

Mr. Jacob Runge
Environmental Engineer
Materials Management Division
Department of Environmental, Great Lakes, and Energy
PO Box 30241
Lansing, MI 48909-7741

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2021 Annual PFAS Sampling Report

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This letter report has been prepared by Ramboll Americas Engineering Solutions, Inc. (Ramboll) on behalf of the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) to document the 2021 annual per- and polyfluoroalkyl substances (PFAS) groundwater sampling event conducted in June 2021 at the Coldwater Road facility located in Flint, Michigan (Site).

Ramboll
3600 Green Court
Suite 750
Ann Arbor, MI 48105
USA

PFAS Sampling Protocol

For this sampling event, the sample team followed the protocol set forth in the EGLE Michigan PFAS Action Response Team (MPART) Groundwater PFAS Sampling Guidance dated October 2018 and Ramboll's PFAS Sampling Field Guidance Document Number 1.07.

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

Special care was taken during sampling and transport of the samples to avoid contamination from clothing, sampling material, and storage containers due to the extremely low detection limits for PFAS (<2 ng/L), because PFAS are used in a variety of applications and products, such as fire retardants, water repellant clothing, microwavable food wrappers, cosmetics, etc.

The sample team wore natural fiber (predominantly 100% cotton, or as near to 100% as possible) clothing (especially no water repellant materials [coats, gloves, shoes, etc.]) and avoided bathing with or applying particular products (deodorants/antiperspirants, lotions, cosmetics, etc.) prior to sampling to minimize the potential for cross contamination.

Sampling Methods

Annual PFAS samples were collected in conjunction with the routine landfill operations, maintenance, and monitoring (OMM) June 2021 Semiannual Groundwater Monitoring event. During this annual PFAS groundwater sampling event samples were collected from the following locations:

Perched Zones (Fourteen Monitoring Wells)

- B-7, B-9, OBG MW-9, OBG MW-11, OBG MW-12S, OBG MW-13, OBG MW-14, OBG MW-17S, OBG MW-18S, OBG MW-21, OBG MW-22, OBG MW-24, OBG MW-26, and OBG MW-28

Drift Unit (Four Monitoring Wells)

- B-27D, OBG MW-23 (D), OBG MW-27 (D), and OBG MW-29 (D)

Leak Detection Vaults

- Vault A, Vault C, and Vault E.

Samples were collected during the weeks of June 7, 2021 and June 14, 2021. See [Figure 1](#) for monitoring well locations.

In addition to the EGLE MPART Groundwater PFAS Sampling Guidance and Ramboll's PFAS Sampling Field Guidance Document Number 1.07., the groundwater sampling was performed in accordance with USEPA, *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures* (EPA/540/S-95/504) and the USEPA Region 1 (July 30, 1996, Revision 4, revised September 19, 2017) *Low Stress (Low-Flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells*.

Groundwater samples from the perched zone were collected using a peristaltic pump. Groundwater samples from the drift unit were collected using a bladder pump. Groundwater sampling logs are included in [Appendix A](#).

Monitoring wells (B-7, and B-9) were purged "dry", with a submersible Whale pump, allowed to recharge, and the samples were collected as soon as sufficient water was present to obtain the necessary sample volume in accordance with Ramboll procedures and the site-specific Field Method Guide.

Groundwater sampling was performed using high density polyethylene (HDPE) sample tubing attached to the appropriate sampling pump (a Whale, peristaltic, or bladder pump) lowered approximately to the midpoint of the well screen. The tubing was then attached to a flow-through cell attached to a physical parameter measurement instrument capable of measuring temperature, conductivity, pH, dissolved oxygen (DO), and oxidation-reduction potential (ORP). Turbidity was also measured with a Hach® turbidity meter.

Purging continued until the water quality parameters stabilized within the USEPA Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells values over three consecutive 5-minute periods, except at wells that were purged "dry" where physical parameter measurements were collected when possible. Once stabilized, the flow-through cell was disconnected and the samples were collected directly into clean, laboratory supplied containers, labeled, placed in an ice-filled cooler, and transported to Merit Laboratories in East Lansing, Michigan under appropriate chain-of-custody (COC) protocols. The samples were submitted to the laboratory for analysis on a standard turnaround time.

Samples were analyzed for the presence of PFAS by ASTM Method D7979 – 19 Modified (no preservation). The following QC samples were collected: a field duplicate, and field (ambient) blanks.

Prior to sampling, water level measurements were collected from monitoring wells at the Site and the offsite wells. Groundwater elevation data is included on [Table 1](#). A groundwater potentiometric surface map was completed for the shallow wells ([Figure 2](#)) and for the deeper drift unit ([Figure 3](#)). As part of the annual sampling event the following monitoring wells and piezometers were gauged:

Perched Zones (Thirty-two Monitoring Wells)

- B-7, B-9, B-18A, B-19Ar, B-24r, B-28, OBG MW-1, OBG MW-2, OBG MW-3, OBG MW-4, OBG MW-5, OBG MW-6, OBG MW-7, OBG MW-8, OBG MW-9, OBG MW-10, OBG MW-11, OBG MW-12S, OBG MW-13, OBG MW-14, OBG MW-17S, OBG MW-18S, OBG MW-20, OBG MW-21, OBG MW-22, OBG MW-24, OBG MW-26, OBG MW-28, PZ-1, MW-19-13, and MW-20-13.

Drift Unit (Seventeen Monitoring Wells)

- B-20D, B-21D, B-22D, B-23Dr, B-27D, OBG MW-12D, OBG MW-15D, OBG MW-16D, OBG MW-17D, OBG MW-18D, OBG MW-19D, OBG MW-23, OBG MW-27, OBG MW-29, MW-15-10, MW-16-10, and PFW-1.

The perched zone static water elevations were down approximately 1 foot (at most 2 feet) compared to the elevations collected the previous year. Groundwater in the perched zone flows predominantly toward the northwest as shown on [Figure 2](#). The drift unit static water elevations were consistent with historical data. Groundwater in the drift unit flows in a southerly direction as shown on [Figure 3](#).

Analytical Results

The analytical results for the samples collected at the Coldwater Road Landfill facility are presented in [Table 2](#) – Perched PFAS Sample Results, [Table 3](#) – Drift PFAS Sample Results [Table 4](#) – Vault PFAS Sample Results. The results are also shown on [Figure 4](#) – Perched Data, [Figure 5](#) – Drift Data, [Figure 6](#) – Vault Data. The complete analytical laboratory report is contained in [Appendix B](#).

The results were compared against EGLE’s December 21, 2020 Part 201 Groundwater Generic Cleanup Criteria and Screening Levels.

The relative percent difference (RPD) for the duplicate sample results for OBG MW-22 and MW-DUP-061621 (OBG MW-22), B-27D and MW-DUP-061121 (B-27D), and Vault-C and Vault-DUP-061621 (Vault-C) were within acceptable limits. No PFAS were detected in the field blanks associated with the field procedures/methods for this sampling event.

Perched Analytical Results

As indicated in both [Table 2](#) and [Figure 5](#) PFAS results in the perched zone were generally comparable to previous sampling events (i.e., are stable or decreasing), with the exception of at OBG MW-14 where PFAS concentrations appear to be increasing but are still below the maximum observed concentration and is delineated by non-detect or below criteria PFAS concentrations at OBG MW-13. PFAS detections above EGLE Cleanup Criteria for the June 2021 event were limited to perfluorooctanoic acid (PFOA) at four wells B-9 (8.2 ng/l), OBG MW-11 (27 ng/l), OBG MW-14 (24 ng/l), and OBG MW-26 (31 ng/l); perfluorohexane sulfonic acid (PFHxS) at two wells OBG MW-11 (380 ng/l) and OBG MW-14 (180 ng/l); and perfluorooctane sulfonic acid (PFOS) at eight wells (B-7, B-9, OBG MW-11, OBG MW-12S, OBG MW-

14, OBG MW-17S, OBG MW-22, and OBG MW-26) with concentrations ranging up to 1,900 ng/l at OBG MW-22.

Drift Unit Analytical Results

As indicated in both [Table 4](#) and [Figure 6](#) PFAS results in the drift unit were generally comparable to previous sampling events (i.e., are stable or decreasing), with the exception of at OBG MW-27 where PFOS concentrations increased this event. Analytical results for the drift unit samples were either not detected above the reporting limits or were below EGLE Cleanup Criteria, except at OBG MW-27 where PFOS was detected at 84 ng/l. OBG MW-27 is delineated to the south by non-detect or below criteria PFAS concentrations at MW-29 and to the west by temporary well sample SBP-72-GW collected west of OBG MW-27.

Vault Analytical Results

As indicated in both [Table 4](#) and [Figure 6](#) PFAS results in the vaults were generally comparable to previous sampling events (i.e., are stable or decreasing). PFAS detections above EGLE Cleanup Criteria for the June 2021 event were limited to PFOS at Vault-A (410 ng/l), Vault-C (400 ng/l), and Vault-E (480 ng/l) and PFOA at Vault-C duplicate Vault-DUP-061621 (8.6 ng/l) and Vault-E (13 ng/l).

Summary

PFAS concentrations do not appear to have expanded and generally appear to be stable, and concentrations are not significantly different from previous monitoring events, except as noted. Continued annual monitoring is recommended.

The next sampling event is currently scheduled for June 2022. If you have any questions, please feel free to contact Clifford Yantz at (313) 333-0211.

Very truly yours,

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.



Clifford S. Yantz

Managing Hydrogeologist
1943864 - MIDWEST EAST Resources 056
M 313.333.0211
Clifford.yantz@ramboll.com

CC: Ms. Nicole Sanabria – EGLE
Mr. Brian Zuber – EGLE
Mr. Jeffrey Kost – GCHD
Mr. James Henry – GCHD
Mr. Kevin Schneider – Ramboll

Mr. John McCabe – EGLE
Mr. Puneet Vij – DHHS-Contractor
Mr. David Favero – RACER Trust

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Figure 2 – Perched Zone Groundwater Elevation Map
Figure 3 – Drift Unit Groundwater Elevation Map
Figure 4 – Perched Zone Monitoring Well PFAS Sample Results
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Appendix

Appendix A – Groundwater Sampling Logs
Appendix B – Analytical Laboratory Results

TABLES

TABLE 1
RACER Trust - Coldwater Road
Depth to Groundwater Levels in Monitoring Wells

June 8, 2021

Well ID	Top of Casing Elevation (ft)*	Depth to Water (ft)	Static Water Elevation (ft)
<i>Landfill Monitoring Wells</i>			
B-7	813.63	16.95	796.68
B-9	807.45	6.09	801.36
B-18A	810.85	21.12	789.73
B-19A	812.66	9.64	803.02
B-19AR	811.80	38.03	773.77
B-20D	815.14	70.14	745.00
B-21D	821.07	80.42	740.65
B-22D	822.15	84.51	737.64
B-23DR	812.12	81.15	730.97
B-24R	816.04	14.32	801.72
B-27D	812.70	75.81	736.89
B-28	816.46	5.68	810.78
OBG MW-16D	807.43	58.21	749.22
<i>former WWTP Monitoring Wells</i>			
OBG MW-1	811.56	5.96	805.60
OBG MW-2	813.77	8.61	805.16
OBG MW-3	810.09	4.76	805.33
OBG MW-4	812.66	5.84	806.82
OBG MW-5	816.04	8.31	807.73
OBG MW-6	815.75	12.44	803.31
OBG MW-7	813.47	8.69	804.78
OBG MW-8	817.50	10.44	807.06
OBG MW-9	809.97	4.22	805.75
OBG MW-10	811.54	7.40	804.14
<i>Additional Site Monitoring Wells</i>			
OBG MW-11	801.94	7.45	794.49
OBG MW-12D	797.13	47.67	749.46
OBG MW-12S	796.88	9.63	787.25
OBG MW-13	801.81	7.02	794.79
OBG MW-14	810.98	8.71	802.27
OBG MW-15D	810.68	79.81	730.87
OBG MW-17D	800.09	50.74	749.35
OBG MW-17S	800.51	11.64	788.87
OBG MW-18D	800.17	50.62	749.55
OBG MW-18S	799.32	15.23	784.09
OBG MW-19D	795.37	46.83	748.54
OBG MW-20	783.93	27.23	DRY
OBG MW-21	797.49	5.61	791.88
OBG MW-22	794.11	5.38	788.73
OBG MW-23 (D)	776.76	28.60	748.16
OBG MW-24	781.50	6.95	774.55
OBG MW-25	786.61	ABANDONED	--
OBG MW-26	772.34	7.69	764.65
OBG MW-27 (D)	771.94	23.66	748.28
OBG MW-28	800.35	13.21	787.14
OBG MW-29 (D)	NO SURVEY DATA	25.48	--
<i>Piezometers</i>			
PZ-1	790.30	16.91	773.39
PZ-2 (D)	774.64	ABANDONED	--
PZ-3	788.37	ABANDONED	--
<i>Peregrine Site Wells</i>			
MW-19-13	807.85	2.32	805.53
MW-20-13	810.81	4.81	806.00
MW-15-10	808.15	76.75	731.40
MW-16-10	798.64	66.95	731.69
PFW-1	809.51	77.80	731.71

Notes

Casing elevations were provided by Norwy & Hale Surveyors and are in feet relative to National Geodetic Vertical Datum

-- Depth to water not collected.

NA - Not available

NG - No ground water detected

Top of casing elevations were resurveyed in June 2017.

R - Indicates a replacement well location.

Monitoring wells OBG MW-25, PZ-2, and PZ-3 were abandon on July 7, 2020 as part of the onsite berm construction.

TABLE 2
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Perched Monitoring Well Sampling

Coldwater Road - Monitoring Wells - PERCHED Zone

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs)	B-7	B-7 (Collocated)	B-7	B-7	B-7	B-7	B-9	B-9	B-9	B-9	B-9
	Sample Date:	11/30/2016	11/30/2016	6/12/2018	5/30/2019	6/18/2020	6/11/2021	6/20/2017	6/12/2018	6/3/2019	6/17/2020	6/11/2021
Perfluorobutanoic Acid (PFBA)	--	9.2 J	7.1 J	8.2 B	<20	10 U	<9.9	14 B	9.5 B	<19	28	16
Perfluoropentanoic Acid (PFPeA)	--	2.6	1.7 J	4.2	<9.8	1.2 J	2.2 J	2.2	1.7 J	<9.4	1.0 J	3.2 J
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	--	--	--	<9.8	<2.0	<2.0	--	--	<9.4	<2.0	<1.9
Perfluorohexanoic Acid (PFHxA)	400,000	3.9	3.1	3.3	<9.8	2.0 J	3.1	9.3	7.0	<9.4	4.3	9.5
Perfluorobutane Sulfonic Acid (PFBS)	420	5.7	5.8	4.1	<9.8	4.8	5.4	2.3	2.1	<9.4	2.3	3.6
Perfluoroheptanoic Acid (PFHpA)	--	2.4	1.6 J	2.3	<9.8	<2	<2.0	4.2	<0.24	<9.4	<2.0	1.8 J
Perfluoropentane Sulfonic Acid (PFPeS)	--	--	--	--	<9.8	5.1	5.4	--	--	<9.4	<2.0	1.8 J
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<3.8	<3.7	--	<20	<2.0	8.6	<3.7	--	<9.4	<2.0	2.9 J
Perfluorooctanoic Acid (PFOA)	8	9.2 JN	7.6 JN	9.2	<9.8	5.6	5.3	15	12	<9.4	<2.0	8.2
Perfluorohexane Sulfonic Acid (PFHxS)	51	23	22 JN	18 B	<19	17	15	6.9	3.7 B	<9.4	5.1	6.4
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	--	--	--	<14	13	12	--	--	<9.4	4.2	5.5
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	--	--	--	<9.8	3.3	2.7	--	--	<9.4	<2.0	<1.9
Perfluorononanoic Acid (PFNA)	6	0.87 J	0.79 J	0.82 J	<9.8	<2.0	<2.0	<0.64	<0.26	<9.4	<2.0	<1.9
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	--	--	--	<9.8	<2.0	<2.0	--	--	<9.4	<2.0	<1.9
Perfluoroheptane Sulfonic Acid (PFHpS)	--	3.8	3.9	3.0	<9.8	2.4	2.0	0.70 J	0.33 J	<9.4	<2.0	<1.9
Perfluorodecanoic Acid (PFDA)	--	<2.0	<2.0	<2.0	<9.8	<2.0	<2.0	<0.43	<1.9	<9.4	<2.0	<1.9
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	--	--	--	<9.8	<2.0	<2.0	--	--	<9.4	<2.0	<1.9
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	--	--	--	<9.8	<4.1	<3.9	--	--	<9.4	<4.1	<3.9
Perfluorooctane Sulfonic Acid (PFOS)	16	220	230	130	140	140	90	13	9.3	16	16	21
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	--	--	--	72	84	46	--	--	<9.4	<2.0	<1.9
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	--	--	--	20	57	42	--	--	13	13	18
Perfluoroundecanoic Acid (PFUnDA)	--	<2.0	<2.0	<2.0	<9.8	<2.0	<2.0	<0.73	<1.9	<9.4	<2.0	<1.9
Perfluorononane Sulfonic Acid (PFNS)	--	--	--	--	<9.8	<2.0	<2.0	--	--	<9.4	<2.0	<1.9
Perfluorododecanoic Acid (PFDoDA)	--	<2.0	<2.0	<2.0	<9.8	<2.0	<2.0	<0.57	<1.9	<9.4	<2.0	<1.9
Perfluorodecane Sulfonic Acid (PFDS)	--	<2.0	<2.0	<2.0	<9.8	<2.0	<2.0	<1.2	<1.9	<9.4	<2.0	<1.9
Perfluorotridecanoic Acid (PFTrDA)	--	<2.0	<2.0	<2.0	<9.8	<2.0	<2.0	<0.54	<1.9	<9.4	<2.0	<1.9
Perfluorooctane Sulfonamide (FOSA)	--	<0.64 UJ	<0.62 UJ	<0.34	<9.8	<2.0	<2.0	3.3 J H	<0.33	<9.4	<2.0	<1.9
Perfluorotetradecanoic Acid (PFTeDA)	--	<2.0 U	<2.0 U	<0.28	<9.8	<4.1	<3.9	1.2 J B	<0.27	<9.4	<4.1	<3.9
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	--	--	--	<2.0	<2.0	--	--	--	<2.0	<1.9
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	--	--	--	--	<2.0	<2.0	--	--	--	<2.0	<1.9
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	--	--	<2.0	<2.0	--	--	--	<2.0	<1.9
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	--	--	<2.0	<9.9	--	--	--	<2.0	<9.7
Total Per-and Polyfluoroalkyl Substances	--	280.7	283.6	183.1	140.0	178.1	137.0	72.1	45.6	16.0	56.7	74.4

Notes

1) Detections in **bold**.

2) Concentrations in ng/L.

3) < = Not detected at specified reporting limit.

4) -- = Not analyzed/No criteria.

5) * = Monitoring well has been abandoned.

6) Dup = Duplicate sample.

7) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.

8) Light gray header is most recent sampling event result.

9) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.

10) B - Compound also found in associated method blank.

11) I - Matrix interference with internal standard.

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

13) X - Elevated reporting limit due to matrix interference.

14) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.

TABLE 2
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Perched Monitoring Well Sampling

Coldwater Road - Monitoring Wells - PERCHED Zone

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs) Sample Date:	B-18A 6/20/2017	B-18A 6/12/2018	B-18A 6/3/2019	B-18A (GW-DUP-1) 6/3/2019	B-18A 6/18/2020	B-18A (DUP-1) 6/18/2020	B-19Ar 11/30/2016	B-19Ar 6/12/2018	B-19Ar 6/3/2019	B-19Ar 6/18/2020
Perfluorobutanoic Acid (PFBA)	--	4.2 B	1.1 J/B	<19	<20	12 U	<9.7	1.0 J	1.2 J/B	<20	14 U
Perfluoropentanoic Acid (PFPeA)	--	<0.94	0.51 J	<9.5	<9.8	<4.0	<3.9	<0.98 U	1.1 J	<9.9	<3.8
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	--	--	<9.5	<9.8	<2.0	<1.9	--	--	<9.9	<1.9
Perfluorohexanoic Acid (PFHxA)	400,000	<0.75	<0.56	<9.5	<9.8	<2.0	<1.9	<0.78 U	<0.54	<9.9	<1.9
Perfluorobutane Sulfonic Acid (PFBS)	420	<0.87	<0.19	<9.5	<9.8	<2.0	<1.9	<0.91 U	0.28 J	<9.9	<1.9
Perfluoroheptanoic Acid (PFHpA)	--	<0.76	<0.24	<9.5	<9.8	<2.0	<1.9	<0.80 U	0.33 J	<9.9	<1.9
Perfluoropentane Sulfonic Acid (PFPeS)	--	--	--	<9.5	<9.8	<2.0	<1.9	--	--	<9.9	<1.9
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<3.6	--	<9.5	<9.8	2.1	2.3	<3.8	--	<9.9	5.7
Perfluorooctanoic Acid (PFOA)	8	1.2 J	<0.82	<9.5	<9.8	<2.0	<1.9	0.84 JN	0.93 J	<9.9	<1.9
Perfluorohexane Sulfonic Acid (PFHxS)	51	<0.83	0.27 J/B	<9.5	<9.8	<2.0	<1.9	<2.0 U	0.89 J/B	<9.9	<1.9
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	--	--	<9.5	<9.8	<2.0	<1.9	--	--	<9.9	<1.9
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	--	--	<9.5	<9.8	<2.0	<1.9	--	--	<9.9	<1.9
Perfluorononanoic Acid (PFNA)	6	<0.62	<0.26	<9.5	<9.8	<2.0	<1.9	<0.65 U	<0.25	<9.9	<1.9
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	--	--	<9.5	<9.8	<2.0	<1.9	--	--	<9.9	<1.9
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<0.68	<0.18	<9.5	<9.8	<2.0	<1.9	1.0 J	0.31 J	<9.9	<1.9
Perfluorodecanoic Acid (PFDA)	--	<0.42	<1.9	<9.5	<9.8	<2.0	<1.9	<2.0	<1.9	<9.9	<1.9
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	--	--	<9.5	<9.8	<2.0	<1.9	--	--	<9.9	<1.9
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	--	--	<9.5	<9.8	<4.0	<3.9	--	--	<9.9	<3.8
Perfluorooctane Sulfonic Acid (PFOS)	16	1.3 J	<0.52	<9.5	<9.8	<2.0	<1.9	3.9	4.1	10	3.2
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	--	--	<9.5	<9.8	<2.0	<1.9	--	--	<9.9	<1.9
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	--	--	<9.5	<9.8	<2.0	<1.9	--	--	<9.9	<1.9
Perfluoroundecanoic Acid (PFUnDA)	--	<0.71	<1.9	<9.5	<9.8	<2.0	<1.9	<2.0	<1.9	<9.9	<1.9
Perfluorononane Sulfonic Acid (PFNS)	--	--	--	<9.5	<9.8	<2.0	<1.9	--	--	<9.9	<1.9
Perfluorododecanoic Acid (PFDoDA)	--	<0.56	<1.9	<9.5	<9.8	<2.0	<1.9	<2.0	<1.9	<9.9	<1.9
Perfluorodecane Sulfonic Acid (PFDS)	--	<1.2	<1.9	<9.5	<9.8	<2.0	<1.9	<2.0	<1.9	<9.9	<1.9
Perfluorotridecanoic Acid (PFTriDA)	--	<0.52	<1.9	<9.5	<9.8	<2.0	<1.9	<2.0	<1.9	<9.9	<1.9
Perfluorooctane Sulfonamide (FOSA)	--	<0.61	<0.34	<9.5	<9.8	<2.0	<1.9	<0.63 UJ	<0.33	<9.9	<1.9
Perfluorotetradecanoic Acid (PFTeDA)	--	<0.19	<0.28	<9.5	<9.8	<4.0	<3.9	<2.0 U	<0.27	<9.9	<3.8
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	--	--	--	--	--	<2.0	<1.9	--	--	--	<1.9
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF3ONS)	--	--	--	--	--	<2.0	<1.9	--	--	--	<1.9
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	--	--	<2.0	<1.9	--	--	--	<1.9
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	--	--	<2.0	<1.9	--	--	--	<1.9
Total Per-and Polyfluoroalkyl Substances	--	6.7	1.9	0.0	0.0	2.1	2.3	6.7	9.1	10.0	8.9

Notes

- 1) Detections in **bold**.
- 2) Concentrations in ng/L.
- 3) < = Not detected at specified reporting limit.
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- 6) Dup = Duplicate sample.
- 7) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
- 8) Light gray header is most recent sampling event result.
- 9) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
- 10) B - Compound also found in associated method blank.
- 11) I - Matrix interference with internal standard.
- 12) J - Estimated value less than reporting limit, but greater than MDL.
- 13) X - Elevated reporting limit due to matrix interference.
- 14) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.



TABLE 2
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Perched Monitoring Well Sampling

Coldwater Road - Monitoring Wells - PERCHED Zone

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs)	B-24r	B-24r	B-24r	B-24r	B-28	B-28	B-28	B-28	OBG MW-6	OBG-MW-7	OBG MW-7
	Sample Date:	6/20/2017	6/12/2018	5/30/2019	6/17/2020	6/20/2017	6/12/2018	5/29/2019	6/16/2020	9/20/2018	6/20/2017	9/20/2018
Perfluorobutanoic Acid (PFBA)	--	14 B	8.9 B	<17	18 U	2.9 B	1.5 J/B	<18	<10	30	8.0 B	<20
Perfluoropentanoic Acid (PFPeA)	--	<0.93	2.0	<8.5	<3.9	<0.96	0.47 J	<8.9	<4.0	<10	<0.96	<10
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	--	--	<8.5	<2.0	--	--	<8.9	<2.0	<10	--	<10
Perfluorohexanoic Acid (PFHxA)	400,000	3.9	2.7	<8.5	<2.0	0.92 J	<0.55	<8.9	<2.0	<10	1.0 J	<10
Perfluorobutane Sulfonic Acid (PFBS)	420	3.7	1.5 J	<8.5	2.4	<0.89	<0.19	<8.9	<2.0	<10	<0.86	<10
Perfluoroheptanoic Acid (PFHpA)	--	1.7 J	<0.23	<8.5	<2.0	<0.78	<0.24	<8.9	<2.0	<10	<0.78	<10
Perfluoropentane Sulfonic Acid (PFPeS)	--	--	--	<8.5	<2.0	--	--	<8.9	<2.0	<10	--	<10
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<3.6	--	<17	<2.0	<3.7	--	<18	<2.0	<10	<3.7	<10
Perfluorooctanoic Acid (PFOA)	8	3.9	3.4	<8.5	<2.0	0.79 J	0.84 J	<8.9	<2.0	<10	<0.72	<10
Perfluorohexane Sulfonic Acid (PFHxS)	51	5.4	2.6 B	<8.5	3.3	<0.84	0.27 J/B	<8.9	<2.0	<10	<0.84	<10
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	--	--	<8.5	2.4	--	--	<8.9	<2.0	<10	--	<10
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	--	--	<8.5	<2.0	--	--	<8.9	<2.0	<10	--	<10
Perfluorononanoic Acid (PFNA)	6	<0.62	<0.25	<8.5	<2.0	<0.63	<0.26	<8.9	<2.0	<10	<0.63	<10
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	--	--	<8.5	<2.0	--	--	<8.9	<2.0	<10	--	<10
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<0.67	<0.18	<8.5	<2.0	<0.69	<0.18	<8.9	<2.0	<10	<0.69	<10
Perfluorodecanoic Acid (PFDA)	--	<0.41	<1.9	<8.5	<2.0	<0.43	<1.9	<8.9	<2.0	<10	<0.43	<10
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	--	--	<8.5	<2.0	--	--	<8.9	<2.0	<10	--	<10
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	--	--	<8.5	<3.9	--	--	<8.9	<4.0	<10	--	<10
Perfluorooctane Sulfonic Acid (PFOS)	16	5.0	2.5	<8.5	3.8	1.7 J	<0.51	<8.9	<2.0	<10	<1.9	<10
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	--	--	<8.5	3.3	--	--	<8.9	<2.0	<10	--	<10
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	--	--	<8.5	<2.0	--	--	<8.9	<2.0	<10	--	<10
Perfluoroundecanoic Acid (PFUnDA)	--	<0.70	<1.9	<8.5	<2.0	<0.73	<1.9	<8.9	<2.0	<10	<0.72	<10
Perfluorononane Sulfonic Acid (PFNS)	--	--	--	<8.5	<2.0	--	--	<8.9	<2.0	<10	--	<10
Perfluorododecanoic Acid (PFDoDA)	--	<0.55	<1.9	<8.5	<2.0	<0.57	<1.9	<8.9	<2.0	<10	<0.57	<10
Perfluorodecane Sulfonic Acid (PFDS)	--	<1.1	<1.9	<8.5	<2.0	<1.2	<1.9	<8.9	<2.0	<10	<1.2	<10
Perfluorotridecanoic Acid (PFTTrDA)	--	<0.52	<1.9	<8.5	<2.0	<0.53	<1.9	<8.9	<2.0	<10	<0.53	<10
Perfluorooctane Sulfonamide (FOSA)	--	0.66 J	<0.32	<8.5	<2.0	1.2 J	<0.33	<8.9	<2.0	<10	<0.62	<10
Perfluorotetradecanoic Acid (PFTeDA)	--	<0.19	<0.27	<8.5	<3.9	<0.19	<0.28	<8.9	<4.0	<10	1.0 J B	<10
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	--	--	<2.0	--	--	--	<2.0	--	--	--
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	--	--	--	<2.0	--	--	--	<2.0	--	--	--
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	--	<2.0	--	--	--	<2.0	--	--	--
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	--	<2.0	--	--	--	<2.0	--	--	--
Total Per-and Polyfluoroalkyl Substances	--	38.3	23.6	0.0	9.5	7.5	3.1	0.0	0.0	30.0	10.0	0.0

- Notes
- 1) Detections in **bold**.
 - 2) Concentrations in ng/L.
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 - 8) Light gray header is most recent sampling event result.
 - 9) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
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TABLE 2
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Perched Monitoring Well Sampling

Coldwater Road - Monitoring Wells - PERCHED Zone

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs) Sample Date:	OBG MW-8 9/20/2018	OBG-MW-9 6/20/2017	OBG MW-9 9/20/2018	OBG MW-9 REPLICATE 01 9/20/2018	OBG MW-9 6/19/2020	OBG MW-9 6/15/2021	OBG-MW-11 7/19/2018	OBG MW-11 5/30/2019	OBG MW-11 6/24/2020	OBG MW-11 6/15/2021
Perfluorobutanoic Acid (PFBA)	--	<20	1.4 J B	<20	<20	24 U	<9.8	29 B	<19	34	24
Perfluoropentanoic Acid (PFPeA)	--	<10	<0.94	<10	<10	<3.8	<3.9	5.7	<9.7	6.6	6.8
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<10	--	<10	<10	<1.9	<2.0	--	<9.7	<2.0	<2.1
Perfluorohexanoic Acid (PFHxA)	400,000	<10	<0.75	<10	<10	<1.9	<2.0	29	17	19	16
Perfluorobutane Sulfonic Acid (PFBS)	420	<10	2.0	<10	<10	1.7 J	2.1	79	350	190	52
Perfluorohexanoic Acid (PFHpA)	--	<10	<0.76	<10	<10	<1.9	<2.0	14	<9.7	8.8	7.3
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	--	<10	<10	<1.9	<2.0	160	94	98	94
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<10	<3.6	<10	<10	6.4	<3.9	5.4 JB	<9.7	<2.0	<4.2
Perfluorooctanoic Acid (PFOA)	8	20	1.1 J	<10	<10	<1.9	<2.0	54	34	25	27
Perfluorohexane Sulfonic Acid (PFHxS)	51	70	5.0	<10	<10	3.2	2.4	450 B	370	440	380
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	60	--	<10	<10	2.5	1.7 J	--	310	370	310
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<10	--	<10	<10	<1.9	<2.0	--	58	71	61
Perfluorononanoic Acid (PFNA)	6	<10	<0.62	<10	<10	<1.9	<2.0	<0.22	<9.7	<2.0	<2.1
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<10	--	<10	<10	<1.9	<2.0	--	<9.7	<2.0	<2.1
Perfluoroheptane Sulfonic Acid (PFHpS)	--	30	<0.68	<10	<10	<1.9	<2.0	13	<12	13	9.9
Perfluorodecanoic Acid (PFDA)	--	<10	<0.42	<10	<10	<1.9	<2.0	<1.6	<9.7	<2.0	<2.1
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<10	--	<10	<10	<1.9	<2.0	--	<9.7	<2.0	<2.1
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<10	--	<10	<10	<3.8	<3.9	--	<9.7	<3.9	<4.2
Perfluorooctane Sulfonic Acid (PFOS)	16	2710	2.9	<10	<10	11	3.1	110	130	160	110
Perfluorooctane Sulfonic Acid (PFOS -LN)	--	1570	--	<10	<10	6.4	<2.0	--	19	26	18
Perfluorooctane Sulfonic Acid (PFOS -BR)	--	1270	--	<10	<10	3.7	<2.0	--	110	130	85
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<0.71	<10	<10	<1.9	<2.0	<1.6	<9.7	<2.0	<2.1
Perfluorononane Sulfonic Acid (PFNS)	--	<10	--	<10	<10	<1.9	<2.0	--	<9.7	<2.0	<2.1
Perfluorododecanoic Acid (PFDoDA)	--	<10	<0.55	<10	<10	<1.9	<2.0	<1.6	<9.7	<2.0	<2.1
Perfluorodecane Sulfonic Acid (PFDS)	--	<10	<1.1	<10	<10	<1.9	<2.0	<1.6	<9.7	<2.0	<2.1
Perfluorotridecanoic Acid (PFTTrDA)	--	<10	<0.52	<10	<10	<1.9	<2.0	<1.6	<9.7	<2.0	<2.1
Perfluorooctane Sulfonamide (FOSA)	--	<10	<0.61	<10	<10	<1.9	<2.0	<0.28	<9.7	<2.0	<2.1
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<0.19	<10	<10	<3.8	<3.9	<0.24	<9.7	<3.9	<4.2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	--	--	--	--	--	<1.9	<2.0	--	--	<2.0	<2.1
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF3ONS)	--	--	--	--	--	<1.9	<2.0	--	--	<2.0	<2.1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	--	--	<1.9	<2.0	--	--	<2.0	<2.1
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	--	--	<1.9	<9.8	--	--	<2.0	<10
Total Per-and Polyfluoroalkyl Substances	--	2830.0	12.4	0.0	0.0	22.3	7.6	949.1	995.0	994.4	727.0

Notes

- 1) Detections in **bold**.
- 2) Concentrations in ng/L.
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TABLE 2
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Perched Monitoring Well Sampling

Coldwater Road - Monitoring Wells - PERCHED Zone

Perfluorinated Compound	Well/Sample ID:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	OBG MW-12S	OBG MW-12S	OBG MW-12S	OBG MW-12S	OBG MW-13	OBG MW-13	OBG MW-13	OBG MW-13	OBG MW-14	OBG MW-14	OBG MW-14	OBG MW-14
	Sample Date:		1/2/2019	6/5/2019	6/22/2020	6/15/2021	10/19/2018	6/6/2019	6/19/2020	6/14/2021	10/19/2018	6/6/2019	6/25/2020	6/15/2021
Perfluorobutanoic Acid (PFBA)	--	--	<20	<19	19 U	<10	<20	<19	13 U	<10	<20	<20	36 U	23
Perfluoropentanoic Acid (PFPeA)	--	--	<10	<9.5	<3.9	<4.1	<10	<9.7	<3.8	<4.1	<10	<10	5.5	6.7
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	<2.0	<2.0
Perfluorohexanoic Acid (PFHxA)	400,000	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	4.9	5.6
Perfluorobutane Sulfonic Acid (PFBS)	420	--	<10	<9.5	3.7	4.1	<10	<9.7	<1.9	<2.1	10	18	23	21
Perfluoroheptanoic Acid (PFHpA)	--	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	3.1	3.9
Perfluoropentane Sulfonic Acid (PFPeS)	--	--	<10	<9.5	5.1	4.6	<10	<9.7	<1.9	<2.1	20	32	45	42
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	--	<10	<9.5	5.6	2.1 J	<10	<9.7	2.3	5.1	<10	<10	6.5	<4.0
Perfluorooctanoic Acid (PFOA)	8	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	20	18	26	24
Perfluorohexane Sulfonic Acid (PFHxS)	51	--	20	15	17	14	<10	<9.7	<1.9	<2.1	100	120	130	180
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	--	10	12	15	11	<10	<9.7	<1.9	<2.1	100	100	110	160
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	--	<10	<9.5	2.4	2.3	<10	<9.7	<1.9	<2.1	10	18	20	29
Perfluorononanoic Acid (PFNA)	6	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	<2.0	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	<2.0	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	--	<10	<9.5	4.9	5.0	<10	<9.7	<1.9	<2.1	20	32	28	44
Perfluorodecanoic Acid (PFDA)	--	--	<10	<9.5	<2.0	<2.0	<20	<9.7	<1.9	<2.1	<20	<10	<2.0	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	<2.0	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	--	<10	<9.5	<3.9	<4.1	<10	<9.7	<3.8	<4.1	<10	<10	<4.1	<4.0
Perfluorooctane Sulfonic Acid (PFOS)	16	--	300	150	220	180	<10	<9.7	<1.9	<2.1	540	1100	1300	1500
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	--	50	23	42	32	<10	<9.7	<1.9	<2.1	230	450	580	670
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	--	250	130	180	140	<10	<9.7	<1.9	<2.1	300	700	730	830
Perfluoroundecanoic Acid (PFUnDA)	--	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	<2.0	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	<2.0	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	<2.0	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	<2.0	<2.0
Perfluorotridecanoic Acid (PFTrDA)	--	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	<2.0	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	--	<10	<9.5	<2.0	<2.0	<10	<9.7	<1.9	<2.1	<10	<10	<2.0	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	--	<10	<9.5	<3.9	<4.1	<10	<9.7	<3.8	<4.1	<10	<10	<4.1	<4.0
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	--	--	<2.0	<2.0	--	--	<1.9	<2.1	--	--	<2.0	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	--	--	--	<2.0	<2.0	--	--	<1.9	<2.1	--	--	<2.0	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	--	<2.0	<2.0	--	--	<1.9	<2.1	--	--	<2.0	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	--	<2.0	<10	--	--	<1.9	<10	--	--	<2.0	<10
Total Per-and Polyfluoroalkyl Substances	--	--	320.0	165.0	256.3	209.8	0.0	0.0	2.3	5.1	710.0	1320.0	1572.0	1827.2

- Notes
- 1) Detections in **bold**.
 - 2) Concentrations in ng/L.
 - 3) < = Not detected at specified reporting limit.
 - 4) -- = Not analyzed/No criteria.
 - 5) * = Monitoring well has been abandoned.
 - 6) Dup = Duplicate sample.
 - 7) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
 - 8) Light gray header is most recent sampling event result.
 - 9) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
 - 10) B - Compound also found in associated method blank.
 - 11) I - Matrix interference with internal standard.
 - 12) J - Estimated value less than reporting limit, but greater than MDL.
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 - 14) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.

TABLE 2
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Perched Monitoring Well Sampling

Coldwater Road - Monitoring Wells - PERCHED Zone

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs)	OBG MW-17S	OBG MW-17S	OBG MW-17S (GW-DUP-2)	OBG MW-17S	OBG MW-17S (DUP-2)	OBG MW-17S	OBG MW-18S	OBG MW-18S	OBG MW-18S	OBG MW-18S
	Sample Date:	1/2/2019	6/6/2019	6/6/2019	6/22/2020	6/22/2020	6/15/2021	1/3/2019	6/4/2019	6/19/2020	6/10/2021
Perfluorobutanoic Acid (PFBA)	--	<20	<20	<20	26 U	27 U	11	<20	<19	16 U	<10
Perfluoropentanoic Acid (PFPeA)	--	<10	<9.8	<10	<3.9	<3.9	2.0 J	<10	<9.5	<4.1	<4.1
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
Perfluorohexanoic Acid (PFHxA)	400,000	<10	<9.8	<10	<1.9	<1.9	1.9 J	<10	<9.5	<2.1	<2.0
Perfluorobutane Sulfonic Acid (PFBS)	420	<10	<9.8	<10	2.0	1.9 J	2.6	<10	<9.5	<2.1	<2.0
Perfluoroheptanoic Acid (PFHpA)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	<9.8	<10	1.7 J	1.8 J	3.0	<10	<9.5	<2.1	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<10	<9.8	<10	<1.9	<1.9	<4.0	<10	<9.5	<2.1	12
Perfluorooctanoic Acid (PFOA)	8	<10	<9.8	<10	1.6 J	<1.9	2.0	<10	<9.5	<2.1	<2.0
Perfluorohexane Sulfonic Acid (PFHxS)	51	<10	11	15	9.7	8.7	9.7	<10	<9.5	1.9 J	2.0 J
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<10	9.9	13	8.5	7.1	7.8	<10	<9.5	<2.1	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<10	<9.8	<10	<1.9	1.8 J	1.7 J	<10	<9.5	<2.1	<2.0
Perfluorononanoic Acid (PFNA)	6	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<10	<9.8	<10	5.2	4.7	3.7	<10	<9.5	<2.1	<2.0
Perfluorodecanoic Acid (PFDA)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<10	<9.8	<10	<3.9	<3.9	<4.0	<10	<9.5	<4.1	<4.1
Perfluorooctane Sulfonic Acid (PFOS)	16	460	430	470	580	590	460	<10	<9.5	<2.1	<2.0
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	210	210	240	310	330	260	<10	<9.5	<2.1	<2.0
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	250	220	240	290	280	200	<10	<9.5	<2.1	<2.0
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
Perfluorotridecanoic Acid (PFTriDA)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	<10	<9.8	<10	<1.9	<1.9	<2.0	<10	<9.5	<2.1	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<9.8	<10	<3.9	<3.9	<4.0	<10	<9.5	<4.1	<4.1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	--	--	--	--	<1.9	<1.9	<2.0	--	--	<2.1	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF3ONS)	--	--	--	--	<1.9	<1.9	<2.0	--	--	<2.1	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	--	<1.9	<1.9	<2.0	--	--	<2.1	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	--	<1.9	<1.9	<9.9	--	--	<2.1	<10
Total Per-and Polyfluoroalkyl Substances	--	460.0	441.0	485.0	600.2	607.1	484.9	0.0	0.0	1.9	14.0

Notes

- 1) Detections in **bold**.
- 2) Concentrations in ng/L.
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- 6) Dup = Duplicate sample.
- 7) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
- 8) Light gray header is most recent sampling event result.
- 9) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process.
The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
- 10) B - Compound also found in associated method blank.
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TABLE 2
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Perched Monitoring Well Sampling

Coldwater Road - Monitoring Wells - PERCHED Zone

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs)	OBG MW-21	OBG MW-21	OBG MW-21	OBG MW-21	OBG MW-22	OBG MW-22 (DUP-1)	OBG MW-22	OBG MW-22 (GW-DUP-3)	OBG MW-22	OBG MW-22	MW-DUP-061621 (OBG MW-22)
	Sample Date:	1/2/2019	6/4/2019	6/18/2020	6/14/2021	1/3/2019	1/3/2019	6/6/2019	6/6/2019	6/24/2020	6/16/2021	6/16/2021
Perfluorobutanoic Acid (PFBA)	--	<20	<20	24 U	<10	<20	<20	<20	<19	<9.8	<10	<10
Perfluoropentanoic Acid (PFPeA)	--	<10	<9.8	<4.1	<4.1	<10	<10	<9.8	<9.5	<3.9	<4.1	<4.0
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
Perfluorohexanoic Acid (PFHxA)	400,000	<10	<9.8	<2.1	1.8 J	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
Perfluorobutane Sulfonic Acid (PFBS)	420	<10	<9.8	8.9	2.6	<10	<10	<9.8	<9.5	5.1	4.7	4.8
Perfluoroheptanoic Acid (PFHpA)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	<9.8	2.2	3.3	<10	10	10	9.6	6.9	5.8	5.7
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<10	<9.8	<2.1	5.7	<10	<10	<9.8	<9.5	<2.0	<4.1	<4.0
Perfluorooctanoic Acid (PFOA)	8	<10	<9.8	<2.1	<2.1	<10	10	<9.8	<9.5	7.2	7.2	7.1
Perfluorohexane Sulfonic Acid (PFHxS)	51	<10	<9.8	3.2	4.3	50	50	43	47	38	33	34
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<10	<9.8	1.6 J	2.5	40	40	39	41	34	28	30
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<10	<9.8	1.8 J	1.7 J	<10	<10	<9.8	<9.5	3.8	4.7	3.5
Perfluorononanoic Acid (PFNA)	6	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<10	<9.8	<2.1	<2.1	30	30	31	22	30	18	19
Perfluorodecanoic Acid (PFDA)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<10	<9.8	<4.1	<4.1	<10	<10	<9.8	<9.5	<3.9	<4.1	<4.0
Perfluorooctane Sulfonic Acid (PFOS)	16	<10	<9.8	<2.1	<2.1	1620	1800	1800	1800	2300	1900	1900
Perfluorooctane Sulfonic Acid (PFOS -LN)	--	<10	<9.8	<2.1	<2.1	590	670	810	800	1200	1000	1000
Perfluorooctane Sulfonic Acid (PFOS -BR)	--	<10	<9.8	<2.1	<2.1	1020	1110	1000	1000	1200	840	900
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
Perfluorotridecanoic Acid (PFTTrDA)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	<10	<9.8	<2.1	<2.1	<10	<10	<9.8	<9.5	<2.0	<2.1	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<9.8	<4.1	<4.1	<10	<10	<9.8	<9.5	<3.9	<4.1	<4.0
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	--	--	--	<2.1	<2.1	--	--	--	--	<2.0	<2.1	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF3ONS)	--	--	--	<2.1	<2.1	--	--	--	--	<2.0	<2.1	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	<2.1	<2.1	--	--	--	--	<2.0	<2.1	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	<2.1	<10	--	--	--	--	<2.0	<10	<10
Total Per-and Polyfluoroalkyl Substances	--	0.0	0.0	14.3	17.7	1700.0	1900.0	1884.0	1878.6	2387.2	1968.7	1970.6

- Notes
- 1) Detections in **bold**.
 - 2) Concentrations in ng/L.
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TABLE 2
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Perched Monitoring Well Sampling

Coldwater Road - Monitoring Wells - PERCHED Zone

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs)	OBG MW-24	OBG MW-24	OBG MW-24	OBG MW-24	OBG MW-25*	OBG MW-25*	OBG MW-26	OBG MW-26	OBG MW-26	OBG MW-28	OBG MW-28 (DUP-3)	OBG MW-28
	Sample Date:	1/3/2019	6/6/2019	6/23/2020	6/10/2021	6/5/2019	6/22/2020	6/6/2019	6/24/2020	6/15/2021	6/24/2020	6/24/2020	6/14/2021
Perfluorobutanoic Acid (PFBA)	--	<20	<20	<10	<9.8	<20	17 U	25	48 U	13	14	12	<10
Perfluoropentanoic Acid (PFPeA)	--	<10	<10	<4.0	<3.9	<10	<3.9	79	53	26	<3.8	<3.8	<4.2
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
Perfluorohexanoic Acid (PFHxA)	400,000	<10	<10	<2.0	<2.0	<10	<1.9	64	43	25	<1.9	<1.9	<2.1
Perfluorobutane Sulfonic Acid (PFBS)	420	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	5.4	4.7	1.9 J	2.4	<2.1
Perfluoroheptanoic Acid (PFHpA)	--	<10	<10	<2.0	<2.0	<10	<1.9	11	7.5	4.7	<1.9	<1.9	<2.1
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	8.5	6.3	<1.9	<1.9	<2.1
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<10	<10	<2.0	11	<10	<1.9	<9.9	<1.9	<4.0	<1.9	<1.9	<4.2
Perfluorooctanoic Acid (PFOA)	8	<10	<10	<2.0	<2.0	<10	<1.9	41	32	31	7.2	6.1	<2.1
Perfluorohexane Sulfonic Acid (PFHxS)	51	<10	<10	<2.0	<2.0	<10	<1.9	40	34	33	2.3	2.1	<2.1
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<10	<10	<2.0	<2.0	<10	<1.9	36	31	29	1.9	1.8 J	<2.1
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	3.1	3.7	<1.9	<1.9	<2.1
Perfluorononanoic Acid (PFNA)	6	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<10	<10	<2.0	<2.0	<10	<1.9	18	12	11	<1.9	<1.9	<2.1
Perfluorodecanoic Acid (PFDA)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<10	<10	<4.0	<3.9	<10	<3.9	<9.9	<3.8	<4.0	<3.8	<3.8	<4.2
Perfluorooctane Sulfonic Acid (PFOS)	16	<10	<10	<2.0	<2.0	<10	<1.9	490	530	490	<1.9	<1.9	<2.1
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	<10	<10	<2.0	<2.0	<10	<1.9	170	190	190	<1.9	<1.9	<2.1
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	<10	<10	<2.0	<2.0	<10	<1.9	320	330	300	<1.9	<1.9	<2.1
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
Perfluorononane Sulfonic Acid (PFNS)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
Perfluorododecanoic Acid (PFDoDA)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
Perfluorodecane Sulfonic Acid (PFDS)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
Perfluorotridecanoic Acid (PFTrDA)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
Perfluorooctane Sulfonamide (FOSA)	--	<10	<10	<2.0	<2.0	<10	<1.9	<9.9	<1.9	<2.0	<1.9	<1.9	<2.1
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<10	<4.0	<3.9	<10	<3.9	<9.9	<3.8	<4.0	<3.8	<3.8	<4.2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	--	--	--	<2.0	<2.0	--	<1.9	--	<1.9	<2.0	<1.9	<1.9	<2.1
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF3ONS)	--	--	--	<2.0	<2.0	--	<1.9	--	<1.9	<2.0	<1.9	<1.9	<2.1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	<2.0	<2.0	--	<1.9	--	<1.9	<2.0	<1.9	<1.9	<2.1
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	<2.0	<9.8	--	<1.9	--	<1.9	<10	<1.9	<1.9	<10
Total Per-and Polyfluoroalkyl Substances	--	0.0	0.0	0.0	11.0	0.0	0.0	768.0	725.4	631.7	25.4	22.6	0.0

- Notes
- 1) Detections in **bold**.
 - 2) Concentrations in ng/L.
 - 3) < = Not detected at specified reporting limit.
 - 4) -- = Not analyzed/No criteria.
 - 5) * = Monitoring well has been abandoned.
 - 6) Dup = Duplicate sample.
 - 7) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
 - 8) Light gray header is most recent sampling event result.
 - 9) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
 - 10) B - Compound also found in associated method blank.
 - 11) I - Matrix interference with internal standard.
 - 12) J - Estimated value less than reporting limit, but greater than MDL.
 - 13) X - Elevated reporting limit due to matrix interference.
 - 14) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.

TABLE 2
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Perched Monitoring Well Sampling

Coldwater Road - Monitoring Wells - PERCHED Zone

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs)	PZ-1	PZ-1	PZ-1	PZ-3*	PZ-3*	PZ-3*	MW-4-02*	MW-18-13*	MW-19-13	MW-19-13
	Sample Date:	1/2/2019	6/6/2019	6/23/2020	1/3/2019	6/5/2019	6/24/2020	11/30/2016	11/29/2016	11/30/2016	6/12/2018
Perfluorobutanoic Acid (PFBA)	--	<20	<20	17 U	<20	<19	33 U	4.7	5.0	13	5.0 B
Perfluoropentanoic Acid (PFPeA)	--	<10	<10	<3.8	<10	<9.6	<3.8	<0.94 U	<0.93 U	16	3.0
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	<10	<10	<1.9	<10	<9.6	<1.9	--	--	--	--
Perfluorohexanoic Acid (PFHxA)	400,000	<10	<10	<1.9	<10	<9.6	<1.9	<0.75 U	<0.74 U	29	6.0
Perfluorobutane Sulfonic Acid (PFBS)	420	<10	<10	<1.9	10	14	8.9	0.92 J	2.8	13	9.0
Perfluoroheptanoic Acid (PFHpA)	--	<10	<10	<1.9	<10	<9.6	<1.9	<0.76 U	<0.76 U	18	6.7
Perfluoropentane Sulfonic Acid (PFPeS)	--	<10	<10	<1.9	10	11	13	--	--	--	--
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	<10	<10	2.6	<10	<9.6	<1.9	<3.5	<3.6	<3.7	--
Perfluorooctanoic Acid (PFOA)	8	<10	<10	<1.9	<10	<9.6	11	<0.71 U	3.9	39	16
Perfluorohexane Sulfonic Acid (PFHxS)	51	<10	<10	<1.9	50	42	46	<0.83 U	4.3	31	14 B
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	<10	<10	<1.9	40	37	39	--	--	--	--
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	<10	<10	<1.9	<10	<9.6	7.3	--	--	--	--
Perfluorononanoic Acid (PFNA)	6	<10	<10	<1.9	<10	<9.6	<1.9	<0.62 U	<0.62 U	<0.63	<0.25
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	<10	<10	<1.9	<10	<9.6	<1.9	--	--	--	--
Perfluoroheptane Sulfonic Acid (PFHpS)	--	<10	<10	<1.9	10	18	15	<0.68 U	0.78 J	1.3 J	0.46 J
Perfluorodecanoic Acid (PFDA)	--	<10	<10	<1.9	<10	<9.6	<1.9	<0.42	<0.42	<0.42	<0.29
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	<10	<10	<1.9	<10	<9.6	<1.9	--	--	--	--
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	<10	<10	<3.8	<10	<9.6	<3.8	--	--	--	--
Perfluorooctane Sulfonic Acid (PFOS)	16	<10	<10	<1.9	300	620	860	3.5	27	19	4.9
Perfluorooctane Sulfonic Acid (PFOS -LN)	--	<10	<10	<1.9	80	210	370	--	--	--	--
Perfluorooctane Sulfonic Acid (PFOS -BR)	--	<10	<10	<1.9	210	410	490	--	--	--	--
Perfluoroundecanoic Acid (PFUnDA)	--	<10	<10	<1.9	<10	<9.6	<1.9	<0.71	<0.71	<0.72	<1.0
Perfluorononane Sulfonic Acid (PFNS)	--	<10	<10	<1.9	<10	<9.6	<1.9	--	--	--	--
Perfluorododecanoic Acid (PFDoDA)	--	<10	<10	<1.9	<10	<9.6	<1.9	<0.56	<0.55	<0.56	<0.51
Perfluorodecane Sulfonic Acid (PFDS)	--	<10	<10	<1.9	<10	<9.6	<1.9	<1.9	<1.9	<1.9	<1.9
Perfluorotridecanoic Acid (PFTrDA)	--	<10	<10	<1.9	<10	<9.6	<1.9	<1.9	<1.9	<1.9	<1.9
Perfluorooctane Sulfonamide (FOSA)	--	<10	<10	<1.9	<10	<9.6	<1.9	<1.9	<1.9	<1.9	<1.9
Perfluorotetradecanoic Acid (PFTeDA)	--	<10	<10	<3.8	<10	<9.6	<3.8	0.65 J F1 B	0.60 J B	0.54 J B	<0.27
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	--	--	--	<1.9	--	--	<1.9	--	--	--	--
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF3ONS)	--	--	--	<1.9	--	--	<1.9	--	--	--	--
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	<1.9	--	--	<1.9	--	--	--	--
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	<1.9	--	--	<1.9	--	--	--	--
Total Per-and Polyfluoroalkyl Substances	--	0.0	0.0	2.6	380.0	705.0	953.9	9.8	44.4	179.8	65.1

Notes

- 1) Detections in **bold**.
- 2) Concentrations in ng/L.
- 3) < = Not detected at specified reporting limit.
- 4) -- = Not analyzed/No criteria.
- 5) * = Monitoring well has been abandoned.
- 6) Dup = Duplicate sample.
- 7) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
- 8) Light gray header is most recent sampling event result.
- 9) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process.
The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
- 10) B - Compound also found in associated method blank.
- 11) I - Matrix interference with internal standard.
- 12) J - Estimated value less than reporting limit, but greater than MDL.
- 13) X - Elevated reporting limit due to matrix interference.
- 14) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.



TABLE 3
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Drift Monitoring Well Sampling

Coldwater Road - Monitoring Wells - DRIFT Unit

Perfluorinated Compound	Well/Sample ID:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	B-20D	B-21D	B-22D	B-22D (DUP-2)	B-23Dr	B-23Dr (DUP-01-GW)	B-27D	B-27D	B-27D	B-27D	MW-DUP-061121 (B-27D)
	Sample Date:		9/19/2018	9/19/2018	6/13/2018	6/13/2018	9/21/2018	9/21/2018	6/20/2017	6/12/2018	6/17/2020	6/11/2021	6/11/2021
Perfluorobutanoic Acid (PFBA)		--	<20	<20	0.72 J/B	0.63 J/B	<20	<20	2.0 B	0.47 J/B	12	<10	<10
Perfluoropentanoic Acid (PFPeA)		--	<10	<10	<0.48	<0.45	<10	<10	<0.95	0.26 J	<3.9	<4.1	<4.1
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<2.1	<2.1
Perfluorohexanoic Acid (PFHxA)		400,000	<10	<10	<0.57	<0.53	<10	<10	<0.75	<0.53	<2.0	<2.1	<2.1
Perfluorobutane Sulfonic Acid (PFBS)		420	<10	<10	<0.20	<0.18	<10	<10	<0.88	<0.18	<2.0	<2.1	<2.1
Perfluoroheptanoic Acid (PFHpA)		--	<10	<10	<0.25	<0.23	<10	<10	<0.77	<0.23	<2.0	<2.1	<2.1
Perfluoropentane Sulfonic Acid (PFPeS)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<2.1	<2.1
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<4.1	<4.1
Perfluorooctanoic Acid (PFOA)		8	<10	<10	<0.83	<0.78	<10	<10	<0.72	<0.78	<2.0	<2.1	<2.1
Perfluorohexane Sulfonic Acid (PFHxS)		51	<10	<10	<0.17	0.29 J/B	<10	<10	<0.83	0.23 J/B	<2.0	<2.1	<2.1
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<2.1	<2.1
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<2.1	<2.1
Perfluorononanoic Acid (PFNA)		6	<10	<10	<2.0	<1.8	<10	<10	<0.63	<1.8	<2.0	<2.1	<2.1
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<2.1	<2.1
Perfluoroheptane Sulfonic Acid (PFHpS)		--	<10	<10	<0.19	<0.17	<10	<10	<0.68	<0.17	<2.0	<2.1	<2.1
Perfluorodecanoic Acid (PFDA)		--	<10	<10	<2.0	<1.8	<10	<10	<0.42	<1.8	<2.0	<2.1	<2.1
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<2.1	<2.1
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		--	<10	<10	--	--	<10	<10	--	--	<3.9	<4.1	<4.1
Perfluorooctane Sulfonic Acid (PFOS)		16	<10	<10	<0.53	<0.49	<10	<10	<1.2	<0.49	<2.0	<2.1	<2.1
Perfluorooctane Sulfonic Acid (PFOS -LN)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<2.1	<2.1
Perfluorooctane Sulfonic Acid (PFOS -BR)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<2.1	<2.1
Perfluoroundecanoic Acid (PFUnDA)		--	<10	<10	<1.1	<1.0	<10	<10	1.4 J	<1.0	<2.0	<2.1	<2.1
Perfluorononane Sulfonic Acid (PFNS)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<2.1	<2.1
Perfluorododecanoic Acid (PFDoDA)		--	<10	<10	<2.0	<1.8	<10	<10	<0.56	<1.8	<2.0	<2.1	<2.1
Perfluorodecane Sulfonic Acid (PFDS)		--	<10	<10	<2.0	<1.8	<10	<10	<1.2	<1.8	<2.0	<2.1	<2.1
Perfluorotridecanoic Acid (PFTTrDA)		--	<10	<10	<2.0	<1.8	<10	<10	<0.53	<1.8	<2.0	<2.1	<2.1
Perfluorooctane Sulfonamide (FOSA)		--	<10	<10	--	--	<10	<10	--	--	<2.0	<2.1	<2.1
Perfluorotetradecanoic Acid (PFTeDA)		--	<10	<10	<2.0	<1.8	<10	<10	<0.19	<1.8	<3.9	<4.1	<4.1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)		--	--	--	--	--	--	--	--	--	<2.0	<2.1	<2.1
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF3ONS)		--	--	--	--	--	--	--	--	--	<2.0	<2.1	<2.1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		--	--	--	--	--	--	--	--	--	<2.0	<2.1	<2.1
Hexafluoropropylene oxide dimer (HFPO-DA)		370	--	--	--	--	--	--	--	--	<2.0	<10	<10
Total Per-and Polyfluoroalkyl Substances		--	0.0	0.0	0.7	0.9	0.0	0.0	3.4	1.0	12.0	0.0	0.0

- Notes
- 1) Detections in **bold**.
 - 2) Concentrations in ng/L.
 - 3) < = Not detected at specified reporting limit.
 - 4) -- = Not analyzed/No criteria.
 - 5) * = Monitoring well has been abandoned.
 - 6) ** = B-2D was found to be damaged. Sample results are not representative of the drift aquifer. The well was abandoned on December 5, 2018 and replaced by OBG MW-16D.
 - 7) Dup = Duplicate sample.
 - 8) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
 - 9) Light gray header is most recent sampling event result.
 - 10) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
 - 11) B - Compound also found in associated method blank.
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 - 13) J - Estimated value less than reporting limit, but greater than MDL.
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TABLE 3
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Drift Monitoring Well Sampling

Coldwater Road - Monitoring Wells - DRIFT Unit

Perfluorinated Compound	Well/Sample ID:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	OBG MW-12D	OBG MW-12D	OBG MW-12D	OBG MW-15D	OBG MW-15D (DUP-1)	OBG MW-15D	OBG MW-15D
	Sample Date:		10/22/2018	6/5/2019	6/22/2020	10/23/2018	10/23/2018	6/6/2019	6/19/2020
Perfluorobutanoic Acid (PFBA)		--	<20	<20	9.9 U	<20	<20	<19	<10
Perfluoropentanoic Acid (PFPeA)		--	<10	<9.8	<3.9	<10	<10	<9.6	<4.0
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorohexanoic Acid (PFHxA)		400,000	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorobutane Sulfonic Acid (PFBS)		420	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluoroheptanoic Acid (PFHpA)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorooctanoic Acid (PFOA)		8	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorohexane Sulfonic Acid (PFHxS)		51	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorononanoic Acid (PFNA)		6	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorodecanoic Acid (PFDA)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		--	<10	<9.8	<3.9	<10	<10	<9.6	<4.0
Perfluorooctane Sulfonic Acid (PFOS)		16	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorooctane Sulfonic Acid (PFOS -LN)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorooctane Sulfonic Acid (PFOS -BR)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluoroundecanoic Acid (PFUnDA)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorononane Sulfonic Acid (PFNS)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorododecanoic Acid (PFDoDA)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorodecane Sulfonic Acid (PFDS)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorotridecanoic Acid (PFTTrDA)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorooctane Sulfonamide (FOSA)		--	<10	<9.8	<1.9	<10	<10	<9.6	<2.0
Perfluorotetradecanoic Acid (PFTeDA)		--	<10	<9.8	<3.9	<10	<10	<9.6	<4.0
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		--	--	--	<1.9	--	--	--	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)		--	--	--	<1.9	--	--	--	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		--	--	--	<1.9	--	--	--	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)		370	--	--	<1.9	--	--	--	<2.0
Total Per-and Polyfluoroalkyl Substances		--	0.0	0.0	0.0	0.0	0.0	0.0	0.0

- Notes
- 1) Detections in **bold**.
 - 2) Concentrations in ng/L.
 - 3) < = Not detected at specified reporting limit.
 - 4) -- = Not analyzed/No criteria.
 - 5) * = Monitoring well has been abandoned.
 - 6) ** = B-2D was found to be damaged. Sample results are not representative of the drift aquifer. The well was abandoned on December 5, 2018 and replaced by OBG MW-16D.
 - 7) Dup = Duplicate sample.
 - 8) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
 - 9) Light gray header is most recent sampling event result.
 - 10) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
 - 11) B - Compound also found in associated method blank.
 - 12) I - Matrix interference with internal standard.
 - 13) J - Estimated value less than reporting limit, but greater than MDL.
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 - 15) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.



TABLE 3
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Drift Monitoring Well Sampling

Coldwater Road - Monitoring Wells - DRIFT Unit

Perfluorinated Compound	Well/Sample ID:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	B-2D**	B-2D**	B-2D** (DUP-071918)	OBG MW-16D	OBG MW-16D	OBG MW-16D	OBG MW-17D	OBG MW-17D	OBG MW-17D
	Sample Date:		6/13/2018	7/19/2018	7/19/2018	10/22/2018	6/4/2019	6/18/2020	10/22/2018	6/5/2019	6/22/2020
Perfluorobutanoic Acid (PFBA)	--	400,000	1.8 J/B	2.7 B	2.8 B	<20	<20	16 U	<20	<19	17 U
Perfluoropentanoic Acid (PFPeA)	--		1.2 J	<0.41	0.44 J	<10	<10	<3.9	<10	<9.6	<3.8
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--		--	--	--	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorohexanoic Acid (PFHxA)	--		0.78 J	<0.49	0.70 J	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorobutane Sulfonic Acid (PFBS)	--		1.5 J	1.0 J	0.97 J	<10	<10	<2.0	<10	<9.6	<1.9
Perfluoroheptanoic Acid (PFHpA)	--		0.52 J	0.47 J	0.42 J	<10	<10	<2.0	<10	<9.6	<1.9
Perfluoropentane Sulfonic Acid (PFPeS)	--		--	3.2	2.9	<10	<10	<2.0	<10	<9.6	<1.9
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--		--	--	--	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorooctanoic Acid (PFOA)	--		3.3	3.1	3.7	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorohexane Sulfonic Acid (PFHxS)	--		13 B	13 B	12 B	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	--	--	--	--	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	--	--	--	--	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorononanoic Acid (PFNA)	--	6	<1.9	<1.7	<1.7	<10	<10	<2.0	<10	<9.6	<1.9
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	--	--	--	--	<10	<10	<2.0	<10	<9.6	<1.9
Perfluoroheptane Sulfonic Acid (PFHpS)	--	--	2.9	2.4	2.6	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorodecanoic Acid (PFDA)	--	--	<1.9	<1.7	<1.7	<10	<10	<2.0	<10	<9.6	<1.9
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	--	--	--	--	<10	<10	<2.0	<10	<9.6	<1.9
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	--	--	--	--	<10	<10	<3.9	<10	<9.6	<3.8
Perfluorooctane Sulfonic Acid (PFOS)	--	16	110	99	98	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	--	--	--	--	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	--	--	--	--	<10	<10	<2.0	<10	<9.6	<1.9
Perfluoroundecanoic Acid (PFUnDA)	--	--	<1.0	<0.93	<0.92	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorononane Sulfonic Acid (PFNS)	--	--	--	--	--	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorododecanoic Acid (PFDoDA)	--	--	<1.9	<1.7	<1.7	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorodecane Sulfonic Acid (PFDS)	--	--	<1.9	<1.7	<1.7	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorotridecanoic Acid (PFTriDA)	--	--	<1.9	<1.7	<1.7	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorooctane Sulfonamide (FOSA)	--	--	--	--	--	<10	<10	<2.0	<10	<9.6	<1.9
Perfluorotetradecanoic Acid (PFTeDA)	--	--	<1.9	<1.7	<1.7	<10	<10	<3.9	<10	<9.6	<3.8
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	--	--	--	--	--	--	--	<2.0	--	--	<1.9
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF3ONS)	--	--	--	--	--	--	--	<2.0	--	--	<1.9
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	--	--	--	--	<2.0	--	--	<1.9
Hexafluoropropylene oxide dimer (HFPO-DA)	--	370	--	--	--	--	--	<2.0	--	--	<1.9
Total Per-and Polyfluoroalkyl Substances	--	--	135.0	124.9	124.5	0.0	0.0	0.0	0.0	0.0	0.0

Notes

- 1) Detections in **bold**.
- 2) Concentrations in ng/L.
- 3) < = Not detected at specified reporting limit.
- 4) -- = Not analyzed/No criteria.
- 5) * = Monitoring well has been abandoned.
- 6) ** = B-2D was found to be damaged. Sample results are not representative of the drift aquifer.
The well was abandoned on December 5, 2018 and replaced by OBG MW-16D.
- 7) Dup = Duplicate sample.
- 8) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
- 9) Light gray header is most recent sampling event result.
- 10) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process.
The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
- 11) B - Compound also found in associated method blank.
- 12) I - Matrix interference with internal standard.
- 13) J - Estimated value less than reporting limit, but greater than MDL.
- 14) X - Elevated reporting limit due to matrix interference.
- 15) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.

TABLE 3
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Drift Monitoring Well Sampling

Coldwater Road - Monitoring Wells - DRIFT Unit

Perfluorinated Compound	Well/Sample ID:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	OBG MW-18D	OBG MW-18D	OBG MW-18D	OBG MW-19D	OBG MW-19D	OBG MW-19D	MW-15-10	MW-15-10
	Sample Date:		10/19/2018	6/6/2019	6/23/2020	10/23/2018	6/5/2019	6/23/2020	9/21/2018	6/19/2020
Perfluorobutanoic Acid (PFBA)		--	<20	<20	11	<20	<19	<9.7	<20	21 U
Perfluoropentanoic Acid (PFPeA)		--	<10	<10	<4.0	<10	<9.7	<3.9	<10	<4.0
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorohexanoic Acid (PFHxA)		400,000	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorobutane Sulfonic Acid (PFBS)		420	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluoroheptanoic Acid (PFHpA)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorooctanoic Acid (PFOA)		8	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorohexane Sulfonic Acid (PFHxS)		51	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorononanoic Acid (PFNA)		6	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorodecanoic Acid (PFDA)		--	<20	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		--	<10	<10	<4.0	<10	<9.7	<3.9	<10	<4.0
Perfluorooctane Sulfonic Acid (PFOS)		16	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorooctane Sulfonic Acid (PFOS -LN)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorooctane Sulfonic Acid (PFOS -BR)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluoroundecanoic Acid (PFUnDA)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorononane Sulfonic Acid (PFNS)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorododecanoic Acid (PFDoDA)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorodecane Sulfonic Acid (PFDS)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorotridecanoic Acid (PFTriDA)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorooctane Sulfonamide (FOSA)		--	<10	<10	<2.0	<10	<9.7	<1.9	<10	<2.0
Perfluorotetradecanoic Acid (PFTeDA)		--	<10	<10	<4.0	<10	<9.7	<3.9	<10	<4.0
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		--	--	--	<2.0	--	--	<1.9	--	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)		--	--	--	<2.0	--	--	<1.9	--	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		--	--	--	<2.0	--	--	<1.9	--	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)		370	--	--	<2.0	--	--	<1.9	--	<2.0
Total Per-and Polyfluoroalkyl Substances		--	0.0	0.0	11.0	0.0	0.0	0.0	0.0	0.0

Notes

- 1) Detections in **bold**.
- 2) Concentrations in ng/L.
- 3) < = Not detected at specified reporting limit.
- 4) -- = Not analyzed/No criteria.
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The well was abandoned on December 5, 2018 and replaced by OBG MW-16D.
- 7) Dup = Duplicate sample.
- 8) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
- 9) Light gray header is most recent sampling event result.
- 10) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process.
The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
- 11) B - Compound also found in associated method blank.
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TABLE 3
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Drift Monitoring Well Sampling

Coldwater Road - Monitoring Wells - DRIFT Unit

Perfluorinated Compound	Well/Sample ID:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	PFW-1	PFW-1	MW-16-10	MW-16-10 (Duplicate)	MW-16-10	MW-16-10	OBG MW-23	OBG MW-23	OBG MW-23	OBG MW-23
	Sample Date:		9/21/2018	6/23/2020	11/29/2016	11/29/2016	6/13/2018	6/19/2020	1/3/2019	6/4/2019	6/23/2020	6/14/2021
Perfluorobutanoic Acid (PFBA)	--		<20	18 U	<0.45 U	0.87 J	0.40 J/B	<9.7	<20	<19	22 U	<11
Perfluoropentanoic Acid (PFPeA)	--		<10	<4.0	<0.98 U	<0.97 U	<0.46	<3.9	<10	<9.7	<4.1	<4.2
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--		<10	<2.0	--	--	--	<1.9	<10	<9.7	<2.1	<2.1
Perfluorohexanoic Acid (PFHxA)	400,000		<10	<2.0	<0.78 U	<0.77 U	<0.55	<1.9	<10	<9.7	<2.1	<2.1
Perfluorobutane Sulfonic Acid (PFBS)	420		<10	<2.0	<0.91 U	<0.90 U	<0.19	<1.9	<10	<9.7	<2.1	<2.1
Perfluoroheptanoic Acid (PFHpA)	--		<10	<2.0	<0.79 U	<0.79 U	<0.24	<1.9	<10	<9.7	<2.1	<2.1
Perfluoropentane Sulfonic Acid (PFPeS)	--		<10	<2.0	--	--	--	<1.9	<10	<9.7	<2.1	<2.1
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--		<10	<2.0	<3.8	<3.7	--	<1.9	<10	<9.7	<2.1	<4.2
Perfluorooctanoic Acid (PFOA)	8		<10	<2.0	<0.74 U	<0.73 U	<0.80	<1.9	<10	<9.7	<2.1	<2.1
Perfluorohexane Sulfonic Acid (PFHxS)	51		<10	<2.0	<0.86 U	<0.85 U	0.30 J/B	<1.9	<10	<9.7	<2.1	<2.1
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--		<10	<2.0	--	--	--	<1.9	<10	<9.7	<2.1	<2.1
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--		<10	<2.0	--	--	--	<1.9	<10	<9.7	<2.1	<2.1
Perfluorononanoic Acid (PFNA)	6		<10	<2.0	<0.65 U	<0.64 U	<0.26	<1.9	<10	<9.7	<2.1	<2.1
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--		<10	<2.0	--	--	--	<1.9	<10	<9.7	<2.1	<2.1
Perfluoroheptane Sulfonic Acid (PFHpS)	--		<10	<2.0	<0.71 U	<0.70 U	<0.18	<1.9	<10	<9.7	<2.1	<2.1
Perfluorodecanoic Acid (PFDA)	--		<10	<2.0	<0.44	<0.43	<0.29	<1.9	<10	<9.7	<2.1	<2.1
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--		<10	<2.0	--	--	--	<1.9	<10	<9.7	<2.1	<2.1
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--		<10	<4.0	--	--	--	<3.9	<10	<9.7	<4.1	<4.2
Perfluorooctane Sulfonic Acid (PFOS)	16		<10	<2.0	<1.3 U	<1.3 U	<0.51	<1.9	<10	<9.7	<2.1	<2.1
Perfluorooctane Sulfonic Acid (PFOS -LN)	--		<10	<2.0	--	--	--	<1.9	<10	<9.7	<2.1	<2.1
Perfluorooctane Sulfonic Acid (PFOS -BR)	--		<10	<2.0	--	--	--	<1.9	<10	<9.7	<2.1	<2.1
Perfluoroundecanoic Acid (PFUnDA)	--		<10	<2.0	<0.74	<0.73	<1.0	<1.9	<10	<9.7	<2.1	<2.1
Perfluorononane Sulfonic Acid (PFNS)	--		<10	<2.0	--	--	--	<1.9	<10	<9.7	<2.1	<2.1
Perfluorododecanoic Acid (PFDoDA)	--		<10	<2.0	<0.58	<0.57	<0.52	<1.9	<10	<9.7	<2.1	<2.1
Perfluorodecane Sulfonic Acid (PFDS)	--		<10	<2.0	<2.0 U	<2.0 U	<1.9	<1.9	<10	<9.7	<2.1	<2.1
Perfluorotridecanoic Acid (PFTriDA)	--		<10	<2.0	<2.0	<2.0	<1.9	<1.9	<10	<9.7	<2.1	<2.1
Perfluorooctane Sulfonamide (FOSA)	--		<10	<2.0	<2.0	<2.0	<1.9	<1.9	<10	<9.7	<2.1	<2.1
Perfluorotetradecanoic Acid (PFTeDA)	--		<10	<4.0	0.42 J B	0.50 J B	<0.27	<3.9	<10	<9.7	<4.1	<4.2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--		--	<2.0	--	--	--	<1.9	--	--	<2.1	<2.1
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--		--	<2.0	--	--	--	<1.9	--	--	<2.1	<2.1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--		--	<2.0	--	--	--	<1.9	--	--	<2.1	<2.1
Hexafluoropropylene oxide dimer (HFPO-DA)	370		--	<2.0	--	--	--	<1.9	--	--	<2.1	<11
Total Per-and Polyfluoroalkyl Substances	--		0.0	0.0	0.4	1.4	0.7	0.0	0.0	0.0	0.0	0.0

Notes

- 1) Detections in **bold**.
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TABLE 3
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Drift Monitoring Well Sampling

Coldwater Road - Monitoring Wells - DRIFT Unit

Perfluorinated Compound	Well/Sample ID:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	OBG MW-27	OBG MW-27	OBG MW-27	OBG MW-27	MW-29	MW-29	PZ-2	PZ-2	PZ-2*
	Sample Date:		11/21/2019	1/16/2020	6/24/2020	6/15/2021	12/18/2020	6/14/2021	1/3/2019	6/4/2019	6/23/2020
Perfluorobutanoic Acid (PFBA)	--	--	<20	<20	33 U	<10	<10	<11	<20	<19	<10
Perfluoropentanoic Acid (PFPeA)	--	--	19	<10	3.3 J	5.6	<4.0	<4.3	<10	<9.6	<4.1
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
Perfluorohexanoic Acid (PFHxA)	400,000	400,000	18	<10	3.5	5.6	2.2	2.4	<10	<9.6	<2.0
Perfluorobutane Sulfonic Acid (PFBS)	420	420	12	12	18	15	17	8.7	<10	<9.6	<4.1 X
Perfluoroheptanoic Acid (PFHpA)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)	--	--	17	18	21	16	18	12	<10	<9.6	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	--	<9.9	<10	<1.9	4.4	<2.0	3.3 J	<10	<9.6	<2.0
Perfluorooctanoic Acid (PFOA)	8	8	12	<10	5.6	4.7	<2.0	2.8	<10	<9.6	<2.0
Perfluorohexane Sulfonic Acid (PFHxS)	51	51	41	40	40	38	27	22	<10	<9.6	<2.0
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	--	31	30	28	28	20	16	<10	<9.6	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	--	10	<10	9.7	9.4	6.7	5.9	<10	<9.6	<2.0
Perfluorononanoic Acid (PFNA)	6	6	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	--	<9.9	<10	1.9	2.6	<2.0	<2.1	<10	<9.6	<2.0
Perfluorodecanoic Acid (PFDA)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	--	<9.9	<10	<3.9	<4.0	<4.0	<4.3	<10	<9.6	<4.1
Perfluorooctane Sulfonic Acid (PFOS)	16	16	25	18	28	84	<4.0 X	<2.1	<10	<9.6	<2.0
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	--	<9.9	<10	3.5	17	<2.0	<2.1	<10	<9.6	<2.0
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	--	20	18	24	66	<4.0 X	<2.1	<10	<9.6	<2.0
Perfluoroundecanoic Acid (PFUnDA)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
Perfluorododecanoic Acid (PFDoDA)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
Perfluorotridecanoic Acid (PFTeDA)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	<10	<9.6	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	--	<9.9	<10	<3.9	<4.0	<2.0	<4.3	<10	<9.6	<4.1
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	--	--	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	--	--	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	<9.9	<10	<1.9	<2.0	<2.0	<2.1	--	--	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	370	370	<9.9	<10	<1.9	<10	<2.0	<11	--	--	<2.0
Total Per-and Polyfluoroalkyl Substances	--	--	144.0	88.0	121.3	175.9	64.2	51.2	0.0	0.0	0.0

Notes

- 1) Detections in **bold**.
- 2) Concentrations in ng/L.
- 3) < = Not detected at specified reporting limit.
- 4) -- = Not analyzed/No criteria.
- 5) * = Monitoring well has been abandoned.
- 6) ** = B-2D was found to be damaged. Sample results are not representative of the drift aquifer.
The well was abandoned on December 5, 2018 and replaced by OBG MW-16D.
- 7) Dup = Duplicate sample.
- 8) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
- 9) Light gray header is most recent sampling event result.
- 10) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process.
The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
- 11) B - Compound also found in associated method blank.
- 12) I - Matrix interference with internal standard.
- 13) J - Estimated value less than reporting limit, but greater than MDL.
- 14) X - Elevated reporting limit due to matrix interference.
- 15) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.



TABLE 4
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Sump and Vault Samples

Coldwater Rd - SUMP and VAULT Samples

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs)	SUMP A	SUMP B	SUMP C	SUMP D	SUMP E	SUMP F
	Sample Date:	6/19/2017	6/19/2017	6/19/2017	11/29/2016	6/19/2017	6/19/2017
Perfluorobutanoic Acid (PFBA)	--	220 B	480 B	490 B	440 J	48 B	260 B
Perfluoropentanoic Acid (PFPeA)	--	260	410	1100 CI	300 J	86	330
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	--	--	--	--	--	--
Perfluorohexanoic Acid (PFHxA)	400,000	110	280	390	99 JN	65	150
Perfluorobutane Sulfonic Acid (PFBS)	420	310 CI	190 J	410	74	57	100
Perfluoroheptanoic Acid (PFHpA)	--	<0.78	17	80	24	77	67
Perfluoropentane Sulfonic Acid (PFPeS)	--	--	--	--	--	--	--
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	--	--	--	--	--	--
Perfluorooctanoic Acid (PFOA)	8	54	230	230	130 JN	95	80
Perfluorohexane Sulfonic Acid (PFHxS)	51	410	650	1200	370	170	390
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	--	--	--	--	--	--
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	--	--	--	--	--	--
Perfluorononanoic Acid (PFNA)	6	<0.64	29 CI	18	7.1 JN	21	9.7
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	--	--	--	--	--	--
Perfluoroheptane Sulfonic Acid (PFHpS)	--	150	140	200	83	55	82
Perfluorodecanoic Acid (PFDA)	--	<0.43	<0.43	<0.43	<4.2	1.6 J	1.0 J
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	--	--	--	--	--	--
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	--	--	--	--	--	--
Perfluorooctane Sulfonic Acid (PFOS)	16	13000	9600	12000	5800	3400	5400
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	--	--	--	--	--	--
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	--	--	--	--	--	--
Perfluoroundecanoic Acid (PFUnDA)	--	<0.73	<0.73	<0.73	<7.2	1.7 J	<0.74
Perfluorononane Sulfonic Acid (PFNS)	--	--	--	--	--	--	--
Perfluorododecanoic Acid (PFDoDA)	--	<0.57	<0.57	<0.57	<19	<0.57	<0.57
Perfluorodecane Sulfonic Acid (PFDS)	--	4.3	2.6	1.9	<12	1.2 J	<1.2
Perfluorotridecanoic Acid (PFTrDA)	--	<0.54	<0.54	<0.54	<19	<0.53	<0.54
Perfluorooctane Sulfonamide (FOSA)	--	8.1 J B	6.1 J B	8.2 J B	<6.1	4.7 J B	6.1 J B
Perfluorotetradecanoic Acid (PFTeDA)	--	<0.19	0.37 J B	<0.19	<1.9	0.21 J B	<0.20
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	--	--	--	--	--	--	--
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9CI-PF3ONS)	--	--	--	--	--	--	--
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	--	--	--	--
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	--	--	--	--
Total Per-and Polyfluoroalkyl Substances	--	14526.4	12035.1	16128.1	7327.1	4083.4	6875.8

Notes

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- 6) Dup = Duplicate sample.
- 7) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
- 8) Light gray header is most recent sampling event result.
- 9) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process.
The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
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- 14) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.



TABLE 4
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Sump and Vault Samples

Coldwater Rd - SUMP and VAULT Samples

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs)	Vault A	Vault A	Vault-A	Vault-A	Vault B	Vault C	Vault C	Vault C (DUP-1)	Vault-C	Vault-C	Vault-DUP-061621 (Vault-C)
	Sample Date:	6/19/2017	6/12/2018	6/25/2020	6/16/2021	6/19/2017	6/19/2017	6/12/2018	6/12/2018	6/25/2020	6/16/2021	6/16/2021
Perfluorobutanoic Acid (PFBA)	--	18 B	13 B	30 U	<10	4.6 B	19 B	13 B	13 B	34 U	13	14
Perfluoropentanoic Acid (PFPeA)	--	1.9	3.1	<4.0	1.7 J	<0.98	<0.94	1.7 J	2.4	<4.0	<4.0	<4.1
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	--	--	<2.0	<2.0	--	--	--	--	<2.0	<2.0	<2.0
Perfluorohexanoic Acid (PFHxA)	400,000	4.9	4.7	2.4	2.7	0.79 J	6.0	2.4	2.4	1.9 J	2.8	2.3
Perfluorobutane Sulfonic Acid (PFBS)	420	9.3	8.5	5.4	5.2	4.1	<0.88	7.4	4.7	5.5	6.1	5.6
Perfluoroheptanoic Acid (PFHpA)	--	4.4	3.4	1.7 J	<2.0	<0.79	3.3	2.7	2.2	1.5 J	<2.0	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)	--	--	--	6.8	6.9	--	--	--	--	6.1	5.6	6.3
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	--	--	<2.0	<4.0	--	--	--	--	<2.0	<4.0	<4.1
Perfluorooctanoic Acid (PFOA)	8	16	15	9.7	7.4	4.1	12	12	12	9.0	7.7	8.6
Perfluorohexane Sulfonic Acid (PFHxS)	51	32	27 B	21	18	12	<0.83	19 B	19 B	17	18	19
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	--	--	17	15	--	--	--	--	13	14	15
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	--	--	3.1	3.0	--	--	--	--	3.5	2.9	3.9
Perfluorononanoic Acid (PFNA)	6	<0.64	<0.24	<2.0	<2.0	<0.65	<0.62	<0.26	<0.26	<2.0	<2.0	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	--	--	<2.0	<2.0	--	--	--	--	<2.0	<2.0	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)	--	7.2	6.5	6.2	4.1	2.4	<0.68	6.0	5.6	4.0	5.1	5.3
Perfluorodecanoic Acid (PFDA)	--	<0.43	<0.28	<2.0	<2.0	<0.44	<0.42	<0.30	<0.30	<2.0	<2.0	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	--	--	<2.0	<2.0	--	--	--	--	<2.0	<2.0	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	--	--	<4.0	<4.0	--	--	--	--	<4.0	<4.0	<4.1
Perfluorooctane Sulfonic Acid (PFOS)	16	450	460	430	410	150	440	380	400	430	400	390
Perfluorooctane Sulfonic Acid (PFOS -LN)	--	--	--	220	200	--	--	--	--	240	220	220
Perfluorooctane Sulfonic Acid (PFOS -BR)	--	--	--	220	200	--	--	--	--	180	170	170
Perfluoroundecanoic Acid (PFUnDA)	--	<0.73	<0.98	<2.0	<2.0	<0.74	<0.71	<1.1	<1.1	<2.0	<2.0	<2.0
Perfluorononane Sulfonic Acid (PFNS)	--	--	--	<2.0	<2.0	--	--	--	--	<2.0	<2.0	<2.0
Perfluorododecanoic Acid (PFDODA)	--	<0.57	<1.8	<2.0	<2.0	<0.58	<0.56	<1.9	<1.9	<2.0	<2.0	<2.0
Perfluorodecane Sulfonic Acid (PFDS)	--	<1.2	<0.29	<2.0	<2.0	<1.2	<1.2	<0.31	<0.31	<2.0	<2.0	<2.0
Perfluorotridecanoic Acid (PFTrDA)	--	<0.54	<1.8	<2.0	<2.0	<0.55	<0.53	<1.9	<1.9	<2.0	<2.0	<2.0
Perfluorooctane Sulfonamide (FOSA)	--	<0.62	<0.31	<2.0	<2.0	<0.63	<0.61	0.65 J	0.71 J	<2.0	<2.0	<2.0
Perfluorotetradecanoic Acid (PFTeDA)	--	<0.19	0.45 J	<4.0	<4.0	<0.20	0.21 J B	<0.28	<0.28	<4.0	<4.0	<4.1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	--	<2.0	<2.0	--	--	--	--	<2.0	<2.0	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	--	--	<2.0	<2.0	--	--	--	--	<2.0	<2.0	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	<2.0	<2.0	--	--	--	--	<2.0	<2.0	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	<2.0	<10	--	--	--	--	<2.0	<10	<10
Total Per-and Polyfluoroalkyl Substances	--	543.7	541.7	513.2	456.0	178.0	480.5	444.9	462.0	509.0	458.3	451.1

- Notes
- 1) Detections in **bold**.
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 - 6) Dup = Duplicate sample.
 - 7) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
 - 8) Light gray header is most recent sampling event result.
 - 9) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
 - 10) B - Compound also found in associated method blank.
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 - 14) QA/QC Samples were either not detected above the reporting limit or below the EGLE PFAS drinking water MCLs.

TABLE 4
RACER Trust - Coldwater Road
Per-and Polyfluoroalkyl Substances Sampling Results - Sump and Vault Samples

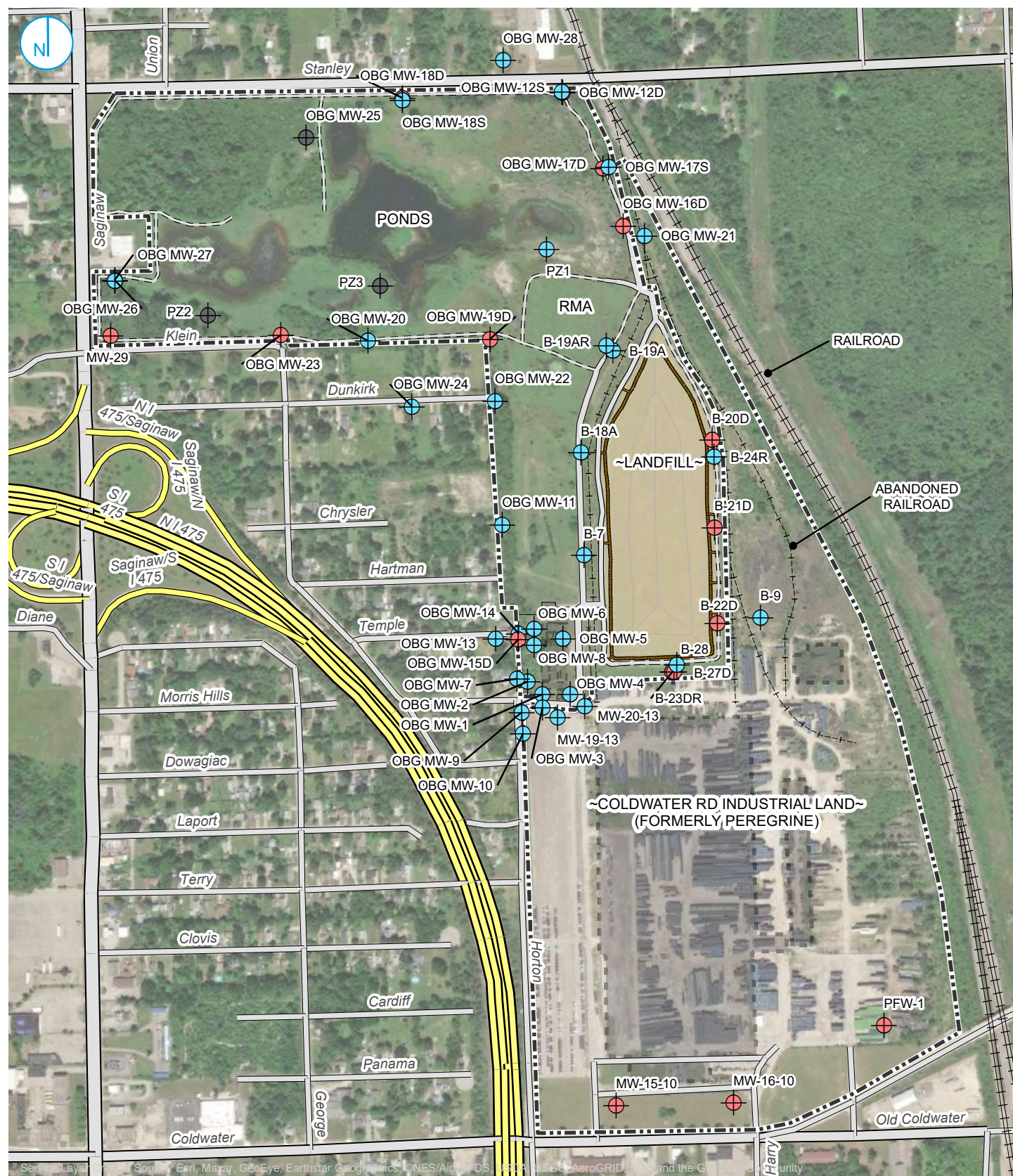
Coldwater Rd - SUMP and VAULT Samples

Perfluorinated Compound	Well/Sample ID: EGLE Drinking Water Maximum Contaminant Levels (MCLs)	Vault D	Vault E	Vault E (DUP-1)	Vault E	Vault-E	Vault-E	Vault F
	Sample Date:	6/19/2017	6/19/2017	6/19/2017	6/12/2018	6/25/2020	6/16/2021	6/19/2017
Perfluorobutanoic Acid (PFBA)	--	5.3 B	8.6 B	8 B	6.3 B	24 U	<10.0	6.8 B
Perfluoropentanoic Acid (PFPeA)	--	6.5	<0.96	4.7	4.1	2.6 J	2.8 J	15
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	--	--	--	--	<2.0	<2.0	--
Perfluorohexanoic Acid (PFHxA)	400,000	<0.80	6.5	6.3	4.5	2.5	2.4	13
Perfluorobutane Sulfonic Acid (PFBS)	420	11	13	12	11	7.6	9.0	12
Perfluoroheptanoic Acid (PFHpA)	--	0.96 J	5.5	5.3	4.1	2.6	1.7 J	12
Perfluoropentane Sulfonic Acid (PFPeS)	--	--	--	--	--	12	11	--
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	--	--	--	--	<2.0	<4.0	--
Perfluorooctanoic Acid (PFOA)	8	9.9	24	25	22	15	13	57
Perfluorohexane Sulfonic Acid (PFHxS)	51	33	65	63	53 B	33	33	35
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	--	--	--	--	28	28	--
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	--	--	--	--	5.8	5.2	--
Perfluorononanoic Acid (PFNA)	6	<0.67	<0.63	0.64 J	0.60 J	<2.0	<2.0	1.2 J
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	--	--	--	--	<2.0	<2.0	--
Perfluoroheptane Sulfonic Acid (PFHpS)	--	8.4	15	15	15	9.5	6.7	7.3
Perfluorodecanoic Acid (PFDA)	--	<0.45	<0.43	<0.43	<0.28	<2.0	<2.0	<0.42
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	--	--	--	--	<2.0	<2.0	--
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	--	--	--	--	<3.9	<4.0	--
Perfluorooctane Sulfonic Acid (PFOS)	16	350	730	730	680	480	480	300
Perfluorooctane Sulfonic Acid (PFOS-LN)	--	--	--	--	--	240	270	--
Perfluorooctane Sulfonic Acid (PFOS-BR)	--	--	--	--	--	240	210	--
Perfluoroundecanoic Acid (PFUnDA)	--	<0.76	<0.72	<0.74	<1.0	<2.0	<2.0	<0.71
Perfluorononane Sulfonic Acid (PFNS)	--	--	--	--	--	<2.0	<2.0	--
Perfluorododecanoic Acid (PFDoDA)	--	<0.59	<0.56	<0.57	<1.8	<2.0	<2.0	<0.56
Perfluorodecane Sulfonic Acid (PFDS)	--	<1.2	<1.2	<1.2	<0.29	<2.0	<2.0	<1.2
Perfluorotridecanoic Acid (PFTrDA)	--	<0.56	<0.53	<0.54	<1.8	<2.0	<2.0	<0.53
Perfluorooctane Sulfonamide (FOSA)	--	<0.65	3.5 J H	16 J B	1.2 J	<2.0	<2.0	22 J H
Perfluorotetradecanoic Acid (PFTeDA)	--	0.25 J B	<0.19	0.43 J B	<0.27	<3.9	<4.0	<0.19
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	--	--	--	<2.0	<2.0	--
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	--	--	--	--	<2.0	<2.0	--
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	--	--	<2.0	<2.0	--
Hexafluoropropylene oxide dimer (HFPO-DA)	370	--	--	--	--	<2.0	<10.0	--
Total Per-and Polyfluoroalkyl Substances	--	425.3	871.1	886.4	801.8	588.8	559.6	481.3

Notes

- 1) Detections in **bold**.
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- 6) Dup = Duplicate sample.
- 7) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
- 8) Light gray header is most recent sampling event result.
- 9) The detection of PFBA in Field Blank-061920, Field Blank-062220, Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
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FIGURES



LEGEND

- PERCHED MONITORING WELL / PIEZOMETER
- DRIFT MONITORING WELL / PIEZOMETER
- ABANDONED MONITORING WELL / PIEZOMETER
- PROPERTY BOUNDARY
- FORMER BUILDING

0 250 500
Feet

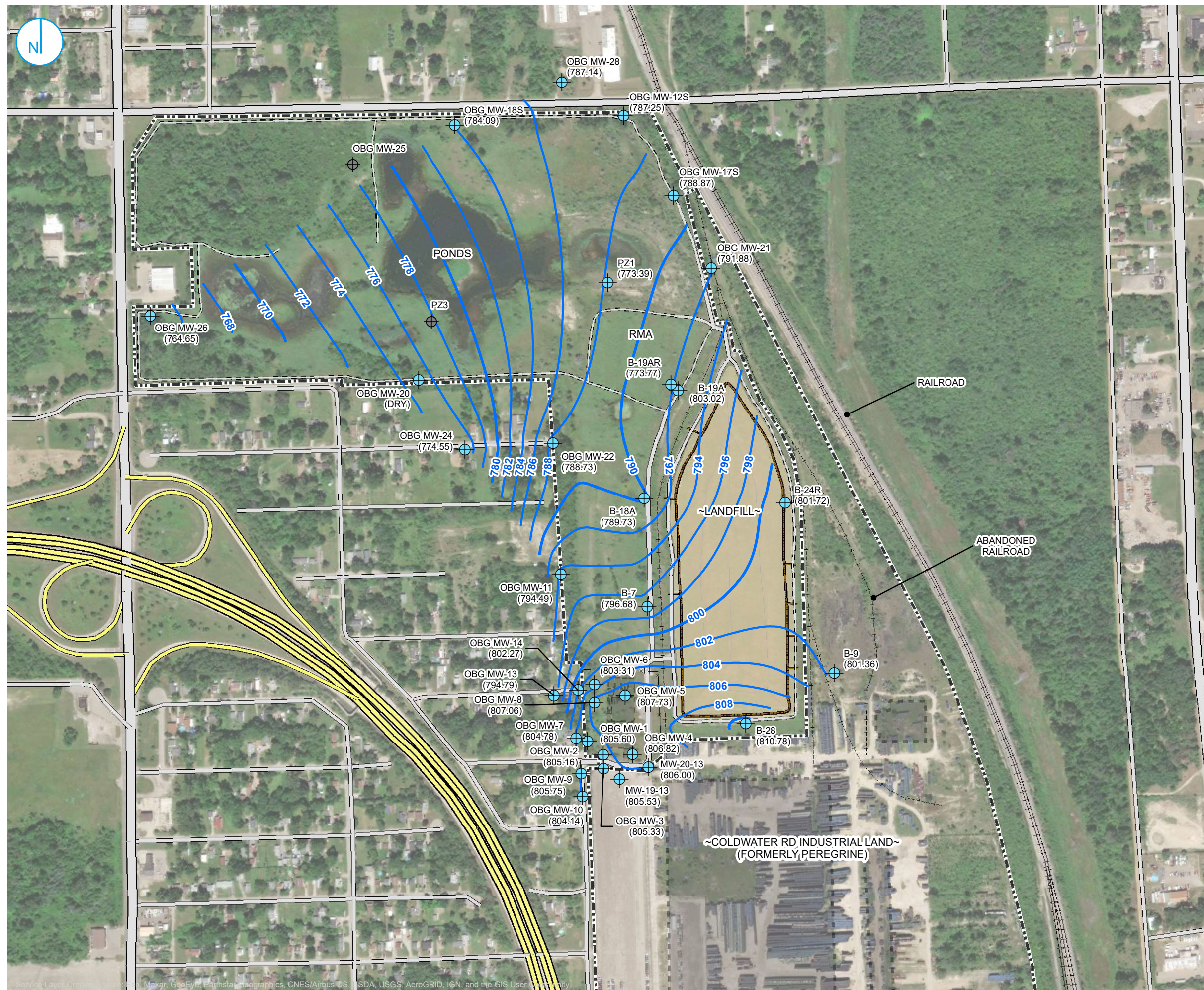
MONITORING WELL LOCATION MAP

FIGURE 1

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL



 ABANDONED WELL
 MONITORING WELL / PIEZOMETER
 GROUNDWATER CONTOUR
 (JUNE 8, 2021)
 PROPERTY BOUNDARY
 FORMER BUILDING
(800.93) GROUNDWATER ELEVATION

NOTES

THE GROUNDWATER ELEVATION FOR MONITORING WELLS B-19A, B-19AR, AND PZ-1 WERE NOT USED IN DEVELOPING THE GROUNDWATER POTENTIOMETRIC SURFACE DUE TO THE DEPTH OF THESE WELLS AND VERTICAL GRADIENTS AT THE SITE.

THE ADDITIONAL SITE MONITORING WELLS WERE USED IN THE CREATION OF THE GROUNDWATER CONTOURS BUT ARE NOT PART OF THE LANDFILL MONITORING PROGRAM.

A horizontal number line with three tick marks. The first tick mark is labeled '0', the second is labeled '225', and the third is labeled '450'. Below the line, the word 'Feet' is written at the right end.

PERCHED ZONE GROUNDWATER POTENTIOMETRIC SURFACE MAP

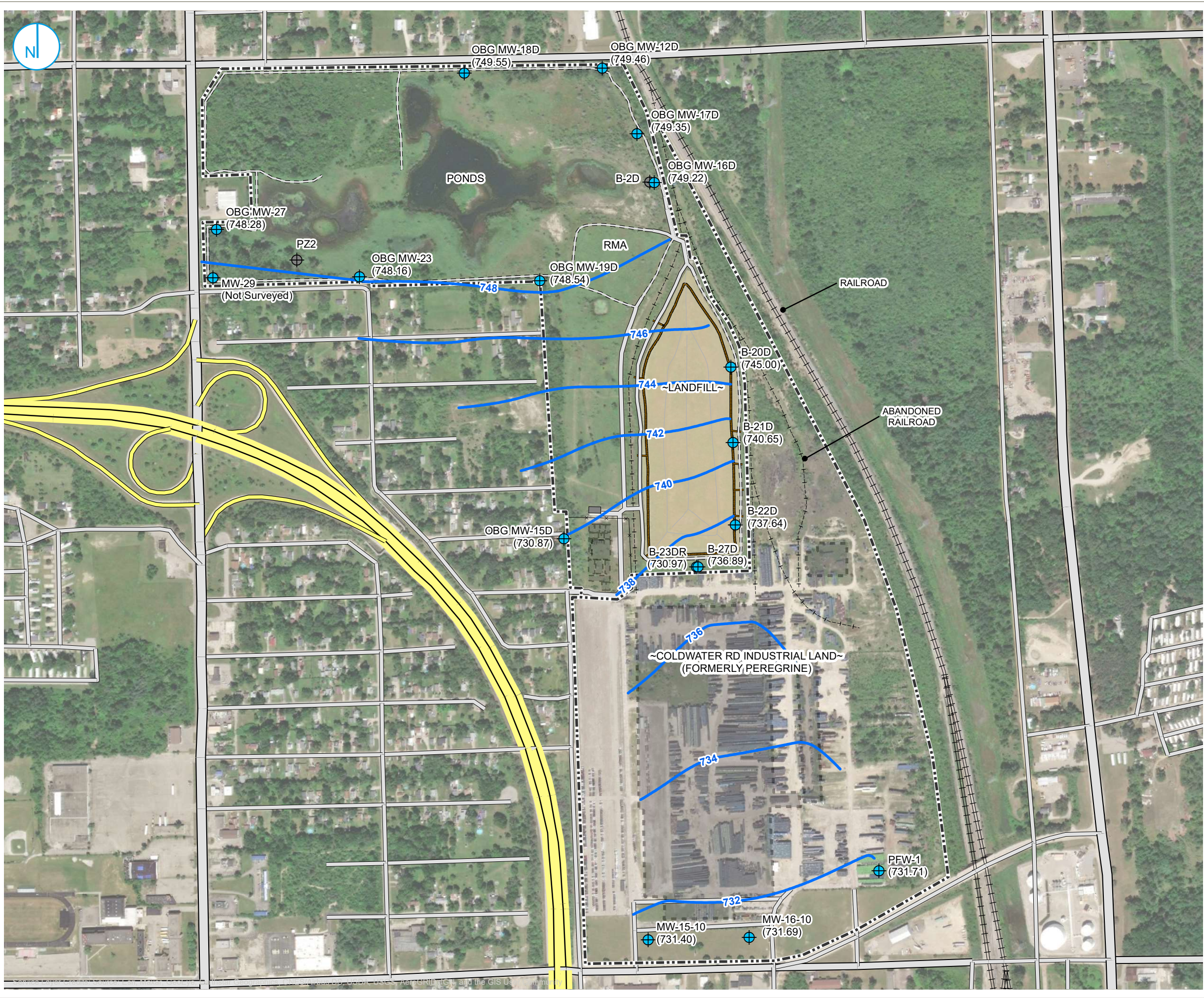
JUNE 8, 2021

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 2

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





- MONITORING WELL /
- ABANDONED WELL
- GROUNDWATER CONTOUR (JUNE 8, 2021)
- PROPERTY BOUNDARY
- FORMER BUILDING
- (800.93) GROUNDWATER ELEVATION

NOTES

THE GROUNDWATER ELEVATIONS FOR MONITORING WELLS B-23DR AND OBG MW-15D WERE NOT USED IN DEVELOPING THE GROUNDWATER POTENTIOMETRIC SURFACE DUE TO THE DEPTH OF THESE WELLS AND APPARENT VERTICAL GRADIENT WITHIN THE DRIFT UNIT.

MW-29 HAS NOT BEEN SURVEYED.

THE ADDITIONAL SITE MONITORING WELLS WERE USED IN THE CREATION OF THE GROUNDWATER CONTOURS BUT ARE NOT PART OF THE LANDFILL MONITORING PROGRAM.



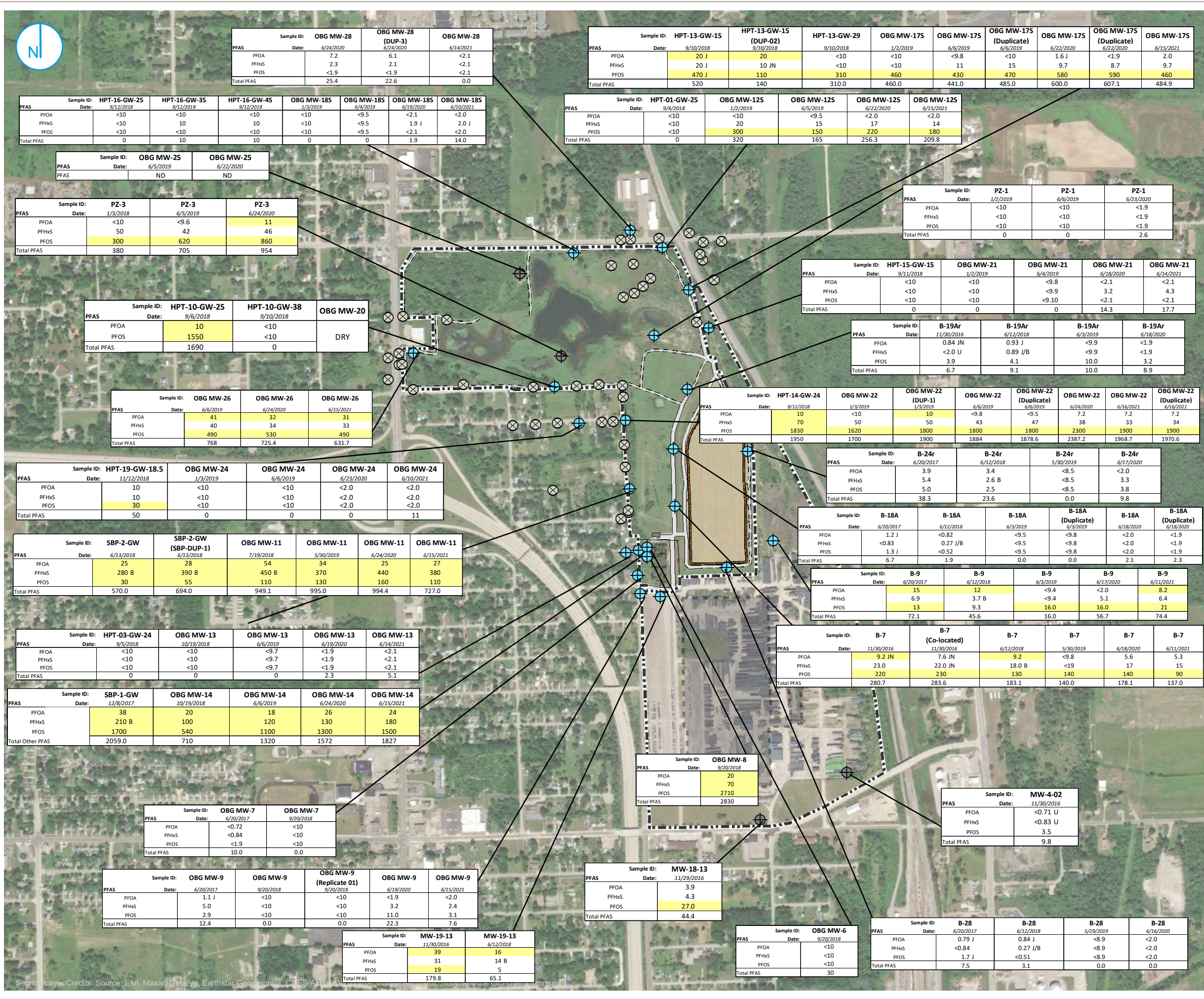
DRIFT UNIT POTENTIOMETRIC SURFACE
JUNE 8, 2021

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 3

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





LEGEND

MONITORING WELL / PIEZOMETER

ABANDONED WELL

TEMPORARY WELL / BORING

PROPERTY BOUNDARY

FORMER BUILDING

EGLE Part 201 Generic Cleanup Criteria and Screening Levels

Perfluorinated Compound	Drinking Water	GSI
Perfluorooctanoic Acid (PFOA)	8	12,000
Perfluorohexane Sulfonic Acid (PFHxS)	51	--
Perfluorooctane Sulfonic Acid (PFOS)	16	12
Total Per-and Polyfluoroalkyl Substances	--	--

- Notes
- 1) Only detections shown in analytical text boxes.

2) Concentrations in ng/L.

3) < = Not detected at specified reporting limit.

4) -- = Not analyzed.

5) ND = Not detected.

6) Dup = Duplicate sample.

7) J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

8) B - Compound also found in associated method blank.

9) Concentration above the drinking water and/or groundwater surface water interface (GSI) criteria are highlighted in yellow.



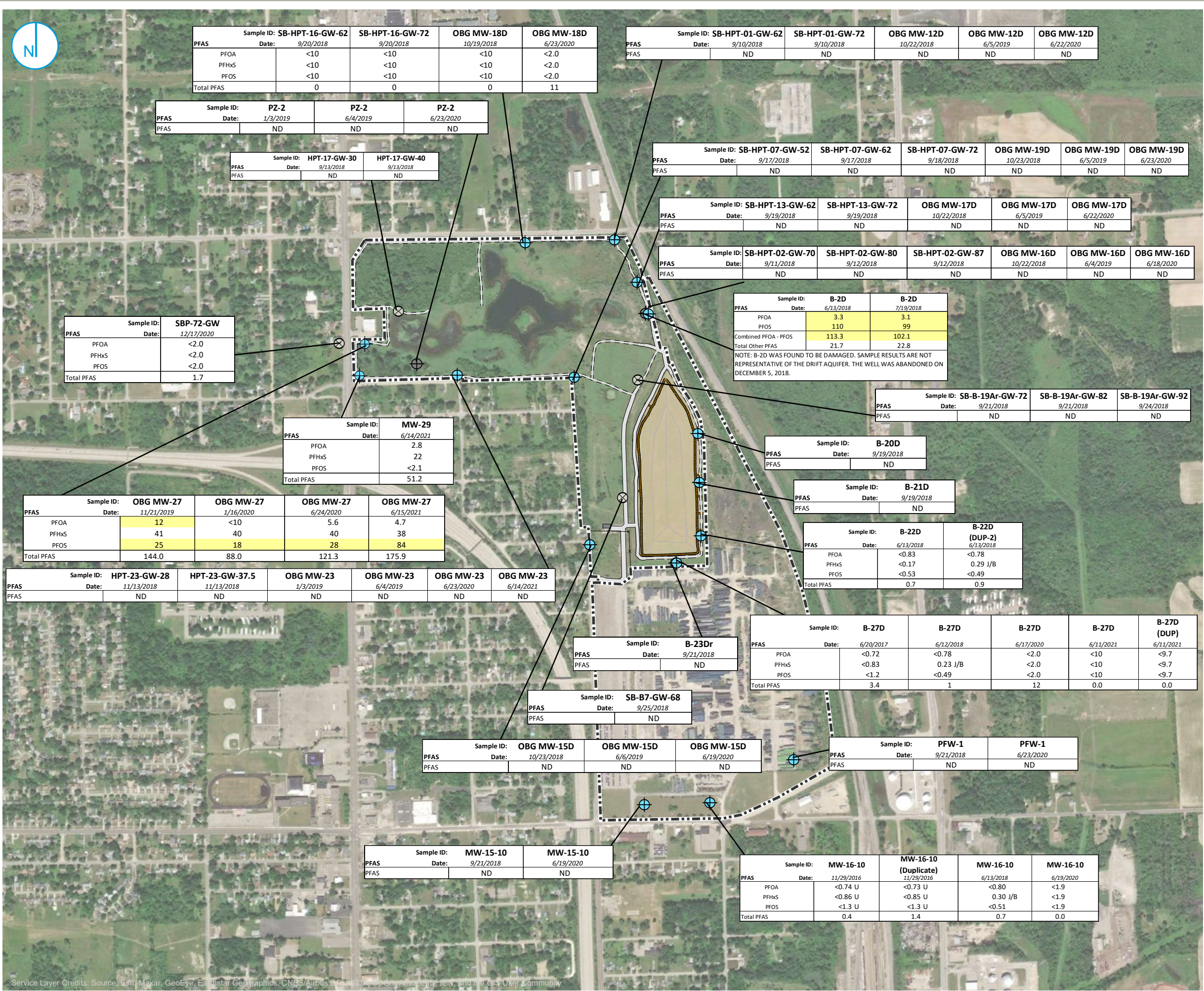
PERCHED ZONE MONITORING
WELL PFAS SAMPLE RESULTS
(NOVEMBER 2016 - JUNE 2021)

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 4

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





LEGEND

- MONITORING WELL / PIEZOMETER
- ABANDONED WELL
- TEMPORARY WELL / BORING
- PROPERTY BOUNDARY
- FORMER BUILDING

EGLT Part 201 Generic Cleanup Criteria and Screening Levels		
Perfluorinated Compound	Drinking Water	GSI
Perfluorooctanoic Acid (PFOA)	8	12,000
Perfluorohexane Sulfonic Acid (PFHxS)	51	--
Perfluorooctane Sulfonic Acid (PFOS)	16	12
Total Per- and Polyfluoroalkyl Substances	--	--

- Notes
- 1) Concentrations in ng/L.
 - 2) < = Not detected at specified reporting limit.
 - 3) ND = Not detected.
 - 4) Dup = Duplicate sample.
 - 5) B - Compound also found in associated method blank.
 - 6) J - Estimated value less than reporting limit, but greater than MDL.
 - 7) Concentration above the drinking water and/or groundwater surface water interface (GSI) criteria are highlighted in yellow.



DRIFT UNIT PFAS SAMPLE RESULTS
(JUNE 2017 - JUNE 2021)

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

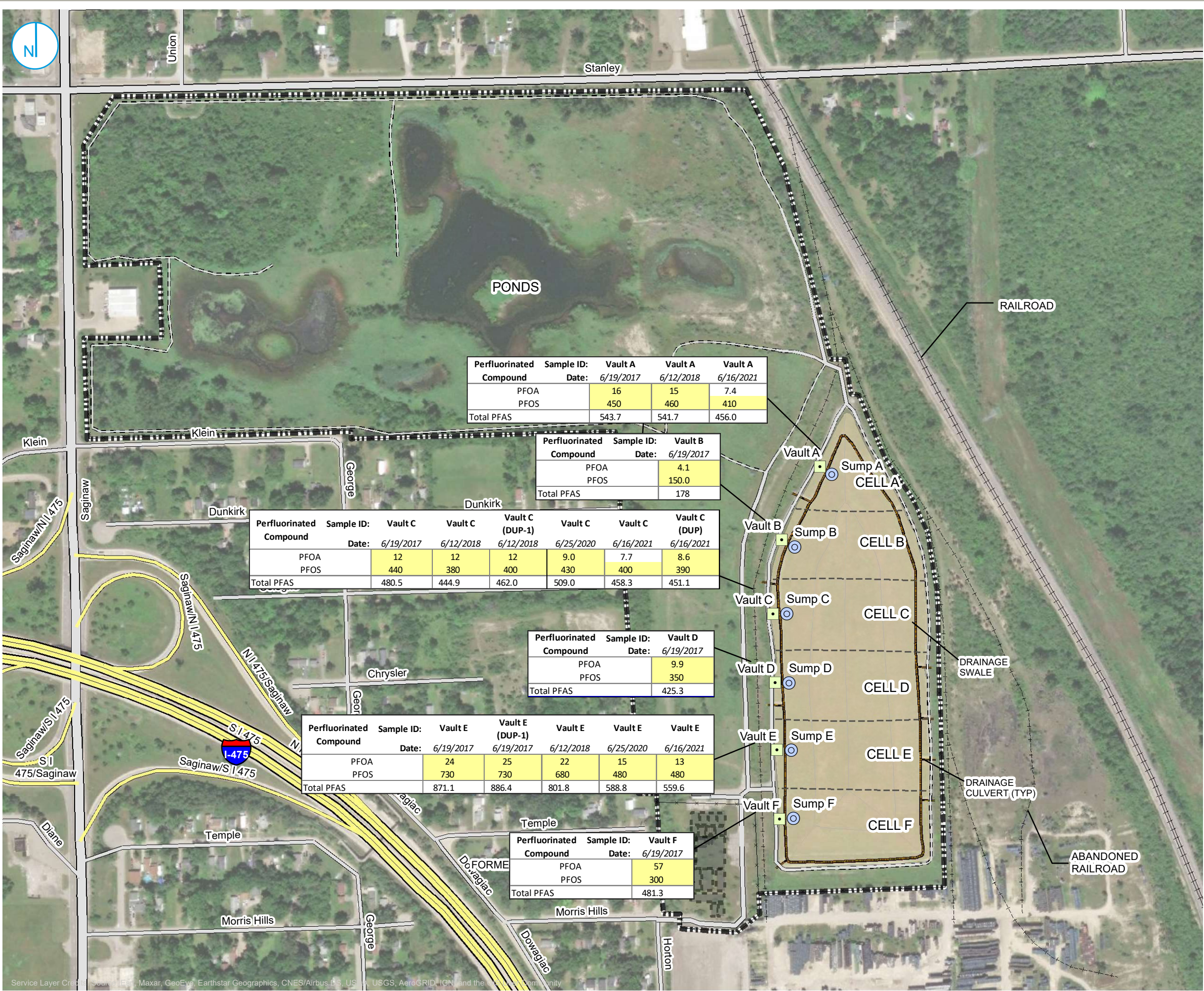
FIGURE 5

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



I:\Racer-Trust\1088190\GIS\Coldwater_Road\MXD\2021_Annual_PFA_Sample_Results_Figure 06 - Leak Detection Vaults PFAS Sample Results_June 2021.mxd

PROJECT: 1940100783 | DATED: 8/16/2021 | DESIGNER: MONETANT



LEAK DETECTION VAULTS PFAS
SAMPLE RESULTS
(JUNE 2017 - JUNE 2021)

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 06

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



APPENDIX A GROUNDWATER SAMPLING LOGS

Standard Groundwater Sampling Log

Date 6/9/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel GDR/DEP

Weather 87°F, partly cloudy
 Well # B-7
 Evacuation Method Whale Pump-Peristaltic
 Sampling Method Purged Dry

Well Information:

Depth of Well * 28.84 ft.
 Depth to Water * 16.97 (6/11/21) 21.13 ft.
 Length of Water Column 11.87 ft.
 Volume of Water in Well 1.93 gal.(s)
 3X Volume of Water in Well 5.80 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
 4" Diameter Well = 0.653 X LWC
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 2 gal.(s)
 Did well go dry? Yes

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify)

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured	Temperature Celsius	Conductivity mS/cm	Dissolved Oxygen mg/L	pH	ORP mV	Turbidity NTUs
0.3 feet or less	±3 percent	±3 percent	±10 percent	±0.1 pH units	±10 millivolts	±10 percent
initial <u>20.45</u>	initial <u>22.58</u>	initial <u>0.67</u>	initial <u>4.64</u>	initial <u>7.29</u>	initial <u>171.6</u>	initial <u>20.70</u>
5 min <u>26.15</u>	<u>18.02</u>	<u>0.87</u>	<u>7.64</u>	<u>7.54</u>	<u>155.7</u>	<u>N/A (dry)</u>
10 min						
15 min						
20 min						
25 min						
30 min						
35 min <u>(6/11/21) 21.13</u>	<u>26.53</u>	<u>0.69</u>	<u>2.51</u>	<u>7.11</u>	<u>98.5</u>	<u>1050</u>
40 min <u>21.88</u>	<u>18.30</u>	<u>0.80</u>	<u>0.71</u>	<u>7.09</u>	<u>81.5</u>	<u>28.5</u>
45 min <u>22.32</u>	<u>18.79</u>	<u>0.81</u>	<u>0.67</u>	<u>7.08</u>	<u>75.3</u>	<u>39.1</u>
50 min						
55 min						
60 min						
65 min						
70 min						
75 min						
80 min						
85 min						
90 min						

Water Sample:

Time Collected (6/11/21) 12:15

Physical Appearance at Start

Physical Appearance at Sampling

Color slightly turbid/brown
 Odor no
 Turbidity (> 100 NTU) 1050
 Sheen/Free Product no

Color clear
 Odor no
 Turbidity (> 100 NTU) 39.10
 Sheen/Free Product no

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml Plastic	None	No

Notes:

6/11/21: DTW before sampling - 20.37' btoc
 DTW after sampling - 24.87' btoc

2nd round of readings taken on 6/11/21

Standard Groundwater Sampling Log

Date 6/10/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel GDR/DEP

Weather 86°F, partly cloudy
 Well # B-9
 Evacuation Method Whale Pump-Peristaltic
 Sampling Method Purge Dry

Well Information:

Depth of Well * 25.23 ft.
 Depth to Water * 6.11 (6/11/21) 8.85 ft.
 Length of Water Column 19.12 ft.
 Volume of Water in Well 3.12 gal.(s)
 3X Volume of Water in Well 9.35 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
 4" Diameter Well = 0.653 X LWC
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 5 gal.(s)
 Did well go dry? Yes

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial <u>7.17</u>	initial <u>18.08</u>	initial <u>1.75</u>	initial <u>0.49</u>	initial <u>6.85</u>	initial <u>193.7</u>	initial <u>208</u>
5 min <u>8.31</u>	<u>13.48</u>	<u>1.93</u>	<u>0.10</u>	<u>6.81</u>	<u>146.0</u>	<u>63.7</u>
10 min <u>9.44</u>	<u>13.48</u>	<u>1.96</u>	<u>0.10</u>	<u>6.80</u>	<u>113.2</u>	<u>54.6</u>
15 min <u>17.48</u>	<u>11.31</u>	<u>1.96</u>	<u>0.18</u>	<u>6.81</u>	<u>97.8</u>	<u>46.3</u>
20 min <u>18.57</u>	<u>11.47</u>	<u>1.98</u>	<u>0.50</u>	<u>6.81</u>	<u>54.9</u>	<u>99.3</u>
25 min <u>22.13</u>	<u>11.54</u>	<u>1.96</u>	<u>6.77</u>	<u>6.77</u>	<u>77.1</u>	<u>N/A (dry)</u>
30 min _____	_____	_____	_____	_____	_____	_____
35 min _____	_____	_____	_____	_____	_____	_____
40 min _____	_____	_____	_____	_____	_____	_____
45 min _____	_____	_____	_____	_____	_____	_____
50 min <u>(6/11/21) 8.85</u>	<u>23.65</u>	<u>1.50</u>	<u>6.75</u>	<u>7.13</u>	<u>233.5</u>	<u>136</u>
55 min <u>9.33</u>	<u>15.06</u>	<u>1.59</u>	<u>8.13</u>	<u>6.89</u>	<u>151.4</u>	<u>45.4</u>
60 min <u>9.82</u>	<u>14.68</u>	<u>1.59</u>	<u>7.87</u>	<u>6.85</u>	<u>132.3</u>	<u>20.8</u>
65 min _____	_____	_____	_____	_____	_____	_____
70 min _____	_____	_____	_____	_____	_____	_____
75 min _____	_____	_____	_____	_____	_____	_____
80 min _____	_____	_____	_____	_____	_____	_____
85 min _____	_____	_____	_____	_____	_____	_____
90 min _____	_____	_____	_____	_____	_____	_____

Water Sample:

Time Collected (6/11/21) 9:25:00 AM

Physical Appearance at Start

Physical Appearance at Sampling

Color slightly turbid
 Odor no
 Turbidity (> 100 NTU) 208
 Sheen/Free Product no

Color clear
 Odor no
 Turbidity (> 100 NTU) 20.8
 Sheen/Free Product no

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml Plastic	None	No

Notes:

6/11/21: DTW before purging - 8.17' btoc
 DTW after sampling - 10.93' btoc

2nd round of readings taken on 6/11/21

		Standard Groundwater Sampling Log					
Date	6/11/2021	Weather	Sunny, 80s				
Site Name	RACER Coldwater Rd	Well #	B-27D				
Location	Flint, MI	Evacuation Method	bladder pump				
Project No.	1940100783	Sampling Method	low flow				
Personnel	KBS						
Well Information:							
Depth of Well *	88.40 ft.	Water Volume /ft. for: X 2" Diameter Well = 0.163 X LWC 4" Diameter Well = 0.653 X LWC 6" Diameter Well = 1.469 X LWC					
Depth to Water *	75.75 ft.						
Length of Water Column	12.65 ft.						
Volume of Water in Well	2.06 gal.(s)						
3X Volume of Water in Well	6.19 gal.(s)	Volume removed before sampling	5 gal.(s)				
		Did well go dry?	No				
* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify)							
Instrument Calibration:							
	Calibrated within range						
pH	Yes						
ORP	Yes						
Conductivity	Yes						
DO	Yes						
Water parameters:							
Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent	
initial	initial 18.00	initial 0.45	initial 7.40	initial 7.86	initial 2.9	initial 797	
5 min	76.05	15.90	0.49	1.85	7.58	-71.9	658
10 min	76.05	13.76	0.48	1.17	7.52	-84.1	801
15 min	76.05	13.49	0.48	1.22	7.52	-85.0	917
20 min	76.05	13.26	0.43	1.25	7.51	-86.4	1050
25 min	76.05	13.36	0.48	1.44	7.51	-84.6	899
30 min	76.05	13.30	0.48	1.46	7.50	-84.2	
35 min	76.05	13.35	0.48	1.47	7.51	-85.1	
40 min	76.05	13.30	0.32	1.54	7.50	-84.9	745
45 min	76.05	13.32	0.48	1.66	7.50	-85.5	
50 min	76.05	13.26	0.47	1.42	7.50	-85.4	545
55 min	76.05	13.32	0.49	1.30	7.50	-85.0	
60 min	76.05	13.24	0.47	1.77	7.50	-85.9	517
65 min	76.05	13.26	0.47	1.40	7.51	-85.4	
70 min	76.05	13.39	0.48	1.26	7.50	-87.3	310
75 min	76.05	13.39	0.48	1.34	7.50	-86.6	
80 min	76.05	13.39	0.41	1.32	7.51	-87.9	267
85 min	76.05	13.30	0.48	1.56	7.50	-86.9	244
90 min	76.05	13.43	0.48	1.69	7.51	-87.8	232
95 min	76.05	13.40	0.41	1.24	7.51	-87.9	198
100 min	76.05	13.56	0.48	1.52	7.51	-87.1	182
105 min	76.05	13.75	0.48	1.51	7.51	-88.4	169
110 min	76.05	13.51	0.48	1.62	7.51	-87.4	156
115 min	76.05	13.50	0.49	1.34	7.51	-88.4	141
120 min	76.05	13.58	0.48	1.32	7.51	-84.8	134
125 min	76.05	13.53	0.50	1.39	7.51	-86.6	152
Water Sample:							
Time Collected	11:28						
Physical Appearance at Start	Physical Appearance at Sampling						
Color	brownish gray			Color	slightly light grayish brown		
Odor	none			Odor	none		
Turbidity (> 100 NTU)	797			Turbidity (> 100 NTU)	152		
Sheen/Free Product	none			Sheen/Free Product	none		
Samples collected:							
Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered			
PFAS (7979)	3	15 ml Plastic	None	No			
Notes:							
MW-DUP-061121 collected here collected sample after two hours of purging.							

Standard Groundwater Sampling Log

Date 6/15/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather Mostly cloudy, 70's
 Well # OBG MW-9
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 18.15 ft.
 Depth to Water * 4.18 ft.
 Length of Water Column 13.97 ft.
 Volume of Water in Well 2.28 gal.(s)
 3X Volume of Water in Well 6.83 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 3/4 gal.(s)
 Did well go dry? no

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured		Temperature Celsius		Conductivity mS/cm		Dissolved Oxygen mg/L		pH		ORP mV		Turbidity NTUs	
0.3 feet or less		±3 percent		±3 percent		±10 percent		±0.1 pH units		±10 millivolts		±10 percent	
initial	4.45	initial	20.00	initial	1.98	initial	1.39	initial	7.25	initial	182.2	initial	11.2
5 min	4.60		18.52		2.02		0.58		7.18		161.3		9.25
10 min	4.81		16.99		2.04		0.17		7.12		114.6		10.6
15 min	4.96		16.85		1.99		0.10		7.12		93.5		9.38
20 min	5.01		17.35		1.96		0.09		7.12		89.7		9.08
25 min	5.08		17.09		1.94		0.08		7.12		89.7		8.46
30 min	5.10		16.88		1.92		0.08		7.13		88.6		9.69
35 min													
40 min													
45 min													
50 min													
55 min													
60 min													
65 min													
70 min													
75 min													
80 min													
85 min													
90 min													

Water Sample:

Time Collected 9:38

Physical Appearance at Start

Physical Appearance at Sampling

Color clear
 Odor none
 Turbidity (> 100 NTU) 11.2
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 9.69
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

Standard Groundwater Sampling Log

Date 6/15/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather Mostly sunny, 80's
 Well # OBG MW-11
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 24.67 ft.
 Depth to Water * 8.01 ft.
 Length of Water Column 16.66 ft.
 Volume of Water in Well 2.72 gal.(s)
 3X Volume of Water in Well 8.15 gal.(s)

Water Volume /ft. for:

X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 gal.(s)
 Did well go dry? No

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured 0.3 feet or less		Temperature Celsius ±3 percent		Conductivity mS/cm ±3 percent		Dissolved Oxygen mg/L ±10 percent		pH ±0.1 pH units		ORP mV ±10 millivolts		Turbidity NTUs ±10 percent	
initial	<u>8.21</u>	initial	<u>29.24</u>	initial	<u>1.04</u>	initial	<u>2.68</u>	initial	<u>7.17</u>	initial	<u>-140.7</u>	initial	<u>175</u>
5 min	<u>8.32</u>		<u>21.88</u>		<u>1.16</u>		<u>1.14</u>		<u>7.12</u>		<u>-136.2</u>		<u>63.5</u>
10 min	<u>8.50</u>		<u>15.84</u>		<u>1.28</u>		<u>0.42</u>		<u>7.09</u>		<u>-130.2</u>		<u>23.5</u>
15 min	<u>8.65</u>		<u>14.40</u>		<u>1.30</u>		<u>0.32</u>		<u>7.08</u>		<u>-126.2</u>		<u>23.7</u>
20 min	<u>8.80</u>		<u>13.94</u>		<u>1.30</u>		<u>0.24</u>		<u>7.08</u>		<u>-124.3</u>		<u>13.5</u>
25 min	<u>8.96</u>		<u>13.61</u>		<u>1.30</u>		<u>0.17</u>		<u>7.08</u>		<u>-122.8</u>		<u>12.0</u>
30 min	<u>8.95</u>		<u>13.57</u>		<u>1.30</u>		<u>0.12</u>		<u>7.08</u>		<u>-121.3</u>		<u>11.3</u>
35 min	<u>9.00</u>		<u>13.40</u>		<u>1.30</u>		<u>0.10</u>		<u>7.07</u>		<u>-120.3</u>		<u>7.06</u>
40 min	<u>9.02</u>		<u>13.51</u>		<u>1.30</u>		<u>0.10</u>		<u>7.08</u>		<u>-119.4</u>		<u>7.83</u>
45 min	<u>9.05</u>		<u>13.44</u>		<u>1.30</u>		<u>0.09</u>		<u>7.08</u>		<u>-119.2</u>		<u>8.62</u>
50 min													
55 min													
60 min													
65 min													
70 min													
75 min													
80 min													
85 min													
90 min													

Water Sample:

Time Collected 14:47

Physical Appearance at Start

Physical Appearance at Sampling

Color slight rust color
 Odor none
 Turbidity (> 100 NTU) 175
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 8.62
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

Standard Groundwater Sampling Log

Date 6/15/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather Mostly sunny, 80's
 Well # OBG MW-12S
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 21.42 ft.
 Depth to Water * 9.95 ft.
 Length of Water Column 11.47 ft.
 Volume of Water in Well 1.87 gal.(s)
 3X Volume of Water in Well 5.61 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 gal.(s)
 Did well go dry? No

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

	Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial	<u>10.31</u>	initial <u>19.69</u>	initial <u>0.69</u>	initial <u>1.13</u>	initial <u>7.16</u>	initial <u>39.2</u>	initial <u>38.0</u>
5 min	<u>10.66</u>	<u>16.67</u>	<u>0.69</u>	<u>0.38</u>	<u>7.18</u>	<u>37.5</u>	<u>27.0</u>
10 min	<u>10.80</u>	<u>15.66</u>	<u>0.71</u>	<u>0.32</u>	<u>7.18</u>	<u>33.9</u>	<u>22.0</u>
15 min	<u>10.93</u>	<u>15.60</u>	<u>0.70</u>	<u>0.21</u>	<u>7.18</u>	<u>30.4</u>	<u>14.1</u>
20 min	<u>11.05</u>	<u>15.03</u>	<u>0.70</u>	<u>0.15</u>	<u>7.18</u>	<u>32.4</u>	<u>7.78</u>
25 min	<u>11.15</u>	<u>14.88</u>	<u>0.70</u>	<u>0.11</u>	<u>7.19</u>	<u>33.7</u>	<u>6.02</u>
30 min	<u>11.21</u>	<u>14.93</u>	<u>0.71</u>	<u>0.08</u>	<u>7.18</u>	<u>33.3</u>	<u>3.73</u>
35 min	<u>11.22</u>	<u>14.66</u>	<u>0.70</u>	<u>0.08</u>	<u>7.19</u>	<u>32.1</u>	<u>2.15</u>
40 min	<u>11.25</u>	<u>14.93</u>	<u>0.71</u>	<u>0.07</u>	<u>7.18</u>	<u>32.0</u>	<u>3.47</u>
45 min							
50 min							
55 min							
60 min							
65 min							
70 min							
75 min							
80 min							
85 min							
90 min							

Water Sample:

Time Collected 15:52

Physical Appearance at Start

Physical Appearance at Sampling

Color slightly cloudy
 Odor none
 Turbidity (> 100 NTU) 38
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 3.47
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	<u>3</u>	<u>15 ml plastic</u>	<u>None</u>	<u>No</u>

Notes:

Standard Groundwater Sampling Log

Date 6/14/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather cloudy 70s
 Well # OBG MW-13
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 23.70 ft.
 Depth to Water * 7.25 ft.
 Length of Water Column 16.45 ft.
 Volume of Water in Well 2.68 gal.(s)
 3X Volume of Water in Well 8.04 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 gal.(s)
 Did well go dry? no

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured 0.3 feet or less		Temperature Celsius ±3 percent		Conductivity mS/cm ±3 percent		Dissolved Oxygen mg/L ±10 percent		pH ±0.1 pH units		ORP mV ±10 millivolts		Turbidity NTUs ±10 percent	
initial	<u>7.48</u>	initial	<u>19.34</u>	initial	<u>1.46</u>	initial	<u>6.24</u>	initial	<u>7.13</u>	initial	<u>224.6</u>	initial	<u>153</u>
5 min	<u>7.80</u>		<u>15.87</u>		<u>1.56</u>		<u>0.36</u>		<u>6.94</u>		<u>126.9</u>		<u>259</u>
10 min	<u>8.44</u>		<u>14.23</u>		<u>1.60</u>		<u>0.13</u>		<u>6.88</u>		<u>108.2</u>		<u>69.3</u>
15 min	<u>8.95</u>		<u>14.02</u>		<u>1.60</u>		<u>0.11</u>		<u>6.86</u>		<u>90.1</u>		<u>53.8</u>
20 min	<u>9.05</u>		<u>15.57</u>		<u>1.64</u>		<u>0.21</u>		<u>6.85</u>		<u>67.4</u>		<u>37.7</u>
25 min	<u>9.51</u>		<u>14.48</u>		<u>1.60</u>		<u>0.12</u>		<u>6.87</u>		<u>34.0</u>		<u>20.4</u>
30 min	<u>9.98</u>		<u>13.90</u>		<u>1.61</u>		<u>0.10</u>		<u>6.85</u>		<u>33.2</u>		<u>33.0</u>
35 min	<u>10.40</u>		<u>13.75</u>		<u>1.62</u>		<u>0.08</u>		<u>6.85</u>		<u>14.5</u>		<u>32.2</u>
40 min	<u>10.85</u>		<u>13.57</u>		<u>1.62</u>		<u>0.07</u>		<u>6.85</u>		<u>14.1</u>		<u>38.5</u>
45 min	<u>11.22</u>		<u>13.53</u>		<u>1.62</u>		<u>0.07</u>		<u>6.85</u>		<u>13.2</u>		<u>31.7</u>
50 min	<u>11.66</u>		<u>13.58</u>		<u>1.62</u>		<u>0.07</u>		<u>6.84</u>		<u>7.2</u>		<u>32.7</u>
55 min			<u>13.57</u>		<u>1.62</u>		<u>0.07</u>		<u>6.85</u>		<u>5.9</u>		<u>30.9</u>
60 min													
65 min													
70 min													
75 min													
80 min													
85 min													
90 min													

Water Sample:

Time Collected 10:35

Physical Appearance at Start

Physical Appearance at Sampling

Color light brown
 Odor none
 Turbidity (> 100 NTU) 153
 Sheen/Free Product none

Color slightly cloudy
 Odor none
 Turbidity (> 100 NTU) 30.9
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

Standard Groundwater Sampling Log

Date 6/15/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather mostly sunny 80s
 Well # OBG MW-14
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 17.75 ft.
 Depth to Water * 9.15 ft.
 Length of Water Column 8.60 ft.
 Volume of Water in Well 1.40 gal.(s)
 3X Volume of Water in Well 4.21 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 gal.(s)
 Did well go dry? no

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

	Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial	<u>9.49</u>	initial <u>21.29</u>	initial <u>1.02</u>	initial <u>4.71</u>	initial <u>7.17</u>	initial <u>72.1</u>	initial <u>47.2</u>
5 min	<u>10.02</u>	<u>15.54</u>	<u>1.13</u>	<u>0.84</u>	<u>7.15</u>	<u>72.8</u>	<u>23.7</u>
10 min	<u>10.25</u>	<u>14.70</u>	<u>1.14</u>	<u>0.69</u>	<u>7.16</u>	<u>74.3</u>	<u>24.9</u>
15 min	<u>11.05</u>	<u>14.44</u>	<u>1.14</u>	<u>0.76</u>	<u>7.16</u>	<u>76.5</u>	<u>25.2</u>
20 min	<u>11.3</u>	<u>14.13</u>	<u>1.14</u>	<u>0.85</u>	<u>7.16</u>	<u>77.8</u>	<u>23.5</u>
25 min	<u>11.85</u>	<u>14.21</u>	<u>1.14</u>	<u>1.07</u>	<u>7.17</u>	<u>79.9</u>	<u>17.2</u>
30 min	<u>12.34</u>	<u>13.80</u>	<u>1.14</u>	<u>1.30</u>	<u>7.17</u>	<u>81.8</u>	<u>16.4</u>
35 min	<u>12.82</u>	<u>13.77</u>	<u>1.14</u>	<u>1.55</u>	<u>7.18</u>	<u>82.9</u>	<u>13.4</u>
40 min	<u>13.09</u>	<u>13.62</u>	<u>1.14</u>	<u>1.64</u>	<u>7.20</u>	<u>84.1</u>	<u>11.5</u>
45 min	<u>13.15</u>	<u>13.60</u>	<u>1.15</u>	<u>1.70</u>	<u>7.22</u>	<u>84.8</u>	<u>14.7</u>
50 min							
55 min							
60 min							
65 min							
70 min							
75 min							
80 min							
85 min							
90 min							

Water Sample:

Time Collected 18:12

Physical Appearance at Start

Physical Appearance at Sampling

Color slightly cloudy
 Odor none
 Turbidity (> 100 NTU) 47.2
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 14.7
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

Standard Groundwater Sampling Log

Date 6/15/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather sunny 80s
 Well # OBG MW-17S
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 22.27 ft.
 Depth to Water * 11.95 ft.
 Length of Water Column 10.32 ft.
 Volume of Water in Well 1.68 gal.(s)
 3X Volume of Water in Well 5.05 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
 4" Diameter Well = 0.653 X LWC
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 1/2 gal.(s)
 Did well go dry? no

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial <u>12.24</u>	initial <u>19.57</u>	initial <u>0.67</u>	initial <u>2.92</u>	initial <u>7.20</u>	initial <u>-95.4</u>	initial <u>44.2</u>
5 min <u>12.30</u>	<u>16.51</u>	<u>0.70</u>	<u>0.71</u>	<u>7.11</u>	<u>-98.4</u>	<u>52.2</u>
10 min <u>12.35</u>	<u>15.27</u>	<u>0.71</u>	<u>0.20</u>	<u>7.10</u>	<u>-99.2</u>	<u>23.8</u>
15 min <u>12.40</u>	<u>14.80</u>	<u>0.72</u>	<u>0.15</u>	<u>7.10</u>	<u>-98.6</u>	<u>35.5</u>
20 min <u>12.40</u>	<u>14.68</u>	<u>0.71</u>	<u>0.19</u>	<u>7.10</u>	<u>-97.0</u>	<u>43.0</u>
25 min <u>12.40</u>	<u>14.66</u>	<u>0.71</u>	<u>0.48</u>	<u>7.10</u>	<u>-91.7</u>	<u>24.3</u>
30 min <u>12.40</u>	<u>14.62</u>	<u>0.71</u>	<u>0.46</u>	<u>7.10</u>	<u>-92.3</u>	<u>16.7</u>
35 min <u>12.42</u>	<u>14.48</u>	<u>0.71</u>	<u>0.32</u>	<u>7.09</u>	<u>-93.8</u>	<u>12.4</u>
40 min <u>12.42</u>	<u>14.43</u>	<u>0.71</u>	<u>0.28</u>	<u>7.09</u>	<u>-95.3</u>	<u>10.2</u>
45 min <u>12.42</u>	<u>14.38</u>	<u>0.71</u>	<u>0.23</u>	<u>7.09</u>	<u>-95.3</u>	<u>12.1</u>
50 min <u>12.42</u>	<u>14.23</u>	<u>0.72</u>	<u>0.18</u>	<u>7.09</u>	<u>-96.6</u>	<u>8.28</u>
55 min <u>12.42</u>	<u>14.25</u>	<u>0.71</u>	<u>0.17</u>	<u>7.10</u>	<u>-96.9</u>	<u>7.01</u>
60 min <u>12.42</u>	<u>14.15</u>	<u>0.72</u>	<u>0.16</u>	<u>7.09</u>	<u>-97.2</u>	<u>7.04</u>
65 min _____	_____	_____	_____	_____	_____	_____
70 min _____	_____	_____	_____	_____	_____	_____
75 min _____	_____	_____	_____	_____	_____	_____
80 min _____	_____	_____	_____	_____	_____	_____
85 min _____	_____	_____	_____	_____	_____	_____
90 min _____	_____	_____	_____	_____	_____	_____

Water Sample:

Time Collected 17:08

Physical Appearance at Start _____

Physical Appearance at Sampling _____

Color slightly cloudy / rust color
 Odor none
 Turbidity (> 100 NTU) 44.2
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 7.04
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

Standard Groundwater Sampling Log

Date 6/10/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel GDR/DEP

Weather 84°F, cloudy
 Well # OBG MW-18S
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 30.86 ft.
 Depth to Water * 15.27 ft.
 Length of Water Column 15.59 ft.
 Volume of Water in Well 2.54 gal.(s)
 3X Volume of Water in Well 7.62 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 3 gal.(s)
 Did well go dry? No

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial <u>15.46</u>	initial <u>27.61</u>	initial <u>0.68</u>	initial <u>3.44</u>	initial <u>7.27</u>	initial <u>70.0</u>	initial <u>29.2</u>
5 min <u>15.51</u>	<u>17.01</u>	<u>0.71</u>	<u>1.18</u>	<u>7.22</u>	<u>62.7</u>	<u>30.1</u>
10 min <u>15.51</u>	<u>15.24</u>	<u>0.79</u>	<u>1.01</u>	<u>7.20</u>	<u>54.3</u>	<u>30.5</u>
15 min <u>15.51</u>	<u>15.13</u>	<u>0.89</u>	<u>0.75</u>	<u>7.17</u>	<u>44.6</u>	<u>26.0</u>
20 min <u>15.51</u>	<u>15.02</u>	<u>0.98</u>	<u>0.62</u>	<u>7.16</u>	<u>36.0</u>	<u>21.8</u>
25 min <u>15.52</u>	<u>14.75</u>	<u>1.05</u>	<u>0.50</u>	<u>7.15</u>	<u>25.8</u>	<u>13.3</u>
30 min <u>15.52</u>	<u>14.97</u>	<u>1.12</u>	<u>0.47</u>	<u>7.13</u>	<u>14.9</u>	<u>12.2</u>
35 min <u>15.52</u>	<u>14.71</u>	<u>1.12</u>	<u>0.45</u>	<u>7.13</u>	<u>14.3</u>	<u>9.85</u>
40 min <u>15.52</u>	<u>15.33</u>	<u>1.16</u>	<u>0.39</u>	<u>7.12</u>	<u>10.5</u>	<u>10.50</u>
45 min <u>15.52</u>	<u>15.42</u>	<u>1.18</u>	<u>0.35</u>	<u>7.11</u>	<u>10.4</u>	<u>9.03</u>
50 min <u>15.52</u>	<u>15.42</u>	<u>1.18</u>	<u>0.33</u>	<u>7.11</u>	<u>8.1</u>	<u>5.60</u>
55 min <u>15.52</u>	<u>15.07</u>	<u>1.19</u>	<u>0.36</u>	<u>7.11</u>	<u>9.2</u>	<u>8.96</u>
60 min <u>15.52</u>	<u>15.65</u>	<u>1.20</u>	<u>0.33</u>	<u>7.11</u>	<u>6.9</u>	<u>6.37</u>
65 min <u>15.52</u>	<u>15.64</u>	<u>1.20</u>	<u>0.29</u>	<u>7.11</u>	<u>7.5</u>	<u>5.66</u>
70 min _____	_____	_____	_____	_____	_____	_____
75 min _____	_____	_____	_____	_____	_____	_____
80 min _____	_____	_____	_____	_____	_____	_____
85 min _____	_____	_____	_____	_____	_____	_____
90 min _____	_____	_____	_____	_____	_____	_____

Water Sample:

Time Collected 14:10

Physical Appearance at Start

Physical Appearance at Sampling

Color slightly turbid
 Odor none
 Turbidity (> 100 NTU) 29.2
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 5.66
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

DTW after sampling 15.52' btoc

Standard Groundwater Sampling Log

Date 6/14/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather mostly cloudy 80s
 Well # OBG MW-21
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 17.39 ft.
 Depth to Water * 5.71 ft.
 Length of Water Column 11.68 ft.
 Volume of Water in Well 1.90 gal.(s)
 3X Volume of Water in Well 5.71 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
 4" Diameter Well = 0.653 X LWC
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 3/4 gal.(s)
 Did well go dry? No

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial 6.04	initial 25.44	initial 0.86	initial 4.22	initial 7.13	initial -53.2	initial 37.2
5 min 6.37	17.76	0.99	0.26	7.06	-53.4	33.1
10 min 6.64	16.69	0.99	0.09	7.06	-50.6	33.1
15 min 6.89	16.46	1.00	0.06	7.05	-50.2	36.1
20 min 7.15	16.50	0.98	0.03	7.06	-47.5	38.1
25 min 7.28	16.63	0.99	0.05	7.06	-46.5	30.9
30 min 7.40	16.05	0.99	0.07	7.06	-44.7	24.6
35 min 7.50	15.79	0.98	0.11	7.07	-43.9	19.6
40 min 7.53	16.16	0.98	0.14	7.07	-44.0	17.2
45 min 7.56	15.43	0.98	0.15	7.07	-43.4	14.7
50 min 7.58	15.12	0.98	0.16	7.07	-42.9	14.3
55 min 7.61	15.52	0.99	0.15	7.07	-43.9	15.0
60 min						
65 min						
70 min						
75 min						
80 min						
85 min						
90 min						

Water Sample:

Time Collected 14:28

Physical Appearance at Start

Physical Appearance at Sampling

Color clear/rust colored globs
 Odor none
 Turbidity (> 100 NTU) 37.2
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 15.0
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

Standard Groundwater Sampling Log

Date 6/16/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather Sunny, 70's
 Well # OBG MW-22
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 26.65 ft.
 Depth to Water * 6.10 ft.
 Length of Water Column 20.55 ft.
 Volume of Water in Well 3.35 gal.(s)
 3X Volume of Water in Well 10.05 gal.(s)

Water Volume /ft. for:

X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 gal.(s)
 Did well go dry? No

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured		Temperature Celsius		Conductivity mS/cm		Dissolved Oxygen mg/L		pH		ORP mV		Turbidity NTUs	
0.3 feet or less		±3 percent		±3 percent		±10 percent		±0.1 pH units		±10 millivolts		±10 percent	
initial	<u>6.21</u>	initial	<u>17.86</u>	initial	<u>0.64</u>	initial	<u>6.68</u>	initial	<u>7.38</u>	initial	<u>181.3</u>	initial	<u>345</u>
5 min	<u>6.25</u>		<u>12.40</u>		<u>0.71</u>		<u>0.17</u>		<u>7.00</u>		<u>127.9</u>		<u>39.8</u>
10 min	<u>6.28</u>		<u>11.48</u>		<u>0.72</u>		<u>0.13</u>		<u>6.94</u>		<u>103.1</u>		<u>32.6</u>
15 min	<u>6.30</u>		<u>11.19</u>		<u>0.72</u>		<u>0.05</u>		<u>6.93</u>		<u>91.4</u>		<u>19.7</u>
20 min	<u>6.30</u>		<u>11.05</u>		<u>0.73</u>		<u>0.04</u>		<u>6.92</u>		<u>85.6</u>		<u>12.7</u>
25 min	<u>6.32</u>		<u>10.91</u>		<u>0.72</u>		<u>0.04</u>		<u>6.92</u>		<u>83.0</u>		<u>12.5</u>
30 min	<u>6.32</u>		<u>10.92</u>		<u>0.73</u>		<u>0.04</u>		<u>6.92</u>		<u>80.8</u>		<u>5.27</u>
35 min	<u>6.32</u>		<u>10.91</u>		<u>0.73</u>		<u>0.03</u>		<u>6.92</u>		<u>79.4</u>		<u>3.50</u>
40 min													
45 min													
50 min													
55 min													
60 min													
65 min													
70 min													
75 min													
80 min													
85 min													
90 min													

Water Sample:

Time Collected 10:08

Physical Appearance at Start

Physical Appearance at Sampling

Color light brown
 Odor none
 Turbidity (> 100 NTU) 345
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 3.5
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

MW-DUP-061621 collected here

Standard Groundwater Sampling Log

Date 6/14/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather Cloudy, 70's
 Well # OBG MW-23
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 33.42 ft.
 Depth to Water * 28.60 ft.
 Length of Water Column 4.82 ft.
 Volume of Water in Well 0.79 gal.(s)
 3X Volume of Water in Well 2.36 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 3/4 gal.(s)
 Did well go dry? no

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured		Temperature Celsius		Conductivity mS/cm		Dissolved Oxygen mg/L		pH		ORP mV		Turbidity NTUs	
0.3 feet or less		±3 percent		±3 percent		±10 percent		±0.1 pH units		±10 millivolts		±10 percent	
initial	<u>28.69</u>	initial	<u>20.40</u>	initial	<u>0.79</u>	initial	<u>3.53</u>	initial	<u>7.33</u>	initial	<u>59.2</u>	initial	<u>37.2</u>
5 min	<u>28.69</u>		<u>14.57</u>		<u>0.87</u>		<u>1.91</u>		<u>7.19</u>		<u>61.1</u>		<u>21.3</u>
10 min	<u>28.69</u>		<u>14.15</u>		<u>0.88</u>		<u>1.47</u>		<u>7.18</u>		<u>31.4</u>		<u>18.8</u>
15 min	<u>28.69</u>		<u>14.06</u>		<u>0.88</u>		<u>1.27</u>		<u>7.17</u>		<u>19.2</u>		<u>12.5</u>
20 min	<u>28.69</u>		<u>13.96</u>		<u>0.88</u>		<u>0.91</u>		<u>7.16</u>		<u>2.0</u>		<u>11.8</u>
25 min	<u>28.69</u>		<u>13.66</u>		<u>0.88</u>		<u>0.97</u>		<u>7.16</u>		<u>-10.5</u>		<u>8.50</u>
30 min	<u>28.69</u>		<u>13.35</u>		<u>0.88</u>		<u>0.80</u>		<u>7.16</u>		<u>-15.6</u>		<u>5.19</u>
35 min	<u>28.69</u>		<u>13.37</u>		<u>0.88</u>		<u>0.72</u>		<u>7.16</u>		<u>-22.6</u>		<u>5.23</u>
40 min	<u>28.69</u>		<u>13.33</u>		<u>0.88</u>		<u>0.59</u>		<u>7.16</u>		<u>-26.6</u>		<u>4.99</u>
45 min	<u>28.69</u>		<u>13.39</u>		<u>0.88</u>		<u>0.60</u>		<u>7.16</u>		<u>-29.5</u>		<u>4.83</u>
50 min	<u>28.69</u>		<u>13.39</u>		<u>0.88</u>		<u>0.56</u>		<u>7.16</u>		<u>-29.8</u>		<u>4.03</u>
55 min													
60 min													
65 min													
70 min													
75 min													
80 min													
85 min													
90 min													

Water Sample:

Time Collected 15:42

Physical Appearance at Start

Physical Appearance at Sampling

Color slightly cloudy
 Odor none
 Turbidity (> 100 NTU) no
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 4.03
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

Standard Groundwater Sampling Log

Date 6/10/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel GDR/DEP

Weather 86°F, partly cloudy
 Well # OBG MW-24
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 23.82 ft.
 Depth to Water * 6.73 ft.
 Length of Water Column 17.09 ft.
 Volume of Water in Well 2.79 gal.(s)
 3X Volume of Water in Well 8.36 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
 4" Diameter Well = 0.653 X LWC
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 1/2 gal.(s)
 Did well go dry? No

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured	Temperature Celsius	Conductivity mS/cm	Dissolved Oxygen mg/L	pH	ORP mV	Turbidity NTUs
0.3 feet or less	±3 percent	±3 percent	±10 percent	±0.1 pH units	±10 millivolts	±10 percent
initial <u>7.34</u>	initial <u>18.60</u>	initial <u>0.75</u>	initial <u>0.34</u>	initial <u>7.27</u>	initial <u>66.9</u>	initial <u>73.3</u>
5 min <u>8.33</u>	<u>13.80</u>	<u>0.80</u>	<u>0.15</u>	<u>7.27</u>	<u>51.8</u>	<u>65.0</u>
10 min <u>8.89</u>	<u>14.29</u>	<u>0.80</u>	<u>0.13</u>	<u>7.25</u>	<u>35.3</u>	<u>77.0</u>
15 min <u>9.18</u>	<u>14.61</u>	<u>0.82</u>	<u>0.14</u>	<u>7.24</u>	<u>27.9</u>	<u>65.3</u>
20 min <u>9.50</u>	<u>14.75</u>	<u>0.81</u>	<u>0.11</u>	<u>7.24</u>	<u>27.0</u>	<u>56.2</u>
25 min <u>9.90</u>	<u>14.65</u>	<u>0.82</u>	<u>0.12</u>	<u>7.24</u>	<u>26.0</u>	<u>46.0</u>
30 min <u>10.23</u>	<u>14.69</u>	<u>0.81</u>	<u>0.09</u>	<u>7.23</u>	<u>24.9</u>	<u>48.2</u>
35 min <u>10.46</u>	<u>14.87</u>	<u>0.81</u>	<u>0.10</u>	<u>7.23</u>	<u>20.3</u>	<u>51.0</u>
40 min <u>10.69</u>	<u>14.84</u>	<u>0.81</u>	<u>0.09</u>	<u>7.23</u>	<u>20.6</u>	<u>44.1</u>
45 min <u>10.94</u>	<u>14.86</u>	<u>0.81</u>	<u>0.10</u>	<u>7.23</u>	<u>20.7</u>	<u>39.4</u>
50 min _____	_____	_____	_____	_____	_____	_____
55 min _____	_____	_____	_____	_____	_____	_____
60 min _____	_____	_____	_____	_____	_____	_____
65 min _____	_____	_____	_____	_____	_____	_____
70 min _____	_____	_____	_____	_____	_____	_____
75 min _____	_____	_____	_____	_____	_____	_____
80 min _____	_____	_____	_____	_____	_____	_____
85 min _____	_____	_____	_____	_____	_____	_____
90 min _____	_____	_____	_____	_____	_____	_____

Water Sample:

Time Collected 16:05

Physical Appearance at Start

Physical Appearance at Sampling

Color slightly turbid
 Odor none
 Turbidity (> 100 NTU) 73.3
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 39.4
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

DTW after sampling 11.19' btoc

Standard Groundwater Sampling Log

Date 6/15/2021

Site Name RACER Coldwater Rd

Location Flint, MI

Project No. 1940100783

Personnel KBS

Weather Mostly sunny, 70's

Well # OBG MW-26

Evacuation Method peristaltic

Sampling Method low flow

Well Information:

Depth of Well * 10.65 ft.

Depth to Water * 8.15 ft.

Length of Water Column 2.50 ft.

Volume of Water in Well 0.41 gal.(s)

3X Volume of Water in Well 1.22 gal.(s)

Water Volume /ft. for:

X 2" Diameter Well = 0.163 X LWC

4" Diameter Well = 0.653 X LWC

6" Diameter Well = 1.469 X LWC

Volume removed before sampling

Did well go dry?

1 gal.(s)

No

(Other, Specify)

* Measurements taken from ☒ Well Casing ☐ Protective Casing

Instrument Calibration:

Calibrated within range

pH Yes

ORP Yes

Conductivity Yes

DO Yes

Water parameters:

Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial <u>8.41</u>	initial <u>17.48</u>	initial <u>1.88</u>	initial <u>3.12</u>	initial <u>6.88</u>	initial <u>104.3</u>	initial <u>1000</u>
5 min <u>8.54</u>	<u>16.81</u>	<u>1.89</u>	<u>1.00</u>	<u>6.81</u>	<u>101.0</u>	<u>692</u>
10 min <u>8.61</u>	<u>16.55</u>	<u>1.88</u>	<u>1.30</u>	<u>6.82</u>	<u>101.0</u>	<u>146</u>
15 min <u>8.69</u>	<u>16.19</u>	<u>1.89</u>	<u>1.34</u>	<u>6.80</u>	<u>53.3</u>	<u>78.2</u>
20 min <u>8.78</u>	<u>16.01</u>	<u>1.90</u>	<u>0.68</u>	<u>6.77</u>	<u>7.1</u>	<u>47.9</u>
25 min <u>8.82</u>	<u>15.95</u>	<u>1.92</u>	<u>0.42</u>	<u>6.72</u>	<u>-0.1</u>	<u>1000</u>
30 min <u>8.88</u>	<u>15.12</u>	<u>1.94</u>	<u>0.34</u>	<u>6.72</u>	<u>5.3</u>	<u>543</u>
35 min <u>8.90</u>	<u>15.51</u>	<u>1.93</u>	<u>0.24</u>	<u>6.71</u>	<u>-4.0</u>	<u>211</u>
40 min <u>8.90</u>	<u>15.21</u>	<u>19.4</u>	<u>0.18</u>	<u>6.70</u>	<u>-4.7</u>	<u>91.0</u>
45 min <u>8.93</u>	<u>15.18</u>	<u>1.94</u>	<u>0.13</u>	<u>6.70</u>	<u>-6.8</u>	<u>42.1</u>
50 min <u>8.93</u>	<u>14.77</u>	<u>1.96</u>	<u>0.07</u>	<u>6.70</u>	<u>-11.4</u>	<u>19.6</u>
55 min <u>8.93</u>	<u>15.12</u>	<u>1.97</u>	<u>0.05</u>	<u>6.69</u>	<u>-10.4</u>	<u>12.9</u>
60 min <u>8.93</u>	<u>14.87</u>	<u>1.96</u>	<u>0.04</u>	<u>6.69</u>	<u>-12.3</u>	<u>8.70</u>
65 min <u>8.93</u>	<u>15.23</u>	<u>1.95</u>	<u>0.04</u>	<u>6.69</u>	<u>-12.1</u>	<u>4.77</u>
70 min						
75 min						
80 min						
85 min						
90 min						
95 min						
100 min						

Water Sample:

Time Collected 11:52

Physical Appearance at Start

Physical Appearance at Sampling

Color light grayish brown

Odor none

Turbidity (> 100 NTU) >1000

Sheen/Free Product none

Color clear

Odor none

Turbidity (> 100 NTU) 4.77

Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

Bentonite on water level probe?

Standard Groundwater Sampling Log

Date 6/15/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather Mostly cloudy, 70's
 Well # OBG MW-27
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 31.75 ft.
 Depth to Water * 23.85 ft.
 Length of Water Column 7.90 ft.
 Volume of Water in Well 1.29 gal.(s)
 3X Volume of Water in Well 3.86 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 3/4 gal.(s)
 Did well go dry? No

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial <u>23.89</u>	initial <u>19.76</u>	initial <u>1.08</u>	initial <u>3.60</u>	initial <u>7.20</u>	initial <u>172.5</u>	initial <u>26.6</u>
5 min <u>23.89</u>	<u>18.04</u>	<u>1.12</u>	<u>3.07</u>	<u>7.13</u>	<u>158.8</u>	<u>21.1</u>
10 min <u>23.89</u>	<u>14.77</u>	<u>1.18</u>	<u>2.28</u>	<u>7.06</u>	<u>115.1</u>	<u>20.2</u>
15 min <u>23.89</u>	<u>15.29</u>	<u>1.18</u>	<u>2.23</u>	<u>7.05</u>	<u>106.7</u>	<u>14.4</u>
20 min <u>23.89</u>	<u>15.49</u>	<u>1.16</u>	<u>2.03</u>	<u>7.05</u>	<u>103.0</u>	<u>10.9</u>
25 min <u>23.89</u>	<u>15.52</u>	<u>1.16</u>	<u>1.98</u>	<u>7.05</u>	<u>101.7</u>	<u>10.6</u>
30 min <u>23.89</u>	<u>15.00</u>	<u>1.14</u>	<u>1.85</u>	<u>7.04</u>	<u>99.9</u>	<u>8.12</u>
35 min <u>23.89</u>	<u>15.15</u>	<u>1.15</u>	<u>1.92</u>	<u>7.04</u>	<u>98.8</u>	<u>9.91</u>
40 min _____	_____	_____	_____	_____	_____	_____
45 min _____	_____	_____	_____	_____	_____	_____
50 min _____	_____	_____	_____	_____	_____	_____
55 min _____	_____	_____	_____	_____	_____	_____
60 min _____	_____	_____	_____	_____	_____	_____
65 min _____	_____	_____	_____	_____	_____	_____
70 min _____	_____	_____	_____	_____	_____	_____
75 min _____	_____	_____	_____	_____	_____	_____
80 min _____	_____	_____	_____	_____	_____	_____
85 min _____	_____	_____	_____	_____	_____	_____
90 min _____	_____	_____	_____	_____	_____	_____

Water Sample:

Time Collected 10:32

Physical Appearance at Start _____

Physical Appearance at Sampling _____

Color few floaters/clear
 Odor none
 Turbidity (> 100 NTU) 26.6
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 9.91
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

Standard Groundwater Sampling Log

Date 6/14/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather _____
 Well # OBG MW-28
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 17.28 ft.
 Depth to Water * 13.35 ft.
 Length of Water Column 3.93 ft.
 Volume of Water in Well 0.64 gal.(s)
 3X Volume of Water in Well 1.92 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 gal.(s)
 Did well go dry? no

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial <u>13.39</u>	initial <u>23.00</u>	initial <u>1.46</u>	initial <u>3.93</u>	initial <u>7.12</u>	initial <u>48.3</u>	initial <u>27.90</u>
5 min <u>13.39</u>	<u>16.00</u>	<u>1.39</u>	<u>1.05</u>	<u>7.09</u>	<u>72.6</u>	<u>22.50</u>
10 min <u>13.39</u>	<u>15.63</u>	<u>1.21</u>	<u>1.43</u>	<u>7.09</u>	<u>82.7</u>	<u>11.80</u>
15 min <u>13.39</u>	<u>14.96</u>	<u>1.14</u>	<u>1.86</u>	<u>7.08</u>	<u>84.8</u>	<u>8.86</u>
20 min <u>13.39</u>	<u>14.57</u>	<u>1.11</u>	<u>2.03</u>	<u>7.08</u>	<u>77.9</u>	<u>7.34</u>
25 min <u>13.39</u>	<u>14.60</u>	<u>1.10</u>	<u>2.33</u>	<u>7.07</u>	<u>80.9</u>	<u>2.09</u>
30 min <u>13.39</u>	<u>14.17</u>	<u>1.10</u>	<u>2.58</u>	<u>7.06</u>	<u>68.0</u>	<u>5.05</u>
35 min <u>13.39</u>	<u>4.21</u>	<u>1.10</u>	<u>2.53</u>	<u>7.06</u>	<u>60.5</u>	<u>5.43</u>
40 min <u>13.39</u>	<u>14.25</u>	<u>1.10</u>	<u>2.63</u>	<u>7.06</u>	<u>56.2</u>	<u>3.77</u>
45 min _____	_____	_____	_____	_____	_____	_____
50 min _____	_____	_____	_____	_____	_____	_____
55 min _____	_____	_____	_____	_____	_____	_____
60 min _____	_____	_____	_____	_____	_____	_____
65 min _____	_____	_____	_____	_____	_____	_____
70 min _____	_____	_____	_____	_____	_____	_____
75 min _____	_____	_____	_____	_____	_____	_____
80 min _____	_____	_____	_____	_____	_____	_____
85 min _____	_____	_____	_____	_____	_____	_____
90 min _____	_____	_____	_____	_____	_____	_____

Water Sample:

Time Collected 11:38

Physical Appearance at Start _____

Physical Appearance at Sampling _____

Color slightly cloudy
 Odor none
 Turbidity (> 100 NTU) 27.9
 Sheen/Free Product none

Color clear
 Odor none
 Turbidity (> 100 NTU) 3.77
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

Standard Groundwater Sampling Log

Date 6/14/2021
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 1940100783
 Personnel KBS

Weather Sunny, 80's
 Well # MW-29
 Evacuation Method peristaltic
 Sampling Method low flow

Well Information:

Depth of Well * 33.98 ft.
 Depth to Water * 25.48 ft.
 Length of Water Column 8.50 ft.
 Volume of Water in Well 1.39 gal.(s)
 3X Volume of Water in Well 4.16 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 1 1/2 gal.(s)
 Did well go dry? no

* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial <u>25.50</u>	initial <u>14.36</u>	initial <u>0.76</u>	initial <u>1.75</u>	initial <u>7.28</u>	initial <u>-98.8</u>	initial <u>26.7</u>
5 min <u>25.50</u>	<u>16.23</u>	<u>0.79</u>	<u>0.40</u>	<u>7.23</u>	<u>-99.8</u>	<u>27.8</u>
10 min <u>25.50</u>	<u>14.62</u>	<u>0.80</u>	<u>0.16</u>	<u>7.21</u>	<u>-99.3</u>	<u>54.9</u>
15 min <u>25.50</u>	<u>14.90</u>	<u>0.77</u>	<u>0.16</u>	<u>7.23</u>	<u>-97.0</u>	<u>73.3</u>
20 min <u>25.50</u>	<u>14.88</u>	<u>0.76</u>	<u>0.20</u>	<u>7.21</u>	<u>-95.9</u>	<u>61.3</u>
25 min <u>25.50</u>	<u>14.69</u>	<u>0.74</u>	<u>0.52</u>	<u>7.20</u>	<u>-80.7</u>	<u>68.5</u>
30 min <u>25.50</u>	<u>14.56</u>	<u>0.74</u>	<u>0.52</u>	<u>7.21</u>	<u>-78.7</u>	<u>39.7</u>
35 min <u>25.50</u>	<u>14.84</u>	<u>0.75</u>	<u>0.44</u>	<u>7.20</u>	<u>-81.6</u>	<u>30.6</u>
40 min <u>25.50</u>	<u>14.88</u>	<u>0.75</u>	<u>0.43</u>	<u>7.19</u>	<u>-81.4</u>	<u>28.5</u>
45 min <u>25.50</u>	<u>15.74</u>	<u>0.75</u>	<u>0.47</u>	<u>7.18</u>	<u>-83.6</u>	<u>20.9</u>
50 min <u>25.50</u>	<u>15.75</u>	<u>0.74</u>	<u>0.46</u>	<u>7.21</u>	<u>-86.2</u>	<u>20.5</u>
55 min <u>25.50</u>	<u>14.24</u>	<u>0.74</u>	<u>0.44</u>	<u>7.18</u>	<u>-82.3</u>	<u>20.6</u>
60 min <u>25.50</u>	<u>13.98</u>	<u>0.74</u>	<u>0.43</u>	<u>7.19</u>	<u>-77.8</u>	<u>21.2</u>
65 min <u>25.50</u>	<u>14.08</u>	<u>0.75</u>	<u>0.49</u>	<u>7.20</u>	<u>-78.9</u>	<u>18.7</u>
70 min _____	_____	_____	_____	_____	_____	_____
75 min _____	_____	_____	_____	_____	_____	_____
80 min _____	_____	_____	_____	_____	_____	_____
85 min _____	_____	_____	_____	_____	_____	_____
90 min _____	_____	_____	_____	_____	_____	_____

Water Sample:

Time Collected 13:02

Physical Appearance at Start

Physical Appearance at Sampling

Color slightly cloudy
 Odor none
 Turbidity (> 100 NTU) no
 Sheen/Free Product none

Color slightly cloudy
 Odor none
 Turbidity (> 100 NTU) 18.7
 Sheen/Free Product none

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
PFAS (7979)	3	15 ml plastic	None	No

Notes:

APPENDIX B

ANALYTICAL LABORATORY RESULTS



Analytical Laboratory Report

Report ID: S25227.01(01)
Generated on 07/02/2021

Report to

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

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

Additional Contacts: Kevin Schneider

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S25227.01-S25227.07
Project: RACER Coldwater Road
Collected Date(s): 06/10/2021 - 06/11/2021
Submitted Date/Time: 06/11/2021 16:30
Sampled by: Kevin Schneider
P.O. #: 1940002628 (TASK 37)

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

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.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

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

Glossary of Abbreviations

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

Method Summary

Method	Version
ASTMD7979-19M	ASTM Method D7979 - 19 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTTrDA	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
S25227.01	OBG MW-18S	Groundwater	06/10/21 14:10
S25227.02	OBG MW-24	Groundwater	06/10/21 16:05
S25227.03	Field Blank-061121	Water	06/11/21 09:20
S25227.04	B-9	Groundwater	06/11/21 09:25
S25227.05	B-27D	Groundwater	06/11/21 11:28
S25227.06	B-7	Groundwater	06/11/21 12:15
S25227.07	MW-DUP-061121	Groundwater	06/11/21 00:01



Analytical Laboratory Report

Lab Sample ID: S25227.01

Sample Tag: OBG MW-18S

Collected Date/Time: 06/10/2021 14:10

Matrix: Groundwater

COC Reference: 142923

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.37/6.98/11	ASTMD7979-19M	06/14/21 10:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 02:17, Analyst: KCV

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

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



Analytical Laboratory Report

Lab Sample ID: S25227.02

Sample Tag: OBG MW-24

Collected Date/Time: 06/10/2021 16:05

Matrix: Groundwater

COC Reference: 142923

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.18/7.07/12	ASTMD7979-19M	06/14/21 10:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 02:36, Analyst: KCV

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



Analytical Laboratory Report

Lab Sample ID: S25227.03

Sample Tag: Field Blank-061121

Collected Date/Time: 06/11/2021 09:20

Matrix: Water

COC Reference: 142923

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.02/7.04/10	ASTMD7979-19M	06/14/21 10:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 02:56, Analyst: KCV

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



Analytical Laboratory Report

Lab Sample ID: S25227.04

Sample Tag: B-9

Collected Date/Time: 06/11/2021 09:25

Matrix: Groundwater

COC Reference: 142923

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.43/6.76/11	ASTMD7979-19M	06/14/21 10:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 03:15, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	16	9.7	9.7	ng/L	1.94	375-22-4	
PFPeA*	3.2	3.9	0.97	ng/L	1.94	2706-90-3	J
4:2 FTSA*	Not detected	1.9	1.6	ng/L	1.94	757124-72-4	
PFHxA*	9.5	1.9	1.4	ng/L	1.94	307-24-4	
PFBS*	3.6	1.9	1.4	ng/L	1.94	375-73-5	
PFHpA*	1.8	1.9	1.4	ng/L	1.94	375-85-9	J
PFPeS*	1.8	1.9	1.7	ng/L	1.94	2706-91-4	J
6:2 FTSA*	2.9	3.9	1.9	ng/L	1.94	27619-97-2	J
PFOA*	8.2	1.9	1.6	ng/L	1.94	335-67-1	
PFHxS*	6.4	1.9	1.6	ng/L	1.94	355-46-4	
PFHxS-LN*	5.5	1.9	1.6	ng/L	1.94	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.6	ng/L	1.94	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.94	375-95-1	
8:2 FTSA*	Not detected	1.9	0.97	ng/L	1.94	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.94	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.94	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.94	2355-31-9	
EtFOSAA*	Not detected	3.9	1.9	ng/L	1.94	2991-50-6	
PFOS*	21	1.9	1.9	ng/L	1.94	1763-23-1	
PFOS-LN*	Not detected	1.9	1.9	ng/L	1.94	1763-23-1-LN	
PFOS-BR*	18	1.9	1.9	ng/L	1.94	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.4	ng/L	1.94	2058-94-8	
PFNS*	Not detected	1.9	1.4	ng/L	1.94	68259-12-1	
PFDODA*	Not detected	1.9	1.6	ng/L	1.94	307-55-1	
PFDS*	Not detected	1.9	1.4	ng/L	1.94	335-77-3	
PFTTrDA*	Not detected	1.9	1.2	ng/L	1.94	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.94	754-91-6	
PFTeDA*	Not detected	3.9	1.7	ng/L	1.94	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.94	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.4	ng/L	1.94	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.94	919005-14-4	
HFPO-DA*	Not detected	9.7	1.9	ng/L	1.94	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S25227.05

Sample Tag: B-27D

Collected Date/Time: 06/11/2021 11:28

Matrix: Groundwater

COC Reference: 142923

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.80/6.98/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 05:51, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.06	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.06	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.6	ng/L	2.06	757124-72-4	
PFHxA*	Not detected	2.1	1.4	ng/L	2.06	307-24-4	
PFBS*	Not detected	2.1	1.4	ng/L	2.06	375-73-5	
PFHpA*	Not detected	2.1	1.4	ng/L	2.06	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.06	2706-91-4	
6:2 FTSA*	Not detected	4.1	2.1	ng/L	2.06	27619-97-2	
PFOA*	Not detected	2.1	1.6	ng/L	2.06	335-67-1	
PFHxS*	Not detected	2.1	1.6	ng/L	2.06	355-46-4	
PFHxS-LN*	Not detected	2.1	1.6	ng/L	2.06	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.6	ng/L	2.06	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.06	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.06	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.06	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.06	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.06	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.06	2991-50-6	
PFOS*	Not detected	2.1	2.0	ng/L	2.06	1763-23-1	
PFOS-LN*	Not detected	2.1	2.0	ng/L	2.06	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.06	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.06	2058-94-8	
PFNS*	Not detected	2.1	1.4	ng/L	2.06	68259-12-1	
PFDODA*	Not detected	2.1	1.6	ng/L	2.06	307-55-1	
PFDS*	Not detected	2.1	1.4	ng/L	2.06	335-77-3	
PFTDA*	Not detected	2.1	1.2	ng/L	2.06	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.06	754-91-6	
PFTeDA*	Not detected	4.1	1.9	ng/L	2.06	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.06	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.06	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.06	919005-14-4	
HFPO-DA*	Not detected	10	2.1	ng/L	2.06	13252-13-6	



Analytical Laboratory Report

Lab Sample ID: S25227.06

Sample Tag: B-7

Collected Date/Time: 06/11/2021 12:15

Matrix: Groundwater

COC Reference: 142923

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.13/7.05/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 06:30, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.9	9.9	ng/L	1.97	375-22-4	
PFPeA*	2.2	3.9	0.99	ng/L	1.97	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.97	757124-72-4	
PFHxA*	3.1	2.0	1.4	ng/L	1.97	307-24-4	
PFBS*	5.4	2.0	1.4	ng/L	1.97	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.97	375-85-9	
PFPeS*	5.4	2.0	1.8	ng/L	1.97	2706-91-4	
6:2 FTSA*	8.6	3.9	2.0	ng/L	1.97	27619-97-2	
PFOA*	5.3	2.0	1.6	ng/L	1.97	335-67-1	
PFHxS*	15	2.0	1.6	ng/L	1.97	355-46-4	
PFHxS-LN*	12	2.0	1.6	ng/L	1.97	355-46-4-LN	
PFHxS-BR*	2.7	2.0	1.6	ng/L	1.97	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.97	375-95-1	
8:2 FTSA*	Not detected	2.0	0.99	ng/L	1.97	39108-34-4	
PFHpS*	2.0	2.0	2.0	ng/L	1.97	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.97	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.97	2355-31-9	
EtFOSAA*	Not detected	3.9	2.0	ng/L	1.97	2991-50-6	
PFOS*	90	2.0	1.9	ng/L	1.97	1763-23-1	
PFOS-LN*	46	2.0	1.9	ng/L	1.97	1763-23-1-LN	
PFOS-BR*	42	2.0	1.9	ng/L	1.97	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.97	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.97	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	1.97	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.97	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	1.97	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.97	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.97	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.97	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.97	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.97	919005-14-4	
HFPO-DA*	Not detected	9.9	2.0	ng/L	1.97	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S25227.07

Sample Tag: MW-DUP-061121

Collected Date/Time: 06/11/2021 00:01

Matrix: Groundwater

COC Reference: 142923

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.34/7.03/11	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 07:09, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.07	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.07	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.07	757124-72-4	
PFHxA*	Not detected	2.1	1.4	ng/L	2.07	307-24-4	
PFBS*	Not detected	2.1	1.4	ng/L	2.07	375-73-5	
PFHpA*	Not detected	2.1	1.4	ng/L	2.07	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.07	2706-91-4	
6:2 FTSA*	Not detected	4.1	2.1	ng/L	2.07	27619-97-2	
PFOA*	Not detected	2.1	1.7	ng/L	2.07	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.07	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.07	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.07	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.07	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.07	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.07	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.07	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.07	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.07	2991-50-6	
PFOS*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1	
PFOS-LN*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.07	2058-94-8	
PFNS*	Not detected	2.1	1.4	ng/L	2.07	68259-12-1	
PFDODA*	Not detected	2.1	1.7	ng/L	2.07	307-55-1	
PFDS*	Not detected	2.1	1.4	ng/L	2.07	335-77-3	
PFTDA*	Not detected	2.1	1.2	ng/L	2.07	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.07	754-91-6	
PFTeDA*	Not detected	4.1	1.9	ng/L	2.07	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.07	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.07	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.07	919005-14-4	
HFPO-DA*	Not detected	10	2.1	ng/L	2.07	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID:S25227

Client:OBG02 (Ramboll Americas - East Lansing, MI)

Project: RACER Coldwater Road

Submitted:06/11/2021 16:30 Login User: SRS

Attention: Clifford Yantz

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

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

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 4.4
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☐ Yes ☐ No ☒ N/A	Do sample have correct chemical preservation
11.	☐ Yes ☐ No ☒ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☐ No ☒ 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: _____



142923

INVOICE TO

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications

☐ OHIO VAP ☐ Drinking Water

☐ DoD ☐ NPDES

Project Locations

☐ Detroit ☐ New York

☐ Other _____

Special Instructions

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	PFA	☐ Other _____	
	DATE	TIME												Special Instructions	
25227.01	6/10/21	1410	OBG MW-18 S	GW	3	3							X		Low Level Reporting
.02	6/10/21	1605	OBG MW-24	GW	3	3							X		Limits with estimated
.03	6/11/21	920	B Field Blank-06/11/21	GC	1	1							X		Values
.04	6/11/21	925	B-9	GC	3	3							X		
.05	6/11/21	1128	B-27D	GC	3	3							X		
.06	6/11/21	1215	B-7	GC	3	3							X		
.07	6/11/21	-	MW-DUP-06/11/21	GC	3	3							X		
				KBS											

RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL _____ 4.4	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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



Quality Control Report

Report ID: QC-S25227-01
Generated on 07/02/2021

Report to

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

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S25227.01-S25227.07
Project: RACER Coldwater Road
Submitted Date/Time: 06/11/2021 16:30
Sampled by: Kevin Schneider
P.O. #: 1940002628 (TASK 37)

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-8)
Prep Batch Summary (Page 9)
Internal Standards per Lab Sample (Pages 10-16)
Internal Standards per QC Sample (Pages 17-22)
Batch QC Results (Pages 23-30)

Report Flag Descriptions

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

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

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S25227.01

Sample Tag: OBG MW-18S

Collected Date/Time: 06/10/2021 14:10

Matrix: Groundwater

COC Reference: 142923

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 02:17	AK210628B	PF210614W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25227.02

Sample Tag: OBG MW-24

Collected Date/Time: 06/10/2021 16:05

Matrix: Groundwater

COC Reference: 142923

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 02:36	AK210628B	PF210614W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25227.03

Sample Tag: Field Blank-061121

Collected Date/Time: 06/11/2021 09:20

Matrix: Water

COC Reference: 142923

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Organics - Volatiles</i>						
28 PFAs	ASTMD7979-19M	06/29/21 02:56	AK210628B	PF210614W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25227.04

Sample Tag: B-9

Collected Date/Time: 06/11/2021 09:25

Matrix: Groundwater

COC Reference: 142923

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Organics - Volatiles</i>						
28 PFAs	ASTMD7979-19M	06/29/21 03:15	AK210628B	PF210614W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25227.05

Sample Tag: B-27D

Collected Date/Time: 06/11/2021 11:28

Matrix: Groundwater

COC Reference: 142923

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 05:51	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25227.06

Sample Tag: B-7

Collected Date/Time: 06/11/2021 12:15

Matrix: Groundwater

COC Reference: 142923

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 06:30	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25227.07

Sample Tag: MW-DUP-061121

Collected Date/Time: 06/11/2021 00:01

Matrix: Groundwater

COC Reference: 142923

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 07:09	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF210614W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S25227.01	28 PFAs	ASTMD7979-19M	06/29/21 02:17	AK210628B
S25227.02	28 PFAs	ASTMD7979-19M	06/29/21 02:36	AK210628B
S25227.03	28 PFAs	ASTMD7979-19M	06/29/21 02:56	AK210628B
S25227.04	28 PFAs	ASTMD7979-19M	06/29/21 03:15	AK210628B

Organics - Volatiles, Prep Batch ID: PF210625W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S25227.05	28 PFAs	ASTMD7979-19M	06/29/21 05:51	AK210628B
S25227.06	28 PFAs	ASTMD7979-19M	06/29/21 06:30	AK210628B
S25227.07	28 PFAs	ASTMD7979-19M	06/29/21 07:09	AK210628B

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25227.01

Sample Tag: OBG MW-18S

Collected Date/Time: 06/10/2021 14:10

Matrix: Groundwater

COC Reference: 142923

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 02:17, Matrix: WW, Dilution: 2.04

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		94.4	50.0	150.0
M2-6:2FTSA		105.7	50.0	150.0
M2-8:2FTSA		92.1	50.0	150.0
M2PFTeDA		143.8	12.0	218.0
M3PFBS		102.5	50.0	150.0
M3PFHxS		110.4	50.0	150.0
M4PFHpA		92.2	50.0	150.0
M5PFHxA		104.3	50.0	150.0
M5PFPeA		105.3	50.0	150.0
M6PFDA		112.9	50.0	150.0
M7PFUnDA		99.8	50.0	150.0
M8FOSA		113.2	50.0	150.0
M8PFOA		94.6	50.0	150.0
M8PFOS		98.3	50.0	150.0
M9-PFNA		112.3	50.0	150.0
MPFBA		102.9	50.0	150.0
MPFDoDA		112.1	50.0	150.0
d3N-MeFOSAA		92.8	50.0	150.0
d5EtFOSAA		106.6	50.0	150.0
MHFPO-DA		103.2	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25227.02

Sample Tag: OBG MW-24

Collected Date/Time: 06/10/2021 16:05

Matrix: Groundwater

COC Reference: 142923

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 02:36, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		86.8	50.0	150.0
M2-6:2FTSA		95.7	50.0	150.0
M2-8:2FTSA		78.0	50.0	150.0
M2PFTeDA		142.1	12.0	218.0
M3PFBS		100.9	50.0	150.0
M3PFHxS		105.5	50.0	150.0
M4PFHpA		95.8	50.0	150.0
M5PFHxA		103.4	50.0	150.0
M5PFPeA		97.8	50.0	150.0
M6PFDA		110.9	50.0	150.0
M7PFUnDA		111.8	50.0	150.0
M8FOSA		108.5	50.0	150.0
M8PFOA		100.2	50.0	150.0
M8PFOS		105.8	50.0	150.0
M9-PFNA		99.7	50.0	150.0
MPFBA		101.9	50.0	150.0
MPFDoDA		106.2	50.0	150.0
d3N-MeFOSAA		98.6	50.0	150.0
d5EtFOSAA		98.6	50.0	150.0
MHFPO-DA		99.7	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25227.03

Sample Tag: Field Blank-061121

Collected Date/Time: 06/11/2021 09:20

Matrix: Water

COC Reference: 142923

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 02:56, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		104.2	50.0	150.0
M2-6:2FTSA		108.4	50.0	150.0
M2-8:2FTSA		106.6	50.0	150.0
M2PFTeDA		107.8	12.0	218.0
M3PFBS		99.5	50.0	150.0
M3PFHxS		111.3	50.0	150.0
M4PFHpA		98.0	50.0	150.0
M5PFHxA		103.9	50.0	150.0
M5PFPeA		110.0	50.0	150.0
M6PFDA		108.8	50.0	150.0
M7PFUnDA		109.9	50.0	150.0
M8FOSA		109.0	50.0	150.0
M8PFOA		106.4	50.0	150.0
M8PFOS		110.1	50.0	150.0
M9-PFNA		106.2	50.0	150.0
MPFBA		108.1	50.0	150.0
MPFDoDA		107.0	50.0	150.0
d3N-MeFOSAA		102.4	50.0	150.0
d5EtFOSAA		107.1	50.0	150.0
MHFPO-DA		114.2	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25227.04

Sample Tag: B-9

Collected Date/Time: 06/11/2021 09:25

Matrix: Groundwater

COC Reference: 142923

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 03:15, Matrix: WW, Dilution: 1.94

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		95.2	50.0	150.0
M2-6:2FTSA		84.8	50.0	150.0
M2-8:2FTSA		94.4	50.0	150.0
M2PFTeDA		147.5	12.0	218.0
M3PFBS		98.5	50.0	150.0
M3PFHxS		107.0	50.0	150.0
M4PFHpA		89.2	50.0	150.0
M5PFHxA		105.4	50.0	150.0
M5PFPeA		100.7	50.0	150.0
M6PFDA		96.6	50.0	150.0
M7PFUnDA		100.2	50.0	150.0
M8FOSA		99.3	50.0	150.0
M8PFOA		97.9	50.0	150.0
M8PFOS		102.7	50.0	150.0
M9-PFNA		103.9	50.0	150.0
MPFBA		101.5	50.0	150.0
MPFDoDA		114.4	50.0	150.0
d3N-MeFOSAA		88.7	50.0	150.0
d5EtFOSAA		108.5	50.0	150.0
MHFPO-DA		94.8	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25227.05

Sample Tag: B-27D

Collected Date/Time: 06/11/2021 11:28

Matrix: Groundwater

COC Reference: 142923

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 05:51, Matrix: WW, Dilution: 2.06

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		101.0	50.0	150.0
M2-6:2FTSA		96.6	50.0	150.0
M2-8:2FTSA		101.6	50.0	150.0
M2PFTeDA		144.3	12.0	218.0
M3PFBS		104.6	50.0	150.0
M3PFHxS		111.1	50.0	150.0
M4PFHpA		101.7	50.0	150.0
M5PFHxA		107.0	50.0	150.0
M5PFPeA		107.2	50.0	150.0
M6PFDA		107.2	50.0	150.0
M7PFUnDA		109.8	50.0	150.0
M8FOSA		113.4	50.0	150.0
M8PFOA		103.1	50.0	150.0
M8PFOS		99.9	50.0	150.0
M9-PFNA		102.6	50.0	150.0
MPFBA		73.2	50.0	150.0
MPFDoDA		117.8	50.0	150.0
d3N-MeFOSAA		105.9	50.0	150.0
d5EtFOSAA		100.3	50.0	150.0
MHFPO-DA		102.5	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25227.06

Sample Tag: B-7

Collected Date/Time: 06/11/2021 12:15

Matrix: Groundwater

COC Reference: 142923

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 06:30, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		90.2	50.0	150.0
M2-6:2FTSA		95.4	50.0	150.0
M2-8:2FTSA		94.5	50.0	150.0
M2PFTeDA		133.2	12.0	218.0
M3PFBS		103.0	50.0	150.0
M3PFHxS		101.8	50.0	150.0
M4PFHpA		94.8	50.0	150.0
M5PFHxA		92.1	50.0	150.0
M5PFPeA		101.0	50.0	150.0
M6PFDA		97.0	50.0	150.0
M7PFUnDA		110.7	50.0	150.0
M8FOSA		102.7	50.0	150.0
M8PFOA		100.2	50.0	150.0
M8PFOS		106.3	50.0	150.0
M9-PFNA		108.6	50.0	150.0
MPFBA		102.9	50.0	150.0
MPFDoDA		113.7	50.0	150.0
d3N-MeFOSAA		91.2	50.0	150.0
d5EtFOSAA		109.6	50.0	150.0
MHFPO-DA		100.2	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25227.07

Sample Tag: MW-DUP-061121

Collected Date/Time: 06/11/2021 00:01

Matrix: Groundwater

COC Reference: 142923

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 07:09, Matrix: WW, Dilution: 2.07

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		90.8	50.0	150.0
M2-6:2FTSA		90.4	50.0	150.0
M2-8:2FTSA		93.1	50.0	150.0
M2PFTeDA		145.0	12.0	218.0
M3PFBS		102.0	50.0	150.0
M3PFHxS		103.3	50.0	150.0
M4PFHpA		97.8	50.0	150.0
M5PFHxA		94.6	50.0	150.0
M5PFPeA		100.0	50.0	150.0
M6PFDA		93.0	50.0	150.0
M7PFUnDA		106.4	50.0	150.0
M8FOSA		103.4	50.0	150.0
M8PFOA		104.0	50.0	150.0
M8PFOS		108.8	50.0	150.0
M9-PFNA		92.3	50.0	150.0
MPFBA		74.0	50.0	150.0
MPFDoDA		105.3	50.0	150.0
d3N-MeFOSAA		91.1	50.0	150.0
d5EtFOSAA		100.0	50.0	150.0
MHFPO-DA		93.6	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF210614W1

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

Blank (BLK)

Lab Sample ID: AK210614W.BLK210614W

Run in Batch: AK210614W, Run Date: 06/14/2021 15:01, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		102.1	50.0	150.0
M2-6:2FTSA		91.4	50.0	150.0
M2-8:2FTSA		98.0	50.0	150.0
M2PFTeDA		85.3	12.0	218.0
M3PFBS		100.2	50.0	150.0
M3PFHxS		101.1	50.0	150.0
M4PFHpA		101.1	50.0	150.0
M5PFHxA		102.1	50.0	150.0
M5PFPeA		100.3	50.0	150.0
M6PFDA		100.5	50.0	150.0
M7PFUnDA		104.0	50.0	150.0
M8FOSA		92.1	50.0	150.0
M8PFOA		102.0	50.0	150.0
M8PFOS		95.7	50.0	150.0
M9-PFNA		116.6	50.0	150.0
MPFBA		102.6	50.0	150.0
MPFDoDA		96.5	50.0	150.0
d3N-MeFOSAA		105.1	50.0	150.0
d5EtFOSAA		87.6	50.0	150.0
MHFPO-DA		105.8	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK210614W.LCS210614WR

Run in Batch: AK210614W, Run Date: 06/14/2021 14:22, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		96.7	50.0	150.0
M2-6:2FTSA		87.1	50.0	150.0
M2-8:2FTSA		80.4	50.0	150.0
M2PFTeDA		75.2	12.0	218.0
M3PFBS		95.0	50.0	150.0
M3PFHxS		101.0	50.0	150.0
M4PFHpA		89.3	50.0	150.0
M5PFHxA		97.5	50.0	150.0
M5PFPeA		92.4	50.0	150.0
M6PFDA		92.2	50.0	150.0
M7PFUnDA		95.1	50.0	150.0
M8FOSA		87.7	50.0	150.0
M8PFOA		93.8	50.0	150.0
M8PFOS		92.6	50.0	150.0
M9-PFNA		95.5	50.0	150.0
MPFBA		93.9	50.0	150.0
MPFDoDA		82.3	50.0	150.0
d3N-MeFOSAA		87.0	50.0	150.0
d5EtFOSAA		86.2	50.0	150.0
MHFPO-DA		94.9	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210614W.LCSD210614WR, Parent Sample ID: AK210614W.LCS210614WR

Run in Batch: AK210614W, Run Date: 06/14/2021 14:42, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		91.1	50.0	150.0
M2-6:2FTSA		93.8	50.0	150.0
M2-8:2FTSA		99.0	50.0	150.0
M2PFTeDA		94.6	12.0	218.0
M3PFBS		93.2	50.0	150.0
M3PFHxS		96.9	50.0	150.0
M4PFHpA		94.8	50.0	150.0
M5PFHxA		92.3	50.0	150.0
M5PFPeA		94.7	50.0	150.0
M6PFDA		103.2	50.0	150.0
M7PFUnDA		105.8	50.0	150.0
M8FOSA		87.9	50.0	150.0
M8PFOA		90.0	50.0	150.0
M8PFOS		95.2	50.0	150.0
M9-PFNA		113.9	50.0	150.0
MPFBA		97.4	50.0	150.0
MPFDoDA		106.1	50.0	150.0
d3N-MeFOSAA		101.6	50.0	150.0
d5EtFOSAA		90.4	50.0	150.0
MHFPO-DA		96.0	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK210614W.2518201M, Parent Sample ID: S25182.01

Run in Batch: AK210614W, Run Date: 06/14/2021 16:39, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		105.3	50.0	150.0
M2-6:2FTSA		101.1	50.0	150.0
M2-8:2FTSA		91.5	50.0	150.0
M2PFTeDA		80.3	12.0	218.0
M3PFBS		105.9	50.0	150.0
M3PFHxS		106.3	50.0	150.0
M4PFHpA		99.3	50.0	150.0
M5PFHxA		105.6	50.0	150.0
M5PFPeA		99.6	50.0	150.0
M6PFDA		105.0	50.0	150.0
M7PFUnDA		105.5	50.0	150.0
M8FOSA		88.9	50.0	150.0
M8PFOA		94.2	50.0	150.0
M8PFOS		102.4	50.0	150.0
M9-PFNA		97.5	50.0	150.0
MPFBA		107.3	50.0	150.0
MPFDoDA		90.4	50.0	150.0
d3N-MeFOSAA		100.7	50.0	150.0
d5EtFOSAA		80.5	50.0	150.0
MHFPO-DA		107.7	50.0	150.0

QC Report - Internal Standards per QC Sample

Duplicate (DUP)

Lab Sample ID: AK210614W.2518202D, Parent Sample ID: S25182.02

Run in Batch: AK210614W, Run Date: 06/14/2021 17:18, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1.92

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		103.2	50.0	150.0
M2-6:2FTSA		98.1	50.0	150.0
M2-8:2FTSA		87.4	50.0	150.0
M2PFTeDA		97.0	12.0	218.0
M3PFBS		106.7	50.0	150.0
M3PFHxS		117.7	50.0	150.0
M4PFHpA		106.3	50.0	150.0
M5PFHxA		108.2	50.0	150.0
M5PFPeA		104.9	50.0	150.0
M6PFDA		103.8	50.0	150.0
M7PFUnDA		111.4	50.0	150.0
M8FOSA		99.7	50.0	150.0
M8PFOA		100.9	50.0	150.0
M8PFOS		118.7	50.0	150.0
M9-PFNA		105.7	50.0	150.0
MPFBA		110.4	50.0	150.0
MPFDoDA		100.2	50.0	150.0
d3N-MeFOSAA		94.8	50.0	150.0
d5EtFOSAA		98.2	50.0	150.0
MHFPO-DA		104.1	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF210625W1

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

Blank (BLK)

Lab Sample ID: AK210628B.BLK210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 05:12, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		110.5	50.0	150.0
M2-6:2FTSA		114.4	50.0	150.0
M2-8:2FTSA		116.5	50.0	150.0
M2PFTeDA		100.7	12.0	218.0
M3PFBS		114.4	50.0	150.0
M3PFHxS		111.2	50.0	150.0
M4PFHpA		94.0	50.0	150.0
M5PFHxA		109.8	50.0	150.0
M5PFPeA		107.5	50.0	150.0
M6PFDA		103.2	50.0	150.0
M7PFUnDA		113.7	50.0	150.0
M8FOSA		110.4	50.0	150.0
M8PFOA		108.7	50.0	150.0
M8PFOS		105.6	50.0	150.0
M9-PFNA		104.6	50.0	150.0
MPFBA		83.9	50.0	150.0
MPFDoDA		99.1	50.0	150.0
d3N-MeFOSAA		104.1	50.0	150.0
d5EtFOSAA		111.2	50.0	150.0
MHFPO-DA		98.8	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:33, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		103.0	50.0	150.0
M2-6:2FTSA		105.4	50.0	150.0
M2-8:2FTSA		107.9	50.0	150.0
M2PFTeDA		100.1	12.0	218.0
M3PFBS		105.6	50.0	150.0
M3PFHxS		103.3	50.0	150.0
M4PFHpA		95.0	50.0	150.0
M5PFHxA		102.8	50.0	150.0
M5PFPeA		106.1	50.0	150.0
M6PFDA		101.9	50.0	150.0
M7PFUnDA		100.3	50.0	150.0
M8FOSA		101.7	50.0	150.0
M8PFOA		94.6	50.0	150.0
M8PFOS		107.3	50.0	150.0
M9-PFNA		105.7	50.0	150.0
MPFBA		103.5	50.0	150.0
MPFDoDA		99.3	50.0	150.0
d3N-MeFOSAA		88.0	50.0	150.0
d5EtFOSAA		100.2	50.0	150.0
MHFPO-DA		95.5	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210628B.LCSD210625A, Parent Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:53, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		95.1	50.0	150.0
M2-6:2FTSA		103.2	50.0	150.0
M2-8:2FTSA		111.4	50.0	150.0
M2PFTeDA		88.2	12.0	218.0
M3PFBS		106.9	50.0	150.0
M3PFHxS		105.9	50.0	150.0
M4PFHpA		97.0	50.0	150.0
M5PFHxA		100.7	50.0	150.0
M5PFPeA		105.5	50.0	150.0
M6PFDA		100.6	50.0	150.0
M7PFUnDA		92.7	50.0	150.0
M8FOSA		103.8	50.0	150.0
M8PFOA		94.4	50.0	150.0
M8PFOS		101.2	50.0	150.0
M9-PFNA		107.4	50.0	150.0
MPFBA		105.2	50.0	150.0
MPFDoDA		94.6	50.0	150.0
d3N-MeFOSAA		91.9	50.0	150.0
d5EtFOSAA		109.6	50.0	150.0
MHFPO-DA		108.5	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK210628B.2522705M, Parent Sample ID: S25227.05

Run in Batch: AK210628B, Run Date: 06/29/2021 06:11, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.06

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		88.6	50.0	150.0
M2-6:2FTSA		91.2	50.0	150.0
M2-8:2FTSA		82.8	50.0	150.0
M2PFTeDA		118.6	12.0	218.0
M3PFBS		89.7	50.0	150.0
M3PFHxS		93.8	50.0	150.0
M4PFHpA		90.2	50.0	150.0
M5PFHxA		96.4	50.0	150.0
M5PFPeA		95.3	50.0	150.0
M6PFDA		96.3	50.0	150.0
M7PFUnDA		99.8	50.0	150.0
M8FOSA		95.3	50.0	150.0
M8PFOA		95.7	50.0	150.0
M8PFOS		91.5	50.0	150.0
M9-PFNA		88.0	50.0	150.0
MPFBA		96.7	50.0	150.0
MPFDoDA		95.0	50.0	150.0
d3N-MeFOSAA		91.1	50.0	150.0
d5EtFOSAA		98.3	50.0	150.0
MHFPO-DA		88.8	50.0	150.0

QC Report - Internal Standards per QC Sample

Duplicate (DUP)

Lab Sample ID: AK210628B.2522706D, Parent Sample ID: S25227.06

Run in Batch: AK210628B, Run Date: 06/29/2021 06:50, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		112.5	50.0	150.0
M2-6:2FTSA		104.1	50.0	150.0
M2-8:2FTSA		98.9	50.0	150.0
M2PFTeDA		135.4	12.0	218.0
M3PFBS		107.0	50.0	150.0
M3PFHxS		105.4	50.0	150.0
M4PFHpA		100.6	50.0	150.0
M5PFHxA		103.7	50.0	150.0
M5PFPeA		107.1	50.0	150.0
M6PFDA		103.4	50.0	150.0
M7PFUnDA		114.4	50.0	150.0
M8FOSA		107.0	50.0	150.0
M8PFOA		109.8	50.0	150.0
M8PFOS		112.7	50.0	150.0
M9-PFNA		99.3	50.0	150.0
MPFBA		107.3	50.0	150.0
MPFDoDA		114.6	50.0	150.0
d3N-MeFOSAA		93.2	50.0	150.0
d5EtFOSAA		110.8	50.0	150.0
MHFPO-DA		111.3	50.0	150.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210614W1

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

Blank (BLK)

Lab Sample ID: AK210614W.BLK210614W

Run in Batch: AK210614W, Run Date: 06/14/2021 15:01, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFPeA		ND	4	ng/l
4:2 FTSA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
HFPO-DA		ND	2	ng/l
PFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
ADONA		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
PFNA		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFHpS		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
PFDA		ND	2	ng/l
PFOS-BR		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS		ND	2	ng/l
PFOS-LN		ND	2	ng/l
PFUnDA		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
PFNS		ND	2	ng/l
PFDODA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTTrDA		ND	2	ng/l
FOSA		ND	2	ng/l
11CL-PF3OUdS		ND	2	ng/l
PFTeDA		ND	4	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK210614W.LCS210614WR

Run in Batch: AK210614W, Run Date: 06/14/2021 14:22, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		108.0	70.0	130.0
PFPeA		100.0	70.0	130.0
4:2 FTSA		103.0	70.0	130.0
PFHxA		92.1	70.0	130.0
PFBS		114.0	70.0	130.0
HFPO-DA		116.0	70.0	130.0
PFHpA		110.0	70.0	130.0
PFPeS		114.0	70.0	130.0
ADONA		111.0	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210614W1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK210614W.LCS210614WR

Run in Batch: AK210614W, Run Date: 06/14/2021 14:22, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		103.0	70.0	130.0
PFOA		105.0	70.0	130.0
PFHxS		100.0	70.0	130.0
PFNA		123.0	70.0	130.0
8:2 FTSA		114.0	70.0	130.0
PFHpS		90.4	70.0	130.0
N-MeFOSAA		125.0	70.0	130.0
PFDA		107.0	70.0	130.0
EtFOSAA		111.0	70.0	130.0
PFOS		87.2	70.0	130.0
PFUnDA		118.0	70.0	130.0
9CL-PF3ONS		103.0	70.0	130.0
PFNS		113.0	70.0	130.0
PFDODA		110.0	70.0	130.0
PFDS		100.0	70.0	130.0
PFTTrDA		129.0	70.0	130.0
FOSA		109.0	70.0	130.0
11CL-PF3OUdS		112.0	70.0	130.0
PFTeDA		109.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210614W.LCSD210614WR, Parent Sample ID: AK210614W.LCS210614WR

Run in Batch: AK210614W, Run Date: 06/14/2021 14:42, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		101.0	70.0	130.0	6.7	30.0
PFPeA		91.8	70.0	130.0	8.6	30.0
4:2 FTSA		94.2	70.0	130.0	8.9	30.0
PFHxA		102.0	70.0	130.0	10.2	30.0
PFBS		110.0	70.0	130.0	3.6	30.0
HFPO-DA		92.6	70.0	130.0	22.4	30.0
PFHpA		97.3	70.0	130.0	12.3	30.0
PFPeS		99.8	70.0	130.0	13.3	30.0
ADONA		97.8	70.0	130.0	12.6	30.0
6:2 FTSA		91.2	70.0	130.0	12.2	30.0
PFOA		98.5	70.0	130.0	6.4	30.0
PFHxS		105.0	70.0	130.0	4.9	30.0
PFNA	*	82.9	70.0	130.0	39.0	30.0
8:2 FTSA	*	84.0	70.0	130.0	30.3	30.0
PFHpS		102.0	70.0	130.0	12.1	30.0
N-MeFOSAA	*	84.8	70.0	130.0	38.3	30.0
PFDA		98.9	70.0	130.0	7.9	30.0
EtFOSAA		108.0	70.0	130.0	2.7	30.0
PFOS		77.4	70.0	130.0	11.9	30.0
PFUnDA		94.2	70.0	130.0	22.4	30.0
9CL-PF3ONS		93.3	70.0	130.0	9.9	30.0
PFNS		99.2	70.0	130.0	13.0	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210614W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK210614W.LCSD210614WR, Parent Sample ID: AK210614W.LCS210614WR

Run in Batch: AK210614W, Run Date: 06/14/2021 14:42, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDODA		89.1	70.0	130.0	21.0	30.0
PFDS		87.8	70.0	130.0	13.0	30.0
PFTTrDA		103.0	70.0	130.0	22.4	30.0
FOSA		109.0	70.0	130.0	0.0	30.0
11CL-PF3OUdS		106.0	70.0	130.0	5.5	30.0
PFTeDA		99.7	70.0	130.0	8.9	30.0

Matrix Spike (MS)

Lab Sample ID: AK210614W.2518201M, Parent Sample ID: S25182.01

Run in Batch: AK210614W, Run Date: 06/14/2021 16:39, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1.99

Analyte	Flags	% Rec	LCL	UCL
PFBA		116.6	70.0	130.0
PFPeA	*	130.7	70.0	130.0
4:2 FTSA		95.5	70.0	130.0
PFHxA		80.4	70.0	130.0
PFBS		100.5	70.0	130.0
PFHpA		107.5	70.0	130.0
PFPeS		112.6	70.0	130.0
6:2 FTSA		80.4	70.0	130.0
PFOA		117.6	70.0	130.0
PFHxS		80.4	70.0	130.0
PFNA		119.6	70.0	130.0
8:2 FTSA		70.4	70.0	130.0
PFHpS		89.4	70.0	130.0
N-MeFOSAA		97.5	70.0	130.0
PFDA		110.6	70.0	130.0
EtFOSAA		120.6	70.0	130.0
PFOS		120.6	70.0	130.0
PFUnDA		110.6	70.0	130.0
PFNS		100.5	70.0	130.0
PFDODA		110.6	70.0	130.0
PFDS		99.5	70.0	130.0
PFTTrDA		110.6	70.0	130.0
FOSA		120.6	70.0	130.0
PFTeDA		90.5	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK210614W.2518202D, Parent Sample ID: S25182.02

Run in Batch: AK210614W, Run Date: 06/14/2021 17:18, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1.92

Analyte	Flags	RPD	RPD CL
PFBA		0.0	30.0
PFPeA		11.2	30.0
4:2 FTSA		NC	30.0
PFHxA		11.3	30.0
PFBS		0.0	30.0
PFHpA		0.0	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210614W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK210614W.2518202D, Parent Sample ID: S25182.02

Run in Batch: AK210614W, Run Date: 06/14/2021 17:18, Prep Date: 06/14/2021, Matrix: WW, Dilution: 1.92

Analyte	Flags	RPD	RPD CL
PFPeS		8.0	30.0
6:2 FTSA		11.1	30.0
PFOA		5.3	30.0
PFHxS-BR		11.8	30.0
PFHxS		18.2	30.0
PFHxS-LN		14.2	30.0
PFNA		11.1	30.0
8:2 FTSA		3.9	30.0
PFHpS		NC	30.0
N-MeFOSAA		NC	30.0
PFDA		NC	30.0
PFOS-BR		13.3	30.0
EtFOSAA		NC	30.0
PFOS		9.5	30.0
PFOS-LN		10.7	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDODA		NC	30.0
PFDS		NC	30.0
PFTTrDA		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1

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

Blank (BLK)

Lab Sample ID: AK210628B.BLK210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 05:12, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFPeA		ND	4	ng/l
4:2 FTSA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
PFFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFNA		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFFHpS		ND	2	ng/l
PFDA		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS		ND	2	ng/l
PFOS-LN		ND	2	ng/l
PFOS-BR		ND	2	ng/l
PFOUnDA		ND	2	ng/l
PFNS		ND	2	ng/l
PFDODA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTTrDA		ND	2	ng/l
FOSA		ND	2	ng/l
PFTeDA		ND	4	ng/l
11CL-PF3OUdS		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
ADONA		ND	2	ng/l
HFPO-DA		ND	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:33, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		110.0	70.0	130.0
PFPeA		101.0	70.0	130.0
4:2 FTSA		111.0	70.0	130.0
PFHxA		111.0	70.0	130.0
PFBS		110.0	70.0	130.0
HFPO-DA		128.0	70.0	130.0
PFFHpA		120.0	70.0	130.0
PFPeS		100.0	70.0	130.0
ADONA		118.0	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:33, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		112.0	70.0	130.0
PFOA		111.0	70.0	130.0
PFHxS		115.0	70.0	130.0
PFNA		102.0	70.0	130.0
8:2 FTSA		94.6	70.0	130.0
PFHpS		97.2	70.0	130.0
N-MeFOSAA		118.0	70.0	130.0
PFDA		108.0	70.0	130.0
PFOS		87.3	70.0	130.0
EtFOSAA		113.0	70.0	130.0
PFUnDA		118.0	70.0	130.0
9CL-PF3ONS		104.0	70.0	130.0
PFNS		91.4	70.0	130.0
PFDODA		110.0	70.0	130.0
PFDS		90.1	70.0	130.0
PFTTrDA		99.4	70.0	130.0
11CL-PF3OUdS		111.0	70.0	130.0
FOSA		111.0	70.0	130.0
PFTeDA		96.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210628B.LCSD210625A, Parent Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:53, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		109.0	70.0	130.0	0.9	30.0
PFPeA		99.1	70.0	130.0	1.9	30.0
4:2 FTSA		124.0	70.0	130.0	11.1	30.0
PFHxA		105.0	70.0	130.0	5.6	30.0
PFBS		109.0	70.0	130.0	0.9	30.0
HFPO-DA		107.0	70.0	130.0	17.9	30.0
PFHpA		101.0	70.0	130.0	17.2	30.0
PFPeS		96.1	70.0	130.0	4.0	30.0
ADONA		115.0	70.0	130.0	2.6	30.0
6:2 FTSA		120.0	70.0	130.0	6.9	30.0
PFOA		119.0	70.0	130.0	7.0	30.0
PFHxS		111.0	70.0	130.0	3.5	30.0
PFNA		98.2	70.0	130.0	3.8	30.0
8:2 FTSA		102.0	70.0	130.0	7.5	30.0
PFHpS		99.4	70.0	130.0	2.2	30.0
N-MeFOSAA		112.0	70.0	130.0	5.2	30.0
PFDA		110.0	70.0	130.0	1.8	30.0
PFOS		99.2	70.0	130.0	12.8	30.0
EtFOSAA		111.0	70.0	130.0	1.8	30.0
PFUnDA	*	136.0	70.0	130.0	14.2	30.0
9CL-PF3ONS		108.0	70.0	130.0	3.8	30.0
PFNS		100.0	70.0	130.0	9.0	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK210628B.LCSD210625A, Parent Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:53, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDODA		110.0	70.0	130.0	0.0	30.0
PFDS		96.8	70.0	130.0	7.2	30.0
PFTTrDA		97.4	70.0	130.0	2.0	30.0
11CL-PF3OUdS		119.0	70.0	130.0	7.0	30.0
FOSA		109.0	70.0	130.0	1.8	30.0
PFTeDA		96.7	70.0	130.0	0.1	30.0

Matrix Spike (MS)

Lab Sample ID: AK210628B.2522705M, Parent Sample ID: S25227.05

Run in Batch: AK210628B, Run Date: 06/29/2021 06:11, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.06

Analyte	Flags	% Rec	LCL	UCL
PFBA		106.8	70.0	130.0
PFPeA		97.1	70.0	130.0
4:2 FTSA		106.8	70.0	130.0
PFHxA		92.2	70.0	130.0
PFBS		116.5	70.0	130.0
PFHpA		106.8	70.0	130.0
PFPeS		106.8	70.0	130.0
6:2 FTSA		94.2	70.0	130.0
PFOA		95.1	70.0	130.0
PFHxS		106.8	70.0	130.0
PFNA		106.8	70.0	130.0
8:2 FTSA		116.5	70.0	130.0
PFHpS		90.3	70.0	130.0
PFDA		106.8	70.0	130.0
N-MeFOSAA		106.8	70.0	130.0
EtFOSAA		116.5	70.0	130.0
PFOS		87.4	70.0	130.0
PFUnDA		97.1	70.0	130.0
PFNS		97.1	70.0	130.0
PFDODA		116.5	70.0	130.0
PFDS		106.8	70.0	130.0
PFTTrDA		106.8	70.0	130.0
FOSA		106.8	70.0	130.0
PFTeDA		92.2	70.0	130.0
11CL-PF3OUdS		116.5	70.0	130.0
9CL-PF3ONS		116.5	70.0	130.0
ADONA		97.1	70.0	130.0
HFPO-DA		106.8	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK210628B.2522706D, Parent Sample ID: S25227.06

Run in Batch: AK210628B, Run Date: 06/29/2021 06:50, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1.97

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		0.0	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK210628B.2522706D, Parent Sample ID: S25227.06

Run in Batch: AK210628B, Run Date: 06/29/2021 06:50, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1.97

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA	*	38.5	30.0
PFBS		18.2	30.0
PFHpA		NC	30.0
PFPeS		16.0	30.0
6:2 FTSA		6.7	30.0
PFOA		3.8	30.0
PFHxS		0.0	30.0
PFHxS-LN		0.0	30.0
PFHxS-BR		23.0	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		0.0	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		1.1	30.0
PFOS-LN		6.3	30.0
PFOS-BR		7.4	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTTrDA		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0
11CL-PF3OUdS		NC	30.0
9CL-PF3ONS		NC	30.0
ADONA		NC	30.0
HFPO-DA		NC	30.0



142923

INVOICE TO

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

Certifications

Project Locations

Containers & Preservatives

☐ Other _____

RELINQUISHED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
RECEIVED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL <u>4.4</u>	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

Rev. 5.18.12



Analytical Laboratory Report

Report ID: S25285.01(01)
Generated on 07/02/2021

Report to

Attention: Clifford Yantz
Ramboll Americas
3600 Green Court Ste 750
Ann Arbor, MI 48105

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

Additional Contacts: Kevin Schneider

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S25285.01-S25285.09
Project: RACER Coldwater Road
Collected Date(s): 06/14/2021 - 06/15/2021
Submitted Date/Time: 06/15/2021 16:00
Sampled by: Kevin Schneider
P.O. #: 1940002628 (TASK 37)

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

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.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

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

Glossary of Abbreviations

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

Method Summary

Method	Version
ASTMD7979-19M	ASTM Method D7979 - 19 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTTrDA	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 (9 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S25285.01	Field Blank-061421	Water	06/14/21 00:01
S25285.02	OBG MW-13	Groundwater	06/14/21 10:35
S25285.03	OBG MW-28	Groundwater	06/14/21 11:38
S25285.04	OBG MW-29	Groundwater	06/14/21 13:02
S25285.05	OBG MW-21	Groundwater	06/14/21 14:28
S25285.06	OBG MW-23	Groundwater	06/14/21 15:42
S25285.07	OBG MW-9	Groundwater	06/15/21 09:38
S25285.08	OBG MW-27	Groundwater	06/15/21 10:32
S25285.09	OBG MW-26	Groundwater	06/15/21 11:52



Analytical Laboratory Report

Lab Sample ID: S25285.01

Sample Tag: Field Blank-061421

Collected Date/Time: 06/14/2021 00:01

Matrix: Water

COC Reference: 142915

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.46/7.03/11	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 07:29, Analyst: KCV

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



Analytical Laboratory Report

Lab Sample ID: S25285.02

Sample Tag: OBG MW-13

Collected Date/Time: 06/14/2021 10:35

Matrix: Groundwater

COC Reference: 142915

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.84/7.04/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 07:48, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.07	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.07	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.07	757124-72-4	
PFHxA*	Not detected	2.1	1.4	ng/L	2.07	307-24-4	
PFBS*	Not detected	2.1	1.4	ng/L	2.07	375-73-5	
PFHpA*	Not detected	2.1	1.4	ng/L	2.07	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.07	2706-91-4	
6:2 FTSA*	5.1	4.1	2.1	ng/L	2.07	27619-97-2	
PFOA*	Not detected	2.1	1.7	ng/L	2.07	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.07	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.07	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.07	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.07	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.07	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.07	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.07	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.07	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.07	2991-50-6	
PFOS*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1	
PFOS-LN*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.07	2058-94-8	
PFNS*	Not detected	2.1	1.4	ng/L	2.07	68259-12-1	
PFDODA*	Not detected	2.1	1.7	ng/L	2.07	307-55-1	
PFDS*	Not detected	2.1	1.4	ng/L	2.07	335-77-3	
PFTDA*	Not detected	2.1	1.2	ng/L	2.07	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.07	754-91-6	
PFTeDA*	Not detected	4.1	1.9	ng/L	2.07	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.07	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.07	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.07	919005-14-4	
HFPO-DA*	Not detected	10	2.1	ng/L	2.07	13252-13-6	



Analytical Laboratory Report

Lab Sample ID: S25285.03

Sample Tag: OBG MW-28

Collected Date/Time: 06/14/2021 11:38

Matrix: Groundwater

COC Reference: 142915

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.79/7.03/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 08:08, Analyst: KCV

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



Analytical Laboratory Report

Lab Sample ID: S25285.04

Sample Tag: OBG MW-29

Collected Date/Time: 06/14/2021 13:02

Matrix: Groundwater

COC Reference: 142915

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.67/7.03/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 08:27, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	11	11	ng/L	2.13	375-22-4	
PFPeA*	Not detected	4.3	1.1	ng/L	2.13	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.13	757124-72-4	
PFHxA*	2.4	2.1	1.5	ng/L	2.13	307-24-4	
PFBS*	8.7	2.1	1.5	ng/L	2.13	375-73-5	
PFHpA*	Not detected	2.1	1.5	ng/L	2.13	375-85-9	
PFPeS*	12	2.1	1.9	ng/L	2.13	2706-91-4	
6:2 FTSA*	3.3	4.3	2.1	ng/L	2.13	27619-97-2	J
PFOA*	2.8	2.1	1.7	ng/L	2.13	335-67-1	
PFHxS*	22	2.1	1.7	ng/L	2.13	355-46-4	
PFHxS-LN*	16	2.1	1.7	ng/L	2.13	355-46-4-LN	
PFHxS-BR*	5.9	2.1	1.7	ng/L	2.13	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.13	375-95-1	
8:2 FTSA*	Not detected	2.1	1.1	ng/L	2.13	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.13	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.13	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.13	2355-31-9	
EtFOSAA*	Not detected	4.3	2.1	ng/L	2.13	2991-50-6	
PFOS*	Not detected	2.1	2.1	ng/L	2.13	1763-23-1	
PFOS-LN*	Not detected	2.1	2.1	ng/L	2.13	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.1	ng/L	2.13	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.5	ng/L	2.13	2058-94-8	
PFNS*	Not detected	2.1	1.5	ng/L	2.13	68259-12-1	
PFDODA*	Not detected	2.1	1.7	ng/L	2.13	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.13	335-77-3	
PFTDA*	Not detected	2.1	1.3	ng/L	2.13	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.13	754-91-6	
PFTeDA*	Not detected	4.3	1.9	ng/L	2.13	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.13	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.13	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.13	919005-14-4	
HFPO-DA*	Not detected	11	2.1	ng/L	2.13	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S25285.05

Sample Tag: OBG MW-21

Collected Date/Time: 06/14/2021 14:28

Matrix: Groundwater

COC Reference: 142915

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.81/7.00/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 08:47, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.07	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.07	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.07	757124-72-4	
PFHxA*	1.8	2.1	1.4	ng/L	2.07	307-24-4	J
PFBS*	2.6	2.1	1.4	ng/L	2.07	375-73-5	
PFHpA*	Not detected	2.1	1.4	ng/L	2.07	375-85-9	
PFPeS*	3.3	2.1	1.9	ng/L	2.07	2706-91-4	
6:2 FTSA*	5.7	4.1	2.1	ng/L	2.07	27619-97-2	
PFOA*	Not detected	2.1	1.7	ng/L	2.07	335-67-1	
PFHxS*	4.3	2.1	1.7	ng/L	2.07	355-46-4	
PFHxS-LN*	2.5	2.1	1.7	ng/L	2.07	355-46-4-LN	
PFHxS-BR*	1.7	2.1	1.7	ng/L	2.07	355-46-4-BR	J
PFNA*	Not detected	2.1	1.9	ng/L	2.07	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.07	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.07	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.07	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.07	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.07	2991-50-6	
PFOS*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1	
PFOS-LN*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.07	2058-94-8	
PFNS*	Not detected	2.1	1.4	ng/L	2.07	68259-12-1	
PFDODA*	Not detected	2.1	1.7	ng/L	2.07	307-55-1	
PFDS*	Not detected	2.1	1.4	ng/L	2.07	335-77-3	
PFTDA*	Not detected	2.1	1.2	ng/L	2.07	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.07	754-91-6	
PFTeDA*	Not detected	4.1	1.9	ng/L	2.07	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.07	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.07	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.07	919005-14-4	
HFPO-DA*	Not detected	10	2.1	ng/L	2.07	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S25285.06

Sample Tag: OBG MW-23

Collected Date/Time: 06/14/2021 15:42

Matrix: Groundwater

COC Reference: 142915

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.75/7.03/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 09:06, Analyst: KCV

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



Analytical Laboratory Report

Lab Sample ID: S25285.07

Sample Tag: OBG MW-9

Collected Date/Time: 06/15/2021 09:38

Matrix: Groundwater

COC Reference: 142915

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.10/6.98/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 09:26, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.8	9.8	ng/L	1.96	375-22-4	
PFPeA*	Not detected	3.9	0.98	ng/L	1.96	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.96	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.96	307-24-4	
PFBS*	2.1	2.0	1.4	ng/L	1.96	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.96	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.96	2706-91-4	
6:2 FTSA*	Not detected	3.9	2.0	ng/L	1.96	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.96	335-67-1	
PFHxS*	2.4	2.0	1.6	ng/L	1.96	355-46-4	
PFHxS-LN*	1.7	2.0	1.6	ng/L	1.96	355-46-4-LN	J
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.96	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.96	375-95-1	
8:2 FTSA*	Not detected	2.0	0.98	ng/L	1.96	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.96	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.96	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.96	2355-31-9	
EtFOSAA*	Not detected	3.9	2.0	ng/L	1.96	2991-50-6	
PFOS*	3.1	2.0	1.9	ng/L	1.96	1763-23-1	
PFOS-LN*	Not detected	2.0	1.9	ng/L	1.96	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	1.9	ng/L	1.96	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.96	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.96	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	1.96	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.96	335-77-3	
PFTDA*	Not detected	2.0	1.2	ng/L	1.96	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.96	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.96	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.96	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.96	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.96	919005-14-4	
HFPO-DA*	Not detected	9.8	2.0	ng/L	1.96	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S25285.08

Sample Tag: OBG MW-27

Collected Date/Time: 06/15/2021 10:32

Matrix: Groundwater

COC Reference: 142915

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.95/6.98/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 09:46, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.01	375-22-4	
PFPeA*	5.6	4.0	1.0	ng/L	2.01	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.01	757124-72-4	
PFHxA*	5.6	2.0	1.4	ng/L	2.01	307-24-4	
PFBS*	15	2.0	1.4	ng/L	2.01	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.01	375-85-9	
PFPeS*	16	2.0	1.8	ng/L	2.01	2706-91-4	
6:2 FTSA*	4.4	4.0	2.0	ng/L	2.01	27619-97-2	
PFOA*	4.7	2.0	1.6	ng/L	2.01	335-67-1	
PFHxS*	38	2.0	1.6	ng/L	2.01	355-46-4	
PFHxS-LN*	28	2.0	1.6	ng/L	2.01	355-46-4-LN	
PFHxS-BR*	9.4	2.0	1.6	ng/L	2.01	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.01	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.01	39108-34-4	
PFHpS*	2.6	2.0	2.0	ng/L	2.01	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.01	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.01	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.01	2991-50-6	
PFOS*	84	2.0	2.0	ng/L	2.01	1763-23-1	
PFOS-LN*	17	2.0	2.0	ng/L	2.01	1763-23-1-LN	
PFOS-BR*	66	2.0	2.0	ng/L	2.01	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.01	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.01	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	2.01	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.01	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	2.01	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.01	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.01	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.01	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.01	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.01	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.01	13252-13-6	



Analytical Laboratory Report

Lab Sample ID: S25285.09

Sample Tag: OBG MW-26

Collected Date/Time: 06/15/2021 11:52

Matrix: Groundwater

COC Reference: 142915

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.09/7.09/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 10:05, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	13	10	10	ng/L	2	375-22-4	
PFPeA*	26	4.0	1.0	ng/L	2	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2	757124-72-4	
PFHxA*	25	2.0	1.4	ng/L	2	307-24-4	
PFBS*	4.7	2.0	1.4	ng/L	2	375-73-5	
PFHpA*	4.7	2.0	1.4	ng/L	2	375-85-9	
PFPeS*	6.3	2.0	1.8	ng/L	2	2706-91-4	
6:2 FTSA*	Not detected	4.0	2.0	ng/L	2	27619-97-2	
PFOA*	31	2.0	1.6	ng/L	2	335-67-1	
PFHxS*	33	2.0	1.6	ng/L	2	355-46-4	
PFHxS-LN*	29	2.0	1.6	ng/L	2	355-46-4-LN	
PFHxS-BR*	3.7	2.0	1.6	ng/L	2	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2	39108-34-4	
PFHpS*	11	2.0	2.0	ng/L	2	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2	2991-50-6	
PFOS*	490	2.0	2.0	ng/L	2	1763-23-1	
PFOS-LN*	190	2.0	2.0	ng/L	2	1763-23-1-LN	
PFOS-BR*	300	2.0	2.0	ng/L	2	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	2	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	2	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID:S25285

Client:OBG02 (Ramboll Americas)

Project: RACER Coldwater Road

Submitted:06/15/2021 16:00 Login User: SRS

Attention: Clifford Yantz

Address: Ramboll Americas
3600 Green Court Ste 750
Ann Arbor, MI 48105

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

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 4.6
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☐ Yes ☐ No ☒ N/A	Do sample have correct chemical preservation
11.	☐ Yes ☐ No ☒ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☐ No ☒ 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: _____



Quality Control Report

Report ID: QC-S25285-01
Generated on 07/02/2021

Report to

Attention: Clifford Yantz
Ramboll Americas
3600 Green Court Ste 750
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S25285.01-S25285.09
Project: RACER Coldwater Road
Submitted Date/Time: 06/15/2021 16:00
Sampled by: Kevin Schneider
P.O. #: 1940002628 (TASK 37)

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-10)
Prep Batch Summary (Page 11)
Internal Standards per Lab Sample (Pages 12-20)
Internal Standards per QC Sample (Pages 21-23)
Batch QC Results (Pages 24-27)

Report Flag Descriptions

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

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

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S25285.01

Sample Tag: Field Blank-061421

Collected Date/Time: 06/14/2021 00:01

Matrix: Water

COC Reference: 142915

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 07:29	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25285.02

Sample Tag: OBG MW-13

Collected Date/Time: 06/14/2021 10:35

Matrix: Groundwater

COC Reference: 142915

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Organics - Volatiles</i>						
28 PFAs	ASTMD7979-19M	06/29/21 07:48	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25285.03

Sample Tag: OBG MW-28

Collected Date/Time: 06/14/2021 11:38

Matrix: Groundwater

COC Reference: 142915

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Organics - Volatiles</i>						
28 PFAs	ASTMD7979-19M	06/29/21 08:08	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25285.04

Sample Tag: OBG MW-29

Collected Date/Time: 06/14/2021 13:02

Matrix: Groundwater

COC Reference: 142915

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 08:27	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25285.05

Sample Tag: OBG MW-21

Collected Date/Time: 06/14/2021 14:28

Matrix: Groundwater

COC Reference: 142915

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 08:47	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25285.06

Sample Tag: OBG MW-23

Collected Date/Time: 06/14/2021 15:42

Matrix: Groundwater

COC Reference: 142915

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 09:06	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25285.07

Sample Tag: OBG MW-9

Collected Date/Time: 06/15/2021 09:38

Matrix: Groundwater

COC Reference: 142915

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 09:26	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25285.08

Sample Tag: OBG MW-27

Collected Date/Time: 06/15/2021 10:32

Matrix: Groundwater

COC Reference: 142915

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 09:46	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25285.09

Sample Tag: OBG MW-26

Collected Date/Time: 06/15/2021 11:52

Matrix: Groundwater

COC Reference: 142915

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 10:05	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF210625W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S25285.01	28 PFAs	ASTMD7979-19M	06/29/21 07:29	AK210628B
S25285.02	28 PFAs	ASTMD7979-19M	06/29/21 07:48	AK210628B
S25285.03	28 PFAs	ASTMD7979-19M	06/29/21 08:08	AK210628B
S25285.04	28 PFAs	ASTMD7979-19M	06/29/21 08:27	AK210628B
S25285.05	28 PFAs	ASTMD7979-19M	06/29/21 08:47	AK210628B
S25285.06	28 PFAs	ASTMD7979-19M	06/29/21 09:06	AK210628B
S25285.07	28 PFAs	ASTMD7979-19M	06/29/21 09:26	AK210628B
S25285.08	28 PFAs	ASTMD7979-19M	06/29/21 09:46	AK210628B
S25285.09	28 PFAs	ASTMD7979-19M	06/29/21 10:05	AK210628B

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25285.01

Sample Tag: Field Blank-061421

Collected Date/Time: 06/14/2021 00:01

Matrix: Water

COC Reference: 142915

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 07:29, Matrix: WW, Dilution: 2.03

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		103.6	50.0	150.0
M2-6:2FTSA		100.5	50.0	150.0
M2-8:2FTSA		97.3	50.0	150.0
M2PFTeDA		174.5	12.0	218.0
M3PFBS		100.5	50.0	150.0
M3PFHxS		105.6	50.0	150.0
M4PFHpA		95.2	50.0	150.0
M5PFHxA		98.4	50.0	150.0
M5PFPeA		99.6	50.0	150.0
M6PFDA		105.5	50.0	150.0
M7PFUnDA		112.4	50.0	150.0
M8FOSA		107.9	50.0	150.0
M8PFOA		100.9	50.0	150.0
M8PFOS		98.8	50.0	150.0
M9-PFNA		108.3	50.0	150.0
MPFBA		101.4	50.0	150.0
MPFDoDA		116.9	50.0	150.0
d3N-MeFOSAA		94.4	50.0	150.0
d5EtFOSAA		103.3	50.0	150.0
MHFPO-DA		103.0	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25285.02

Sample Tag: OBG MW-13

Collected Date/Time: 06/14/2021 10:35

Matrix: Groundwater

COC Reference: 142915

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 07:48, Matrix: WW, Dilution: 2.07

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		94.9	50.0	150.0
M2-6:2FTSA		96.7	50.0	150.0
M2-8:2FTSA		87.2	50.0	150.0
M2PFTeDA		126.7	12.0	218.0
M3PFBS		102.1	50.0	150.0
M3PFHxS		103.0	50.0	150.0
M4PFHpA		99.8	50.0	150.0
M5PFHxA		101.3	50.0	150.0
M5PFPeA		102.8	50.0	150.0
M6PFDA		109.2	50.0	150.0
M7PFUnDA		101.4	50.0	150.0
M8FOSA		109.2	50.0	150.0
M8PFOA		96.4	50.0	150.0
M8PFOS		103.6	50.0	150.0
M9-PFNA		97.3	50.0	150.0
MPFBA		102.3	50.0	150.0
MPFDoDA		108.9	50.0	150.0
d3N-MeFOSAA		88.6	50.0	150.0
d5EtFOSAA		105.3	50.0	150.0
MHFPO-DA		101.1	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25285.03

Sample Tag: OBG MW-28

Collected Date/Time: 06/14/2021 11:38

Matrix: Groundwater

COC Reference: 142915

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 08:08, Matrix: WW, Dilution: 2.08

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		90.3	50.0	150.0
M2-6:2FTSA		105.5	50.0	150.0
M2-8:2FTSA		87.8	50.0	150.0
M2PFTeDA		147.0	12.0	218.0
M3PFBS		104.5	50.0	150.0
M3PFHxS		115.7	50.0	150.0
M4PFHpA		104.1	50.0	150.0
M5PFHxA		107.7	50.0	150.0
M5PFPeA		106.2	50.0	150.0
M6PFDA		115.3	50.0	150.0
M7PFUnDA		104.3	50.0	150.0
M8FOSA		112.3	50.0	150.0
M8PFOA		103.5	50.0	150.0
M8PFOS		116.4	50.0	150.0
M9-PFNA		108.0	50.0	150.0
MPFBA		106.2	50.0	150.0
MPFDoDA		117.5	50.0	150.0
d3N-MeFOSAA		84.2	50.0	150.0
d5EtFOSAA		107.8	50.0	150.0
MHFPO-DA		108.8	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25285.04

Sample Tag: OBG MW-29

Collected Date/Time: 06/14/2021 13:02

Matrix: Groundwater

COC Reference: 142915

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 08:27, Matrix: WW, Dilution: 2.13

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		105.8	50.0	150.0
M2-6:2FTSA		103.1	50.0	150.0
M2-8:2FTSA		110.8	50.0	150.0
M2PFTeDA		147.0	12.0	218.0
M3PFBS		109.9	50.0	150.0
M3PFHxS		113.7	50.0	150.0
M4PFHpA		106.6	50.0	150.0
M5PFHxA		107.7	50.0	150.0
M5PFPeA		110.7	50.0	150.0
M6PFDA		108.1	50.0	150.0
M7PFUnDA		110.8	50.0	150.0
M8FOSA		111.2	50.0	150.0
M8PFOA		110.2	50.0	150.0
M8PFOS		111.7	50.0	150.0
M9-PFNA		109.9	50.0	150.0
MPFBA		110.1	50.0	150.0
MPFDoDA		119.3	50.0	150.0
d3N-MeFOSAA		107.5	50.0	150.0
d5EtFOSAA		107.0	50.0	150.0
MHFPO-DA		110.3	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25285.05

Sample Tag: OBG MW-21

Collected Date/Time: 06/14/2021 14:28

Matrix: Groundwater

COC Reference: 142915

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 08:47, Matrix: WW, Dilution: 2.07

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		92.4	50.0	150.0
M2-6:2FTSA		100.4	50.0	150.0
M2-8:2FTSA		98.1	50.0	150.0
M2PFTeDA		138.9	12.0	218.0
M3PFBS		103.0	50.0	150.0
M3PFHxS		112.1	50.0	150.0
M4PFHpA		99.1	50.0	150.0
M5PFHxA		100.6	50.0	150.0
M5PFPeA		105.2	50.0	150.0
M6PFDA		109.2	50.0	150.0
M7PFUnDA		110.5	50.0	150.0
M8FOSA		112.3	50.0	150.0
M8PFOA		99.1	50.0	150.0
M8PFOS		105.3	50.0	150.0
M9-PFNA		106.4	50.0	150.0
MPFBA		106.2	50.0	150.0
MPFDoDA		120.7	50.0	150.0
d3N-MeFOSAA		100.3	50.0	150.0
d5EtFOSAA		114.2	50.0	150.0
MHFPO-DA		99.0	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25285.06

Sample Tag: OBG MW-23

Collected Date/Time: 06/14/2021 15:42

Matrix: Groundwater

COC Reference: 142915

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 09:06, Matrix: WW, Dilution: 2.1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		102.1	50.0	150.0
M2-6:2FTSA		106.1	50.0	150.0
M2-8:2FTSA		96.1	50.0	150.0
M2PFTeDA		135.5	12.0	218.0
M3PFBS		114.9	50.0	150.0
M3PFHxS		118.9	50.0	150.0
M4PFHpA		107.5	50.0	150.0
M5PFHxA		110.2	50.0	150.0
M5PFPeA		110.5	50.0	150.0
M6PFDA		118.6	50.0	150.0
M7PFUnDA		114.9	50.0	150.0
M8FOSA		118.0	50.0	150.0
M8PFOA		112.3	50.0	150.0
M8PFOS		121.6	50.0	150.0
M9-PFNA		113.4	50.0	150.0
MPFBA		111.8	50.0	150.0
MPFDoDA		128.6	50.0	150.0
d3N-MeFOSAA		109.1	50.0	150.0
d5EtFOSAA		120.0	50.0	150.0
MHFPO-DA		115.8	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25285.07

Sample Tag: OBG MW-9

Collected Date/Time: 06/15/2021 09:38

Matrix: Groundwater

COC Reference: 142915

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 09:26, Matrix: WW, Dilution: 1.63

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		99.8	50.0	150.0
M2-6:2FTSA		96.4	50.0	150.0
M2-8:2FTSA		95.9	50.0	150.0
M2PFTeDA		146.9	12.0	218.0
M3PFBS		110.4	50.0	150.0
M3PFHxS		103.9	50.0	150.0
M4PFHpA		98.3	50.0	150.0
M5PFHxA		103.5	50.0	150.0
M5PFPeA		106.2	50.0	150.0
M6PFDA		111.5	50.0	150.0
M7PFUnDA		108.2	50.0	150.0
M8FOSA		113.6	50.0	150.0
M8PFOA		102.2	50.0	150.0
M8PFOS		108.8	50.0	150.0
M9-PFNA		106.3	50.0	150.0
MPFBA		107.6	50.0	150.0
MPFDoDA		120.2	50.0	150.0
d3N-MeFOSAA		96.9	50.0	150.0
d5EtFOSAA		99.2	50.0	150.0
MHFPO-DA		109.4	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25285.08

Sample Tag: OBG MW-27

Collected Date/Time: 06/15/2021 10:32

Matrix: Groundwater

COC Reference: 142915

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 09:46, Matrix: WW, Dilution: 1.68

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		89.6	50.0	150.0
M2-6:2FTSA		93.6	50.0	150.0
M2-8:2FTSA		90.4	50.0	150.0
M2PFTeDA		131.7	12.0	218.0
M3PFBS		105.3	50.0	150.0
M3PFHxS		112.0	50.0	150.0
M4PFHpA		101.4	50.0	150.0
M5PFHxA		103.1	50.0	150.0
M5PFPeA		105.2	50.0	150.0
M6PFDA		106.3	50.0	150.0
M7PFUnDA		109.3	50.0	150.0
M8FOSA		109.0	50.0	150.0
M8PFOA		103.3	50.0	150.0
M8PFOS		104.1	50.0	150.0
M9-PFNA		98.7	50.0	150.0
MPFBA		105.7	50.0	150.0
MPFDoDA		107.2	50.0	150.0
d3N-MeFOSAA		97.2	50.0	150.0
d5EtFOSAA		112.9	50.0	150.0
MHFPO-DA		112.1	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25285.09

Sample Tag: OBG MW-26

Collected Date/Time: 06/15/2021 11:52

Matrix: Groundwater

COC Reference: 142915

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 10:05, Matrix: WW, Dilution: 1.67

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		98.4	50.0	150.0
M2-6:2FTSA		97.9	50.0	150.0
M2-8:2FTSA		79.3	50.0	150.0
M2PFTeDA		118.5	12.0	218.0
M3PFBS		102.5	50.0	150.0
M3PFHxS		106.0	50.0	150.0
M4PFHpA		95.7	50.0	150.0
M5PFHxA		94.2	50.0	150.0
M5PFPeA		101.7	50.0	150.0
M6PFDA		95.0	50.0	150.0
M7PFUnDA		96.8	50.0	150.0
M8FOSA		102.6	50.0	150.0
M8PFOA		96.5	50.0	150.0
M8PFOS		100.2	50.0	150.0
M9-PFNA		110.8	50.0	150.0
MPFBA		101.6	50.0	150.0
MPFDoDA		110.7	50.0	150.0
d3N-MeFOSAA		89.3	50.0	150.0
d5EtFOSAA		105.2	50.0	150.0
MHFPO-DA		93.7	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF210625W1

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

Blank (BLK)

Lab Sample ID: AK210628B.BLK210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 05:12, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		110.5	50.0	150.0
M2-6:2FTSA		114.4	50.0	150.0
M2-8:2FTSA		116.5	50.0	150.0
M2PFTeDA		100.7	12.0	218.0
M3PFBS		114.4	50.0	150.0
M3PFHxS		111.2	50.0	150.0
M4PFHpA		94.0	50.0	150.0
M5PFHxA		109.8	50.0	150.0
M5PFPeA		107.5	50.0	150.0
M6PFDA		103.2	50.0	150.0
M7PFUnDA		113.7	50.0	150.0
M8FOSA		110.4	50.0	150.0
M8PFOA		108.7	50.0	150.0
M8PFOS		105.6	50.0	150.0
M9-PFNA		104.6	50.0	150.0
MPFBA		83.9	50.0	150.0
MPFDoDA		99.1	50.0	150.0
d3N-MeFOSAA		104.1	50.0	150.0
d5EtFOSAA		111.2	50.0	150.0
MHFPO-DA		98.8	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:33, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		103.0	50.0	150.0
M2-6:2FTSA		105.4	50.0	150.0
M2-8:2FTSA		107.9	50.0	150.0
M2PFTeDA		100.1	12.0	218.0
M3PFBS		105.6	50.0	150.0
M3PFHxS		103.3	50.0	150.0
M4PFHpA		95.0	50.0	150.0
M5PFHxA		102.8	50.0	150.0
M5PFPeA		106.1	50.0	150.0
M6PFDA		101.9	50.0	150.0
M7PFUnDA		100.3	50.0	150.0
M8FOSA		101.7	50.0	150.0
M8PFOA		94.6	50.0	150.0
M8PFOS		107.3	50.0	150.0
M9-PFNA		105.7	50.0	150.0
MPFBA		103.5	50.0	150.0
MPFDoDA		99.3	50.0	150.0
d3N-MeFOSAA		88.0	50.0	150.0
d5EtFOSAA		100.2	50.0	150.0
MHFPO-DA		95.5	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210628B.LCSD210625A, Parent Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:53, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		95.1	50.0	150.0
M2-6:2FTSA		103.2	50.0	150.0
M2-8:2FTSA		111.4	50.0	150.0
M2PFTeDA		88.2	12.0	218.0
M3PFBS		106.9	50.0	150.0
M3PFHxS		105.9	50.0	150.0
M4PFHpA		97.0	50.0	150.0
M5PFHxA		100.7	50.0	150.0
M5PFPeA		105.5	50.0	150.0
M6PFDA		100.6	50.0	150.0
M7PFUnDA		92.7	50.0	150.0
M8FOSA		103.8	50.0	150.0
M8PFOA		94.4	50.0	150.0
M8PFOS		101.2	50.0	150.0
M9-PFNA		107.4	50.0	150.0
MPFBA		105.2	50.0	150.0
MPFDoDA		94.6	50.0	150.0
d3N-MeFOSAA		91.9	50.0	150.0
d5EtFOSAA		109.6	50.0	150.0
MHFPO-DA		108.5	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK210628B.2522705M, Parent Sample ID: S25227.05

Run in Batch: AK210628B, Run Date: 06/29/2021 06:11, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.06

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		88.6	50.0	150.0
M2-6:2FTSA		91.2	50.0	150.0
M2-8:2FTSA		82.8	50.0	150.0
M2PFTeDA		118.6	12.0	218.0
M3PFBS		89.7	50.0	150.0
M3PFHxS		93.8	50.0	150.0
M4PFHpA		90.2	50.0	150.0
M5PFHxA		96.4	50.0	150.0
M5PFPeA		95.3	50.0	150.0
M6PFDA		96.3	50.0	150.0
M7PFUnDA		99.8	50.0	150.0
M8FOSA		95.3	50.0	150.0
M8PFOA		95.7	50.0	150.0
M8PFOS		91.5	50.0	150.0
M9-PFNA		88.0	50.0	150.0
MPFBA		96.7	50.0	150.0
MPFDoDA		95.0	50.0	150.0
d3N-MeFOSAA		91.1	50.0	150.0
d5EtFOSAA		98.3	50.0	150.0
MHFPO-DA		88.8	50.0	150.0

QC Report - Internal Standards per QC Sample

Duplicate (DUP)

Lab Sample ID: AK210628B.2522706D, Parent Sample ID: S25227.06

Run in Batch: AK210628B, Run Date: 06/29/2021 06:50, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		112.5	50.0	150.0
M2-6:2FTSA		104.1	50.0	150.0
M2-8:2FTSA		98.9	50.0	150.0
M2PFTeDA		135.4	12.0	218.0
M3PFBS		107.0	50.0	150.0
M3PFHxS		105.4	50.0	150.0
M4PFHpA		100.6	50.0	150.0
M5PFHxA		103.7	50.0	150.0
M5PFPeA		107.1	50.0	150.0
M6PFDA		103.4	50.0	150.0
M7PFUnDA		114.4	50.0	150.0
M8FOSA		107.0	50.0	150.0
M8PFOA		109.8	50.0	150.0
M8PFOS		112.7	50.0	150.0
M9-PFNA		99.3	50.0	150.0
MPFBA		107.3	50.0	150.0
MPFDoDA		114.6	50.0	150.0
d3N-MeFOSAA		93.2	50.0	150.0
d5EtFOSAA		110.8	50.0	150.0
MHFPO-DA		111.3	50.0	150.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1

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

Blank (BLK)

Lab Sample ID: AK210628B.BLK210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 05:12, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFPeA		ND	4	ng/l
4:2 FTSA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
PFFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFNA		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFFHpS		ND	2	ng/l
PFDA		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS		ND	2	ng/l
PFOS-LN		ND	2	ng/l
PFOS-BR		ND	2	ng/l
PFOUnDA		ND	2	ng/l
PFNS		ND	2	ng/l
PFDODA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTTrDA		ND	2	ng/l
FOSA		ND	2	ng/l
PFTeDA		ND	4	ng/l
11CL-PF3OUdS		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
ADONA		ND	2	ng/l
HFPO-DA		ND	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:33, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		110.0	70.0	130.0
PFPeA		101.0	70.0	130.0
4:2 FTSA		111.0	70.0	130.0
PFHxA		111.0	70.0	130.0
PFBS		110.0	70.0	130.0
HFPO-DA		128.0	70.0	130.0
PFFHpA		120.0	70.0	130.0
PFPeS		100.0	70.0	130.0
ADONA		118.0	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:33, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		112.0	70.0	130.0
PFOA		111.0	70.0	130.0
PFHxS		115.0	70.0	130.0
PFNA		102.0	70.0	130.0
8:2 FTSA		94.6	70.0	130.0
PFHpS		97.2	70.0	130.0
N-MeFOSAA		118.0	70.0	130.0
PFDA		108.0	70.0	130.0
PFOS		87.3	70.0	130.0
EtFOSAA		113.0	70.0	130.0
PFUnDA		118.0	70.0	130.0
9CL-PF3ONS		104.0	70.0	130.0
PFNS		91.4	70.0	130.0
PFDODA		110.0	70.0	130.0
PFDS		90.1	70.0	130.0
PFTTrDA		99.4	70.0	130.0
11CL-PF3OUdS		111.0	70.0	130.0
FOSA		111.0	70.0	130.0
PFTeDA		96.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210628B.LCSD210625A, Parent Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:53, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		109.0	70.0	130.0	0.9	30.0
PFPeA		99.1	70.0	130.0	1.9	30.0
4:2 FTSA		124.0	70.0	130.0	11.1	30.0
PFHxA		105.0	70.0	130.0	5.6	30.0
PFBS		109.0	70.0	130.0	0.9	30.0
HFPO-DA		107.0	70.0	130.0	17.9	30.0
PFHpA		101.0	70.0	130.0	17.2	30.0
PFPeS		96.1	70.0	130.0	4.0	30.0
ADONA		115.0	70.0	130.0	2.6	30.0
6:2 FTSA		120.0	70.0	130.0	6.9	30.0
PFOA		119.0	70.0	130.0	7.0	30.0
PFHxS		111.0	70.0	130.0	3.5	30.0
PFNA		98.2	70.0	130.0	3.8	30.0
8:2 FTSA		102.0	70.0	130.0	7.5	30.0
PFHpS		99.4	70.0	130.0	2.2	30.0
N-MeFOSAA		112.0	70.0	130.0	5.2	30.0
PFDA		110.0	70.0	130.0	1.8	30.0
PFOS		99.2	70.0	130.0	12.8	30.0
EtFOSAA		111.0	70.0	130.0	1.8	30.0
PFUnDA	*	136.0	70.0	130.0	14.2	30.0
9CL-PF3ONS		108.0	70.0	130.0	3.8	30.0
PFNS		100.0	70.0	130.0	9.0	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK210628B.LCSD210625A, Parent Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:53, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDODA		110.0	70.0	130.0	0.0	30.0
PFDS		96.8	70.0	130.0	7.2	30.0
PFTTrDA		97.4	70.0	130.0	2.0	30.0
11CL-PF3OUdS		119.0	70.0	130.0	7.0	30.0
FOSA		109.0	70.0	130.0	1.8	30.0
PFTeDA		96.7	70.0	130.0	0.1	30.0

Matrix Spike (MS)

Lab Sample ID: AK210628B.2522705M, Parent Sample ID: S25227.05

Run in Batch: AK210628B, Run Date: 06/29/2021 06:11, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.06

Analyte	Flags	% Rec	LCL	UCL
PFBA		106.8	70.0	130.0
PFPeA		97.1	70.0	130.0
4:2 FTSA		106.8	70.0	130.0
PFHxA		92.2	70.0	130.0
PFBS		116.5	70.0	130.0
PFHpA		106.8	70.0	130.0
PFPeS		106.8	70.0	130.0
6:2 FTSA		94.2	70.0	130.0
PFOA		95.1	70.0	130.0
PFHxS		106.8	70.0	130.0
PFNA		106.8	70.0	130.0
8:2 FTSA		116.5	70.0	130.0
PFHpS		90.3	70.0	130.0
PFDA		106.8	70.0	130.0
N-MeFOSAA		106.8	70.0	130.0
EtFOSAA		116.5	70.0	130.0
PFOS		87.4	70.0	130.0
PFUnDA		97.1	70.0	130.0
PFNS		97.1	70.0	130.0
PFDODA		116.5	70.0	130.0
PFDS		106.8	70.0	130.0
PFTTrDA		106.8	70.0	130.0
FOSA		106.8	70.0	130.0
PFTeDA		92.2	70.0	130.0
11CL-PF3OUdS		116.5	70.0	130.0
9CL-PF3ONS		116.5	70.0	130.0
ADONA		97.1	70.0	130.0
HFPO-DA		106.8	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK210628B.2522706D, Parent Sample ID: S25227.06

Run in Batch: AK210628B, Run Date: 06/29/2021 06:50, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1.97

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		0.0	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK210628B.2522706D, Parent Sample ID: S25227.06

Run in Batch: AK210628B, Run Date: 06/29/2021 06:50, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1.97

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA	*	38.5	30.0
PFBS		18.2	30.0
PFHpA		NC	30.0
PFPeS		16.0	30.0
6:2 FTSA		6.7	30.0
PFOA		3.8	30.0
PFHxS		0.0	30.0
PFHxS-LN		0.0	30.0
PFHxS-BR		23.0	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		0.0	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		1.1	30.0
PFOS-LN		6.3	30.0
PFOS-BR		7.4	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTTrDA		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0
11CL-PF3OUdS		NC	30.0
9CL-PF3ONS		NC	30.0
ADONA		NC	30.0
HFPO-DA		NC	30.0



Analytical Laboratory Report

Report ID: S25331.01(01)
Generated on 07/02/2021

Report to

Attention: Clifford Yantz
Ramboll Americas
3600 Green Court Ste 750
Ann Arbor, MI 48105

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

Additional Contacts: Kevin Schneider

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S25331.01-S25331.11
Project: RACER Coldwater Road
Collected Date(s): 06/15/2021 - 06/16/2021
Submitted Date/Time: 06/16/2021 16:45
Sampled by: Kevin Schneider
P.O. #: 1940002628 (TASK 37)

Table of Contents

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

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.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

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

Glossary of Abbreviations

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

Method Summary

Method	Version
ASTMD7979-19M	ASTM Method D7979 - 19 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTTrDA	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 (11 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S25331.01	OBG MW-11	Groundwater	06/15/21 14:47
S25331.02	OBG MW-12S	Groundwater	06/15/21 15:52
S25331.03	Field Blank-061521	Water	06/15/21 17:05
S25331.04	OBG MW-17S	Groundwater	06/15/21 17:08
S25331.05	OBG MW-14	Groundwater	06/15/21 18:12
S25331.06	OBG MW-22	Groundwater	06/16/21 10:08
S25331.07	MW-DUP-061621	Groundwater	06/16/21 00:01
S25331.08	VAULT-A	Wastewater	06/16/21 10:30
S25331.09	VAULT-C	Wastewater	06/16/21 11:12
S25331.10	VAULT-E	Wastewater	06/16/21 12:10
S25331.11	VAULT-DUP-061621	Wastewater	06/16/21 00:01



Analytical Laboratory Report

Lab Sample ID: S25331.01

Sample Tag: OBG MW-11

Collected Date/Time: 06/15/2021 14:47

Matrix: Groundwater

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.81/7.06/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 10:25, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	24	10	10	ng/L	2.09	375-22-4	
PFPeA*	6.8	4.2	1.0	ng/L	2.09	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.09	757124-72-4	
PFHxA*	16	2.1	1.5	ng/L	2.09	307-24-4	
PFBS*	52	2.1	1.5	ng/L	2.09	375-73-5	
PFHpA*	7.3	2.1	1.5	ng/L	2.09	375-85-9	
PFPeS*	94	2.1	1.9	ng/L	2.09	2706-91-4	
6:2 FTSA*	Not detected	4.2	2.1	ng/L	2.09	27619-97-2	
PFOA*	27	2.1	1.7	ng/L	2.09	335-67-1	
PFHxS*	380	2.1	1.7	ng/L	2.09	355-46-4	
PFHxS-LN*	310	2.1	1.7	ng/L	2.09	355-46-4-LN	
PFHxS-BR*	61	2.1	1.7	ng/L	2.09	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.09	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.09	39108-34-4	
PFHpS*	9.9	2.1	2.1	ng/L	2.09	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.09	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.09	2355-31-9	
EtFOSAA*	Not detected	4.2	2.1	ng/L	2.09	2991-50-6	
PFOS*	110	2.1	2.0	ng/L	2.09	1763-23-1	
PFOS-LN*	18	2.1	2.0	ng/L	2.09	1763-23-1-LN	
PFOS-BR*	85	2.1	2.0	ng/L	2.09	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.5	ng/L	2.09	2058-94-8	
PFNS*	Not detected	2.1	1.5	ng/L	2.09	68259-12-1	
PFDODA*	Not detected	2.1	1.7	ng/L	2.09	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.09	335-77-3	
PFTTrDA*	Not detected	2.1	1.3	ng/L	2.09	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.09	754-91-6	
PFTeDA*	Not detected	4.2	1.9	ng/L	2.09	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.09	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.09	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.09	919005-14-4	
HFPO-DA*	Not detected	10	2.1	ng/L	2.09	13252-13-6	



Analytical Laboratory Report

Lab Sample ID: S25331.02

Sample Tag: OBG MW-12S

Collected Date/Time: 06/15/2021 15:52

Matrix: Groundwater

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.93/7.03/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 10:44, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.03	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.03	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.03	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.03	307-24-4	
PFBS*	4.1	2.0	1.4	ng/L	2.03	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.03	375-85-9	
PFPeS*	4.6	2.0	1.8	ng/L	2.03	2706-91-4	
6:2 FTSA*	2.1	4.1	2.0	ng/L	2.03	27619-97-2	J
PFOA*	Not detected	2.0	1.6	ng/L	2.03	335-67-1	
PFHxS*	14	2.0	1.6	ng/L	2.03	355-46-4	
PFHxS-LN*	11	2.0	1.6	ng/L	2.03	355-46-4-LN	
PFHxS-BR*	2.3	2.0	1.6	ng/L	2.03	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.03	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.03	39108-34-4	
PFHpS*	5.0	2.0	2.0	ng/L	2.03	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.03	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.03	2355-31-9	
EtFOSAA*	Not detected	4.1	2.0	ng/L	2.03	2991-50-6	
PFOS*	180	2.0	2.0	ng/L	2.03	1763-23-1	
PFOS-LN*	32	2.0	2.0	ng/L	2.03	1763-23-1-LN	
PFOS-BR*	140	2.0	2.0	ng/L	2.03	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.03	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.03	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	2.03	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.03	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	2.03	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.03	754-91-6	
PFTeDA*	Not detected	4.1	1.8	ng/L	2.03	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.03	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.03	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.03	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.03	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S25331.03

Sample Tag: Field Blank-061521

Collected Date/Time: 06/15/2021 17:05

Matrix: Water

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.10/7.00/10	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 11:04, Analyst: KCV

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



Analytical Laboratory Report

Lab Sample ID: S25331.04

Sample Tag: OBG MW-17S

Collected Date/Time: 06/15/2021 17:08

Matrix: Groundwater

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.06/7.00/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 11:23, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	11	9.9	9.9	ng/L	1.98	375-22-4	
PFPeA*	2.0	4.0	0.99	ng/L	1.98	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.98	757124-72-4	
PFHxA*	1.9	2.0	1.4	ng/L	1.98	307-24-4	J
PFBS*	2.6	2.0	1.4	ng/L	1.98	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.98	375-85-9	
PFPeS*	3.0	2.0	1.8	ng/L	1.98	2706-91-4	
6:2 FTSA*	Not detected	4.0	2.0	ng/L	1.98	27619-97-2	
PFOA*	2.0	2.0	1.6	ng/L	1.98	335-67-1	
PFHxS*	9.7	2.0	1.6	ng/L	1.98	355-46-4	
PFHxS-LN*	7.8	2.0	1.6	ng/L	1.98	355-46-4-LN	
PFHxS-BR*	1.7	2.0	1.6	ng/L	1.98	355-46-4-BR	J
PFNA*	Not detected	2.0	1.8	ng/L	1.98	375-95-1	
8:2 FTSA*	Not detected	2.0	0.99	ng/L	1.98	39108-34-4	
PFHpS*	3.7	2.0	2.0	ng/L	1.98	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.98	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.98	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.98	2991-50-6	
PFOS*	460	2.0	1.9	ng/L	1.98	1763-23-1	
PFOS-LN*	260	2.0	1.9	ng/L	1.98	1763-23-1-LN	
PFOS-BR*	200	2.0	1.9	ng/L	1.98	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.98	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.98	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	1.98	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.98	335-77-3	
PFTDA*	Not detected	2.0	1.2	ng/L	1.98	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.98	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.98	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.98	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.98	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.98	919005-14-4	
HFPO-DA*	Not detected	9.9	2.0	ng/L	1.98	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S25331.05

Sample Tag: OBG MW-14

Collected Date/Time: 06/15/2021 18:12

Matrix: Groundwater

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.44/6.99/11	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 11:43, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	23	10	10	ng/L	2.02	375-22-4	
PFPeA*	6.7	4.0	1.0	ng/L	2.02	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.02	757124-72-4	
PFHxA*	5.6	2.0	1.4	ng/L	2.02	307-24-4	
PFBS*	21	2.0	1.4	ng/L	2.02	375-73-5	
PFHpA*	3.9	2.0	1.4	ng/L	2.02	375-85-9	
PFPeS*	42	2.0	1.8	ng/L	2.02	2706-91-4	
6:2 FTSA*	Not detected	4.0	2.0	ng/L	2.02	27619-97-2	
PFOA*	24	2.0	1.6	ng/L	2.02	335-67-1	
PFHxS*	180	2.0	1.6	ng/L	2.02	355-46-4	
PFHxS-LN*	160	2.0	1.6	ng/L	2.02	355-46-4-LN	
PFHxS-BR*	29	2.0	1.6	ng/L	2.02	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.02	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.02	39108-34-4	
PFHpS*	44	2.0	2.0	ng/L	2.02	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.02	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.02	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.02	2991-50-6	
PFOS*	1,500	2.0	2.0	ng/L	2.02	1763-23-1	
PFOS-LN*	670	2.0	2.0	ng/L	2.02	1763-23-1-LN	
PFOS-BR*	830	2.0	2.0	ng/L	2.02	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.02	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.02	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	2.02	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.02	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	2.02	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.02	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.02	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.02	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.02	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.02	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.02	13252-13-6	



Analytical Laboratory Report

Lab Sample ID: S25331.06

Sample Tag: OBG MW-22

Collected Date/Time: 06/16/2021 10:08

Matrix: Groundwater

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.98/7.14/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 12:02, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.05	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.05	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.6	ng/L	2.05	757124-72-4	
PFHxA*	Not detected	2.1	1.4	ng/L	2.05	307-24-4	
PFBS*	4.7	2.1	1.4	ng/L	2.05	375-73-5	
PFHpA*	Not detected	2.1	1.4	ng/L	2.05	375-85-9	
PFPeS*	5.8	2.1	1.8	ng/L	2.05	2706-91-4	
6:2 FTSA*	Not detected	4.1	2.1	ng/L	2.05	27619-97-2	
PFOA*	7.2	2.1	1.6	ng/L	2.05	335-67-1	
PFHxS*	33	2.1	1.6	ng/L	2.05	355-46-4	
PFHxS-LN*	28	2.1	1.6	ng/L	2.05	355-46-4-LN	
PFHxS-BR*	4.7	2.1	1.6	ng/L	2.05	355-46-4-BR	
PFNA*	Not detected	2.1	1.8	ng/L	2.05	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.05	39108-34-4	
PFHpS*	18	2.1	2.1	ng/L	2.05	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.05	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.05	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.05	2991-50-6	
PFOS*	1,900	2.1	2.0	ng/L	2.05	1763-23-1	
PFOS-LN*	1,000	2.1	2.0	ng/L	2.05	1763-23-1-LN	
PFOS-BR*	840	2.1	2.0	ng/L	2.05	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.05	2058-94-8	
PFNS*	Not detected	2.1	1.4	ng/L	2.05	68259-12-1	
PFDODA*	Not detected	2.1	1.6	ng/L	2.05	307-55-1	
PFDS*	Not detected	2.1	1.4	ng/L	2.05	335-77-3	
PFTDA*	Not detected	2.1	1.2	ng/L	2.05	72629-94-8	
FOSA*	Not detected	2.1	1.8	ng/L	2.05	754-91-6	
PFTeDA*	Not detected	4.1	1.8	ng/L	2.05	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.8	ng/L	2.05	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.05	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.05	919005-14-4	
HFPO-DA*	Not detected	10	2.1	ng/L	2.05	13252-13-6	



Analytical Laboratory Report

Lab Sample ID: S25331.07

Sample Tag: MW-DUP-061621

Collected Date/Time: 06/16/2021 00:01

Matrix: Groundwater

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.97/7.00/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 12:22, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.01	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2.01	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.01	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.01	307-24-4	
PFBS*	4.8	2.0	1.4	ng/L	2.01	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.01	375-85-9	
PFPeS*	5.7	2.0	1.8	ng/L	2.01	2706-91-4	
6:2 FTSA*	Not detected	4.0	2.0	ng/L	2.01	27619-97-2	
PFOA*	7.1	2.0	1.6	ng/L	2.01	335-67-1	
PFHxS*	34	2.0	1.6	ng/L	2.01	355-46-4	
PFHxS-LN*	30	2.0	1.6	ng/L	2.01	355-46-4-LN	
PFHxS-BR*	3.5	2.0	1.6	ng/L	2.01	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.01	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.01	39108-34-4	
PFHpS*	19	2.0	2.0	ng/L	2.01	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.01	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.01	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.01	2991-50-6	
PFOS*	1,900	2.0	2.0	ng/L	2.01	1763-23-1	
PFOS-LN*	1,000	2.0	2.0	ng/L	2.01	1763-23-1-LN	
PFOS-BR*	900	2.0	2.0	ng/L	2.01	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.01	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.01	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	2.01	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.01	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	2.01	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.01	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.01	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.01	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.01	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.01	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.01	13252-13-6	



Analytical Laboratory Report

Lab Sample ID: S25331.08

Sample Tag: VAULT-A

Collected Date/Time: 06/16/2021 10:30

Matrix: Wastewater

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.43/6.99/11	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 12:41, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.02	375-22-4	
PFPeA*	1.7	4.0	1.0	ng/L	2.02	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.02	757124-72-4	
PFHxA*	2.7	2.0	1.4	ng/L	2.02	307-24-4	
PFBS*	5.2	2.0	1.4	ng/L	2.02	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.02	375-85-9	
PFPeS*	6.9	2.0	1.8	ng/L	2.02	2706-91-4	
6:2 FTSA*	Not detected	4.0	2.0	ng/L	2.02	27619-97-2	
PFOA*	7.4	2.0	1.6	ng/L	2.02	335-67-1	
PFHxS*	18	2.0	1.6	ng/L	2.02	355-46-4	
PFHxS-LN*	15	2.0	1.6	ng/L	2.02	355-46-4-LN	
PFHxS-BR*	3.0	2.0	1.6	ng/L	2.02	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.02	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.02	39108-34-4	
PFHpS*	4.1	2.0	2.0	ng/L	2.02	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.02	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.02	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.02	2991-50-6	
PFOS*	410	2.0	2.0	ng/L	2.02	1763-23-1	
PFOS-LN*	200	2.0	2.0	ng/L	2.02	1763-23-1-LN	
PFOS-BR*	200	2.0	2.0	ng/L	2.02	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.02	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.02	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	2.02	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.02	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	2.02	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.02	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.02	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.02	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.02	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.02	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.02	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S25331.09

Sample Tag: VAULT-C

Collected Date/Time: 06/16/2021 11:12

Matrix: Wastewater

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.48/7.02/11	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 13:01, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	13	10	10	ng/L	2.01	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2.01	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.01	757124-72-4	
PFHxA*	2.8	2.0	1.4	ng/L	2.01	307-24-4	
PFBS*	6.1	2.0	1.4	ng/L	2.01	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.01	375-85-9	
PFPeS*	5.6	2.0	1.8	ng/L	2.01	2706-91-4	
6:2 FTSA*	Not detected	4.0	2.0	ng/L	2.01	27619-97-2	
PFOA*	7.7	2.0	1.6	ng/L	2.01	335-67-1	
PFHxS*	18	2.0	1.6	ng/L	2.01	355-46-4	
PFHxS-LN*	14	2.0	1.6	ng/L	2.01	355-46-4-LN	
PFHxS-BR*	2.9	2.0	1.6	ng/L	2.01	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.01	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.01	39108-34-4	
PFHpS*	5.1	2.0	2.0	ng/L	2.01	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.01	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.01	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.01	2991-50-6	
PFOS*	400	2.0	2.0	ng/L	2.01	1763-23-1	
PFOS-LN*	220	2.0	2.0	ng/L	2.01	1763-23-1-LN	
PFOS-BR*	170	2.0	2.0	ng/L	2.01	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.01	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.01	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	2.01	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.01	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	2.01	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.01	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.01	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.01	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.01	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.01	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.01	13252-13-6	



Analytical Laboratory Report

Lab Sample ID: S25331.10

Sample Tag: VAULT-E

Collected Date/Time: 06/16/2021 12:10

Matrix: Wastewater

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.02/6.98/12	ASTMD7979-19M	06/25/21 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/29/21 13:20, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10.0	10.0	ng/L	1.99	375-22-4	
PFPeA*	2.8	4.0	1.00	ng/L	1.99	2706-90-3	J
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.99	757124-72-4	
PFHxA*	2.4	2.0	1.4	ng/L	1.99	307-24-4	
PFBS*	9.0	2.0	1.4	ng/L	1.99	375-73-5	
PFHpA*	1.7	2.0	1.4	ng/L	1.99	375-85-9	J
PFPeS*	11	2.0	1.8	ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	4.0	2.0	ng/L	1.99	27619-97-2	
PFOA*	13	2.0	1.6	ng/L	1.99	335-67-1	
PFHxS*	33	2.0	1.6	ng/L	1.99	355-46-4	
PFHxS-LN*	28	2.0	1.6	ng/L	1.99	355-46-4-LN	
PFHxS-BR*	5.2	2.0	1.6	ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0	1.00	ng/L	1.99	39108-34-4	
PFHpS*	6.7	2.0	2.0	ng/L	1.99	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.99	2991-50-6	
PFOS*	480	2.0	2.0	ng/L	1.99	1763-23-1	
PFOS-LN*	270	2.0	2.0	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	210	2.0	2.0	ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.99	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	1.99	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.99	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.99	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	10.0	2.0	ng/L	1.99	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S25331.11

Sample Tag: VAULT-DUP-061621

Collected Date/Time: 06/16/2021 00:01

Matrix: Wastewater

COC Reference: 142916

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.95/7.05/12	ASTMD7979-19M	06/25/21 11:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 06/28/21 19:27, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	14	10	10	ng/L	2.03	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.03	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.03	757124-72-4	
PFHxA*	2.3	2.0	1.4	ng/L	2.03	307-24-4	
PFBS*	5.6	2.0	1.4	ng/L	2.03	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.03	375-85-9	
PFPeS*	6.3	2.0	1.8	ng/L	2.03	2706-91-4	
6:2 FTSA*	Not detected	4.1	2.0	ng/L	2.03	27619-97-2	
PFOA*	8.6	2.0	1.6	ng/L	2.03	335-67-1	
PFHxS*	19	2.0	1.6	ng/L	2.03	355-46-4	
PFHxS-LN*	15	2.0	1.6	ng/L	2.03	355-46-4-LN	
PFHxS-BR*	3.9	2.0	1.6	ng/L	2.03	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.03	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.03	39108-34-4	
PFHpS*	5.3	2.0	2.0	ng/L	2.03	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.03	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.03	2355-31-9	
EtFOSAA*	Not detected	4.1	2.0	ng/L	2.03	2991-50-6	
PFOS*	390	2.0	2.0	ng/L	2.03	1763-23-1	
PFOS-LN*	220	2.0	2.0	ng/L	2.03	1763-23-1-LN	
PFOS-BR*	170	2.0	2.0	ng/L	2.03	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.03	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.03	68259-12-1	
PFDODA*	Not detected	2.0	1.6	ng/L	2.03	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.03	335-77-3	
PFTTrDA*	Not detected	2.0	1.2	ng/L	2.03	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.03	754-91-6	
PFTeDA*	Not detected	4.1	1.8	ng/L	2.03	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.03	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.03	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.03	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.03	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID:S25331

Client:OBG02 (Ramboll Americas)

Project: RACER Coldwater Road

Submitted:06/16/2021 16:45 Login User: SRS

Attention: Clifford Yantz

Address: Ramboll Americas
3600 Green Court Ste 750
Ann Arbor, MI 48105

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

Selection	Description	Note
Sample Receiving		
01. ☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.4
02. ☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun	
03. ☐ Yes ☒ No ☐ N/A	Samples shipped	
04. ☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box	
05. ☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody		
06. ☒ Yes ☐ No ☐ N/A	COC adequately filled out	
07. ☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab	
08. ☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC	
09. ☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontracted to:	
Preservation		
10. ☐ Yes ☐ No ☒ N/A	Do sample have correct chemical preservation	
11. ☐ Yes ☐ No ☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12. ☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions		
13. ☒ Yes ☐ No ☐ N/A	All bottles intact	
14. ☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used	
15. ☒ Yes ☐ No ☐ N/A	Merit bottles used	
16. ☒ Yes ☐ No ☐ N/A	Sufficient sample volume received	
17. ☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration	
18. ☒ Yes ☐ No ☐ N/A	Samples submitted within holding time	
19. ☐ Yes ☐ No ☒ 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: _____



Quality Control Report

Report ID: QC-S25331-01
Generated on 07/02/2021

Report to

Attention: Clifford Yantz
Ramboll Americas
3600 Green Court Ste 750
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S25331.01-S25331.11
Project: RACER Coldwater Road
Submitted Date/Time: 06/16/2021 16:45
Sampled by: Kevin Schneider
P.O. #: 1940002628 (TASK 37)

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-12)
Prep Batch Summary (Page 13)
Internal Standards per Lab Sample (Pages 14-24)
Internal Standards per QC Sample (Pages 25-30)
Batch QC Results (Pages 31-38)

Report Flag Descriptions

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

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

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S25331.01

Sample Tag: OBG MW-11

Collected Date/Time: 06/15/2021 14:47

Matrix: Groundwater

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 10:25	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25331.02

Sample Tag: OBG MW-12S

Collected Date/Time: 06/15/2021 15:52

Matrix: Groundwater

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 10:44	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25331.03

Sample Tag: Field Blank-061521

Collected Date/Time: 06/15/2021 17:05

Matrix: Water

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Organics - Volatiles</i>						
28 PFAs	ASTMD7979-19M	06/29/21 11:04	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25331.04

Sample Tag: OBG MW-17S

Collected Date/Time: 06/15/2021 17:08

Matrix: Groundwater

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 11:23	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25331.05

Sample Tag: OBG MW-14

Collected Date/Time: 06/15/2021 18:12

Matrix: Groundwater

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 11:43	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25331.06

Sample Tag: OBG MW-22

Collected Date/Time: 06/16/2021 10:08

Matrix: Groundwater

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 12:02	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25331.07

Sample Tag: MW-DUP-061621

Collected Date/Time: 06/16/2021 00:01

Matrix: Groundwater

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 12:22	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25331.08

Sample Tag: VAULT-A

Collected Date/Time: 06/16/2021 10:30

Matrix: Wastewater

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 12:41	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25331.09

Sample Tag: VAULT-C

Collected Date/Time: 06/16/2021 11:12

Matrix: Wastewater

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 13:01	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25331.10

Sample Tag: VAULT-E

Collected Date/Time: 06/16/2021 12:10

Matrix: Wastewater

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/29/21 13:20	AK210628B	PF210625W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S25331.11

Sample Tag: VAULT-DUP-061621

Collected Date/Time: 06/16/2021 00:01

Matrix: Wastewater

COC Reference: 142916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	06/28/21 19:27	AK210628	PF210625W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF210625W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S25331.01	28 PFAs	ASTMD7979-19M	06/29/21 10:25	AK210628B
S25331.02	28 PFAs	ASTMD7979-19M	06/29/21 10:44	AK210628B
S25331.03	28 PFAs	ASTMD7979-19M	06/29/21 11:04	AK210628B
S25331.04	28 PFAs	ASTMD7979-19M	06/29/21 11:23	AK210628B
S25331.05	28 PFAs	ASTMD7979-19M	06/29/21 11:43	AK210628B
S25331.06	28 PFAs	ASTMD7979-19M	06/29/21 12:02	AK210628B
S25331.07	28 PFAs	ASTMD7979-19M	06/29/21 12:22	AK210628B
S25331.08	28 PFAs	ASTMD7979-19M	06/29/21 12:41	AK210628B
S25331.09	28 PFAs	ASTMD7979-19M	06/29/21 13:01	AK210628B
S25331.10	28 PFAs	ASTMD7979-19M	06/29/21 13:20	AK210628B

Organics - Volatiles, Prep Batch ID: PF210625W2

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S25331.11	28 PFAs	ASTMD7979-19M	06/28/21 19:27	AK210628

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.01

Sample Tag: OBG MW-11

Collected Date/Time: 06/15/2021 14:47

Matrix: Groundwater

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 10:25, Matrix: WW, Dilution: 2.09

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		118.2	50.0	150.0
M2-6:2FTSA		100.1	50.0	150.0
M2-8:2FTSA		89.5	50.0	150.0
M2PFTeDA		151.3	12.0	218.0
M3PFBS		103.5	50.0	150.0
M3PFHxS		103.4	50.0	150.0
M4PFHpA		102.7	50.0	150.0
M5PFHxA		100.5	50.0	150.0
M5PFPeA		106.5	50.0	150.0
M6PFDA		105.3	50.0	150.0
M7PFUnDA		106.7	50.0	150.0
M8FOSA		110.8	50.0	150.0
M8PFOA		109.4	50.0	150.0
M8PFOS		111.5	50.0	150.0
M9-PFNA		96.7	50.0	150.0
MPFBA		108.2	50.0	150.0
MPFDoDA		115.0	50.0	150.0
d3N-MeFOSAA		100.9	50.0	150.0
d5EtFOSAA		110.7	50.0	150.0
MHFPO-DA		107.3	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.02

Sample Tag: OBG MW-12S

Collected Date/Time: 06/15/2021 15:52

Matrix: Groundwater

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 10:44, Matrix: WW, Dilution: 2.03

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		106.4	50.0	150.0
M2-6:2FTSA		112.0	50.0	150.0
M2-8:2FTSA		104.3	50.0	150.0
M2PFTeDA		126.5	12.0	218.0
M3PFBS		107.2	50.0	150.0
M3PFHxS		108.3	50.0	150.0
M4PFHpA		104.4	50.0	150.0
M5PFHxA		101.8	50.0	150.0
M5PFPeA		106.1	50.0	150.0
M6PFDA		108.2	50.0	150.0
M7PFUnDA		100.7	50.0	150.0
M8FOSA		113.5	50.0	150.0
M8PFOA		98.9	50.0	150.0
M8PFOS		104.0	50.0	150.0
M9-PFNA		102.8	50.0	150.0
MPFBA		106.3	50.0	150.0
MPFDoDA		110.3	50.0	150.0
d3N-MeFOSAA		96.4	50.0	150.0
d5EtFOSAA		110.5	50.0	150.0
MHFPO-DA		109.9	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.03

Sample Tag: Field Blank-061521

Collected Date/Time: 06/15/2021 17:05

Matrix: Water

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 11:04, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		103.3	50.0	150.0
M2-6:2FTSA		115.2	50.0	150.0
M2-8:2FTSA		91.9	50.0	150.0
M2PFTeDA		106.9	12.0	218.0
M3PFBS		101.3	50.0	150.0
M3PFHxS		97.8	50.0	150.0
M4PFHpA		91.3	50.0	150.0
M5PFHxA		104.2	50.0	150.0
M5PFPeA		103.0	50.0	150.0
M6PFDA		102.4	50.0	150.0
M7PFUnDA		104.2	50.0	150.0
M8FOSA		103.4	50.0	150.0
M8PFOA		95.8	50.0	150.0
M8PFOS		112.4	50.0	150.0
M9-PFNA		107.4	50.0	150.0
MPFBA		102.4	50.0	150.0
MPFDoDA		96.5	50.0	150.0
d3N-MeFOSAA		95.3	50.0	150.0
d5EtFOSAA		101.1	50.0	150.0
MHFPO-DA		98.4	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.04

Sample Tag: OBG MW-17S

Collected Date/Time: 06/15/2021 17:08

Matrix: Groundwater

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 11:23, Matrix: WW, Dilution: 1.98

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		89.6	50.0	150.0
M2-6:2FTSA		101.0	50.0	150.0
M2-8:2FTSA		84.3	50.0	150.0
M2PFTeDA		110.4	12.0	218.0
M3PFBS		98.5	50.0	150.0
M3PFHxS		105.2	50.0	150.0
M4PFHpA		88.8	50.0	150.0
M5PFHxA		91.6	50.0	150.0
M5PFPeA		95.7	50.0	150.0
M6PFDA		93.4	50.0	150.0
M7PFUnDA		93.7	50.0	150.0
M8FOSA		97.7	50.0	150.0
M8PFOA		98.7	50.0	150.0
M8PFOS		100.9	50.0	150.0
M9-PFNA		92.2	50.0	150.0
MPFBA		100.8	50.0	150.0
MPFDoDA		96.5	50.0	150.0
d3N-MeFOSAA		93.3	50.0	150.0
d5EtFOSAA		98.9	50.0	150.0
MHFPO-DA		95.7	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.05

Sample Tag: OBG MW-14

Collected Date/Time: 06/15/2021 18:12

Matrix: Groundwater

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 11:43, Matrix: WW, Dilution: 2.02

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		96.9	50.0	150.0
M2-6:2FTSA		95.3	50.0	150.0
M2-8:2FTSA		79.4	50.0	150.0
M2PFTeDA		170.6	12.0	218.0
M3PFBS		108.0	50.0	150.0
M3PFHxS		103.4	50.0	150.0
M4PFHpA		90.6	50.0	150.0
M5PFHxA		103.4	50.0	150.0
M5PFPeA		101.0	50.0	150.0
M6PFDA		104.4	50.0	150.0
M7PFUnDA		117.0	50.0	150.0
M8FOSA		107.5	50.0	150.0
M8PFOA		104.4	50.0	150.0
M8PFOS		106.7	50.0	150.0
M9-PFNA		98.1	50.0	150.0
MPFBA		102.9	50.0	150.0
MPFDoDA		132.2	50.0	150.0
d3N-MeFOSAA		90.9	50.0	150.0
d5EtFOSAA		113.6	50.0	150.0
MHFPO-DA		107.7	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.06

Sample Tag: OBG MW-22

Collected Date/Time: 06/16/2021 10:08

Matrix: Groundwater

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 12:02, Matrix: WW, Dilution: 2.05

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		102.8	50.0	150.0
M2-6:2FTSA		105.2	50.0	150.0
M2-8:2FTSA		85.2	50.0	150.0
M2PFTeDA		185.3	12.0	218.0
M3PFBS		107.3	50.0	150.0
M3PFHxS		111.6	50.0	150.0
M4PFHpA		101.7	50.0	150.0
M5PFHxA		108.0	50.0	150.0
M5PFPeA		104.9	50.0	150.0
M6PFDA		108.8	50.0	150.0
M7PFUnDA		111.0	50.0	150.0
M8FOSA		108.2	50.0	150.0
M8PFOA		103.8	50.0	150.0
M8PFOS		105.8	50.0	150.0
M9-PFNA		106.4	50.0	150.0
MPFBA		107.1	50.0	150.0
MPFDoDA		122.2	50.0	150.0
d3N-MeFOSAA		92.0	50.0	150.0
d5EtFOSAA		113.4	50.0	150.0
MHFPO-DA		100.6	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.07

Sample Tag: MW-DUP-061621

Collected Date/Time: 06/16/2021 00:01

Matrix: Groundwater

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 12:22, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		103.1	50.0	150.0
M2-6:2FTSA		109.1	50.0	150.0
M2-8:2FTSA		91.2	50.0	150.0
M2PFTeDA		159.3	12.0	218.0
M3PFBS		108.0	50.0	150.0
M3PFHxS		117.6	50.0	150.0
M4PFHpA		101.2	50.0	150.0
M5PFHxA		110.0	50.0	150.0
M5PFPeA		106.4	50.0	150.0
M6PFDA		110.1	50.0	150.0
M7PFUnDA		107.3	50.0	150.0
M8FOSA		111.0	50.0	150.0
M8PFOA		107.5	50.0	150.0
M8PFOS		102.5	50.0	150.0
M9-PFNA		111.4	50.0	150.0
MPFBA		109.2	50.0	150.0
MPFDoDA		107.4	50.0	150.0
d3N-MeFOSAA		96.6	50.0	150.0
d5EtFOSAA		113.6	50.0	150.0
MHFPO-DA		100.4	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.08

Sample Tag: VAULT-A

Collected Date/Time: 06/16/2021 10:30

Matrix: Wastewater

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 12:41, Matrix: WW, Dilution: 2.02

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		102.7	50.0	150.0
M2-6:2FTSA		96.6	50.0	150.0
M2-8:2FTSA		101.2	50.0	150.0
M2PFTeDA		120.5	12.0	218.0
M3PFBS		101.9	50.0	150.0
M3PFHxS		114.4	50.0	150.0
M4PFHpA		101.1	50.0	150.0
M5PFHxA		106.8	50.0	150.0
M5PFPeA		106.5	50.0	150.0
M6PFDA		110.1	50.0	150.0
M7PFUnDA		103.6	50.0	150.0
M8FOSA		105.5	50.0	150.0
M8PFOA		105.0	50.0	150.0
M8PFOS		97.7	50.0	150.0
M9-PFNA		96.6	50.0	150.0
MPFBA		106.5	50.0	150.0
MPFDoDA		104.4	50.0	150.0
d3N-MeFOSAA		105.7	50.0	150.0
d5EtFOSAA		108.9	50.0	150.0
MHFPO-DA		103.3	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.09

Sample Tag: VAULT-C

Collected Date/Time: 06/16/2021 11:12

Matrix: Wastewater

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 13:01, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		108.8	50.0	150.0
M2-6:2FTSA		109.4	50.0	150.0
M2-8:2FTSA		96.3	50.0	150.0
M2PFTeDA		90.1	12.0	218.0
M3PFBS		110.3	50.0	150.0
M3PFHxS		109.5	50.0	150.0
M4PFHpA		95.7	50.0	150.0
M5PFHxA		105.1	50.0	150.0
M5PFPeA		109.7	50.0	150.0
M6PFDA		102.9	50.0	150.0
M7PFUnDA		105.3	50.0	150.0
M8FOSA		107.2	50.0	150.0
M8PFOA		105.4	50.0	150.0
M8PFOS		99.0	50.0	150.0
M9-PFNA		102.6	50.0	150.0
MPFBA		110.0	50.0	150.0
MPFDoDA		107.7	50.0	150.0
d3N-MeFOSAA		106.9	50.0	150.0
d5EtFOSAA		115.3	50.0	150.0
MHFPO-DA		113.1	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.10

Sample Tag: VAULT-E

Collected Date/Time: 06/16/2021 12:10

Matrix: Wastewater

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628B, Run Date: 06/29/2021 13:20, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		95.5	50.0	150.0
M2-6:2FTSA		112.6	50.0	150.0
M2-8:2FTSA		102.2	50.0	150.0
M2PFTeDA		158.0	12.0	218.0
M3PFBS		101.8	50.0	150.0
M3PFHxS		116.3	50.0	150.0
M4PFHpA		97.6	50.0	150.0
M5PFHxA		109.2	50.0	150.0
M5PFPeA		104.5	50.0	150.0
M6PFDA		106.2	50.0	150.0
M7PFUnDA		119.3	50.0	150.0
M8FOSA		110.1	50.0	150.0
M8PFOA		107.9	50.0	150.0
M8PFOS		111.2	50.0	150.0
M9-PFNA		108.7	50.0	150.0
MPFBA		105.9	50.0	150.0
MPFDoDA		114.2	50.0	150.0
d3N-MeFOSAA		104.3	50.0	150.0
d5EtFOSAA		115.1	50.0	150.0
MHFPO-DA		98.6	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S25331.11

Sample Tag: VAULT-DUP-061621

Collected Date/Time: 06/16/2021 00:01

Matrix: Wastewater

COC Reference: 142916

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210628, Run Date: 06/28/2021 19:27, Matrix: WW, Dilution: 2.03

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		72.0	50.0	150.0
M2-6:2FTSA		61.7	50.0	150.0
M2-8:2FTSA		62.1	50.0	150.0
M2PFTeDA		83.1	12.0	218.0
M3PFBS		100.1	50.0	150.0
M3PFHxS		99.6	50.0	150.0
M4PFHpA		104.5	50.0	150.0
M5PFHxA		97.0	50.0	150.0
M5PFPeA		94.6	50.0	150.0
M6PFDA		81.4	50.0	150.0
M7PFUnDA		88.5	50.0	150.0
M8FOSA		99.9	50.0	150.0
M8PFOA		90.9	50.0	150.0
M8PFOS		97.6	50.0	150.0
M9-PFNA		100.4	50.0	150.0
MPFBA		98.7	50.0	150.0
MPFDoDA		92.4	50.0	150.0
d3N-MeFOSAA		88.8	50.0	150.0
d5EtFOSAA		100.6	50.0	150.0
MHFPO-DA		90.7	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF210625W1

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

Blank (BLK)

Lab Sample ID: AK210628B.BLK210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 05:12, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		110.5	50.0	150.0
M2-6:2FTSA		114.4	50.0	150.0
M2-8:2FTSA		116.5	50.0	150.0
M2PFTeDA		100.7	12.0	218.0
M3PFBS		114.4	50.0	150.0
M3PFHxS		111.2	50.0	150.0
M4PFHpA		94.0	50.0	150.0
M5PFHxA		109.8	50.0	150.0
M5PFPeA		107.5	50.0	150.0
M6PFDA		103.2	50.0	150.0
M7PFUnDA		113.7	50.0	150.0
M8FOSA		110.4	50.0	150.0
M8PFOA		108.7	50.0	150.0
M8PFOS		105.6	50.0	150.0
M9-PFNA		104.6	50.0	150.0
MPFBA		83.9	50.0	150.0
MPFDoDA		99.1	50.0	150.0
d3N-MeFOSAA		104.1	50.0	150.0
d5EtFOSAA		111.2	50.0	150.0
MHFPO-DA		98.8	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:33, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		103.0	50.0	150.0
M2-6:2FTSA		105.4	50.0	150.0
M2-8:2FTSA		107.9	50.0	150.0
M2PFTeDA		100.1	12.0	218.0
M3PFBS		105.6	50.0	150.0
M3PFHxS		103.3	50.0	150.0
M4PFHpA		95.0	50.0	150.0
M5PFHxA		102.8	50.0	150.0
M5PFPeA		106.1	50.0	150.0
M6PFDA		101.9	50.0	150.0
M7PFUnDA		100.3	50.0	150.0
M8FOSA		101.7	50.0	150.0
M8PFOA		94.6	50.0	150.0
M8PFOS		107.3	50.0	150.0
M9-PFNA		105.7	50.0	150.0
MPFBA		103.5	50.0	150.0
MPFDoDA		99.3	50.0	150.0
d3N-MeFOSAA		88.0	50.0	150.0
d5EtFOSAA		100.2	50.0	150.0
MHFPO-DA		95.5	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210628B.LCSD210625A, Parent Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:53, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		95.1	50.0	150.0
M2-6:2FTSA		103.2	50.0	150.0
M2-8:2FTSA		111.4	50.0	150.0
M2PFTeDA		88.2	12.0	218.0
M3PFBS		106.9	50.0	150.0
M3PFHxS		105.9	50.0	150.0
M4PFHpA		97.0	50.0	150.0
M5PFHxA		100.7	50.0	150.0
M5PFPeA		105.5	50.0	150.0
M6PFDA		100.6	50.0	150.0
M7PFUnDA		92.7	50.0	150.0
M8FOSA		103.8	50.0	150.0
M8PFOA		94.4	50.0	150.0
M8PFOS		101.2	50.0	150.0
M9-PFNA		107.4	50.0	150.0
MPFBA		105.2	50.0	150.0
MPFDoDA		94.6	50.0	150.0
d3N-MeFOSAA		91.9	50.0	150.0
d5EtFOSAA		109.6	50.0	150.0
MHFPO-DA		108.5	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK210628B.2522705M, Parent Sample ID: S25227.05

Run in Batch: AK210628B, Run Date: 06/29/2021 06:11, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.06

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		88.6	50.0	150.0
M2-6:2FTSA		91.2	50.0	150.0
M2-8:2FTSA		82.8	50.0	150.0
M2PFTeDA		118.6	12.0	218.0
M3PFBS		89.7	50.0	150.0
M3PFHxS		93.8	50.0	150.0
M4PFHpA		90.2	50.0	150.0
M5PFHxA		96.4	50.0	150.0
M5PFPeA		95.3	50.0	150.0
M6PFDA		96.3	50.0	150.0
M7PFUnDA		99.8	50.0	150.0
M8FOSA		95.3	50.0	150.0
M8PFOA		95.7	50.0	150.0
M8PFOS		91.5	50.0	150.0
M9-PFNA		88.0	50.0	150.0
MPFBA		96.7	50.0	150.0
MPFDoDA		95.0	50.0	150.0
d3N-MeFOSAA		91.1	50.0	150.0
d5EtFOSAA		98.3	50.0	150.0
MHFPO-DA		88.8	50.0	150.0

QC Report - Internal Standards per QC Sample

Duplicate (DUP)

Lab Sample ID: AK210628B.2522706D, Parent Sample ID: S25227.06

Run in Batch: AK210628B, Run Date: 06/29/2021 06:50, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		112.5	50.0	150.0
M2-6:2FTSA		104.1	50.0	150.0
M2-8:2FTSA		98.9	50.0	150.0
M2PFTeDA		135.4	12.0	218.0
M3PFBS		107.0	50.0	150.0
M3PFHxS		105.4	50.0	150.0
M4PFHpA		100.6	50.0	150.0
M5PFHxA		103.7	50.0	150.0
M5PFPeA		107.1	50.0	150.0
M6PFDA		103.4	50.0	150.0
M7PFUnDA		114.4	50.0	150.0
M8FOSA		107.0	50.0	150.0
M8PFOA		109.8	50.0	150.0
M8PFOS		112.7	50.0	150.0
M9-PFNA		99.3	50.0	150.0
MPFBA		107.3	50.0	150.0
MPFDoDA		114.6	50.0	150.0
d3N-MeFOSAA		93.2	50.0	150.0
d5EtFOSAA		110.8	50.0	150.0
MHFPO-DA		111.3	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF210625W2

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

Blank (BLK)

Lab Sample ID: AK210628.BLK210625A

Run in Batch: AK210628, Run Date: 06/29/2021 05:12, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		79.4	50.0	150.0
M2-6:2FTSA		75.2	50.0	150.0
M2-8:2FTSA		79.2	50.0	150.0
M2PFTeDA		74.5	12.0	218.0
M3PFBS		121.5	50.0	150.0
M3PFHxS		125.2	50.0	150.0
M4PFHpA		108.9	50.0	150.0
M5PFHxA		108.6	50.0	150.0
M5PFPeA		107.4	50.0	150.0
M6PFDA		103.4	50.0	150.0
M7PFUnDA		106.8	50.0	150.0
M8FOSA		110.9	50.0	150.0
M8PFOA		111.3	50.0	150.0
M8PFOS		111.3	50.0	150.0
M9-PFNA		118.2	50.0	150.0
MPFBA		112.1	50.0	150.0
MPFDoDA		96.6	50.0	150.0
d3N-MeFOSAA		117.0	50.0	150.0
d5EtFOSAA		116.1	50.0	150.0
MHFPO-DA		94.2	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK210628.LCS210625B

Run in Batch: AK210628, Run Date: 06/28/2021 18:48, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		75.2	50.0	150.0
M2-6:2FTSA		73.0	50.0	150.0
M2-8:2FTSA		69.6	50.0	150.0
M2PFTeDA		78.5	12.0	218.0
M3PFBS		98.8	50.0	150.0
M3PFHxS		110.6	50.0	150.0
M4PFHpA		97.0	50.0	150.0
M5PFHxA		89.7	50.0	150.0
M5PFPeA		98.6	50.0	150.0
M6PFDA		94.5	50.0	150.0
M7PFUnDA		79.4	50.0	150.0
M8FOSA		100.6	50.0	150.0
M8PFOA		87.1	50.0	150.0
M8PFOS		104.3	50.0	150.0
M9-PFNA		107.0	50.0	150.0
MPFBA		100.8	50.0	150.0
MPFDoDA		85.8	50.0	150.0
d3N-MeFOSAA		95.8	50.0	150.0
d5EtFOSAA		101.6	50.0	150.0
MHFPO-DA		89.5	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210628.LCSD210625B, Parent Sample ID: AK210628.LCS210625B

Run in Batch: AK210628, Run Date: 06/28/2021 19:07, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		75.2	50.0	150.0
M2-6:2FTSA		76.1	50.0	150.0
M2-8:2FTSA		67.2	50.0	150.0
M2PFTeDA		79.9	12.0	218.0
M3PFBS		106.0	50.0	150.0
M3PFHxS		113.2	50.0	150.0
M4PFHpA		102.0	50.0	150.0
M5PFHxA		92.2	50.0	150.0
M5PFPeA		97.4	50.0	150.0
M6PFDA		93.9	50.0	150.0
M7PFUnDA		85.8	50.0	150.0
M8FOSA		95.5	50.0	150.0
M8PFOA		90.3	50.0	150.0
M8PFOS		92.5	50.0	150.0
M9-PFNA		107.2	50.0	150.0
MPFBA		101.0	50.0	150.0
MPFDoDA		88.4	50.0	150.0
d3N-MeFOSAA		103.4	50.0	150.0
d5EtFOSAA		100.1	50.0	150.0
MHFPO-DA		93.9	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK210628.2538502M, Parent Sample ID: S25385.02

Run in Batch: AK210628, Run Date: 06/28/2021 21:24, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.08

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	153.8	50.0	150.0
M2-6:2FTSA		78.5	50.0	150.0
M2-8:2FTSA		61.5	50.0	150.0
M2PFTeDA		95.7	12.0	218.0
M3PFBS		99.5	50.0	150.0
M3PFHxS		109.0	50.0	150.0
M4PFHpA		106.9	50.0	150.0
M5PFHxA		100.1	50.0	150.0
M5PFPeA		92.6	50.0	150.0
M6PFDA		100.8	50.0	150.0
M7PFUnDA		98.8	50.0	150.0
M8FOSA		100.3	50.0	150.0
M8PFOA		99.2	50.0	150.0
M8PFOS		100.7	50.0	150.0
M9-PFNA		117.6	50.0	150.0
MPFBA		72.9	50.0	150.0
MPFDoDA		95.3	50.0	150.0
d3N-MeFOSAA		100.4	50.0	150.0
d5EtFOSAA		119.4	50.0	150.0
MHFPO-DA		79.8	50.0	150.0

QC Report - Internal Standards per QC Sample

Duplicate (DUP)

Lab Sample ID: AK210628.2538503D, Parent Sample ID: S25385.03

Run in Batch: AK210628, Run Date: 06/28/2021 22:03, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.07

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		58.6	50.0	150.0
M2-6:2FTSA		57.2	50.0	150.0
M2-8:2FTSA		64.7	50.0	150.0
M2PFTeDA		83.9	12.0	218.0
M3PFBS		102.2	50.0	150.0
M3PFHxS		109.3	50.0	150.0
M4PFHpA		99.6	50.0	150.0
M5PFHxA		91.2	50.0	150.0
M5PFPeA		92.1	50.0	150.0
M6PFDA		94.8	50.0	150.0
M7PFUnDA		96.0	50.0	150.0
M8FOSA		98.5	50.0	150.0
M8PFOA		95.7	50.0	150.0
M8PFOS		97.1	50.0	150.0
M9-PFNA		108.3	50.0	150.0
MPFBA		97.4	50.0	150.0
MPFDoDA		98.9	50.0	150.0
d3N-MeFOSAA		88.6	50.0	150.0
d5EtFOSAA		99.9	50.0	150.0
MHFPO-DA		89.8	50.0	150.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1

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

Blank (BLK)

Lab Sample ID: AK210628B.BLK210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 05:12, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFPeA		ND	4	ng/l
4:2 FTSA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
PFFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFNA		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFFHpS		ND	2	ng/l
PFDA		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS		ND	2	ng/l
PFOS-LN		ND	2	ng/l
PFOS-BR		ND	2	ng/l
PFOUnDA		ND	2	ng/l
PFNS		ND	2	ng/l
PFDODA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTTrDA		ND	2	ng/l
FOSA		ND	2	ng/l
PFTeDA		ND	4	ng/l
11CL-PF3OUdS		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
ADONA		ND	2	ng/l
HFPO-DA		ND	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:33, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		110.0	70.0	130.0
PFPeA		101.0	70.0	130.0
4:2 FTSA		111.0	70.0	130.0
PFHxA		111.0	70.0	130.0
PFBS		110.0	70.0	130.0
HFPO-DA		128.0	70.0	130.0
PFFHpA		120.0	70.0	130.0
PFPeS		100.0	70.0	130.0
ADONA		118.0	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:33, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		112.0	70.0	130.0
PFOA		111.0	70.0	130.0
PFHxS		115.0	70.0	130.0
PFNA		102.0	70.0	130.0
8:2 FTSA		94.6	70.0	130.0
PFHpS		97.2	70.0	130.0
N-MeFOSAA		118.0	70.0	130.0
PFDA		108.0	70.0	130.0
PFOS		87.3	70.0	130.0
EtFOSAA		113.0	70.0	130.0
PFUnDA		118.0	70.0	130.0
9CL-PF3ONS		104.0	70.0	130.0
PFNS		91.4	70.0	130.0
PFDODA		110.0	70.0	130.0
PFDS		90.1	70.0	130.0
PFTTrDA		99.4	70.0	130.0
11CL-PF3OUdS		111.0	70.0	130.0
FOSA		111.0	70.0	130.0
PFTeDA		96.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210628B.LCSD210625A, Parent Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:53, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		109.0	70.0	130.0	0.9	30.0
PFPeA		99.1	70.0	130.0	1.9	30.0
4:2 FTSA		124.0	70.0	130.0	11.1	30.0
PFHxA		105.0	70.0	130.0	5.6	30.0
PFBS		109.0	70.0	130.0	0.9	30.0
HFPO-DA		107.0	70.0	130.0	17.9	30.0
PFHpA		101.0	70.0	130.0	17.2	30.0
PFPeS		96.1	70.0	130.0	4.0	30.0
ADONA		115.0	70.0	130.0	2.6	30.0
6:2 FTSA		120.0	70.0	130.0	6.9	30.0
PFOA		119.0	70.0	130.0	7.0	30.0
PFHxS		111.0	70.0	130.0	3.5	30.0
PFNA		98.2	70.0	130.0	3.8	30.0
8:2 FTSA		102.0	70.0	130.0	7.5	30.0
PFHpS		99.4	70.0	130.0	2.2	30.0
N-MeFOSAA		112.0	70.0	130.0	5.2	30.0
PFDA		110.0	70.0	130.0	1.8	30.0
PFOS		99.2	70.0	130.0	12.8	30.0
EtFOSAA		111.0	70.0	130.0	1.8	30.0
PFUnDA	*	136.0	70.0	130.0	14.2	30.0
9CL-PF3ONS		108.0	70.0	130.0	3.8	30.0
PFNS		100.0	70.0	130.0	9.0	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK210628B.LCSD210625A, Parent Sample ID: AK210628B.LCS210625A

Run in Batch: AK210628B, Run Date: 06/29/2021 04:53, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDODA		110.0	70.0	130.0	0.0	30.0
PFDS		96.8	70.0	130.0	7.2	30.0
PFTTrDA		97.4	70.0	130.0	2.0	30.0
11CL-PF3OUdS		119.0	70.0	130.0	7.0	30.0
FOSA		109.0	70.0	130.0	1.8	30.0
PFTeDA		96.7	70.0	130.0	0.1	30.0

Matrix Spike (MS)

Lab Sample ID: AK210628B.2522705M, Parent Sample ID: S25227.05

Run in Batch: AK210628B, Run Date: 06/29/2021 06:11, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.06

Analyte	Flags	% Rec	LCL	UCL
PFBA		106.8	70.0	130.0
PFPeA		97.1	70.0	130.0
4:2 FTSA		106.8	70.0	130.0
PFHxA		92.2	70.0	130.0
PFBS		116.5	70.0	130.0
PFHpA		106.8	70.0	130.0
PFPeS		106.8	70.0	130.0
6:2 FTSA		94.2	70.0	130.0
PFOA		95.1	70.0	130.0
PFHxS		106.8	70.0	130.0
PFNA		106.8	70.0	130.0
8:2 FTSA		116.5	70.0	130.0
PFHpS		90.3	70.0	130.0
PFDA		106.8	70.0	130.0
N-MeFOSAA		106.8	70.0	130.0
EtFOSAA		116.5	70.0	130.0
PFOS		87.4	70.0	130.0
PFUnDA		97.1	70.0	130.0
PFNS		97.1	70.0	130.0
PFDODA		116.5	70.0	130.0
PFDS		106.8	70.0	130.0
PFTTrDA		106.8	70.0	130.0
FOSA		106.8	70.0	130.0
PFTeDA		92.2	70.0	130.0
11CL-PF3OUdS		116.5	70.0	130.0
9CL-PF3ONS		116.5	70.0	130.0
ADONA		97.1	70.0	130.0
HFPO-DA		106.8	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK210628B.2522706D, Parent Sample ID: S25227.06

Run in Batch: AK210628B, Run Date: 06/29/2021 06:50, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1.97

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		0.0	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK210628B.2522706D, Parent Sample ID: S25227.06

Run in Batch: AK210628B, Run Date: 06/29/2021 06:50, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1.97

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA	*	38.5	30.0
PFBS		18.2	30.0
PFHpA		NC	30.0
PFPeS		16.0	30.0
6:2 FTSA		6.7	30.0
PFOA		3.8	30.0
PFHxS		0.0	30.0
PFHxS-LN		0.0	30.0
PFHxS-BR		23.0	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		0.0	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		1.1	30.0
PFOS-LN		6.3	30.0
PFOS-BR		7.4	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTTrDA		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0
11CL-PF3OUdS		NC	30.0
9CL-PF3ONS		NC	30.0
ADONA		NC	30.0
HFPO-DA		NC	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W2

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

Blank (BLK)

Lab Sample ID: AK210628.BLK210625A

Run in Batch: AK210628, Run Date: 06/29/2021 05:12, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFPeA		ND	4	ng/l
4:2 FTSA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
PFFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFNA		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFFHpS		ND	2	ng/l
PFDA		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS		ND	2	ng/l
PFOS-LN		ND	2	ng/l
PFOS-BR		ND	2	ng/l
PFOUnDA		ND	2	ng/l
PFNS		ND	2	ng/l
PFDODA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTTrDA		ND	2	ng/l
FOSA		ND	2	ng/l
PFTeDA		ND	4	ng/l
11CL-PF3OUdS		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
ADONA		ND	2	ng/l
HFPO-DA		ND	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK210628.LCS210625B

Run in Batch: AK210628, Run Date: 06/28/2021 18:48, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		106.0	70.0	130.0
PFPeA		94.1	70.0	130.0
4:2 FTSA		112.0	70.0	130.0
PFHxA		104.0	70.0	130.0
PFBS		107.0	70.0	130.0
HFPO-DA		116.0	70.0	130.0
PFFHpA		113.0	70.0	130.0
PFPeS		99.6	70.0	130.0
ADONA		120.0	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W2 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK210628.LCS210625B

Run in Batch: AK210628, Run Date: 06/28/2021 18:48, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		106.0	70.0	130.0
PFOA		109.0	70.0	130.0
PFHxS		104.0	70.0	130.0
PFNA		91.7	70.0	130.0
8:2 FTSA		102.0	70.0	130.0
PFHpS		78.8	70.0	130.0
N-MeFOSAA		103.0	70.0	130.0
PFDA		107.0	70.0	130.0
PFOS		82.2	70.0	130.0
EtFOSAA		106.0	70.0	130.0
PFUnDA		122.0	70.0	130.0
9CL-PF3ONS		90.4	70.0	130.0
PFNS		85.5	70.0	130.0
PFDODA		105.0	70.0	130.0
PFDS		86.5	70.0	130.0
PFTTrDA		99.9	70.0	130.0
11CL-PF3OUdS		98.9	70.0	130.0
FOSA		105.0	70.0	130.0
PFTeDA		86.5	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210628.LCSD210625B, Parent Sample ID: AK210628.LCS210625B

Run in Batch: AK210628, Run Date: 06/28/2021 19:07, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		105.0	70.0	130.0	0.9	30.0
PFPeA		94.8	70.0	130.0	0.7	30.0
4:2 FTSA		115.0	70.0	130.0	2.6	30.0
PFHxA		102.0	70.0	130.0	1.9	30.0
PFBS		108.0	70.0	130.0	0.9	30.0
HFPO-DA		100.0	70.0	130.0	14.8	30.0
PFHpA		97.7	70.0	130.0	14.5	30.0
PFPeS		87.5	70.0	130.0	12.9	30.0
ADONA		105.0	70.0	130.0	13.3	30.0
6:2 FTSA		101.0	70.0	130.0	4.8	30.0
PFOA		97.8	70.0	130.0	10.8	30.0
PFHxS		99.1	70.0	130.0	4.8	30.0
PFNA		97.1	70.0	130.0	5.7	30.0
8:2 FTSA		120.0	70.0	130.0	16.2	30.0
PFHpS		92.8	70.0	130.0	16.3	30.0
N-MeFOSAA		93.8	70.0	130.0	9.3	30.0
PFDA		114.0	70.0	130.0	6.3	30.0
PFOS		100.0	70.0	130.0	19.5	30.0
EtFOSAA		111.0	70.0	130.0	4.6	30.0
PFUnDA		108.0	70.0	130.0	12.2	30.0
9CL-PF3ONS		109.0	70.0	130.0	18.7	30.0
PFNS		102.0	70.0	130.0	17.6	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W2 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK210628.LCSD210625B, Parent Sample ID: AK210628.LCS210625B

Run in Batch: AK210628, Run Date: 06/28/2021 19:07, Prep Date: 06/25/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDODA		111.0	70.0	130.0	5.6	30.0
PFDS		96.5	70.0	130.0	10.9	30.0
PFTTrDA		109.0	70.0	130.0	8.7	30.0
11CL-PF3OUdS		116.0	70.0	130.0	15.9	30.0
FOSA		99.9	70.0	130.0	5.0	30.0
PFTeDA		99.8	70.0	130.0	14.3	30.0

Matrix Spike (MS)

Lab Sample ID: AK210628.2538502M, Parent Sample ID: S25385.02

Run in Batch: AK210628, Run Date: 06/28/2021 21:24, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.08

Analyte	Flags	% Rec	LCL	UCL
PFBA		125.0	70.0	130.0
PFPeA		125.0	70.0	130.0
4:2 FTSA		115.4	70.0	130.0
PFHxA		121.2	70.0	130.0
PFBS	*	141.3	70.0	130.0
PFHpA		110.7	70.0	130.0
PFPeS	*	165.4	70.0	130.0
6:2 FTSA		96.2	70.0	130.0
PFOA		119.2	70.0	130.0
PFHxS	*	230.8	70.0	130.0
PFNA		78.8	70.0	130.0
8:2 FTSA		96.2	70.0	130.0
PFHpS		103.8	70.0	130.0
PFDA		96.2	70.0	130.0
N-MeFOSAA		105.8	70.0	130.0
EtFOSAA		86.1	70.0	130.0
PFOS	*	1538.5	70.0	130.0
PFUnDA		96.2	70.0	130.0
PFNS		85.6	70.0	130.0
PFDODA		105.8	70.0	130.0
PFDS		86.1	70.0	130.0
PFTTrDA		105.8	70.0	130.0
FOSA		96.2	70.0	130.0
PFTeDA		94.2	70.0	130.0
11CL-PF3OUdS		105.8	70.0	130.0
9CL-PF3ONS		92.3	70.0	130.0
ADONA		96.2	70.0	130.0
HFPO-DA		115.4	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK210628.2538503D, Parent Sample ID: S25385.03

Run in Batch: AK210628, Run Date: 06/28/2021 22:03, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.07

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF210625W2 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK210628.2538503D, Parent Sample ID: S25385.03

Run in Batch: AK210628, Run Date: 06/28/2021 22:03, Prep Date: 06/25/2021, Matrix: WW, Dilution: 2.07

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA		NC	30.0
PFBS		NC	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		NC	30.0
PFHxS		NC	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		NC	30.0
PFOS-LN		NC	30.0
PFOS-BR		NC	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDODA		NC	30.0
PFDS		NC	30.0
PFTTrDA		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0
11CL-PF3OUdS		NC	30.0
9CL-PF3ONS		NC	30.0
ADONA		NC	30.0
HFPO-DA		NC	30.0

