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Project name:
PFAS Biosolids – Wixom

Project ref:
60588767

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AECOM

Date:
June 2023

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Addendum No. 1 Revision 1

Subject: Addendum No. 1 Revision 1 - Evaluation of Wixom Wastewater Treatment Plant Biosolids Land Application Sites 02N05E01-BC01 & BC02, 02N05E02-BC01 & AG01, 03N06E04-JW01 & JW05

1. Introduction

This document serves as an addendum to the Technical Memorandum titled Evaluation of Wixom Wastewater Treatment Plant Biosolids Land Application Sites 02N05E01-BC01 & BC02, 02N05E02-BC01 & AG01, 03N06E04-JW01 & JW05, dated April 2021. The purpose of the investigation was to track the concentrations of per- and polyfluoroalkyl substances (PFAS), including possible fluctuations, at the land application sites. This document summarizes additional investigations at land application sites 02N05E01-BC01 (Site E01-BC01), 02N05E01-BC02 (Site E01-BC02), 02N05E02-BC01 (Site E02-BC01) and 02N05E02-AG01 (Site AG01) from 2020 through 2022. Groundwater monitoring wells installed at Site E01-BC01 and Site E01-BC02 were resampled on March 12, 2021. Additionally, 20 off-site residential wells surrounding the agricultural fields were sampled on October 8, 2021, and 34 off-site residential wells were sampled in April and May 2022. Lastly, a total of 1 surface water location was sampled at Site E02-BC01 on April 27, 2022. The figures and tables provide both recent and historic data.

2. Background

The 2021 and 2022 groundwater, residential well, and surface water sampling events conducted by AECOM were performed in accordance with applicable AECOM, EGLE, and United States Environmental Protection Agency (USEPA) guidance documents, including the Scope of Work and the Quality Assurance Project Plan (QAPP), previously developed in 2018 and recently revised in March 2021. The USEPA has classified PFAS as emerging contaminants that EGLE regulates under Part 201, Environmental Remediation, and Part 31, Water Resources Protection, of the Natural

Resources and Environmental Protection Act, Act 451 of 1994, as amended and their respective administrative rules, specifically Rule 299.44-299.50 (Generic Cleanup Criteria) and Rule 323.1057 (Rule 57) (Toxic Substances) of the Michigan Administrative Code. PFAS are a complex family of more than 4,750 human-made fluorinated organic chemicals. Due to their unique chemical properties, PFAS have been used in many industries and consumer products since the late 1950s.

In May 2018, the Wixom Wastewater Treatment Plant (WWTP) identified an industrial user, a chrome plating facility, as a significant source of perfluorooctanesulfonic acid (PFOS) to their facility and elevated levels of PFOS in their WWTP effluent. AECOM initially sampled the Wixom WWTP on November 14, 2018. Further, the Wixom WWTP has frequently sampled their effluent for PFAS since June 2018. PFAS samples were also collected from multiple environmental media from six (6) agricultural fields where biosolids from the Wixom WWTP were land applied (**Figure 1**). A summary of the results for the Wixom WWTP and the six (6) agricultural fields evaluated are presented in two reports (AECOM, 2021a and AECOM, 2021b).

Site E01-BC01 is a 35-acre field located southeast of South Kellogg and Golf Club Road in Howell, Michigan, approximately 18 miles west of the Wixom WWTP (**Figure 1**). Immediately to the east is Site E01-BC02, a 20-acre field, while immediately to the west of Site E01-BC01, on the other side of South Kellogg Road, is Site E02-BC01, a 30-acre field. Site AG01 is a 120-acre field located approximately one (1) mile southwest of Site E01-BC01. Surface soil, perched water, surface water, and groundwater were previously sampled for PFAS in 2019 at Site E01-BC01, E01-BC02, E02-BC01, and AG01. Additional groundwater, surface water, and residential well samples were collected in 2021 and 2022 to further characterize the potential PFAS impacts from the historic land applications of industrially-impacted biosolids on the agricultural fields.

3. Surface Water Sampling Results

On April 27, 2022, one (1) surface water sample was collected north of the central region of Site E02-BC01 and south of Golf Club Road from a roadside drainage ditch (**Figure 2**). The drainage ditch was dry, except for one location where the groundwater was flowing into the ditch, which is where the sample was collected. As a result, the surface water sample is considered an agricultural field drainage ditch sample and may have been impacted by the historic applications of industrially-impacted biosolids on Site E02-BC01. The laboratory analytical results for the surface water sample collected in 2022 are summarized below and presented in **Table 1**. Laboratory analytical reports are provided in **Appendix A**.

The total PFAS, perfluorooctanoic acid (PFOA), and PFOS data from the surface water sample are summarized in the table below.

Surface Water Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
SPRING-01	4/27/2022	E02-BC01	**59.44**	**3.01**	**22.7**

[1]Units are in nanograms per liter (ng/L) or parts per trillion. ND = There were no PFAS detected; please refer to Table 1 for the detection limits for each individual PFAS. Detections are shown in bold.

The surface water sample collected exceeded the Rule 57 Water Quality Value (WQV) for PFOS of 12 nanograms per liter (ng/L); however, it was below the WQV for PFOA of 170 ng/L and PFBS of 670,000 ng/L. The PFOS, PFOA, and PFBS concentrations detected were 22.7 ng/L, 3.01 ng/L, and 13.8 ng/L, respectively. The total PFAS concentration was 59.44 ng/L. Detections of additional PFAS analytes were below 8 ng/L each and were short-chain PFAS.

4. Groundwater Sampling Results

The following groundwater monitoring wells were resampled in March 2021: BC01-MW1D, BC01-MW1S, BC01-MW2D, BC01-MW2S, BC02-MW1D, and BC02-MW1S. The monitoring well locations and PFAS results are shown in **Figure 3**. A field duplicate sample was collected from BC01-MW1D for quality control purposes.

Before collecting the groundwater samples, static water levels were measured using a decontaminated electronic water tape from the top of each well casing. Each monitoring well was purged, and groundwater samples were collected for PFAS analysis in laboratory-supplied containers. Water quality parameters (temperature, specific conductance, pH, dissolved solids, oxidation-reduction potential, and turbidity) were recorded following AECOM groundwater Standard Operating Procedures using a YSI Pro DDS water quality meter. Water quality measurements recorded during purging are summarized in **Appendix B**.

The local groundwater elevations from the fields sampled are presented in **Figures 3a-1** and **3a-2**. Groundwater flow is to the northeast in both the shallow and deep monitoring wells. The average hydraulic gradient is relatively flat in both sets of monitoring wells at 0.00039. This gradient is similar to what was observed in September 2019, with the shallow and deep monitoring wells having a gradient of 0.0005 and 0.0009, respectively. However, during the September 2019 groundwater sampling event, the groundwater flow direction was north in the deep wells (AECOM, 2021b). The regional groundwater elevation map based on EGLE-provided groundwater elevation data is provided in the previous report (AECOM, 2021b) and shows a groundwater mound to the south of the fields with groundwater flow to the northeast and north, which agrees with the measured groundwater flow.

The laboratory analytical results for groundwater samples collected from monitoring wells BC01-MW1D, BC01-MW1S, BC01-MW2D, BC01-MW2S, BC02-MW1D, and BC02-MW1S are summarized below and are presented in **Table 2** and **Figure 3**. Laboratory analytical reports are provided in **Appendix C**.

The total PFAS, PFOA, and PFOS data from the six (6) monitoring wells are summarized in the table below.

Groundwater Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
GW2103120945GSC	3/12/2021	BC01-MW1S	ND	< 4.01	< 4.01
GW2103120855GSC	3/12/2021	BC01-MW1D	ND	< 4.00	< 4.00
GW2103120855GSC-FD	3/12/2021	BC01-MW1D	ND	< 4.00	< 4.00
GW2103121145GSC	3/12/2021	BC01-MW2S	**357**	**16.4**	**2.45**
GW2103121235GSC	3/12/2021	BC01-MW2D	**6.69**	< 4.04	< 4.04
GW2103121435GSC	3/12/2021	BC02-MW1S	**40.6**	< 3.88	< 3.88
GW2103121400GSC	3/12/2021	BC02-MW1D	ND	< 3.97	< 3.97

[1]Units are in nanograms per liter (ng/L) or parts per trillion. ND = There was no PFAS detected; please refer to Table 1 for the detection limits for each individual PFAS. Detections are shown in bold.

The sample collected from BC01-MW2S exceeded the Part 201 Residential and Nonresidential Drinking-Water Criteria (DWC) for PFOA of 8 ng/L but did not exceed DWC for PFOS, perfluorononanoic acid (PFNA), perfluorohexane sulfonic acid (PFHxS), perfluorohexanoic acid (PFHxA), perfluorobutane sulfonic acid (PFBS), and hexafluoropropylene oxide-dimer acid (HFPO-DA) of 16, 6, 51, 400,000, 420, and 370 ng/L, respectively. Samples collected from the other five (5) monitoring wells did not exceed DWC for PFOA, PFOS, PFNA, PFHxS, PFHxA, PFBS, and HFPO-DA (**Table 2**). Further, the other five (5) monitoring wells reported non-detectable values for PFOA and

PFOS. PFOA and PFOS were not detected in any of the six wells during the September 2019 groundwater sampling event.

Three (3) of the monitoring wells had some PFAS compounds detected. Of the 29 PFAS compounds analyzed, perfluorobutanoic acid (PFBA), perfluoropentanoic acid (PFPeA), PFHxA, perfluoroheptanoic acid (PFHpA,) PFOA, perfluoropentane sulfonic acid (PFPeS), perfluoroheptane sulfonic acid (PFHpS), and PFOS were detected in the samples. The highest total PFAS concentration of 356.59 ng/L was detected in shallow monitoring well BC01-MW2S along the southern edge of Site E01-BC01. BC01-MW2S is screened from 20 to 25 feet (ft) below ground surface (bgs), likely in a perched groundwater zone. There was a detection of PFPeS at the deeper well in this cluster, BC01-MW2D, screened from 45 to 50 ft bgs. There was also a detection of PFBS at Site E01-BC02 in monitoring well BC02-MW1S. This shallow monitoring well is screened from 18 to 23 ft bgs, a similar depth to BC01-MW2S. The wells with the highest total PFAS concentrations in the March 2021 groundwater sampling event (BC01-MW2S and BC02-MW1S) were the same wells from the September 2019 groundwater sampling event, except that the total PFAS concentrations were lower in 2019 at 188 ng/L and 8.75 ng/L, respectively.

5. Residential & Livestock Well Sampling Results

Four (4) residential well samples and one (1) livestock well sample were collected adjacent to Sites E01-BC01, E01-BC02, and AG01 in November of 2019 (i.e., Sample Locations 1 through 5 represented in **Figure 4**). All five (5) wells were non-detect for PFAS, including the livestock well, screened between 67 to 122 ft bgs. An additional 20 off-site residential wells were sampled on October 8, 2021, near the agricultural fields where biosolids were land applied (i.e., Sample Locations 6 through 25 represented in **Figure 4**). This sampling was conducted out of an abundance of caution due to the detection of PFOA above the DWC in shallow well BC01-MW2S in March 2021. Note, residential wells in the area are typically screened between 48 to 265 ft bgs. PFAS was not detected in 18 of the 20 off-site residential wells. Of the two (2) residential wells where PFAS was detected, 2 ng/L of PFHxA was detected in Residential Well 8, screened from 65 to 69 ft bgs, and 25 ng/L of PFBS was detected in Residential Well 21, screened from 54 to 60 ft bgs.

In April and May 2022, an additional 34 off-site residential wells were sampled (i.e., Sample Locations 26 through 58 represented in **Figure 4**). One residential well (i.e., Sample Location 5) was resampled in 2022. PFAS was detected in 1 of the 34 off-site residential wells. Of the 1 residential well where PFAS was detected, 4 ng/L of PFHxA and 2 ng/L of PFBS were detected at a depth of 71 feet.

The laboratory analytical results for the residential and livestock well samples collected at the site are presented in **Table 3** and **Figures 4** and **5**. Laboratory analytical reports are provided in **Appendix D**.

The total PFAS, PFOA, and PFOS data from the residential wells with detectable concentrations of PFAS are summarized in the table below.

Sample Location	Sample Date	Sample Type	Total PFAS[1]	PFOA[1]	PFOS[1]
Location 8	10/8/2021	Residential	2	< 2.00	< 2.00
Location 21	10/8/2021	Residential	25	< 2.00	< 2.00
Location 32	4/27/2022	Residential	6	< 3.97	< 3.97

[1]Units are in nanograms per liter (ng/L) or parts per trillion. ND = There was no PFAS detected; please refer to Table 1 for the detection limits for each individual PFAS. Detections are shown in bold.

6. Conclusions

Groundwater flow continues to be generally to the northeast, with the maximum total PFAS concentration detected in upgradient well BC01-MW2S and the second-highest total PFAS concentration detected in downgradient well BC02-MW1S. The regional groundwater flow shows a mound to the south of the fields with a radial flow. The measured groundwater flow at Site E01-BC01 and E01-BC02 observed during the September 2019 and March 2021 sampling events was to the northeast and north, which agrees with the regional groundwater flow. Due to the limited number of monitoring wells and variation in sampling times, the groundwater flow may show a flow direction to the north or northeast in both the deep and shallow wells. PFOA concentrations have increased in monitoring well BC01-MW2S from non-detect values in September 2019 to 16.4 ng/L in March 2021, which exceeds the Part 201 DWC of 8 ng/L.

There are residential wells located near Sites E01-BC01, E01-BC02, E02-BC01, and AG01, as shown in **Figure 4**. To evaluate potential impacts to the residential wells, four (4) residential wells and one (1) livestock well near Site E01-BC01, E01-BC02, and AG01 were sampled in September 2019 (**Figure 4**). All four (4) residential wells and the livestock well were non-detect for PFAS. Based on the regional groundwater flow, location of residential wells in the area, and minimal PFAS concentrations identified in the deep monitoring wells, there did not appear to be a significant potential risk to the downgradient drinking water wells in 2019. However, due to the new exceedance of Part 201 DWC for PFOA in shallow groundwater monitoring well BC01-MW2S in March 2021, EGLE, MDHHS, and the Livingston County Health Department decided to expand residential well sampling out of an abundance of caution. A total of 20 additional off-site residential wells were sampled in October 2021, and 34 additional off-site residential wells were sampled in April and May 2022. There were no detections above DWC in any of the 54 residential wells sampled in 2021 or 2022 and the majority of the wells were non-detect for PFAS. Only three (3) out of the 54 off-site residential wells had detections of PFAS, with total PFAS concentrations between 2 to 25 ng/L. All residential wells with PFAS detections were relatively shallow, between 60 and 71 ft bgs. Only short-chain PFAS such as PFHxA and PFBS were detected in these residential wells. While additional residential wells are present within the area, based on the results collected to date from the groundwater monitoring wells and residential wells, and the regional groundwater flow direction, there does not appear to be a significant potential risk to the downgradient drinking water wells. Residential well sampling will be expanded if determined to be necessary.

Lastly, the surface water sample collected from the drainage ditch north of Site E02-BC01 in April 2022 exceeded the Rule 57 Water Quality Value (WQV) for PFOS of 12 ng/L. PFAS concentrations detected in the surface water sample are likely related to surface runoff and the potential discharge of shallow groundwater from Site E02-BC01 into the drainage ditch.

7. References

AECOM, Evaluation of PFAS in Influent, Effluent, and Residuals of Wastewater Treatment Plants (WWTPs) in Michigan, April 2021a. Retrieved from: https://www.michigan.gov/-/media/Project/Websites/egle/Documents/Programs/WRD/IPP/pfas-initiatives-statewide-full-report.pdf

AECOM, *Evaluation of Wixom Wastewater Treatment Plant Biosolids Land Application Sites 02N05E01-BC01 & BC02, 02N05E02-BC01 & AG01, 03N06E04-JW01 & JW05*, April 2021b. Retrieved from: https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Programs/WRD/Biosolids/PFAS-Biosolids-Field-Report-F-Wixom-WWTP.pdf

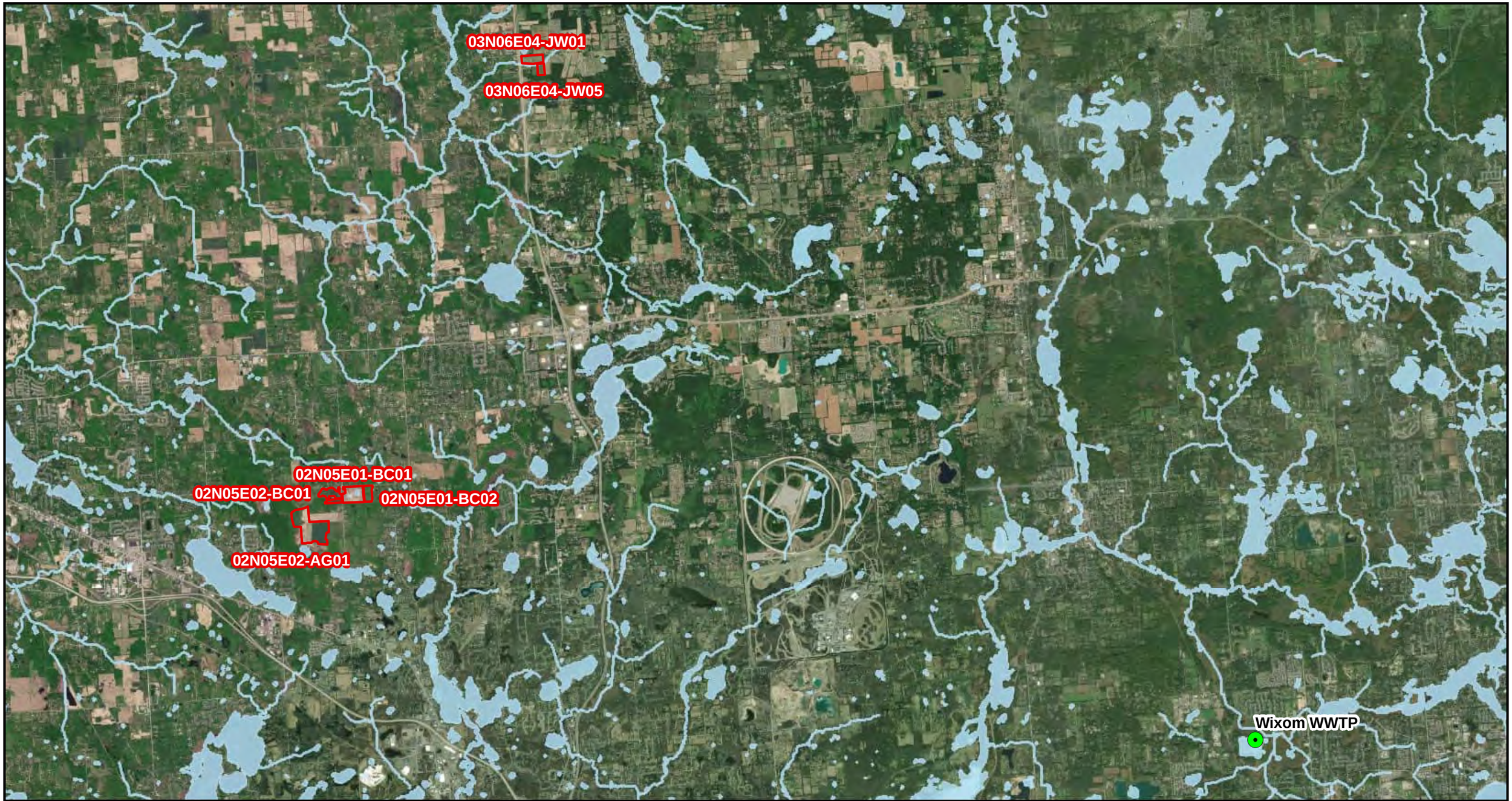
Michigan Department of Environment, Great Lakes, and Energy, *General PFAS Sampling Guidance* [Technical Guidance], 2018. Retrieved from: https://www.michigan.gov/pfasresponse/-/media/Project/Websites/PFAS-Response/Sampling-Guidance/General.pdf

Michigan Department of Environment, Great Lakes, and Energy, *Groundwater PFAS Sampling Guidance* [Technical Guidance], 2018. Retrieved from: https://www.michigan.gov/pfasresponse/-/media/Project/Websites/PFAS-Response/Sampling-Guidance/Groundwater.pdf

Attachments:

Figure 1	– Wixom Biosolids Application Fields Overview
Figure 2	– 02N05E02-BC01, 02N05E01-BC01 & BC02 Surface Water Sampling Results
Figure 3	– 02N05E02-BC01, 02N05E01-BC01 & BC02 Groundwater Sampling Results
Figure 3a-1	– 02N05E01-BC01 & BC02 Shallow Groundwater Contours
Figure 3a-2	– 02N05E01-BC01 & BC02 Deep Groundwater Contours
Figure 4	– 02N05E02-AG01 & BC01, 02N05E01-BC01 & BC02 Residential Wells Sampling Results
Figure 5	– 02N05E02-AG01 & BC01, 02N05E01-BC01 & BC02 Potential Receptors
Table 1	– 02N05E02-AG01 & BC01, 02N05E01-BC01 & BC02 Surface Water - PFAS Analytical Results Summary
Table 2	– 02N05E02-AG01 & BC01, 02N05E01-BC01 & BC02 Groundwater - PFAS Analytical Results Summary
Table 3	– 02N05E02-AG01 & BC01, 02N05E01-BC01 & BC02 Residential Wells - PFAS Analytical Results Summary
Appendix A	– 2022 Surface Water Analytical Report
Appendix B	– 2021 Low Flow Groundwater Field Forms
Appendix C	– 2021 Groundwater Analytical Report
Appendix D	– 2021 and 2022 Residential Analytical Reports

Figures



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Drawn: DP	Date: 2/07/2023
Approved: DB	Date: 2/08/2023
Project #: 60588767	

Legend

- Waste Water Treatment Plant
- Biosolids Application Field

N

0 3.5 7 Miles

FIGURE 1
WIXOM BIOSOLIDS APPLICATION FIELDS OVERVIEW

LIVINGSTON COUNTY

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02N05E02-BC01

02N05E01-BC01

02N05E01-BC02

E02_BC01-SW2 4/27/2022
59.44 (3.01 | 22.7 | | 13.8)

E01_BC01-PEW3 4/11/2019
952.11 (45 | 246 | 173)

E01_BC01-PEW2 4/11/2019
817.75 (38.6 | 401 | 109)

E01_BC01-PEW1 4/11/2019
968 (37.7 | 533 | 108)

E01_BC01-SW1 4/11/2019
386.48 (11.7 | 49.7 | 73.7)

E01_BC01-SW2 4/11/2019
85.99 (5.84 | 38.4 | 8.37)

E02_BC01-SW1 11/6/2019
226.2 (13.9 | 60.4 | 99.1)

E02_BC01-PEW1 11/6/2019
296.67 (13.9 | 191 | 50.1)

BC02-PEW2 4/11/2019
86.02 (3.97 | 57.2 | 6.24)

BC02-PEW1 4/11/2019
36.81 (3.11 | 16.4 | | 4.56)

OkB MoB MoD MoC MoA Cc By HmB MoE

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Project #: 60588767

Legend

Surface Water Sample PFAS Results

- Below Detection Limit (DL) for all analyzed PFAS
- >DL and ≤ Rule 57 WQV
- > Rule 57 WQV

Sample Location Sample Date
Total PFAS (PFOA | PFOS | PFBS)
*results reported in units of ng/L

red text indicates exceedance of Michigan Rule 57 Water Quality Value (WQV) (Human noncancer non-drink values)

Biosolids Application

Soil Type

Notes:
Michigan Rule 57 Water Quality Values (WQV)
PFOS = 12 ng/L
PFOA = 170 ng/L
PFBS = 670,000 ng/L

Total PFAS is sum of 24 PFAS compounds for samples collected in 2019 and 29 PFAS compounds for samples collected in 2022.

N

0 250 500 1,000 Feet

FIGURE 2
02N05E02-BC01, 02N05E01-BC01 & BC02 SURFACE WATER SAMPLING RESULTS

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BC01-MW1S (Screen 19-24 ft bgs) 9/3/2019
ND (ND | ND | ND | ND | ND | ND | NA)
3/12/2021
ND (ND | ND | ND | ND | ND | ND | ND)

BC01-MW1D (Screen 45-50 ft bgs) 9/3/2019
ND (ND | ND | ND | ND | ND | ND | NA)
3/12/2021
ND (ND | ND | ND | ND | ND | ND | ND)

BC02-MW1S (Screen 18-23 ft bgs) 9/3/2019
8.8 (ND | ND | ND | 8.8 | ND | ND | NA)
3/12/2021
40.6 (ND | ND | ND | 40.6 | ND | ND | ND)

BC02-MW1D (Screen 45-50 ft bgs) 9/3/2019
ND (ND | ND | ND | ND | ND | ND | NA)
3/12/2021
ND (ND | ND | ND | ND | ND | ND | ND)

02N05E02-BC01

02N05E01-BC01

02N05E01-BC02

BC01-MW2S (Screen 20-25 ft bgs) 9/4/2019
187.6 (10.9 | ND | ND | 156 | 2.9 | ND | NA)
3/12/2021
356.6 (30.8 | 16.4 | ND | 236 | 2 | 2.5 | ND)

BC01-MW2D (Screen 45-50 ft bgs) 9/4/2019
ND (ND | ND | ND | ND | ND | ND | NA)
3/12/2021
6.7 (ND | ND | ND | 6.7 | ND | ND | ND)

OkB, MoB, MoD, MoC, MoA, Cc, By, MoE, HmB

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Monitoring Well Sample

Biosolids Application

Soil Type

Sample Location (Well Screen)	Sample Date
Total PFAS (PFHxA | PFOA | PFNA | PFBS | PFHxS | PFOS | HFPO-DA)	

All sample results are in ng/L
ND = non-detect, refer to summary groundwater table for detailed results
NA = Not Analyzed
red text indicates exceedance of Part 201 DWC

Michigan Part 201 Residential & Nonresidential Drinking Water Criteria (DWC), ng/L

PFHxA = 400,000	PFHxS = 51
PFOA = 8	PFOS = 16
PFNA = 6	HFPO-DA = 370
PFBS = 420	

Total PFAS is sum of 24 PFAS compounds for samples collected in 2019 and 29 PFAS compounds for samples collected in 2022.

N

0 200 400 800 Feet

FIGURE 3
02N05E02-BC01, 02N05E01-BC01 & BC02 GROUNDWATER SAMPLING RESULTS

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02N05E02-BC01

02N05E01-BC01

02N05E01-BC02

BC01-MW1D

BC01-MW1S - 971.77'

BC02-MW1S - 971.11'

BC02-MW1D

971.6

971.4

971.2

BC01-MW2S - 971.77'

BC01-MW2D

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Legend

- Monitoring well (GW Elevation - ft amsl)
- Shallow GW Contours (0.2 ft interval)
- Biosolids Application Field
- Approximate GW Flow Direction

N

0 225 450 900 Feet

FIGURE 3a-1
02N05E01-BC01 & BC02
SHALLOW GROUNDWATER CONTOURS
MARCH 12, 2021

LIVINGSTON COUNTY

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02N05E02-BC01

02N05E01-BC01

02N05E01-BC02

BC01-MW1D - 971.7'

BC01-MW1S

BC02-MW1S

BC02-MW1D - 971.04'

971.6

971.4

971.2

BC01-MW2S

BC01-MW2D - 971.75'

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Approved: DB	Date: 2/08/2023
Project #: 60588767	

Legend

- Monitoring well (GW Elevation - ft amsl)
- Deep GW Contours (0.2 ft interval)
- Biosolids Application Field
- Approximate GW Flow Direction

N

0 225 450 900 Feet

FIGURE 3a-2
02N05E01-BC01 & BC02
DEEP GROUNDWATER CONTOURS
MARCH 12, 2021

LIVINGSTON COUNTY

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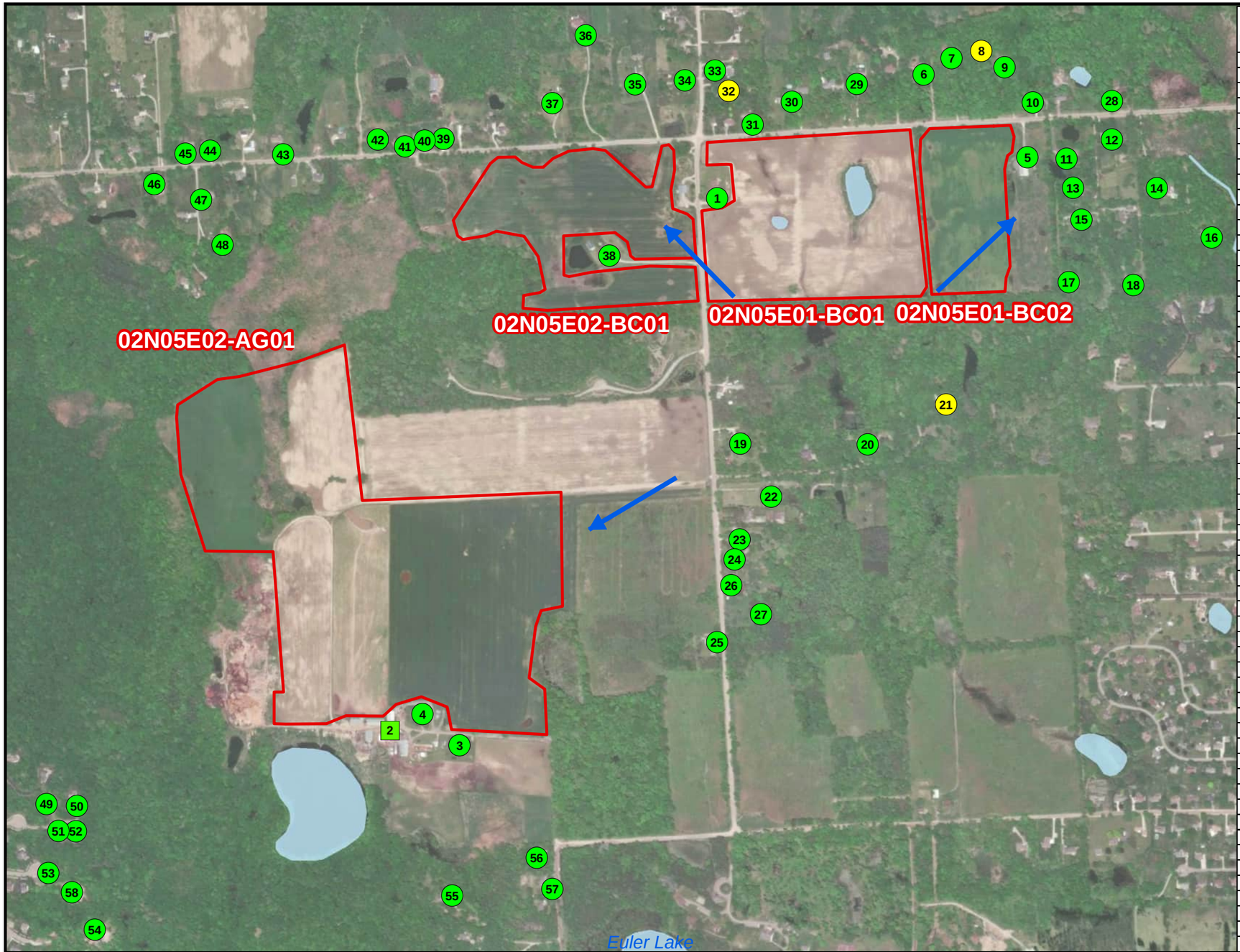

SAMPLE LOCATION	WELL DEPTH (ft)	SAMPLE DATE	TOTAL PFAS	PFHxA	PFOA	PFNA	PFBS	PFHxS	PFOS	HFPO-DA
1	86	11/6/2019	<4	<2	<2	<2	<2	<2	<2	-
2	N/A	11/6/2019	<4	<2	<2	<2	<2	<2	<2	-
3	122	11/6/2019	<4	<2	<2	<2	<2	<2	<2	-
4	112	11/7/2019	<4	<2	<2	<2	<2	<2	<2	-
5	67	11/7/2019	<4	<2	<2	<2	<2	<2	<2	-
6	N/A	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
7	265	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
8	69	10/8/2021	**2**	**2**	<2	<2	<2	<2	<2	<2
9	60	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
10	120	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
11	54	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
12	87	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
13	64	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
14	N/A	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
15	N/A	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
16	N/A	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
17	48	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
18	58	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
19	161	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
20	120	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
21	60	10/8/2021	**25**	<2	<2	<2	**25**	<2	<2	<2
22	142	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
23	130	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
24	137	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
25	144	10/8/2021	<2	<2	<2	<2	<2	<2	<2	<2
26	82	4/8/2022	<2	<2	<2	<2	<2	<2	<2	<2
27	N/A	4/8/2022	<2	<2	<2	<2	<2	<2	<2	<2
28	46	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
5	67	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
29	N/A	4/8/2022	<2	<2	<2	<2	<2	<2	<2	<2
30	46	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
31	147	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
32	71	4/27/2022	**6**	**4**	<2	<2	**2**	<2	<2	<2
33	96	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
34	104	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
35	63	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
36	75	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
37	158	4/8/2022	<2	<2	<2	<2	<2	<2	<2	<2
38	178	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
39	67	4/8/2022	<2	<2	<2	<2	<2	<2	<2	<2
40	65	4/8/2022	<2	<2	<2	<2	<2	<2	<2	<2
41	67	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
42	88	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
43	40	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
44	39	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
45	40	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
46	N/A	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
47	81	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
48	130	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
49	117	4/8/2022	<2	<2	<2	<2	<2	<2	<2	<2
50	118	4/8/2022	<2	<2	<2	<2	<2	<2	<2	<2
51	85	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
52	88	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
53	98	4/8/2022	<2	<2	<2	<2	<2	<2	<2	<2
54	150	4/8/2022	<2	<2	<2	<2	<2	<2	<2	<2
55	122	4/27/2022	<2	<2	<2	<2	<2	<2	<2	<2
56	108	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
57	180	4/7/2022	<2	<2	<2	<2	<2	<2	<2	<2
58	N/A	5/11/2022	<2	<2	<2	<2	<2	<2	<2	<2

AECOM

Drawn: AA Date: 3/23/2023

Approved: DB Date: 3/23/2023

Project #: 60588767

Legend

- Residential Well Sample
- Livestock Well Sample

PFAS Results

- Below Detection Limit (DL) for all analyzed PFAS
- >DL and ≤Part 201 DWC
- >Part 201 DWC
- Biosolids Application Field
- Approximate GW Flow Direction

Michigan Part 201 Residential & Nonresidential Drinking Water Criteria (DWC), ng/L

PFHxA = 400,000 PFHxS = 51
PFOA = 8 PFOS = 16
PFNA = 6 HFPO-DA = 370
PFBS = 420

red text indicates exceedance of Part 201 DWC
"-" = not analyzed for HFPO-DA, sample collected in 2019
All sample results are in ng/L
14 PFAS were analyzed for samples collected in 2019.
18 PFAS were analyzed for samples collected in 2021 and 2022.

N

0 412.5 825 1,650 Feet

FIGURE 4
02N05E02-AG01 & BC01
02N05E01-BC01 & BC02
RESIDENTIAL WELLS SAMPLING RESULTS

LIVINGSTON COUNTY

Document Path: Z:\GrandRapids-USGRR01\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Wixom\2023\F4_Wixom_Res_Part201_Results_Table.mxd

02N05E02-AG01
02N05E02-BC02
02N05E02-BC01
02N05E01-BC01
02N05E01-BC02

AECOM

Drawn: AA	Date: 2/07/2023
Approved: DB	Date: 2/08/2023
Project #: 60588767	

Legend

- Residential Well Sample
- Livestock Well Sample

PFAS Results

- Below Detection Limit (DL) for all analyzed PFAS
- >DL and ≤Part 201 Drinking Water Criteria (DWC)
- >Part 201 DWC
- Biosolids Application
- Approximate GW Flow Direction

Michigan Part 201 Residential & Nonresidential
Drinking Water Criteria (DWC), ng/L

PFHxA = 400,000		PFHxS	= 51
PFOA = 8		PFOS	= 16
PFNA = 6		HFPO-DA	= 370
PFBS = 420			

14 PFAS were analyzed for samples collected in 2019.
18 PFAS were analyzed for samples collected in 2021 and 2022.

N

0 450 900 1,800 Feet

FIGURE 5
02N05E02-AG01 & BC01
02N05E01-BC01 & BC02
POTENTIAL RECEPTORS

LIVINGSTON COUNTY

Document Path: Z:\GrandRapids-USGRR01\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Wixom\2022\Wixom_Res_Results_MPART.mxd

Tables

Table 1

02N05E02-AG01& BC01
02N05E01-BC01& BC02
Surface Water - PFAS Analytical Results Summary

Nr.	Surface Water Sample	Sample Date	Site Code	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	N-EtFOSAA	NMeFOSAA	PFECHS	9Cl-PF3ONS	11Cl-PF3OUdS	ADONA	HFPO-DA
1	PEW011904111510RL	4/11/2019	E01-BC01-PEW1	**968**	53.1	91.2	90.5	40.1	37.7	6.31	< 4.57 U	< 4.57 U	< 4.57 U	< 4.57 U	< 4.57 U	108	< 4.57 U	5.81	2.28 J	533	< 4.57 U	< 4.57 U	< 4.57 U	< 4.57 U	< 4.57 U	< 4.57 U	< 4.57 U	< 4.57 U	---	---	---	---	---
2	PEW021904111515RL	4/11/2019	E01-BC01-PEW2	**818**	49.9	89.8	82.2	36.2	38.6	4.73	< 4.51 U	< 4.51 U	< 4.51 U	< 4.51 U	< 4.51 U	109	< 4.51 U	4.62	1.7 J	401	< 4.51 U	< 4.51 U	< 4.51 U	< 4.51 U	< 4.51 U	< 4.51 U	< 4.51 U	< 4.51 U	---	---	---	---	---
3	PEW031904111525RL	4/11/2019	E01-BC01-PEW3	**952**	95.6	171	153	57.6	45	3.64 J	< 4.69 U	< 4.69 U	< 4.69 U	< 4.69 U	< 4.69 U	173	< 4.69 U	7.27	< 4.69 U	246	< 4.69 U	< 4.69 U	< 4.69 U	< 4.69 U	< 4.69 U	< 4.69 U	< 4.69 U	< 4.69 U	---	---	---	---	---
4	SW011904111355RL	4/11/2019	E01-BC01-SW1	**386**	55.8	84.1	78.3	29.6	11.7	< 4.78 U	< 4.78 U	< 4.78 U	< 4.78 U	< 4.78 U	< 4.78 U	73.7	< 4.78 U	3.58 J, Q	< 4.78 U	49.7	< 4.78 U	< 4.78 U	< 4.78 U	< 4.78 U	< 4.78 U	< 4.78 U	< 4.78 U	< 4.78 U	---	---	---	---	---
5	SW011904111400RL-DUP	4/11/2019	E01-BC01-SW1	**392**	57	86.9	78	29.3	12	< 4.70 U	< 4.70 U	< 4.70 U	< 4.70 U	< 4.70 U	< 4.70 U	75.4	< 4.70 U	3.04 J	< 4.70 U	50.7	< 4.70 U	< 4.70 U	< 4.70 U	< 4.70 U	< 4.70 U	< 4.70 U	< 4.70 U	< 4.70 U	---	---	---	---	---
6	SW021904111345RL	4/11/2019	E01-BC01-SW2	**86**	9.9	9.36	9.18	4.94	5.84	< 4.39 U	< 4.39 U	< 4.39 U	< 4.39 U	< 4.39 U	< 4.39 U	8.37	< 4.39 U	< 4.39 U	< 4.39 U	38.4	< 4.39 U	< 4.39 U	< 4.39 U	< 4.39 U	< 4.39 U	< 4.39 U	< 4.39 U	< 4.39 U	---	---	---	---	---
7	PEW011904111640RL	4/11/2019	E01-BC02-PEW1	**37**	7.27	< 4.36 U	2.95 J	2.52 J	3.11 J	< 4.36 U	< 4.36 U	< 4.36 U	< 4.36 U	< 4.36 U	< 4.36 U	4.56	< 4.36 U	< 4.36 U	< 4.36 U	16.4	< 4.36 U	< 4.36 U	< 4.36 U	< 4.36 U	< 4.36 U	< 4.36 U	< 4.36 U	< 4.36 U	---	---	---	---	---
8	PEW021904111615RL	4/11/2019	E01-BC02-PEW2	**86**	6.73	4.72	4.42 J	2.74 J	3.97 J	< 4.47 U	< 4.47 U	< 4.47 U	< 4.47 U	< 4.47 U	< 4.47 U	6.24	< 4.47 U	< 4.47 U	< 4.47 U	57.2	< 4.47 U	< 4.47 U	< 4.47 U	< 4.47 U	< 4.47 U	< 4.47 U	< 4.47 U	< 4.47 U	---	---	---	---	---
9	SW1911061235LEM	11/6/2019	E02-BC01-SW1	**226**	13	18.2	13.8	6.1	13.9	< 4.31 U	< 4.31 U	< 4.31 U	< 4.31 U	< 4.31 U	< 4.31 U	99.1	< 4.31 U	1.7 J	< 4.31 U	60.4 Q	< 4.31 U	< 4.31 U	< 4.31 U	< 4.31 U	< 4.31 U	< 4.31 U	< 4.31 U	< 4.31 U	---	---	---	---	---
10	SW1911061245LEM	11/6/2019	E02-BC01-PEW1	**297**	8.62	11.7	10.6	4.56	13.9	2.03 J, Q	2.25 J, Q	< 4.33 U	< 4.33 U	< 4.33 U	< 4.33 U	50.1	< 4.33 U	1.91 J, Q	< 4.33 U	191	< 4.33 U	< 4.33 U	< 4.33 U	< 4.33 U	< 4.33 U	< 4.33 U	< 4.33 U	< 4.33 U	---	---	---	---	---
11	SPRING-01_220427	4/27/2022	E02-BC01-SW2	**59**	7.86	5.32	4.5 Q	2.25 J	3.01 J	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	13.8	< 4.06 U	< 4.06 U	< 4.06 U	22.7	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U
12	SW1911061100LEM	11/6/2019	E02-AG01-PEW1	**422**	14.5	39.7	38.9	17.7	57.3	6.43 Q	5.95	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	73.3	< 4.21 U	7.73	1.49 J, Q	159	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	---	---	---	---	---
13	SW1911061135LEM	11/6/2019	E02-AG01-PEW2	**551**	27.3	76.4	68.3	21.9	64.4	7.17 Q	3.75 J	< 4.29 U	< 4.29 U	< 4.29 U	< 4.29 U	154	< 4.29 U	7.76	< 4.29 U	120	< 4.29 U	< 4.29 U	< 4.29 U	< 4.29 U	< 4.29 U	< 4.29 U	< 4.29 U	< 4.29 U	---	---	---	---	---
14	SW1911061155LEM	11/6/2019	E02-AG01-SW1	**12**	5.4	1.62 J	1.45 J, Q	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	2	J < 4.21 U	< 4.21 U	< 4.21 U	1.56 J,Q	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	< 4.21 U	---	---	---	---	---

Legend:
All values are in nanograms per liter (**ng/L**) or parts per trillion (**ppt**)
"<" = Values Below Level of Quantitation (**LOQ**) or Reporting Limit (**RL**)
"---" = Not analyzed
"J" = Estimated Concentration. The amount detected is below the LOQ.
"Q" = This compound was also detected in the method blank.
Bolded values indicate detection

Perfluoroalkyl Carboxylic Acids (**PFCAs**)
Perfluoroalkane Sulfonic Acids (**PFSAs**)
Perfluoroalkane Sulfonamides (**FASAs**)
Fluorotelomer Sulfonic Acids (**FTSAs**)
N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (**EtFASAAs**)
N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**MeFASAAs**)
Cyclic PFAS
PFAS Replacement Chemistry Compounds

PFBA = Perfluorobutanoic acid
PFPeA = Perfluoropentanoic acid
PFHxA = Perfluorohexanoic acid
PFHpA = Perfluoroheptanoic acid
PFOA = Perfluorooctanoic acid
PFNA = Perfluorononanoic acid
PFDA = Perfluorodecanoic acid
PFUnDA = Perfluoroundecanoic acid

PFDoDA = Perfluorododecanoic acid
PFTrDA = Perfluorotridecanoic acid
PFTeDA = Perfluorotetradecanoic acid
PFBS = Perfluorobutane sulfonic acid
PFPeS = Perfluoropentane sulfonic acid
PFHxS = Perfluorohexane sulfonic acid
PFHpS = Perfluoroheptane sulfonic acid
PFOS = Perfluorooctane sulfonic acid

PFNS = Perfluorononane sulfonic acid
PFDS = Perfluorodecane sulfonic acid
FOSA = Perfluorooctane sulfonamide
4:2 FTSA = 4:2 Fluorotelomer sulfonic acid
6:2 FTSA = 4:2 Fluorotelomer sulfonic acid
8:2 FTSA = 4:2 Fluorotelomer sulfonic acid
9Cl-PF3ONS or F53B-Minor = 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid
11Cl-PF3ONS or F53B-Major = 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid

PFECHS = Perfluoroethylcyclohexanesulfonate
EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid
MeFOSAA = N-Methyl perfluorooctane sulfonamidoacetic acid
ADONA = Dodecafluoro-3H-4,8-dioxanonanoate
HFPO-DA or Gen-X = Hexafluoropropylene oxide dimer acid

Rule 57 Water Quality Value (WQV)
(Human noncancer non-drink values)
PFOA = 170; PFOS = 12; PFBS =670,000;

Concentration exceeds WQV Criteria

Table 2

02N05E02-AG01& BC01
02N05E01-BC01& BC02
Groundwater - PFAS Analytical Results Summary

Location	Sample Date	Well Depth (ft)	Total PFAS	PFBA	PFBA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	N-EtFOSAA	NMeFOSAA	PFECHS	9Cl-PF3ONS	11Cl-PF3OUdS	ADONA	HFPO-DA
WIXO-BC01-MW1D	9/3/2019	50	ND	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	---	---	---	---	---
	3/12/2021		ND	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U
	3/12/2021 FD		ND	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U
WIXO-BC01-MW1S	9/3/2019	24	ND	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	---	---	---	---	---
	3/12/2021		ND	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U	< 4.01 U
WIXO-BC01-MW2D	9/4/2019	50	ND	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	< 3.83 U	---	---	---	---	---
	3/12/2021		**6.69**	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	**6.69**	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U
WIXO-BC01-MW2S	9/4/2019	25	**187.56**	**14.4**	**3.39** J	**10.9**	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	**156**	< 3.93 U	**2.87** J	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	---	---	---	---	---
	3/12/2021		**356.59**	**24.3**	**34**	**30.8**	**10.6**	**16.4**	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	**236**	< 4.02 U	**2.04** J	< 4.02 U	**2.45** J, Q	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U	< 4.02 U
WIXO-BC02-MW1D	9/4/2019 FD	50	ND	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	---	---	---	---	---
	9/4/2019		ND	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	< 4.16 U	---	---	---	---	---
	3/12/2021		ND	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U	< 3.97 U
WIXO-BC02-MW1S	9/3/2019	23	**8.75**	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	**8.75**	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	< 4.22 U	---	---	---	---	---
	3/12/2021		**40.6**	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	**40.6**	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U	< 3.88 U

Legend:
All values are in nanograms per liter (**ng/L**) or parts per trillion (**ppt**)
"<" = Values Below Level of Quantitation (**LOQ**) or Reporting Limit (**RL**)
"--" = Not analyzed
"J" = Estimated Concentration. The amount detected is below the LOQ.
"Q" = This compound was also detected in the method blank.
Bolded values indicate detection

EGLE Part 201 Drinking Water Criteria (DWC) (ng/L)
PFOA = 8; PFOS = 16; PFNA =6; PFHxS=51
PFHxA = 400,000; PFBS = 420; HFPO-DA = 370;

EGLE Part 201 Groundwater Surfacewater Interface (GSI) Criteria (ng/L)
(Surface water not used for drinking water - Non-drink)
PFOA = 170; PFOS = 12; PFBS = 670,000

Perfluoroalkyl Carboxylic Acids (**PFCAs**)
Perfluoroalkane Sulfonic Acids (**PFSAs**)
Perfluoroalkane Sulfonamides (**FASAs**)
Fluorotelomer Sulfonic Acids (**FTSAs**)
N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (**EtFASAAs**)
N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**MeFASAAs**)
Cyclic PFAS
PFAS Replacement Chemistry Compounds

Concentration exceeds DWC criteria
Concentration exceeds GSI criteria
Concentration exceeds both DWC and GSI criteria

PFBA = Perfluorobutanoic acid
PFPeA = Perfluoropentanoic acid
PFHxA = Perfluorohexanoic acid
PFHpA = Perfluoroheptanoic acid
PFOA = Perfluorooctanoic acid
PFNA = Perfluorononanoic acid
PFDA = Perfluorodecanoic acid
PFUnDA = Perfluoroundecanoic acid

PFDoDA = Perfluorododecanoic acid
PFTrDA = Perfluorotridecanoic acid
PFTeDA = Perfluorotetradecanoic acid
PFBS = Perfluorobutane sulfonic acid
PFPeS = Perfluoropentane sulfonic acid
PFHxS = Perfluorohexane sulfonic acid
PFHpS = Perfluoroheptane sulfonic acid
PFOS = Perfluorooctane sulfonic acid

PFNS = Perfluorononane sulfonic acid
PFDS = Perfluorodecane sulfonic acid
FOSA = Perfluorooctane sulfonamide
4:2 FTSA = 4:2 Fluorotelomer sulfonic acid
6:2 FTSA = 4:2 Fluorotelomer sulfonic acid
8:2 FTSA = 4:2 Fluorotelomer sulfonic acid
9Cl-PF3ONS or F53B-Minor = 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid
11Cl-PF3ONS or F53B-Major = 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid

PFECHS = Perfluoroethylcyclohexanesulfonate
EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid
MeFOSAA = N-Methyl perfluorooctane sulfonamidoacetic acid
ADONA = Dodecafluoro-3H-4,8-dioxanonanoate
HFPO-DA or Gen-X = Hexafluoropropylene oxide dimer acid

Table 3

02N05E02-AG01& BC01
02N05E01-BC01& BC02
Residential Wells - PFAS Analytical Results Summary

Sample Location	Sample Type	Sample Date	Well Depth (ft)	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	N-EtFOSAA	NMeFOSAA	PFECHS	9Cl-PF3ONS	11Cl-PF3OUdS	ADONA	HFPO-DA
Location 1	Residential	11/6/2019	86	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---			---	---	---	---	< 4	< 4	---	---	---	---	---
Location 2	Livestock	11/6/2019	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---			---	---	---	---	< 4	< 4	---	---	---	---	---
Location 3	Residential	11/6/2019	122	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---			---	---	---	---	< 4	< 4	---	---	---	---	---
Location 4	Residential	11/7/2019	112	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---			---	---	---	---	< 4	< 4	---	---	---	---	---
Location 5	Residential	11/7/2019	67	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---			---	---	---	---	< 4	< 4	---	---	---	---	---
Location 6	Residential	10/8/2021	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 7	Residential	10/8/2021	265	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 8	Residential	10/8/2021	69	**2**	---	---	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 9	Residential	10/8/2021	60	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	A04	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 10	Residential	10/8/2021	120	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 11	Residential	10/8/2021	54	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 12	Residential	10/8/2021	87	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 13	Residential	10/8/2021	64	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 14	Residential	10/8/2021	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 15	Residential	10/8/2021	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 16	Residential	10/8/2021	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 17	Residential	10/8/2021	48	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 17	Residential	10/8/2021	48	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 18	Residential	10/8/2021	58	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 19	Residential	10/8/2021	161	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 20	Residential	10/8/2021	120	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 21	Residential	10/8/2021	60	**25**	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	25	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 22	Residential	10/8/2021	142	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 23	Residential	10/8/2021	130	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 24	Residential	10/8/2021	137	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 25	Residential	10/8/2021	144	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---			---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 26	Residential	4/8/2022	82	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 27	Residential	4/8/2022	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 28	Residential	4/7/2022	46	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 5	Residential	4/7/2022	67	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 29	Residential	4/8/2022	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 30	Residential	4/7/2022	46	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 31	Residential	4/7/2022	147	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 32	Residential	4/27/2022	71	**6**	---	---	4	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 33	Residential	4/7/2022	96	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 34	Residential	4/7/2022	104	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 35	Residential	4/7/2022	63	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 36	Residential	4/7/2022	75	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 37	Residential	4/8/2022	158	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 38	Residential	4/8/2022	158	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 38	Residential	4/7/2022	178	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 39	Residential	4/8/2022	67	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 40	Residential	4/8/2022	65	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 41	Residential	4/7/2022	67	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 42	Residential	4/7/2022	88	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 43	Residential	4/7/2022	40	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 44	Residential	4/7/2022	39	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 45	Residential	4/7/2022	40	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	A03	< 2	A03	< 2	A03	< 2	---	< 2	---		---	---	---	---	< 2	< 2	---	< 2	< 2	A03	< 2	< 2
Location 46	Residential	4/7/2022	40	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 46	Residential	4/7/2022	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 47	Residential	4/7/2022	81	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 48	Residential	4/7/2022	130	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 49	Residential	4/8/2022	117	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 50	Residential	4/8/2022	118	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 51	Residential	4/7/2022	85	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 52	Residential	4/7/2022	85	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 52	Residential	4/7/2022	88	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 53	Residential	4/8/2022	98	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 54	Residential	4/8/2022	150	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 55	Residential	4/27/2022	122	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 56	Residential	4/7/2022	108	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 57	Residential	4/7/2022	180	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 58	Residential	5/11/2022	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---		---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2

Legend:

Note: Lab reports that contains Personal Identifiable Information (PII) are not provided in Appendix D.
All values are in nanograms per liter (**ng/L**) or parts per trillion (**ppt**).
"<" = Values Below Level of Quantitation (**LOQ**) or Reporting Limit (**RL**).
"--" = Not analyzed.
"J" = Estimated Concentration. The amount detected is below the LOQ.
"B" = This compound was also detected in the method blank.
"Q" = This compound was also detected in the method blank.
"A03" = Result(s) and reporting limit(s) are estimated due to low matrix spike recovery.
"A04" = Result is estimated due to high matrix spike recovery.
Bolded values indicate detection.

EGLE Part 201 Drinking Water Criteria (DWC) (ng/L)
PFOA = 8; PFOS = 16; PFNA =6; PFHxS=51
PFHxA = 400,000; PFBS = 420; HFPO-DA = 370 ng/L

- Perfluoroalkyl Carboxylic Acids (**PFCAs**)
- Perfluoroalkane Sulfonic Acids (**PFSAs**)
- Perfluoroalkane Sulfonamides (**FASAs**)
- Fluorotelomer Sulfonic Acids (**FTSAs**)
- N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (**EtFASAAs**)
- N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**MeFASAAs**)
- Cyclic PFAS
- PFAS Replacement Chemistry Compounds

Concentration exceeds DWC criteria

PFBA = Perfluorobutanoic acid
PFPeA = Perfluoropentanoic acid
PFHxA = Perfluorohexanoic acid
PFHpA = Perfluoroheptanoic acid
PFOA = Perfluorooctanoic acid
PFNA = Perfluorononanoic acid
PFDA = Perfluorodecanoic acid
PFUnDA = Perfluoroundecanoic acid
PFDoDA = Perfluorododecanoic acid
PFTrDA = Perfluorotridecanoic acid
PFTeDA = Perfluorotetradecanoic acid
PFBS = Perfluorobutane sulfonic acid
PFPeS = Perfluoropentane sulfonic acid
PFHxS = Perfluorohexane sulfonic acid
PFHpS = Perfluoroheptane sulfonic acid
PFOS = Perfluorooctane sulfonic acid
PFNS = Perfluorononane sulfonic acid
PFDS = Perfluorodecane sulfonic acid
FOSA = Perfluorooctane sulfonamide
4:2 FTSA = 4:2 Fluorotelomer sulfonic acid
6:2 FTSA = 4:2 Fluorotelomer sulfonic acid
8:2 FTSA = 4:2 Fluorotelomer sulfonic acid
9Cl-PF3ONS or F53B-Minor = 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid
11Cl-PF3ONS or F53B-Major = 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
PFECHS = Perfluoroethylcyclohexanesulfonate
EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid
MeFOSAA = N-Methyl perfluorooctane sulfonamidoacetic acid
ADONA = Dodecafluoro-3H-4,8-dioxanonanoate
HFPO-DA or Gen-X = Hexafluoropropylene oxide dimer acid

Appendix A –2022 Surface Water Analytical Report

May 31, 2022

Vista Work Order No. 2205054

Dr. Dorin Bogdan
AECOM
5350 Sparks Dr SE
Grand Rapids, MI 49546

Dear Dr. Bogdan,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on May 04, 2022 under your Project Name 'Biosolids'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at jfox@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Jamie Fox
Laboratory Director

Vista Work Order No. 2205054
Case Narrative

Sample Condition on Receipt:

One aqueous sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The sample was received in good condition and within the recommended temperature requirements.

Analytical Notes:

PFAS Isotope Dilution Method

The sample contained particulate and was centrifuged prior to extraction.

The sample was extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 the LOQ. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2205054-01	Spring-01	27-Apr-22 12:00	04-May-22 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Biosolids
Matrix: Aqueous

Laboratory Data

Lab Sample: B22E062-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFPeA	2706-90-3	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFBS	375-73-5	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
4:2 FTS	757124-72-4	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFHxA	307-24-4	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFPeS	2706-91-4	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
HFPO-DA	13252-13-6	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFHpA	375-85-9	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
ADONA	919005-14-4	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFHxS	355-46-4	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
6:2 FTS	27619-97-2	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFOA	335-67-1	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFecHS	646-83-3	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFHpS	375-92-8	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFNA	375-95-1	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFOSA	754-91-6	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFOS	1763-23-1	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFDA	335-76-2	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
8:2 FTS	39108-34-4	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFNS	68259-12-1	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
MeFOSAA	2355-31-9	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
EtFOSAA	2991-50-6	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFUnA	2058-94-8	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFDS	335-77-3	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFDoA	307-55-1	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFTrDA	72629-94-8	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
PFTeDA	376-06-7	ND	1.00	2.00	4.00		B22E062	23-May-22	0.250 L	25-May-22 02:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	79.3	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C3-PFPeA	IS	81.3	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C3-PFBS	IS	83.7	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C2-4:2 FTS	IS	85.2	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C2-PFHxA	IS	82.4	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C3-HFPO-DA	IS	89.1	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C4-PFHpA	IS	76.0	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C3-PFHxS	IS	82.1	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: Biosolids
Matrix: Aqueous

Laboratory Data

Lab Sample: B22E062-BLK1
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	79.2	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C2-PFOA	IS	87.2	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C5-PFNA	IS	70.7	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C8-PFOSA	IS	57.6	10 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C8-PFOS	IS	82.2	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C2-PFDA	IS	85.9	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C2-8:2 FTS	IS	87.1	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
d3-MeFOSAA	IS	76.6	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
d5-EtFOSAA	IS	78.9	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C2-PFUnA	IS	81.5	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C2-PFDoA	IS	67.6	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1
13C2-PFTeDA	IS	70.9	20 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:42	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: Biosolids

Matrix: Aqueous

Laboratory Data

Lab Sample: B22E062-BS1 Column: BEH C18

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	44.7	40.0	112	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFPeA	2706-90-3	44.0	40.0	110	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFBS	375-73-5	39.7	40.0	99.1	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
4:2 FTS	757124-72-4	49.5	40.0	124	60 - 145		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFHxA	307-24-4	43.0	40.0	108	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFPeS	2706-91-4	37.8	40.0	94.5	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
HFPO-DA	13252-13-6	42.0	40.0	105	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFHpA	375-85-9	42.4	40.0	106	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
ADONA	919005-14-4	41.6	40.0	104	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFHxS	355-46-4	35.8	40.0	89.4	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
6:2 FTS	27619-97-2	46.3	40.0	116	60 - 140		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFOA	335-67-1	41.1	40.0	103	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFecHS	646-83-3	42.8	40.0	107	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFHpS	375-92-8	41.6	40.0	104	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFNA	375-95-1	44.8	40.0	112	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFOSA	754-91-6	45.4	40.0	114	65 - 140		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFOS	1763-23-1	46.3	40.0	116	65 - 140		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
9Cl-PF3ONS	756426-58-1	47.0	40.0	117	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFDA	335-76-2	35.4	40.0	88.6	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
8:2 FTS	39108-34-4	45.7	40.0	114	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFNS	68259-12-1	38.1	40.0	95.3	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
MeFOSAA	2355-31-9	39.8	40.0	99.5	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
EtFOSAA	2991-50-6	40.2	40.0	100	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFUnA	2058-94-8	44.6	40.0	112	65 - 140		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFDS	335-77-3	43.2	40.0	108	50 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
11Cl-PF3OUdS	763051-92-9	45.2	40.0	113	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFDoA	307-55-1	42.6	40.0	107	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFTrDA	72629-94-8	44.8	40.0	112	60 - 140		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
PFTeDA	376-06-7	43.0	40.0	108	65 - 135		B22E062	23-May-22	0.250 L	25-May-22 02:52	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	77.5	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C3-PFPeA	IS	82.0	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C3-PFBS	IS	86.4	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C2-4:2 FTS	IS	69.3	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C2-PFHxA	IS	84.0	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: Biosolids
Matrix: Aqueous

Laboratory Data

Lab Sample: B22E062-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-HFPO-DA	IS	82.6	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C4-PFHpA	IS	82.6	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C3-PFHxS	IS	83.6	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C2-6:2 FTS	IS	80.0	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C2-PFOA	IS	90.5	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C5-PFNA	IS	75.2	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C8-PFOSA	IS	53.7	10 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C8-PFOS	IS	79.0	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C2-PFDA	IS	89.7	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C2-8:2 FTS	IS	88.4	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
d3-MeFOSAA	IS	75.6	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
d5-EtFOSAA	IS	66.4	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C2-PFUnA	IS	74.6	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C2-PFDoA	IS	61.9	25 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1
13C2-PFTeDA	IS	69.7	20 - 150		B22E062	23-May-22	0.250 L	25-May-22 02:52	1

Sample ID: Spring-01

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Biosolids
Matrix: Aqueous
Date Collected: 27-Apr-22 12:00

Laboratory Data

Lab Sample: 2205054-01
Date Received: 04-May-22 09:35
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	7.86	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFPeA	2706-90-3	5.32	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFBS	375-73-5	13.8	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
4:2 FTS	757124-72-4	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFHxA	307-24-4	4.50	1.01	2.03	4.06	Q	B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFPeS	2706-91-4	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
HFPO-DA	13252-13-6	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFHpA	375-85-9	2.25	1.01	2.03	4.06	J	B22E062	23-May-22	0.246 L	25-May-22 05:20	1
ADONA	919005-14-4	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFHxS	355-46-4	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
6:2 FTS	27619-97-2	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFOA	335-67-1	3.01	1.01	2.03	4.06	J	B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFecHS	646-83-3	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFHpS	375-92-8	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFNA	375-95-1	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFOSA	754-91-6	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFOS	1763-23-1	22.7	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
9Cl-PF3ONS	756426-58-1	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFDA	335-76-2	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
8:2 FTS	39108-34-4	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFNS	68259-12-1	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
MeFOSAA	2355-31-9	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
EtFOSAA	2991-50-6	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFUnA	2058-94-8	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFDS	335-77-3	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
11Cl-PF3OUdS	763051-92-9	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFDoA	307-55-1	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFTrDA	72629-94-8	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
PFTeDA	376-06-7	ND	1.01	2.03	4.06		B22E062	23-May-22	0.246 L	25-May-22 05:20	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	51.3	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C3-PFPeA	IS	64.0	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C3-PFBS	IS	65.9	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C2-4:2 FTS	IS	70.1	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C2-PFHxA	IS	71.2	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C3-HFPO-DA	IS	72.4	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C4-PFHpA	IS	69.8	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1

Sample ID: Spring-01

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Biosolids
Matrix: Aqueous
Date Collected: 27-Apr-22 12:00

Laboratory Data

Lab Sample: 2205054-01
Date Received: 04-May-22 09:35
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	70.2	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C2-6:2 FTS	IS	68.0	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C2-PFOA	IS	77.0	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C5-PFNA	IS	60.5	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C8-PFOSA	IS	42.4	10 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C8-PFOS	IS	65.3	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C2-PFDA	IS	63.0	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C2-8:2 FTS	IS	62.7	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
d3-MeFOSAA	IS	58.1	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
d5-EtFOSAA	IS	50.1	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C2-PFUnA	IS	52.9	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C2-PFDoA	IS	40.9	25 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1
13C2-PFTeDA	IS	37.4	20 - 150		B22E062	23-May-22	0.246 L	25-May-22 05:20	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Massachusetts Department of Environmental Protection	M-CA413
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Pennsylvania Department of Environmental Protection	018
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p- Dioxins & Polychlorinated Dibenzofurans	EPA 23
Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613/1613B
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537.1
Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry	EPA 533
Perfluorooctanesulonate (PFOS) and Perfluorooctanoate (PFOA) - Method for Unfiltered Samples Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	PFAS Isotope Dilution
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 2205054 Temp: 0.8 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: Biosolids PO#: 60588767 Sampler: Sydney Ruhala (name)

TAT (check one): Standard: ☒ 21 days; Rush (surcharge may apply): ☐ 14 days ☐ 7 days Specify:

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Sydney Ruhala / Sydney Ruhala	4/28/22	9:00	Garth Castroal	4-28-22	0900
Garth Castroal	5-3-22	1500	Kelia Wadsworth Kelia Wadsworth	05/04/22	0935

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN:

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Container(s)

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFOA/ PFOS	UCMR3 PFAS List:6	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list (28 analytes + PFECHS)	PFAS by Isotope Dilution: PFOA/ PFOS	PFAS by Isotope Dilution: UCMR3 PFAS List:6	PFAS by Isotope Dilution: 537.1 List of 14	PFAS by Isotope Dilution: 537.1 List of 18	EPA Method 537 (DW only)	Comments
Spring-01	4/27/22	12:00		2	P	AQ					X						Spring near 6747 Golf Club

Special Instructions/Comment: Also send results to RuhalaS@michigan.gov

SEND DOCUMENTATION AND RESULTS TO:

Name: Stephanie Kammer
Company: EGLE
Address: 525 W Allegan Street
City: Lansing State: MI Zip: 48933
Phone: 517-897-1507
Email: KammerS@michigan.gov

Container Types: P = HDPE, PJ = HDPE Jar, PY = Polypropylene, O= Other

Bottle Preservation Type: TZ= Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other

EGLE PERFLUOROALKYL AND POLYFLUOROALKYL SUBSTANCES (PFAS) MINIMUM LABORATORY ANALYTE LIST

Below is the minimum laboratory PFAS analyte list for analysis of deer, drinking water, groundwater, surface water, soil, wastewater effluent, and landfill leachate samples collected by Michigan's Departments of Environment, Great Lakes, and Energy, Health and Human Services, Agriculture and Rural Development, and Natural Resources.

This minimum analyte list was developed based on the potential for these chemicals to be found in Michigan, the availability of the chemical standards used for testing, and the ability of available laboratories to test for these PFAS. This list includes PFAS that can be tested for in drinking water using United States Environmental Protection Agency (USEPA) Methods 537 Rev.1.1 or 537.1, which are the only methods that should be used when analyzing drinking water samples. Other testing methodology may be used to test for PFAS in other media (not drinking water). This list is not exhaustive of PFAS in Michigan's environment.

A fish icon (🐟) precedes those compounds that are also currently being tested for in fish tissue.

Analyte Name	Acronym	Fluorinated Carbon Chain Length	Molecular Formula	CAS Number	USEPA Method 537 Rev. 1.1	USEPA Method 537.1
🐟 Perfluorotetradecanoic acid	PFTeA	C_{14}	$C_{13}F_{27}COOH$	376-06-7	X	
🐟 Perfluorotridecanoic acid	PFTriA	C_{13}	$C_{12}F_{25}COOH$	72629-94-8	X	
🐟 Perfluorododecanoic acid	PFDoA	C_{12}	$C_{11}F_{23}COOH$	307-55-1	X	
🐟 Perfluoroundecanoic acid	PFUnA	C_{11}	$C_{10}F_{21}COOH$	2058-94-8	X	
🐟 Perfluorodecanoic acid	PFDA	C_{10}	$C_9F_{19}COOH$	335-76-2	X	
🐟 Perfluorononanoic acid	PFNA	C_9	$C_8F_{17}COOH$	375-95-1	X	
🐟 Perfluorooctanoic acid	PFOA	C_8	$C_7F_{15}COOH$	335-67-1	X	
🐟 Perfluoroheptanoic acid	PFHpA	C_7	$C_6F_{13}COOH$	375-85-9	X	
🐟 Perfluorohexanoic acid	PFHxA	C_6	$C_5F_{11}COOH$	307-24-4	X	
🐟 Perfluoropentanoic acid	PFPeA	C_5	C_4F_9COOH	2706-90-3		
🐟 Perfluorobutanoic acid	PFBA	C_4	C_3F_7COOH	375-22-4		
🐟 Perfluorodecanesulfonic acid	PFDS	C_{10}	$C_{10}F_{21}SO_3H$	335-77-3		
rfluorononanesulfonic acid	PFNS	C_9	$C_9F_{19}SO_3H$	68259-12-1		
🐟 Perfluorooctanesulfonic acid	PFOS	C_8	$C_8F_{17}SO_3H$	1763-23-1	X	
fluoroheptanesulfonic acid	PFHpS	C_7	$C_7F_{15}SO_3H$	375-92-8		
🐟 Perfluorohexanesulfonic acid	PFHxS	C_6	$C_6F_{13}SO_3H$	355-46-4	X	
fluoropentanesulfonic acid	PFPeS	C_5	$C_5F_{11}SO_3H$	2706-91-4		
🐟 Perfluorobutanesulfonic acid	PFBS	C_4	$C_4F_9SO_3H$	375-73-5	X	

2205054

Analyte Name	Acronym	Fluorinated Carbon Chain Length	Molecular Formula	CAS Number	USEPA Method 537 Rev. 1.1	USEPA Method 537.1
Perfluorooctanesulfonamide	PFOSA	C_8	$C_8F_{17}SO_2NH_2$	754-91-6		
luorotelomer sulfonic acid 8:2	FtS 8:2	C_8	$C_8F_{17}CH_2CH_2SO_3$	39108-34-4		
luorotelomer sulfonic acid 6:2	FtS 6:2	C_6	$C_6F_{13}CH_2CH_2SO_3$	27619-97-2		
luorotelomer sulfonic acid 4:2	FtS 4:2	C_4	$C_4F_9CH_2CH_2SO_3$	757124-72-4		
N-Ethylperfluorooctanesulfonamido) etic acid	N-EtFOSAA	C_8	$C_8F_{17}SO_2N(C_2H_5)CH_2COOH$	2991-50-6	X	
N- ethylperfluorooctanesulfonamido) etic acid	N-MeFOSAA	C_8	$C_8F_{17}SO_2N(CH_3)CHCOOH$	2355-31-9	X	
xafluoropropylene oxide dimer acid	HFPO-DA	C6	$C_6HF_{11}O_3$	13252-13-6		X
-chloroeicosafluoro-3-oxaundecane- ulfonic acid	11Cl-PF3OUdS	C10	$C_{10}HF_{20}ClSO_4$	763051-92-9		X
hlorohexadecafluoro-3-oxanone-1- fonic acid	9Cl-PF3ONS	C8	$C_8HF_{16}ClSO_4$	756426-58-1		X
-dioxa-3H-perfluorononanoic acid	ADONA	C7	$C_7H_2F_{12}O_4$	919005-14-4		X

Laboratories Providing PFAS Analytical Services

(The list that turns up in the search results from the following links does not constitute an endorsement of those firms on the list, nor is it a statement against any firm not on the list. Additionally, the capacity of the labs to provide services consistent with EGLE's recommendations above has not been verified and these details should be addressed prior to contracting with the laboratories below.)

The **United States Environmental Protection Agency (US EPA)** has a list of laboratories approved under the UCMR3 program using US EPA Method 537 Rev. 1.1 for PFAS in drinking water:
https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule

The **United States Department of Defense, Environmental Laboratory Accreditation Program (US DoD ELAP)** maintains a list of labs for the determination of PFAS in various environmental media other than drinking water on the Defense Environmental Network Information Exchange (DENIX) server:
http://www.denix.osd.mil/edqw/accreditation/accreditedlabs/

Contact Information

Questions regarding PFAS in general, contact:

- **MDHHS General Information**
  (517) 373-3740
- **EGLE Environmental Assistance Center**
  (800) 662-9278

Questions regarding laboratory information, contact:

- **MDHHS Chemistry & Toxicology Division**
  (517) 335-9490
- **EGLE Drinking Water Analysis Laboratory**
  (517) 335-8184

https://www.Michigan.gov/PFASresponse

Updated 10/1/2019

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 2205054 TAT Std

Samples Arrival:	**Date/Time** 05/04/22 0935		**Initials:** KW		**Location:** WR-2 **Shelf/Rack:** N/A		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 0.9 (uncorrected)			**Probe used:** Y / N		**Thermometer ID:** IR-3		
Temp °C: 0.8 (corrected)							

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Airbill 1 of 2 Trk # 2727 1484 0267	✓		
Shipping Documentation Present?	✓		
Shipping Container: Vista / Client / Retain / Return / Dispose			
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 05/04/22 1720	**Initials:** WDS	**Location:** R-13, WR-2 **Shelf/Rack:** B-3 F-7
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

CoC/Label Reconciliation Report WO# 2205054

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2205054-01	A Spring-01	☑		27-Apr-22 12:00	☑	HDPE Bottle, 250 mL	Aqueous	
2205054-01	B Spring-01	☑		27-Apr-22 12:00	☑	HDPE Bottle, 250 mL	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		

Comments:

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 (None All) Other

Verifed by/Date: KW 05/04/22

Appendix B – 2021Low Flow Groundwater Field Forms

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: BC01-MW1D

FB2103120850 GSL

Client: G/e
Project: Wixom Biosolids
Project #: 60588867

Sample ID: GW2103120855 GSL / GW210312 0855 GSL-FD

INSPECTION

Label on well?	(YES)	NO	NA	Is cap locked?	(YES)	NO	NA
Is reference mark visible?	(YES)	NO	NA	Standing water present?	YES	(NO)	NA
Condition of well	good			Any indication of surface runoff in well?	YES	(NO)	NA
Weather	clear			Air Temperature:	35°F		

Notes: Field Dup and Field Blank taken

STATIC WATER LEVEL PRIOR TO PURGING

Date: 3-12-21 Time: 0800 AM/PM

Depth to Water: 19.42 Measured with: (Electronic Tape)

Length of Well: 54.71 Decontamination: (DI Water)

WELL PURGING

Date: 3-12-21 Begin Time: 0810 AM/PM Purging Equipment: Peristaltic

End Time: 0840 AM/PM Decontamination: Pre Steam Cleaned DI Water Other (New Tubing)

CALCULATION OF 1 CASING VOLUME

_____ ft. Length of well

_____ ft. - depth of water (before purge start)

_____ ft. =length of water column

x conversion factor (2" well) 0.16

_____ Gal. =1 casing volume

Yield: (HIGH) LOW

If low, recovery time: _____

Actual volume purged 2 gallons

Actual purge flow rate 200 ml/min or L/min

Notes: _____

Time	Volume (gallons)	Depth to Water (Feet) <0.33'	pH (SU) +/- 0.1	Conductivity (mS/cm) +-3%	Turbidity (NTU) +-10%	D.O. (mg/L) +/- 10%	Temp (°C) +/- 5%	ORP +/- 10 mV
Start: 0840	.25	21.31	7.52	0.517	3.99	0.89	10.0	-140.6
0845	.50	21.45	7.52	0.516	3.41	0.78	10.0	-146.4
0850	1.0	21.63	7.52	0.519	8.63	0.73	10.0	-149.6
0855	1.25	21.71	7.52	0.522	6.99	0.61	10.2	-153.1
Final: 0855	1.25	21.71	7.52	0.522	6.99	0.61	10.2	-153.1

SAMPLE COLLECTION

Date: 3-12-21 Time: 0855 AM/PM Method Low Flow

Appearance of Sample: clear Actual Sample Flow Rate: 200 ml/min or L/min

SAMPLE BOTTLE COLLECTED: 2-250ml Bottles / + Dup + FB

SAMPLING PERSONNEL

Name: Garth Cashen Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Client: EGLE
Project: Wixom
Project #: 60588767

Well ID: BC02-MW1S

Sample ID: GW210312/435 GSC

INSPECTION

Label on well?	YES	NO	NA	Is cap locked?	YES	NO	NA
Is reference mark visible?	YES	NO	NA	Standing water present?	YES	NO	NA
Condition of well	good			Any indication of surface runoff in well?	YES	NO	NA
Weather	Clear			Air Temperature:	52°F		

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 3-12-21 Time: 1405 AM/PM

Depth to Water: 14.75

Length of Well: 28.46

Measured with: Electronic Tape

Decontamination: DI Water

WELL PURGING

Date: 3-12-21 Begin Time: 1410 AM/PM End Time: 1420 AM/PM

Purging Equipment: Peristaltic

Decontamination: Pre Steam Cleaned DI Water Other New Tubing

CALCULATION OF 1 CASING VOLUME

_____ ft. Length of well

_____ ft. - depth of water (before purge start)

_____ ft. =length of water column

x conversion factor (2" well) 0.16

_____ Gal. =1 casing volume

Yield: HIGH LOW

If low, recovery time: _____

Actual volume purged: 3 gallons

Actual purge flow rate: 300 ml/min or L/min

Notes

Time	Volume (gallons)	Depth to Water (Feet) <0.33'	pH (SU) +/- 0.1	Conductivity (mS/cm) +-3%	Turbidity (NTU) +-10%	D.O. (mg/L) +/- 10%	Temp (°C) +/- 5%	ORP +/- 10 mV
Start: 1420	.4	14.75	6.95	0.857	4.20	0.57	10.3	-59.8
1425	.8	14.75	6.95	0.859	3.71	0.48	10.4	-67.0
1430	1.2	14.75	6.96	0.859	4.11	0.42	10.4	-73.7
1435	1.6	14.75	6.97	0.860	4.12	0.40	10.3	-77.1
Final: 1435	1.6	14.75	6.97	0.860	4.12	0.40	10.3	-77.1

SAMPLE COLLECTION

Date: 3-12-21 Time: 1435 AM/PM

Method: Peristaltic

Appearance of Sample: Clear

Actual Sample Flow Rate: 300 ml/min or L/min

SAMPLE BOTTLE COLLECTED: 2-250ml Bottles

SAMPLING PERSONNEL

Name: Garth Cousineau

Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: BC02-MW18D

Client: EGLE
Project: Wixom
Project #: 60588767

Sample ID: GW210312/400GS

INSPECTION

Label on well?	YES	(NO)	NA	Is cap locked?	(YES)	NO	NA
Is reference mark visible?	(YES)	NO	NA	Standing water present?	YES	(NO)	NA
Condition of well	good			Any indication of surface runoff in well?	YES	(NO)	NA
Weather	clear windy			Air Temperature:	52°F		

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 3- Time: 1255 AM/PM

Depth to Water: 14.84

Length of Well: 52.46

Measured with: (Electronic Tape)

Decontamination: (DI Water)

WELL PURGING

Date: 3-12-21 Begin Time: 1300 AM/PM Purging Equipment: Peristaltic

End Time: 1330 AM/PM Decontamination: Pre Steam Cleaned DI Water Other (New Tubing)

CALCULATION OF 1 CASING VOLUME

_____ ft. Length of well

_____ ft. - depth of water (before purge start)

_____ ft. =length of water column

x conversion factor (2" well) 0.16

_____ Gal. =1 casing volume

Yield: (HIGH) LOW

If low, recovery time: _____

Actual volume purged: 3 gallons

Actual purge flow rate: 300 ml/min or L/min

Notes

Time	Volume (gallons)	Depth to Water (Feet) <0.33'	pH (SU) +/- 0.1	Conductivity (mS/cm) +-3%	Turbidity (NTU) +-10%	D.O. (mg/L) +/- 10%	Temp (°C) +/- 5%	ORP +/- 10 mV
Start: 1330	.4	14.84	7.34	0.608	8.33	5.38	10.5	-54.9
1335	.8	14.84	7.29	0.617	8.19	4.65	10.5	-66.9
1340	1.2	14.83	7.20	0.639	7.08	2.99	10.5	-78.1
1345	1.6	14.84	7.11	0.669	5.22	1.54	10.5	-97.8
1350	2.0	14.84	7.09	0.679	5.38	1.09	10.5	-102.9
1355	2.4	14.84	7.09	0.679	5.21	0.90	10.5	-106.7
14.00	2.8	14.84	7.09	0.683	6.12	0.74	10.5	-111.7
Final:								

SAMPLE COLLECTION

Date: 3-12-21 Time: 1400 AM/PM Method: Low Flow

Appearance of Sample: Clear

Actual Sample Flow Rate: 300 ml/min or L/min

SAMPLE BOTTLE COLLECTED: 2 - 250ml Bottles

SAMPLING PERSONNEL

Name: Garth Castneau Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: BC01-MW2D

Client:
Project:
Project #:

Sample ID: GW210312/1235 GSC

INSPECTION

Label on well?	YES	(NO)	NA	Is cap locked?	(YES)	NO	NA
Is reference mark visible?	(YES)	NO	NA	Standing water present?	(YES)	NO	NA
Condition of well	good			Any indication of surface runoff in well?	YES	(NO)	NA
Weather				Air Temperature:	52°F		

Notes: standing in 6" of water

STATIC WATER LEVEL PRIOR TO PURGING

Date: 3-12-21 Time: 1200 AM/PM

Depth to Water: 23.06

Length of Well: 52.41

Measured with: (Electronic Tape)

Decontamination: (DI Water)

WELL PURGING

Date: 3-12-21 Begin Time: 1200 AM/PM

End Time: 1220 AM/PM

Purging Equipment: Peristaltic

Decontamination: Pre Steam Cleaned, DI Water, Other, (New Tubing)

CALCULATION OF 1 CASING VOLUME

_____ ft. Length of well

_____ ft. - depth of water (before purge start)

_____ ft. =length of water column

x conversion factor (2" well) 0.16

_____ Gal. =1 casing volume

Yield: (HIGH) LOW

If low, recovery time: _____

Actual volume purged: 2 gallons

Actual purge flow rate: 300 ml/min or L/min

Notes

Time	Volume (gallons)	Depth to Water (Feet) <0.33'	pH (SU) +/- 0.1	Conductivity (mS/cm) +-3%	Turbidity (NTU) +-10%	D.O. (mg/L) +/- 10%	Temp (°C) +/- 5%	ORP +/- 10 mV
Start: 1209	.4	23.06	7.69	0.491	9.96	0.50	9.5	-136.2
1225	.8	23.06	7.13	0.490	8.76	0.39	9.5	-140.7
1230	1.2	23.06	7.12	0.488	7.63	0.31	9.5	-143.0
1235	1.6	23.06	7.12	0.488	8.76	0.25	9.5	-147.7
Final: 1235								

SAMPLE COLLECTION

Date: ~~1235~~ 3-12-21 Time: 1235 AM/PM

Method: Low Flow

Appearance of Sample: Clear

Actual Sample Flow Rate: 300 ml/min or L/min

SAMPLE BOTTLE COLLECTED: 2-250 ml bottles

SAMPLING PERSONNEL

Name: Garth Cashman

Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: BC01-MW25S

Client:
Project:
Project #:

Sample ID: GW210312-1145-GSC

INSPECTION

Label on well?	YES	(NO)	NA	Is cap locked?	(YES)	NO	NA
Is reference mark visible?	(YES)	NO	NA	Standing water present?	(YES)	NO	NA
Condition of well	good			Any indication of surface runoff in well?	YES	(NO)	NA
Weather	clear			Air Temperature:			

Notes: Standing water / 6" deep around well

STATIC WATER LEVEL PRIOR TO PURGING

Date: 3-12-21 Time: 1045 AM/PM

Depth to Water: 22.85

Length of Well: 28.44

Measured with: (Electronic Tape)

Decontamination: (DI Water)

WELL PURGING

Date: 3-12-21 Begin Time: 1100 AM/PM End Time: 1130 AM/PM

Purging Equipment: Peristaltic

Decontamination: ~~Pre-Steam~~ Cleaned (New Tubing) DI Water Other

CALCULATION OF 1 CASING VOLUME

____ ft. Length of well

____ ft. - depth of water (before purge start)

____ ft. =length of water column

x conversion factor (2" well) 0.16

____ Gal. =1 casing volume

Yield: (HIGH) LOW

If low, recovery time: ____

Actual volume purged: 2 gallons

Actual purge flow rate: 300 ml/min or L/min

Notes

Time	Volume (gallons)	Depth to Water (Feet) <0.33'	pH (SU) +/- 0.1	Conductivity (mS/cm) +-3%	Turbidity (NTU) +-10%	D.O. (mg/L) +/- 10%	Temp (°C) +/- 5%	ORP +/- 10 mV
Start: 1130	.4	22.85	7.27	0.459	5.84	1.52	9.2	-36.0
1135	.8	22.85	7.23	0.463	3.77	1.35	9.3	-74.8
1140	1.2	22.85	7.21	0.463	3.29	1.27	9.5	-75.3
1145	1.6	22.85	7.20	0.467	2.97	1.39	9.4	-74.2
Final: 1145	1.6	22.85	7.30	0.467	2.97	1.39	9.4	-74.2

SAMPLE COLLECTION

Date: 3-12-21 Time: 1145 AM/PM Method: Low Flow

Appearance of Sample: clear Actual Sample Flow Rate: 300 ml/min or L/min

SAMPLE BOTTLE COLLECTED: 2-250ml Bottles

SAMPLING PERSONNEL

Name: Garth Cousineau Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: BC01-MW1S

Client: EGLE
Project: Wixom Biosolids
Project #: 60588767

Sample ID: GW210312 0945 GSC

INSPECTION

Label on well?	YES	NO	NA	Is cap locked?	YES	NO	NA
Is reference mark visible?	YES	NO	NA	Standing water present?	YES	NO	NA
Condition of well	good			Any indication of surface runoff in well?	YES	NO	NA
Weather	clear			Air Temperature:	39°F		

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 3-12-21 Time: 0910 AM/PM

Depth to Water: 19.21
Length of Well: 26.83

Measured with: Electronic Tape
Decontamination: DI Water

WELL PURGING

Date: 3-12-21 Begin Time: 0915 AM/PM End Time: 0930 AM/PM

Purging Equipment: Aristaltk

Decontamination: ~~Pre-Steam Cleaned~~ New Tubing DI Water Other

CALCULATION OF 1 CASING VOLUME

____ ft. Length of well
____ ft. - depth of water (before purge start)
____ ft. =length of water column
x conversion factor (2" well) 0.16
____ Gal. =1 casing volume

Yield: HIGH LOW
If low, recovery time: ____

Actual volume purged: 2 gallons
Actual purge flow rate: 300 ml/min or L/min

Notes

Time	Volume (gallons)	Depth to Water (Feet) <0.33'	pH (SU) +/- 0.1	Conductivity (mS/cm) +-3%	Turbidity (NTU) +-10%	D.O. (mg/L) +/- 10%	Temp (°C) +/- 5%	ORP +/- 10 mV
Start: 0930	.6.3	19.21	6.96	1.211	5.88	0.63	10.0	-98.0
0935	.6	19.21	7.04	1.147	8.3	1.06	10.1	-101.8
0940	.9	19.21	7.07	1.110	9.40	1.20	10.2	-98.0
0945	1.2	19.21	7.08	1.103	7.64	1.02	10.1	-101.8
Final: 0945	1.2	19.21	7.08	1.103	7.64	1.02	10.1	-101.8

SAMPLE COLLECTION

Date: 3-12-21 Time: 0945 AM/PM Method: Low flow

Appearance of Sample: clear Actual Sample Flow Rate: 300 ml/min or L/min

SAMPLE BOTTLE COLLECTED: 2-250ml Bottles

SAMPLING PERSONNEL

Name: Garth Casimer Company: AECOM

Appendix C – 2021 Groundwater Analytical Report

April 01, 2021

Vista Work Order No. 2103188

Dr. Dorin Bogdan
AECOM
5350 Sparks Dr SE
Grand Rapids, MI 49546

Dear Dr. Bogdan,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on March 16, 2021 under your Project Name 'WIXOM Well sampling/Bio solids'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Work Order No. 2103188
Case Narrative

Sample Condition on Receipt:

Eight aqueous samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were received in good condition and within the recommended temperature requirements. A revised Chain-of-Custody (CoC) was received by email on March 16th, 2021.

Analytical Notes:

PFAS Isotope Dilution Method

Samples "GW2103121400GSC" and "GW2103121235GSC" contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 the LOQ. The recovery of HFPO-DA was greater than 135% in the OPR. This analyte was not detected in the samples. The recoveries of all other analytes were within the acceptance criteria.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2103188-01	GW2103121400GSC	12-Mar-21 14:00	16-Mar-21 13:34	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2103188-02	GW2103121435GSC	12-Mar-21 14:35	16-Mar-21 13:34	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2103188-03	GW2103121235GSC	12-Mar-21 12:35	16-Mar-21 13:34	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2103188-04	GW2103121145GSC	12-Mar-21 11:45	16-Mar-21 13:34	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2103188-05	GW2103120945GSC	12-Mar-21 09:45	16-Mar-21 13:34	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2103188-06	GW2103120855GSC	12-Mar-21 08:55	16-Mar-21 13:34	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2103188-07	GW2103120855GSC-FD	12-Mar-21 08:55	16-Mar-21 13:34	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2103188-08	FB2103120850GSC	12-Mar-21 08:50	16-Mar-21 13:34	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

Vista Project: 2103188

Client Project: WIXOM Well sampling/Bio solids

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Matrix: Aqueous

Laboratory Data

Lab Sample: B1C0180-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFPeA	2706-90-3	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFBS	375-73-5	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
4:2 FTS	757124-72-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFHxA	307-24-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFPeS	2706-91-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
HFPO-DA	13252-13-6	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFHpA	375-85-9	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
ADONA	919005-14-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFHxS	355-46-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
6:2 FTS	27619-97-2	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFOA	335-67-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFecHS	646-83-3	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFHpS	375-92-8	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFNA	375-95-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFOSA	754-91-6	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFOS	1763-23-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFDA	335-76-2	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
8:2 FTS	39108-34-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFNS	68259-12-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
MeFOSAA	2355-31-9	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
EtFOSAA	2991-50-6	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFUnA	2058-94-8	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFDS	335-77-3	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFDoA	307-55-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFTrDA	72629-94-8	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
PFTeDA	376-06-7	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	76.1	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C3-PFPeA	IS	64.7	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C3-PFBS	IS	68.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C3-HFPO-DA	IS	69.2	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C2-4:2 FTS	IS	72.1	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C2-PFHxA	IS	66.2	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C4-PFHpA	IS	68.4	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C3-PFHxS	IS	71.6	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data

Name: AECOM Matrix: Aqueous

Project: WIXOM Well sampling/Bio solids

Laboratory Data

Lab Sample: B1C0180-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	71.2	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C5-PFNA	IS	70.0	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C8-PFOSA	IS	38.4	10 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C2-PFOA	IS	65.6	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C8-PFOS	IS	60.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C2-PFDA	IS	61.6	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C2-8:2 FTS	IS	61.7	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
d3-MeFOSAA	IS	56.3	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C2-PFUnA	IS	55.7	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
d5-EtFOSAA	IS	49.6	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C2-PFDoA	IS	54.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1
13C2-PFTeDA	IS	46.2	20 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 01:54	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Matrix: Aqueous

Laboratory Data

Lab Sample: B1C0180-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	40.6	40.0	101	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFPeA	2706-90-3	39.0	40.0	97.4	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFBS	375-73-5	37.4	40.0	93.4	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
4:2 FTS	757124-72-4	41.9	40.0	105	60 - 145		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFHxA	307-24-4	39.4	40.0	98.6	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFPeS	2706-91-4	37.6	40.0	93.9	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
HFPO-DA	13252-13-6	55.5	40.0	139	65 - 135	H	B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFHpA	375-85-9	36.9	40.0	92.3	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
ADONA	919005-14-4	38.8	40.0	97.0	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFHxS	355-46-4	39.7	40.0	99.3	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
6:2 FTS	27619-97-2	37.5	40.0	93.8	60 - 140		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFOA	335-67-1	40.8	40.0	102	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFecHS	646-83-3	41.7	40.0	104	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFHpS	375-92-8	46.0	40.0	115	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFNA	375-95-1	40.6	40.0	102	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFOSA	754-91-6	45.4	40.0	114	65 - 140		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFOS	1763-23-1	44.9	40.0	112	65 - 140		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
9Cl-PF3ONS	756426-58-1	40.5	40.0	101	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFDA	335-76-2	38.7	40.0	96.7	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
8:2 FTS	39108-34-4	38.9	40.0	97.2	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFNS	68259-12-1	38.7	40.0	96.9	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
MeFOSAA	2355-31-9	40.1	40.0	100	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
EtFOSAA	2991-50-6	35.5	40.0	88.8	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFUnA	2058-94-8	42.2	40.0	106	65 - 140		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFDS	335-77-3	34.9	40.0	87.4	50 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
11Cl-PF3OUdS	763051-92-9	42.1	40.0	105	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFDoA	307-55-1	43.3	40.0	108	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFTrDA	72629-94-8	41.0	40.0	102	60 - 140		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
PFTeDA	376-06-7	43.5	40.0	109	65 - 135		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	75.5	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C3-PFPeA	IS	65.4	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C3-PFBS	IS	75.1	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C3-HFPO-DA	IS	58.1	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C2-4:2 FTS	IS	62.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Matrix: Aqueous

Laboratory Data

Lab Sample: B1C0180-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	65.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C4-PFHpA	IS	67.7	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C3-PFHxS	IS	70.9	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C2-6:2 FTS	IS	71.2	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C5-PFNA	IS	69.3	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C8-PFOSA	IS	36.2	10 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C2-PFOA	IS	66.5	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C8-PFOS	IS	60.2	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C2-PFDA	IS	62.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C2-8:2 FTS	IS	67.4	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
d3-MeFOSAA	IS	56.2	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C2-PFUnA	IS	54.4	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
d5-EtFOSAA	IS	54.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C2-PFDoA	IS	52.2	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1
13C2-PFTeDA	IS	49.1	20 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 02:04	1

Sample ID: GW2103121400GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC02-MW1D
Matrix: Aqueous
Date Collected: 12-Mar-21 14:00

Laboratory Data

Lab Sample: 2103188-01
Date Received: 16-Mar-21 13:34
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFPeA	2706-90-3	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFBS	375-73-5	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
4:2 FTS	757124-72-4	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFHxA	307-24-4	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFPeS	2706-91-4	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
HFPO-DA	13252-13-6	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFHpA	375-85-9	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
ADONA	919005-14-4	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFHxS	355-46-4	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
6:2 FTS	27619-97-2	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFOA	335-67-1	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFecHS	646-83-3	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFHpS	375-92-8	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFNA	375-95-1	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFOSA	754-91-6	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFOS	1763-23-1	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
9Cl-PF3ONS	756426-58-1	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFDA	335-76-2	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
8:2 FTS	39108-34-4	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFNS	68259-12-1	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
MeFOSAA	2355-31-9	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
EtFOSAA	2991-50-6	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFUnA	2058-94-8	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFDS	335-77-3	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
11Cl-PF3OUdS	763051-92-9	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFDoA	307-55-1	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFTrDA	72629-94-8	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
PFTeDA	376-06-7	ND	0.991	1.98	3.97		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	79.5	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C3-PFPeA	IS	67.6	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C3-PFBS	IS	72.7	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C3-HFPO-DA	IS	73.7	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C2-4:2 FTS	IS	70.7	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C2-PFHxA	IS	69.3	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C4-PFHpA	IS	70.1	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C3-PFHxS	IS	74.2	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1

Sample ID: GW2103121400GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC02-MW1D
Matrix: Aqueous
Date Collected: 12-Mar-21 14:00

Laboratory Data

Lab Sample: 2103188-01
Date Received: 16-Mar-21 13:34
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	73.3	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C5-PFNA	IS	69.7	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C8-PFOSA	IS	51.5	10 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C2-PFOA	IS	70.5	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C8-PFOS	IS	69.8	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C2-PFDA	IS	70.4	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C2-8:2 FTS	IS	66.6	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
d3-MeFOSAA	IS	71.3	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C2-PFUnA	IS	64.3	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
d5-EtFOSAA	IS	65.6	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C2-PFDoA	IS	63.6	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1
13C2-PFTeDA	IS	55.4	20 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 04:30	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: GW2103121435GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC02-MW1S
Matrix: Aqueous
Date Collected: 12-Mar-21 14:35

Laboratory Data

Lab Sample: 2103188-02
Date Received: 16-Mar-21 13:34
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFPeA	2706-90-3	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFBS	375-73-5	40.6	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
4:2 FTS	757124-72-4	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFHxA	307-24-4	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFPeS	2706-91-4	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
HFPO-DA	13252-13-6	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFHpA	375-85-9	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
ADONA	919005-14-4	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFHxS	355-46-4	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
6:2 FTS	27619-97-2	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFOA	335-67-1	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFecHS	646-83-3	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFHpS	375-92-8	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFNA	375-95-1	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFOSA	754-91-6	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFOS	1763-23-1	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
9Cl-PF3ONS	756426-58-1	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFDA	335-76-2	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
8:2 FTS	39108-34-4	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFNS	68259-12-1	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
MeFOSAA	2355-31-9	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
EtFOSAA	2991-50-6	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFUnA	2058-94-8	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFDS	335-77-3	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
11Cl-PF3OUdS	763051-92-9	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFDoA	307-55-1	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFTrDA	72629-94-8	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
PFTeDA	376-06-7	ND	0.970	1.94	3.88		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	86.5	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C3-PFPeA	IS	75.1	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C3-PFBS	IS	79.2	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C3-HFPO-DA	IS	89.1	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C2-4:2 FTS	IS	81.0	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C2-PFHxA	IS	77.5	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C4-PFHpA	IS	76.4	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C3-PFHxS	IS	78.5	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1

Sample ID: GW2103121435GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC02-MW1S
Matrix: Aqueous
Date Collected: 12-Mar-21 14:35

Laboratory Data

Lab Sample: 2103188-02
Date Received: 16-Mar-21 13:34
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	79.7	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C5-PFNA	IS	77.2	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C8-PFOSA	IS	57.1	10 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C2-PFOA	IS	75.9	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C8-PFOS	IS	72.9	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C2-PFDA	IS	74.5	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C2-8:2 FTS	IS	70.0	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
d3-MeFOSAA	IS	74.1	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C2-PFUnA	IS	69.2	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
d5-EtFOSAA	IS	67.7	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C2-PFDoA	IS	68.5	25 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1
13C2-PFTeDA	IS	58.5	20 - 150		B1C0180	22-Mar-21	0.258 L	26-Mar-21 04:40	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: GW2103121235GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC01-MW2D
Matrix: Aqueous
Date Collected: 12-Mar-21 12:35

Laboratory Data

Lab Sample: 2103188-03
Date Received: 16-Mar-21 13:34
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFPeA	2706-90-3	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFBS	375-73-5	6.69	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
4:2 FTS	757124-72-4	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFHxA	307-24-4	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFPeS	2706-91-4	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
HFPO-DA	13252-13-6	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFHpA	375-85-9	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
ADONA	919005-14-4	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFHxS	355-46-4	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
6:2 FTS	27619-97-2	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFOA	335-67-1	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFecHS	646-83-3	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFHpS	375-92-8	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFNA	375-95-1	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFOSA	754-91-6	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFOS	1763-23-1	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
9Cl-PF3ONS	756426-58-1	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFDA	335-76-2	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
8:2 FTS	39108-34-4	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFNS	68259-12-1	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
MeFOSAA	2355-31-9	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
EtFOSAA	2991-50-6	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFUnA	2058-94-8	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFDS	335-77-3	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
11Cl-PF3OUdS	763051-92-9	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFDoA	307-55-1	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFTrDA	72629-94-8	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
PFTeDA	376-06-7	ND	1.01	2.02	4.04		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	80.0	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C3-PFPeA	IS	72.8	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C3-PFBS	IS	74.9	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C3-HFPO-DA	IS	67.1	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C2-4:2 FTS	IS	79.7	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C2-PFHxA	IS	73.1	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C4-PFHpA	IS	72.1	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C3-PFHxS	IS	74.9	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1

Sample ID: GW2103121235GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC01-MW2D
Matrix: Aqueous
Date Collected: 12-Mar-21 12:35

Laboratory Data

Lab Sample: 2103188-03
Date Received: 16-Mar-21 13:34
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	76.8	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C5-PFNA	IS	73.3	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C8-PFOSA	IS	54.8	10 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C2-PFOA	IS	71.1	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C8-PFOS	IS	75.7	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C2-PFDA	IS	71.0	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C2-8:2 FTS	IS	74.7	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
d3-MeFOSAA	IS	70.4	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C2-PFUnA	IS	68.6	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
d5-EtFOSAA	IS	67.2	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C2-PFDoA	IS	68.6	25 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1
13C2-PFTeDA	IS	57.2	20 - 150		B1C0180	22-Mar-21	0.248 L	26-Mar-21 04:50	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: GW2103121145GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC01-MW2S
Matrix: Aqueous
Date Collected: 12-Mar-21 11:45

Laboratory Data

Lab Sample: 2103188-04
Date Received: 16-Mar-21 13:34
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	24.3	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFPeA	2706-90-3	34.0	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFBS	375-73-5	236	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
4:2 FTS	757124-72-4	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFHxA	307-24-4	30.8	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFPeS	2706-91-4	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
HFPO-DA	13252-13-6	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFHpA	375-85-9	10.6	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
ADONA	919005-14-4	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFHxS	355-46-4	2.04	1.01	2.01	4.02	J	B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
6:2 FTS	27619-97-2	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFOA	335-67-1	16.4	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFecHS	646-83-3	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFHpS	375-92-8	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFNA	375-95-1	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFOSA	754-91-6	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFOS	1763-23-1	2.45	1.01	2.01	4.02	J, Q	B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
9Cl-PF3ONS	756426-58-1	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFDA	335-76-2	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
8:2 FTS	39108-34-4	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFNS	68259-12-1	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
MeFOSAA	2355-31-9	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
EtFOSAA	2991-50-6	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFUnA	2058-94-8	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFDS	335-77-3	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
11Cl-PF3OUdS	763051-92-9	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFDoA	307-55-1	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFTrDA	72629-94-8	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
PFTeDA	376-06-7	ND	1.01	2.01	4.02		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	84.3	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C3-PFPeA	IS	72.8	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C3-PFBS	IS	71.6	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C3-HFPO-DA	IS	82.9	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C2-4:2 FTS	IS	79.2	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C2-PFHxA	IS	71.5	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C4-PFHpA	IS	73.9	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C3-PFHxS	IS	74.9	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1

Sample ID: GW2103121145GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC01-MW2S
Matrix: Aqueous
Date Collected: 12-Mar-21 11:45

Laboratory Data

Lab Sample: 2103188-04
Date Received: 16-Mar-21 13:34
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	77.6	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C5-PFNA	IS	74.5	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C8-PFOSA	IS	49.2	10 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C2-PFOA	IS	73.4	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C8-PFOS	IS	75.8	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C2-PFDA	IS	70.2	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C2-8:2 FTS	IS	71.4	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
d3-MeFOSAA	IS	71.5	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C2-PFUnA	IS	68.0	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
d5-EtFOSAA	IS	67.6	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C2-PFDoA	IS	67.1	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1
13C2-PFTeDA	IS	57.0	20 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:01	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: GW2103120945GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC01-MW1S
Matrix: Aqueous
Date Collected: 12-Mar-21 09:45

Laboratory Data

Lab Sample: 2103188-05
Date Received: 16-Mar-21 13:34
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFPeA	2706-90-3	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFBS	375-73-5	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
4:2 FTS	757124-72-4	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFHxA	307-24-4	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFPeS	2706-91-4	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
HFPO-DA	13252-13-6	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFHpA	375-85-9	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
ADONA	919005-14-4	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFHxS	355-46-4	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
6:2 FTS	27619-97-2	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFOA	335-67-1	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFecHS	646-83-3	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFHpS	375-92-8	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFNA	375-95-1	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFOSA	754-91-6	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFOS	1763-23-1	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFDA	335-76-2	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
8:2 FTS	39108-34-4	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFNS	68259-12-1	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
MeFOSAA	2355-31-9	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
EtFOSAA	2991-50-6	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFUnA	2058-94-8	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFDS	335-77-3	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFDoA	307-55-1	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFTrDA	72629-94-8	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
PFTeDA	376-06-7	ND	1.00	2.01	4.01		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.1	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C3-PFPeA	IS	76.8	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C3-PFBS	IS	81.0	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C3-HFPO-DA	IS	83.4	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C2-4:2 FTS	IS	80.6	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C2-PFHxA	IS	78.3	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C4-PFHpA	IS	76.9	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C3-PFHxS	IS	79.5	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1

Sample ID: GW2103120945GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC01-MW1S
Matrix: Aqueous
Date Collected: 12-Mar-21 09:45

Laboratory Data

Lab Sample: 2103188-05
Date Received: 16-Mar-21 13:34
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	82.4	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C5-PFNA	IS	79.3	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C8-PFOSA	IS	56.7	10 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C2-PFOA	IS	77.5	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C8-PFOS	IS	81.5	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C2-PFDA	IS	75.7	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C2-8:2 FTS	IS	83.9	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
d3-MeFOSAA	IS	74.2	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C2-PFUnA	IS	70.1	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
d5-EtFOSAA	IS	68.4	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C2-PFDoA	IS	73.8	25 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1
13C2-PFTeDA	IS	60.3	20 - 150		B1C0180	22-Mar-21	0.249 L	26-Mar-21 05:11	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: GW2103120855GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC01-MW1D
Matrix: Aqueous
Date Collected: 12-Mar-21 08:55

Laboratory Data

Lab Sample: 2103188-06
Date Received: 16-Mar-21 13:34
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFPeA	2706-90-3	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFBS	375-73-5	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
4:2 FTS	757124-72-4	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFHxA	307-24-4	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFPeS	2706-91-4	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
HFPO-DA	13252-13-6	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFHpA	375-85-9	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
ADONA	919005-14-4	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFHxS	355-46-4	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
6:2 FTS	27619-97-2	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFOA	335-67-1	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFecHS	646-83-3	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFHpS	375-92-8	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFNA	375-95-1	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFOSA	754-91-6	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFOS	1763-23-1	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
9Cl-PF3ONS	756426-58-1	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFDA	335-76-2	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
8:2 FTS	39108-34-4	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFNS	68259-12-1	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
MeFOSAA	2355-31-9	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
EtFOSAA	2991-50-6	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFUnA	2058-94-8	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFDS	335-77-3	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
11Cl-PF3OUdS	763051-92-9	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFDoA	307-55-1	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFTrDA	72629-94-8	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
PFTeDA	376-06-7	ND	0.983	1.97	3.93		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.8	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C3-PFPeA	IS	77.6	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C3-PFBS	IS	83.7	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C3-HFPO-DA	IS	70.5	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C2-4:2 FTS	IS	83.1	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C2-PFHxA	IS	78.5	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C4-PFHpA	IS	79.7	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C3-PFHxS	IS	75.4	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1

Sample ID: GW2103120855GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC01-MW1D
Matrix: Aqueous
Date Collected: 12-Mar-21 08:55

Laboratory Data

Lab Sample: 2103188-06
Date Received: 16-Mar-21 13:34
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	81.4	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C5-PFNA	IS	76.7	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C8-PFOSA	IS	54.0	10 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C2-PFOA	IS	75.9	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C8-PFOS	IS	71.2	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C2-PFDA	IS	76.7	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C2-8:2 FTS	IS	75.6	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
d3-MeFOSAA	IS	75.7	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C2-PFUnA	IS	72.8	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
d5-EtFOSAA	IS	74.0	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C2-PFDoA	IS	72.9	25 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1
13C2-PFTeDA	IS	66.1	20 - 150		B1C0180	22-Mar-21	0.254 L	26-Mar-21 05:22	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: GW2103120855GSC-FD

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC01-MW1D
Matrix: Aqueous
Date Collected: 12-Mar-21 08:55

Laboratory Data

Lab Sample: 2103188-07
Date Received: 16-Mar-21 13:34
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFPeA	2706-90-3	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFBS	375-73-5	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
4:2 FTS	757124-72-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFHxA	307-24-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFPeS	2706-91-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
HFPO-DA	13252-13-6	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFHpA	375-85-9	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
ADONA	919005-14-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFHxS	355-46-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
6:2 FTS	27619-97-2	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFOA	335-67-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFecHS	646-83-3	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFHpS	375-92-8	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFNA	375-95-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFOSA	754-91-6	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFOS	1763-23-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFDA	335-76-2	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
8:2 FTS	39108-34-4	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFNS	68259-12-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
MeFOSAA	2355-31-9	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
EtFOSAA	2991-50-6	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFUnA	2058-94-8	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFDS	335-77-3	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFDoA	307-55-1	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFTrDA	72629-94-8	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
PFTeDA	376-06-7	ND	1.00	2.00	4.00		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	85.3	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C3-PFPeA	IS	74.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C3-PFBS	IS	78.2	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C3-HFPO-DA	IS	75.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C2-4:2 FTS	IS	74.3	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C2-PFHxA	IS	74.2	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C4-PFHpA	IS	74.6	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C3-PFHxS	IS	77.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1

Sample ID: GW2103120855GSC-FD

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Location: BC01-MW1D
Matrix: Aqueous
Date Collected: 12-Mar-21 08:55

Laboratory Data

Lab Sample: 2103188-07
Date Received: 16-Mar-21 13:34
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	74.3	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C5-PFNA	IS	76.3	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C8-PFOSA	IS	47.5	10 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C2-PFOA	IS	73.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C8-PFOS	IS	72.3	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C2-PFDA	IS	73.8	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C2-8:2 FTS	IS	70.6	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
d3-MeFOSAA	IS	72.6	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C2-PFUnA	IS	68.6	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
d5-EtFOSAA	IS	69.4	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C2-PFDoA	IS	70.0	25 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1
13C2-PFTeDA	IS	60.7	20 - 150		B1C0180	22-Mar-21	0.250 L	26-Mar-21 05:32	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: FB2103120850GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Matrix: Aqueous
Date Collected: 12-Mar-21 08:50

Laboratory Data

Lab Sample: 2103188-08
Date Received: 16-Mar-21 13:34
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFPeA	2706-90-3	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFBS	375-73-5	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
4:2 FTS	757124-72-4	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFHxA	307-24-4	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFPeS	2706-91-4	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
HFPO-DA	13252-13-6	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFHpA	375-85-9	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
ADONA	919005-14-4	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFHxS	355-46-4	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
6:2 FTS	27619-97-2	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFOA	335-67-1	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFecHS	646-83-3	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFHpS	375-92-8	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFNA	375-95-1	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFOSA	754-91-6	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFOS	1763-23-1	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
9Cl-PF3ONS	756426-58-1	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFDA	335-76-2	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
8:2 FTS	39108-34-4	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFNS	68259-12-1	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
MeFOSAA	2355-31-9	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
EtFOSAA	2991-50-6	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFUnA	2058-94-8	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFDS	335-77-3	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
11Cl-PF3OUdS	763051-92-9	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFDoA	307-55-1	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFTrDA	72629-94-8	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
PFTeDA	376-06-7	ND	0.991	1.98	3.96		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	77.4	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C3-PFPeA	IS	68.5	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C3-PFBS	IS	73.9	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C3-HFPO-DA	IS	78.8	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C2-4:2 FTS	IS	65.7	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C2-PFHxA	IS	69.2	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C4-PFHpA	IS	69.7	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C3-PFHxS	IS	72.0	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1

Sample ID: FB2103120850GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: WIXOM Well sampling/Bio solids
Matrix: Aqueous
Date Collected: 12-Mar-21 08:50

Laboratory Data

Lab Sample: 2103188-08
Date Received: 16-Mar-21 13:34
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	70.7	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C5-PFNA	IS	71.4	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C8-PFOSA	IS	37.3	10 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C2-PFOA	IS	69.3	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C8-PFOS	IS	64.7	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C2-PFDA	IS	67.8	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C2-8:2 FTS	IS	69.2	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
d3-MeFOSAA	IS	59.8	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C2-PFUnA	IS	64.6	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
d5-EtFOSAA	IS	54.8	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C2-PFDoA	IS	61.7	25 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1
13C2-PFTeDA	IS	47.2	20 - 150		B1C0180	22-Mar-21	0.252 L	26-Mar-21 05:42	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

— revised COC — recd via email on 03/16/21 1414 WLS 03/17/21

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 2103188 Temp: 3.6, 1.5 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: **WIXOM Well sampling/ Bio solids** PO#: **60588767** Sampler: **Garth Cousineau** (name)

TAT (check one): Standard: [X] 21 days Rush (surcharge may apply) [ ] 14 days [ ] 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Stephanie Kammer	EGLE	525 W. Allegan St	Lansing	MI	517-897-1597	517-241-3571

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Garth Cousineau			see original COC		
Dorin Bogdan	3/16/2021	17:00			

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

~~Method of Shipment:~~

ATTN: _____ Tracking No.: _____

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537: PFOA/ PFOS	UCMR3 PFAS List:6	537 List: 14	PFAS List of 24	Other: Please List Below	PFAS List of 28 + PFECHS	EPA Method 537(DW only): PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
GW2103121400GSC	3/12/21	1400	BC02-MW1D	2	P	AQ						X				
GW2103121435GSC	3/12/21	1435	BC02-MW1S	2	P	AQ						X				
GW2103121235GSC	3/12/21	1235	BC01-MW2D	2	P	AQ						X				
GW2103121145GSC	3/12/21	1145	BC01-MW2S	2	P	AQ						X				
GW2103120945GSC	3/12/21	0945	BC01-MW1S	2	P	AQ						X				
GW2103120855GSC	3/12/21	0855	BC01-MW1D	2	P	AQ						X				
GW2103120855GSC-FD	3/12/21	0855	BC01-MW1D	2	P	AQ						X				FIELD DUPLICATE
FB2103120850GSC	3/12/21	0850		2	P	AQ						X				FIELD BLANK

Special Instructions/Comments: **Send Results and Acknowledgements to:**
Michael.Wolf@aecom.com
Dorin.Bogdan@aecom.com
Robert.Kennedy@aecom.com

SEND DOCUMENTATION AND RESULTS TO:
Name: **Stephanie Kammer**
Company: **EGLE**
Address: **525 W. Allegan St**
City: **Lansing** MI 48909
Phone: **517-897-1597** **517-241-3571**
Email:

Container Types: P= HDPE, PJ= HDPE Jar
O = Other: _____

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Vista Analytical Laboratory

Reje Mosby — see revised COC —

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 2103188 Temp: 3.6, 1.5 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: **WIXOM Well sampling/ Bio solids** PO#: **60588767** Sampler: **Garth Cousineau** (name)

TAT (check one): Standard: X 21 days; Rush (surcharge may apply): ☐ 14 days ☐ 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Stephanie Kammer	EGLE	525 W. Allegan St	Lansing	MI	517-897-1597	517-241-3571

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
~~Garth Cousineau~~ Michael Krosci.	3/15/21	1830	Karen Y. Ault	03/16/21	13:39
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Method of Shipment:

ATTN:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537: PFOA/ PFOS	UCMR3 PFAS List:6	537 List: 14	PFAS List of 24	Other: Please List Below	PFAS List of 28 - Branch and Linear	EPA Method 537(DW only): PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
GW2103121~~4~~55GSC	3/12/21	1~~4~~35	BC02-MW1D	2	P	AQ				X						1400
GW2103121~~4~~35GSC 1435	3/12/21	1~~4~~00	BC02-MW1S	2	P	AQ				X						1435
GW2103121235GSC	3/12/21	1235	BC01-MW2D	2	P	AQ				X						
GW2103121145GSC	3/12/21	1145	BC01-MW2S	2	P	AQ				X						
GW2103120945GSC	3/12/21	0945	BC01-MW1S	2	P	AQ				X						
GW2103120855GSC	3/12/21	0855	BC01-MW1D	2	P	AQ				X						
GW2103120855GSC-FD	3/12/21	0855	BC01-MW1D	2	P	AQ				X						FIELD DUPLICATE
FB2103120850GSC	3/12/21	0850		2	P	AQ				X						FIELD BLANK

Special Instructions/Comments: **Send Results and Acknowledgements to:**
Michael.Wolf@aecom.com
Dorin.Bogdan@aecom.com
Robert.Kennedy@aecom.com

SEND DOCUMENTATION AND RESULTS TO:
Name: **Stephanie Kammer**
Company: **EGLE**
Address: **525 W. Allegan St**
City: **Lansing** MI 48909
Phone: **517-897-1597** **517-241-3571**
Email:

Container Types: P= HDPE, PJ= HDPE Jar, O = Other:

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 2

Vista Work Order #: 2103188 TAT std

Samples Arrival:	Date/Time: 03/16/21 13:34	Initials: KS	Location: WR-2 Shelf/Rack: N/A

Delivered By:	(FedEx)	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Techni Ice	Dry Ice	None

Temp °C: 3.6 (uncorrected)	Probe used: Y (N)	Thermometer ID: IR-4
Temp °C: 3.6 (corrected)		

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Airbill ✓ Trk # 7847 7748 5851	✓		
Shipping Documentation Present?	✓		
Shipping Container: Vista / (Client) / Retain / (Return)		Dispose	
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	Date/Time: 03/17/21 0851	Initials: WWS	Location: R-13, WR-2 Shelf/Rack: 3-2, F-5

COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 2 of 2

Vista Work Order #: 2103188 TAT std

Samples Arrival:	Date/Time	Initials:	Location: WR-2
	03/16/21 13:34	KS	Shelf/Rack: N/A

Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
	(FedEx)						

Preservation:	Ice	Blue Ice	Techni Ice	Dry Ice	None
	(Ice)				

Temp °C: 1.5 (uncorrected)	Probe used: Y / N	Thermometer ID: IR-4
Temp °C: 1.5 (corrected)		

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Airbill ✓ Trk # 7847 7765 3745	✓		
Shipping Documentation Present?	✓		
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Shipping Container	Vista	Client	Retain	Return	Dispose
		(Client)		(Return)	

Logged In:	Date/Time	Initials:	Location: R-13, WR-2
	03/17/21 0851	MWS	Shelf/Rack: B-2, F-5

COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

CoC/Label Reconciliation Report WO# 2103188

	LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Report Matrix	Sample Comments
C1	2103188-01	A GW2103121400GSC	☑	BC02-MW1D	12-Mar-21 14:00	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-01	B GW2103121400GSC	☑	BC02-MW1D	12-Mar-21 14:00	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-02	A GW2103121435GSC	☑	BC02-MW1S	12-Mar-21 14:35	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-02	B GW2103121435GSC	☑	BC02-MW1S	12-Mar-21 14:35	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-03	A GW2103121235GSC	☑	BC01-MW2D	12-Mar-21 12:35	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-03	B GW2103121235GSC	☑	BC01-MW2D	12-Mar-21 12:35	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-04	A GW2103121145GSC	☑	BC01-MW2S	12-Mar-21 11:45	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-04	B GW2103121145GSC	☑	BC01-MW2S	12-Mar-21 11:45	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-05	A GW2103120945GSC	☑	BC01-MW1S	12-Mar-21 09:45	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-05	B GW2103120945GSC	☑	BC01-MW1S	12-Mar-21 09:45	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
C2	2103188-06	A GW2103120855GSC	☑	BC01-MW1D	12-Mar-21 08:55	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-06	B GW2103120855GSC	☑	BC01-MW1D	12-Mar-21 08:55	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
C1	2103188-07	A GW2103120855GSC-FD	☑	BC01-MW1D	12-Mar-21 08:55	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-07	B GW2103120855GSC-FD	☑	BC01-MW1D	12-Mar-21 08:55	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-08	A FB2103120850GSC	☑		12-Mar-21 08:50	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	
	2103188-08	B FB2103120850GSC	☑		12-Mar-21 08:50	☑	HDPE Bottle, 250 mL	Aqueous	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		

Comments: C1 = Cooler 1 of 2
C2 = Cooler 2 of 2

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 None (All) Other

Verifed by/Date: YA 03/17/21

Appendix D – 2021 and 2022 Residential Analytical Reports

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

19 April 2022

Work Order: 2204038

Price: $5,750.00

Mike Jury
EGLE-RRD-SE MICHIGAN
27700 Donald Court
Warren, MI 48092

RE: WIXOM WWTP BIOSOLIDS FIELD-PFAS

This is the official environmental laboratory report for testing conducted by the Michigan Department of Environment, Great Lakes, and Energy. Analyses performed by the laboratory were conducted using methods published by the U.S. Environmental Protection Agency, Standard Methods for the Examination of Water and Wastewater, ASTM, or other published or approved reference methods.

Kirby Shane
Laboratory Director

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

EGLE-RRD-SE MICHIGAN
27700 Donald Court
Warren MI, 48092

Project: WIXOM WWTP BIOSOLIDS FIELD-PFAS
Site Code: 02N05E01BC
Project Manager: Mike Jury

Reported:
04/19/2022

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
FB2204071030JNR	2204038-01	Drinking Water	04/07/2022	04/11/2022	
WR2204071025JNR	2204038-02	Drinking Water	04/07/2022	04/11/2022	
WR2204071025JNRDUP	2204038-03	Drinking Water	04/07/2022	04/11/2022	
WR2204071045JNR	2204038-04	Drinking Water	04/07/2022	04/11/2022	
WR2204071115JNR	2204038-05	Drinking Water	04/07/2022	04/11/2022	
WR2204071130JNR	2204038-06	Drinking Water	04/07/2022	04/11/2022	
WR2204071155JNR	2204038-07	Drinking Water	04/07/2022	04/11/2022	
WR2204071205JNR	2204038-08	Drinking Water	04/07/2022	04/11/2022	
WR2204071215JNR	2204038-09	Drinking Water	04/07/2022	04/11/2022	
WR2204071220JNR	2204038-10	Drinking Water	04/07/2022	04/11/2022	
WR2204071230JNR	2204038-11	Drinking Water	04/07/2022	04/11/2022	
WR2204071330JNR	2204038-12	Drinking Water	04/07/2022	04/11/2022	
WR2204071335JNR	2204038-13	Drinking Water	04/07/2022	04/11/2022	
WR2204071350JNR	2204038-14	Drinking Water	04/07/2022	04/11/2022	
WR2204071405JNR	2204038-15	Drinking Water	04/07/2022	04/11/2022	
WR2204071420JNR	2204038-16	Drinking Water	04/07/2022	04/11/2022	
WR2204071435JNR	2204038-17	Drinking Water	04/07/2022	04/11/2022	
WR2204071445JNR	2204038-18	Drinking Water	04/07/2022	04/11/2022	
WR2204071455JNR	2204038-19	Drinking Water	04/07/2022	04/11/2022	
WR2204071510JNR	2204038-20	Drinking Water	04/07/2022	04/11/2022	
FB2204071530JNR	2204038-21	Drinking Water	04/07/2022	04/11/2022	
WR2204071525JNR	2204038-22	Drinking Water	04/07/2022	04/11/2022	
WR2204071525JNRDUP	2204038-23	Drinking Water	04/07/2022	04/11/2022	
WR2204071545JNR	2204038-24	Drinking Water	04/07/2022	04/11/2022	
WR2204071555JNR	2204038-25	Drinking Water	04/07/2022	04/11/2022	

Notes and Definitions

A03	Result(s) and reporting limit(s) are estimated due to low matrix spike recovery.
A01	Result(s) and reporting limit(s) are estimated due to low surrogate recovery.
ND	Indicates compound analyzed for but not detected at or above the reporting limit (RL).
RL	Reporting Limit
NA	Not Applicable

MICHIGAN DEPARTMENT OF
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*****Case Narrative*****

Samples were received **4/11/2022 9:06:00AM** for client **EGLE-RRD-SE MICHIGAN** as a part of project **WIXOM WWTP BIOSOLIDS FIELD-PFAS**.

Samples were logged and designated as Work Order # **2204038** on **4/11/2022 9:13:00AM**.

This Report was created **4/19/2022 2:31:52PM**.

Additional Notes/Narrative (if applicable):

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Client ID: FB2204071030JNR

Lab ID: 2204038-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*96.4 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*97.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*93.7 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*95.8 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071025JNR

Lab ID: 2204038-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*96.2 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*94.2 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*93.2 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*96.4 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071025JNRDUP

Lab ID: 2204038-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*94.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*94.2 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*92.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*96.2 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071045JNR

Lab ID: 2204038-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*91.9 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*93.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*93.7 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*94.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071115JNR

Lab ID: 2204038-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										**See note A01**
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/14/22	B2D1305	537.1	AN	
Surrogate: 13C2-PFDA			*78.2 %*	*70-130*		*04/14/22*	B2D1305	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*90.8 %*	*70-130*		*04/14/22*	B2D1305	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*103 %*	*70-130*		*04/14/22*	B2D1305	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*61.9 %*	*70-130*		*04/14/22*	B2D1305	*537.1*	*AN*	

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Client ID: WR2204071130JNR

Lab ID: 2204038-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*88.7 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*92.9 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*94.2 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*78.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071155JNR

Lab ID: 2204038-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*89.5 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*95.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*96.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*77.2 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

MICHIGAN DEPARTMENT OF
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ENVIRONMENTAL LABORATORY

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Client ID: WR2204071205JNR

Lab ID: 2204038-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*85.7 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*92.3 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*94.7 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*77.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071215JNR

Lab ID: 2204038-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										**See note A01**
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*73.4 %*	*70-130*		*04/13/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*92.7 %*	*70-130*		*04/13/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*97.3 %*	*70-130*		*04/13/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*57.7 %*	*70-130*		*04/13/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071220JNR

Lab ID: 2204038-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*86.7 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*93.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*93.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*77.7 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071230JNR

Lab ID: 2204038-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*91.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*92.1 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*93.9 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*81.1 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071330JNR

Lab ID: 2204038-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*95.1 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*95.1 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*96.9 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*97.5 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071335JNR

Lab ID: 2204038-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*90.2 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*97.7 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*98.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*83.9 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071350JNR

Lab ID: 2204038-14

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*91.5 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*92.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*95.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*89.5 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071405JNR

Lab ID: 2204038-15

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*83.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*93.1 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*98.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*72.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

MICHIGAN DEPARTMENT OF
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Client ID: WR2204071420JNR

Lab ID: 2204038-16

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*91.9 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*91.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*96.4 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*91.4 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071435JNR

Lab ID: 2204038-17

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*90.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*90.4 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*95.4 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*78.2 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071445JNR

Lab ID: 2204038-18

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*92.3 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*90.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*96.0 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*89.6 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071455JNR

Lab ID: 2204038-19

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*93.5 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*89.9 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*97.1 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*90.8 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: WR2204071510JNR

Lab ID: 2204038-20

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1203	537.1	AN	
Surrogate: 13C2-PFDA			*92.2 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*94.9 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*98.1 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*84.9 %*	*70-130*		*04/12/22*	B2D1203	*537.1*	*AN*	

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Client ID: FB2204071530JNR

Lab ID: 2204038-21

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/12/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*106 %*	*70-130*		*04/12/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*115 %*	*70-130*		*04/12/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*117 %*	*70-130*		*04/12/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*100 %*	*70-130*		*04/12/22*	B2D1204	*537.1*	*AN*	

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Client ID: WR2204071525JNR

Lab ID: 2204038-22

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	A03
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	A03
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	A03
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	A03
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*96.7 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*103 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*110 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*91.1 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

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ENVIRONMENTAL LABORATORY

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Client ID: WR2204071525JNRDUP

Lab ID: 2204038-23

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*98.8 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*109 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*115 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*84.9 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

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Client ID: WR2204071545JNR

Lab ID: 2204038-24

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*93.6 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*104 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*115 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*74.5 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

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Client ID: WR2204071555JNR

Lab ID: 2204038-25

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*102 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*110 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*114 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*81.6 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

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Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier
Batch B2D1203 - Method: 537.1				**Prepared: 04/12/2022**							
Blank (B2D1203-BLK1)											
11Cl-PF3OUdS	ND	2	ng/L							04/12/2022	
9Cl-PF3ONS	ND	2	ng/L							04/12/2022	
ADONA	ND	2	ng/L							04/12/2022	
HFPO-DA	ND	2	ng/L							04/12/2022	
NEtFOSAA	ND	2	ng/L							04/12/2022	
NMeFOSAA	ND	2	ng/L							04/12/2022	
PFBS	ND	2	ng/L							04/12/2022	
PFDA	ND	2	ng/L							04/12/2022	
PFDoA	ND	2	ng/L							04/12/2022	
PFHpA	ND	2	ng/L							04/12/2022	
PFHxA	ND	2	ng/L							04/12/2022	
PFHxS	ND	2	ng/L							04/12/2022	
PFNA	ND	2	ng/L							04/12/2022	
PFOA	ND	2	ng/L							04/12/2022	
PFOS	ND	2	ng/L							04/12/2022	
PFTA	ND	2	ng/L							04/12/2022	
PFTrDA	ND	2	ng/L							04/12/2022	
PFUnA	ND	2	ng/L							04/12/2022	
Surrogate: 13C2-PFDA	*36.8*		ng/L	*40.00*		*91.9*	*70-130*			04/12/2022	
Surrogate: 13C2-PFHxA	*37.4*		ng/L	*40.00*		*93.4*	*70-130*			04/12/2022	
Surrogate: 13C3-HFPO-DA	*35.2*		ng/L	*40.00*		*87.9*	*70-130*			04/12/2022	
Surrogate: d5-NEtFOSAA	*147*		ng/L	*160.0*		*91.9*	*70-130*			04/12/2022	
LCS (B2D1203-BS1)											
11Cl-PF3OUdS	33.8	2	ng/L	37.60		89.8	70-130			04/12/2022	
9Cl-PF3ONS	33.2	2	ng/L	37.20		89.4	70-130			04/12/2022	
ADONA	36.5	2	ng/L	37.80		96.5	70-130			04/12/2022	
HFPO-DA	36.4	2	ng/L	40.00		91.0	70-130			04/12/2022	
NEtFOSAA	36.9	2	ng/L	40.00		92.3	70-130			04/12/2022	
NMeFOSAA	35.8	2	ng/L	40.00		89.5	70-130			04/12/2022	
PFBS	32.9	2	ng/L	35.40		92.9	70-130			04/12/2022	
PFDA	37.6	2	ng/L	40.00		94.0	70-130			04/12/2022	
PFDoA	35.3	2	ng/L	40.00		88.3	70-130			04/12/2022	
PFHpA	38.3	2	ng/L	40.00		95.8	70-130			04/12/2022	
PFHxA	37.9	2	ng/L	40.00		94.8	70-130			04/12/2022	
PFHxS	33.9	2	ng/L	36.48		92.9	70-130			04/12/2022	
PFNA	40.4	2	ng/L	40.00		101	70-130			04/12/2022	
PFOA	38.1	2	ng/L	40.00		95.4	70-130			04/12/2022	
PFOS	33.7	2	ng/L	37.02		90.9	70-130			04/12/2022	
PFTA	32.1	2	ng/L	40.00		80.4	70-130			04/12/2022	
PFTrDA	31.9	2	ng/L	40.00		79.9	70-130			04/12/2022	
PFUnA	38.7	2	ng/L	40.00		96.8	70-130			04/12/2022	
Surrogate: 13C2-PFDA	*38.5*		ng/L	*40.00*		*96.3*	*70-130*			04/12/2022	
Surrogate: 13C2-PFHxA	*38.6*		ng/L	*40.00*		*96.5*	*70-130*			04/12/2022	
Surrogate: 13C3-HFPO-DA	*38.4*		ng/L	*40.00*		*96.0*	*70-130*			04/12/2022	
Surrogate: d5-NEtFOSAA	*148*		ng/L	*160.0*		*92.7*	*70-130*			04/12/2022	

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Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier
Batch B2D1203 - Method: 537.1				**Prepared: 04/12/2022**							
Matrix Spike (B2D1203-MS1)	**Source: 2204038-02**										
11Cl-PF3OUdS	33.1	2	ng/L	37.36	ND	88.6	70-130			04/12/2022	
9Cl-PF3ONS	33.2	2	ng/L	36.97	ND	89.8	70-130			04/12/2022	
ADONA	36.4	2	ng/L	37.56	ND	96.8	70-130			04/12/2022	
HFPO-DA	35.6	2	ng/L	39.75	ND	89.6	70-130			04/12/2022	
NEtFOSAA	36.2	2	ng/L	39.75	ND	91.1	70-130			04/12/2022	
NMeFOSAA	34.9	2	ng/L	39.75	ND	87.7	70-130			04/12/2022	
PFBS	29.0	2	ng/L	35.18	ND	82.5	70-130			04/12/2022	
PFDA	37.2	2	ng/L	39.75	ND	93.7	70-130			04/12/2022	
PFDoA	34.9	2	ng/L	39.75	ND	87.9	70-130			04/12/2022	
PFHpA	38.9	2	ng/L	39.75	ND	97.9	70-130			04/12/2022	
PFHxA	35.5	2	ng/L	39.75	ND	89.2	70-130			04/12/2022	
PFHxS	34.9	2	ng/L	36.25	ND	96.2	70-130			04/12/2022	
PFNA	39.8	2	ng/L	39.75	ND	100	70-130			04/12/2022	
PFOA	38.2	2	ng/L	39.75	ND	96.0	70-130			04/12/2022	
PFOS	33.2	2	ng/L	36.79	ND	90.3	70-130			04/12/2022	
PFTA	32.6	2	ng/L	39.75	ND	82.0	70-130			04/12/2022	
PFTrDA	31.4	2	ng/L	39.75	ND	78.9	70-130			04/12/2022	
PFUnA	37.5	2	ng/L	39.75	ND	94.3	70-130			04/12/2022	
Surrogate: 13C2-PFDA	*36.0*		ng/L	*39.75*		*90.7*	*70-130*			04/12/2022	
Surrogate: 13C2-PFHxA	*34.4*		ng/L	*39.75*		*86.4*	*70-130*			04/12/2022	
Surrogate: 13C3-HFPO-DA	*34.8*		ng/L	*39.75*		*87.6*	*70-130*			04/12/2022	
Surrogate: d5-NEtFOSAA	*142*		ng/L	*159.0*		*89.4*	*70-130*			04/12/2022	
Matrix Spike Dup (B2D1203-MSD1)	**Source: 2204038-02**										
11Cl-PF3OUdS	33.6	2	ng/L	37.03	ND	90.7	70-130	1.45	30	04/12/2022	
9Cl-PF3ONS	33.2	2	ng/L	36.64	ND	90.7	70-130	0.108	30	04/12/2022	
ADONA	36.2	2	ng/L	37.23	ND	97.3	70-130	0.368	30	04/12/2022	
HFPO-DA	37.6	2	ng/L	39.39	ND	95.4	70-130	5.41	30	04/12/2022	
NEtFOSAA	37.5	2	ng/L	39.39	ND	95.1	70-130	3.41	30	04/12/2022	
NMeFOSAA	35.7	2	ng/L	39.39	ND	90.7	70-130	2.46	30	04/12/2022	
PFBS	31.0	2	ng/L	34.86	ND	88.9	70-130	6.48	30	04/12/2022	
PFDA	37.9	2	ng/L	39.39	ND	96.3	70-130	1.81	30	04/12/2022	
PFDoA	35.8	2	ng/L	39.39	ND	90.9	70-130	2.40	30	04/12/2022	
PFHpA	39.1	2	ng/L	39.39	ND	99.1	70-130	0.411	30	04/12/2022	
PFHxA	37.2	2	ng/L	39.39	ND	94.4	70-130	4.80	30	04/12/2022	
PFHxS	34.8	2	ng/L	35.93	ND	96.7	70-130	0.368	30	04/12/2022	
PFNA	40.7	2	ng/L	39.39	ND	103	70-130	2.06	30	04/12/2022	
PFOA	38.2	2	ng/L	39.39	ND	97.0	70-130	0.110	30	04/12/2022	
PFOS	33.8	2	ng/L	36.46	ND	92.6	70-130	1.70	30	04/12/2022	
PFTA	33.6	2	ng/L	39.39	ND	85.3	70-130	3.08	30	04/12/2022	
PFTrDA	32.5	2	ng/L	39.39	ND	82.4	70-130	3.50	30	04/12/2022	
PFUnA	38.7	2	ng/L	39.39	ND	98.3	70-130	3.28	30	04/12/2022	
Surrogate: 13C2-PFDA	*37.6*		ng/L	*39.39*		*95.4*	*70-130*			04/12/2022	
Surrogate: 13C2-PFHxA	*36.6*		ng/L	*39.39*		*92.9*	*70-130*			04/12/2022	
Surrogate: 13C3-HFPO-DA	*36.7*		ng/L	*39.39*		*93.0*	*70-130*			04/12/2022	
Surrogate: d5-NEtFOSAA	*144*		ng/L	*157.6*		*91.6*	*70-130*			04/12/2022	

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Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier
Batch B2D1204 - Method: 537.1				**Prepared: 04/12/2022**							
Blank (B2D1204-BLK1)											
11Cl-PF3OUdS	ND	2	ng/L							04/12/2022	
9Cl-PF3ONS	ND	2	ng/L							04/12/2022	
ADONA	ND	2	ng/L							04/12/2022	
HFPO-DA	ND	2	ng/L							04/12/2022	
NEtFOSAA	ND	2	ng/L							04/12/2022	
NMeFOSAA	ND	2	ng/L							04/12/2022	
PFBS	ND	2	ng/L							04/12/2022	
PFDA	ND	2	ng/L							04/12/2022	
PFDoA	ND	2	ng/L							04/12/2022	
PFHpA	ND	2	ng/L							04/12/2022	
PFHxA	ND	2	ng/L							04/12/2022	
PFHxS	ND	2	ng/L							04/12/2022	
PFNA	ND	2	ng/L							04/12/2022	
PFOA	ND	2	ng/L							04/12/2022	
PFOS	ND	2	ng/L							04/12/2022	
PFTA	ND	2	ng/L							04/12/2022	
PFTrDA	ND	2	ng/L							04/12/2022	
PFUnA	ND	2	ng/L							04/12/2022	
Surrogate: 13C2-PFDA	*38.1*		ng/L	*40.00*		*95.4*	*70-130*			04/12/2022	
Surrogate: 13C2-PFHxA	*41.8*		ng/L	*40.00*		*104*	*70-130*			04/12/2022	
Surrogate: 13C3-HFPO-DA	*43.1*		ng/L	*40.00*		*108*	*70-130*			04/12/2022	
Surrogate: d5-NEtFOSAA	*157*		ng/L	*160.0*		*97.9*	*70-130*			04/12/2022	
LCS (B2D1204-BS1)											
11Cl-PF3OUdS	82.8	2	ng/L	94.00		88.1	70-130			04/12/2022	
9Cl-PF3ONS	80.8	2	ng/L	93.00		86.9	70-130			04/12/2022	
ADONA	92.3	2	ng/L	94.50		97.7	70-130			04/12/2022	
HFPO-DA	102	2	ng/L	100.0		102	70-130			04/12/2022	
NEtFOSAA	89.8	2	ng/L	100.0		89.8	70-130			04/12/2022	
NMeFOSAA	87.3	2	ng/L	100.0		87.3	70-130			04/12/2022	
PFBS	91.4	2	ng/L	88.50		103	70-130			04/12/2022	
PFDA	90.1	2	ng/L	100.0		90.1	70-130			04/12/2022	
PFDoA	86.9	2	ng/L	100.0		86.9	70-130			04/12/2022	
PFHpA	97.6	2	ng/L	100.0		97.6	70-130			04/12/2022	
PFHxA	97.9	2	ng/L	100.0		97.9	70-130			04/12/2022	
PFHxS	89.0	2	ng/L	91.20		97.6	70-130			04/12/2022	
PFNA	98.3	2	ng/L	100.0		98.3	70-130			04/12/2022	
PFOA	99.0	2	ng/L	100.0		99.0	70-130			04/12/2022	
PFOS	82.7	2	ng/L	92.55		89.3	70-130			04/12/2022	
PFTA	86.4	2	ng/L	100.0		86.4	70-130			04/12/2022	
PFTrDA	82.7	2	ng/L	100.0		82.7	70-130			04/12/2022	
PFUnA	92.2	2	ng/L	100.0		92.2	70-130			04/12/2022	
Surrogate: 13C2-PFDA	*37.6*		ng/L	*40.00*		*94.0*	*70-130*			04/12/2022	
Surrogate: 13C2-PFHxA	*39.6*		ng/L	*40.00*		*99.1*	*70-130*			04/12/2022	
Surrogate: 13C3-HFPO-DA	*43.2*		ng/L	*40.00*		*108*	*70-130*			04/12/2022	

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Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier
Batch B2D1204 - Method: 537.1				**Prepared: 04/12/2022**							
LCS (B2D1204-BS1)											
Surrogate: d5-NEtFOSAA	*145*		ng/L	*160.0*		*90.8*	*70-130*			04/12/2022	
Matrix Spike (B2D1204-MS1)	**Source: 2204038-22**										
11Cl-PF3OUdS	61.2	2	ng/L	89.61	ND	68.3	70-130			04/13/2022	A03
9Cl-PF3ONS	72.1	2	ng/L	88.66	ND	81.3	70-130			04/13/2022	
ADONA	90.2	2	ng/L	90.09	ND	100	70-130			04/13/2022	
HFPO-DA	99.2	2	ng/L	95.33	ND	104	70-130			04/13/2022	
NEtFOSAA	67.3	2	ng/L	95.33	0.237	70.3	70-130			04/13/2022	
NMeFOSAA	67.5	2	ng/L	95.33	0.191	70.6	70-130			04/13/2022	
PFBS	84.9	2	ng/L	84.37	ND	101	70-130			04/13/2022	
PFDA	78.8	2	ng/L	95.33	ND	82.7	70-130			04/13/2022	
PFDoA	64.9	2	ng/L	95.33	ND	68.0	70-130			04/13/2022	A03
PFHpA	93.6	2	ng/L	95.33	ND	98.2	70-130			04/13/2022	
PFHxA	88.7	2	ng/L	95.33	ND	93.0	70-130			04/13/2022	
PFHxS	86.9	2	ng/L	86.94	ND	99.9	70-130			04/13/2022	
PFNA	87.8	2	ng/L	95.33	ND	92.1	70-130			04/13/2022	
PFOA	91.5	2	ng/L	95.33	ND	96.0	70-130			04/13/2022	
PFOS	75.4	2	ng/L	88.23	ND	85.5	70-130			04/13/2022	
PFTA	64.4	2	ng/L	95.33	ND	67.5	70-130			04/13/2022	A03
PFTrDA	61.3	2	ng/L	95.33	ND	64.3	70-130			04/13/2022	A03
PFUnA	73.7	2	ng/L	95.33	ND	77.3	70-130			04/13/2022	
Surrogate: 13C2-PFDA	*34.3*		ng/L	*38.13*		*90.0*	*70-130*			04/13/2022	
Surrogate: 13C2-PFHxA	*39.1*		ng/L	*38.13*		*103*	*70-130*			04/13/2022	
Surrogate: 13C3-HFPO-DA	*43.3*		ng/L	*38.13*		*113*	*70-130*			04/13/2022	
Surrogate: d5-NEtFOSAA	*108*		ng/L	*152.5*		*71.0*	*70-130*			04/13/2022	
Matrix Spike Dup (B2D1204-MSD1)	**Source: 2204038-22**										**A01**
11Cl-PF3OUdS	61.5	2	ng/L	92.90	ND	66.2	70-130	0.457	30	04/13/2022	A03
9Cl-PF3ONS	70.3	2	ng/L	91.91	ND	76.4	70-130	2.55	30	04/13/2022	
ADONA	92.0	2	ng/L	93.39	ND	98.5	70-130	2.03	30	04/13/2022	
HFPO-DA	104	2	ng/L	98.83	ND	105	70-130	4.26	30	04/13/2022	
NEtFOSAA	65.7	2	ng/L	98.83	0.237	66.2	70-130	2.36	30	04/13/2022	A03
NMeFOSAA	65.9	2	ng/L	98.83	0.191	66.5	70-130	2.36	30	04/13/2022	A03
PFBS	87.2	2	ng/L	87.46	ND	99.7	70-130	2.59	30	04/13/2022	
PFDA	78.4	2	ng/L	98.83	ND	79.3	70-130	0.527	30	04/13/2022	
PFDoA	63.1	2	ng/L	98.83	ND	63.9	70-130	2.70	30	04/13/2022	A03
PFHpA	96.6	2	ng/L	98.83	ND	97.8	70-130	3.14	30	04/13/2022	
PFHxA	93.1	2	ng/L	98.83	ND	94.2	70-130	4.82	30	04/13/2022	
PFHxS	89.2	2	ng/L	90.13	ND	99.0	70-130	2.65	30	04/13/2022	
PFNA	86.4	2	ng/L	98.83	ND	87.4	70-130	1.63	30	04/13/2022	
PFOA	92.1	2	ng/L	98.83	ND	93.2	70-130	0.655	30	04/13/2022	
PFOS	75.3	2	ng/L	91.46	ND	82.4	70-130	0.161	30	04/13/2022	
PFTA	65.5	2	ng/L	98.83	ND	66.3	70-130	1.75	30	04/13/2022	A03
PFTrDA	63.5	2	ng/L	98.83	ND	64.2	70-130	3.44	30	04/13/2022	A03
PFUnA	74.9	2	ng/L	98.83	ND	75.8	70-130	1.61	30	04/13/2022	
Surrogate: 13C2-PFDA	*32.2*		ng/L	*39.53*		*81.5*	*70-130*			04/13/2022	
Surrogate: 13C2-PFHxA	*39.3*		ng/L	*39.53*		*99.5*	*70-130*			04/13/2022	

Lab Work Order # 2204038

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Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier
Batch B2D1204 - Method: 537.1				**Prepared: 04/12/2022**							
Matrix Spike Dup (B2D1204-MSD1)	**Source: 2204038-22**										**A01**
Surrogate: 13C3-HFPO-DA	*44.5*		ng/L	*39.53*		*112*	*70-130*			04/13/2022	
Surrogate: d5-NEtFOSAA	*100*		ng/L	*158.1*		*63.3*	*70-130*			04/13/2022	
Batch B2D1305 - Method: 537.1				**Prepared: 04/13/2022**							
Blank (B2D1305-BLK1)											
11Cl-PF3OUdS	ND	2	ng/L							04/13/2022	
9Cl-PF3ONS	ND	2	ng/L							04/13/2022	
ADONA	ND	2	ng/L							04/13/2022	
HFPO-DA	ND	2	ng/L							04/13/2022	
NEtFOSAA	ND	2	ng/L							04/13/2022	
NMeFOSAA	ND	2	ng/L							04/13/2022	
PFBS	ND	2	ng/L							04/13/2022	
PFDA	ND	2	ng/L							04/13/2022	
PFDoA	ND	2	ng/L							04/13/2022	
PFHpA	ND	2	ng/L							04/13/2022	
PFHxA	ND	2	ng/L							04/13/2022	
PFHxS	ND	2	ng/L							04/13/2022	
PFNA	ND	2	ng/L							04/13/2022	
PFOA	ND	2	ng/L							04/13/2022	
PFOS	ND	2	ng/L							04/13/2022	
PFTA	ND	2	ng/L							04/13/2022	
PFTrDA	ND	2	ng/L							04/13/2022	
PFUnA	ND	2	ng/L							04/13/2022	
Surrogate: 13C2-PFDA	*36.5*		ng/L	*40.00*		*91.4*	*70-130*			04/13/2022	
Surrogate: 13C2-PFHxA	*36.2*		ng/L	*40.00*		*90.6*	*70-130*			04/13/2022	
Surrogate: 13C3-HFPO-DA	*37.7*		ng/L	*40.00*		*94.2*	*70-130*			04/13/2022	
Surrogate: d5-NEtFOSAA	*150*		ng/L	*160.0*		*93.8*	*70-130*			04/13/2022	
LCS (B2D1305-BS1)											
11Cl-PF3OUdS	36.2	2	ng/L	37.60		96.2	70-130			04/13/2022	
9Cl-PF3ONS	36.4	2	ng/L	37.20		97.8	70-130			04/13/2022	
ADONA	39.3	2	ng/L	37.80		104	70-130			04/13/2022	
HFPO-DA	41.2	2	ng/L	40.00		103	70-130			04/13/2022	
NEtFOSAA	40.2	2	ng/L	40.00		101	70-130			04/13/2022	
NMeFOSAA	39.2	2	ng/L	40.00		98.0	70-130			04/13/2022	
PFBS	30.6	2	ng/L	35.40		86.4	70-130			04/13/2022	
PFDA	40.2	2	ng/L	40.00		100	70-130			04/13/2022	
PFDoA	37.1	2	ng/L	40.00		92.8	70-130			04/13/2022	
PFHpA	41.2	2	ng/L	40.00		103	70-130			04/13/2022	
PFHxA	38.9	2	ng/L	40.00		97.3	70-130			04/13/2022	
PFHxS	38.1	2	ng/L	36.48		104	70-130			04/13/2022	
PFNA	42.7	2	ng/L	40.00		107	70-130			04/13/2022	
PFOA	40.2	2	ng/L	40.00		101	70-130			04/13/2022	
PFOS	37.1	2	ng/L	37.02		100	70-130			04/13/2022	
PFTA	38.3	2	ng/L	40.00		95.7	70-130			04/13/2022	

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Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier
Batch B2D1305 - Method: 537.1				**Prepared: 04/13/2022**							
LCS (B2D1305-BS1)											
PFTrDA	35.5	2	ng/L	40.00		88.8	70-130			04/13/2022	
PFUnA	40.8	2	ng/L	40.00		102	70-130			04/13/2022	
Surrogate: 13C2-PFDA	*38.2*		ng/L	*40.00*		*95.5*	*70-130*			04/13/2022	
Surrogate: 13C2-PFHxA	*37.3*		ng/L	*40.00*		*93.3*	*70-130*			04/13/2022	
Surrogate: 13C3-HFPO-DA	*39.8*		ng/L	*40.00*		*99.5*	*70-130*			04/13/2022	
Surrogate: d5-NEtFOSAA	*151*		ng/L	*160.0*		*94.3*	*70-130*			04/13/2022	
Matrix Spike (B2D1305-MS1)	**Source: 2204045-02**										
11Cl-PF3OUdS	30.8	2	ng/L	33.31	ND	92.4	70-130			04/13/2022	
9Cl-PF3ONS	31.3	2	ng/L	32.96	ND	95.1	70-130			04/13/2022	
ADONA	34.8	2	ng/L	33.49	ND	104	70-130			04/13/2022	
HFPO-DA	38.3	2	ng/L	35.44	ND	108	70-130			04/13/2022	
NEtFOSAA	33.1	2	ng/L	35.44	ND	93.5	70-130			04/13/2022	
NMeFOSAA	32.1	2	ng/L	35.44	ND	90.5	70-130			04/13/2022	
PFBS	53.7	2	ng/L	31.36	26.2	87.7	70-130			04/13/2022	
PFDA	34.6	2	ng/L	35.44	ND	97.7	70-130			04/13/2022	
PFDoA	30.7	2	ng/L	35.44	ND	86.8	70-130			04/13/2022	
PFHpA	43.9	2	ng/L	35.44	7.73	102	70-130			04/13/2022	
PFHxA	51.9	2	ng/L	35.44	16.1	101	70-130			04/13/2022	
PFHxS	263	7	ng/L	32.32	233	92.5	70-130			04/14/2022	
PFNA	36.7	2	ng/L	35.44	0.226	103	70-130			04/13/2022	
PFOA	55.0	2	ng/L	35.44	19.3	101	70-130			04/13/2022	
PFOS	82.8	2	ng/L	32.80	52.1	93.5	70-130			04/13/2022	
PFTA	31.3	2	ng/L	35.44	ND	88.5	70-130			04/13/2022	
PFTrDA	28.8	2	ng/L	35.44	ND	81.4	70-130			04/13/2022	
PFUnA	34.4	2	ng/L	35.44	ND	97.2	70-130			04/13/2022	
Surrogate: 13C2-PFDA	*32.6*		ng/L	*35.44*		*91.9*	*70-130*			04/13/2022	
Surrogate: 13C2-PFHxA	*33.6*		ng/L	*35.44*		*94.9*	*70-130*			04/13/2022	
Surrogate: 13C3-HFPO-DA	*36.8*		ng/L	*35.44*		*104*	*70-130*			04/13/2022	
Surrogate: d5-NEtFOSAA	*123*		ng/L	*141.7*		*86.7*	*70-130*			04/13/2022	
Matrix Spike Dup (B2D1305-MSD1)	**Source: 2204045-02**										
11Cl-PF3OUdS	29.0	2	ng/L	33.07	ND	87.7	70-130	6.01	30	04/13/2022	
9Cl-PF3ONS	30.5	2	ng/L	32.72	ND	93.1	70-130	2.78	30	04/13/2022	
ADONA	34.6	2	ng/L	33.25	ND	104	70-130	0.633	30	04/13/2022	
HFPO-DA	38.4	2	ng/L	35.18	ND	109	70-130	0.254	30	04/13/2022	
NEtFOSAA	31.2	2	ng/L	35.18	ND	88.7	70-130	5.96	30	04/13/2022	
NMeFOSAA	30.6	2	ng/L	35.18	ND	87.1	70-130	4.55	30	04/13/2022	
PFBS	56.1	2	ng/L	31.14	26.2	96.0	70-130	4.32	30	04/13/2022	
PFDA	33.6	2	ng/L	35.18	ND	95.6	70-130	2.91	30	04/13/2022	
PFDoA	28.9	2	ng/L	35.18	ND	82.3	70-130	6.05	30	04/13/2022	
PFHpA	43.7	2	ng/L	35.18	7.73	102	70-130	0.370	30	04/13/2022	
PFHxA	51.2	2	ng/L	35.18	16.1	99.9	70-130	1.33	30	04/13/2022	
PFHxS	258	7	ng/L	32.09	233	78.6	70-130	1.80	30	04/14/2022	
PFNA	36.3	2	ng/L	35.18	0.226	102	70-130	1.12	30	04/13/2022	
PFOA	54.4	2	ng/L	35.18	19.3	99.6	70-130	1.16	30	04/13/2022	
PFOS	82.9	2	ng/L	32.56	52.1	94.5	70-130	0.128	30	04/13/2022	

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Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier
Batch B2D1305 - Method: 537.1				**Prepared: 04/13/2022**							
Matrix Spike Dup (B2D1305-MSD1)	**Source: 2204045-02**										
PFTA	30.3	2	ng/L	35.18	ND	86.2	70-130	3.24	30	04/13/2022	
PFTrDA	27.6	2	ng/L	35.18	ND	78.4	70-130	4.42	30	04/13/2022	
PFUnA	32.9	2	ng/L	35.18	ND	93.4	70-130	4.71	30	04/13/2022	
Surrogate: 13C2-PFDA	*32.9*		ng/L	*35.18*		*93.4*	*70-130*			04/13/2022	
Surrogate: 13C2-PFHxA	*34.4*		ng/L	*35.18*		*97.9*	*70-130*			04/13/2022	
Surrogate: 13C3-HFPO-DA	*39.4*		ng/L	*35.18*		*112*	*70-130*			04/13/2022	
Surrogate: d5-NEtFOSAA	*119*		ng/L	*140.7*		*84.7*	*70-130*			04/13/2022	

Department of Environment, Great Lakes, and Energy
Laboratory Services Section

PFAS Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
2204038	Wixom WWTP Biosolids Field	DRINKING WATER

Location ID	Program	Report CC Email 1	Project TAT Days*	Sample Collector
02N05E01BC	MPART	RuhalaS@michigan.gov		Nic Ropotos
Dept-Division-District	**Activity**	**Report CC Email 2**	**Report Batch QC**	**Sample Collector Phone**
RRD		VijP@michigan.gov	Yes [X] No [ ]	231-690-7913
State Project Manager	**Funding Source**	**Report CC Email 3**	**Lab Use Only**	**Contract Firm**
Mike Jury	M99953571	Dorin.Bogdan@aecom.com	Sample Receipt Temperature 2.0 °C	AECOM
State Project Manager Email	**Location Code**	**Overflow Lab Choice 1**		**Contract Firm Primary Contact**
JURYM1@michigan.gov	6336			Emily.Daniels@aecom.com
State Project Manager Phone	**SUD Location Code**	**Overflow Lab Choice 2**	Received On Ice Yes [X] No [ ]	**Primary Contact Phone**
517-242-9578				616-481-6081

*** Project Turnaround time (TAT) other than standard 21 days must be pre-approved and scheduled with the laboratory. Surcharges apply.**

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Bottle Count	Comments
1	01	FB2204071030JNR	4/7/2022	10:30	1	6032 Shadow Pines; Field Blank
2	02	WR2204071025JNR	4/7/2022	10:25	6	6032 Shadow Pines; Orig/MS/MSD
3	03	WR2204071025JNRDUP	4/7/2022	10:25	2	6032 Shadow Pines; Field Duplicate
4	04	WR2204071045JNR	4/7/2022	10:45	2	6050 Shadow Pines
5	05	WR2204071115JNR	4/7/2022	11:15	2	7561 Golf Club
6	06	WR2204071130JNR	4/7/2022	11:30	2	7342 Golf Club
7	07	WR2204071155JNR	4/7/2022	11:55	2	7063 Golf Club
8	08	WR2204071205JNR	4/7/2022	12:05	2	6907 Golf Club
9	09	WR2204071215JNR	4/7/2022	12:15	2	7167 Golf Club
10	10	WR2204071220JNR	4/7/2022	12:20	2	6859 Golf Club
11	11	WR2204071230JNR	4/7/2022	12:30	2	6587 Golf Club
12	12	WR2204071330JNR	4/7/2022	13:30	2	1054 S Kellogg
13	13	WR2204071335JNR	4/7/2022	13:35	2	1018 S Kellogg
14	14	WR2204071350JNR	4/7/2022	13:50	2	45 N Kellogg
15	15	WR2204071405JNR	4/7/2022	14:05	2	86 N Kellogg
16	16	WR2204071420JNR	4/7/2022	14:20	2	178 S Kellogg
17	17	WR2204071435JNR	4/7/2022	14:35	2	6563 Golf Club
18	18	WR2204071445JNR	4/7/2022	14:45	2	6421 Golf Club
19	19	WR2204071455JNR	4/7/2022	14:55	2	6317 Golf Club
20	20	WR2204071510JNR	4/7/2022	15:10	2	6288 Golf Club

PFAS - Semi-Volatile Organic Compounds

PFAS - EPA 537.1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org. Nic Ropotos Signature:	Labby 4-8-22	4/8/2022 10:30
Print Name & Org. Labby Signature:	Melissa Smith	4/11/2022 9:06
Print Name & Org. Signature:		/ /2022 :

SAFETY INFORMATION

(MUST BE COMPLETED PRIOR TO SAMPLE SUBMITTAL)

Department of Environment, Great Lakes, and Energy
Laboratory Services Section

PFAS Analysis Request Sheet

EGLE

Lab Work Order Number	Project Name	Matrix
2204038	Wixom WWTP Biosolids Field	DRINKING WATER

Location ID: 02N05E01BC	Program: MPART	Report CC Email 1: RuhalaS@michigan.gov	Project TAT Days*	Sample Collector: Nic Ropotos	
Dept-Division-District: RRD	Activity:	Report CC Email 2: VijP@michigan.gov	Report Batch QC Yes [X] No [ ]	Sample Collector Phone: 231-690-7913	
State Project Manager: Mike Jury	Funding Source: M99953571	Report CC Email 3: Dorin.Bogdan@aecom.com	**Lab Use Only** Sample Receipt Temperature: 2.0 °C	Contract Firm: AECOM	
State Project Manager Email: JURYM1@michigan.gov	Location Code: 6336	Overflow Lab Choice 1		Contract Firm Primary Contact: Emily.Daniels@aecom.com	
State Project Manager Phone: 517-242-9578	SUD Location Code	Overflow Lab Choice 2	Received On Ice Yes [X] No [ ]	Primary Contact Phone: 616-481-6081	

*** Project Turnaround time (TAT) other than standard 21 days must be pre-approved and scheduled with the laboratory. Surcharges apply.**

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Bottle Count	Comments
1	21	FB2204071530JNR	4/7/2022	15:30	1	6293 Golf Club; Field Blank
2	22	WR2204071525JNR	4/7/2022	15:25	6	6293 Golf Club; Orig/MS/MSD
3	23	WR2204071525JNRDUP	4/7/2022	15:25	2	6293 Golf Club; Field Duplicate
4	24	WR2204071545JNR	4/7/2022	15:45	2	6222 Golf Club
5	25	WR2204071555JNR	4/7/2022	15:55	2	6272 Golf Club
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

PFAS - Semi-Volatile Organic Compounds

PFAS - EPA 537.1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org.: Nic Ropotos / AECOM Signature:	Labby	4/8/2022 10:30
Print Name & Org.: Labby Signature:	Melissa Smith	4/11/2022 9:00
Print Name & Org.: Signature:		/ /2022 :

SAFETY INFORMATION

(MUST BE COMPLETED PRIOR TO SAMPLE SUBMITTAL)

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

19 April 2022

Work Order: 2204040

Price: $2,750.00

Mike Jury
EGLE-RRD-SE MICHIGAN
27700 Donald Court
Warren, MI 48092

RE: WIXOM WWTP BIOSOLIDS FIELD-PFAS

This is the official environmental laboratory report for testing conducted by the Michigan Department of Environment, Great Lakes, and Energy. Analyses performed by the laboratory were conducted using methods published by the U.S. Environmental Protection Agency, Standard Methods for the Examination of Water and Wastewater, ASTM, or other published or approved reference methods.

Kirby Shane
Laboratory Director

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

EGLE-RRD-SE MICHIGAN	Project: WIXOM WWTP BIOSOLIDS FIELD-PFAS	
27700 Donald Court	Site Code: 02N05E01BC	**Reported:**
Warren MI, 48092	Project Manager: Mike Jury	04/19/2022

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
FB2204080850DA	2204040-01	Drinking Water	04/08/2022	04/11/2022	
WR2204080845DA	2204040-02	Drinking Water	04/08/2022	04/11/2022	
WR2204080845DA	2204040-03	Drinking Water	04/08/2022	04/11/2022	
WSOFT2204080920DA	2204040-04	Drinking Water	04/08/2022	04/11/2022	
WR2204080940DA	2204040-05	Drinking Water	04/08/2022	04/11/2022	
WR2204081015DA	2204040-06	Drinking Water	04/08/2022	04/11/2022	
WR2204081030DA	2204040-07	Drinking Water	04/08/2022	04/11/2022	
WR2204081045DA	2204040-08	Drinking Water	04/08/2022	04/11/2022	
WR2204081200DA	2204040-09	Drinking Water	04/08/2022	04/11/2022	
WR2204081215DA	2204040-10	Drinking Water	04/08/2022	04/11/2022	
WR2204081300DA	2204040-11	Drinking Water	04/08/2022	04/11/2022	
WR2204081400DA	2204040-12	Drinking Water	04/08/2022	04/11/2022	

Notes and Definitions

A03	Result(s) and reporting limit(s) are estimated due to low matrix spike recovery.
A01	Result(s) and reporting limit(s) are estimated due to low surrogate recovery.
ND	Indicates compound analyzed for but not detected at or above the reporting limit (RL).
RL	Reporting Limit
NA	Not Applicable

Case Narrative

Samples were received **4/11/2022 12:40:00PM** for client **EGLE-RRD-SE MICHIGAN** as a part of project **WIXOM WWTP BIOSOLIDS FIELD-PFAS**.

Samples were logged and designated as Work Order # **2204040** on **4/11/2022 12:51:00PM**.

This Report was created **4/19/2022 8:35:04AM**.

Additional Notes/Narrative (if applicable):

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: FB2204080850DA

Lab ID: 2204040-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*113 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*111 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*116 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*113 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

MICHIGAN DEPARTMENT OF
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: WR2204080845DA

Lab ID: 2204040-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*88.1 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*92.3 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*98.5 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*83.6 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

MICHIGAN DEPARTMENT OF
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: WR2204080845DA

Lab ID: 2204040-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*96.6 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*102 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*109 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*86.5 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

MICHIGAN DEPARTMENT OF
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: WSOFT2204080920DA

Lab ID: 2204040-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*98.0 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*94.4 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*101 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*96.6 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

MICHIGAN DEPARTMENT OF
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: WR2204080940DA

Lab ID: 2204040-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*91.5 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*97.7 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*103 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*80.4 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: WR2204081015DA

Lab ID: 2204040-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*90.3 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*98.2 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*110 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*72.4 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

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Client ID: WR2204081030DA

Lab ID: 2204040-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*95.1 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*93.8 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*96.4 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*94.9 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

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Client ID: WR2204081045DA

Lab ID: 2204040-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*95.0 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*108 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*109 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*79.4 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

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Client ID: WR2204081200DA

Lab ID: 2204040-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*103 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*107 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*113 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*103 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

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Client ID: WR2204081215DA

Lab ID: 2204040-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*98.7 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*107 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*111 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*86.9 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

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Client ID: WR2204081300DA

Lab ID: 2204040-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*95.4 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*103 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*111 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*75.7 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

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Client ID: WR2204081400DA

Lab ID: 2204040-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
919005-14-4E	ADONA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-73-5	PFBS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-76-2	PFDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-55-1	PFDoA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-85-9	PFHpA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
307-24-4	PFHxA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
355-46-4	PFHxS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
375-95-1	PFNA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
335-67-1	PFOA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
1763-23-1	PFOS	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
376-06-7	PFTA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
2058-94-8	PFUnA	ND	2	ng/L	1	04/13/22	B2D1204	537.1	AN	
Surrogate: 13C2-PFDA			*99.6 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C2-PFHxA			*87.1 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: 13C3-HFPO-DA			*101 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	
Surrogate: d5-NEtFOSAA			*94.5 %*	*70-130*		*04/13/22*	B2D1204	*537.1*	*AN*	

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Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier
Batch B2D1204 - Method: 537.1				**Prepared: 04/12/2022**							
Blank (B2D1204-BLK1)											
11Cl-PF3OUdS	ND	2	ng/L							04/12/2022	
9Cl-PF3ONS	ND	2	ng/L							04/12/2022	
ADONA	ND	2	ng/L							04/12/2022	
HFPO-DA	ND	2	ng/L							04/12/2022	
NEtFOSAA	ND	2	ng/L							04/12/2022	
NMeFOSAA	ND	2	ng/L							04/12/2022	
PFBS	ND	2	ng/L							04/12/2022	
PFDA	ND	2	ng/L							04/12/2022	
PFDoA	ND	2	ng/L							04/12/2022	
PFHpA	ND	2	ng/L							04/12/2022	
PFHxA	ND	2	ng/L							04/12/2022	
PFHxS	ND	2	ng/L							04/12/2022	
PFNA	ND	2	ng/L							04/12/2022	
PFOA	ND	2	ng/L							04/12/2022	
PFOS	ND	2	ng/L							04/12/2022	
PFTA	ND	2	ng/L							04/12/2022	
PFTrDA	ND	2	ng/L							04/12/2022	
PFUnA	ND	2	ng/L							04/12/2022	
Surrogate: 13C2-PFDA	*38.1*		ng/L	*40.00*		*95.4*	*70-130*			04/12/2022	
Surrogate: 13C2-PFHxA	*41.8*		ng/L	*40.00*		*104*	*70-130*			04/12/2022	
Surrogate: 13C3-HFPO-DA	*43.1*		ng/L	*40.00*		*108*	*70-130*			04/12/2022	
Surrogate: d5-NEtFOSAA	*157*		ng/L	*160.0*		*97.9*	*70-130*			04/12/2022	
LCS (B2D1204-BS1)											
11Cl-PF3OUdS	82.8	2	ng/L	94.00		88.1	70-130			04/12/2022	
9Cl-PF3ONS	80.8	2	ng/L	93.00		86.9	70-130			04/12/2022	
ADONA	92.3	2	ng/L	94.50		97.7	70-130			04/12/2022	
HFPO-DA	102	2	ng/L	100.0		102	70-130			04/12/2022	
NEtFOSAA	89.8	2	ng/L	100.0		89.8	70-130			04/12/2022	
NMeFOSAA	87.3	2	ng/L	100.0		87.3	70-130			04/12/2022	
PFBS	91.4	2	ng/L	88.50		103	70-130			04/12/2022	
PFDA	90.1	2	ng/L	100.0		90.1	70-130			04/12/2022	
PFDoA	86.9	2	ng/L	100.0		86.9	70-130			04/12/2022	
PFHpA	97.6	2	ng/L	100.0		97.6	70-130			04/12/2022	
PFHxA	97.9	2	ng/L	100.0		97.9	70-130			04/12/2022	
PFHxS	89.0	2	ng/L	91.20		97.6	70-130			04/12/2022	
PFNA	98.3	2	ng/L	100.0		98.3	70-130			04/12/2022	
PFOA	99.0	2	ng/L	100.0		99.0	70-130			04/12/2022	
PFOS	82.7	2	ng/L	92.55		89.3	70-130			04/12/2022	
PFTA	86.4	2	ng/L	100.0		86.4	70-130			04/12/2022	
PFTrDA	82.7	2	ng/L	100.0		82.7	70-130			04/12/2022	
PFUnA	92.2	2	ng/L	100.0		92.2	70-130			04/12/2022	
Surrogate: 13C2-PFDA	*37.6*		ng/L	*40.00*		*94.0*	*70-130*			04/12/2022	
Surrogate: 13C2-PFHxA	*39.6*		ng/L	*40.00*		*99.1*	*70-130*			04/12/2022	
Surrogate: 13C3-HFPO-DA	*43.2*		ng/L	*40.00*		*108*	*70-130*			04/12/2022	
Surrogate: d5-NEtFOSAA	*145*		ng/L	*160.0*		*90.8*	*70-130*			04/12/2022	

Lab Work Order # 2204040

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

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FAX: (517) 335-9600

Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier
Batch B2D1204 - Method: 537.1				**Prepared: 04/12/2022**							
Matrix Spike (B2D1204-MS1)	**Source: 2204038-22**										
11Cl-PF3OUdS	61.2	2	ng/L	89.61	ND	68.3	70-130			04/13/2022	A03
9Cl-PF3ONS	72.1	2	ng/L	88.66	ND	81.3	70-130			04/13/2022	
ADONA	90.2	2	ng/L	90.09	ND	100	70-130			04/13/2022	
HFPO-DA	99.2	2	ng/L	95.33	ND	104	70-130			04/13/2022	
NEtFOSAA	67.3	2	ng/L	95.33	0.237	70.3	70-130			04/13/2022	
NMeFOSAA	67.5	2	ng/L	95.33	0.191	70.6	70-130			04/13/2022	
PFBS	84.9	2	ng/L	84.37	ND	101	70-130			04/13/2022	
PFDA	78.8	2	ng/L	95.33	ND	82.7	70-130			04/13/2022	
PFDoA	64.9	2	ng/L	95.33	ND	68.0	70-130			04/13/2022	A03
PFHpA	93.6	2	ng/L	95.33	ND	98.2	70-130			04/13/2022	
PFHxA	88.7	2	ng/L	95.33	ND	93.0	70-130			04/13/2022	
PFHxS	86.9	2	ng/L	86.94	ND	99.9	70-130			04/13/2022	
PFNA	87.8	2	ng/L	95.33	ND	92.1	70-130			04/13/2022	
PFOA	91.5	2	ng/L	95.33	ND	96.0	70-130			04/13/2022	
PFOS	75.4	2	ng/L	88.23	ND	85.5	70-130			04/13/2022	
PFTA	64.4	2	ng/L	95.33	ND	67.5	70-130			04/13/2022	A03
PFTrDA	61.3	2	ng/L	95.33	ND	64.3	70-130			04/13/2022	A03
PFUnA	73.7	2	ng/L	95.33	ND	77.3	70-130			04/13/2022	
Surrogate: 13C2-PFDA	*34.3*		ng/L	*38.13*		*90.0*	*70-130*			04/13/2022	
Surrogate: 13C2-PFHxA	*39.1*		ng/L	*38.13*		*103*	*70-130*			04/13/2022	
Surrogate: 13C3-HFPO-DA	*43.3*		ng/L	*38.13*		*113*	*70-130*			04/13/2022	
Surrogate: d5-NEtFOSAA	*108*		ng/L	*152.5*		*71.0*	*70-130*			04/13/2022	
Matrix Spike Dup (B2D1204-MSD1)	**Source: 2204038-22**										**A01**
11Cl-PF3OUdS	61.5	2	ng/L	92.90	ND	66.2	70-130	0.457	30	04/13/2022	A03
9Cl-PF3ONS	70.3	2	ng/L	91.91	ND	76.4	70-130	2.55	30	04/13/2022	
ADONA	92.0	2	ng/L	93.39	ND	98.5	70-130	2.03	30	04/13/2022	
HFPO-DA	104	2	ng/L	98.83	ND	105	70-130	4.26	30	04/13/2022	
NEtFOSAA	65.7	2	ng/L	98.83	0.237	66.2	70-130	2.36	30	04/13/2022	A03
NMeFOSAA	65.9	2	ng/L	98.83	0.191	66.5	70-130	2.36	30	04/13/2022	A03
PFBS	87.2	2	ng/L	87.46	ND	99.7	70-130	2.59	30	04/13/2022	
PFDA	78.4	2	ng/L	98.83	ND	79.3	70-130	0.527	30	04/13/2022	
PFDoA	63.1	2	ng/L	98.83	ND	63.9	70-130	2.70	30	04/13/2022	A03
PFHpA	96.6	2	ng/L	98.83	ND	97.8	70-130	3.14	30	04/13/2022	
PFHxA	93.1	2	ng/L	98.83	ND	94.2	70-130	4.82	30	04/13/2022	
PFHxS	89.2	2	ng/L	90.13	ND	99.0	70-130	2.65	30	04/13/2022	
PFNA	86.4	2	ng/L	98.83	ND	87.4	70-130	1.63	30	04/13/2022	
PFOA	92.1	2	ng/L	98.83	ND	93.2	70-130	0.655	30	04/13/2022	
PFOS	75.3	2	ng/L	91.46	ND	82.4	70-130	0.161	30	04/13/2022	
PFTA	65.5	2	ng/L	98.83	ND	66.3	70-130	1.75	30	04/13/2022	A03
PFTrDA	63.5	2	ng/L	98.83	ND	64.2	70-130	3.44	30	04/13/2022	A03
PFUnA	74.9	2	ng/L	98.83	ND	75.8	70-130	1.61	30	04/13/2022	
Surrogate: 13C2-PFDA	*32.2*		ng/L	*39.53*		*81.5*	*70-130*			04/13/2022	
Surrogate: 13C2-PFHxA	*39.3*		ng/L	*39.53*		*99.5*	*70-130*			04/13/2022	
Surrogate: 13C3-HFPO-DA	*44.5*		ng/L	*39.53*		*112*	*70-130*			04/13/2022	
Surrogate: d5-NEtFOSAA	*100*		ng/L	*158.1*		*63.3*	*70-130*			04/13/2022	

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Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier

Department of Environment, Great Lakes, and Energy
Laboratory Services Section

PFAS Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
2204040	Wixom WWTP Biosolids Field	DRINKING WATER

Location ID: 02N05E01BC	Program: MPART	Report CC Email 1: RuhalaS@michigan.gov	Project TAT Days*:	Sample Collector: Nic Ropotos	
Dept-Division-District: RRD	Activity:	Report CC Email 2: VijP@michigan.gov	Report Batch QC Yes [X] No [ ]	Sample Collector Phone: 231-690-7913	
State Project Manager: Mike Jury	Funding Source: M99953571	Report CC Email 3: Dorin.Bogdan@aecom.com	**Lab Use Only** Sample Receipt Temperature: 1.8 °C	Contract Firm: AECOM	
State Project Manager Email: JURYM1@michigan.gov	Location Code: 6336	Overflow Lab Choice 1:		Contract Firm Primary Contact: Emily.Daniels@aecom.com	
State Project Manager Phone: 517-242-9578	SUD Location Code:	Overflow Lab Choice 2:	Received On Ice Yes [X] No [ ]	Primary Contact Phone: 616-481-6081	

*** Project Turnaround time (TAT) other than standard 21 days must be pre-approved and scheduled with the laboratory. Surcharges apply.**

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Bottle Count	Comments
1	01	FB220408085ØDA	4/8/22	0857	1	6747 Golf Club ; Field Blank
2	02	WR220408ØB45DA	4/8/22	0845	6	6747 Golf Club ; Orig/MS/MSD
3	03	WR220408ØB45DA	4/8/22	0845	2	6747 Golf Club ; Field Duplicate
4	04	WSOFT220408Ø920DA	4/8/22	0920	2	6020 Oak Bend Ct
5	05	WR220408Ø940DA	4/8/22	0940	2	5985 Pine Trace
6	06	WR220408101[illegible]DA	4/8/22	1015	2	6055 S Kellogg
7	07	WR220408[illegible]DA	4/8/22	1034	2	663 S Kellogg
8	08	WR220408104[illegible]DA	4/8/22	1045	2	6634 Golf Club
9	09	WR220408 1200 DA	4/8/22	1200	2	6849 Shadow Pines
10	10	WR220408 1215 DA	4/8/22	1215	2	6831 Shadow Pines
11	11	WR220408 1300 DA	4/8/22	1300	2	6615 Golf Club
12	12	WR220408 1400 DA	4/8/22	1400	2	7191 Golf Club
13						
14						
15						
16						
17						
18						
19						
20						

PFAS - Semi-Volatile Organic Compounds

PFAS - EPA 537.1 (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) 13 14 15 16 17 18 19 20

Chain of Custody

	Relinquished by	Received By	Date / Time
Print Name & Org.	Nic Ropotos - AECOM	Sample Fridge AECOM	4/8/2022 18:00
Signature:			
Print Name & Org.	Sample Fridge AECOM	Andrew Boyce AECOM	4/11/2022 10:30
Signature:			
Print Name & Org.	Andrew Boyce - AECOM	Melissa Smith	4/11/2022 11:30
Signature:			4-11-22 1240

MICHIGAN DEPARTMENT OF
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26 October 2021

Work Order: 2110093

Price: $5,250.00

Mike Jury
EGLE-RRD-SE MICHIGAN
27700 Donald Court
Warren, MI 48092

RE: WIXOM WWTP BIOSOLIDS FIELD-PFAS

This is the official environmental laboratory report for testing conducted by the Michigan Department of Environment, Great Lakes, and Energy. Analyses performed by the laboratory were conducted using methods published by the U.S. Environmental Protection Agency, Standard Methods for the Examination of Water and Wastewater, ASTM, or other published or approved reference methods.

Kirby Shane
Laboratory Director

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EGLE-RRD-SE MICHIGAN	Project: WIXOM WWTP BIOSOLIDS FIELD-PFAS	
27700 Donald Court	Site Code: 02N05E01BC	**Reported:**
Warren MI, 48092	Project Manager: Mike Jury	10/26/2021

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
FB211008LEM	2110093-01	Drinking Water	10/08/2021	10/12/2021	
WR2110081110LEM	2110093-02	Drinking Water	10/08/2021	10/12/2021	
WR2110081130LEM	2110093-03	Drinking Water	10/08/2021	10/12/2021	
WR2110081010LEM	2110093-04	Drinking Water	10/08/2021	10/12/2021	
WT2110081020LEM	2110093-05	Drinking Water	10/08/2021	10/12/2021	
WR2110081040LEM	2110093-06	Drinking Water	10/08/2021	10/12/2021	
WR2110081100LEM	2110093-07	Drinking Water	10/08/2021	10/12/2021	
WR2110081150LEM	2110093-08	Drinking Water	10/08/2021	10/12/2021	
WR2110081200LEM	2110093-09	Drinking Water	10/08/2021	10/12/2021	
WR2110081215LEM	2110093-10	Drinking Water	10/08/2021	10/12/2021	
WR2110081230LEM	2110093-11	Drinking Water	10/08/2021	10/12/2021	
WR2110081245LEM	2110093-12	Drinking Water	10/08/2021	10/12/2021	
WR2110081245LEM-FD	2110093-13	Drinking Water	10/08/2021	10/12/2021	
WR2110081300LEM	2110093-14	Drinking Water	10/08/2021	10/12/2021	
WR2110081310LEM	2110093-15	Drinking Water	10/08/2021	10/12/2021	
WR2110081320LEM	2110093-16	Drinking Water	10/08/2021	10/12/2021	
WR2110081330LEM	2110093-17	Drinking Water	10/08/2021	10/12/2021	
WR2110081440LEM	2110093-18	Drinking Water	10/08/2021	10/12/2021	
WR2110081455LEM	2110093-19	Drinking Water	10/08/2021	10/12/2021	
WR2110081500LEM	2110093-20	Drinking Water	10/08/2021	10/12/2021	
FB211008LEM	2110093-21	Drinking Water	10/08/2021	10/12/2021	
WR2110081520LEM	2110093-22	Drinking Water	10/08/2021	10/12/2021	
WR2110081535LEM	2110093-23	Drinking Water	10/08/2021	10/12/2021	

Notes and Definitions

A09	Result is estimated due to high recovery of batch quality control.
A04	Result is estimated due to high matrix spike recovery.
A01	Result(s) and reporting limit(s) are estimated due to low surrogate recovery.
ND	Indicates compound analyzed for but not detected at or above the reporting limit (RL).
RL	Reporting Limit
NA	Not Applicable

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Client ID: FB211008LEM

Lab ID: 2110093-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*98.6 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*97.8 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*97.5 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*102 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081110LEM

Lab ID: 2110093-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	A04
72629-94-8	PFTrDA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*97.3 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*80.8 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*94.9 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*72.4 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	

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Client ID: WR2110081130LEM

Lab ID: 2110093-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*99.4 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*89.3 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*94.5 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*85.7 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081010LEM

Lab ID: 2110093-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	**PFHxA**	**2**	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*102 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*85.2 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*93.7 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*88.6 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WT2110081020LEM

Lab ID: 2110093-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*101 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*89.3 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*96.3 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*82.6 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081040LEM

Lab ID: 2110093-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*102 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*88.6 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*97.0 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*88.3 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081100LEM

Lab ID: 2110093-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*107 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*83.6 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*94.1 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*96.3 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081150LEM

Lab ID: 2110093-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*107 %*		*70-130*	*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*77.9 %*		*70-130*	*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*97.4 %*		*70-130*	*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*96.0 %*		*70-130*	*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081200LEM

Lab ID: 2110093-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*110 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*94.0 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*104 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*91.1 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081215LEM

Lab ID: 2110093-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*105 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*93.6 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*99.5 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*92.4 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081230LEM

Lab ID: 2110093-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*110 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*92.5 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*102 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*96.5 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081245LEM

Lab ID: 2110093-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*108 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*97.4 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*102 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*98.6 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081245LEM-FD

Lab ID: 2110093-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*105 %*		*70-130*	*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*94.3 %*		*70-130*	*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*98.1 %*		*70-130*	*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*95.6 %*		*70-130*	*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081300LEM

Lab ID: 2110093-14

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*93.3 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*95.6 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*98.5 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*71.7 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081310LEM

Lab ID: 2110093-15

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*103 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*90.8 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*100 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*87.1 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081320LEM

Lab ID: 2110093-16

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*105 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*91.3 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*100 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*89.3 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081330LEM

Lab ID: 2110093-17

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	**PFBS**	**25**	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*112 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*96.3 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*102 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*111 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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Client ID: WR2110081440LEM

Lab ID: 2110093-18

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/14/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*98.9 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*91.7 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*103 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*80.6 %*	*70-130*		*10/14/21*	B1J1306	*537.1*	

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ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

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Client ID: WR2110081455LEM

Lab ID: 2110093-19

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*105 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*90.0 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*100 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*88.8 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	

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ENVIRONMENTAL LABORATORY

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FAX: (517) 335-9600

Client ID: WR2110081500LEM

Lab ID: 2110093-20

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/15/21	B1J1306	537.1	
Surrogate: 13C2-PFDA			*99.8 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	
Surrogate: 13C2-PFHxA			*98.1 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	
Surrogate: 13C3-HFPO-DA			*105 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	
Surrogate: d5-NEtFOSAA			*81.9 %*	*70-130*		*10/15/21*	B1J1306	*537.1*	

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ENVIRONMENTAL LABORATORY

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Client ID: FB211008LEM

Lab ID: 2110093-21

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
Surrogate: 13C2-PFDA			*108 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	
Surrogate: 13C2-PFHxA			*104 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	
Surrogate: 13C3-HFPO-DA			*106 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	
Surrogate: d5-NEtFOSAA			*101 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	

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ENVIRONMENTAL LABORATORY

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Client ID: WR2110081520LEM

Lab ID: 2110093-22

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note A01**
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
Surrogate: 13C2-PFDA			*94.5 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	
Surrogate: 13C2-PFHxA			*100 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	
Surrogate: 13C3-HFPO-DA			*111 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	
Surrogate: d5-NEtFOSAA			*63.1 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	

MICHIGAN DEPARTMENT OF
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ENVIRONMENTAL LABORATORY

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FAX: (517) 335-9600

Client ID: WR2110081535LEM

Lab ID: 2110093-23

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note A01**
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/15/21	B1J1307	537.1	
Surrogate: 13C2-PFDA			*90.5 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	
Surrogate: 13C2-PFHxA			*98.1 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	
Surrogate: 13C3-HFPO-DA			*107 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	
Surrogate: d5-NEtFOSAA			*67.9 %*	*70-130*		*10/15/21*	B1J1307	*537.1*	

Department of Environment, Great Lakes, and Energy
Laboratory Services Section

EGLE

PFAS Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
2110093	Wixom WWTP Biosolids Field	DRINKING WATER

Location ID	Program	Report CC Email 1	Project TAT Days*	Sample Collector
02N05E01BC	MPART	RuhalaS@michigan.gov		Lauren McNeely
Dept-Division-District	**Activity**	**Report CC Email 2**	**Report Batch QC**	**Sample Collector Phone**
RRD		VijP@michigan.gov	Yes [X] No [ ]	586-846-0154
State Project Manager	**Funding Source**	**Report CC Email 3**	**Lab Use Only**	**Contract Firm**
Mike Jury	M99953571	Dorin.Bogdan@aecom.com	Sample Receipt Temperature °C	AECOM
State Project Manager Email	**Location Code**	**Overflow Lab Choice 1**		**Contract Firm Primary Contact**
JURYM1@michigan.gov	6336			Emily.Daniels@aecom.com
State Project Manager Phone	**SUD Location Code**	**Overflow Lab Choice 2**	Received On Ice Yes [ ] No [ ]	**Primary Contact Phone**
517-242-9578				616-481-6081

*** Project Turnaround time (TAT) other than standard 21 days must be pre-approved and scheduled with the laboratory. Surcharges apply.**

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Bottle Count	Comments
1	01	FB2110081EM	10/8/21	1010	1	; Field Blank
2	02	WR2110081110LEM	10/8/21	1110	6	7355 Golf Club ; Orig/MS/MSD
3	03	WR2110081130LEM	10/8/21	1130	2	7363 Golf Club ~~Field Duplicate~~
4	04	WR2110081010LEM	10/8/21	1010	2	7337 Golf Club Rd
5	05	WR2110081020LEM	10/8/21	1020	2	7011 Blackberry Ridge Trail
6	06	WR2110081040LEM	10/8/21	1040	2	7564 Golf Club Rd
7	07	WR2110081100LEM	10/8/21	1100	2	7626 Golf Club Rd
8	08	WR2110081150LEM	10/8/21	1150	2	7213 Golf Club Rd.
9	09	WR2110081200LEM	10/8/21	1200	2	7400 Golf Club Rd
10	10	WR2110081215LEM	10/8/21	1215	2	7436 Golf Club Rd
11	11	WR2110081230LEM	10/8/21	1230	2	7259 Golf Club Rd
12	12	WR2110081245LEM	10/8/21	1245	2	7450 Golf Club Rd
13	13	WR2110081245LEM-FD	10/8/21	1250	2	7450 Golf Club Rd - dup
14	14	WR2110081300LEM	10/8/21	1300	2	7534 Golf Club Rd
15	15	WR2110081310LEM	10/8/21	1310	2	7424 Golf Club Rd
16	16	WR2110081320LEM	10/8/21	1320	2	7510 Golf Club Rd
17	17	WR2110081330LEM	10/8/21	1330	2	7333 Blackberry Ridge Trail
18	18	WR2110081440LEM	10/8/21	1440	2	587 S. Kellogg Rd
19	19	WR2110081455LEM	10/8/21	1455	2	485 S. Kellogg Rd
20	20	WR2110081500LEM	10/8/21	1500	2	567 S. Kellogg Rd

PFAS - Semi-Volatile Organic Compounds

PFAS - EPA 537.1 (1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20)

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org. Ben Pummell / AECOM Signature:	Lobby 10-11-21	10/8 /2021 :
Print Name & Org. Lobby Signature:	Melissa Smith	10/12/2021 8 :10
Print Name & Org. Signature:		/ /2021 :

Department of Environment, Great Lakes, and Energy
Laboratory Services Section

PFAS Analysis Request Sheet

EGLE

Lab Work Order Number	Project Name	Matrix
2110093	Wixom WWTP Biosolids Field	DRINKING WATER

Location ID	Program	Report CC Email 1	Project TAT Days*	Sample Collector
02N05E01BC	MPART	RuhalaS@michigan.gov		Lauren McNeely

Dept-Division-District	Activity	Report CC Email 2	Report Batch QC	Sample Collector Phone
RRD		VijP@michigan.gov	Yes [X] No [ ]	586-846-0154

State Project Manager	Funding Source	Report CC Email 3	Lab Use Only	Contract Firm
Mike Jury	M99953571	Dorin.Bogdan@aecom.com	Sample Receipt Temperature °C	AECOM

State Project Manager Email	Location Code	Overflow Lab Choice 1		Contract Firm Primary Contact
JURYM1@michigan.gov	6336			Emily.Daniels@aecom.com

State Project Manager Phone	SUD Location Code	Overflow Lab Choice 2	Received On Ice Yes [ ] No [ ]	Primary Contact Phone
517-242-9578				616-481-6081

*** Project Turnaround time (TAT) other than standard 21 days must be pre-approved and scheduled with the laboratory. Surcharges apply.**

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Bottle Count	Comments
1	21	FB2110081530LEM	10/8/21	~~1010~~ 1530	1	; Field Blank
2	22	~~WR2110081520LEM~~ ~~WR2110081010LEM~~	10/8/21	~~1010~~ 1520	6	724 S. Kellogg ; Orig/MS/MSD
3	23	WR2110081535LEM	10/8/21	1535	2	401 S. Kellogg ~~; Field Duplicate~~
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

PFAS - Semi-Volatile Organic Compounds

PFAS - EPA 537.1 (1) (2) (3) 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org. Ben Pennwell AECOM	Lobby	10/8/2021 :
Signature: Benjamin Pennwell		
Print Name & Org. Lobby	Melissa Smith EGLE	10/11/2021 8:10
Signature:		
Print Name & Org.		/ /2021 :
Signature:		