-05	Liquid	03/19/20 12:26
S12850.10	Field Blank - 031920	Liquid	03/19/20 12:29
S12850.11	SAN-19	Liquid	03/19/20 12:44
S12850.12	SAN-20	Liquid	03/19/20 12:56
S12850.13	SAN-DUP-1	Liquid	03/19/20 00:01
S12850.14	SAN-DUP-2	Liquid	03/19/20 00:01

Analytical Laboratory Report

Lab Sample ID: S12850.01
Sample Tag: SAN-13
Collected Date/Time: 03/19/2020 08:34
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 00:26, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	100		ng/L	2.01	375-22-4	
PFPeA*	Not detected	10		ng/L	2.01	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.01	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.01	307-24-4	
PFBS*	Not detected	10		ng/L	2.01	375-73-5	
PFHpA*	Not detected	10		ng/L	2.01	375-85-9	
PFPeS*	Not detected	10		ng/L	2.01	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.01	27619-97-2	
PFOA*	Not detected	10		ng/L	2.01	335-67-1	
PFHxS*	19	10		ng/L	2.01	355-46-4	
PFHxS-LN*	16	10		ng/L	2.01	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.01	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.01	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.01	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.01	375-92-8	
PFDA*	Not detected	10		ng/L	2.01	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.01	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2.01	2991-50-6	
PFOS*	150	10		ng/L	2.01	1763-23-1	
PFOS-LN*	75	10		ng/L	2.01	1763-23-1-LN	
PFOS-BR*	75	10		ng/L	2.01	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.01	2058-94-8	
PFNS*	Not detected	10		ng/L	2.01	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2.01	307-55-1	
PFDS*	Not detected	10		ng/L	2.01	335-77-3	
PFTrDA*	Not detected	10		ng/L	2.01	72629-94-8	
FOSA*	Not detected	10		ng/L	2.01	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.01	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.01	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.01	756426-58-1	
ADONA*	Not detected	10		ng/L	2.01	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.01	13252-13-6	

Lab Sample ID: S12850.02
Sample Tag: SAN-14
Collected Date/Time: 03/19/2020 08:45
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 00:48, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	100		ng/L	2.06	375-22-4	
PFPeA*	Not detected	10		ng/L	2.06	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.06	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.06	307-24-4	
PFBS*	Not detected	10		ng/L	2.06	375-73-5	
PFHpA*	Not detected	10		ng/L	2.06	375-85-9	
PFPeS*	Not detected	10		ng/L	2.06	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.06	27619-97-2	
PFOA*	Not detected	10		ng/L	2.06	335-67-1	
PFHxS*	Not detected	10		ng/L	2.06	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2.06	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.06	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.06	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.06	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.06	375-92-8	
PFDA*	Not detected	10		ng/L	2.06	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.06	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2.06	2991-50-6	
PFOS*	29	10		ng/L	2.06	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2.06	1763-23-1-LN	
PFOS-BR*	20	10		ng/L	2.06	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.06	2058-94-8	
PFNS*	Not detected	10		ng/L	2.06	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2.06	307-55-1	
PFDS*	Not detected	10		ng/L	2.06	335-77-3	
PFTrDA*	Not detected	10		ng/L	2.06	72629-94-8	
FOSA*	Not detected	10		ng/L	2.06	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.06	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.06	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.06	756426-58-1	
ADONA*	Not detected	10		ng/L	2.06	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.06	13252-13-6	

Lab Sample ID: S12850.03
Sample Tag: SAN-15
Collected Date/Time: 03/19/2020 08:55
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 01:10, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	98		ng/L	1.95	375-22-4	
PFPeA*	Not detected	9.8		ng/L	1.95	2706-90-3	
4:2 FTSA*	Not detected	9.8		ng/L	1.95	757124-72-4	
PFHxA*	Not detected	9.8		ng/L	1.95	307-24-4	
PFBS*	Not detected	9.8		ng/L	1.95	375-73-5	
PFHpA*	Not detected	9.8		ng/L	1.95	375-85-9	
PFPeS*	Not detected	9.8		ng/L	1.95	2706-91-4	
6:2 FTSA*	Not detected	9.8		ng/L	1.95	27619-97-2	
PFOA*	Not detected	9.8		ng/L	1.95	335-67-1	
PFHxS*	Not detected	9.8		ng/L	1.95	355-46-4	
PFHxS-LN*	Not detected	9.8		ng/L	1.95	355-46-4-LN	
PFHxS-BR*	Not detected	9.8		ng/L	1.95	355-46-4-BR	
PFNA*	Not detected	9.8		ng/L	1.95	375-95-1	
8:2 FTSA*	Not detected	9.8		ng/L	1.95	39108-34-4	
PFHpS*	Not detected	9.8		ng/L	1.95	375-92-8	
PFDA*	Not detected	9.8		ng/L	1.95	335-76-2	
N-MeFOSAA*	Not detected	9.8		ng/L	1.95	2355-31-9	
EtFOSAA*	Not detected	9.8		ng/L	1.95	2991-50-6	
PFOS*	35	9.8		ng/L	1.95	1763-23-1	
PFOS-LN*	12	9.8		ng/L	1.95	1763-23-1-LN	
PFOS-BR*	20	9.8		ng/L	1.95	1763-23-1-BR	
PFUnDA*	Not detected	9.8		ng/L	1.95	2058-94-8	
PFNS*	Not detected	9.8		ng/L	1.95	68259-12-1	
PFDoDA*	Not detected	9.8		ng/L	1.95	307-55-1	
PFDS*	Not detected	9.8		ng/L	1.95	335-77-3	
PFTrDA*	Not detected	9.8		ng/L	1.95	72629-94-8	
FOSA*	Not detected	9.8		ng/L	1.95	754-91-6	
PFTeDA*	Not detected	9.8		ng/L	1.95	376-06-7	
11Cl-PF3OUdS*	Not detected	9.8		ng/L	1.95	763051-92-9	
9Cl-PF3ONS*	Not detected	9.8		ng/L	1.95	756426-58-1	
ADONA*	Not detected	9.8		ng/L	1.95	919005-14-4	
HFPO-DA*	Not detected	9.8		ng/L	1.95	13252-13-6	

Lab Sample ID: S12850.04
Sample Tag: SAN-16
Collected Date/Time: 03/19/2020 09:10
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 01:32, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	100		ng/L	2.03	375-22-4	
PFPeA*	Not detected	10		ng/L	2.03	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.03	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.03	307-24-4	
PFBS*	12	10		ng/L	2.03	375-73-5	
PFHpA*	Not detected	10		ng/L	2.03	375-85-9	
PFPeS*	Not detected	10		ng/L	2.03	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.03	27619-97-2	
PFOA*	Not detected	10		ng/L	2.03	335-67-1	
PFHxS*	Not detected	10		ng/L	2.03	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2.03	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.03	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.03	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.03	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.03	375-92-8	
PFDA*	Not detected	10		ng/L	2.03	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.03	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2.03	2991-50-6	
PFOS*	13	10		ng/L	2.03	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2.03	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2.03	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.03	2058-94-8	
PFNS*	Not detected	10		ng/L	2.03	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2.03	307-55-1	
PFDS*	Not detected	10		ng/L	2.03	335-77-3	
PFTrDA*	Not detected	10		ng/L	2.03	72629-94-8	
FOSA*	Not detected	10		ng/L	2.03	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.03	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.03	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.03	756426-58-1	
ADONA*	Not detected	10		ng/L	2.03	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.03	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S12850.05
Sample Tag: SAN-17
Collected Date/Time: 03/19/2020 09:27
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 01:54, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	96		ng/L	1.92	375-22-4	
PFPeA*	Not detected	9.6		ng/L	1.92	2706-90-3	
4:2 FTSA*	Not detected	9.6		ng/L	1.92	757124-72-4	
PFHxA*	Not detected	9.6		ng/L	1.92	307-24-4	
PFBS*	Not detected	9.6		ng/L	1.92	375-73-5	
PFHpA*	Not detected	9.6		ng/L	1.92	375-85-9	
PFPeS*	Not detected	9.6		ng/L	1.92	2706-91-4	
6:2 FTSA*	Not detected	9.6		ng/L	1.92	27619-97-2	
PFOA*	Not detected	9.6		ng/L	1.92	335-67-1	
PFHxS*	Not detected	9.6		ng/L	1.92	355-46-4	
PFHxS-LN*	Not detected	9.6		ng/L	1.92	355-46-4-LN	
PFHxS-BR*	Not detected	9.6		ng/L	1.92	355-46-4-BR	
PFNA*	Not detected	9.6		ng/L	1.92	375-95-1	
8:2 FTSA*	Not detected	9.6		ng/L	1.92	39108-34-4	
PFHpS*	Not detected	9.6		ng/L	1.92	375-92-8	
PFDA*	Not detected	9.6		ng/L	1.92	335-76-2	
N-MeFOSAA*	Not detected	9.6		ng/L	1.92	2355-31-9	
EtFOSAA*	Not detected	9.6		ng/L	1.92	2991-50-6	
PFOS*	Not detected	9.6		ng/L	1.92	1763-23-1	
PFOS-LN*	Not detected	9.6		ng/L	1.92	1763-23-1-LN	
PFOS-BR*	Not detected	9.6		ng/L	1.92	1763-23-1-BR	
PFUnDA*	Not detected	9.6		ng/L	1.92	2058-94-8	
PFNS*	Not detected	9.6		ng/L	1.92	68259-12-1	
PFDoDA*	Not detected	9.6		ng/L	1.92	307-55-1	
PFDS*	Not detected	9.6		ng/L	1.92	335-77-3	
PFTrDA*	Not detected	9.6		ng/L	1.92	72629-94-8	
FOSA*	Not detected	9.6		ng/L	1.92	754-91-6	
PFTeDA*	Not detected	9.6		ng/L	1.92	376-06-7	
11Cl-PF3OUdS*	Not detected	9.6		ng/L	1.92	763051-92-9	
9Cl-PF3ONS*	Not detected	9.6		ng/L	1.92	756426-58-1	
ADONA*	Not detected	9.6		ng/L	1.92	919005-14-4	
HFPO-DA*	Not detected	9.6		ng/L	1.92	13252-13-6	

Lab Sample ID: S12850.06
Sample Tag: SAN-18
Collected Date/Time: 03/19/2020 10:10
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 02:17, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	99		ng/L	1.97	375-22-4	
PFPeA*	Not detected	9.9		ng/L	1.97	2706-90-3	
4:2 FTSA*	Not detected	9.9		ng/L	1.97	757124-72-4	
PFHxA*	Not detected	9.9		ng/L	1.97	307-24-4	
PFBS*	Not detected	9.9		ng/L	1.97	375-73-5	
PFHpA*	Not detected	9.9		ng/L	1.97	375-85-9	
PFPeS*	Not detected	9.9		ng/L	1.97	2706-91-4	
6:2 FTSA*	Not detected	9.9		ng/L	1.97	27619-97-2	
PFOA*	Not detected	9.9		ng/L	1.97	335-67-1	
PFHxS*	Not detected	9.9		ng/L	1.97	355-46-4	
PFHxS-LN*	Not detected	9.9		ng/L	1.97	355-46-4-LN	
PFHxS-BR*	Not detected	9.9		ng/L	1.97	355-46-4-BR	
PFNA*	Not detected	9.9		ng/L	1.97	375-95-1	
8:2 FTSA*	Not detected	9.9		ng/L	1.97	39108-34-4	
PFHpS*	Not detected	9.9		ng/L	1.97	375-92-8	
PFDA*	Not detected	9.9		ng/L	1.97	335-76-2	
N-MeFOSAA*	Not detected	9.9		ng/L	1.97	2355-31-9	
EtFOSAA*	Not detected	9.9		ng/L	1.97	2991-50-6	
PFOS*	Not detected	9.9		ng/L	1.97	1763-23-1	
PFOS-LN*	Not detected	9.9		ng/L	1.97	1763-23-1-LN	
PFOS-BR*	Not detected	9.9		ng/L	1.97	1763-23-1-BR	
PFUnDA*	Not detected	9.9		ng/L	1.97	2058-94-8	
PFNS*	Not detected	9.9		ng/L	1.97	68259-12-1	
PFDoDA*	Not detected	9.9		ng/L	1.97	307-55-1	
PFDS*	Not detected	9.9		ng/L	1.97	335-77-3	
PFTrDA*	Not detected	9.9		ng/L	1.97	72629-94-8	
FOSA*	Not detected	9.9		ng/L	1.97	754-91-6	
PFTeDA*	Not detected	9.9		ng/L	1.97	376-06-7	
11Cl-PF3OUdS*	Not detected	9.9		ng/L	1.97	763051-92-9	
9Cl-PF3ONS*	Not detected	9.9		ng/L	1.97	756426-58-1	
ADONA*	Not detected	9.9		ng/L	1.97	919005-14-4	
HFPO-DA*	Not detected	9.9		ng/L	1.97	13252-13-6	

Lab Sample ID: S12850.07
Sample Tag: MH-10E
Collected Date/Time: 03/19/2020 11:22
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 02:39, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	98		ng/L	1.95	375-22-4	
PFPeA*	Not detected	9.8		ng/L	1.95	2706-90-3	
4:2 FTSA*	Not detected	9.8		ng/L	1.95	757124-72-4	
PFHxA*	Not detected	9.8		ng/L	1.95	307-24-4	
PFBS*	Not detected	9.8		ng/L	1.95	375-73-5	
PFHpA*	Not detected	9.8		ng/L	1.95	375-85-9	
PFPeS*	Not detected	9.8		ng/L	1.95	2706-91-4	
6:2 FTSA*	Not detected	9.8		ng/L	1.95	27619-97-2	
PFOA*	Not detected	9.8		ng/L	1.95	335-67-1	
PFHxS*	Not detected	9.8		ng/L	1.95	355-46-4	
PFHxS-LN*	Not detected	9.8		ng/L	1.95	355-46-4-LN	
PFHxS-BR*	Not detected	9.8		ng/L	1.95	355-46-4-BR	
PFNA*	Not detected	9.8		ng/L	1.95	375-95-1	
8:2 FTSA*	Not detected	9.8		ng/L	1.95	39108-34-4	
PFHpS*	Not detected	9.8		ng/L	1.95	375-92-8	
PFDA*	Not detected	9.8		ng/L	1.95	335-76-2	
N-MeFOSAA*	Not detected	9.8		ng/L	1.95	2355-31-9	
EtFOSAA*	Not detected	9.8		ng/L	1.95	2991-50-6	
PFOS*	70	9.8		ng/L	1.95	1763-23-1	
PFOS-LN*	49	9.8		ng/L	1.95	1763-23-1-LN	
PFOS-BR*	19	9.8		ng/L	1.95	1763-23-1-BR	
PFUnDA*	Not detected	9.8		ng/L	1.95	2058-94-8	
PFNS*	Not detected	9.8		ng/L	1.95	68259-12-1	
PFDoDA*	Not detected	9.8		ng/L	1.95	307-55-1	
PFDS*	Not detected	9.8		ng/L	1.95	335-77-3	
PFTrDA*	Not detected	9.8		ng/L	1.95	72629-94-8	
FOSA*	Not detected	9.8		ng/L	1.95	754-91-6	
PFTeDA*	Not detected	9.8		ng/L	1.95	376-06-7	
11Cl-PF3OUdS*	Not detected	9.8		ng/L	1.95	763051-92-9	
9Cl-PF3ONS*	Not detected	9.8		ng/L	1.95	756426-58-1	
ADONA*	Not detected	9.8		ng/L	1.95	919005-14-4	
HFPO-DA*	Not detected	9.8		ng/L	1.95	13252-13-6	

Lab Sample ID: S12850.08
Sample Tag: SS-04
Collected Date/Time: 03/19/2020 11:34
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 03:01, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	100		ng/L	1.99	375-22-4	
PFPeA*	Not detected	10.0		ng/L	1.99	2706-90-3	
4:2 FTSA*	Not detected	10.0		ng/L	1.99	757124-72-4	
PFHxA*	Not detected	10.0		ng/L	1.99	307-24-4	
PFBS*	Not detected	10.0		ng/L	1.99	375-73-5	
PFHpA*	Not detected	10.0		ng/L	1.99	375-85-9	
PFPeS*	Not detected	10.0		ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	10.0		ng/L	1.99	27619-97-2	
PFOA*	Not detected	10.0		ng/L	1.99	335-67-1	
PFHxS*	Not detected	10.0		ng/L	1.99	355-46-4	
PFHxS-LN*	Not detected	10.0		ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	10.0		ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	10.0		ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	10.0		ng/L	1.99	39108-34-4	
PFHpS*	Not detected	10.0		ng/L	1.99	375-92-8	
PFDA*	Not detected	10.0		ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	10.0		ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	10.0		ng/L	1.99	2991-50-6	
PFOS*	Not detected	10.0		ng/L	1.99	1763-23-1	
PFOS-LN*	Not detected	10.0		ng/L	1.99	1763-23-1-LN	
PFOS-BR*	Not detected	10.0		ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	10.0		ng/L	1.99	2058-94-8	
PFNS*	Not detected	10.0		ng/L	1.99	68259-12-1	
PFDoDA*	Not detected	10.0		ng/L	1.99	307-55-1	
PFDS*	Not detected	10.0		ng/L	1.99	335-77-3	
PFTrDA*	Not detected	10.0		ng/L	1.99	72629-94-8	
FOSA*	Not detected	10.0		ng/L	1.99	754-91-6	
PFTeDA*	Not detected	10.0		ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	10.0		ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	10.0		ng/L	1.99	756426-58-1	
ADONA*	Not detected	10.0		ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	10.0		ng/L	1.99	13252-13-6	

Lab Sample ID: S12850.09
Sample Tag: SS-05
Collected Date/Time: 03/19/2020 12:26
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 03:23, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	97		ng/L	1.94	375-22-4	
PFPeA*	Not detected	9.7		ng/L	1.94	2706-90-3	
4:2 FTSA*	Not detected	9.7		ng/L	1.94	757124-72-4	
PFHxA*	Not detected	9.7		ng/L	1.94	307-24-4	
PFBS*	Not detected	9.7		ng/L	1.94	375-73-5	
PFHpA*	Not detected	9.7		ng/L	1.94	375-85-9	
PFPeS*	Not detected	9.7		ng/L	1.94	2706-91-4	
6:2 FTSA*	Not detected	9.7		ng/L	1.94	27619-97-2	
PFOA*	Not detected	9.7		ng/L	1.94	335-67-1	
PFHxS*	Not detected	9.7		ng/L	1.94	355-46-4	
PFHxS-LN*	Not detected	9.7		ng/L	1.94	355-46-4-LN	
PFHxS-BR*	Not detected	9.7		ng/L	1.94	355-46-4-BR	
PFNA*	Not detected	9.7		ng/L	1.94	375-95-1	
8:2 FTSA*	Not detected	9.7		ng/L	1.94	39108-34-4	
PFHpS*	Not detected	9.7		ng/L	1.94	375-92-8	
PFDA*	Not detected	9.7		ng/L	1.94	335-76-2	
N-MeFOSAA*	Not detected	9.7		ng/L	1.94	2355-31-9	
EtFOSAA*	Not detected	9.7		ng/L	1.94	2991-50-6	
PFOS*	Not detected	9.7		ng/L	1.94	1763-23-1	
PFOS-LN*	Not detected	9.7		ng/L	1.94	1763-23-1-LN	
PFOS-BR*	Not detected	9.7		ng/L	1.94	1763-23-1-BR	
PFUnDA*	Not detected	9.7		ng/L	1.94	2058-94-8	
PFNS*	Not detected	9.7		ng/L	1.94	68259-12-1	
PFDoDA*	Not detected	9.7		ng/L	1.94	307-55-1	
PFDS*	Not detected	9.7		ng/L	1.94	335-77-3	
PFTrDA*	Not detected	9.7		ng/L	1.94	72629-94-8	
FOSA*	Not detected	9.7		ng/L	1.94	754-91-6	
PFTeDA*	Not detected	9.7		ng/L	1.94	376-06-7	
11Cl-PF3OUdS*	Not detected	9.7		ng/L	1.94	763051-92-9	
9Cl-PF3ONS*	Not detected	9.7		ng/L	1.94	756426-58-1	
ADONA*	Not detected	9.7		ng/L	1.94	919005-14-4	
HFPO-DA*	Not detected	9.7		ng/L	1.94	13252-13-6	

Lab Sample ID: S12850.10
Sample Tag: Field Blank - 031920
Collected Date/Time: 03/19/2020 12:29
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 03:46, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	100		ng/L	2.08	375-22-4	
PFPeA*	Not detected	10		ng/L	2.08	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.08	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.08	307-24-4	
PFBS*	Not detected	10		ng/L	2.08	375-73-5	
PFHpA*	Not detected	10		ng/L	2.08	375-85-9	
PFPeS*	Not detected	10		ng/L	2.08	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.08	27619-97-2	
PFOA*	Not detected	10		ng/L	2.08	335-67-1	
PFHxS*	Not detected	10		ng/L	2.08	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2.08	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.08	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.08	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.08	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.08	375-92-8	
PFDA*	Not detected	10		ng/L	2.08	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.08	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2.08	2991-50-6	
PFOS*	Not detected	10		ng/L	2.08	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2.08	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2.08	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.08	2058-94-8	
PFNS*	Not detected	10		ng/L	2.08	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2.08	307-55-1	
PFDS*	Not detected	10		ng/L	2.08	335-77-3	
PFTrDA*	Not detected	10		ng/L	2.08	72629-94-8	
FOSA*	Not detected	10		ng/L	2.08	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.08	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.08	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.08	756426-58-1	
ADONA*	Not detected	10		ng/L	2.08	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.08	13252-13-6	

Lab Sample ID: S12850.11
Sample Tag: SAN-19
Collected Date/Time: 03/19/2020 12:44
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 04:08, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	100		ng/L	1.99	375-22-4	
PFPeA*	Not detected	10.0		ng/L	1.99	2706-90-3	
4:2 FTSA*	Not detected	10.0		ng/L	1.99	757124-72-4	
PFHxA*	Not detected	10.0		ng/L	1.99	307-24-4	
PFBS*	Not detected	10.0		ng/L	1.99	375-73-5	
PFHpA*	Not detected	10.0		ng/L	1.99	375-85-9	
PFPeS*	Not detected	10.0		ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	10.0		ng/L	1.99	27619-97-2	
PFOA*	Not detected	10.0		ng/L	1.99	335-67-1	
PFHxS*	Not detected	10.0		ng/L	1.99	355-46-4	
PFHxS-LN*	Not detected	10.0		ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	10.0		ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	10.0		ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	10.0		ng/L	1.99	39108-34-4	
PFHpS*	Not detected	10.0		ng/L	1.99	375-92-8	
PFDA*	Not detected	10.0		ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	10.0		ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	10.0		ng/L	1.99	2991-50-6	
PFOS*	Not detected	10.0		ng/L	1.99	1763-23-1	
PFOS-LN*	Not detected	10.0		ng/L	1.99	1763-23-1-LN	
PFOS-BR*	Not detected	10.0		ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	10.0		ng/L	1.99	2058-94-8	
PFNS*	Not detected	10.0		ng/L	1.99	68259-12-1	
PFDoDA*	Not detected	10.0		ng/L	1.99	307-55-1	
PFDS*	Not detected	10.0		ng/L	1.99	335-77-3	
PFTrDA*	Not detected	10.0		ng/L	1.99	72629-94-8	
FOSA*	Not detected	10.0		ng/L	1.99	754-91-6	
PFTeDA*	Not detected	10.0		ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	10.0		ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	10.0		ng/L	1.99	756426-58-1	
ADONA*	Not detected	10.0		ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	10.0		ng/L	1.99	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S12850.12
Sample Tag: SAN-20
Collected Date/Time: 03/19/2020 12:56
Matrix: Liquid
COC Reference: 129294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 04:30, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	100		ng/L	2	375-22-4	
PFPeA*	Not detected	10		ng/L	2	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2	757124-72-4	
PFHxA*	10	10		ng/L	2	307-24-4	
PFBS*	Not detected	10		ng/L	2	375-73-5	
PFHpA*	Not detected	10		ng/L	2	375-85-9	
PFPeS*	Not detected	10		ng/L	2	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2	27619-97-2	
PFOA*	Not detected	10		ng/L	2	335-67-1	
PFHxS*	Not detected	10		ng/L	2	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2	39108-34-4	
PFHpS*	Not detected	10		ng/L	2	375-92-8	
PFDA*	Not detected	10		ng/L	2	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2	2991-50-6	
PFOS*	11	10		ng/L	2	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2	2058-94-8	
PFNS*	Not detected	10		ng/L	2	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2	307-55-1	
PFDS*	Not detected	10		ng/L	2	335-77-3	
PFTrDA*	Not detected	10		ng/L	2	72629-94-8	
FOSA*	Not detected	10		ng/L	2	754-91-6	
PFTeDA*	Not detected	10		ng/L	2	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2	756426-58-1	
ADONA*	Not detected	10		ng/L	2	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S12850.13
Sample Tag: SAN-DUP-1
Collected Date/Time: 03/19/2020 00:01
Matrix: Liquid
COC Reference: 129295

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 04:52, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	99		ng/L	1.97	375-22-4	
PFPeA*	Not detected	9.9		ng/L	1.97	2706-90-3	
4:2 FTSA*	Not detected	9.9		ng/L	1.97	757124-72-4	
PFHxA*	Not detected	9.9		ng/L	1.97	307-24-4	
PFBS*	Not detected	9.9		ng/L	1.97	375-73-5	
PFHpA*	Not detected	9.9		ng/L	1.97	375-85-9	
PFPeS*	Not detected	9.9		ng/L	1.97	2706-91-4	
6:2 FTSA*	Not detected	9.9		ng/L	1.97	27619-97-2	
PFOA*	Not detected	9.9		ng/L	1.97	335-67-1	
PFHxS*	Not detected	9.9		ng/L	1.97	355-46-4	
PFHxS-LN*	Not detected	9.9		ng/L	1.97	355-46-4-LN	
PFHxS-BR*	Not detected	9.9		ng/L	1.97	355-46-4-BR	
PFNA*	Not detected	9.9		ng/L	1.97	375-95-1	
8:2 FTSA*	Not detected	9.9		ng/L	1.97	39108-34-4	
PFHpS*	Not detected	9.9		ng/L	1.97	375-92-8	
PFDA*	Not detected	9.9		ng/L	1.97	335-76-2	
N-MeFOSAA*	Not detected	9.9		ng/L	1.97	2355-31-9	
EtFOSAA*	Not detected	9.9		ng/L	1.97	2991-50-6	
PFOS*	Not detected	9.9		ng/L	1.97	1763-23-1	
PFOS-LN*	Not detected	9.9		ng/L	1.97	1763-23-1-LN	
PFOS-BR*	Not detected	9.9		ng/L	1.97	1763-23-1-BR	
PFUnDA*	Not detected	9.9		ng/L	1.97	2058-94-8	
PFNS*	Not detected	9.9		ng/L	1.97	68259-12-1	
PFDoDA*	Not detected	9.9		ng/L	1.97	307-55-1	
PFDS*	Not detected	9.9		ng/L	1.97	335-77-3	
PFTrDA*	Not detected	9.9		ng/L	1.97	72629-94-8	
FOSA*	Not detected	9.9		ng/L	1.97	754-91-6	
PFTeDA*	Not detected	9.9		ng/L	1.97	376-06-7	
11Cl-PF3OUdS*	Not detected	9.9		ng/L	1.97	763051-92-9	
9Cl-PF3ONS*	Not detected	9.9		ng/L	1.97	756426-58-1	
ADONA*	Not detected	9.9		ng/L	1.97	919005-14-4	
HFPO-DA*	Not detected	9.9		ng/L	1.97	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S12850.14
Sample Tag: SAN-DUP-2
Collected Date/Time: 03/19/2020 00:01
Matrix: Liquid
COC Reference: 129295

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/25/20 05:14, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	100		ng/L	2	375-22-4	
PFPeA*	Not detected	10		ng/L	2	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2	757124-72-4	
PFHxA*	Not detected	10		ng/L	2	307-24-4	
PFBS*	Not detected	10		ng/L	2	375-73-5	
PFHpA*	Not detected	10		ng/L	2	375-85-9	
PFPeS*	Not detected	10		ng/L	2	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2	27619-97-2	
PFOA*	Not detected	10		ng/L	2	335-67-1	
PFHxS*	Not detected	10		ng/L	2	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2	39108-34-4	
PFHpS*	Not detected	10		ng/L	2	375-92-8	
PFDA*	Not detected	10		ng/L	2	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	2	2991-50-6	
PFOS*	Not detected	10		ng/L	2	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2	2058-94-8	
PFNS*	Not detected	10		ng/L	2	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2	307-55-1	
PFDS*	Not detected	10		ng/L	2	335-77-3	
PFTrDA*	Not detected	10		ng/L	2	72629-94-8	
FOSA*	Not detected	10		ng/L	2	754-91-6	
PFTeDA*	Not detected	10		ng/L	2	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2	756426-58-1	
ADONA*	Not detected	10		ng/L	2	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID: S12850
Client: OBG02 (O'Brien & Gere Engineers, Inc. - East Lansing, MI)
Project: RACER Coldwater Rd.
Submitted: 03/19/2020 15:10 Login User: BJB

Attention: Clifford Yantz
Address: O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

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

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.3
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 2

129294

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien + Gere Part of Ramboll
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.:
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com P.O. NO.: QUOTE NO.:

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. FOR LAB USE ONLY	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (7979)
12850.01	3/19/20	834	SAN-13	L	3	3							X
.02		845	SAN-14										X
.03		855	SAN-15										X
.04		910	SAN-16										X
.05		927	SAN-17										X
.06		1010	SAN-18										X
.07		1120	MH-10E										X
.08		1134	SS-04										X
.09		1226	SS-05										X
.10		1229	Field Blank-031920		1	1							X
.11		1244	SAN-19		3	3							X
.12		1256	SAN-20		3	3							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler OGG	DATE 3/19/20	TIME 1311
RECEIVED BY: SIGNATURE/ORGANIZATION	Doug A. Miller	DATE 3/19/20	TIME 13:11
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Doug A. Miller	DATE 3/19/20	TIME 1505
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Barbara Ball	DATE 3/19/2020	TIME 1570

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

NOTES: TEMP. ON ARRIVAL 5.3

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

Rev. 5.18.12

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

129295

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere Part of 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 QUOTE NO.:

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (537.1)
12890.13	3/19/20	—	SAN-DUP-1	L	3	3							X
.14	3/19/20	—	SS-DUP-2	L	3	3							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	☐ Sampler OBG	3/19/20	1311
RECEIVED BY: SIGNATURE/ORGANIZATION		3/19/20	1311
RELINQUISHED BY: SIGNATURE/ORGANIZATION		3/19/20	1510
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION: BatteBall	3/19/2020	1520

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

NOTES: TEMP. ON ARRIVAL 5.3

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

Rev. 5.18.12

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Tel: (810)229-2763

Laboratory Job ID: 190-22861-1
Client Project/Site: ARTP Plant-Montrose

For:
Genesee County WWTP
9290 Farrand
Montrose, Michigan 48457

Attn: Thad Domick

Sue Schafer

Authorized for release by:
5/12/2020 5:17:45 PM

Sue Schafer, Project Manager II
(810)229-2763
sue.schafer@testamericainc.com

Table of Contents

Sample Summary

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
190-22861-1	Stanley Rd. SAN-001	Water	04/30/20 08:35	05/01/20 13:50	
190-22861-2	Stanley Rd. SAN-008	Water	04/30/20 08:46	05/01/20 13:50	
190-22861-3	Stanley Rd. SAN-009	Water	04/30/20 08:53	05/01/20 13:50	

Case Narrative

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

Job ID: 190-22861-1

Laboratory: Eurofins TestAmerica, Michigan

Narrative

Job Narrative
190-22861-1

Comments
No additional comments.

Receipt
The samples were received on 5/1/2020 1:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7º C.

LCMS
Method 537 (modified): 13C2 PFTeDA The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: Stanley Rd. SAN-009 (190-22861-3). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples. All detection limits are below the lower calibration.

Method 537 (modified): M2-4:2 FTS Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: Stanley Rd. SAN-001 (190-22861-1), Stanley Rd. SAN-008 (190-22861-2) and Stanley Rd. SAN-009 (190-22861-3). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): The Ion Ratio associated with PFOS in sample Stanley Rd. SAN-001 (190-22861-1) and Stanley Rd. SAN-008 (190-22861-2) fails our in-house defined limits, however the result is being reported because the peaks observed for both mass transitions are within the expected retention time windows for the branched chain isomers in our calibration mix. Since many of these isomers are at very low levels in our mixed calibration source (many are less than 5% of the solution), it's difficult to project how the different isomer's responses differ at higher levels, so we don't feel comfortable rejecting the detect based solely upon the ratio failure.

Method 537 (modified): The continuing calibration verification (CCV) associated with batch 200-154721 recovered above the upper control limit for M2-8:2 FTS. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The outage is associated with matrix carryover from injections 10-12.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: Stanley Rd. SAN-001

Date Collected: 04/30/20 08:35
Date Received: 05/01/20 13:50

Lab Sample ID: 190-22861-1

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
4:2 FTS	<18		18		ng/L		05/05/20 11:08	05/06/20 22:27	1
6:2 FTS	<18		18		ng/L		05/05/20 11:08	05/06/20 22:27	1
8:2 FTS	<18		18		ng/L		05/05/20 11:08	05/06/20 22:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<18		18		ng/L		05/05/20 11:08	05/06/20 22:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<18		18		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorobutanesulfonic acid (PFBS)	**2.6**		1.8		ng/L		05/05/20 11:08	05/07/20 14:17	1
Perfluorobutanoic acid (PFBA)	**6.7**		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorohexanesulfonic acid (PFHxS)	**4.4**		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorohexanoic acid (PFHxA)	**3.5**		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorononanoic acid (PFNA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorooctanesulfonamide (FOSA)	<9.1		9.1		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorooctane sulfonate (PFOS)	**42**	I	1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorooctanoic acid (PFOA)	**4.8**		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluoropentanoic acid (PFPeA)	**2.4**		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*70*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C4 PFBA	*87*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C3 PFBS	*95*		*50 - 150*	*05/05/20 11:08*	*05/07/20 14:17*	*1*
13C2 PFDA	*85*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C2 PFDoA	*88*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C4 PFHpA	*124*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C2 PFHxA	*114*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C5 PFNA	*96*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C4 PFOA	*100*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C4 PFOS	*87*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C5 PFPeA	*109*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C2 PFTeDA	*64*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
13C2 PFUnA	*86*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
M2-4:2 FTS	*190*	**5*	*25 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
M2-6:2 FTS	*132*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
M2-8:2 FTS	*113*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*
18O2 PFHxS	*107*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:27*	*1*

Client Sample Results

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

Client Sample ID: Stanley Rd. SAN-008

Date Collected: 04/30/20 08:46
Date Received: 05/01/20 13:50

Lab Sample ID: 190-22861-2

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
4:2 FTS	<18		18		ng/L		05/05/20 11:08	05/06/20 22:35	1
6:2 FTS	<18		18		ng/L		05/05/20 11:08	05/06/20 22:35	1
8:2 FTS	<18		18		ng/L		05/05/20 11:08	05/06/20 22:35	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<18		18		ng/L		05/05/20 11:08	05/06/20 22:35	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<18		18		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorobutanesulfonic acid (PFBS)	**2.4**		1.8		ng/L		05/05/20 11:08	05/07/20 14:25	1
Perfluorobutanoic acid (PFBA)	**4.7**		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorohexanesulfonic acid (PFHxS)	**3.8**		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorohexanoic acid (PFHxA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorononanoic acid (PFNA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorooctanesulfonamide (FOSA)	<8.8		8.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorooctane sulfonate (PFOS)	**40**	**I**	1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorooctanoic acid (PFOA)	**2.7**		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluoropentanoic acid (PFPeA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8		ng/L		05/05/20 11:08	05/06/20 22:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*72*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C4 PFBA	*94*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C3 PFBS	*99*		*50 - 150*	*05/05/20 11:08*	*05/07/20 14:25*	*1*
13C2 PFDA	*88*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C2 PFDoA	*104*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C4 PFHpA	*121*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C2 PFHxA	*119*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C5 PFNA	*95*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C4 PFOA	*99*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C4 PFOS	*94*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C5 PFPeA	*117*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C2 PFTeDA	*76*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
13C2 PFUnA	*83*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
d5-NEtFOSAA	*92*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
M2-4:2 FTS	*167*	**5*	*25 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
M2-6:2 FTS	*130*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
M2-8:2 FTS	*105*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*
18O2 PFHxS	*104*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:35*	*1*

Client Sample ID: Stanley Rd. SAN-009

Date Collected: 04/30/20 08:53
Date Received: 05/01/20 13:50

Lab Sample ID: 190-22861-3

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
4:2 FTS	<19		19		ng/L		05/05/20 11:08	05/06/20 22:43	1
6:2 FTS	<19		19		ng/L		05/05/20 11:08	05/06/20 22:43	1
8:2 FTS	<19		19		ng/L		05/05/20 11:08	05/06/20 22:43	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<19		19		ng/L		05/05/20 11:08	05/06/20 22:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<19		19		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorobutanesulfonic acid (PFBS)	**2.6**		1.9		ng/L		05/05/20 11:08	05/07/20 14:34	1
Perfluorobutanoic acid (PFBA)	**6.6**		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorodecanesulfonic acid (PFDS)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorohexanesulfonic acid (PFHxS)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorohexanoic acid (PFHxA)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorononanesulfonic acid (PFNS)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorononanoic acid (PFNA)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorooctanesulfonamide (FOSA)	<9.3		9.3		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorooctane sulfonate (PFOS)	**5.4**		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorooctanoic acid (PFOA)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluoropentanoic acid (PFPeA)	**2.1**		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorotetradecanoic acid (PFTeA)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluorotridecanoic acid (PFTriA)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9		ng/L		05/05/20 11:08	05/06/20 22:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*75*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C4 PFBA	*94*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C3 PFBS	*103*		*50 - 150*	*05/05/20 11:08*	*05/07/20 14:34*	*1*
13C2 PFDA	*96*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C2 PFDoA	*87*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C4 PFHpA	*121*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C2 PFHxA	*114*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C5 PFNA	*102*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C4 PFOA	*98*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C4 PFOS	*98*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C5 PFPeA	*115*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C2 PFTeDA	*40*	**5*	*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
13C2 PFUnA	*90*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
d3-NMeFOSAA	*95*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
M2-4:2 FTS	*180*	**5*	*25 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
M2-6:2 FTS	*115*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
M2-8:2 FTS	*121*		*25 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*
18O2 PFHxS	*107*		*50 - 150*	*05/05/20 11:08*	*05/06/20 22:43*	*1*

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-154677/1-A
Matrix: Water
Analysis Batch: 154721

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154677

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
4:2 FTS	<20		20		ng/L		05/05/20 11:08	05/06/20 21:45	1
6:2 FTS	<20		20		ng/L		05/05/20 11:08	05/06/20 21:45	1
8:2 FTS	<20		20		ng/L		05/05/20 11:08	05/06/20 21:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<20		20		ng/L		05/05/20 11:08	05/06/20 21:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<20		20		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorooctanesulfonamide (FOSA)	<10		10		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorooctane sulfonate (PFOS)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		05/05/20 11:08	05/06/20 21:45	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*69*		*25 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C4 PFBA	*99*		*25 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C2 PFDA	*90*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C2 PFDoA	*86*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C4 PFHpA	*104*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C2 PFHxA	*111*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C5 PFNA	*98*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C4 PFOA	*94*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C4 PFOS	*89*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C5 PFPeA	*102*		*25 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C2 PFTeDA	*72*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
13C2 PFUnA	*78*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
d3-NMeFOSAA	*92*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
M2-4:2 FTS	*101*		*25 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
M2-6:2 FTS	*111*		*25 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
M2-8:2 FTS	*102*		*25 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*
18O2 PFHxS	*97*		*50 - 150*	*05/05/20 11:08*	*05/06/20 21:45*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 200-154677/1-A
Matrix: Water
Analysis Batch: 154751

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154677

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		05/05/20 11:08	05/07/20 13:36	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 PFBS	*90*		*50 - 150*	*05/05/20 11:08*	*05/07/20 13:36*	*1*

Lab Sample ID: LCS 200-154677/2-A
Matrix: Water
Analysis Batch: 154721

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154677

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
4:2 FTS			37.4	41.9		ng/L		112	50 - 150		
6:2 FTS			37.9	39.3		ng/L		104	50 - 150		
8:2 FTS			38.3	40.5		ng/L		106	50 - 150		
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	41.1		ng/L		103	70 - 130		
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	42.6		ng/L		107	70 - 130		
Perfluorobutanoic acid (PFBA)			40.0	42.2		ng/L		106	50 - 150		
Perfluorodecanesulfonic acid (PFDS)			38.6	34.3		ng/L		89	50 - 150		
Perfluorodecanoic acid (PFDA)			40.0	42.8		ng/L		107	70 - 130		
Perfluorododecanoic acid (PFDoA)			40.0	41.2		ng/L		103	70 - 130		
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	38.3		ng/L		101	50 - 150		
Perfluoroheptanoic acid (PFHpA)			40.0	39.5		ng/L		99	70 - 130		
Perfluorohexanesulfonic acid (PFHxS)			36.4	37.5		ng/L		103	70 - 130		
Perfluorohexanoic acid (PFHxA)			40.0	38.7		ng/L		97	70 - 130		
Perfluorononanesulfonic acid (PFNS)			38.4	37.1		ng/L		97	50 - 150		
Perfluorononanoic acid (PFNA)			40.0	40.8		ng/L		102	70 - 130		
Perfluorooctanesulfonamide (FOSA)			40.0	36.5		ng/L		91	50 - 150		
Perfluorooctane sulfonate (PFOS)			37.1	35.7		ng/L		96	70 - 130		
Perfluorooctanoic acid (PFOA)			40.0	41.5		ng/L		104	70 - 130		
Perfluoropentanesulfonic acid (PFPeS)			37.5	40.9		ng/L		109	50 - 150		
Perfluoropentanoic acid (PFPeA)			40.0	38.0		ng/L		95	50 - 150		
Perfluorotetradecanoic acid (PFTeA)			40.0	41.5		ng/L		104	70 - 130		
Perfluorotridecanoic acid (PFTriA)			40.0	30.6		ng/L		77	70 - 130		
Perfluoroundecanoic acid (PFUnA)			40.0	39.9		ng/L		100	70 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*79*		*25 - 150*
13C4 PFBA	*109*		*25 - 150*
13C2 PFDA	*89*		*50 - 150*
13C2 PFDoA	*88*		*50 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-154677/2-A
Matrix: Water
Analysis Batch: 154721

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154677

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFHpA	112		50 - 150
13C2 PFHxA	119		50 - 150
13C5 PFNA	104		50 - 150
13C4 PFOA	102		50 - 150
13C4 PFOS	105		50 - 150
13C5 PFPeA	114		25 - 150
13C2 PFTeDA	74		50 - 150
13C2 PFUnA	86		50 - 150
d5-NEtFOSAA	94		50 - 150
d3-NMeFOSAA	108		50 - 150
M2-4:2 FTS	112		25 - 150
M2-6:2 FTS	115		25 - 150
M2-8:2 FTS	104		25 - 150
18O2 PFHxS	107		50 - 150

Lab Sample ID: LCS 200-154677/2-A
Matrix: Water
Analysis Batch: 154751

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154677

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	39.2		ng/L		111	70 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 PFBS	96		50 - 150

Lab Sample ID: LCSD 200-154677/3-A
Matrix: Water
Analysis Batch: 154721

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154677

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4:2 FTS	37.4	39.2		ng/L		105	50 - 150	7	30
6:2 FTS	37.9	38.0		ng/L		100	50 - 150	3	30
8:2 FTS	38.3	41.1		ng/L		107	50 - 150	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	38.9		ng/L		97	70 - 130	5	20
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	44.5		ng/L		111	70 - 130	4	20
Perfluorobutanoic acid (PFBA)	40.0	41.2		ng/L		103	50 - 150	2	30
Perfluorodecanesulfonic acid (PFDS)	38.6	36.3		ng/L		94	50 - 150	6	30
Perfluorodecanoic acid (PFDA)	40.0	43.7		ng/L		109	70 - 130	2	20
Perfluorododecanoic acid (PFDoA)	40.0	39.3		ng/L		98	70 - 130	5	20
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.1		ng/L		100	50 - 150	1	30
Perfluoroheptanoic acid (PFHpA)	40.0	42.0		ng/L		105	70 - 130	6	20
Perfluorohexanesulfonic acid (PFHxS)	36.4	37.4		ng/L		103	70 - 130	0	20
Perfluorohexanoic acid (PFHxA)	40.0	41.8		ng/L		105	70 - 130	8	20

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 200-154677/3-A
Matrix: Water
Analysis Batch: 154721

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154677

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorononanesulfonic acid (PFNS)			38.4	35.1		ng/L		91	50 - 150	6	30
Perfluorononanoic acid (PFNA)			40.0	44.8		ng/L		112	70 - 130	9	20
Perfluorooctanesulfonamide (FOSA)			40.0	34.7		ng/L		87	50 - 150	5	30
Perfluorooctane sulfonate (PFOS)			37.1	35.9		ng/L		97	70 - 130	1	20
Perfluorooctanoic acid (PFOA)			40.0	38.4		ng/L		96	70 - 130	8	20
Perfluoropentanesulfonic acid (PFPeS)			37.5	40.2		ng/L		107	50 - 150	2	30
Perfluoropentanoic acid (PFPeA)			40.0	38.1		ng/L		95	50 - 150	0	30
Perfluorotetradecanoic acid (PFTeA)			40.0	41.4		ng/L		103	70 - 130	0	20
Perfluorotridecanoic acid (PFTriA)			40.0	28.8		ng/L		72	70 - 130	6	20
Perfluoroundecanoic acid (PFUnA)			40.0	43.6		ng/L		109	70 - 130	9	20

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*72*		*25 - 150*
13C4 PFBA	*113*		*25 - 150*
13C2 PFDA	*98*		*50 - 150*
13C2 PFDoA	*92*		*50 - 150*
13C4 PFHpA	*110*		*50 - 150*
13C2 PFHxA	*115*		*50 - 150*
13C5 PFNA	*98*		*50 - 150*
13C4 PFOA	*107*		*50 - 150*
13C4 PFOS	*107*		*50 - 150*
13C5 PFPeA	*119*		*25 - 150*
13C2 PFTeDA	*73*		*50 - 150*
13C2 PFUnA	*84*		*50 - 150*
d5-NEtFOSAA	*107*		*50 - 150*
d3-NMeFOSAA	*100*		*50 - 150*
M2-4:2 FTS	*115*		*25 - 150*
M2-6:2 FTS	*126*		*25 - 150*
M2-8:2 FTS	*108*		*25 - 150*
18O2 PFHxS	*110*		*50 - 150*

Lab Sample ID: LCSD 200-154677/3-A
Matrix: Water
Analysis Batch: 154751

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154677

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)			35.4	37.8		ng/L		107	70 - 130	4	20

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 PFBS	*101*		*50 - 150*

Isotope Dilution Summary

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFDA (50-150)	PFDoA (50-150)	C4PFHA (50-150)	PFHxA (50-150)	PFNA (50-150)	PFOA (50-150)
190-22861-1	Stanley Rd. SAN-001	70	87	85	88	124	114	96	100
190-22861-2	Stanley Rd. SAN-008	72	94	88	104	121	119	95	99
190-22861-3	Stanley Rd. SAN-009	75	94	96	87	121	114	102	98
LCS 200-154677/2-A	Lab Control Sample	79	109	89	88	112	119	104	102
LCSD 200-154677/3-A	Lab Control Sample Dup	72	113	98	92	110	115	98	107
MB 200-154677/1-A	Method Blank	69	99	90	86	104	111	98	94

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOS (50-150)	PFPeA (25-150)	PFTDA (50-150)	PFUnA (50-150)	d5NEFOS (50-150)	d3NMFOS (50-150)	M242FTS (25-150)	M262FTS (25-150)
190-22861-1	Stanley Rd. SAN-001	87	109	64	86	94	90	190 *5	132
190-22861-2	Stanley Rd. SAN-008	94	117	76	83	92	88	167 *5	130
190-22861-3	Stanley Rd. SAN-009	98	115	40 *5	90	91	95	180 *5	115
LCS 200-154677/2-A	Lab Control Sample	105	114	74	86	94	108	112	115
LCSD 200-154677/3-A	Lab Control Sample Dup	107	119	73	84	107	100	115	126
MB 200-154677/1-A	Method Blank	89	102	72	78	91	92	101	111

		Percent Isotope Dilution Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	M282FTS (25-150)	PFHxS (50-150)
190-22861-1	Stanley Rd. SAN-001	113	107
190-22861-2	Stanley Rd. SAN-008	105	104
190-22861-3	Stanley Rd. SAN-009	121	107
LCS 200-154677/2-A	Lab Control Sample	104	107
LCSD 200-154677/3-A	Lab Control Sample Dup	108	110
MB 200-154677/1-A	Method Blank	102	97

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFDA = 13C2 PFDA
PFDoA = 13C2 PFDoA
C4PFHA = 13C4 PFHpA
PFHxA = 13C2 PFHxA
PFNA = 13C5 PFNA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFPeA = 13C5 PFPeA
PFTDA = 13C2 PFTeDA
PFUnA = 13C2 PFUnA
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFHxS = 18O2 PFHxS

Isotope Dilution Summary

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	C3PFBS (50-150)						
190-22861-1	Stanley Rd. SAN-001	95						
190-22861-2	Stanley Rd. SAN-008	99						
190-22861-3	Stanley Rd. SAN-009	103						
LCS 200-154677/2-A	Lab Control Sample	96						
LCSD 200-154677/3-A	Lab Control Sample Dup	101						
MB 200-154677/1-A	Method Blank	90						

Surrogate Legend

C3PFBS = 13C3 PFBS

Definitions/Glossary

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5	Isotope dilution analyte is outside acceptance limits.
I	Value is EMPC (estimated maximum possible concentration).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

LCMS

Prep Batch: 154677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-22861-1	Stanley Rd. SAN-001	Total/NA	Water	3535	
190-22861-2	Stanley Rd. SAN-008	Total/NA	Water	3535	
190-22861-3	Stanley Rd. SAN-009	Total/NA	Water	3535	
MB 200-154677/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-154677/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 200-154677/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 154721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-22861-1	Stanley Rd. SAN-001	Total/NA	Water	537 (modified)	154677
190-22861-2	Stanley Rd. SAN-008	Total/NA	Water	537 (modified)	154677
190-22861-3	Stanley Rd. SAN-009	Total/NA	Water	537 (modified)	154677
MB 200-154677/1-A	Method Blank	Total/NA	Water	537 (modified)	154677
LCS 200-154677/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	154677
LCSD 200-154677/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	154677

Analysis Batch: 154751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-22861-1	Stanley Rd. SAN-001	Total/NA	Water	537 (modified)	154677
190-22861-2	Stanley Rd. SAN-008	Total/NA	Water	537 (modified)	154677
190-22861-3	Stanley Rd. SAN-009	Total/NA	Water	537 (modified)	154677
MB 200-154677/1-A	Method Blank	Total/NA	Water	537 (modified)	154677
LCS 200-154677/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	154677
LCSD 200-154677/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	154677

Lab Chronicle

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

Client Sample ID: Stanley Rd. SAN-001
Date Collected: 04/30/20 08:35
Date Received: 05/01/20 13:50

Lab Sample ID: 190-22861-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			154677	05/05/20 11:08	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	154721	05/06/20 22:27	MBM	TAL BUR
Total/NA	Prep	3535			154677	05/05/20 11:08	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	154751	05/07/20 14:17	BWC	TAL BUR

Client Sample ID: Stanley Rd. SAN-008
Date Collected: 04/30/20 08:46
Date Received: 05/01/20 13:50

Lab Sample ID: 190-22861-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			154677	05/05/20 11:08	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	154721	05/06/20 22:35	MBM	TAL BUR
Total/NA	Prep	3535			154677	05/05/20 11:08	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	154751	05/07/20 14:25	BWC	TAL BUR

Client Sample ID: Stanley Rd. SAN-009
Date Collected: 04/30/20 08:53
Date Received: 05/01/20 13:50

Lab Sample ID: 190-22861-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			154677	05/05/20 11:08	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	154721	05/06/20 22:43	MBM	TAL BUR
Total/NA	Prep	3535			154677	05/05/20 11:08	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	154751	05/07/20 14:34	BWC	TAL BUR

Laboratory References:

TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Analyst References:

Lab: TAL BUR

Batch Type: Prep

ND = Nathan Dean

Batch Type: Analysis

BWC = Bradley Chirgwin

MBM = Morgan Morrill

Accreditation/Certification Summary

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

Laboratory: Eurofins TestAmerica, Michigan

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

Authority	Program	Identification Number	Expiration Date
Michigan	State	0057	10-01-20

Laboratory: Eurofins TestAmerica, Burlington

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

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-23
Connecticut	State	PH-0751	09-30-21
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-15-20
Florida	NELAP	E87467	06-30-20
Minnesota	NELAP	050-999-436	12-31-20
New Hampshire	NELAP	2006	12-18-20
New Jersey	NELAP	VT972	06-30-20
New York	NELAP	10391	04-01-21
Pennsylvania	NELAP	68-00489	04-30-21
Rhode Island	State	LAO00298	12-30-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00272	08-09-20
Vermont	State	VT4000	12-31-20
Virginia	NELAP	460209	12-14-20

Method Summary

Client: Genesee County WWTP
Project/Site: ARTP Plant-Montrose

Job ID: 190-22861-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL BUR
3535	Solid-Phase Extraction (SPE)	SW846	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Login Sample Receipt Checklist

Client: Genesee County WWTP

Job Number: 190-22861-1

Login Number: 22861
List Number: 2
Creator: Mohn, Taylor J

List Source: Eurofins TestAmerica, Burlington
List Creation: 05/02/20 02:00 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	1225647
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.7ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
ANALYTICAL TESTING CORPORATION

CHAIN OF CUSTODY RECORD

☐ Nashville, TN ☐ Dayton, OH ☐ Indianapolis, IN
☐ Orlando, FL ☐ Watertown, WI
☐ Cedar Falls, IA ☒ Pontiac, MI

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?

Compliance Monitoring? Yes No

Enforcement Action? Yes No

Client Name/Account #: GENESEE COUNTY DRAIN COMMISSIONER WWS
Address: G-9290 FARRAND RD.
City/State/Zip: MONTROSE, MI 48457
Project Manager: Thad Domick
Telephone Number: (810) 232-7662 EXT. 2226 **Fax No.:** (810) 232-3280
Sampler Name: (Print) Brent Pittenger
Sampler Signature:

Report To: Thad Domick
Invoice To: Thad Domick
TA Quote #: 010907.377.199
Project ID: ARTP Plant - Montrose
Project #: 2020-00030013

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Ice	HNO_3 (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	None (Black Label)	Other (Specify)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	Analyze For: PFAC/PFOS	RUSH TAT (Pre-Schedule	Standard TAT	Fax Results	Send QC with report
Stanley Rd. SAN-001	4/30/2020	0835A	1	x									x			x					X				
Stanley Rd. SAN-008	4/30/2020	0846A	1	x									x			x					x				
Stanley Rd. SAN-009	4/30/2020	0853A	1	x									x			x					x				

Special Instructions:
See attached list

Method of Shipment: FEDEX

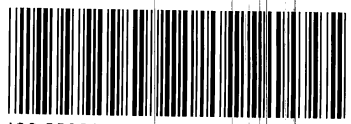
Relinquished by:	Date	Time	Received by:	Date	Time
	5/11/20	0856A		5/12/20	1144
Relinquished by:	Date	Time	Received by TestAmerica:	Date	Time

Laboratory Comments:
Temperature Upon Receipt:
VOCs Free of Headspace? Y N

5/12/2020

Eurofins TestAmerica, Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

Chain of Custody Record



Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sue.schafer@testamericainc.com	Michigan — Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):	Job #: 190-22861-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 5/13/2020		
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: ARTP Plant-Montrose	Project #: 19000549		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_IVWT (MOD) PFAS, Standard List (24)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Stanley Rd. SAN-001 (190-22861-1)	4/29/20	08:35 Eastern		Water			X	1	
Stanley Rd. SAN-008 (190-22861-2)	4/30/20	08:04 Eastern		Water			X	1	
Stanley Rd. SAN-009 (190-22861-3)	4/30/20	08:53 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 5-1-20 1437	Company ETA	Received by: Taylor J Hohn	Date/Time: 5/2/2020 0910	Company TAEBUF
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.: 1225647	Cooler Temperature(s) °C and Other Remarks: 0.7

Ver: 01/16/2019

ORIGIN ID:DEOA (810) 229-2763
SHIPPING DEPARTMENT
EUROFINS TESTAMERICA
10448 CITATION DRIVE
SUITE 200
BRIGHTON, MI 48116
UNITED STATES US

SHIP DATE: 01MAY20
ACTWGT: 34.35 LB
CAD: 0183192/CAFE3313

BILL RECIPIENT

TO SAMPLE RECIEVING
EUROFINS TEST AMERICA BURLINGTON
30 COMMUNITY DR
STE 11
SOUTH BURLINGTON VT 054036834
(802) 660-1990 REF:
INV:
PO: DEPT:

565C4/7B3A/05A2

FedEx
Express
E

J191219082001uv

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 4506 9514 1759

X0 BTVA

05403
VT-US BTV

14

ATTACHMENT C – WELL CONSTRUCTION LOG

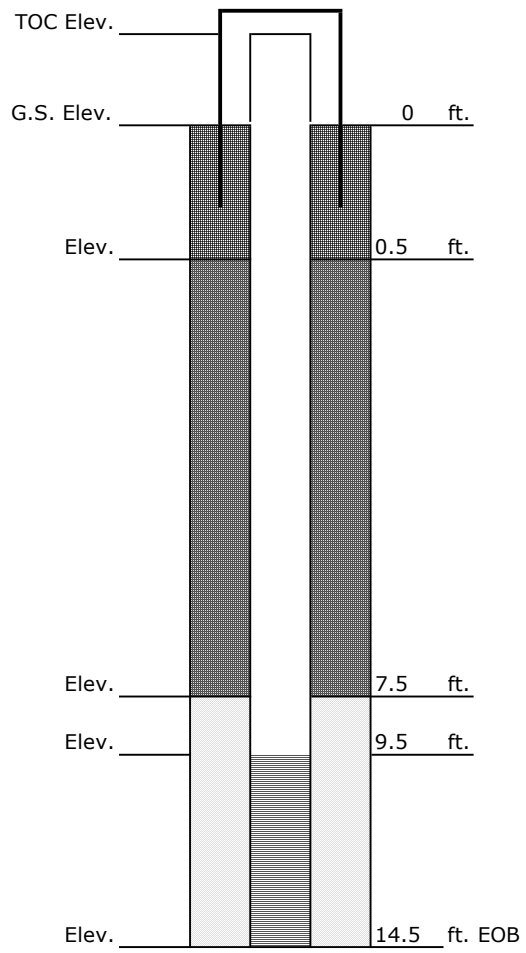
WELL CONSTRUCTION LOG

Well ID: **OBG MW-28**

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

Client: RACER Trust
Date Installed: 03/16/20

STICK-UP WELL DETAIL



Inspection Notes:

Inspector: Kevin Schneider
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 - 9.5 fbg

Grout
Type: N/A Interval: N/A

Bentonite Seal:
Type: Bentonite Chips Interval: 0.5 fbg - 15.5 fbg

Sand Pack:
Type: Silica Sand Interval: 15.5 fbg - 22.5 fbg

Screen Material:
Material: Sch. 40 PVC Diameter: 2" ID
Interval: 9.5 fbg - 14.5 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