AECOM
3950 Sparks Drive Southeast
Grand Rapids, MI 49546
aecom.com

Project name:
PFAS Biosolids – Ionia

Project ref:
60588767

From:
AECOM

Date:
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To:
Stephanie Kammer
Michigan Department of Environment, Great Lakes and Energy – Water Resources Division
Constitution Hall, 3rd Floor, South Tower
525 West Allegan Street
P.O. Box 30473
Lansing, MI 48909-7973

CC:
Sydney Ruhala, EGLE

Addendum No. 1

Subject: Addendum No. 1 - Evaluation of Ionia Wastewater Treatment Plant (WWTP) Biosolids Land Application Sites 08N06W02-RW01, RW02, & RW03

1. Introduction

This document serves as an addendum to the Technical Memorandum titled *Evaluation of Ionia Wastewater Treatment Plant (WWTP) Biosolids Land Application Sites 08N06W02-RW01, RW02, & RW03.* 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 08N06W02-RW01 (Site RW01), 08N06W02-RW02 (Site RW02), and 08N06W02-RW03 (Site RW03) from 2021 through 2023. Groundwater monitoring wells were installed adjacent to Site RW01, Site RW02, and Site RW03 in October 2021, sampled on November 11-12, 2021, and resampled on April 28, 2022. Surface water was collected from four (4) locations on November 12, 2021. Additionally, four (4) off-site residential wells were sampled in February, March, and September 2021, 18 off-site residential wells were sampled on November 17, 2022, and two (2) off-site residential wells were sampled in March 2023. The figures and tables provide both recent and historical data.

2. Background

The 2021, 2022, and 2023 groundwater, residential well, and surface water sampling events conducted by AECOM and EGLE were performed in accordance with applicable AECOM, EGLE, and the 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 (EGLE, 2018a, 2018b, 2019, 2022). 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 Ionia 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 influent, effluent, and biosolids from the Ionia WWTP on October 31, 2018. Further, the Ionia WWTP has frequently sampled their effluent for PFAS since June 2018. PFAS samples were also collected from off-site residential wells near three (3) agricultural fields where industrially-impacted biosolids from the Ionia WWTP were land applied (**Figure 1**). A summary of the results for the Ionia WWTP and the three (3) agricultural fields evaluated are presented in two (2) reports (AECOM, 2021a, 2021b).

Site RW01 is a 62-acre field southeast of Cedar Lake Road and W S County Line Road in Fenwick, Michigan, approximately 10 miles northeast of the Ionia WWTP. Prairie Creek flows along the eastern edge of Site RW01 from north to south. Site RW02 is a 72-acre field directly west of Site RW01, on the southwest corner of Cedar Lake Road and W S County Line Road. Sites RW01 and RW02 are approximately a quarter mile north of Palo, Michigan, and Site RW03. Site RW03 is a 26-acre field south of Van Vleck Road, directly east of Palo, Michigan. Prairie Creek also flows along the eastern edge of Site RW03 (**Figures 1** and **2**).

3. Surface Water Sampling Results

On November 12, 2021, four (4) surface water samples were collected from four (4) locations along Prairie Creek, including a sample from a private pond (**Figure 2**). The first sample (SW-1) was collected directly north of the agricultural sites and was upgradient. The second sample (SW-2) was southeast of Site RW01 and northeast of RW02 and was downgradient from SW-1 and Sites RW01 and RW02. The third sample (SW-3) was collected from a small creek that is northeast of all sites, it is sourced by a pond, and it discharges to Prairie Creek. The fourth sample (SW-4) was collected from a small, private pond located between Site RW01 and Site RW03. The agricultural field directly adjacent to the private pond did not receive biosolids from the Ionia WWTP. The laboratory analytical results for the surface water samples collected in 2021 are summarized below and presented in **Table 1** and **Figure 5**. Laboratory analytical reports are provided in **Appendix A**.

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

Surface Water Sample ID	Sample Date	Surface Water Location	Total PFAS[1]	PFOA[1]	PFOS[1]
SW1112210935MLB	11/12/2021	SW-1	**1.35**	ND	ND
SW1112211000MLB	11/12/2021	SW-2	**5.19**	ND	ND
SW1112211035MLB	11/12/2021	SW-3	**3.19**	ND	ND
SW1112211130MLB	11/12/2021	SW-4	**2.47**	ND	**2.47**

[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 reporting limits for each PFAS. Detections are shown in bold.

The surface water samples collected did not exceed the Rule 57 Water Quality Value (WQV) for PFOS of 12 nanograms per liter (ng/L), PFOA of 170 ng/L, or PFBS of 670,000 ng/L. The highest PFAS concentrations detected were PFOS of 2.47 ng/L in sample SW-4 and PFBS of 1.13 ng/L in sample

SW-3. PFOA was non-detect in all four (4) samples. There were low detections of additional PFAS, with the highest total PFAS concentration of 5.19 ng/L in sample SW-2 and the lowest total PFAS concentration of 1.35 ng/L in SW-1. Detections of additional PFAS analytes were below 3.2 ng/L each and were short-chain PFAS. This indicates low PFAS concentrations in surface waters near Site RW01, RW02, and RW03.

4. Groundwater Monitoring Well Installation, Sampling, and Analytical Methodology

EGLE has been unable to directly sample the soil, surface water, and groundwater at Sites RW01, RW02, and RW03. Therefore, EGLE installed eight (8) shallow groundwater monitoring wells adjacent to the sites in October 2021. Seven (7) wells were installed in the legal right-of-way, and one (1) was installed on private property with the property owner's permission. The wells are screened between 10 and 22 feet below the ground surface (bgs). The following shallow groundwater monitoring wells were initially sampled on November 11-12, 2021, and resampled on April 28, 2022: MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, and MW-8. A field duplicate sample was collected from MW-7 in 2021 and MW-2 in 2022 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**.

5. Groundwater Sampling Results

Local groundwater elevations from the monitoring wells sampled in April 2022 are presented in **Figure 2.** Groundwater flow is generally to the east at Sites RW01, RW02, and RW03, towards Prairie Creek.

The laboratory analytical results for groundwater samples collected from monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, and MW-8 are summarized below and are presented in **Table 2** and **Figures 3** and **5**. Laboratory analytical reports are provided in **Appendix C**.

The total PFAS, PFOA, and PFOS from the eight (8) monitoring wells are summarized below.

Groundwater Sample ID	Sample Date	Monitoring Well	Total PFAS[1]	PFOA[1]	PFOS[1]
GW1111211300MLB	11/11/2021	MW-1	**483**	**47.3**	**27.5**
GW2204281425GSC	4/28/2022	MW-1	**494**	**47.4**	**22.8**
GW1112210740MLB	11/12/2021	MW-2	**1,435**	**171**	**833**
GW2204281350GSC	4/28/2022	MW-2	**1,337**	**171**	**672**
GW2204281350GSC-FD	4/28/2022	MW-2	**1,364**	**167**	**702**
GW1111211205MLB	11/11/2021	MW-3	ND	ND	ND
GW2204280945GSC	4/28/2022	MW-3	ND	ND	ND

Groundwater Sample ID	Sample Date	Monitoring Well	Total PFAS[1]	PFOA[1]	PFOS[1]
GW1111210800MLB	11/11/2021	MW-4	**59.0**	**11.3**	**9.34**
GW2204281250GSC	4/28/2022	MW-4	**77.2**	**17.7**	**5.93**
GW1112210810MLB	11/12/2021	MW-5	**1.36**	**1.36**	ND
GW2204281020GSC	4/28/2022	MW-5	**1.16**	**1.16**	ND
GW1111210905MLB	11/11/2021	MW-6	**10.2**	**1.47**	**5.45**
GW2204281215GSC	4/28/2022	MW-6	**28.3**	**5.85**	**5.24**
GW1111211100MLB	11/11/2021	MW-7	**29.5**	**5.88**	**8.55**
GW1111211100MLB-DUP	11/11/2021	MW-7	**32.9**	**6.59**	**9.48**
GW2204281130GSC	4/28/2022	MW-7	**20.4**	**3.63**	**6.46**
GW1111210950MLB	11/11/2021	MW-8	**19.0**	**4.11**	**5.14**
GW2204281055GSC	4/28/2022	MW-8	**84.3**	**19.1**	**4.71**

[1]Units are in nanograms per liter (ng/L) or parts per trillion. ND = There were no PFAS detected; please refer to Table 2 for the reporting limits for each individual PFAS. Detections are shown in bold.

All groundwater samples collected in November 2021 and April 2022 detected PFAS concentrations, except for samples collected from MW-3. PFOA was detected above the Part 201 Residential and Nonresidential Drinking-Water Criteria (DWC) of 8 ng/L in MW-1, MW-2, MW-4, and MW-8 (only in April 2022), ranging from 11.3 ng/L to 171 ng/L. PFOS was detected above the DWC of 16 ng/L in MW-1 and MW-2, ranging from 22.8 ng/L to 833 ng/L. In November 2021 and April 2022, MW-2 also exceeded the DWC for perfluorononanoic acid (PFNA) of 6 ng/L. There were no other exceedances for the additional Part 201 DWC in 2021 or 2022 for perfluorohexanesulfonic acid (PFHxS), perfluorohexanoic acid (PFHxA), perfluorobutanesulfonic acid (PFBS), hexafluoropropylene oxide dimer acid (HFPO-DA) of 51, 400,000, 420, and 370 ng/L, respectively.

Of the 29 PFAS compounds analyzed, perfluorobutanoic acid (PFBA), perfluoropentanoic acid (PFPeA), PFHxA, perfluoroheptanoic acid (PFHpA), PFOA, PFNA, PFBS, perfluoropentane sulfonic acid (PFPeS), PFHxS, perfluoroheptane sulfonic acid (PFHpS), PFOS, and perfluoroethylcyclohexane sulfonate (PFecHS) were detected in the samples. PFecHS is a cyclic PFAS that EGLE identified as potentially correlated to plating operations. While PFecHS is not the main PFAS ingredient in the mist suppressants used at chrome plating facilities, it is believed to be an impurity. EGLE added PFecHS as part of the analysis for the groundwater samples, and it was detected in MW-1 and MW-2.

The highest total PFAS concentration of 1,435.17 ng/L in November 2021 and 1,363.90 ng/L in April 2022 was detected in downgradient monitoring well MW-2, situated between Sites RW01 and RW02. MW-2 is screened across the water table from 7 to 12 ft bgs. The second highest PFAS concentration was detected in MW-1, with total PFAS concentrations of 483.40 ng/L in November 2021 and 494.07 ng/L in April 2022. MW-1 is located downgradient of both Sites RW01 and RW02, situated adjacent to the northern edge of Site RW01. The remaining wells had total PFAS concentrations between 1.16 ng/L to 84.25 ng/L. Overall, PFAS concentrations detected in the monitoring wells were similar between November 2021 and April 2022.

6. Residential Well Sampling

In 2021, 2022, and 2023, an additional 23 off-site residential wells and one (1) Type III drinking water well were sampled (i.e., Sample Locations 38 through 61, represented in **Figure 4**). Three duplicate samples were also collected (Locations 42, 60, and 61). PFAS was detected in 4 of the 24 off-site drinking water wells. The laboratory analytical results for total PFAS, PFOA, and PFOS are summarized below and are presented in **Table 3** and **Figure 4**.

Residential Location	Sample Date	Well Depth[2]	Total PFAS[1]	PFOA[1]	PFOS[1]
Location 38	2/18/2021	125	ND	< 2	< 2
Location 39	3/25/2021	N/A	ND	< 2	< 2
Location 40	9/29/2021	105	ND	< 2	< 2
Location 41	9/29/2021	N/A	**11**	**4**	**7**
Location 42	4/21/2022	N/A	**393**	**29**	**2.1**
Location 42	4/21/2022	N/A	**388**	**33**	**2.2**
Location 43	5/13/2022	34	**11**	**5**	**3**
Location 44	11/17/2022	120	ND	< 2	< 2
Location 45	11/17/2022	N/A	ND	< 2	< 2
Location 46	11/17/2022	107	ND	< 2	< 2
Location 47	11/17/2022	32	ND	< 2	< 2
Location 48	11/17/2022	46	ND	< 2	< 2
Location 49	11/17/2022	34	ND	< 2	< 2
Location 50	11/17/2022	140	ND	< 2	< 2
Location 51	11/17/2022	143	ND	< 2	< 2
Location 52	11/17/2022	140	ND	< 2	< 2
Location 53	11/17/2022	90	ND	< 2	< 2
Location 54	11/17/2022	112	**4**	< 2	< 2
Location 55	11/17/2022	92	ND	< 2	< 2
Location 56	11/17/2022	94	ND	< 2	< 2
Location 57	11/17/2022	N/A	ND	< 2	< 2
Location 58	11/17/2022	117	ND	< 2	< 2
Location 59	11/17/2022	N/A	ND	< 2	< 2
Location 60	3/10/2023	N/A	ND	< 2	< 2
Location 60	3/10/2023	N/A	ND	< 2	< 2
Location 61	3/28/2023	N/A	ND	< 2	< 2
Location 61	3/28/2023	N/A	ND	< 2	< 2

[1]Units are in nanograms per liter (ng/L) or parts per trillion. ND = There were no PFAS detected; please refer to Table 3 for the reporting limits for each individual PFAS. Detections are shown in bold.
[2]Well depth units are in feet, and N/A indicates the well depth was unavailable.

Location 42 was the only residential well that exceeded the Part 201 Residential and Nonresidential Drinking Water Criteria (DWC) for PFOA of 8 ng/L, with a concentration of 29 ng/L and 33 ng/L in the duplicate sample. Previously, six (6) additional residential well samples exceeded Part 201 DWC for PFOA of 8 ng/L (i.e., locations 2, 6, 15, 17, 28, and 30). Location 28 previously exceeded the Part 201 DWC for PFOS of 16 ng/L. There were no other exceedances for the additional Part 201 DWC for PFNA, PFHxS, PFHxA, PFBS, and HFPO-DA of 6, 51, 400,000, 420, and 370 ng/L, respectively. EGLE, the Michigan Department of Health and Human Services (MDHHS), and the local health department continue to work to identify the source of PFAS detected in the residential wells and groundwater within the area.

7. Conclusions

In 2021, four (4) surface water samples were collected from four (4) locations along Prairie Creek, including a sample from a private pond (**Figure 2**). The surface water samples did not exceed the Rule 57 WQV for PFOS of 12 ng/L, PFOA of 170 ng/L, or PFBS of 670,000 ng/L and showed low PFAS impacts to the surface water bodies near Sites RW01, RW02, and RW03. Eight (8) shallow groundwater monitoring wells were installed adjacent to Sites RW01, RW02, and RW03 in October 2021 and were sampled in November 2021 and April 2022. The highest PFAS concentrations were detected in monitoring wells MW-1 and MW-2, downgradient of Sites RW01 and RW02. MW-3, located between Sites RW01 and RW02 and the town, was non-detect for PFAS in November 2021 and April 2022. Based on these results and the groundwater elevation data, the PFAS detected in monitoring wells MW-4, MW-6, MW-7, and MW-8, and residential wells in the town of Palo, may be due to other potential sources than Sites RW01, RW02, and RW03, which received land applications of industrially-impacted biosolids from the Ionia WWTP. Of the 59 residential wells and two Type III drinking water wells sampled to date, 7 of the residential wells exceeded the Part 201 DWC for PFOA of 8 ng/L. One of those 7 wells also exceeded the Part 201 DWC for PFOS of 16 ng/L. The residential wells neighboring Sites RW01, RW02, and RW03 showed detections of short-chain and long-chain PFAS, with PFOA and PFOS Part 201 DWC exceedances and detections of PFHxA, PFHpA, and PFBS. Based on these findings, there does appear to be a potential risk to the surrounding drinking water wells. EGLE, MDHHS, and the local health department continue to work to identify the source of PFAS detected in the residential wells and groundwater within the area.

8. 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

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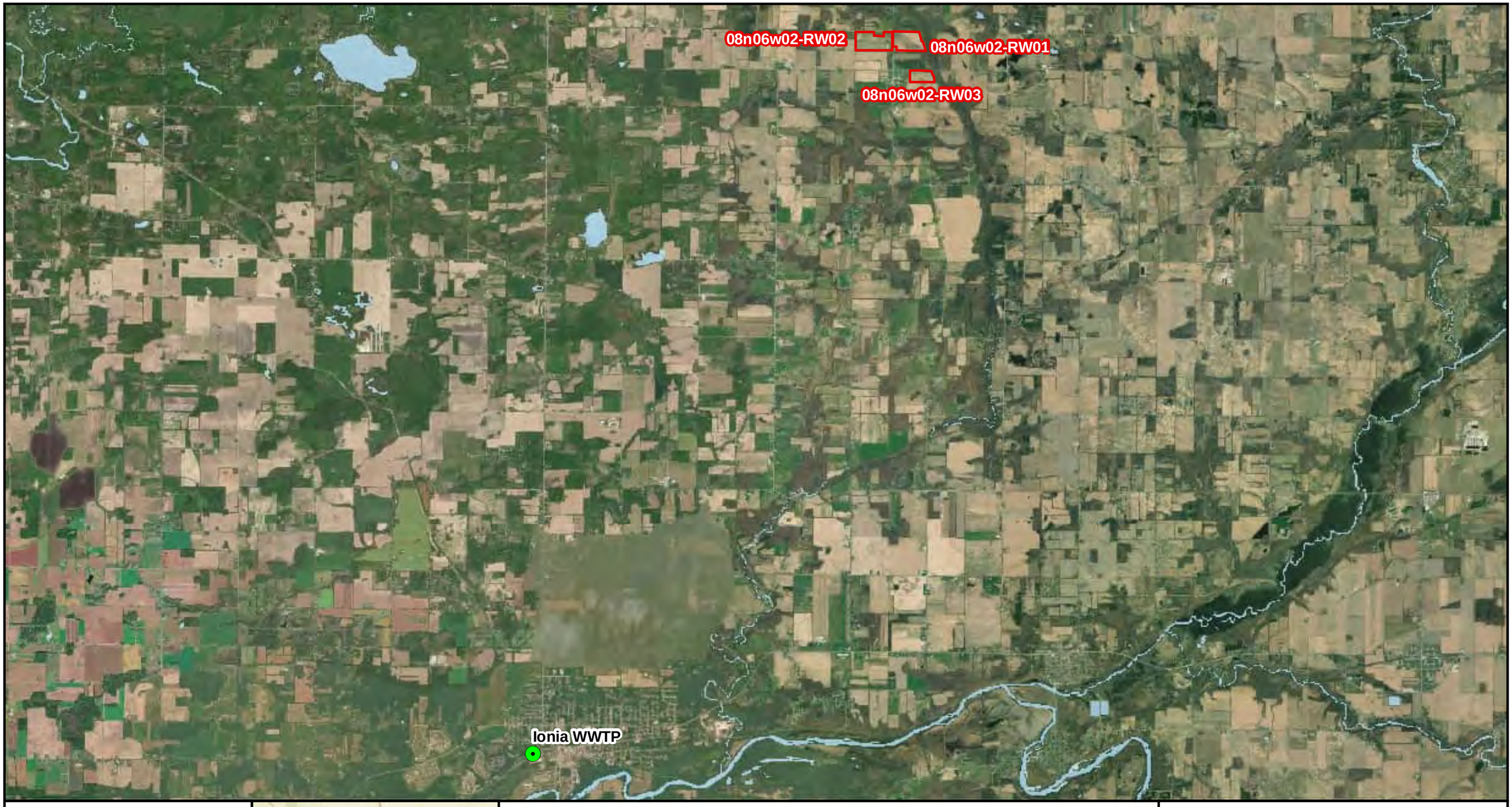
Michigan Department of Environment, Great Lakes, and Energy, *Surface Water PFAS Sampling Guidance* [Technical Guidance], October 2022. Retrieved from: https://www.michigan.gov/pfasresponse/-/media/Project/Websites/PFAS-Response/Sampling-Guidance/Surface-Water.pdf

Attachments:

Figure 1	– Ionia Biosolids Application Fields Overview
Figure 2	– 08N06W02-RW01, 08N06W02-RW02 & 08N06W02-RW03 Groundwater Contours April 2022
Figure 3	– Residential and Monitoring Well PFAS Sampling Results
Figure 4	– Residential and 2022 Monitoring Well Sampling PFAS Heat Map
Figure 5	– 08N06W02-RW01, 08N06W02-RW02 & 08N06W02-RW03 Groundwater and Surface Water Sampling Results November 2021 and April 2022
Table 1	– 08N06W02-RW01, RW02, RW03 Surface Water PFAS Analytical Results Summary
Table 2	– 08N06W02-RW01, RW02, RW03 Groundwater PFAS Analytical Results Summary
Table 3	– 08N06W02-RW01, RW02, RW03 Residential Wells PFAS Analytical Results Summary
Appendix A	– 2021 Field Forms
Appendix B	– 2022 Field Forms
Appendix C	– 2021 Analytical Reports
Appendix D	– 2022 Analytical Reports
Appendix E	– 2023 Analytical Reports

Figures



AECOM

Drawn: AA	Date: 7/1/2022
Approved: DB	Date: 7/1/2022
Project #:	

Legend

- Waste Water Treatment Plant
- Biosolids Application Field

N

0 2 4 Miles

FIGURE 1
IONIA BIOSOLIDS
APPLICATION FIELDS OVERVIEW

IONIA, MI

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SW-1
Prairie Creek
SW-3
771
769
767
MW-1
766.37
08N06W02-RW02
08N06W02-RW01
MW-2
770.20
MW-3
777.54
772
770
768
766
774
776
778
SW-4
MW-4
772.91
MW-5
764.52
SW-2
780
MW-6
781.26
MW-7
769.78
08N06W02-RW03
MW-8
773.44

AECOM

Drawn:	AA	Date: 7/6/2022
Approved:	DB	Date: 7/6/2022
Project #:	60588767	

Legend

- 2021 Surface Water Sample Location
- Monitoring Well Location
- Groundwater Contour (2 ft interval)
- Inferred Groundwater Contour (2 ft interval)
- Surface Water Body
- Biosolids Application Field
- Approximate Groundwater Flow Direction
- Inferred Groundwater Flow Direction (based on 2021 surface water sample location)
- Approximate Surface Water Flow Direction

N

0 450 900 1,800 Feet

FIGURE 2
08N06W02-RW01, 08N06W02-RW02 & 08N06W02-RW03
GROUNDWATER CONTOURS
APRIL 2022

IONIA, MI

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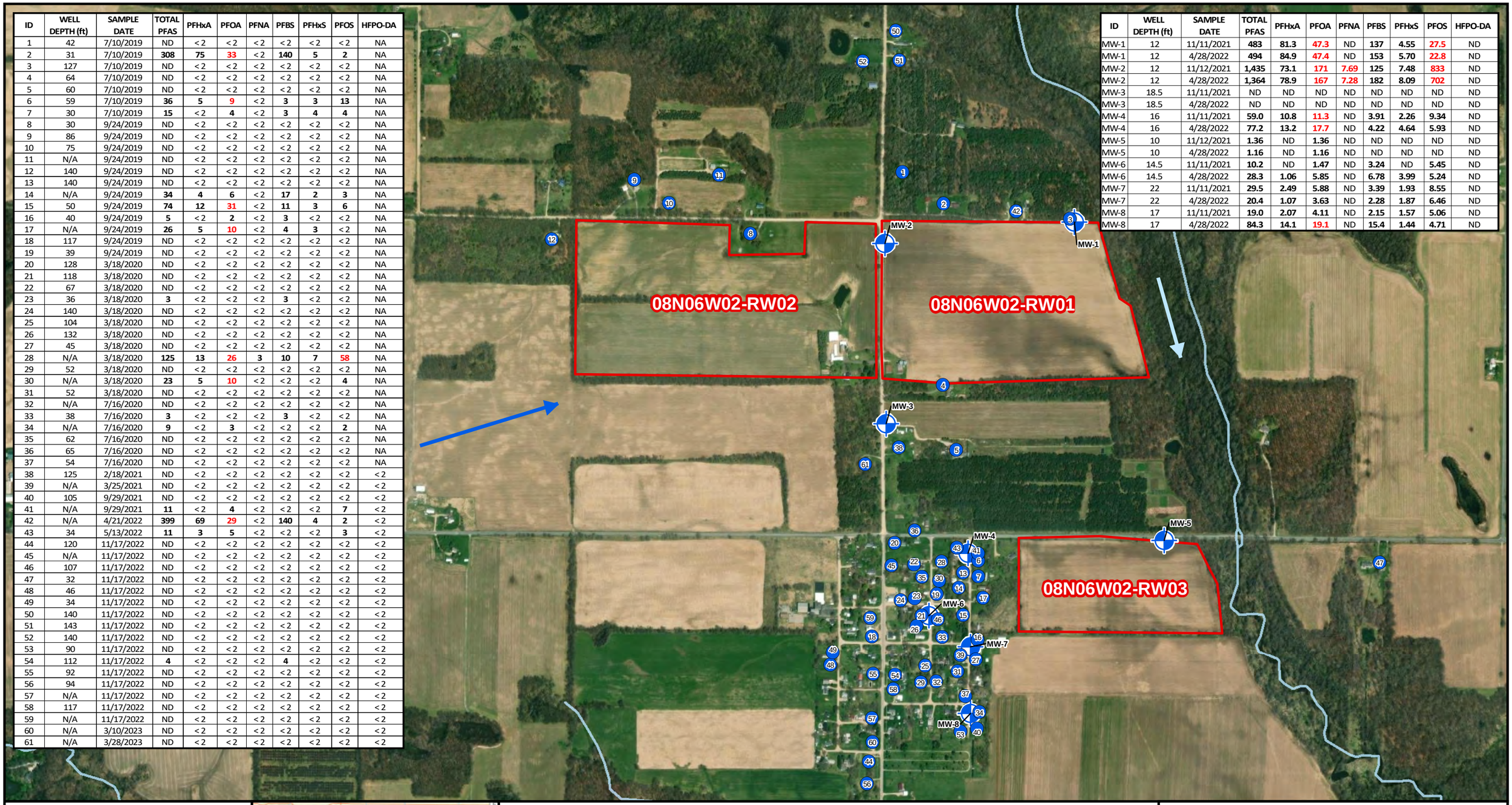
ID	WELL DEPTH (ft)	SAMPLE DATE	TOTAL PFAS	PFHxA	PFOA	PFNA	PFBS	PFHxS	PFOS	HFPO-DA
1	42	7/10/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
2	31	7/10/2019	**308**	**75**	**33**	< 2	**140**	**5**	**2**	NA
3	127	7/10/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
4	64	7/10/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
5	60	7/10/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
6	59	7/10/2019	**36**	**5**	**9**	< 2	**3**	**3**	**13**	NA
7	30	7/10/2019	**15**	< 2	**4**	< 2	**3**	**4**	**4**	NA
8	30	9/24/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
9	86	9/24/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
10	75	9/24/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
11	N/A	9/24/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
12	140	9/24/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
13	140	9/24/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
14	N/A	9/24/2019	**34**	**4**	**6**	< 2	**17**	**2**	**3**	NA
15	50	9/24/2019	**74**	**12**	**31**	< 2	**11**	**3**	**6**	NA
16	40	9/24/2019	**5**	< 2	**2**	< 2	**3**	< 2	< 2	NA
17	N/A	9/24/2019	**26**	**5**	**10**	< 2	**4**	**3**	< 2	NA
18	117	9/24/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
19	39	9/24/2019	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
20	128	3/18/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
21	118	3/18/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
22	67	3/18/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
23	36	3/18/2020	**3**	< 2	< 2	< 2	**3**	< 2	< 2	NA
24	140	3/18/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
25	104	3/18/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
26	132	3/18/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
27	45	3/18/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
28	N/A	3/18/2020	**125**	**13**	**26**	**3**	**10**	**7**	**58**	NA
29	52	3/18/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
30	N/A	3/18/2020	**23**	**5**	**10**	< 2	< 2	< 2	**4**	NA
31	52	3/18/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
32	N/A	7/16/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
33	38	7/16/2020	**3**	< 2	< 2	< 2	**3**	< 2	< 2	NA
34	N/A	7/16/2020	**9**	< 2	**3**	< 2	< 2	< 2	**2**	NA
35	62	7/16/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
36	65	7/16/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
37	54	7/16/2020	ND	< 2	< 2	< 2	< 2	< 2	< 2	NA
38	125	2/18/2021	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
39	N/A	3/25/2021	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
40	105	9/29/2021	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
41	N/A	9/29/2021	**11**	< 2	**4**	< 2	< 2	< 2	**7**	< 2
42	N/A	4/21/2022	**399**	**69**	**29**	< 2	**140**	**4**	**2**	< 2
43	34	5/13/2022	**11**	**3**	**5**	< 2	< 2	< 2	**3**	< 2
44	120	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
45	N/A	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
46	107	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
47	32	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
48	46	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
49	34	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
50	140	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
51	143	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
52	140	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
53	90	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
54	112	11/17/2022	**4**	< 2	< 2	< 2	**4**	< 2	< 2	< 2
55	92	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
56	94	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
57	N/A	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
58	117	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
59	N/A	11/17/2022	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
60	N/A	3/10/2023	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
61	N/A	3/28/2023	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2

ID	WELL DEPTH (ft)	SAMPLE DATE	TOTAL PFAS	PFHxA	PFOA	PFNA	PFBS	PFHxS	PFOS	HFPO-DA
MW-1	12	11/11/2021	**483**	**81.3**	**47.3**	ND	**137**	**4.55**	**27.5**	ND
MW-1	12	4/28/2022	**494**	**84.9**	**47.4**	ND	**153**	**5.70**	**22.8**	ND
MW-2	12	11/12/2021	**1,435**	**73.1**	**171**	**7.69**	**125**	**7.48**	**833**	ND
MW-2	12	4/28/2022	**1,364**	**78.9**	**167**	**7.28**	**182**	**8.09**	**702**	ND
MW-3	18.5	11/11/2021	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	18.5	4/28/2022	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	16	11/11/2021	**59.0**	**10.8**	**11.3**	ND	**3.91**	**2.26**	**9.34**	ND
MW-4	16	4/28/2022	**77.2**	**13.2**	**17.7**	ND	**4.22**	**4.64**	**5.93**	ND
MW-5	10	11/12/2021	**1.36**	ND	**1.36**	ND	ND	ND	ND	ND
MW-5	10	4/28/2022	**1.16**	ND	**1.16**	ND	ND	ND	ND	ND
MW-6	14.5	11/11/2021	**10.2**	ND	**1.47**	ND	**3.24**	ND	**5.45**	ND
MW-6	14.5	4/28/2022	**28.3**	**1.06**	**5.85**	ND	**6.78**	**3.99**	**5.24**	ND
MW-7	22	11/11/2021	**29.5**	**2.49**	**5.88**	ND	**3.39**	**1.93**	**8.55**	ND
MW-7	22	4/28/2022	**20.4**	**1.07**	**3.63**	ND	**2.28**	**1.87**	**6.46**	ND
MW-8	17	11/11/2021	**19.0**	**2.07**	**4.11**	ND	**2.15**	**1.57**	**5.06**	ND
MW-8	17	4/28/2022	**84.3**	**14.1**	**19.1**	ND	**15.4**	**1.44**	**4.71**	ND



AECOM

Drawn: AA Date: 9/14/2023

Approved: DB Date: 9/14/2023

Project #: 60588767

Legend

- Residential Sample Location
- Monitoring Well Location
- Biosolids Application Field
- Surface Water Flow Direction
- Approximate GW Flow Direction

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

PFHxA = 400,000 PFNA = 6 PFHxS = 51 HFPO-DA = 370

PFOA = 8 PFBS = 420 PFOS = 16

The total PFAS concentrations for the residential well samples collected between 2019 and 2023 varied depending on the sampling event and was the sum of 14, 18, or 39 analytes.

Total PFAS concentrations for monitoring wells is the sum of 29 PFAS analytes for samples collected in 2021 and 2022.

Red text indicates exceedance of Part 201 DWC. All sample results are in ng/L

NA = Not Analyzed ND = Non-Detect

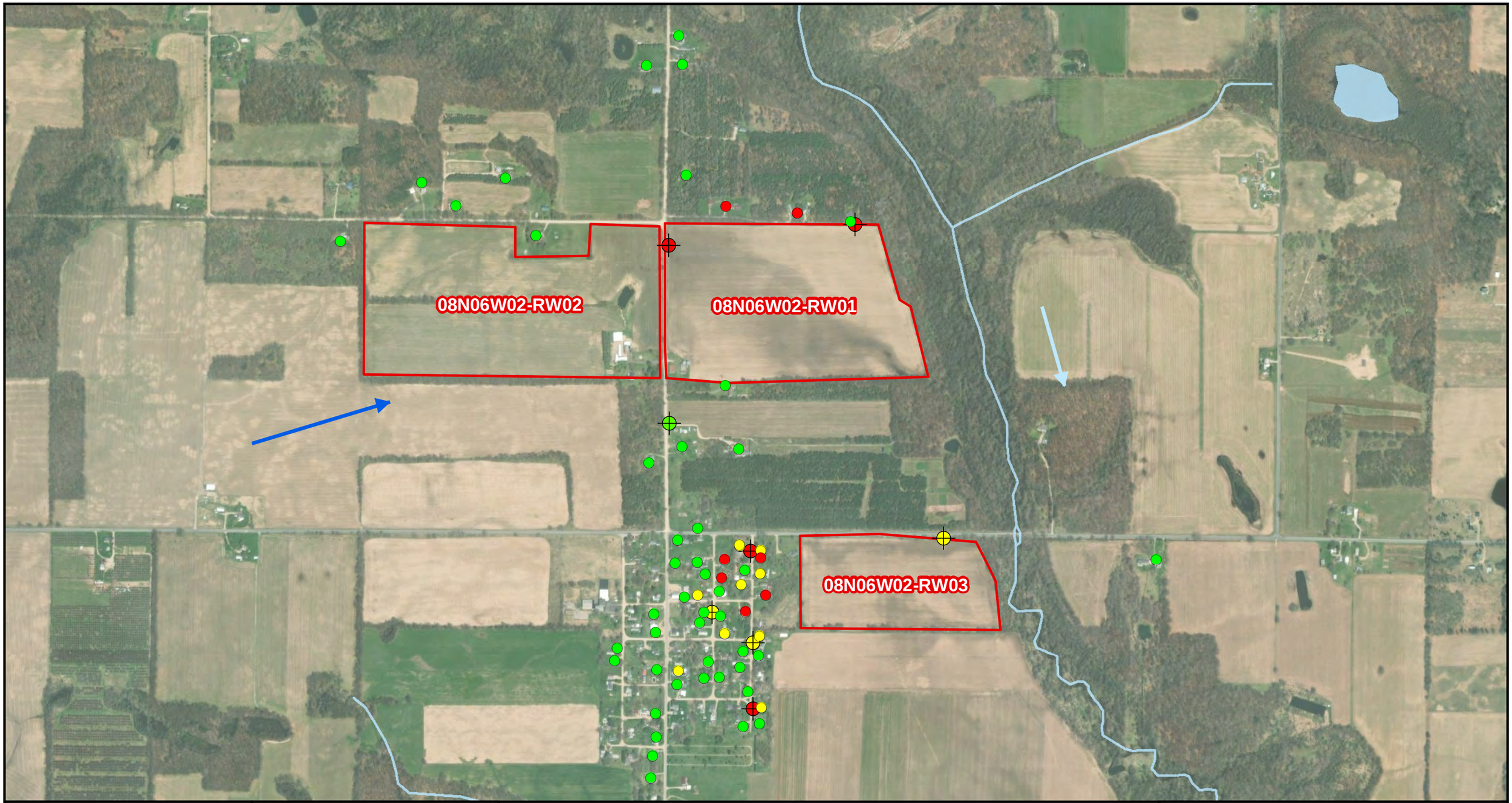
N

0 0.25 0.5 Miles

FIGURE 3
RESIDENTIAL AND MONITORING WELL PFAS SAMPLING RESULTS

IONIA, MI

Document Path: Z:\GrandRapids-USGRR01\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Ionia\2022\F3_Ionia_Residential_MW_Sampling_TotalPFAS.mxd



AECOM

Drawn:	AA	Date:	9/14/2023
Approved:	DB	Date:	9/14/2023
Project #:	60588767		

Legend

- Residential Well Sample
- Monitoring Well Sample

PFAS Heat Map

- No Detections of the Analyzed PFAS
- One of more of the Analyzed PFAS Detected
- One or more of the 7 PFAS with Michigan Part 201 Drinking Water Criteria Detected Above Criteria
- Biosolids Application Field

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			

- Surface Water Flow Direction
- Approximate GW Flow Direction

N

0 0.1 0.2 Miles

FIGURE 4
RESIDENTIAL AND 2022 MONITORING WELL SAMPLING PFAS HEAT MAP

IONIA, MI

Document Path: Z:\GrandRapids-USGRR01\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Ionia\2022\F4_Ionia_Residential_MW_heatmap.mxd

SW-1 11/12/2021
1.35 (ND | ND | ND)

Prairie Creek

SW-3 11/12/2021
3.19 (ND | ND | ND)

MW-2 (Screen 7-12 ft bgs) 11/12/2021
1,435 (73.1 | 171 | 7.69 | 125 | 7.48 | 833 | ND)
4/28/2022
1,364 (78.9 | 167 | 7.28 | 182 | 8.09 | 702 | ND)

MW-1 (Screen 7-12 ft bgs) 11/11/2021
483 (81.3 | 47.3 | ND | 137 | 4.55 | 27.5 | ND)
04/28/2022
494 (84.9 | 47.4 | ND | 153 | 5.70 | 22.8 | ND)

08N06W02-RW01

08N06W02-RW02

MW-3 (Screen 13.5-18.5 ft bgs) 11/11/2021
ND (ND | ND | ND | ND | ND | ND | ND)
4/28/2022
ND (ND | ND | ND | ND | ND | ND | ND)

SW-4 11/12/2021
2.47 (ND | 2.47 | ND)

MW-5 (Screen 5-10 ft bgs) 11/12/2021
1.36 (ND | 1.36 | ND | ND | ND | ND | ND)
4/28/2022
1.16 (ND | 1.16 | ND | ND | ND | ND | ND)

MW-4 (Screen 11-16 ft bgs) 11/11/2021
59.0 (10.8 | 11.3 | ND | 3.91 | 2.26 | 9.34 | ND)
4/28/2022
77.2 (13.2 | 17.7 | ND | 4.22 | 4.64 | 5.93 | ND)

SW-2 11/12/2021
5.19 (ND | ND | 1.13)

MW-6 (Screen 9.5-14.5 ft bgs) 11/11/2021
10.2 (ND | 1.47 | ND | 3.24 | ND | 5.45 | ND)
4/28/2022
28.3 (1.06 | 5.85 | ND | 6.78 | 3.99 | 5.24 | ND)

MW-7 (Screen 17-22 ft bgs) 11/11/2021
29.5 (2.49 | 5.88 | ND | 3.39 | 1.93 | 8.55 | ND)
4/28/2022
20.4 (1.07 | 3.63 | ND | 2.28 | 1.87 | 6.46 | ND)

08N06W02-RW03

MW-8 (Screen 12-17 ft bgs) 11/11/2021
19.0 (2.07 | 4.11 | ND | 2.15 | 1.57 | 5.06 | ND)
4/28/2022
84.3 (14.1 | 19.1 | ND | 15.4 | 1.44 | 4.71 | ND)

AECOM

Drawn: AA Date: 9/14/2023

Approved: DB Date: 9/14/2023

Project #: 60588767

Legend

- Monitoring Well Location
- 2021 Surface Water Sample Location
- Surface Water Body
- Biosolids Application Field

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

Surface Water ID Sample Date
Total PFAS (PFOA | PFOS | PFBS)

Total PFAS is sum of 29 PFAS compounds.

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

Michigan Rule 57 Water Quality Value (WQV) for non-drinking water, ng/L
PFOA = 170 PFOS = 12 PFBS = 670,000

red text indicates exceedance of Part 201 DWC for monitoring well samples or Rule 57 WQV for surface water samples.

N

0 450 900 1,800 Feet

FIGURE 5
08N06W02-RW01, 08N06W02-RW02 & 08N06W02-RW03
GROUNDWATER AND SURFACE WATER SAMPLING RESULTS
NOVEMBER 2021 AND APRIL 2022

IONIA, MI

Document Path: Z:\GrandRapids-USGRR01\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Ionia\2022\F5_Ionia_Palo_Bioisolids_Fields_MW_SW_Part201_Chembox.mxd

Tables

Table 1

08N06W02-RW01, RW02, RW03 Surface Water

PFAS Analytical Results Summary

Nr.	Sample	Sample Date	Sample ID	Lab Report	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	NEtFOSAA	NMeFOSAA	PFecHS	9Cl-PF3ONS	11Cl-PF3OUdS	ADONA	HFPO-DA
1	SW1112210935MLB	11/12/2021	SW-1	2111182	**1.35**	**1.35 J**	< 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
2	SW1112211000MLB	11/12/2021	SW-2	2111182	**5.19**	**1.69 J**	< 4.07 U	**1.21 J, Q**	**1.16 J**	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	**1.13 J**	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U	< 4.07 U
3	SW1112211035MLB	11/12/2021	SW-3	2111182	**3.19**	**3.19 J**	< 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
3	SW1112211130MLB	11/12/2021	SW-4	2111182	**2.47**	< 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	**2.47 J**	< 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

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

Rule 57 Water Quality Value (WQV)
(Human noncancer non-drink values)
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 (**N-EtFASAAs**)
- N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**N-MeFASAAs**)
- Cyclic PFAS
- PFAS Replacement Chemistry Compounds

Concentration exceeds WQV 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
N-EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid
N-MeFOSAA = N-Methyl perfluorooctane sulfonamidoacetic acid
PFECHS = Perfluoroethylcyclohexanesulfonate

9Cl-PF3ONS or F53B-Minor = 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid
11Cl-PF3ONS or F53B-Major = 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
ADONA = Dodecafluoro-3H-4,8-dioxanonanoate
HFPO-DA or Gen-X = Hexafluoropropylene oxide dimer acid

Table 2

08N06W02-RW01, RW02, RW03 Groundwater

PFAS Analytical Results Summary

Location	Sample	Sample Date	Well Depth (ft)	Lab Report	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	N-MeFOSAA	PFecHS	9Cl-PF3ONS	11Cl-PF3OUdS	ADONA	HFPO-DA
MW-1	GW1111211300MLB	11/11/2021	12	2111182	**483**	**30.8**	**80.7**	**81.3**	**64.5**	**47.3**	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	**137**	**1.18 J**	**4.55**	< 3.98 U	**27.5 Q**	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	**8.57**	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U
	GW2204281425GSC	4/28/2022		2205056	**494**	**29.8**	**66.3**	**84.9**	**74.7**	**47.4**	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	**153**	**1.87 J,Q**	**5.7**	< 3.93 U	**22.8 Q**	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	**7.6**	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U
MW-2	GW1112210740MLB	11/12/2021	12	2111182	**1,435**	**28.6**	**72.1**	**73.1**	**88.3**	**171**	**7.69**	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	**125**	**1.17 J**	**7.48**	**3.73 J**	**833**	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	**24**	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U
	GW2204281350GSC	4/28/2022		2205056	**1,337**	**33.5**	**61.5**	**76.9**	**99.7**	**171**	**6.88**	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	**178**	**1.05 J**	**8.43**	**3.27 J**	**672**	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	**24.5**	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U
	GW2204281350GSC-FD	4/28/2222		2205056	**1,364**	**32.7**	**64.5**	**78.9**	**92.7**	**167**	**7.28**	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	**182**	**1.43 J**	**8.09**	**3.1 J**	**702**	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	**24.2**	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U
MW-3	GW1111211205MLB	11/11/2021	19	2111182	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
	GW2204280945GSC	4/28/2022		2205056	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
MW-4	GW1111210800MLB	11/11/2021	16	2111182	**59.0**	**5.39**	**11.1**	**10.8**	**4.89**	**11.3**	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	**3.91 J**	< 4.04 U	**2.26 J**	< 4.04 U	**9.34 Q**	< 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
	GW2204281250GSC	4/28/2022		2205056	**77.2**	**8.35**	**14.1**	**13.2**	**7.93**	**17.7**	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	**4.22**	< 4.05 U	**4.64**	**1.08 J,Q**	**5.93 Q**	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U	< 4.05 U
MW-5	GW1112210810MLB	11/12/2021	10	2111182	**1.36**	< 3.98 U	< 3.98 U	< 3.98 U	< 3.98 U	**1.36 J**	< 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
	GW2204281020GSC	4/28/2022		2205056	**1.16**	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	**1.16 J**	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U	< 3.92 U
MW-6	GW1111210905MLB	11/11/2021	15	2111182	**10.2**	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	**1.47 J**	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	< 4.06 U	**3.24 J**	< 4.06 U	< 4.06 U	< 4.06 U	**5.45 Q**	< 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
	GW2204281215GSC	4/28/2022		2205056	**28.3**	**1.46 J**	< 3.90 U	**1.06 J**	**3.9**	**5.85**	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	**6.78**	< 3.90 U	**3.99**	< 3.90 U	**5.24 Q**	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U	< 3.90 U
MW-7	GW1111211100MLB	11/11/2021	22	2111182	**29.5**	**2.75 J**	**2.42 J**	**2.49 J**	**2.05 J**	**5.88**	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	**3.39 J**	< 3.99 U	**1.93 J**	< 3.99 U	**8.55 Q**	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U	< 3.99 U
	GW1111211100MLB-DUP	11/11/2021 FD		2111182	**32.9**	**2.88 J**	**2.65 J**	**2.79 J**	**2.54 J**	**6.59**	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	**3.75 J**	< 4.14 U	**2.17 J**	< 4.14 U	**9.48 Q**	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U	< 4.14 U
	GW2204281130GSC	4/28/2022		2205056	**20.4**	**2.43 J**	**1.39 J**	**1.07 J**	**1.25 J**	**3.63 J**	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	< 3.93 U	**2.28 J**	< 3.93 U	**1.87 J**	< 3.93 U	**6.46 Q**	< 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
MW-8	GW1111210950MLB	11/11/2021	17	2111182	**19.0**	**1.37 J**	**1.35 J**	**2.07 J**	**1.3 J**	**4.11**	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	< 4.04 U	**2.15 J**	< 4.04 U	**1.57 J**	< 4.04 U	**5.06 Q**	< 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
	GW2204281055GSC	4/28/2022		2205056	**84.3**	**7.09**	**13.2**	**14.1**	**9.21**	**19.1**	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	**15.4**	< 3.89 U	**1.44 J**	< 3.89 U	**4.71**	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 U	< 3.89 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 (**N-EtFASAAs**)
N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**N-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

N-EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid
N-MeFOSAA = N-Methyl perfluorooctane sulfonamidoacetic acid

PFECHS = Perfluoroethylcyclohexanesulfonate

9Cl-PF3ONS or F53B-Minor = 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid
11Cl-PF3ONS or F53B-Major = 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
ADONA = Dodecafluoro-3H-4,8-dioxanonanoate
HFPO-DA or Gen-X = Hexafluoropropylene oxide dimer acid

Table 3

08N06W02-RW01, RW02, RW03 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	N-MeFOSAA	PFecHS	9Cl-PF3ONS	11Cl-PF3OUdS	ADONA	HFPO-DA
Location 1	Residential	7/10/2019	42	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 2	Residential	7/10/2019	31	**308**	---	---	**75**	**53**	**33**	< 2	< 2	< 4	< 4	< 4	< 4	**140**	---	**5**	---	**2**	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 3	Residential	7/10/2019	127	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 4	Residential	7/10/2019	64	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 5	Residential	7/10/2019	60	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 6	Residential	7/10/2019	59	**36**	---	---	**5**	**3**	**9**	< 2	< 2	< 4	< 4	< 4	< 4	**3**	---	**3**	---	**13**	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 7	Residential	7/10/2019	30	**15**	---	---	< 2	< 2	**4**	< 2	< 2	< 4	< 4	< 4	< 4	**3**	---	**4**	---	**4**	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 8	Residential	9/24/2019	30	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 9	Residential	9/24/2019	86	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 10	Residential	9/24/2019	75	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 11	Residential	9/24/2019	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 12	Residential	9/24/2019	140	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 13	Residential	9/24/2019	140	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 14	Residential	9/24/2019	N/A	**34**	---	---	**4**	**2**	**6**	< 2	< 2	< 4	< 4	< 4	< 4	**17**	---	**2**	---	**3**	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 15	Residential	9/24/2019	50	**74**	---	---	**12**	**11**	**31**	< 2	< 2	< 4	< 4	< 4	< 4	**11**	---	**3**	---	**6**	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 16	Residential	9/24/2019	40	**5**	---	---	< 2	< 2	**2**	< 2	< 2	< 4	< 4	< 4	< 4	**3**	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 17	Residential	9/24/2019	N/A	**26**	---	---	**5**	**4**	**10**	< 2	< 2	< 4	< 4	< 4	< 4	**4**	---	**3**	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 18	Residential	9/24/2019	117	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 19	TYPE III	9/24/2019	39	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 20	Residential	3/18/2020	128	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 20	Residential	3/18/2020	128	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 21	Residential	3/18/2020	118	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 22	Residential	3/18/2020	67	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 23	Residential	3/18/2020	36	**3**	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	**3**	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 24	Residential	3/18/2020	140	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 25	Residential	3/18/2020	104	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 26	Residential	3/18/2020	132	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 27	Residential	3/18/2020	45	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 28	Residential	3/18/2020	N/A	**125**	---	---	**13**	**8**	**26**	**3**	< 2	< 4	< 4	< 4	< 4	**10**	---	**7**	---	**58**	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 29	Residential	3/18/2020	52	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 30	Residential	3/18/2020	N/A	**23**	---	---	**5**	**4**	**10**	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	**4**	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 31	Residential	3/18/2020	52	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	---	---	---	---
Location 32	Residential	7/16/2020	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	< 4	< 4	< 4	< 4
Location 33	Residential	7/16/2020	38	**3**	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	**3**	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	< 4	< 4	< 4	< 4
Location 34	Residential	7/16/2020	N/A	**9**	---	---	**4**	< 2	**3**	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	**2**	---	---	---	---	---	---	---	< 4	< 4	---	< 4	< 4	< 4	< 4
Location 35	Residential	7/16/2020	62	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	< 4	< 4	< 4	< 4
Location 36	Residential	7/16/2020	65	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	< 4	< 4	< 4	< 4
Location 37	Residential	7/16/2020	54	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 4	< 4	< 4	< 4	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 4	< 4	---	< 4	< 4	< 4	< 4
Location 38	Residential	2/18/2021	125	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Location 39	Residential	3/25/2021	N/A	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Location 40	Residential	9/29/2021	105	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 41	Residential	9/29/2021	N/A	**11**	---	---	< 2	< 2	**4**	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	**7**	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 42	Residential	4/21/2022	N/A	**393**	**29**	**64**	**69**	**49**	**29**	< 2	< 2	< 2	< 2	< 2	< 2	**140**	< 2	**3.8**	< 2	**2.1**	< 2	< 5	< 2	< 2	< 2	< 2	< 2	< 2	**7**	< 2	< 2	< 2	< 2
Location 42	Residential	4/21/2022	N/A	**388**	**27**	**66**	**70**	**48**	**33**	< 2	< 2	< 2	< 2	< 2	< 2	**130**	< 2	**4.5**	< 2	**2.2**	< 2	< 5	< 2	< 2	< 2	< 2	< 2	< 2	**6.9**	< 2	< 2	< 2	< 2
Location 43	Residential	5/13/2022	34	**11**	---	---	**3**	< 2	**5**	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	**3**	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 44	TYPE III	11/17/2022	120	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 45	Residential	11/17/2022	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 46	Residential	11/17/2022	107	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 47	Residential	11/17/2022	32	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 48	Residential	11/17/2022	46	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 49	Residential	11/17/2022	34	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 50	Residential	11/17/2022	140	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 51	Residential	11/17/2022	143	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 52	Residential	11/17/2022	140	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 53	Residential	11/17/2022	90	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 54	Residential	11/17/2022	112	**4**	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	**4**	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 55	Residential	11/17/2022	92	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 56	Residential	11/17/2022	94	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 57	Residential	11/17/2022	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 58	Residential	11/17/2022	117	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 59	Residential	11/17/2022	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 60	Residential	3/10/2023	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 60	Residential	3/10/2023	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 61	Residential	3/28/2023	N/A	ND	---	---	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	---	< 2	---	< 2	---	---	---	---	---	---	---	< 2	< 2	---	< 2	< 2	< 2	< 2
Location 61	Residential	3/28/2023	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**).

"N/A" = Not Available

"<" = Values Below Level of Quantitation (**LOQ**) or Reporting Limit (**RL**).

"--" = Not Analyzed.

Bolded values indicate detection.

EGLE Part 201 Drinking Water Criteria (DWC) (ng/L)

PFOA = 8; PFOS = 16; PFNA =6; PFHxS=51

Perfluoroalkyl Carboxylic Acids (**PFCAs**)

Perfluoroalkane Sulfonic Acids (**PFSAs**)

Perfluoroalkane Sulfonamides (**FASAs**)

Fluorotelomer Sulfonic Acids (**FTSAs**)

N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (**N-EtFASAAs**)

N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**N-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

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

4:2 FTSA = 4:2 Fluorotelomer sulfonic acid

6:2 FTSA = 4:2 Fluorotelomer sulfonic acid

8:2 FTSA = 4:2 Fluorotelomer sulfonic acid

N-EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid

N-MeFOSAA = N-Methyl perfluorooctane sulfonamidoacetic acid

PFECHS = Perfluoroethylcyclohexanesulfonate

9Cl-PF3ONS or F53B-Minor = 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid

11Cl-PF3ONS or F53B-Major = 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid

ADONA = Dodecafluoro-3H-4,8-dioxanonanoate

HFPO-DA or Gen-X = Hexafluoropropylene oxide dimer acid

Appendix A –
2021 Field Forms

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: MW-1

Client:
Project:
Project #:

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	SUNNY, 50°			Air Temperature			

Notes: PRIVATE DRIVE LOCATION

STATIC WATER LEVEL PRIOR TO PURGING

Date: 11.11.21 Time: 1220 AM/(PM)

Depth to Water: 3.69'

Length of Well: 11.99'

Measured with: Electronic Tape (X) Chalk & Steel Tape

Decontamination: Pre Steam Cleaned DI Water (Other)

WELL PURGING

Date: 11/11/21 Begin Time: 12:25 AM/(PM) End Time: 1255 AM/(PM)

Purging Equipment: Peristaltic pump

Decontamination: Pre Steam Cleaned DI Water Other
New Tubing

CALCULATION OF 1 CASING VOLUME

11.99 ft. Length of well

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

8.30 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: Liters

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

Notes

Time	Volume (Liters)	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 (°C) +/- 10mV
Start: 1235		3.69'	7.29	0.533	23.56	5.35	12.8	222.1
1240		3.69'	7.28	0.534	13.56	6.04	12.7	225.2
1245		3.70	7.28	0.536	6.90	6.09	12.7	226.8
1250		3.70	7.28	0.537	6.88	6.10	12.8	229.6
1255	0.50	3.71'	7.29	0.536	6.84	6.15	12.9	230.5
Final: 1255		3.71'	7.29	0.536	6.84	6.15	12.9	230.5

SAMPLE COLLECTION

Date: 11/11/21 Time: 1300 AM/(PM) Method: Peristaltic Pump

Appearance of Sample: GOOD-CLEAR Actual Sample Flow Rate: ml/min or L/min

SAMPLE BOTTLE COLLECTED: GW111121300MLB

SAMPLING PERSONNEL

Name: MARIAH BENNETT Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: MW-2

Client:
Project:
Project #:

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	Cloudy			Air Temperature:			

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 11/12/21 Time: 0700 (AM/PM)

Depth to Water: 2.48'

Length of Well: 11.89'

Measured with: Electronic Tape / Chalk & Steel Tape

Decontamination: Pre Steam Cleaned / DI Water / Other

WELL PURGING

Date: 11/12/21 Begin Time: 0705 AM/PM End Time: 0730 AM/PM

Purging Equipment: Peristaltic pump

Decontamination: Pre Steam Cleaned / DI Water / Other / New Tubing

CALCULATION OF 1 CASING VOLUME

11.89 ft. Length of well

2.48 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: ____ Liters

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

Notes

Time	Volume (Liters)	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 (°C) +/- 10mV
Start: 0705			7.32	0.541	24.00	4.37	11.6	182.1
0710			7.32	0.539	16.10	4.09	11.6	190.2
0715			7.31	0.536	10.09	4.32	11.5	192.4
0720			7.32	0.537	8.66	4.16	11.5	194.9
0725			7.31	0.535	8.64	4.12	11.5	195.2
0730			7.31	0.534	8.62	4.08	11.5	197.6
Final:								

SAMPLE COLLECTION

Date: 11/12/21 Time: 0740 (AM/PM) Method: Peristaltic Pump

Appearance of Sample: ____

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

SAMPLE BOTTLE COLLECTED: GW1112

SAMPLING PERSONNEL

Name: MARCIA BENNETT Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID:	MW-3

Client:
Project:
Project #:

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	Cloudy, 50°			Air Temperature			

Notes: + MS/MSD
+ FB

STATIC WATER LEVEL PRIOR TO PURGING

Date: 11/11/21 Time: 1125 (AM)/PM

Depth to Water: 10.20'
Length of Well: 18.10'

Measured with: Electronic Tape Chalk & Steel Tape
Decontamination: Pre Steam Cleaned DI Water Other

WELL PURGING

Date: 11/11/21 Begin Time: 1130 (AM)/PM
End Time: 1205 (AM)/PM

Purging Equipment: Peristaltic pump
Decontamination: Pre Steam Cleaned DI Water Other
New Tubing

CALCULATION OF 1 CASING VOLUME

18.10'	ft.	Length of well	Yield:	HIGH LOW
10.20'	ft.	- depth of water (before purge start)	If low, recovery time:	
	ft.	=length of water column		
		x conversion factor (2" well) 0.16	Actual volume purged	Liters
	Gal.	=1 casing volume	Actual purge flow rate	ml/min or L/min

Notes

Time	Volume (Liters)	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 (°C) +/- 10mV
Start: 1140		10.20'	7.12	0.764	6.16	5.65	13.2	215.8
1145		~~10.21~~ 10.21	7.12	0.760	5.93	5.65	12.6	212.0
1150		10.22	7.12	0.760	4.36	5.29	12.4	216.3
1155		10.24	7.13	0.761	2.31	4.77	12.5	220.9
1200		10.25'	7.13	0.761	2.16	4.79	12.3	222.8
Final:								

SAMPLE COLLECTION

Date: 11.11.21 Time: 1205 AM/PM Method Peristaltic Pump

Appearance of Sample: CLEAR - GOOD Actual Sample Flow Rate: ml/min or L/min

SAMPLE BOTTLE COLLECTED: GW111121205MLB

SAMPLING PERSONNEL

Name: MARIAH BENNETT Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID:	MW-4

Client:
Project:
Project #:

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	CLOUDY 50°			Air Temperature:			

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 11/11/21 Time: 0738 (AM)/PM

Depth to Water: 11.81'
Length of Well: 15.95'

Measured with: Electronic Tape Chalk & Steel Tape
Decontamination: Pre Steam Cleaned DI Water Other

WELL PURGING

Date: 11/11/21 Begin Time: 0745 (AM)/PM
End Time: 0800 AM/PM

Purging Equipment: Peristaltic pump
Decontamination: Pre Steam Cleaned DI Water Other
New Tubing

CALCULATION OF 1 CASING VOLUME

15.95	ft.	Length of well	Yield:	HIGH LOW
11.81	ft.	- depth of water (before purge start)	If low, recovery time:	
4.14'	ft.	=length of water column		
		x conversion factor (2" well) 0.16	Actual volume purged	Liters
	Gal.	=1 casing volume	Actual purge flow rate	ml/min or L/min

Notes

Time	Volume (Liters)	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 (°C) +/- 10mV
Start: 0750		11.85'	6.95	0.589	1.19	7.12	12.5	225.5
0755		11.86'	6.96	0.587	-0.16	7.16	13.0	224.9
0800		11.88'	6.95	0.586	-0.62	7.18	12.8	226.7
Final: 0800		11.88	6.95	0.586	-0.62	7.18	12.8	226.7

SAMPLE COLLECTION

Date: 11/11/21 Time: 0805 (AM)/PM Method Peristaltic Pump

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

SAMPLE BOTTLE COLLECTED: GW111121 0800 MLB

SAMPLING PERSONNEL

Name: MARIAH BENNETT Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID:	MW-5

Client:
Project:
Project #:

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	Cloudy, 40°			Air Temperature:			

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 11/12/21 Time: 0745 (AM)/PM

Depth to Water: 2.26'

Length of Well: 9.58'

Measured with: Electronic Tape Chalk & Steel Tape

Decontamination: Pre Steam Cleaned DI Water Other

WELL PURGING

Date: 11/12/21 Begin Time: 0750 (AM)/PM

End Time: AM/PM

Purging Equipment: Peristaltic pump

Decontamination: Pre Steam Cleaned DI Water Other
New Tubing

CALCULATION OF 1 CASING VOLUME

9.58' ft. Length of well

2.26' 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 Liters

Actual purge flow rate ml/min or L/min

Notes

Time	Volume (Liters)	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 (°C) +/- 10mV
Start: 0755		2.26'	7.03	0.625	46.39	3.87	9.6	120.4
0800		2.28'	7.03	0.623	48.02	3.92	9.5	124.9
0805		2.30'	7.02	0.620	47.08	3.85	9.6	126.8
~~0810~~								
Final:								

SAMPLE COLLECTION

Date: 11/12/21 Time: 0810 (AM)/PM Method Peristaltic Pump

Appearance of Sample: TURBID-GOOD Actual Sample Flow Rate: ml/min or L/min

SAMPLE BOTTLE COLLECTED: GW111221 0810 MLB

SAMPLING PERSONNEL

Name: MAIJAH BENNETT Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID:	MW-7

Client:
Project:
Project #:

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	CLOUDY, 50°			Air Temperature:			

Notes: + Duplicate

STATIC WATER LEVEL PRIOR TO PURGING

Date: 11/11/21 Time: 1005 (AM)/PM

Depth to Water: 13.98'
Length of Well: 21.74'

Measured with: Electronic Tape Chalk & Steel Tape
Decontamination: Pre Steam Cleaned DI Water Other

WELL PURGING

Date: 11/11/21 Begin Time: 1005 (AM)/PM Purging Equipment: Peristaltic pump

End Time: 1100 AM/PM Decontamination: Pre Steam Cleaned DI Water Other
New Tubing

CALCULATION OF 1 CASING VOLUME

21.74' ft. Length of well
13.98' ft. - depth of water (before purge start)
7.76' 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: ____ Liters
Actual purge flow rate: ____ ml/min or L/min

Notes: 8280 FRONT STREET

Time	Volume (Liters)	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 (°C) +/- 10mV
Start: 1020		13.99'	6.92	1.172	26.30	8.81	12.6	233.2
1025		14.00'	6.93	1.164	14.50	7.60	12.7	237.8
1030		14.01'	6.93	1.146	12.28	~~12.28~~ 7.40	12.9	223.7
1035		14.02'	6.94	1.138	6.32	7.38	12.8	224.2
1040		14.03'	6.94	1.143	5.32	7.89	12.9	225.0
1045		14.04	6.94	1.140	4.98	7.62	12.9	226.3
1050		14.05	6.94	1.148	4.82	7.65	12.8	228.9
1055		14.06	6.94	1.150	4.16	7.60	12.9	229.7
Final: 1055		14.06	6.94	1.158	4.16	7.60	12.9	229.7

SAMPLE COLLECTION

Date: 11/11/21 Time: 1100 (AM)/PM Method: Peristaltic Pump

Appearance of Sample: CLEAR Actual Sample Flow Rate: ____ ml/min or L/min

SAMPLE BOTTLE COLLECTED: GW111121100MLB

SAMPLING PERSONNEL

Name: MARIAH BENNETT Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID:	MW-8

Client:
Project:
Project #:

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	CLOUDY, 56°			Air Temperature			

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 11/11/21 Time: 0925 (AM/PM)

Depth to Water: 9.54'
Length of Well: 16.80'

Measured with: (Electronic Tape) Chalk & Steel Tape
Decontamination: Pre Steam Cleaned DI Water Other

WELL PURGING

Date: 11/11/21 Begin Time: 0930 (AM/PM) Purging Equipment: Peristaltic pump

End Time: 0945 AM/PM Decontamination: Pre Steam Cleaned DI Water Other
New Tubing

CALCULATION OF 1 CASING VOLUME

16.80'	ft.	Length of well	Yield:	HIGH LOW
9.54'	ft.	- depth of water (before purge start)	If low, recovery time:	
7.26'	ft.	=length of water column		
		x conversion factor (2" well) 0.16	Actual volume purged	Liters
	Gal.	=1 casing volume	Actual purge flow rate	ml/min or L/min

Notes: 8194 FRONT STREET - FRONT YARD

Time	Volume (Liters)	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 (°C) +/- 10mV
Start: 0930		9.55'	6.99	0.752	5.59	4.56	12.6	207.2
0935		9.56'	7.00	0.756	3.34	4.63	12.9	205.3
0940		9.57'	7.00	0.756	2.20	4.66	12.9	208.1
0945		9.58'	7.01	0.760	2.19	4.62	12.9	211.4
Final:								

SAMPLE COLLECTION

Date: 11/11/21 Time: 0950 (AM/PM) Method Peristaltic Pump

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

SAMPLE BOTTLE COLLECTED: GW111121 0950 mLB

SAMPLING PERSONNEL

Name: MARIAH BENNETT Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID:	SW-1

Client:
Project:
Project #:

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				Any indication of surface runoff in well?	YES	NO	NA
Weather				Air Temperature:			

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 11/12/21 Time: 12:20 AM/PM

Depth to Water: 6.37' from bench mark - center of nail

Length of Well:

Measured with: Electronic Tape Chalk & Steel Tape

Decontamination: Pre Steam Cleaned DI Water Other

WELL PURGING

Date: Begin Time: AM/PM Purging Equipment: Peristaltic pump

End Time: 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 Liters

Actual purge flow rate ml/min or L/min

Notes

Time	Volume (Liters)	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 (°C) +/- 10mV
Start: 0938			7.61	0.629	2.47	9.48	7.2	206.1
Final:								

SAMPLE COLLECTION

Date: 0935 Time: AM/PM Method Peristaltic Pump

Appearance of Sample:

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

SAMPLE BOTTLE COLLECTED:

SAMPLING PERSONNEL

Name: Company: AECOM

5 of 8

AECOM

Low Flow Ground Water Sample Collection Record

Well ID:	SW-2

Client:
Project:
Project #:

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				Any indication of surface runoff in well?	YES	NO	NA
Weather				Air Temperature			

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 11/12/21 Time: 1230 AM/PM

Depth to Water: 6.84' from middle of Catch Measured with: Electronic Tape Chalk & Steel Tape

Length of Well: b Decontamination: Pre Steam Cleaned DI Water Other

WELL PURGING

Date: _____ Begin Time: _____ AM/PM Purging Equipment: Peristaltic pump

End Time: _____ AM/PM Decontamination: Pre Steam Cleaned DI Water Oth
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 _____ Liters

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

Notes

Time	Volume (Liters)	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 (°C) +/- 10mV
Start: 0955			7.87	0.022	1.94	9.48	7.6	184.7
Final:								

SAMPLE COLLECTION

Date: 11/12/21 Time: 1000 AM/PM Method Peristaltic Pump

Appearance of Sample: GOOD Actual Sample Flow Rate: _____ ml/min or L/min

SAMPLE BOTTLE COLLECTED: SW111221000 MLB

SAMPLING PERSONNEL

Name: MARIA BENNETT Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID:	POND

Client:
Project:
Project #:

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				Any indication of surface runoff in well?	YES	NO	NA
Weather				Air Temperature:			

Notes: POND ~~A~~ - ON TWO TRACKS OFF DRIVE NEAR MW-3

STATIC WATER LEVEL PRIOR TO PURGING

Date: 11/12/21 Time: 11.25 (AM)/PM

Depth to Water:
Length of Well:

Measured with: Electronic Tape Chalk & Steel Tape
Decontamination: Pre Steam Cleaned DI Water Other

WELL PURGING

Date: Begin Time: AM/PM Purging Equipment: Peristaltic pump

End Time: 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: Liters
Actual purge flow rate: ml/min or L/min

Notes

Time	Volume (Liters)	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 (°C) +/- 10mV
Start: 1125			8.32	0.320	-0.29	14.41	7.6	177.3
Final:								

SAMPLE COLLECTION

Date: 11/12/21 Time: 1130 (AM)/PM Method Peristaltic Pump

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

SAMPLE BOTTLE COLLECTED:

SAMPLING PERSONNEL

Name: MARIAH BENNETT Company: AECOM

Appendix B –
2022 Field Forms

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: MW-1

Client: EGLE
Project: Biosolids WWTP field Pglo
Project #

Sample ID: GW220428142556

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:	40°F		

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 4-28-22 Time: 1400 AM/PM

Depth to Water: 3.18
Length of Well: ~~12.00~~ 12.00

Measured with: (Electronic Tape)
Decontamination: ~~DI Water~~

WELL PURGING

Date: 4-28-22 Begin Time: 1400 AM/PM End Time: 1410 AM/PM

Purging Equipment: (Perilstaltic Pump)
Decontamination: (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: 1410	.4	3.22	7.44	0.368	3.48	3.59	8.2	141.7
1415	.8	3.22	7.42	0.367	2.92	3.43	8.2	142.9
1420	1.2	3.22	7.42	0.369	3.20	3.58	8.4	144.0
1425	1.6	3.22	7.43	0.368	3.27	3.59	8.3	145.8
Final: 1425	1.6	3.22	7.43	0.368	3.27	3.59	8.3	145.8

SAMPLE COLLECTION

Date: 4-28-22 Time: 1425 AM/PM Method Low Flow

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

SAMPLE BOTTLE COLLECTED: 2- HDPE 250ml Bottles

SAMPLING PERSONNEL

Name Garth Cousineau (AECOM) Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record Field Duplicate

Well ID: MW-2 GW220428 1350GSL

Client: EGLE
Project: Biosolids WWTP field Palo
Project #

Sample ID: GW220428 1350GSL-FD

* FB220428 1310GSL

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:	41°F		

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 4-28-22 Time: 1300 AM/PM

Depth to Water: 1.40 Measured with: ~~Electronic Tape~~

Length of Well: 12.00 Decontamination: ~~DI Water~~

WELL PURGING

Date: 4-28-22 Begin Time: 1300 AM/PM Purging Equipment: Perilstaltic Pump

End Time: ~~1335~~ 1335 AM/PM Decontamination: 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: 1335	.4	1.45	7.35	0.501	3.51	3.32	8.2	155.8
1340	.8	1.45	7.36	0.497	2.82	3.28	8.1	156.5
1345	1.2	1.45	7.35	0.499	2.17	3.18	8.0	158.1
1350	1.6	1.45	7.35	0.499	2.04	3.12	8.3	158.9
Final: 1350	1.6	1.45	7.35	0.499	2.04	3.12	8.13	158.9

SAMPLE COLLECTION

Date: 4-28-22 Time: 1350 AM/PM Method Low Flow

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

SAMPLE BOTTLE COLLECTED: 2- HDPE 250ml Bottles / 2 Field Duplicate / 2 ~~BT~~ Field Blank

SAMPLING PERSONNEL

Name Garth Cousineau (AECOM) Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: MW-3

Client: EGLE
Project: Biosolids WWTP field Palo
Project #

Sample ID: GW220428 0945GS

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: 4-28-22 Time: 0915 AM/PM

Depth to Water: 8.58
Length of Well: 18.5

Measured with: (Electronic Tape)
Decontamination: (DI Water)

WELL PURGING

Date: 4-28-22 Begin Time: 0915 AM/PM End Time: 0925 AM/PM

Purging Equipment: ~~Peristaltic Pump~~
Decontamination: ~~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: 0930	.4	9.33	7.20	0.484	2.26	7.95	9.1	145.2
0935	.8	9.33	7.18	0.484	1.95	7.91	9.2	151.2
0940	1.2	9.33	7.18	0.484	1.93	7.89	9.1	153.4
0945	1.6	9.33	7.17	0.483	1.88	7.87	9.2	158.4
Final: 0945	1.6	9.33	7.17	0.483	1.88	7.87	9.2	158.4

SAMPLE COLLECTION

Date: 4-28-22 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- HDPE 250ml Bottles

SAMPLING PERSONNEL

Name: Garth Cousineau (AECOM) Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: MW-4

Client: EGLE
Project: Biosolids WWTP field Palo
Project #

Sample ID: GW220428125OGS

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: 4-28-22 Time: 1225 AM/PM

Depth to Water: 6.79
Length of Well: 16.0

Measured with: ~~Electronic Tape~~
Decontamination: ~~DI Water~~

WELL PURGING

Date: 4-28-22 Begin Time: 1225 AM/PM End Time: 1235 AM/PM

Purging Equipment: ~~Peristaltic Pump~~
Decontamination: 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: 1235	.4	6.79	7.08	0.485	1.50	10.02	7.6	171.7
1240	.8	6.79	7.07	0.489	1.48	10.02	7.7	175.4
1245	1.2	6.79	7.07	0.485	1.53	10.03	7.7	178.8
1250	1.6	6.79	7.06	0.488	1.47	10.00	7.6	182.2
Final: 1250	1.6	6.79	7.06	0.488	1.47	10.00	7.6	182.2

SAMPLE COLLECTION

Date: 4-28-22 Time: 1250 AM/PM Method Low Flow

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

SAMPLE BOTTLE COLLECTED: 2- HDPE 250ml Bottles

SAMPLING PERSONNEL

Name Garth Cousineau (AECOM) Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: MW-5

Client: EGLE
Project: Biosolids WWTP field Palo
Project #

Sample ID: GW220428 1020 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:	37°F		

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 4-28-22 Time: 0955 AM/PM

Depth to Water: 1.56 Measured with: (Electronic Tape)

Length of Well: 10.00 Decontamination: (DI Water)

WELL PURGING

Date: 4-28-22 Begin Time: 0955 AM/PM Purging Equipment: (Perilstaltic Pump)

End Time: 1005 AM/PM Decontamination: (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) .4	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: 1005	2.31	2.31	7.25	0.418	1.34	1.72	7.7	136.6
1010	.8	2.31	7.25	0.418	1.29	1.71	7.9	137.5
1015	1.2	2.31	7.25	0.419	1.28	1.69	7.8	137.9
1020	1.6	2.31	7.25	0.418	1.35	1.69	7.8	138.3
Final: 1020	1.6	2.31	7.25	0.418	1.35	1.69	7.8	138.3

SAMPLE COLLECTION

Date: 4-28-22 Time: 1020 AM/PM Method Low Flow

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

SAMPLE BOTTLE COLLECTED: 2- HDPE 250ml Bottles

SAMPLING PERSONNEL

Name Garth Cousineau (AECOM) Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: MW-6

Client: EGLE
Project: Biosolids WWTP field Pala
Project #

Sample ID: GW220428 1215 GSL

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:	38°F		

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 4-28-22 Time: 1140 AM/PM

Depth to Water: 6.79
Length of Well: 14.5

Measured with: (Electronic Tape)
Decontamination: (DI Water)

WELL PURGING

Date: 4-28-22 Begin Time: 1140 AM/PM End Time: 1150 AM/PM

Purging Equipment: (Perilstaltic Pump)
Decontamination: (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: 1150	.4	6.98	7.35	0.467	16.53	6.46	8.8	145.4
1155	.8	6.98	7.33	0.463	13.25	5.26	8.7	147.3
1200	1.2	6.98	7.33	0.465	10.33	5.04	8.7	148.7
1205	1.6	6.98	7.32	0.458	9.90	4.97	8.8	150.0
1210	2.0	6.98	7.31	0.457	8.40	4.93	8.9	150.7
1215	2.4	6.98	7.31	0.457	7.76	4.91	8.8	151.2
Final: 1215	2.4	6.98	7.31	0.457	7.76	4.91	8.8	151.2

SAMPLE COLLECTION

Date: 4-28-22 Time: 1215 AM/PM Method Low Flow

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

SAMPLE BOTTLE COLLECTED: 2- HDPE 250ml Bottles

SAMPLING PERSONNEL

Name Garth Cousineau (AECOM) Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: MW-7

Client: EGLE
Project: Biosolids WWTP field Palo
Project #

Sample ID: GW220728 ~~1155~~ 1130 GSL

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:	39°F		

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 4-28-22 Time: 1105 AM/PM

Depth to Water: 1105 12.30
Length of Well: 22

Measured with: (Electronic Tape)
Decontamination: (DI Water)

WELL PURGING

Date: 4-28-22 Begin Time: 1105 AM/PM
End Time: 1115 AM/PM

Purging Equipment: (Perilstaltic Pump)
Decontamination: (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: 1115	.4	12.45	6.88	1.137	7.35	8.55	9.2	159.7
1120	.8	12.45	6.89	1.129	9.78	8.47	9.3	161.8
1125	1.2	12.45	6.90	1.114	9.86	8.43	9.4	163.7
1130	1.6	12.45	6.91	1.095	8.13	8.40	9.5	166.7
Final: 1130	1.6	12.45	6.91	1.095	8.13	8.40	9.5	166.7

SAMPLE COLLECTION

Date: 4-28-22 Time: 1130 AM/PM
Method: Low Flow

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

SAMPLE BOTTLE COLLECTED: 2- HDPE 250ml Bottles

SAMPLING PERSONNEL

Name Garth Cousineau (AECOM) Company: AECOM

AECOM

Low Flow Ground Water Sample Collection Record

Well ID: MW-8

Client: EGLE
Project: Biosolids WWTP field Palo
Project #

Sample ID: GW220428 1055GS

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:	38°F		

Notes:

STATIC WATER LEVEL PRIOR TO PURGING

Date: 4-28-22 Time: 1030 AM/PM

Depth to Water: 7.95 Measured with: (Electronic Tape)

Length of Well: Decontamination: (DI Water)

WELL PURGING

Date: 4-28-22 Begin Time: 1030 AM/PM Purging Equipment: ~~Peristaltic Pump~~

End Time: 1040 AM/PM Decontamination: (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: 1040	.4	8.12	7.16	0.672	8.75	10.35	8.5	176.8
1045	.8	8.12	7.16	0.671	8.20	10.36	8.5	177.5
1050	1.2	8.12	7.16	0.671	7.14	10.36	8.5	179.2
1055	1.6	8.12	7.15	0.672	6.45	10.36	8.5	180.1
Final: 1055	1.6	8.12	7.15	0.672	6.45	10.36	8.5	180.1

SAMPLE COLLECTION

Date: 4-28-22 Time: 1055 AM/PM Method Low Flow

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

SAMPLE BOTTLE COLLECTED: 2- HDPE 250ml Bottles

SAMPLING PERSONNEL

Name Garth Cousineau (AECOM) Company: AECOM

Appendix C – 2021 Analytical Reports

December 15, 2021

Vista Work Order No. 2111182

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 November 15, 2021 under your Project Name 'Palo well sampling'.

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. 2111182
Case Narrative

Sample Condition on Receipt:

Thirteen 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. The collection time for sample "10:30" was listed as "SW1112211035MLB" on the container label. Sample "GW1111211100MLB-Dup" was not listed on the Chain-of-Custody (CoC). As requested, the sample was analyzed.

Analytical Notes:

PFAS Isotope Dilution Method

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 OPR recoveries 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
2111182-01	GW1111211300MLB	11-Nov-21 13:00	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-02	GW1112210740MLB	12-Nov-21 07:40	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-03	GW1111211205MLB	11-Nov-21 12:05	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-04	GW1111210805MLB	11-Nov-21 08:05	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-05	GW1112210810MLB	12-Nov-21 08:10	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-06	GW1111210905MLB	11-Nov-21 09:05	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-07	GW1111211100MLB	11-Nov-21 11:00	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-08	GW1111210950MLB	11-Nov-21 09:50	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-09	SW1112210935MLB	12-Nov-21 09:35	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-10	SW1112211000MLB	12-Nov-21 10:00	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-11	SW1112211035MLB	12-Nov-21 10:35	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-12	SW1112211130MLB	12-Nov-21 11:30	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2111182-13	GW1111211100MLB-Dup	11-Nov-21 11:00	15-Nov-21 10:48	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

Vista Project: 2111182

Client Project: Palo well sampling

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Matrix: Aqueous

Laboratory Data

Lab Sample: B1K0265-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		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFPeA	2706-90-3	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFBS	375-73-5	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
4:2 FTS	757124-72-4	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFHxA	307-24-4	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFPeS	2706-91-4	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
HFPO-DA	13252-13-6	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFHpA	375-85-9	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
ADONA	919005-14-4	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFHxS	355-46-4	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
6:2 FTS	27619-97-2	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFOA	335-67-1	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFecHS	646-83-3	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFHpS	375-92-8	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFNA	375-95-1	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFOSA	754-91-6	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFOS	1763-23-1	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFDA	335-76-2	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
8:2 FTS	39108-34-4	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFNS	68259-12-1	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
MeFOSAA	2355-31-9	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
EtFOSAA	2991-50-6	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFUnA	2058-94-8	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFDS	335-77-3	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFDoA	307-55-1	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFTrDA	72629-94-8	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
PFTeDA	376-06-7	ND	1.00	2.00	4.00		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.0	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C3-PFPeA	IS	94.8	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C3-PFBS	IS	96.3	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C3-HFPO-DA	IS	87.6	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C2-4:2 FTS	IS	87.8	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C2-PFHxA	IS	93.6	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C4-PFHpA	IS	90.0	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C3-PFHxS	IS	92.9	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Matrix: Aqueous

Laboratory Data

Lab Sample: B1K0265-BLK1
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	88.4	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C5-PFNA	IS	90.2	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C8-PFOSA	IS	47.6	10 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C2-PFOA	IS	93.0	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C8-PFOS	IS	85.1	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C2-PFDA	IS	95.2	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C2-8:2 FTS	IS	94.3	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
d3-MeFOSAA	IS	81.4	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C2-PFUnA	IS	87.0	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
d5-EtFOSAA	IS	75.2	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C2-PFDoA	IS	75.4	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	1
13C2-PFTeDA	IS	66.6	20 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:19	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: Palo well sampling
Matrix: Aqueous

Laboratory Data

Lab Sample: B1K0265-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	34.6	40.0	86.5	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFPeA	2706-90-3	35.3	40.0	88.3	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFBS	375-73-5	40.6	40.0	101	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
4:2 FTS	757124-72-4	37.7	40.0	94.4	60 - 145		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFHxA	307-24-4	32.7	40.0	81.8	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFPeS	2706-91-4	41.5	40.0	104	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
HFPO-DA	13252-13-6	34.6	40.0	86.5	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFHpA	375-85-9	34.4	40.0	86.0	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
ADONA	919005-14-4	36.7	40.0	91.6	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFHxS	355-46-4	33.7	40.0	84.3	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
6:2 FTS	27619-97-2	34.1	40.0	85.2	60 - 140		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFOA	335-67-1	33.6	40.0	84.1	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFecHS	646-83-3	33.1	40.0	82.7	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFHpS	375-92-8	35.4	40.0	88.6	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFNA	375-95-1	35.0	40.0	87.5	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFOSA	754-91-6	36.5	40.0	91.4	65 - 140		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFOS	1763-23-1	35.3	40.0	88.3	65 - 140		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
9Cl-PF3ONS	756426-58-1	34.6	40.0	86.5	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFDA	335-76-2	34.0	40.0	85.0	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
8:2 FTS	39108-34-4	36.7	40.0	91.7	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFNS	68259-12-1	35.2	40.0	87.9	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
MeFOSAA	2355-31-9	38.3	40.0	95.7	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
EtFOSAA	2991-50-6	36.9	40.0	92.3	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFUnA	2058-94-8	34.5	40.0	86.3	65 - 140		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFDS	335-77-3	34.4	40.0	86.1	50 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
11Cl-PF3OUdS	763051-92-9	43.5	40.0	109	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFDoA	307-55-1	40.2	40.0	100	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFTrDA	72629-94-8	38.0	40.0	94.9	60 - 140		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
PFTeDA	376-06-7	35.7	40.0	89.1	65 - 135		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.9	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C3-PFPeA	IS	97.6	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C3-PFBS	IS	84.4	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C3-HFPO-DA	IS	89.2	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C2-4:2 FTS	IS	94.2	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1

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

Client Data

Name: AECOM
Project: Palo well sampling
Matrix: Aqueous

Laboratory Data

Lab Sample: B1K0265-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	101	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C4-PFHpA	IS	93.9	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C3-PFHxS	IS	91.9	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C2-6:2 FTS	IS	83.7	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C5-PFNA	IS	94.3	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C8-PFOSA	IS	44.4	10 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C2-PFOA	IS	93.9	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C8-PFOS	IS	91.3	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C2-PFDA	IS	97.2	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C2-8:2 FTS	IS	89.8	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
d3-MeFOSAA	IS	80.6	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C2-PFUnA	IS	92.2	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
d5-EtFOSAA	IS	73.0	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C2-PFDoA	IS	70.1	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1
13C2-PFTeDA	IS	71.8	20 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 22:29	1

Sample ID: GW1111211300MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-1
Matrix: Aqueous
Date Collected: 11-Nov-21 13:00

Laboratory Data

Lab Sample: 2111182-01
Date Received: 15-Nov-21 10:48
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	30.8	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFPeA	2706-90-3	80.7	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFBS	375-73-5	137	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
4:2 FTS	757124-72-4	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFHxA	307-24-4	81.3	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFPeS	2706-91-4	1.18	0.994	1.98	3.98	J	B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
HFPO-DA	13252-13-6	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFHpA	375-85-9	64.5	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
ADONA	919005-14-4	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFHxS	355-46-4	4.55	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
6:2 FTS	27619-97-2	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFOA	335-67-1	47.3	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFecHS	646-83-3	8.57	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFHpS	375-92-8	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFNA	375-95-1	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFOSA	754-91-6	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFOS	1763-23-1	27.5	0.994	1.98	3.98	Q	B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
9Cl-PF3ONS	756426-58-1	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFDA	335-76-2	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
8:2 FTS	39108-34-4	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFNS	68259-12-1	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
MeFOSAA	2355-31-9	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
EtFOSAA	2991-50-6	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFUnA	2058-94-8	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFDS	335-77-3	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
11Cl-PF3OUdS	763051-92-9	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFDoA	307-55-1	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFTrDA	72629-94-8	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
PFTeDA	376-06-7	ND	0.994	1.98	3.98		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	81.8	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C3-PFPeA	IS	94.9	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C3-PFBS	IS	97.1	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C3-HFPO-DA	IS	98.3	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C2-4:2 FTS	IS	103	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C2-PFHxA	IS	102	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C4-PFHpA	IS	96.0	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1

Sample ID: GW1111211300MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-1
Matrix: Aqueous
Date Collected: 11-Nov-21 13:00

Laboratory Data

Lab Sample: 2111182-01
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	103	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C2-6:2 FTS	IS	87.2	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C5-PFNA	IS	95.7	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C8-PFOSA	IS	69.4	10 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C2-PFOA	IS	99.8	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C8-PFOS	IS	93.4	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C2-PFDA	IS	99.8	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C2-8:2 FTS	IS	101	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
d3-MeFOSAA	IS	94.1	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C2-PFUnA	IS	85.6	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
d5-EtFOSAA	IS	91.8	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C2-PFDoA	IS	81.4	25 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	1
13C2-PFTeDA	IS	83.3	20 - 150		B1K0265	08-Dec-21	0.252 L	10-Dec-21 22:39	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: GW1112210740MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-2
Matrix: Aqueous
Date Collected: 12-Nov-21 07:40

Laboratory Data

Lab Sample: 2111182-02
Date Received: 15-Nov-21 10:48
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	28.6	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFPeA	2706-90-3	72.1	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFBS	375-73-5	125	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
4:2 FTS	757124-72-4	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFHxA	307-24-4	73.1	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFPeS	2706-91-4	1.17	0.982	1.96	3.93	J	B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
HFPO-DA	13252-13-6	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFHpA	375-85-9	88.3	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
ADONA	919005-14-4	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFHxS	355-46-4	7.48	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
6:2 FTS	27619-97-2	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFOA	335-67-1	171	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFecHS	646-83-3	24.0	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFHpS	375-92-8	3.73	0.982	1.96	3.93	J	B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFNA	375-95-1	7.69	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFOSA	754-91-6	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFOS	1763-23-1	833	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
9Cl-PF3ONS	756426-58-1	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFDA	335-76-2	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
8:2 FTS	39108-34-4	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFNS	68259-12-1	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
MeFOSAA	2355-31-9	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
EtFOSAA	2991-50-6	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFUnA	2058-94-8	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFDS	335-77-3	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
11Cl-PF3OUdS	763051-92-9	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFDoA	307-55-1	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFTrDA	72629-94-8	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
PFTeDA	376-06-7	ND	0.982	1.96	3.93		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	77.8	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C3-PFPeA	IS	93.3	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C3-PFBS	IS	89.7	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C3-HFPO-DA	IS	102	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C2-4:2 FTS	IS	90.3	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C2-PFHxA	IS	102	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C4-PFHpA	IS	93.1	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1

Sample ID: GW1112210740MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-2
Matrix: Aqueous
Date Collected: 12-Nov-21 07:40

Laboratory Data

Lab Sample: 2111182-02
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	101	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C2-6:2 FTS	IS	90.7	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C5-PFNA	IS	96.7	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C8-PFOSA	IS	71.4	10 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C2-PFOA	IS	97.9	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C8-PFOS	IS	86.4	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C2-PFDA	IS	101	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C2-8:2 FTS	IS	93.5	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
d3-MeFOSAA	IS	90.9	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C2-PFUnA	IS	91.9	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
d5-EtFOSAA	IS	88.7	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C2-PFDoA	IS	84.3	25 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	1
13C2-PFTeDA	IS	81.1	20 - 150		B1K0265	08-Dec-21	0.255 L	10-Dec-21 22:49	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: GW1111211205MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-3
Matrix: Aqueous
Date Collected: 11-Nov-21 12:05

Laboratory Data

Lab Sample: 2111182-03
Date Received: 15-Nov-21 10:48
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFPeA	2706-90-3	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFBS	375-73-5	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
4:2 FTS	757124-72-4	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFHxA	307-24-4	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFPeS	2706-91-4	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
HFPO-DA	13252-13-6	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFHpA	375-85-9	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
ADONA	919005-14-4	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFHxS	355-46-4	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
6:2 FTS	27619-97-2	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFOA	335-67-1	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFecHS	646-83-3	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFHpS	375-92-8	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFNA	375-95-1	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFOSA	754-91-6	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFOS	1763-23-1	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
9Cl-PF3ONS	756426-58-1	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFDA	335-76-2	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
8:2 FTS	39108-34-4	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFNS	68259-12-1	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
MeFOSAA	2355-31-9	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
EtFOSAA	2991-50-6	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFUnA	2058-94-8	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFDS	335-77-3	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
11Cl-PF3OUdS	763051-92-9	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFDoA	307-55-1	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFTrDA	72629-94-8	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
PFTeDA	376-06-7	ND	0.984	1.97	3.93		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	85.9	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C3-PFPeA	IS	99.2	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C3-PFBS	IS	98.2	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C3-HFPO-DA	IS	114	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C2-4:2 FTS	IS	103	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C2-PFHxA	IS	106	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C4-PFHpA	IS	95.1	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1

Sample ID: GW1111211205MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-3
Matrix: Aqueous
Date Collected: 11-Nov-21 12:05

Laboratory Data

Lab Sample: 2111182-03
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	104	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C2-6:2 FTS	IS	94.8	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C5-PFNA	IS	95.0	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C8-PFOSA	IS	75.8	10 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C2-PFOA	IS	104	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C8-PFOS	IS	95.3	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C2-PFDA	IS	108	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C2-8:2 FTS	IS	99.1	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
d3-MeFOSAA	IS	107	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C2-PFUnA	IS	92.3	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
d5-EtFOSAA	IS	89.4	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C2-PFDoA	IS	91.2	25 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	1
13C2-PFTeDA	IS	81.6	20 - 150		B1K0265	08-Dec-21	0.254 L	10-Dec-21 23:00	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: GW1111210805MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-4
Matrix: Aqueous
Date Collected: 11-Nov-21 08:05

Laboratory Data

Lab Sample: 2111182-04
Date Received: 15-Nov-21 10:48
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	5.39	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFPeA	2706-90-3	11.1	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFBS	375-73-5	3.91	1.01	2.02	4.04	J	B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
4:2 FTS	757124-72-4	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFHxA	307-24-4	10.8	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFPeS	2706-91-4	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
HFPO-DA	13252-13-6	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFHpA	375-85-9	4.89	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
ADONA	919005-14-4	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFHxS	355-46-4	2.26	1.01	2.02	4.04	J	B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
6:2 FTS	27619-97-2	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFOA	335-67-1	11.3	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFecHS	646-83-3	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFHpS	375-92-8	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFNA	375-95-1	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFOSA	754-91-6	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFOS	1763-23-1	9.34	1.01	2.02	4.04	Q	B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
9Cl-PF3ONS	756426-58-1	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFDA	335-76-2	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
8:2 FTS	39108-34-4	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFNS	68259-12-1	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
MeFOSAA	2355-31-9	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
EtFOSAA	2991-50-6	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFUnA	2058-94-8	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFDS	335-77-3	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
11Cl-PF3OUdS	763051-92-9	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFDoA	307-55-1	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFTrDA	72629-94-8	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
PFTeDA	376-06-7	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	73.9	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C3-PFPeA	IS	88.1	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C3-PFBS	IS	97.0	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C3-HFPO-DA	IS	97.7	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C2-4:2 FTS	IS	88.6	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C2-PFHxA	IS	96.7	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C4-PFHpA	IS	89.0	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1

Sample ID: GW1111210805MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-4
Matrix: Aqueous
Date Collected: 11-Nov-21 08:05

Laboratory Data

Lab Sample: 2111182-04
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	91.0	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C2-6:2 FTS	IS	84.2	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C5-PFNA	IS	88.9	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C8-PFOSA	IS	62.4	10 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C2-PFOA	IS	91.6	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C8-PFOS	IS	88.7	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C2-PFDA	IS	96.7	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C2-8:2 FTS	IS	91.5	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
d3-MeFOSAA	IS	95.0	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C2-PFUnA	IS	90.0	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
d5-EtFOSAA	IS	86.2	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C2-PFDoA	IS	87.1	25 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	1
13C2-PFTeDA	IS	81.3	20 - 150		B1K0265	08-Dec-21	0.247 L	10-Dec-21 23:10	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: GW1112210810MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-5
Matrix: Aqueous
Date Collected: 12-Nov-21 08:10

Laboratory Data

Lab Sample: 2111182-05
Date Received: 15-Nov-21 10:48
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFPeA	2706-90-3	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFBS	375-73-5	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
4:2 FTS	757124-72-4	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFHxA	307-24-4	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFPeS	2706-91-4	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
HFPO-DA	13252-13-6	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFHpA	375-85-9	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
ADONA	919005-14-4	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFHxS	355-46-4	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
6:2 FTS	27619-97-2	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFOA	335-67-1	1.36	0.996	1.99	3.98	J	B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFecHS	646-83-3	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFHpS	375-92-8	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFNA	375-95-1	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFOSA	754-91-6	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFOS	1763-23-1	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
9Cl-PF3ONS	756426-58-1	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFDA	335-76-2	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
8:2 FTS	39108-34-4	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFNS	68259-12-1	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
MeFOSAA	2355-31-9	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
EtFOSAA	2991-50-6	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFUnA	2058-94-8	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFDS	335-77-3	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
11Cl-PF3OUdS	763051-92-9	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFDoA	307-55-1	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFTrDA	72629-94-8	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
PFTeDA	376-06-7	ND	0.996	1.99	3.98		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	80.9	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C3-PFPeA	IS	98.4	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C3-PFBS	IS	101	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C3-HFPO-DA	IS	109	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C2-4:2 FTS	IS	104	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C2-PFHxA	IS	107	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C4-PFHpA	IS	100	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1

Sample ID: GW1112210810MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-5
Matrix: Aqueous
Date Collected: 12-Nov-21 08:10

Laboratory Data

Lab Sample: 2111182-05
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	105	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C2-6:2 FTS	IS	85.5	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C5-PFNA	IS	99.7	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C8-PFOSA	IS	73.0	10 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C2-PFOA	IS	107	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C8-PFOS	IS	96.5	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C2-PFDA	IS	97.7	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C2-8:2 FTS	IS	99.8	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
d3-MeFOSAA	IS	98.9	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C2-PFUnA	IS	94.5	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
d5-EtFOSAA	IS	86.0	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C2-PFDoA	IS	86.6	25 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	1
13C2-PFTeDA	IS	85.5	20 - 150		B1K0265	08-Dec-21	0.251 L	10-Dec-21 23:20	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.

Sample ID: GW1111210905MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-6
Matrix: Aqueous
Date Collected: 11-Nov-21 09:05

Laboratory Data

Lab Sample: 2111182-06
Date Received: 15-Nov-21 10:48
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	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFPeA	2706-90-3	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFBS	375-73-5	3.24	1.01	2.03	4.06	J	B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
4:2 FTS	757124-72-4	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFHxA	307-24-4	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFPeS	2706-91-4	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
HFPO-DA	13252-13-6	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFHpA	375-85-9	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
ADONA	919005-14-4	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFHxS	355-46-4	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
6:2 FTS	27619-97-2	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFOA	335-67-1	1.47	1.01	2.03	4.06	J	B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFecHS	646-83-3	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFHpS	375-92-8	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFNA	375-95-1	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFOSA	754-91-6	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFOS	1763-23-1	5.45	1.01	2.03	4.06	Q	B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
9Cl-PF3ONS	756426-58-1	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFDA	335-76-2	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
8:2 FTS	39108-34-4	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFNS	68259-12-1	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
MeFOSAA	2355-31-9	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
EtFOSAA	2991-50-6	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFUnA	2058-94-8	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFDS	335-77-3	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
11Cl-PF3OUdS	763051-92-9	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFDoA	307-55-1	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFTrDA	72629-94-8	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
PFTeDA	376-06-7	ND	1.01	2.03	4.06		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	71.3	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C3-PFPeA	IS	90.4	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C3-PFBS	IS	95.9	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C3-HFPO-DA	IS	95.3	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C2-4:2 FTS	IS	84.7	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C2-PFHxA	IS	98.4	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C4-PFHpA	IS	86.3	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1

Sample ID: GW1111210905MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-6
Matrix: Aqueous
Date Collected: 11-Nov-21 09:05

Laboratory Data

Lab Sample: 2111182-06
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	101	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C2-6:2 FTS	IS	96.8	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C5-PFNA	IS	97.7	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C8-PFOSA	IS	61.4	10 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C2-PFOA	IS	95.7	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C8-PFOS	IS	89.5	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C2-PFDA	IS	103	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C2-8:2 FTS	IS	90.8	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
d3-MeFOSAA	IS	93.7	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C2-PFUnA	IS	95.1	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
d5-EtFOSAA	IS	83.9	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C2-PFDoA	IS	81.6	25 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	1
13C2-PFTeDA	IS	83.8	20 - 150		B1K0265	08-Dec-21	0.246 L	10-Dec-21 23:30	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: GW1111211100MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-7

Matrix: Aqueous
Date Collected: 11-Nov-21 11:00

Laboratory Data

Lab Sample: 2111182-07
Date Received: 15-Nov-21 10:48

Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.75	0.998	2.00	3.99	J	B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFPeA	2706-90-3	2.42	0.998	2.00	3.99	J	B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFBS	375-73-5	3.39	0.998	2.00	3.99	J	B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
4:2 FTS	757124-72-4	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFHxA	307-24-4	2.49	0.998	2.00	3.99	J	B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFPeS	2706-91-4	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
HFPO-DA	13252-13-6	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFHpA	375-85-9	2.05	0.998	2.00	3.99	J	B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
ADONA	919005-14-4	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFHxS	355-46-4	1.93	0.998	2.00	3.99	J	B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
6:2 FTS	27619-97-2	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFOA	335-67-1	5.88	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFecHS	646-83-3	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFHpS	375-92-8	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFNA	375-95-1	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFOSA	754-91-6	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFOS	1763-23-1	8.55	0.998	2.00	3.99	Q	B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
9Cl-PF3ONS	756426-58-1	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFDA	335-76-2	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
8:2 FTS	39108-34-4	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFNS	68259-12-1	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
MeFOSAA	2355-31-9	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
EtFOSAA	2991-50-6	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFUnA	2058-94-8	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFDS	335-77-3	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
11Cl-PF3OUdS	763051-92-9	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFDoA	307-55-1	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFTrDA	72629-94-8	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
PFTeDA	376-06-7	ND	0.998	2.00	3.99		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	84.9	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C3-PFPeA	IS	99.1	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C3-PFBS	IS	99.4	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C3-HFPO-DA	IS	105	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C2-4:2 FTS	IS	91.0	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C2-PFHxA	IS	101	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C4-PFHpA	IS	101	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1

Sample ID: GW1111211100MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-7
Matrix: Aqueous
Date Collected: 11-Nov-21 11:00

Laboratory Data

Lab Sample: 2111182-07
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	103	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C2-6:2 FTS	IS	98.6	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C5-PFNA	IS	99.2	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C8-PFOSA	IS	65.3	10 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C2-PFOA	IS	98.6	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C8-PFOS	IS	93.1	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C2-PFDA	IS	91.0	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C2-8:2 FTS	IS	91.3	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
d3-MeFOSAA	IS	112	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C2-PFUnA	IS	92.8	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
d5-EtFOSAA	IS	93.7	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C2-PFDoA	IS	88.1	25 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	1
13C2-PFTeDA	IS	84.7	20 - 150		B1K0265	08-Dec-21	0.250 L	10-Dec-21 23:40	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: GW1111210950MLB **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-8
Matrix: Aqueous
Date Collected: 11-Nov-21 09:50

Laboratory Data

Lab Sample: 2111182-08
Date Received: 15-Nov-21 10:48
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	1.37	1.01	2.02	4.04	J	B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFPeA	2706-90-3	1.35	1.01	2.02	4.04	J	B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFBS	375-73-5	2.15	1.01	2.02	4.04	J	B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
4:2 FTS	757124-72-4	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFHxA	307-24-4	2.07	1.01	2.02	4.04	J	B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFPeS	2706-91-4	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
HFPO-DA	13252-13-6	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFHpA	375-85-9	1.30	1.01	2.02	4.04	J	B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
ADONA	919005-14-4	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFHxS	355-46-4	1.57	1.01	2.02	4.04	J	B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
6:2 FTS	27619-97-2	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFOA	335-67-1	4.11	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFecHS	646-83-3	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFHpS	375-92-8	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFNA	375-95-1	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFOSA	754-91-6	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFOS	1763-23-1	5.06	1.01	2.02	4.04	Q	B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
9Cl-PF3ONS	756426-58-1	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFDA	335-76-2	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
8:2 FTS	39108-34-4	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFNS	68259-12-1	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
MeFOSAA	2355-31-9	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
EtFOSAA	2991-50-6	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFUnA	2058-94-8	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFDS	335-77-3	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
11Cl-PF3OUdS	763051-92-9	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFDoA	307-55-1	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFTrDA	72629-94-8	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
PFTeDA	376-06-7	ND	1.01	2.02	4.04		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	79.1	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C3-PFPeA	IS	95.8	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C3-PFBS	IS	99.1	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C3-HFPO-DA	IS	95.4	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C2-4:2 FTS	IS	85.8	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C2-PFHxA	IS	103	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C4-PFHpA	IS	95.2	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1

Sample ID: GW1111210950MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-8
Matrix: Aqueous
Date Collected: 11-Nov-21 09:50

Laboratory Data

Lab Sample: 2111182-08
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	93.0	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C2-6:2 FTS	IS	88.4	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C5-PFNA	IS	98.6	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C8-PFOSA	IS	64.8	10 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C2-PFOA	IS	98.6	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C8-PFOS	IS	85.7	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C2-PFDA	IS	96.4	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C2-8:2 FTS	IS	95.8	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
d3-MeFOSAA	IS	91.6	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C2-PFUnA	IS	94.3	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
d5-EtFOSAA	IS	89.4	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C2-PFDoA	IS	84.0	25 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	1
13C2-PFTeDA	IS	83.1	20 - 150		B1K0265	08-Dec-21	0.248 L	10-Dec-21 23:51	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: SW1112210935MLB **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: Palo well sampling
Location: SW-1
Matrix: Aqueous
Date Collected: 12-Nov-21 09:35

Laboratory Data

Lab Sample: 2111182-09
Date Received: 15-Nov-21 10:48
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	1.35	1.00	2.00	4.01	J	B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFPeA	2706-90-3	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFBS	375-73-5	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
4:2 FTS	757124-72-4	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFHxA	307-24-4	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFPeS	2706-91-4	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
HFPO-DA	13252-13-6	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFHpA	375-85-9	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
ADONA	919005-14-4	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFHxS	355-46-4	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
6:2 FTS	27619-97-2	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFOA	335-67-1	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFecHS	646-83-3	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFHpS	375-92-8	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFNA	375-95-1	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFOSA	754-91-6	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFOS	1763-23-1	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFDA	335-76-2	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
8:2 FTS	39108-34-4	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFNS	68259-12-1	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
MeFOSAA	2355-31-9	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
EtFOSAA	2991-50-6	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFUnA	2058-94-8	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFDS	335-77-3	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFDoA	307-55-1	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFTrDA	72629-94-8	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
PFTeDA	376-06-7	ND	1.00	2.00	4.01		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	62.9	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C3-PFPeA	IS	90.7	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C3-PFBS	IS	98.3	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C3-HFPO-DA	IS	90.9	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C2-4:2 FTS	IS	95.3	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C2-PFHxA	IS	104	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C4-PFHpA	IS	95.4	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1

Sample ID: SW1112210935MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: SW-1
Matrix: Aqueous
Date Collected: 12-Nov-21 09:35

Laboratory Data

Lab Sample: 2111182-09
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	102	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C2-6:2 FTS	IS	94.9	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C5-PFNA	IS	94.7	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C8-PFOSA	IS	70.7	10 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C2-PFOA	IS	102	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C8-PFOS	IS	93.6	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C2-PFDA	IS	111	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C2-8:2 FTS	IS	93.2	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
d3-MeFOSAA	IS	101	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C2-PFUnA	IS	95.2	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
d5-EtFOSAA	IS	92.0	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C2-PFDoA	IS	85.8	25 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	1
13C2-PFTeDA	IS	77.7	20 - 150		B1K0265	08-Dec-21	0.250 L	11-Dec-21 00:01	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: SW1112211000MLB **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: Palo well sampling
Location: SW-2
Matrix: Aqueous
Date Collected: 12-Nov-21 10:00

Laboratory Data

Lab Sample: 2111182-10
Date Received: 15-Nov-21 10:48
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	1.69	1.02	2.03	4.07	J	B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFPeA	2706-90-3	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFBS	375-73-5	1.13	1.02	2.03	4.07	J	B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
4:2 FTS	757124-72-4	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFHxA	307-24-4	1.21	1.02	2.03	4.07	J, Q	B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFPeS	2706-91-4	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
HFPO-DA	13252-13-6	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFHpA	375-85-9	1.16	1.02	2.03	4.07	J	B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
ADONA	919005-14-4	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFHxS	355-46-4	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
6:2 FTS	27619-97-2	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFOA	335-67-1	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFecHS	646-83-3	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFHpS	375-92-8	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFNA	375-95-1	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFOSA	754-91-6	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFOS	1763-23-1	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
9Cl-PF3ONS	756426-58-1	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFDA	335-76-2	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
8:2 FTS	39108-34-4	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFNS	68259-12-1	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
MeFOSAA	2355-31-9	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
EtFOSAA	2991-50-6	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFUnA	2058-94-8	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFDS	335-77-3	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
11Cl-PF3OUdS	763051-92-9	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFDoA	307-55-1	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFTrDA	72629-94-8	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
PFTeDA	376-06-7	ND	1.02	2.03	4.07		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	67.6	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C3-PFPeA	IS	95.4	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C3-PFBS	IS	96.2	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C3-HFPO-DA	IS	94.1	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C2-4:2 FTS	IS	94.1	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C2-PFHxA	IS	97.4	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C4-PFHpA	IS	95.4	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1

Sample ID: SW1112211000MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: SW-2
Matrix: Aqueous
Date Collected: 12-Nov-21 10:00

Laboratory Data

Lab Sample: 2111182-10
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	93.6	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C2-6:2 FTS	IS	97.4	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C5-PFNA	IS	95.7	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C8-PFOSA	IS	75.3	10 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C2-PFOA	IS	104	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C8-PFOS	IS	87.0	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C2-PFDA	IS	99.5	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C2-8:2 FTS	IS	95.4	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
d3-MeFOSAA	IS	89.9	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C2-PFUnA	IS	91.7	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
d5-EtFOSAA	IS	92.8	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C2-PFDoA	IS	87.0	25 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	1
13C2-PFTeDA	IS	77.8	20 - 150		B1K0265	08-Dec-21	0.246 L	11-Dec-21 00:42	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: SW1112211035MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: SW-3
Matrix: Aqueous
Date Collected: 12-Nov-21 10:35

Laboratory Data

Lab Sample: 2111182-11
Date Received: 15-Nov-21 10:48
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.19	1.00	2.01	4.01	J	B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFPeA	2706-90-3	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFBS	375-73-5	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
4:2 FTS	757124-72-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFHxA	307-24-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFPeS	2706-91-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
HFPO-DA	13252-13-6	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFHpA	375-85-9	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
ADONA	919005-14-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFHxS	355-46-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
6:2 FTS	27619-97-2	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFOA	335-67-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFecHS	646-83-3	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFHpS	375-92-8	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFNA	375-95-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFOSA	754-91-6	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFOS	1763-23-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFDA	335-76-2	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
8:2 FTS	39108-34-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFNS	68259-12-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
MeFOSAA	2355-31-9	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
EtFOSAA	2991-50-6	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFUnA	2058-94-8	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFDS	335-77-3	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFDoA	307-55-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFTrDA	72629-94-8	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
PFTeDA	376-06-7	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	68.7	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C3-PFPeA	IS	94.7	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C3-PFBS	IS	88.5	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C3-HFPO-DA	IS	111	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C2-4:2 FTS	IS	98.3	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C2-PFHxA	IS	101	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C4-PFHpA	IS	98.8	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1

Sample ID: SW1112211035MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: SW-3
Matrix: Aqueous
Date Collected: 12-Nov-21 10:35

Laboratory Data

Lab Sample: 2111182-11
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	100	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C2-6:2 FTS	IS	99.1	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C5-PFNA	IS	95.4	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C8-PFOSA	IS	74.0	10 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C2-PFOA	IS	98.2	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C8-PFOS	IS	93.5	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C2-PFDA	IS	104	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C2-8:2 FTS	IS	98.3	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
d3-MeFOSAA	IS	96.3	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C2-PFUnA	IS	97.2	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
d5-EtFOSAA	IS	87.1	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C2-PFDoA	IS	90.0	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	1
13C2-PFTeDA	IS	71.7	20 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 00:52	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: SW1112211130MLB **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: Palo well sampling
Location: SW-4
Matrix: Aqueous
Date Collected: 12-Nov-21 11:30

Laboratory Data

Lab Sample: 2111182-12
Date Received: 15-Nov-21 10:48
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		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFPeA	2706-90-3	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFBS	375-73-5	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
4:2 FTS	757124-72-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFHxA	307-24-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFPeS	2706-91-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
HFPO-DA	13252-13-6	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFHpA	375-85-9	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
ADONA	919005-14-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFHxS	355-46-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
6:2 FTS	27619-97-2	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFOA	335-67-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFecHS	646-83-3	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFHpS	375-92-8	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFNA	375-95-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFOSA	754-91-6	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFOS	1763-23-1	2.47	1.00	2.01	4.01	J	B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFDA	335-76-2	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
8:2 FTS	39108-34-4	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFNS	68259-12-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
MeFOSAA	2355-31-9	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
EtFOSAA	2991-50-6	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFUnA	2058-94-8	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFDS	335-77-3	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFDoA	307-55-1	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFTrDA	72629-94-8	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
PFTeDA	376-06-7	ND	1.00	2.01	4.01		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	71.0	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C3-PFPeA	IS	98.9	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C3-PFBS	IS	100	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C3-HFPO-DA	IS	111	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C2-4:2 FTS	IS	93.1	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C2-PFHxA	IS	102	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C4-PFHpA	IS	96.4	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1

Sample ID: SW1112211130MLB

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: SW-4

Matrix: Aqueous
Date Collected: 12-Nov-21 11:30

Laboratory Data

Lab Sample: 2111182-12
Date Received: 15-Nov-21 10:48

Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	98.8	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C2-6:2 FTS	IS	96.4	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C5-PFNA	IS	91.4	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C8-PFOSA	IS	74.9	10 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C2-PFOA	IS	105	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C8-PFOS	IS	93.0	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C2-PFDA	IS	100	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C2-8:2 FTS	IS	96.9	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
d3-MeFOSAA	IS	97.3	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C2-PFUnA	IS	95.0	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
d5-EtFOSAA	IS	91.6	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C2-PFDoA	IS	84.7	25 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	1
13C2-PFTeDA	IS	58.1	20 - 150		B1K0265	08-Dec-21	0.249 L	11-Dec-21 01:02	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: GW1111211100MLB-Dup

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-7
Matrix: Aqueous
Date Collected: 11-Nov-21 11:00

Laboratory Data

Lab Sample: 2111182-13
Date Received: 15-Nov-21 10:48
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.88	1.04	2.07	4.14	J	B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFPeA	2706-90-3	2.65	1.04	2.07	4.14	J	B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFBS	375-73-5	3.75	1.04	2.07	4.14	J	B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
4:2 FTS	757124-72-4	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFHxA	307-24-4	2.79	1.04	2.07	4.14	J	B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFPeS	2706-91-4	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
HFPO-DA	13252-13-6	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFHpA	375-85-9	2.54	1.04	2.07	4.14	J	B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
ADONA	919005-14-4	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFHxS	355-46-4	2.17	1.04	2.07	4.14	J	B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
6:2 FTS	27619-97-2	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFOA	335-67-1	6.59	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFecHS	646-83-3	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFHpS	375-92-8	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFNA	375-95-1	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFOSA	754-91-6	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFOS	1763-23-1	9.48	1.04	2.07	4.14	Q	B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
9Cl-PF3ONS	756426-58-1	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFDA	335-76-2	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
8:2 FTS	39108-34-4	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFNS	68259-12-1	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
MeFOSAA	2355-31-9	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
EtFOSAA	2991-50-6	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFUnA	2058-94-8	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFDS	335-77-3	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
11Cl-PF3OUdS	763051-92-9	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFDoA	307-55-1	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFTrDA	72629-94-8	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
PFTeDA	376-06-7	ND	1.04	2.07	4.14		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	84.7	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C3-PFPeA	IS	103	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C3-PFBS	IS	106	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C3-HFPO-DA	IS	106	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C2-4:2 FTS	IS	103	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C2-PFHxA	IS	107	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C4-PFHpA	IS	100	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1

Sample ID: GW1111211100MLB-Dup

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Palo well sampling
Location: MW-7
Matrix: Aqueous
Date Collected: 11-Nov-21 11:00

Laboratory Data

Lab Sample: 2111182-13
Date Received: 15-Nov-21 10:48
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFHxS	IS	100	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C2-6:2 FTS	IS	100	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C5-PFNA	IS	104	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C8-PFOSA	IS	60.4	10 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C2-PFOA	IS	104	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C8-PFOS	IS	94.0	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C2-PFDA	IS	105	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C2-8:2 FTS	IS	96.6	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
d3-MeFOSAA	IS	101	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C2-PFUnA	IS	101	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
d5-EtFOSAA	IS	88.8	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C2-PFDoA	IS	92.6	25 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	1
13C2-PFTeDA	IS	87.9	20 - 150		B1K0265	08-Dec-21	0.241 L	11-Dec-21 01:12	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	E87777-26
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	1980678
New Hampshire Environmental Accreditation Program	207720
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-016
Pennsylvania Department of Environmental Protection	017
Texas Commission on Environmental Quality	T104704189-21-12
Vermont Department of Health	VT-4042
Virginia Department of General Services	10769
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	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**
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	EPA 537
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	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

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 2111182 Temp: 0.8
Storage ID: R-17, WR-2 Storage Secured: Yes ☑

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

Project ID: **Palo well sampling** PO#: **60588767** Sampler: **Mariah Bennett** (name)

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Sydney Ruhala	**EGLE**	**525 W. Allegan St**	**Lansing**	**MI**	**517-599-5356**	**517-241-**

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Mariah Bennett Mai Bennett	11/15/21	0853	Marissa Sparks MSparks	11/16/21	1288 1238
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
(916) 673-1520 * Fax (916) 673-0106

ATTN:

Method of Shipment:

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
GW1111211300MLB	**11/11/21**	**1300**	**MW-1**	**2**	**P**	**AQ**				**X**						
GW1112210740MLB	**11/12/21**	**0740**	**MW-2**	**2**	**P**	**AQ**				**X**						
GW1111211205MLB	**11/11/21**	**1205**	**MW-3**	**8**	**P**	**AQ**				**X**						**MS/MSD/FB**
GW1111210800MLB	**11/11/21**	**0800**	**MW-4**	**2**	**P**	**AQ**				**X**						
GW1112210810MLB	**11/12/21**	**0810**	**MW-5**	**2**	**P**	**AQ**				**X**						
GW1111210905MLB	**11/11/21**	**0905**	**MW-6**	**2**	**P**	**AQ**				**X**						
GW1111211100MLB	**11/11/21**	**1100**	**MW-7**	**2**	**P**	**AQ**				**X**						**FIELD DUPLICATE**
GW1111210950MLB	**11/11/21**	**0950**	**MW-8**	**2**	**P**	**AQ**				**X**						
SW1112210935MLB	**11/12/21**	**0935**	**SW-1**	**2**	**P**	**AQ**				**X**						
SW1112211000MLB	**11/12/21**	**1000**	**SW-2**	**2**	**P**	**AQ**				**X**						

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: **Sydney Ruhala**
Company: **EGLE**
Address: **525 W. Allegan St**
City: **Lansing** MI 48909
Phone: **517-599-5356** **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

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 2111182 Temp: 0.7
Storage ID: R-13, WR-2 Storage Secured: Yes ☑

Project ID: **Palo well sampling** PO#: **60588767** Sampler: **Mariah Bennett** (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#
Sydney Ruhala	**EGLE**	**525 W. Allegan St**	**Lansing**	**MI**	**517-599-5356**	**517-241-**

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Mariah Bennett Mariah Bennett	11/15/21	0853	Marissa Sparks	11/16/21	1238
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
(916) 673-1520 * Fax (916) 673-0106

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
SW1112211035MLB	**11/12/21**	**1035**	**SW-3**	**2**	**P**	**AQ**				**X**						
SW1112211130MLB	**11/12/21**	**1130**	**SW-4**	**2**	**P**	**AQ**				**X**						**Pond Sample**

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: **Sydney Ruhala**
Company: **EGLE**
Address: **525 W. Allegan St**
City: **Lansing** MI 48909
Phone: **517-599-5356** **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

Vista Work Order #: 2111182 TAT Std

Samples Arrival:	**Date/Time** 11/16/21 1238		**Initials:** MMS		**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: 0.8 (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 — Trk # 1708 7183 8661	✓		
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** 11/17/21 10:27	**Initials:** KL	**Location:** R-13, WR-2 **Shelf/Rack:** A-4, F-5
COC Anomaly/Sample Acceptance Form completed?	✓		

Comments:

CoC/Label Reconciliation Report WO# 2111182

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2111182-01	A GW1111211300MLB	MW-1	11-Nov-21 13:00	HDPE Bottle, 250 mL	Aqueous	
2111182-01	B GW1111211300MLB	MW-1	11-Nov-21 13:00	HDPE Bottle, 250 mL	Aqueous	
2111182-02	A GW1112210740MLB	MW-2	12-Nov-21 07:40	HDPE Bottle, 250 mL	Aqueous	
2111182-02	B GW1112210740MLB	MW-2	12-Nov-21 07:40	HDPE Bottle, 250 mL	Aqueous	
2111182-03	A GW1111211205MLB	MW-3	11-Nov-21 12:05	HDPE Bottle, 250 mL	Aqueous	~~MS/MSD AND DUP~~
2111182-03	B GW1111211205MLB	MW-3	11-Nov-21 12:05	HDPE Bottle, 250 mL	Aqueous	MS/MSD AND DUP
2111182-03	C GW1111211205MLB	MW-3	11-Nov-21 12:05	HDPE Bottle, 250 mL	Aqueous	MS/MSD AND DUP
2111182-03	D GW1111211205MLB	MW-3	11-Nov-21 12:05	HDPE Bottle, 250 mL	Aqueous	MS/MSD AND DUP
2111182-03	E GW1111211205MLB	MW-3	11-Nov-21 12:05	HDPE Bottle, 250 mL	Aqueous	MS/MSD AND DUP
2111182-03	F GW1111211205MLB	MW-3	11-Nov-21 12:05	HDPE Bottle, 250 mL	Aqueous	MS/MSD AND DUP
2111182-03	G GW1111211205MLB	MW-3	11-Nov-21 12:05	HDPE Bottle, 250 mL	Aqueous	~~MS/MSD AND DUP~~ KJR 11/29/21
2111182-04	A GW1111210805MLB	MW-4	11-Nov-21 08:05	HDPE Bottle, 250 mL	Aqueous	
2111182-04	B GW1111210805MLB	MW-4	11-Nov-21 08:05	HDPE Bottle, 250 mL	Aqueous	
2111182-05	A GW1112210810MLB	MW-5	12-Nov-21 08:10	HDPE Bottle, 250 mL	Aqueous	
2111182-05	B GW1112210810MLB	MW-5	12-Nov-21 08:10	HDPE Bottle, 250 mL	Aqueous	
2111182-06	A GW1111210905MLB	MW-6	11-Nov-21 09:05	HDPE Bottle, 250 mL	Aqueous	
2111182-06	B GW1111210905MLB	MW-6	11-Nov-21 09:05	HDPE Bottle, 250 mL	Aqueous	
2111182-07	A GW1111211100MLB	MW-7	11-Nov-21 11:00	HDPE Bottle, 250 mL	Aqueous	
2111182-07	B GW1111211100MLB	MW-7	11-Nov-21 11:00	HDPE Bottle, 250 mL	Aqueous	
2111182-07	C GW1111211100MLB	MW-7	11-Nov-21 11:00	HDPE Bottle, 250 mL	Aqueous	
2111182-07	D GW1111211100MLB	MW-7	11-Nov-21 11:00	HDPE Bottle, 250 mL	Aqueous	
2111182-08	A GW1111210950MLB	MW-8	11-Nov-21 09:50	HDPE Bottle, 250 mL	Aqueous	
2111182-08	B GW1111210950MLB	MW-8	11-Nov-21 09:50	HDPE Bottle, 250 mL	Aqueous	
2111182-09	A SW1112210935MLB	SW-1	12-Nov-21 09:35	HDPE Bottle, 250 mL	Aqueous	
2111182-09	B SW1112210935MLB	SW-1	12-Nov-21 09:35	HDPE Bottle, 250 mL	Aqueous	
2111182-10	A SW1112211000MLB	SW-2	12-Nov-21 10:00	HDPE Bottle, 250 mL	Aqueous	
2111182-10	B SW1112211000MLB	SW-2	12-Nov-21 10:00	HDPE Bottle, 250 mL	Aqueous	
2111182-11	A SW1112211035MLB	SW-3	12-Nov-21 10:35	HDPE Bottle, 250 mL	Aqueous	

2111182-11	B SW1112211035MLB	☐ (A)	SW-3	12-Nov-21 10:35	☐ (C)	HDPE Bottle, 250 mL	Aqueous
2111182-12	A SW1112211130MLB	☑	SW-4	12-Nov-21 11:30	☑	HDPE Bottle, 250 mL	Aqueous
2111182-12	B SW1112211130MLB	☑	SW-4	12-Nov-21 11:30	☑	HDPE Bottle, 250 mL	Aqueous
2111182-13	A GW1111211100MLB-Dup	☑ (D)	MW-7	11-Nov-21 11:00	☑ (D)	HDPE Bottle, 250 mL	Aqueous
2111182-13	B GW1111211100MLB-Dup	☑	MW-7	11-Nov-21 11:00	☑	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)	✓		

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 (None) Other

Comments: (A) Sample label ID: GW1111211205 MLB - FB
(B) Sample label ID: SW1112211030 MLB
(C) Sample label time - 10:30
(D) Sample is not present on COC, sample ID, date/time and Aliq pulled from sample label.

Verifed by/Date: KR 11/18/21 Originally labeled and reconciled on 11/18/21 by KR

Vista Analytical Laboratory

ANOMALY FORM

Vista Work Order 2111182

Initial/Date		The following checked issues were noted during sample receipt and login:
_____	☐	**1. The samples were received out of temperature at (WI-PHT):** _____ Was Ice present: Yes No Melted Blue Ice
_____	☐	2. The Chain-of-Custody (CoC) was not relinquished properly.
_____	☐	3. The CoC did not include collection time(s). 00:00 will be used unless notified otherwise.
_____	☐	4. The sample(s) did not include a sample collection time. All or Sample Name: _____
_____	☐	5. A sample ID discrepancy was found. See the Reconciliation report. The CoC Sample ID will be used unless notified otherwise.
KJR 11/24/21	☑	6. A sample date and/or time discrepancy was found. See the Reconciliation report. The CoC Sample date/time will be used unless notified otherwise.
_____	☐	**7. The CoC did not include a sample matrix. The following sample matrix will be used:** _____
_____	☐	**8. Insufficent volume received for analysis. All or Sample Name:** _____
_____	☐	9. The backup bottle was received broken. Sample Name: _____
_____	☐	**10. CoC not received, illegible or destroyed.**
_____	☐	**11. The sample(s) were received out of holding time. All or Sample Name:** _____
_____	☐	**12. The CoC did not include an analysis. All or Sample Name:** _____
_____	☐	**13. Sample(s) received without collection date. All or Sample Name:** _____
_____	☐	**14. Sample(s) not received. All or Sample Name:** _____
_____	☐	**15. Sample(s) received broken. All or Sample Name:** _____
_____	☐	**16. An incorrect container-type was used. All or Sample Name:** _____
_____	☐	17. The Field Reagent Blank (FRB) preservative was from a different lot than the field samples. Will proceed with analysis and narrate unless notified otherwise.
KR 11/15/21	☑	18. Other: Sample received not listed on COC Sample ID: GW1111211100MLB-Dup

Bolded items require sign-off

Client Contacted: Dorin Bogdan

Date of Contact: 11-23-2021

Vista Client Manager: Katey Rein

Resolution: Per email received, analyze sample "GW1111211100MLB-DUP" received.

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

06 October 2021

Work Order: 2109271

Price: $750.00

Mike Jury
EGLE-RRD-LANSING
525 W. Allegan Street
Lansing, MI 48909

RE: PALO AREA OF INTEREST

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

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Lansing, MI 48909
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FAX: (517) 335-9600

EGLE-RRD-LANSING	Project: PALO AREA OF INTEREST	
525 W. Allegan Street	Site Code: 08N06W02RW	**Reported:**
Lansing MI, 48909	Project Manager: Mike Jury	10/06/2021

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
FB2109291020MLB	2109271-01	Drinking Water	09/29/2021	09/30/2021	
WT2109291015 MLB	2109271-02	Drinking Water	09/29/2021	09/30/2021	
WT2109291015 MLB-FD	2109271-03	Drinking Water	09/29/2021	09/30/2021	
WT2109291030 MLB	2109271-04	Drinking Water	09/29/2021	09/30/2021	

Notes and Definitions

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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ENVIRONMENTAL LABORATORY

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

Client ID: FB2109291020MLB

Lab ID: 2109271-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
Surrogate: 13C2-PFDA			*102 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: 13C2-PFHxA			*94.2 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: 13C3-HFPO-DA			*94.8 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: d5-NEtFOSAA			*99.5 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	

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ENVIRONMENTAL LABORATORY

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

Client ID: WT2109291015 MLB

Lab ID: 2109271-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
Surrogate: 13C2-PFDA			*92.5 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: 13C2-PFHxA			*93.1 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: 13C3-HFPO-DA			*91.2 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: d5-NEtFOSAA			*84.7 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	

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ENVIRONMENTAL LABORATORY

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

Client ID: WT2109291015 MLB-FD

Lab ID: 2109271-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
335-67-1	PFOA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
1763-23-1	PFOS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
Surrogate: 13C2-PFDA			*97.8 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: 13C2-PFHxA			*94.3 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: 13C3-HFPO-DA			*92.2 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: d5-NEtFOSAA			*85.7 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	

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ENVIRONMENTAL LABORATORY

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

Client ID: WT2109291030 MLB

Lab ID: 2109271-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									
763051-92-9C	11Cl-PF3OUdS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
756426-58-1D	9Cl-PF3ONS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
919005-14-4E	ADONA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
13252-13-6B	HFPO-DA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-73-5	PFBS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
335-76-2	PFDA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
307-55-1	PFDoA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-85-9	PFHpA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
307-24-4	PFHxA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
355-46-4	PFHxS	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
375-95-1	PFNA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
335-67-1	**PFOA**	**4**	2	ng/L	1	10/02/21	B1J0104	537.1	
1763-23-1	**PFOS**	**7**	2	ng/L	1	10/02/21	B1J0104	537.1	
376-06-7	PFTA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
72629-94-8	PFTrDA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
2058-94-8	PFUnA	ND	2	ng/L	1	10/02/21	B1J0104	537.1	
Surrogate: 13C2-PFDA			*98.7 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: 13C2-PFHxA			*97.9 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: 13C3-HFPO-DA			*95.7 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	
Surrogate: d5-NEtFOSAA			*94.9 %*	*70-130*		*10/02/21*	B1J0104	*537.1*	

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ENVIRONMENTAL LABORATORY

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TEL: (517) 335-9800
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 B1J0104 - Method: 537.1				**Prepared: 10/01/2021**							
Blank (B1J0104-BLK1)											
11Cl-PF3OUdS	ND	2	ng/L							10/02/2021	
9Cl-PF3ONS	ND	2	ng/L							10/02/2021	
ADONA	ND	2	ng/L							10/02/2021	
HFPO-DA	ND	2	ng/L							10/02/2021	
NEtFOSAA	ND	2	ng/L							10/02/2021	
NMeFOSAA	ND	2	ng/L							10/02/2021	
PFBS	ND	2	ng/L							10/02/2021	
PFDA	ND	2	ng/L							10/02/2021	
PFDoA	ND	2	ng/L							10/02/2021	
PFHpA	ND	2	ng/L							10/02/2021	
PFHxA	ND	2	ng/L							10/02/2021	
PFHxS	ND	2	ng/L							10/02/2021	
PFNA	ND	2	ng/L							10/02/2021	
PFOA	ND	2	ng/L							10/02/2021	
PFOS	ND	2	ng/L							10/02/2021	
PFTA	ND	2	ng/L							10/02/2021	
PFTrDA	ND	2	ng/L							10/02/2021	
PFUnA	ND	2	ng/L							10/02/2021	
Surrogate: 13C2-PFDA	*38.3*		ng/L	*40.00*		*95.6*	*70-130*			10/02/2021	
Surrogate: 13C2-PFHxA	*40.8*		ng/L	*40.00*		*102*	*70-130*			10/02/2021	
Surrogate: 13C3-HFPO-DA	*38.6*		ng/L	*40.00*		*96.4*	*70-130*			10/02/2021	
Surrogate: d5-NEtFOSAA	*153*		ng/L	*160.0*		*95.6*	*70-130*			10/02/2021	
LCS (B1J0104-BS1)											
11Cl-PF3OUdS	2.25	2	ng/L	1.880		120	70-130			10/02/2021	
9Cl-PF3ONS	2.33	2	ng/L	1.860		125	70-130			10/02/2021	
ADONA	2.03	2	ng/L	1.890		107	70-130			10/02/2021	
HFPO-DA	1.86	2	ng/L	2.000		92.9	70-130			10/02/2021	
NEtFOSAA	1.65	2	ng/L	2.000		82.3	70-130			10/02/2021	
NMeFOSAA	1.90	2	ng/L	2.000		94.9	70-130			10/02/2021	
PFBS	1.62	2	ng/L	1.770		91.7	70-130			10/02/2021	
PFDA	1.97	2	ng/L	2.000		98.5	70-130			10/02/2021	
PFDoA	1.83	2	ng/L	2.000		91.7	70-130			10/02/2021	
PFHpA	2.23	2	ng/L	2.000		112	70-130			10/02/2021	
PFHxA	2.10	2	ng/L	2.000		105	70-130			10/02/2021	
PFHxS	2.34	2	ng/L	1.824		128	70-130			10/02/2021	
PFNA	2.03	2	ng/L	2.000		102	70-130			10/02/2021	
PFOA	2.23	2	ng/L	2.000		112	70-130			10/02/2021	
PFOS	1.95	2	ng/L	1.851		105	70-130			10/02/2021	
PFTA	1.71	2	ng/L	2.000		85.7	70-130			10/02/2021	
PFTrDA	1.76	2	ng/L	2.000		88.0	70-130			10/02/2021	
PFUnA	1.97	2	ng/L	2.000		98.4	70-130			10/02/2021	
Surrogate: 13C2-PFDA	*40.1*		ng/L	*40.00*		*100*	*70-130*			10/02/2021	
Surrogate: 13C2-PFHxA	*40.0*		ng/L	*40.00*		*99.9*	*70-130*			10/02/2021	
Surrogate: 13C3-HFPO-DA	*39.3*		ng/L	*40.00*		*98.1*	*70-130*			10/02/2021	
Surrogate: d5-NEtFOSAA	*160*		ng/L	*160.0*		*100*	*70-130*			10/02/2021	

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

Organics-Semivolatiles - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Analyzed	Qualifier
Batch B1J0104 - Method: 537.1				**Prepared: 10/01/2021**							
Matrix Spike (B1J0104-MS1)	**Source: 2109271-02**										
11Cl-PF3OUdS	1.80	2	ng/L	1.759	ND	102	70-130			10/02/2021	
9Cl-PF3ONS	1.95	2	ng/L	1.741	ND	112	70-130			10/02/2021	
ADONA	1.99	2	ng/L	1.769	ND	113	70-130			10/02/2021	
HFPO-DA	1.70	2	ng/L	1.872	ND	90.8	70-130			10/02/2021	
NEtFOSAA	1.60	2	ng/L	1.872	ND	85.3	70-130			10/02/2021	
NMeFOSAA	1.71	2	ng/L	1.872	ND	91.5	70-130			10/02/2021	
PFBS	1.78	2	ng/L	1.656	ND	107	70-130			10/02/2021	
PFDA	1.93	2	ng/L	1.872	ND	103	70-130			10/02/2021	
PFDoA	1.60	2	ng/L	1.872	ND	85.6	70-130			10/02/2021	
PFHpA	2.11	2	ng/L	1.872	ND	113	70-130			10/02/2021	
PFHxA	1.88	2	ng/L	1.872	ND	101	70-130			10/02/2021	
PFHxS	2.08	2	ng/L	1.707	ND	122	70-130			10/02/2021	
PFNA	1.93	2	ng/L	1.872	ND	103	70-130			10/02/2021	
PFOA	2.45	2	ng/L	1.872	ND	131	70-130			10/02/2021	
PFOS	1.72	2	ng/L	1.732	ND	99.1	70-130			10/02/2021	
PFTA	1.37	2	ng/L	1.872	ND	73.1	70-130			10/02/2021	
PFTrDA	1.44	2	ng/L	1.872	ND	76.9	70-130			10/02/2021	
PFUnA	1.86	2	ng/L	1.872	ND	99.2	70-130			10/02/2021	
Surrogate: 13C2-PFDA	*37.4*		ng/L	*37.43*		*99.9*	*70-130*			10/02/2021	
Surrogate: 13C2-PFHxA	*36.4*		ng/L	*37.43*		*97.2*	*70-130*			10/02/2021	
Surrogate: 13C3-HFPO-DA	*35.6*		ng/L	*37.43*		*95.1*	*70-130*			10/02/2021	
Surrogate: d5-NEtFOSAA	*132*		ng/L	*149.7*		*88.1*	*70-130*			10/02/2021	
Matrix Spike Dup (B1J0104-MSD1)	**Source: 2109271-02**										
11Cl-PF3OUdS	1.93	2	ng/L	1.750	ND	111	70-130	7.17	30	10/02/2021	
9Cl-PF3ONS	1.98	2	ng/L	1.732	ND	114	70-130	1.62	30	10/02/2021	
ADONA	1.99	2	ng/L	1.759	ND	113	70-130	0.120	30	10/02/2021	
HFPO-DA	1.65	2	ng/L	1.862	ND	88.8	70-130	2.77	30	10/02/2021	
NEtFOSAA	1.65	2	ng/L	1.862	ND	88.4	70-130	2.98	30	10/02/2021	
NMeFOSAA	1.73	2	ng/L	1.862	ND	92.9	70-130	1.03	30	10/02/2021	
PFBS	1.79	2	ng/L	1.648	ND	108	70-130	0.401	30	10/02/2021	
PFDA	1.92	2	ng/L	1.862	ND	103	70-130	0.430	30	10/02/2021	
PFDoA	1.68	2	ng/L	1.862	ND	90.5	70-130	5.03	30	10/02/2021	
PFHpA	2.16	2	ng/L	1.862	ND	116	70-130	2.15	30	10/02/2021	
PFHxA	1.87	2	ng/L	1.862	ND	100	70-130	0.722	30	10/02/2021	
PFHxS	2.15	2	ng/L	1.698	ND	126	70-130	3.01	30	10/02/2021	
PFNA	1.92	2	ng/L	1.862	ND	103	70-130	0.253	30	10/02/2021	
PFOA	2.52	2	ng/L	1.862	ND	136	70-130	2.89	30	10/02/2021	
PFOS	1.72	2	ng/L	1.723	ND	99.9	70-130	0.246	30	10/02/2021	
PFTA	1.40	2	ng/L	1.862	ND	75.2	70-130	2.30	30	10/02/2021	
PFTrDA	1.57	2	ng/L	1.862	ND	84.3	70-130	8.69	30	10/02/2021	
PFUnA	1.89	2	ng/L	1.862	ND	101	70-130	1.54	30	10/02/2021	
Surrogate: 13C2-PFDA	*36.5*		ng/L	*37.24*		*97.9*	*70-130*			10/02/2021	
Surrogate: 13C2-PFHxA	*35.1*		ng/L	*37.24*		*94.3*	*70-130*			10/02/2021	
Surrogate: 13C3-HFPO-DA	*34.8*		ng/L	*37.24*		*93.3*	*70-130*			10/02/2021	
Surrogate: d5-NEtFOSAA	*135*		ng/L	*148.9*		*90.9*	*70-130*			10/02/2021	

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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
210271	Palo Area of Interest	DRINKING WATER

Location ID: 08N06W02RW	Program: MPART	Report CC Email 1: RuhalaS@michigan.gov	Project TAT Days*:	Sample Collector: Rachel Golota	
Dept-Division-District: RRD	Activity:	Report CC Email 2: KlaseA@michigan.gov	Report Batch QC Yes [X] No [ ]	Sample Collector Phone: 479-670-0413	
State Project Manager: Mike Jury	Funding Source: M99953571	Report CC Email 3: Dorin.Bogdan@aecom.com	**Lab Use Only** Sample Receipt Temperature: 4.0 °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	01	FB210929 1020MLB	9/29/2021	1020	1	8140 FRONT ST ; Field Blank
2	02	WT210929 1015MLB	9/29/2021	1015	6	8140 FRONT ST ; Orig/MS/MSD
3	03	WT210929 1015MLB-FD	9/29/2021	1015	2	8140 FRONT ST; Field Duplicate
4	04	WT210929 1030MLB	9/29/21	1030	2	8490 FRONT ST; org
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.: Mariah Bennett Signature: Mariah Bennett	UPS	09/29/2020 12:13
Print Name & Org.: UPS Signature:	Nicole Hardigan	9/30/2020 13:40
Print Name & Org.: Signature:		/ /2020 :

Appendix D – 2022 Analytical Reports

May 31, 2022

Vista Work Order No. 2205056

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 'PALO 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 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. 2205056
Case Narrative

Sample Condition on Receipt:

Ten 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.

Analytical Notes:

PFAS Isotope Dilution Method

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 OPR recoveries 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
2205056-01	GW2204281425GSC	28-Apr-22 14:25	04-May-22 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2205056-02	GW2204281350GSC-FD	28-Apr-22 13:50	04-May-22 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2205056-03	GW2204281350GSC	28-Apr-22 13:50	04-May-22 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2205056-04	GW2204280945GSC	28-Apr-22 09:45	04-May-22 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2205056-05	GW2204281250GSC	28-Apr-22 12:50	04-May-22 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2205056-06	GW2204281020GSC	28-Apr-22 10:20	04-May-22 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2205056-07	GW2204281215GSC	28-Apr-22 12:15	04-May-22 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2205056-08	GW2204281130GSC	28-Apr-22 11:30	04-May-22 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2205056-09	FB2204281310GSC	28-Apr-22 13:10	04-May-22 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2205056-10	GW2204281055GSC	28-Apr-22 10:55	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: PALO Well sampling/ Bio solids
Matrix: Aqueous

Laboratory Data

Lab Sample: B22E063-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		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFPeA	2706-90-3	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFBS	375-73-5	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
4:2 FTS	757124-72-4	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFHxA	307-24-4	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFPeS	2706-91-4	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
HFPO-DA	13252-13-6	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFHpA	375-85-9	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
ADONA	919005-14-4	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFHxS	355-46-4	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
6:2 FTS	27619-97-2	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFOA	335-67-1	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFecHS	646-83-3	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFHpS	375-92-8	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFNA	375-95-1	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFOSA	754-91-6	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFOS	1763-23-1	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFDA	335-76-2	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
8:2 FTS	39108-34-4	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFNS	68259-12-1	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
MeFOSAA	2355-31-9	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
EtFOSAA	2991-50-6	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFUnA	2058-94-8	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFDS	335-77-3	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFDoA	307-55-1	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFTrDA	72629-94-8	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
PFTeDA	376-06-7	ND	1.00	2.00	4.00		B22E063	19-May-22	0.250 L	23-May-22 22:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	112	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C3-PFPeA	IS	88.3	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C3-PFBS	IS	107	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C2-4:2 FTS	IS	95.8	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C2-PFHxA	IS	97.5	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C3-HFPO-DA	IS	81.9	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C4-PFHpA	IS	104	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C3-PFHxS	IS	101	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1

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

Client Data

Name: AECOM Matrix: Aqueous

Project: PALO Well sampling/ Bio solids

Laboratory Data

Lab Sample: B22E063-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	106	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C2-PFOA	IS	108	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C5-PFNA	IS	105	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C8-PFOSA	IS	59.1	10 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C8-PFOS	IS	112	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C2-PFDA	IS	92.8	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C2-8:2 FTS	IS	93.1	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
d3-MeFOSAA	IS	98.1	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
d5-EtFOSAA	IS	88.4	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C2-PFUnA	IS	100	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C2-PFDoA	IS	77.5	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	1
13C2-PFTeDA	IS	59.6	20 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:42	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: PALO Well sampling/ Bio solids
Matrix: Aqueous

Laboratory Data

Lab Sample: B22E063-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	44.1	40.0	110	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFPeA	2706-90-3	47.3	40.0	118	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFBS	375-73-5	46.2	40.0	115	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
4:2 FTS	757124-72-4	35.6	40.0	89.1	60 - 145		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFHxA	307-24-4	41.8	40.0	104	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFPeS	2706-91-4	40.1	40.0	100	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
HFPO-DA	13252-13-6	39.7	40.0	99.3	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFHpA	375-85-9	44.9	40.0	112	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
ADONA	919005-14-4	45.1	40.0	113	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFHxS	355-46-4	45.3	40.0	113	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
6:2 FTS	27619-97-2	39.3	40.0	98.3	60 - 140		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFOA	335-67-1	43.2	40.0	108	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFecHS	646-83-3	38.7	40.0	96.8	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFHpS	375-92-8	42.4	40.0	106	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFNA	375-95-1	40.7	40.0	102	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFOSA	754-91-6	44.8	40.0	112	65 - 140		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFOS	1763-23-1	45.7	40.0	114	65 - 140		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
9Cl-PF3ONS	756426-58-1	38.9	40.0	97.2	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFDA	335-76-2	42.2	40.0	106	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
8:2 FTS	39108-34-4	42.8	40.0	107	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFNS	68259-12-1	38.3	40.0	95.9	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
MeFOSAA	2355-31-9	42.0	40.0	105	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
EtFOSAA	2991-50-6	36.7	40.0	91.9	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFUnA	2058-94-8	44.6	40.0	112	65 - 140		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFDS	335-77-3	40.0	40.0	100	50 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
11Cl-PF3OUdS	763051-92-9	47.2	40.0	118	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFDoA	307-55-1	36.2	40.0	90.6	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFTrDA	72629-94-8	36.4	40.0	91.0	60 - 140		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
PFTeDA	376-06-7	37.6	40.0	94.0	65 - 135		B22E063	19-May-22	0.250 L	23-May-22 22:52	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.5	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C3-PFPeA	IS	77.9	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C3-PFBS	IS	103	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C2-4:2 FTS	IS	99.0	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C2-PFHxA	IS	95.4	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1

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

Client Data

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

Laboratory Data

Lab Sample: B22E063-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-HFPO-DA	IS	85.4	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C4-PFHpA	IS	109	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C3-PFHxS	IS	104	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C2-6:2 FTS	IS	106	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C2-PFOA	IS	107	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C5-PFNA	IS	95.6	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C8-PFOSA	IS	52.6	10 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C8-PFOS	IS	106	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C2-PFDA	IS	94.6	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C2-8:2 FTS	IS	83.4	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
d3-MeFOSAA	IS	94.4	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
d5-EtFOSAA	IS	87.8	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C2-PFUnA	IS	102	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C2-PFDoA	IS	82.6	25 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1
13C2-PFTeDA	IS	60.1	20 - 150		B22E063	19-May-22	0.250 L	23-May-22 22:52	1

Sample ID: GW2204281425GSC — **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-1
Matrix: Aqueous
Date Collected: 28-Apr-22 14:25

Laboratory Data

Lab Sample: 2205056-01
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	29.8	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFPeA	2706-90-3	66.3	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFBS	375-73-5	153	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
4:2 FTS	757124-72-4	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFHxA	307-24-4	84.9	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFPeS	2706-91-4	1.87	0.981	1.96	3.93	J, Q	B22E063	19-May-22	0.255 L	24-May-22 00:36	1
HFPO-DA	13252-13-6	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFHpA	375-85-9	74.7	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
ADONA	919005-14-4	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFHxS	355-46-4	5.70	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
6:2 FTS	27619-97-2	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFOA	335-67-1	47.4	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFecHS	646-83-3	7.60	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFHpS	375-92-8	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFNA	375-95-1	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFOSA	754-91-6	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFOS	1763-23-1	22.8	0.981	1.96	3.93	Q	B22E063	19-May-22	0.255 L	24-May-22 00:36	1
9Cl-PF3ONS	756426-58-1	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFDA	335-76-2	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
8:2 FTS	39108-34-4	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFNS	68259-12-1	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
MeFOSAA	2355-31-9	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
EtFOSAA	2991-50-6	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFUnA	2058-94-8	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFDS	335-77-3	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
11Cl-PF3OUdS	763051-92-9	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFDoA	307-55-1	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFTrDA	72629-94-8	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
PFTeDA	376-06-7	ND	0.981	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 00:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	106	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C3-PFPeA	IS	102	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C3-PFBS	IS	112	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C2-4:2 FTS	IS	113	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C2-PFHxA	IS	99.5	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C3-HFPO-DA	IS	96.3	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C4-PFHpA	IS	110	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1

Sample ID: GW2204281425GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-1
Matrix: Aqueous
Date Collected: 28-Apr-22 14:25

Laboratory Data

Lab Sample: 2205056-01
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	112	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C2-6:2 FTS	IS	96.4	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C2-PFOA	IS	115	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C5-PFNA	IS	104	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C8-PFOSA	IS	94.7	10 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C8-PFOS	IS	110	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C2-PFDA	IS	99.0	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C2-8:2 FTS	IS	105	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
d3-MeFOSAA	IS	118	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
d5-EtFOSAA	IS	104	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C2-PFUnA	IS	103	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C2-PFDoA	IS	86.9	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	1
13C2-PFTeDA	IS	79.8	20 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:36	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: GW2204281350GSC-FD

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-2
Matrix: Aqueous
Date Collected: 28-Apr-22 13:50

Laboratory Data

Lab Sample: 2205056-02
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	32.7	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFPeA	2706-90-3	64.5	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFBS	375-73-5	182	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
4:2 FTS	757124-72-4	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFHxA	307-24-4	78.9	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFPeS	2706-91-4	1.43	0.995	1.99	3.98	J	B22E063	19-May-22	0.251 L	24-May-22 00:46	1
HFPO-DA	13252-13-6	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFHpA	375-85-9	92.7	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
ADONA	919005-14-4	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFHxS	355-46-4	8.09	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
6:2 FTS	27619-97-2	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFOA	335-67-1	167	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFecHS	646-83-3	24.2	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFHpS	375-92-8	3.10	0.995	1.99	3.98	J	B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFNA	375-95-1	7.28	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFOSA	754-91-6	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFOS	1763-23-1	702	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
9Cl-PF3ONS	756426-58-1	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFDA	335-76-2	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
8:2 FTS	39108-34-4	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFNS	68259-12-1	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
MeFOSAA	2355-31-9	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
EtFOSAA	2991-50-6	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFUnA	2058-94-8	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFDS	335-77-3	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
11Cl-PF3OUdS	763051-92-9	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFDoA	307-55-1	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFTrDA	72629-94-8	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
PFTeDA	376-06-7	ND	0.995	1.99	3.98		B22E063	19-May-22	0.251 L	24-May-22 00:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	108	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C3-PFPeA	IS	97.0	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C3-PFBS	IS	105	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C2-4:2 FTS	IS	97.0	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C2-PFHxA	IS	101	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C3-HFPO-DA	IS	85.8	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C4-PFHpA	IS	111	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1

Sample ID: GW2204281350GSC-FD

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-2
Matrix: Aqueous
Date Collected: 28-Apr-22 13:50

Laboratory Data

Lab Sample: 2205056-02
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	107	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C2-6:2 FTS	IS	99.6	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C2-PFOA	IS	110	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C5-PFNA	IS	104	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C8-PFOSA	IS	90.7	10 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C8-PFOS	IS	103	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C2-PFDA	IS	101	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C2-8:2 FTS	IS	93.7	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
d3-MeFOSAA	IS	114	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
d5-EtFOSAA	IS	98.2	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C2-PFUnA	IS	98.1	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C2-PFDoA	IS	91.4	25 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	1
13C2-PFTeDA	IS	72.7	20 - 150		B22E063	19-May-22	0.251 L	24-May-22 00:46	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: GW2204281350GSC **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-2
Matrix: Aqueous
Date Collected: 28-Apr-22 13:50

Laboratory Data

Lab Sample: 2205056-03
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	33.5	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFPeA	2706-90-3	61.5	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFBS	375-73-5	178	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
4:2 FTS	757124-72-4	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFHxA	307-24-4	76.9	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFPeS	2706-91-4	1.05	0.979	1.96	3.92	J	B22E063	19-May-22	0.255 L	24-May-22 00:57	1
HFPO-DA	13252-13-6	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFHpA	375-85-9	99.7	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
ADONA	919005-14-4	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFHxS	355-46-4	8.43	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
6:2 FTS	27619-97-2	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFOA	335-67-1	171	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFecHS	646-83-3	24.5	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFHpS	375-92-8	3.27	0.979	1.96	3.92	J	B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFNA	375-95-1	6.88	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFOSA	754-91-6	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFOS	1763-23-1	672	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
9Cl-PF3ONS	756426-58-1	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFDA	335-76-2	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
8:2 FTS	39108-34-4	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFNS	68259-12-1	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
MeFOSAA	2355-31-9	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
EtFOSAA	2991-50-6	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFUnA	2058-94-8	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFDS	335-77-3	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
11Cl-PF3OUdS	763051-92-9	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFDoA	307-55-1	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFTrDA	72629-94-8	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
PFTeDA	376-06-7	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 00:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	102	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C3-PFPeA	IS	93.1	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C3-PFBS	IS	95.9	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C2-4:2 FTS	IS	93.4	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C2-PFHxA	IS	88.5	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C3-HFPO-DA	IS	79.0	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C4-PFHpA	IS	93.7	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1

Sample ID: GW2204281350GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-2
Matrix: Aqueous
Date Collected: 28-Apr-22 13:50

Laboratory Data

Lab Sample: 2205056-03
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	90.8	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C2-6:2 FTS	IS	97.9	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C2-PFOA	IS	97.5	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C5-PFNA	IS	91.7	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C8-PFOSA	IS	72.2	10 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C8-PFOS	IS	90.6	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C2-PFDA	IS	86.5	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C2-8:2 FTS	IS	85.5	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
d3-MeFOSAA	IS	90.1	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
d5-EtFOSAA	IS	86.6	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C2-PFUnA	IS	90.1	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C2-PFDoA	IS	76.8	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	1
13C2-PFTeDA	IS	67.8	20 - 150		B22E063	19-May-22	0.255 L	24-May-22 00:57	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: GW2204280945GSC **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-3
Matrix: Aqueous
Date Collected: 28-Apr-22 09:45

Laboratory Data

Lab Sample: 2205056-04
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	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFPeA	2706-90-3	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFBS	375-73-5	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
4:2 FTS	757124-72-4	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFHxA	307-24-4	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFPeS	2706-91-4	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
HFPO-DA	13252-13-6	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFHpA	375-85-9	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
ADONA	919005-14-4	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFHxS	355-46-4	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
6:2 FTS	27619-97-2	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFOA	335-67-1	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFecHS	646-83-3	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFHpS	375-92-8	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFNA	375-95-1	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFOSA	754-91-6	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFOS	1763-23-1	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
9Cl-PF3ONS	756426-58-1	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFDA	335-76-2	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
8:2 FTS	39108-34-4	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFNS	68259-12-1	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
MeFOSAA	2355-31-9	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
EtFOSAA	2991-50-6	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFUnA	2058-94-8	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFDS	335-77-3	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
11Cl-PF3OUdS	763051-92-9	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFDoA	307-55-1	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFTrDA	72629-94-8	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
PFTeDA	376-06-7	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:07	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	116	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C3-PFPeA	IS	94.7	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C3-PFBS	IS	117	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C2-4:2 FTS	IS	98.7	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C2-PFHxA	IS	101	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C3-HFPO-DA	IS	89.4	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C4-PFHpA	IS	109	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1

Sample ID: GW2204280945GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-3
Matrix: Aqueous
Date Collected: 28-Apr-22 09:45

Laboratory Data

Lab Sample: 2205056-04
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	101	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C2-6:2 FTS	IS	98.9	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C2-PFOA	IS	108	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C5-PFNA	IS	105	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C8-PFOSA	IS	85.7	10 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C8-PFOS	IS	105	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C2-PFDA	IS	96.7	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C2-8:2 FTS	IS	84.5	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
d3-MeFOSAA	IS	113	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
d5-EtFOSAA	IS	93.4	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C2-PFUnA	IS	101	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C2-PFDoA	IS	95.8	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	1
13C2-PFTeDA	IS	78.0	20 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:07	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: GW2204281250GSC **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-4
Matrix: Aqueous
Date Collected: 28-Apr-22 12:50

Laboratory Data

Lab Sample: 2205056-05
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	8.35	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFPeA	2706-90-3	14.1	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFBS	375-73-5	4.22	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
4:2 FTS	757124-72-4	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFHxA	307-24-4	13.2	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFPeS	2706-91-4	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
HFPO-DA	13252-13-6	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFHpA	375-85-9	7.93	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
ADONA	919005-14-4	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFHxS	355-46-4	4.64	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
6:2 FTS	27619-97-2	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFOA	335-67-1	17.7	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFecHS	646-83-3	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFHpS	375-92-8	1.08	1.01	2.02	4.05	J, Q	B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFNA	375-95-1	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFOSA	754-91-6	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFOS	1763-23-1	5.93	1.01	2.02	4.05	Q	B22E063	19-May-22	0.247 L	24-May-22 01:17	1
9Cl-PF3ONS	756426-58-1	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFDA	335-76-2	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
8:2 FTS	39108-34-4	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFNS	68259-12-1	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
MeFOSAA	2355-31-9	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
EtFOSAA	2991-50-6	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFUnA	2058-94-8	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFDS	335-77-3	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
11Cl-PF3OUdS	763051-92-9	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFDoA	307-55-1	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFTrDA	72629-94-8	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
PFTeDA	376-06-7	ND	1.01	2.02	4.05		B22E063	19-May-22	0.247 L	24-May-22 01:17	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	115	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C3-PFPeA	IS	106	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C3-PFBS	IS	114	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C2-4:2 FTS	IS	94.0	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C2-PFHxA	IS	106	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C3-HFPO-DA	IS	85.9	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C4-PFHpA	IS	106	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1

Sample ID: GW2204281250GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-4
Matrix: Aqueous
Date Collected: 28-Apr-22 12:50

Laboratory Data

Lab Sample: 2205056-05
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	104	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C2-6:2 FTS	IS	95.2	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C2-PFOA	IS	110	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C5-PFNA	IS	104	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C8-PFOSA	IS	87.2	10 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C8-PFOS	IS	109	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C2-PFDA	IS	98.2	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C2-8:2 FTS	IS	89.8	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
d3-MeFOSAA	IS	111	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
d5-EtFOSAA	IS	95.7	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C2-PFUnA	IS	101	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C2-PFDoA	IS	91.7	25 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	1
13C2-PFTeDA	IS	77.6	20 - 150		B22E063	19-May-22	0.247 L	24-May-22 01:17	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: GW2204281020GSC **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-5
Matrix: Aqueous
Date Collected: 28-Apr-22 10:20

Laboratory Data

Lab Sample: 2205056-06
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	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFPeA	2706-90-3	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFBS	375-73-5	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
4:2 FTS	757124-72-4	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFHxA	307-24-4	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFPeS	2706-91-4	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
HFPO-DA	13252-13-6	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFHpA	375-85-9	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
ADONA	919005-14-4	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFHxS	355-46-4	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
6:2 FTS	27619-97-2	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFOA	335-67-1	1.16	0.981	1.96	3.92	J	B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFecHS	646-83-3	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFHpS	375-92-8	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFNA	375-95-1	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFOSA	754-91-6	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFOS	1763-23-1	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
9Cl-PF3ONS	756426-58-1	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFDA	335-76-2	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
8:2 FTS	39108-34-4	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFNS	68259-12-1	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
MeFOSAA	2355-31-9	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
EtFOSAA	2991-50-6	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFUnA	2058-94-8	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFDS	335-77-3	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
11Cl-PF3OUdS	763051-92-9	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFDoA	307-55-1	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFTrDA	72629-94-8	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
PFTeDA	376-06-7	ND	0.981	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 01:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	81.5	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C3-PFPeA	IS	96.1	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C3-PFBS	IS	106	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C2-4:2 FTS	IS	95.0	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C2-PFHxA	IS	102	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C3-HFPO-DA	IS	87.4	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C4-PFHpA	IS	106	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1

Sample ID: GW2204281020GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-5
Matrix: Aqueous
Date Collected: 28-Apr-22 10:20

Laboratory Data

Lab Sample: 2205056-06
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	101	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C2-6:2 FTS	IS	90.4	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C2-PFOA	IS	104	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C5-PFNA	IS	102	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C8-PFOSA	IS	94.1	10 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C8-PFOS	IS	104	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C2-PFDA	IS	94.6	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C2-8:2 FTS	IS	91.6	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
d3-MeFOSAA	IS	111	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
d5-EtFOSAA	IS	98.0	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C2-PFUnA	IS	103	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C2-PFDoA	IS	90.6	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	1
13C2-PFTeDA	IS	77.8	20 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:28	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: GW2204281215GSC **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-6
Matrix: Aqueous
Date Collected: 28-Apr-22 12:15

Laboratory Data

Lab Sample: 2205056-07
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	1.46	0.975	1.95	3.90	J	B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFPeA	2706-90-3	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFBS	375-73-5	6.78	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
4:2 FTS	757124-72-4	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFHxA	307-24-4	1.06	0.975	1.95	3.90	J	B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFPeS	2706-91-4	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
HFPO-DA	13252-13-6	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFHpA	375-85-9	3.90	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
ADONA	919005-14-4	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFHxS	355-46-4	3.99	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
6:2 FTS	27619-97-2	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFOA	335-67-1	5.85	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFecHS	646-83-3	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFHpS	375-92-8	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFNA	375-95-1	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFOSA	754-91-6	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFOS	1763-23-1	5.24	0.975	1.95	3.90	Q	B22E063	19-May-22	0.257 L	24-May-22 01:38	1
9Cl-PF3ONS	756426-58-1	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFDA	335-76-2	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
8:2 FTS	39108-34-4	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFNS	68259-12-1	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
MeFOSAA	2355-31-9	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
EtFOSAA	2991-50-6	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFUnA	2058-94-8	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFDS	335-77-3	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
11Cl-PF3OUdS	763051-92-9	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFDoA	307-55-1	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFTrDA	72629-94-8	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
PFTeDA	376-06-7	ND	0.975	1.95	3.90		B22E063	19-May-22	0.257 L	24-May-22 01:38	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	103	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C3-PFPeA	IS	99.5	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C3-PFBS	IS	109	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C2-4:2 FTS	IS	90.3	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C2-PFHxA	IS	98.0	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C3-HFPO-DA	IS	85.6	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C4-PFHpA	IS	106	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1

Sample ID: GW2204281215GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-6
Matrix: Aqueous
Date Collected: 28-Apr-22 12:15

Laboratory Data

Lab Sample: 2205056-07
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	92.3	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C2-6:2 FTS	IS	94.1	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C2-PFOA	IS	109	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C5-PFNA	IS	101	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C8-PFOSA	IS	91.5	10 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C8-PFOS	IS	107	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C2-PFDA	IS	90.3	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C2-8:2 FTS	IS	84.0	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
d3-MeFOSAA	IS	111	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
d5-EtFOSAA	IS	91.3	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C2-PFUnA	IS	89.8	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C2-PFDoA	IS	87.7	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	1
13C2-PFTeDA	IS	68.8	20 - 150		B22E063	19-May-22	0.257 L	24-May-22 01:38	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: GW2204281130GSC **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-7
Matrix: Aqueous
Date Collected: 28-Apr-22 11:30

Laboratory Data

Lab Sample: 2205056-08
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	2.43	0.982	1.96	3.93	J	B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFPeA	2706-90-3	1.39	0.982	1.96	3.93	J	B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFBS	375-73-5	2.28	0.982	1.96	3.93	J	B22E063	19-May-22	0.255 L	24-May-22 01:49	1
4:2 FTS	757124-72-4	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFHxA	307-24-4	1.07	0.982	1.96	3.93	J	B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFPeS	2706-91-4	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
HFPO-DA	13252-13-6	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFHpA	375-85-9	1.25	0.982	1.96	3.93	J	B22E063	19-May-22	0.255 L	24-May-22 01:49	1
ADONA	919005-14-4	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFHxS	355-46-4	1.87	0.982	1.96	3.93	J	B22E063	19-May-22	0.255 L	24-May-22 01:49	1
6:2 FTS	27619-97-2	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFOA	335-67-1	3.63	0.982	1.96	3.93	J	B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFecHS	646-83-3	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFHpS	375-92-8	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFNA	375-95-1	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFOSA	754-91-6	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFOS	1763-23-1	6.46	0.982	1.96	3.93	Q	B22E063	19-May-22	0.255 L	24-May-22 01:49	1
9Cl-PF3ONS	756426-58-1	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFDA	335-76-2	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
8:2 FTS	39108-34-4	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFNS	68259-12-1	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
MeFOSAA	2355-31-9	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
EtFOSAA	2991-50-6	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFUnA	2058-94-8	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFDS	335-77-3	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
11Cl-PF3OUdS	763051-92-9	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFDoA	307-55-1	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFTrDA	72629-94-8	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
PFTeDA	376-06-7	ND	0.982	1.96	3.93		B22E063	19-May-22	0.255 L	24-May-22 01:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	113	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C3-PFPeA	IS	105	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C3-PFBS	IS	119	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C2-4:2 FTS	IS	107	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C2-PFHxA	IS	108	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C3-HFPO-DA	IS	91.5	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C4-PFHpA	IS	110	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1

Sample ID: GW2204281130GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-7
Matrix: Aqueous
Date Collected: 28-Apr-22 11:30

Laboratory Data

Lab Sample: 2205056-08
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	108	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C2-6:2 FTS	IS	97.1	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C2-PFOA	IS	105	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C5-PFNA	IS	116	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C8-PFOSA	IS	87.9	10 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C8-PFOS	IS	105	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C2-PFDA	IS	103	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C2-8:2 FTS	IS	105	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
d3-MeFOSAA	IS	104	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
d5-EtFOSAA	IS	100	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C2-PFUnA	IS	106	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C2-PFDoA	IS	89.3	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	1
13C2-PFTeDA	IS	80.1	20 - 150		B22E063	19-May-22	0.255 L	24-May-22 01:49	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: FB2204281310GSC **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Matrix: Aqueous
Date Collected: 28-Apr-22 13:10

Laboratory Data

Lab Sample: 2205056-09
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	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFPeA	2706-90-3	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFBS	375-73-5	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
4:2 FTS	757124-72-4	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFHxA	307-24-4	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFPeS	2706-91-4	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
HFPO-DA	13252-13-6	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFHpA	375-85-9	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
ADONA	919005-14-4	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFHxS	355-46-4	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
6:2 FTS	27619-97-2	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFOA	335-67-1	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFecHS	646-83-3	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFHpS	375-92-8	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFNA	375-95-1	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFOSA	754-91-6	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFOS	1763-23-1	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
9Cl-PF3ONS	756426-58-1	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFDA	335-76-2	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
8:2 FTS	39108-34-4	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFNS	68259-12-1	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
MeFOSAA	2355-31-9	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
EtFOSAA	2991-50-6	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFUnA	2058-94-8	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFDS	335-77-3	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
11Cl-PF3OUdS	763051-92-9	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFDoA	307-55-1	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFTrDA	72629-94-8	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
PFTeDA	376-06-7	ND	0.979	1.96	3.92		B22E063	19-May-22	0.255 L	24-May-22 02:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.5	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C3-PFPeA	IS	71.6	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C3-PFBS	IS	93.6	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C2-4:2 FTS	IS	88.7	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C2-PFHxA	IS	88.2	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C3-HFPO-DA	IS	79.4	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C4-PFHpA	IS	101	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1

Sample ID: FB2204281310GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Matrix: Aqueous
Date Collected: 28-Apr-22 13:10

Laboratory Data

Lab Sample: 2205056-09
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	101	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C2-6:2 FTS	IS	103	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C2-PFOA	IS	110	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C5-PFNA	IS	102	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C8-PFOSA	IS	67.4	10 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C8-PFOS	IS	107	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C2-PFDA	IS	96.5	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C2-8:2 FTS	IS	104	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
d3-MeFOSAA	IS	109	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
d5-EtFOSAA	IS	93.0	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C2-PFUnA	IS	99.7	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C2-PFDoA	IS	84.6	25 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	1
13C2-PFTeDA	IS	61.3	20 - 150		B22E063	19-May-22	0.255 L	24-May-22 02:30	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: GW2204281055GSC **PFAS Isotope Dilution Method**

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-8
Matrix: Aqueous
Date Collected: 28-Apr-22 10:55

Laboratory Data

Lab Sample: 2205056-10
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	7.09	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFPeA	2706-90-3	13.2	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFBS	375-73-5	15.4	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
4:2 FTS	757124-72-4	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFHxA	307-24-4	14.1	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFPeS	2706-91-4	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
HFPO-DA	13252-13-6	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFHpA	375-85-9	9.21	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
ADONA	919005-14-4	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFHxS	355-46-4	1.44	0.971	1.95	3.89	J	B22E063	19-May-22	0.257 L	24-May-22 02:40	1
6:2 FTS	27619-97-2	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFOA	335-67-1	19.1	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFecHS	646-83-3	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFHpS	375-92-8	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFNA	375-95-1	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFOSA	754-91-6	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFOS	1763-23-1	4.71	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
9Cl-PF3ONS	756426-58-1	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFDA	335-76-2	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
8:2 FTS	39108-34-4	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFNS	68259-12-1	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
MeFOSAA	2355-31-9	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
EtFOSAA	2991-50-6	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFUnA	2058-94-8	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFDS	335-77-3	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
11Cl-PF3OUdS	763051-92-9	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFDoA	307-55-1	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFTrDA	72629-94-8	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
PFTeDA	376-06-7	ND	0.971	1.95	3.89		B22E063	19-May-22	0.257 L	24-May-22 02:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	105	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C3-PFPeA	IS	98.2	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C3-PFBS	IS	121	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C2-4:2 FTS	IS	101	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C2-PFHxA	IS	105	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C3-HFPO-DA	IS	88.2	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C4-PFHpA	IS	109	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1

Sample ID: GW2204281055GSC

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: PALO Well sampling/ Bio solids
Location: MW-8
Matrix: Aqueous
Date Collected: 28-Apr-22 10:55

Laboratory Data

Lab Sample: 2205056-10
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	107	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C2-6:2 FTS	IS	99.8	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C2-PFOA	IS	113	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C5-PFNA	IS	107	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C8-PFOSA	IS	81.8	10 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C8-PFOS	IS	110	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C2-PFDA	IS	95.6	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C2-8:2 FTS	IS	90.4	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
d3-MeFOSAA	IS	106	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
d5-EtFOSAA	IS	102	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C2-PFUnA	IS	101	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C2-PFDoA	IS	89.6	25 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	1
13C2-PFTeDA	IS	77.4	20 - 150		B22E063	19-May-22	0.257 L	24-May-22 02:40	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.

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 #: 2205056 Temp: 1.8 4.7 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: **PALO 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	5-3-22	1500	Kelia Wadsworth Kelia Wadsworth	05/04* 05/03/22	0935 *KW 05/04/22
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	PFAS List of 28+PFeCHS	EPA Method 537(DW only): PFOA/ PFOS	UCMR3 PFAS List 6	PFAS List 14	Comments
GW2204281425GSC	**4/28/22**	**1425**	**MW-1**	**2**	**P**	**AQ**					**X**				
GW2204281350GSC-FD	**4/28/22**	**1350**	**MW-2**	**2**	**P**	**AQ**					**X**				**FIELD DUPLICATE**
GW2204281350GSC	**4/28/22**	**1350**	**MW-2**	**2**	**P**	**AQ**					**X**				
GW2204280945GSC	**4/28/22**	**0945**	**MW-3**	**2**	**P**	**AQ**					**X**				
GW2204281250GSC	**4/28/22**	**1250**	**MW-4**	**2**	**P**	**AQ**					**X**				
GW2204281020GSC	**4/28/22**	**1020**	**MW-5**	**2**	**P**	**AQ**					**X**				
GW2204281215GSC	**4/28/22**	**1215**	**MW-6**	**2**	**P**	**AQ**					**X**				
GW2204281130GSC	**4/28/22**	**1130**	**MW-7**	**2**	**P**	**AQ**					**X**				
FB2204281310GSC	**4/28/22**	**1310**		**2**	**P**	**AQ**					**X**				**FIELD BLANK**
GW2204281055GSC	**4/28/22**	**1055**	**MW-8**	**2**	**P**	**AQ**					**X**				

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:

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	

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)
Minimum Laboratory Analyte List

2205056

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- thylperfluorooctanesulfonamido) 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
3-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 2

Vista Work Order #: 2205056 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 1722	Initials: WS	Location: R-13, WR-2 Shelf/Rack: d-3 F-7

COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

Vista Analytical Laboratory

Sample Log-In Checklist

Vista Work Order #: 2205056 TAT std

Samples Arrival:	**Date/Time** 05/04/22 09:35		**Initials:** KG		**Location:** WR-2 **Shelf/Rack:** M12		
Delivered By:	(FedEx)	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 4.8 (uncorrected)			**Probe used:** Y / (N)		**Thermometer ID:** IR-7		
Temp °C: 4.7 (corrected)							

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Airbill 2 of 2 Trk # 2727 1484 0274	✓		
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 1722	**Initials:** WWS	**Location:** R-13, WR-2 **Shelf/Rack:** B-3, F-7
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

CoC/Label Reconciliation Report WO# 2205056

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2205056-01	A GW2204281425GSC	MW-1	28-Apr-22 14:25	HDPE Bottle, 250 mL	Aqueous	
2205056-01	B GW2204281425GSC	MW-1	28-Apr-22 14:25	HDPE Bottle, 250 mL	Aqueous	
2205056-02	A GW2204281350GSC-FD	MW-2	28-Apr-22 13:50	HDPE Bottle, 250 mL	Aqueous	
2205056-02	B GW2204281350GSC-FD	MW-2	28-Apr-22 13:50	HDPE Bottle, 250 mL	Aqueous	
2205056-03	A GW2204281350GSC	MW-2	28-Apr-22 13:50	HDPE Bottle, 250 mL	Aqueous	
2205056-03	B GW2204281350GSC	MW-2	28-Apr-22 13:50	HDPE Bottle, 250 mL	Aqueous	
2205056-04	A GW2204280945GSC	MW-3	28-Apr-22 09:45	HDPE Bottle, 250 mL	Aqueous	
2205056-04	B GW2204280945GSC	MW-3	28-Apr-22 09:45	HDPE Bottle, 250 mL	Aqueous	
2205056-05	A GW2204281250GSC	MW-4	28-Apr-22 12:50	HDPE Bottle, 250 mL	Aqueous	
2205056-05	B GW2204281250GSC	MW-4	28-Apr-22 12:50	HDPE Bottle, 250 mL	Aqueous	
2205056-06	A GW2204281020GSC	MW-5	28-Apr-22 10:20	HDPE Bottle, 250 mL	Aqueous	
2205056-06	B GW2204281020GSC	MW-5	28-Apr-22 10:20	HDPE Bottle, 250 mL	Aqueous	
2205056-07	A GW2204281215GSC	MW-6	28-Apr-22 12:15	HDPE Bottle, 250 mL	Aqueous	
2205056-07	B GW2204281215GSC	MW-6	28-Apr-22 12:15	HDPE Bottle, 250 mL	Aqueous	
2205056-08	A GW2204281130GSC	MW-7	28-Apr-22 11:30	HDPE Bottle, 250 mL	Aqueous	
2205056-08	B GW2204281130GSC	MW-7	28-Apr-22 11:30	HDPE Bottle, 250 mL	Aqueous	
2205056-09	A FB2204281310GSC		28-Apr-22 13:10	HDPE Bottle, 250 mL	Aqueous	
2205056-09	B FB2204281310GSC		28-Apr-22 13:10	HDPE Bottle, 250 mL	Aqueous	
2205056-10	A GW2204281055GSC	MW-8	28-Apr-22 10:55	HDPE Bottle, 250 mL	Aqueous	
2205056-10	B GW2204281055GSC	MW-8	28-Apr-22 10:55	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: (C1) = Cooler 1 of 2
(C2) = Cooler 2 of 2

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 (None All) Other

Verifed by/Date: KW 05/05/22

Analytical Laboratory Report

Report ID: S35179.01(01)
Generated on 04/29/2022

Report to

Attention: MDHHS Sampling
MDHHS
333 S. Grand Avenue
Lansing, MI 48933

Phone: n/a FAX:
Email: mdhhs-sampling@michigan.gov

Addtional Contacts: MDHHS Data

Report produced by

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

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

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S35179.01-S35179.04
Project: Palo Area of Interest
Collected Date(s): 04/21/2022
Submitted Date/Time: 04/21/2022 15:05
Sampled by: Kevin A. Kasischke
P.O. #:

Table of Contents

Maya Murshak
Technical Director

Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein, acrylonitrile, and 2-chlorovinylethyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

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

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

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

Glossary of Abbreviations

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

Method Summary

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

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone1-sulfonic acid	756426-58-1
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
HFPO-DA	Hexafluoropropylene oxide dimer	13252-13-6
FHpPA (7:3 FTCA)	3-Perfluoroheptyl propanoic acid	812-70-4
FPePA (5:3 FTCA)	3-Perfluoropentyl propanoic acid	914637-49-3
FPrPA (3:3 FTCA)	3-Perfluoropropyl propanoic acid	356-02-5
NFDHA	Nonafluoro-3,6-dioxaheptanoic acid	151772-58-6
PFBSA	Perfluorobutanesulfonamide	30334-69-1
PFECHS	Perfluoro-4-ethylcyclohexanesulfonate	67584-42-3
PFEESA	Perfluoro(2-ethoxyethane)sulfonic acid	113507-82-7
PFHxSA	Perfluorohexanesulfonamide	41997-13-1
PFMBA	Perfluoro-4-methoxybutanoic acid	863090-89-5
PFMPA	Perfluoro-3-methoxypropanoic acid	377-73-1
PFPrS	Sodium Perfluoropropanesulfonic acid	423-41-6

Analytical Laboratory Report

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S35179.01	11969 Cedar Lake Rd-FC1-A	Drinking Water	04/21/22 12:30
S35179.02	11969 Cedar Lake Rd-FC1-A-DUP	Drinking Water	04/21/22 12:30
S35179.03	11969 Cedar Lake Rd-Field Blank	Water	04/21/22 12:30
S35179.04	Trip Blank Lot# BL220221	Water	04/21/22 00:01

Analytical Laboratory Report

Lab Sample ID: S35179.01
Sample Tag: 11969 Cedar Lake Rd-FC1-A
Collected Date/Time: 04/21/2022 12:30
Matrix: Drinking Water
COC Reference: 145405

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.55/7.02/11	ASTMD7979-19M	04/21/22 15:30	KCV	

Organics

39 PFAs, Method: ASTMD7979-19M, Run Date: 04/21/22 22:39, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	29	6.0		ng/L	1.99	375-22-4	
PFPeA*	64	5.0		ng/L	1.99	2706-90-3	
4:2 FTSA*	Not detected	2.0		ng/L	1.99	757124-72-4	
PFHxA*	69	2.0		ng/L	1.99	307-24-4	
PFBS*	140	2.0		ng/L	1.99	375-73-5	
PFHpA*	49	2.0		ng/L	1.99	375-85-9	
PFPeS*	Not detected	2.0		ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	2.0		ng/L	1.99	27619-97-2	
PFOA*	29	2.0		ng/L	1.99	335-67-1	
PFHxS*	3.8	2.0		ng/L	1.99	355-46-4	
PFHxS-LN*	3.0	2.0		ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	2.0		ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0		ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0		ng/L	1.99	39108-34-4	
PFHpS*	Not detected	2.0		ng/L	1.99	375-92-8	
PFDA*	Not detected	2.0		ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0		ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	2.0		ng/L	1.99	2991-50-6	
PFOS*	2.1	2.0		ng/L	1.99	1763-23-1	
PFOS-LN*	Not detected	2.0		ng/L	1.99	1763-23-1-LN	
PFOS-BR*	2.0	2.0		ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	2.0		ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0		ng/L	1.99	68259-12-1	
PFDoDA*	Not detected	2.0		ng/L	1.99	307-55-1	
PFDS*	Not detected	5.0		ng/L	1.99	335-77-3	
PFTrDA*	Not detected	2.0		ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0		ng/L	1.99	754-91-6	
PFTeDA*	Not detected	2.0		ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0		ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0		ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0		ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	2.0		ng/L	1.99	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	5.0		ng/L	1.99	812-70-4	
FPePA (5:3 FTCA)*	Not detected	5.0		ng/L	1.99	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	5.0		ng/L	1.99	356-02-5	
NFDHA*	Not detected	2.0		ng/L	1.99	151772-58-6	
PFBSA*	6.4	2.0		ng/L	1.99	30334-69-1	

Lab Sample ID: S35179.01 (continued)

Sample Tag: 11969 Cedar Lake Rd-FC1-A

39 PFAs, Method: ASTMD7979-19M, Run Date: 04/21/22 22:39, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	7.0	2.0		ng/L	1.99	67584-42-3	
PFEESA*	Not detected	2.0		ng/L	1.99	113507-82-7	
PFHxSA*	Not detected	2.0		ng/L	1.99	41997-13-1	
PFMBA*	Not detected	2.0		ng/L	1.99	863090-89-5	
PFMPA*	Not detected	2.0		ng/L	1.99	377-73-1	
PFPrS*	Not detected	2.0		ng/L	1.99	423-41-6	

Lab Sample ID: S35179.02
Sample Tag: 11969 Cedar Lake Rd-FC1-A-DUP
Collected Date/Time: 04/21/2022 12:30
Matrix: Drinking Water
COC Reference: 145405

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.58/6.98/11	ASTMD7979-19M	04/21/22 15:30	KCV	

Organics

39 PFAs, Method: ASTMD7979-19M, Run Date: 04/21/22 22:59, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	27	5.9		ng/L	1.96	375-22-4	
PFPeA*	66	4.9		ng/L	1.96	2706-90-3	
4:2 FTSA*	Not detected	2.0		ng/L	1.96	757124-72-4	
PFHxA*	70	2.0		ng/L	1.96	307-24-4	
PFBS*	130	2.0		ng/L	1.96	375-73-5	
PFHpA*	48	2.0		ng/L	1.96	375-85-9	
PFPeS*	Not detected	2.0		ng/L	1.96	2706-91-4	
6:2 FTSA*	Not detected	2.0		ng/L	1.96	27619-97-2	
PFOA*	33	2.0		ng/L	1.96	335-67-1	
PFHxS*	4.5	2.0		ng/L	1.96	355-46-4	
PFHxS-LN*	3.4	2.0		ng/L	1.96	355-46-4-LN	
PFHxS-BR*	Not detected	2.0		ng/L	1.96	355-46-4-BR	
PFNA*	Not detected	2.0		ng/L	1.96	375-95-1	
8:2 FTSA*	Not detected	2.0		ng/L	1.96	39108-34-4	
PFHpS*	Not detected	2.0		ng/L	1.96	375-92-8	
PFDA*	Not detected	2.0		ng/L	1.96	335-76-2	
N-MeFOSAA*	Not detected	2.0		ng/L	1.96	2355-31-9	
EtFOSAA*	Not detected	2.0		ng/L	1.96	2991-50-6	
PFOS*	2.2	2.0		ng/L	1.96	1763-23-1	
PFOS-LN*	Not detected	2.0		ng/L	1.96	1763-23-1-LN	
PFOS-BR*	2.1	2.0		ng/L	1.96	1763-23-1-BR	
PFUnDA*	Not detected	2.0		ng/L	1.96	2058-94-8	
PFNS*	Not detected	2.0		ng/L	1.96	68259-12-1	
PFDoDA*	Not detected	2.0		ng/L	1.96	307-55-1	
PFDS*	Not detected	4.9		ng/L	1.96	335-77-3	
PFTrDA*	Not detected	2.0		ng/L	1.96	72629-94-8	
FOSA*	Not detected	2.0		ng/L	1.96	754-91-6	
PFTeDA*	Not detected	2.0		ng/L	1.96	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0		ng/L	1.96	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0		ng/L	1.96	756426-58-1	
ADONA*	Not detected	2.0		ng/L	1.96	919005-14-4	
HFPO-DA*	Not detected	2.0		ng/L	1.96	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	4.9		ng/L	1.96	812-70-4	
FPePA (5:3 FTCA)*	Not detected	4.9		ng/L	1.96	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	4.9		ng/L	1.96	356-02-5	
NFDHA*	Not detected	2.0		ng/L	1.96	151772-58-6	
PFBSA*	6.2	2.0		ng/L	1.96	30334-69-1	

Lab Sample ID: S35179.02 (continued)

Sample Tag: 11969 Cedar Lake Rd-FC1-A-DUP

39 PFAs, Method: ASTMD7979-19M, Run Date: 04/21/22 22:59, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	6.9	2.0		ng/L	1.96	67584-42-3	
PFEESA*	Not detected	2.0		ng/L	1.96	113507-82-7	
PFHxSA*	Not detected	2.0		ng/L	1.96	41997-13-1	
PFMBA*	Not detected	2.0		ng/L	1.96	863090-89-5	
PFMPA*	Not detected	2.0		ng/L	1.96	377-73-1	
PFPrS*	Not detected	2.0		ng/L	1.96	423-41-6	

Analytical Laboratory Report

Lab Sample ID: S35179.03
Sample Tag: 11969 Cedar Lake Rd-Field Blank
Collected Date/Time: 04/21/2022 12:30
Matrix: Water
COC Reference: 145405

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.61/7.02/9	ASTMD7979-19M	04/21/22 15:30	KCV	

Organics

39 PFAs, Method: ASTMD7979-19M, Run Date: 04/21/22 23:18, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	5.9		ng/L	1.96	375-22-4	
PFPeA*	Not detected	4.9		ng/L	1.96	2706-90-3	
4:2 FTSA*	Not detected	2.0		ng/L	1.96	757124-72-4	
PFHxA*	Not detected	2.0		ng/L	1.96	307-24-4	
PFBS*	Not detected	2.0		ng/L	1.96	375-73-5	
PFHpA*	Not detected	2.0		ng/L	1.96	375-85-9	
PFPeS*	Not detected	2.0		ng/L	1.96	2706-91-4	
6:2 FTSA*	Not detected	2.0		ng/L	1.96	27619-97-2	
PFOA*	Not detected	2.0		ng/L	1.96	335-67-1	
PFHxS*	Not detected	2.0		ng/L	1.96	355-46-4	
PFHxS-LN*	Not detected	2.0		ng/L	1.96	355-46-4-LN	
PFHxS-BR*	Not detected	2.0		ng/L	1.96	355-46-4-BR	
PFNA*	Not detected	2.0		ng/L	1.96	375-95-1	
8:2 FTSA*	Not detected	2.0		ng/L	1.96	39108-34-4	
PFHpS*	Not detected	2.0		ng/L	1.96	375-92-8	
PFDA*	Not detected	2.0		ng/L	1.96	335-76-2	
N-MeFOSAA*	Not detected	2.0		ng/L	1.96	2355-31-9	
EtFOSAA*	Not detected	2.0		ng/L	1.96	2991-50-6	
PFOS*	Not detected	2.0		ng/L	1.96	1763-23-1	
PFOS-LN*	Not detected	2.0		ng/L	1.96	1763-23-1-LN	
PFOS-BR*	Not detected	2.0		ng/L	1.96	1763-23-1-BR	
PFUnDA*	Not detected	2.0		ng/L	1.96	2058-94-8	
PFNS*	Not detected	2.0		ng/L	1.96	68259-12-1	
PFDoDA*	Not detected	2.0		ng/L	1.96	307-55-1	
PFDS*	Not detected	4.9		ng/L	1.96	335-77-3	
PFTrDA*	Not detected	2.0		ng/L	1.96	72629-94-8	
FOSA*	Not detected	2.0		ng/L	1.96	754-91-6	
PFTeDA*	Not detected	2.0		ng/L	1.96	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0		ng/L	1.96	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0		ng/L	1.96	756426-58-1	
ADONA*	Not detected	2.0		ng/L	1.96	919005-14-4	
HFPO-DA*	Not detected	2.0		ng/L	1.96	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	4.9		ng/L	1.96	812-70-4	
FPePA (5:3 FTCA)*	Not detected	4.9		ng/L	1.96	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	4.9		ng/L	1.96	356-02-5	
NFDHA*	Not detected	2.0		ng/L	1.96	151772-58-6	
PFBSA*	Not detected	2.0		ng/L	1.96	30334-69-1	

Lab Sample ID: S35179.03 (continued)

Sample Tag: 11969 Cedar Lake Rd-Field Blank

39 PFAs, Method: ASTMD7979-19M, Run Date: 04/21/22 23:18, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	Not detected	2.0		ng/L	1.96	67584-42-3	
PFEESA*	Not detected	2.0		ng/L	1.96	113507-82-7	
PFHxSA*	Not detected	2.0		ng/L	1.96	41997-13-1	
PFMBA*	Not detected	2.0		ng/L	1.96	863090-89-5	
PFMPA*	Not detected	2.0		ng/L	1.96	377-73-1	
PFPrS*	Not detected	2.0		ng/L	1.96	423-41-6	

Analytical Laboratory Report

Lab Sample ID: S35179.04
Sample Tag: Trip Blank Lot# BL220221
Collected Date/Time: 04/21/2022 00:01
Matrix: Water
COC Reference: 145405

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.23/6.91/9	ASTMD7979-19M	04/21/22 15:30	KCV	

Organics

39 PFAs, Method: ASTMD7979-19M, Run Date: 04/21/22 23:37, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	6.2		ng/L	2.08	375-22-4	
PFPeA*	Not detected	5.2		ng/L	2.08	2706-90-3	
4:2 FTSA*	Not detected	2.1		ng/L	2.08	757124-72-4	
PFHxA*	Not detected	2.1		ng/L	2.08	307-24-4	
PFBS*	Not detected	2.1		ng/L	2.08	375-73-5	
PFHpA*	Not detected	2.1		ng/L	2.08	375-85-9	
PFPeS*	Not detected	2.1		ng/L	2.08	2706-91-4	
6:2 FTSA*	Not detected	2.1		ng/L	2.08	27619-97-2	
PFOA*	Not detected	2.1		ng/L	2.08	335-67-1	
PFHxS*	Not detected	2.1		ng/L	2.08	355-46-4	
PFHxS-LN*	Not detected	2.1		ng/L	2.08	355-46-4-LN	
PFHxS-BR*	Not detected	2.1		ng/L	2.08	355-46-4-BR	
PFNA*	Not detected	2.1		ng/L	2.08	375-95-1	
8:2 FTSA*	Not detected	2.1		ng/L	2.08	39108-34-4	
PFHpS*	Not detected	2.1		ng/L	2.08	375-92-8	
PFDA*	Not detected	2.1		ng/L	2.08	335-76-2	
N-MeFOSAA*	Not detected	2.1		ng/L	2.08	2355-31-9	
EtFOSAA*	Not detected	2.1		ng/L	2.08	2991-50-6	
PFOS*	Not detected	2.1		ng/L	2.08	1763-23-1	
PFOS-LN*	Not detected	2.1		ng/L	2.08	1763-23-1-LN	
PFOS-BR*	Not detected	2.1		ng/L	2.08	1763-23-1-BR	
PFUnDA*	Not detected	2.1		ng/L	2.08	2058-94-8	
PFNS*	Not detected	2.1		ng/L	2.08	68259-12-1	
PFDoDA*	Not detected	2.1		ng/L	2.08	307-55-1	
PFDS*	Not detected	5.2		ng/L	2.08	335-77-3	
PFTrDA*	Not detected	2.1		ng/L	2.08	72629-94-8	
FOSA*	Not detected	2.1		ng/L	2.08	754-91-6	
PFTeDA*	Not detected	2.1		ng/L	2.08	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1		ng/L	2.08	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1		ng/L	2.08	756426-58-1	
ADONA*	Not detected	2.1		ng/L	2.08	919005-14-4	
HFPO-DA*	Not detected	2.1		ng/L	2.08	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	5.2		ng/L	2.08	812-70-4	
FPePA (5:3 FTCA)*	Not detected	5.2		ng/L	2.08	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	5.2		ng/L	2.08	356-02-5	
NFDHA*	Not detected	2.1		ng/L	2.08	151772-58-6	
PFBSA*	Not detected	2.1		ng/L	2.08	30334-69-1	

Lab Sample ID: S35179.04 (continued)

Sample Tag: Trip Blank Lot# BL220221

39 PFAs, Method: ASTMD7979-19M, Run Date: 04/21/22 23:37, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFECHS*	Not detected	2.1		ng/L	2.08	67584-42-3	
PFEESA*	Not detected	2.1		ng/L	2.08	113507-82-7	
PFHxSA*	Not detected	2.1		ng/L	2.08	41997-13-1	
PFMBA*	Not detected	2.1		ng/L	2.08	863090-89-5	
PFMPA*	Not detected	2.1		ng/L	2.08	377-73-1	
PFPrS*	Not detected	2.1		ng/L	2.08	423-41-6	

Merit Laboratories Login Checklist

Lab Set ID: S35179
Client: MDHHS (Michigan Dept. of Health and Human Services)
Project: Palo Area of Interest
Submitted: 04/21/2022 15:05 Login User: MMC

Attention: MDHHS Sampling
Address: MDHHS
333 S. Grand Avenue
Lansing, MI 48933

Phone: n/a FAX:
Email: mdhhs-sampling@michigan.gov

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 3.5
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

145405

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Kaitlyn DeFouw
COMPANY: MDHHS
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: FAX NO.: P.O. NO.:
E-MAIL ADDRESS: QUOTE NO.:

INVOICE TO

CONTACT NAME: Anthony Pavone ☐ SAME
COMPANY: MDHHS
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: Palo Area of Interest
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin A. Kasischke / Kevin A. Kasischke

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS-39 Analytes
35179.01	4-21-22	1230	11969 Cedar Lake Rd-FCI-A	DW	3	✓							✓
.02	4-21-22	1230	11969 Cedar Lake Rd-FCI-A-DUP	DW	3	✓							✓
.03	4-21-22	1230	11969 Cedar Lake Rd-Field Blank	DW	1	✓							✓
.04			Trip Blank Lot # BL220224										

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Kevin A. Kasischke - MDHHS (Sampler)	DATE 4-21-22	TIME 1505
RECEIVED BY: SIGNATURE/ORGANIZATION	M Clinton	DATE 4/21/22	TIME 1505
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

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

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

NOTES: TEMP. ON ARRIVAL 3.5

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

Rev. 5.18.12

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

**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

29 November 2022

Work Order: 2211207

Price: $4,000.00

Mike Jury
EGLE-RRD-LANSING
525 W. Allegan Street
Lansing, MI 48909

RE: PALO AREA OF INTEREST

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
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ENVIRONMENTAL LABORATORY

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Lansing, MI 48909
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FAX: (517) 335-9600

EGLE-RRD-LANSING	Project: PALO AREA OF INTEREST	
525 W. Allegan Street	Site Code: 08N06W02RW	**Reported:**
Lansing MI, 48909	Project Manager: Mike Jury	11/29/2022

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
4455 SOUTH ST	2211207-01	Drinking Water	11/17/2022	11/17/2022	
8460 JUDEVINE RD	2211207-02	Drinking Water	11/17/2022	11/17/2022	
8328 CHRUCH ST	2211207-03	Drinking Water	11/17/2022	11/17/2022	
5304 VAN VLECK RD	2211207-04	Drinking Water	11/17/2022	11/17/2022	
8269 MILL ST	2211207-05	Drinking Water	11/17/2022	11/17/2022	
8295 MILL ST	2211207-06	Drinking Water	11/17/2022	11/17/2022	
11681 CEDAR LAKE RD	2211207-07	Drinking Water	11/17/2022	11/17/2022	
11737 CEDAR LAKE RD	2211207-08	Drinking Water	11/17/2022	11/17/2022	
11750 CEDAR LAKE RD	2211207-09	Drinking Water	11/17/2022	11/17/2022	
8143 FRONT STREET	2211207-10	Drinking Water	11/17/2022	11/17/2022	
8244 JUDEVINE RD	2211207-11	Drinking Water	11/17/2022	11/17/2022	
8249 JUDEVINE RD	2211207-12	Drinking Water	11/17/2022	11/17/2022	
8071 JUDEVINE RD	2211207-13	Drinking Water	11/17/2022	11/17/2022	
8147 JUDEVINE RD	2211207-14	Drinking Water	11/17/2022	11/17/2022	
8222 JUDEVINE RD	2211207-15	Drinking Water	11/17/2022	11/17/2022	
8241 JUDEVINE RD	2211207-16	Drinking Water	11/17/2022	11/17/2022	
FRB-1	2211207-17	Drinking Water	11/17/2022	11/17/2022	
FRB-2	2211207-18	Drinking Water	11/17/2022	11/17/2022	

Notes and Definitions

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 **11/17/2022 2:00:00PM** for client **EGLE-RRD-LANSING** as a part of project **PALO AREA OF INTEREST**.

Samples were logged and designated as Work Order # **2211207** on **11/18/2022 10:09:00AM**.

This Report was created **11/29/2022 2:32:28PM**.

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: 4455 SOUTH ST

Lab ID: 2211207-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*90.6 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*105 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*94.7 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*75.0 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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ENVIRONMENTAL LABORATORY

P.O. Box 30270
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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: 8460 JUDEVINE RD

Lab ID: 2211207-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*87.8 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*99.8 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*100 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*72.3 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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ENVIRONMENTAL LABORATORY

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

Client ID: 8328 CHRUCH ST

Lab ID: 2211207-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*86.8 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*99.8 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*101 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*77.8 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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ENVIRONMENTAL LABORATORY

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

Client ID: 5304 VAN VLECK RD

Lab ID: 2211207-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*94.4 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*103 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*101 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*85.4 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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: 8269 MILL ST

Lab ID: 2211207-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*91.0 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*100 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*96.1 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*85.3 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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: 8295 MILL ST

Lab ID: 2211207-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*89.3 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*95.7 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*93.1 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*80.5 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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: 11681 CEDAR LAKE RD

Lab ID: 2211207-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/22/22	B2K2325	537.1	AM	
Surrogate: 13C2-PFDA			*90.7 %*	*70-130*		*11/22/22*	B2K2325	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*111 %*	*70-130*		*11/22/22*	B2K2325	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*111 %*	*70-130*		*11/22/22*	B2K2325	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*71.8 %*	*70-130*		*11/22/22*	B2K2325	*537.1*	*AM*	

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: 11737 CEDAR LAKE RD

Lab ID: 2211207-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*88.7 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*100 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*99.1 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*76.2 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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: 11750 CEDAR LAKE RD

Lab ID: 2211207-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*86.9 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*101 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*97.8 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*72.4 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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: 8143 FRONT STREET

Lab ID: 2211207-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*91.9 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*104 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*98.8 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*87.9 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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: 8244 JUDEVINE RD

Lab ID: 2211207-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	**PFBS**	**4**	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*94.8 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*102 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*102 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*88.7 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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: 8249 JUDEVINE RD

Lab ID: 2211207-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*90.6 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*101 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*100 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*80.3 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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: 8071 JUDEVINE RD

Lab ID: 2211207-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*95.1 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*104 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*103 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*82.9 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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: 8147 JUDEVINE RD

Lab ID: 2211207-14

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*93.7 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*102 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*102 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*89.4 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: 8222 JUDEVINE RD

Lab ID: 2211207-15

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*93.7 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*104 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*102 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*82.1 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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

Client ID: 8241 JUDEVINE RD

Lab ID: 2211207-16

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*93.7 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*104 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*99.7 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*87.6 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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

Client ID: FRB-1

Lab ID: 2211207-17

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*90.3 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*103 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*102 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*78.6 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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: FRB-2

Lab ID: 2211207-18

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	11/21/22	B2K2112	537.1	AM	
Surrogate: 13C2-PFDA			*96.2 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*107 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*104 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*87.7 %*	*70-130*		*11/21/22*	B2K2112	*537.1*	*AM*	

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
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 B2K2112 - Method: 537.1				**Prepared: 11/21/2022**							
Blank (B2K2112-BLK1)											
11Cl-PF3OUdS	ND	2	ng/L							11/21/2022	
9Cl-PF3ONS	ND	2	ng/L							11/21/2022	
ADONA	ND	2	ng/L							11/21/2022	
HFPO-DA	ND	2	ng/L							11/21/2022	
NEtFOSAA	ND	2	ng/L							11/21/2022	
NMeFOSAA	ND	2	ng/L							11/21/2022	
PFBS	ND	2	ng/L							11/21/2022	
PFDA	ND	2	ng/L							11/21/2022	
PFDoA	ND	2	ng/L							11/21/2022	
PFHpA	ND	2	ng/L							11/21/2022	
PFHxA	ND	2	ng/L							11/21/2022	
PFHxS	ND	2	ng/L							11/21/2022	
PFNA	ND	2	ng/L							11/21/2022	
PFOA	ND	2	ng/L							11/21/2022	
PFOS	ND	2	ng/L							11/21/2022	
PFTA	ND	2	ng/L							11/21/2022	
PFTrDA	ND	2	ng/L							11/21/2022	
PFUnA	ND	2	ng/L							11/21/2022	
Surrogate: 13C2-PFDA	*37.9*		ng/L	*40.00*		*94.8*	*70-130*			11/21/2022	
Surrogate: 13C2-PFHxA	*39.5*		ng/L	*40.00*		*98.6*	*70-130*			11/21/2022	
Surrogate: 13C3-HFPO-DA	*39.4*		ng/L	*40.00*		*98.4*	*70-130*			11/21/2022	
Surrogate: d5-NEtFOSAA	*136*		ng/L	*160.0*		*85.3*	*70-130*			11/21/2022	
LCS (B2K2112-BS1)											
11Cl-PF3OUdS	38.0	2	ng/L	37.60		101	70-130			11/21/2022	
9Cl-PF3ONS	38.3	2	ng/L	37.20		103	70-130			11/21/2022	
ADONA	39.7	2	ng/L	37.80		105	70-130			11/21/2022	
HFPO-DA	39.6	2	ng/L	40.00		99.0	70-130			11/21/2022	
NEtFOSAA	38.7	2	ng/L	40.00		96.8	70-130			11/21/2022	
NMeFOSAA	38.9	2	ng/L	40.00		97.1	70-130			11/21/2022	
PFBS	32.6	2	ng/L	35.40		92.2	70-130			11/21/2022	
PFDA	38.5	2	ng/L	40.00		96.2	70-130			11/21/2022	
PFDoA	38.6	2	ng/L	40.00		96.5	70-130			11/21/2022	
PFHpA	42.8	2	ng/L	40.00		107	70-130			11/21/2022	
PFHxA	40.4	2	ng/L	40.00		101	70-130			11/21/2022	
PFHxS	38.2	2	ng/L	36.48		105	70-130			11/21/2022	
PFNA	40.7	2	ng/L	40.00		102	70-130			11/21/2022	
PFOA	41.0	2	ng/L	40.00		103	70-130			11/21/2022	
PFOS	38.2	2	ng/L	37.02		103	70-130			11/21/2022	
PFTA	42.3	2	ng/L	40.00		106	70-130			11/21/2022	
PFTrDA	40.7	2	ng/L	40.00		102	70-130			11/21/2022	
PFUnA	39.6	2	ng/L	40.00		99.0	70-130			11/21/2022	
Surrogate: 13C2-PFDA	*36.9*		ng/L	*40.00*		*92.3*	*70-130*			11/21/2022	
Surrogate: 13C2-PFHxA	*37.6*		ng/L	*40.00*		*93.9*	*70-130*			11/21/2022	
Surrogate: 13C3-HFPO-DA	*38.7*		ng/L	*40.00*		*96.8*	*70-130*			11/21/2022	
Surrogate: d5-NEtFOSAA	*135*		ng/L	*160.0*		*84.6*	*70-130*			11/21/2022	
Batch B2K2325 - Method: 537.1				**Prepared: 11/22/2022**							

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
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 B2K2325 - Method: 537.1				**Prepared: 11/22/2022**							
Blank (B2K2325-BLK1)											
11Cl-PF3OUdS	ND	2	ng/L							11/22/2022	
9Cl-PF3ONS	ND	2	ng/L							11/22/2022	
ADONA	ND	2	ng/L							11/22/2022	
HFPO-DA	ND	2	ng/L							11/22/2022	
NEtFOSAA	ND	2	ng/L							11/22/2022	
NMeFOSAA	ND	2	ng/L							11/22/2022	
PFBS	ND	2	ng/L							11/22/2022	
PFDA	ND	2	ng/L							11/22/2022	
PFDoA	ND	2	ng/L							11/22/2022	
PFHpA	ND	2	ng/L							11/22/2022	
PFHxA	ND	2	ng/L							11/22/2022	
PFHxS	ND	2	ng/L							11/22/2022	
PFNA	ND	2	ng/L							11/22/2022	
PFOA	ND	2	ng/L							11/22/2022	
PFOS	ND	2	ng/L							11/22/2022	
PFTA	ND	2	ng/L							11/22/2022	
PFTrDA	ND	2	ng/L							11/22/2022	
PFUnA	ND	2	ng/L							11/22/2022	
Surrogate: 13C2-PFDA	*39.5*		ng/L	*40.00*		*98.7*	*70-130*			11/22/2022	
Surrogate: 13C2-PFHxA	*38.7*		ng/L	*40.00*		*96.8*	*70-130*			11/22/2022	
Surrogate: 13C3-HFPO-DA	*40.2*		ng/L	*40.00*		*100*	*70-130*			11/22/2022	
Surrogate: d5-NEtFOSAA	*137*		ng/L	*160.0*		*85.8*	*70-130*			11/22/2022	
LCS (B2K2325-BS1)											
11Cl-PF3OUdS	93.8	2	ng/L	94.00		99.8	70-130			11/22/2022	
9Cl-PF3ONS	93.9	2	ng/L	93.00		101	70-130			11/22/2022	
ADONA	97.0	2	ng/L	94.50		103	70-130			11/22/2022	
HFPO-DA	101	2	ng/L	100.0		101	70-130			11/22/2022	
NEtFOSAA	93.0	2	ng/L	100.0		93.0	70-130			11/22/2022	
NMeFOSAA	91.7	2	ng/L	100.0		91.7	70-130			11/22/2022	
PFBS	90.0	2	ng/L	88.50		102	70-130			11/22/2022	
PFDA	94.3	2	ng/L	100.0		94.3	70-130			11/22/2022	
PFDoA	99.5	2	ng/L	100.0		99.5	70-130			11/22/2022	
PFHpA	111	2	ng/L	100.0		111	70-130			11/22/2022	
PFHxA	104	2	ng/L	100.0		104	70-130			11/22/2022	
PFHxS	94.7	2	ng/L	91.20		104	70-130			11/22/2022	
PFNA	98.8	2	ng/L	100.0		98.8	70-130			11/22/2022	
PFOA	104	2	ng/L	100.0		104	70-130			11/22/2022	
PFOS	95.3	2	ng/L	92.55		103	70-130			11/22/2022	
PFTA	106	2	ng/L	100.0		106	70-130			11/22/2022	
PFTrDA	107	2	ng/L	100.0		107	70-130			11/22/2022	
PFUnA	96.6	2	ng/L	100.0		96.6	70-130			11/22/2022	
Surrogate: 13C2-PFDA	*38.1*		ng/L	*40.00*		*95.2*	*70-130*			11/22/2022	
Surrogate: 13C2-PFHxA	*41.3*		ng/L	*40.00*		*103*	*70-130*			11/22/2022	
Surrogate: 13C3-HFPO-DA	*42.6*		ng/L	*40.00*		*107*	*70-130*			11/22/2022	
Surrogate: d5-NEtFOSAA	*127*		ng/L	*160.0*		*79.4*	*70-130*			11/22/2022	

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

PFAS Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
221207	Palo Area of Interest	DRINKING WATER

Location ID	Program	Report CC Email 1	Project TAT Days*	Sample Collector
08N06W02RW	MPART	RuhalaS@michigan.gov		Sydney Ruhala
Dept-Division-District	**Activity**	**Report CC Email 2**	**Report Batch QC**	**Sample Collector Phone**
RRD			Yes [X] No [ ]	517-599-5356
	Funding Source	**Report CC Email 3**		
State Project Manager	M99953571		**Lab Use Only**	**Contract Firm**
Mike Jury			Sample Receipt Temperature: 4.0 °C	
State Project Manager Email	**Location Code**	**Overflow Lab Choice 1**		**Contract Firm Primary Contact**
JuryM1@michigan.gov	63336			
State Project Manager Phone	**SUD Location Code**	**Overflow Lab Choice 2**	Received On Ice: Yes [X] No [ ]	**Primary Contact Phone**
517-242-9578				

*** 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		4455 South St	11/17/22	9:30	2	inside tap, untreated
2		8460 Judevine Rd	11/17/22	9:45	2	inside tap, water softener
3		8328 Church St	11/17/22	10:00	2	outside spigot
4		5304 Van Vleck Rd	11/17/22	10:10	2	outside spigot near barn
5		8269 Mill St	11/17/22	10:25	2	inside tap, untreated
6		8295 Mill St	11/17/22	10:45	2	inside tap
7		11681 Cedar Lake Rd	11/17/22	11:00	2	outside spigot
8		11737 Cedar Lake Rd	11/17/22	11:10	2	outside spigot
9		11750 Cedar Lake Rd	11/17/22	11:15	2	outside spigot
10		8143 Front Street	11/17/22	11:35	2	outside spigot
11		8244 Judevine Rd	11/17/22	11:45	2	outside spigot
12		8249 Judevine Rd	11/17/22	11:55	2	outside spigot
13		8071 Judevine Rd	11/17/22	12:05	2	inside tap, untreated
14		8147 Judevine Rd	11/17/22	12:15	2	outside spigot
15		8222 Judevine Rd	11/17/22	12:25	2	outside spigot
16		8241 Judevine Rd	11/17/22	12:35	2	inside tap, untreated
17		FRB-1	11/17/22	12:40	1	
18		FRB-2	11/17/22	12:40	1	
19				:		
20				:		

PFAS - Semi-Volatile Organic Compounds

PFAS - EPA 537.1

Chain of Custody

	Relinquished by	Received By	Date / Time
Print Name & Org.	Sydney Ruhala EGLE	Melissa Smith	11/17/22 2:00
Signature:	Sydney Ruhala		
Print Name & Org.			11/17/22 [illegible]
Signature:			
Print Name			

Appendix E – 2023 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

16 March 2023

Work Order: 2303062

Price: $500.00

Mike Jury
EGLE-RRD-LANSING
525 W. Allegan Street
Lansing, MI 48909

RE: PALO AREA OF INTEREST

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-LANSING	Project: PALO AREA OF INTEREST	
525 W. Allegan Street	Site Code: 08N06W02RW	**Reported:**
Lansing MI, 48909	Project Manager: Mike Jury	03/16/2023

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
FB2303101050JW	2303062-01	Drinking Water	03/10/2023	03/10/2023	
WT2303101050JW	2303062-02	Drinking Water	03/10/2023	03/10/2023	
WT2303101050JW-DUP	2303062-03	Drinking Water	03/10/2023	03/10/2023	

Notes and Definitions

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 **3/10/2023 12:30:00PM** for client **EGLE-RRD-LANSING** as a part of project **PALO AREA OF INTEREST**.

Samples were logged and designated as Work Order # **2303062** on **3/10/2023 1:59:00PM**.

This Report was created **3/16/2023 5:26:42PM**.

Additional Notes/Narrative (if applicable):

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

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: FB2303101050JW

Lab ID: 2303062-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
Surrogate: 13C2-PFDA			*104 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*99.6 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*111 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*90.9 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	

EGLE
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

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: WT2303101050JW

Lab ID: 2303062-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
Surrogate: 13C2-PFDA			*102 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*111 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*113 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*82.0 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	

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MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

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: WT2303101050JW-DUP

Lab ID: 2303062-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	03/13/23	B3C1304	537.1	AM	
Surrogate: 13C2-PFDA			*93.5 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*99.0 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*106 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*75.8 %*	*70-130*		*03/13/23*	B3C1304	*537.1*	*AM*	

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ENVIRONMENTAL LABORATORY

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Lansing, MI 48909
TEL: (517) 335-9800
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 B3C1304 - Method: 537.1				**Prepared: 03/13/2023**							
Blank (B3C1304-BLK1)											
11Cl-PF3OUdS	ND	2	ng/L							03/13/2023	
9Cl-PF3ONS	ND	2	ng/L							03/13/2023	
ADONA	ND	2	ng/L							03/13/2023	
HFPO-DA	ND	2	ng/L							03/13/2023	
NEtFOSAA	ND	2	ng/L							03/13/2023	
NMeFOSAA	ND	2	ng/L							03/13/2023	
PFBS	ND	2	ng/L							03/13/2023	
PFDA	ND	2	ng/L							03/13/2023	
PFDoA	ND	2	ng/L							03/13/2023	
PFHpA	ND	2	ng/L							03/13/2023	
PFHxA	ND	2	ng/L							03/13/2023	
PFHxS	ND	2	ng/L							03/13/2023	
PFNA	ND	2	ng/L							03/13/2023	
PFOA	ND	2	ng/L							03/13/2023	
PFOS	ND	2	ng/L							03/13/2023	
PFTA	ND	2	ng/L							03/13/2023	
PFTrDA	ND	2	ng/L							03/13/2023	
PFUnA	ND	2	ng/L							03/13/2023	
Surrogate: 13C2-PFDA	*42.6*		ng/L	*40.00*		*107*	*70-130*			03/13/2023	
Surrogate: 13C2-PFHxA	*41.8*		ng/L	*40.00*		*105*	*70-130*			03/13/2023	
Surrogate: 13C3-HFPO-DA	*45.8*		ng/L	*40.00*		*114*	*70-130*			03/13/2023	
Surrogate: d5-NEtFOSAA	*152*		ng/L	*160.0*		*95.2*	*70-130*			03/13/2023	
LCS (B3C1304-BS1)											
11Cl-PF3OUdS	36.1	2	ng/L	37.60		95.9	70-130			03/13/2023	
9Cl-PF3ONS	34.8	2	ng/L	37.20		93.4	70-130			03/13/2023	
ADONA	36.3	2	ng/L	37.80		96.1	70-130			03/13/2023	
HFPO-DA	39.5	2	ng/L	40.00		98.9	70-130			03/13/2023	
NEtFOSAA	34.8	2	ng/L	40.00		87.0	70-130			03/13/2023	
NMeFOSAA	36.4	2	ng/L	40.00		90.9	70-130			03/13/2023	
PFBS	32.8	2	ng/L	35.40		92.7	70-130			03/13/2023	
PFDA	38.9	2	ng/L	40.00		97.2	70-130			03/13/2023	
PFDoA	37.1	2	ng/L	40.00		92.8	70-130			03/13/2023	
PFHpA	38.4	2	ng/L	40.00		96.1	70-130			03/13/2023	
PFHxA	36.9	2	ng/L	40.00		92.3	70-130			03/13/2023	
PFHxS	35.0	2	ng/L	36.48		96.1	70-130			03/13/2023	
PFNA	38.7	2	ng/L	40.00		96.8	70-130			03/13/2023	
PFOA	39.1	2	ng/L	40.00		97.8	70-130			03/13/2023	
PFOS	34.2	2	ng/L	37.02		92.3	70-130			03/13/2023	
PFTA	40.0	2	ng/L	40.00		100	70-130			03/13/2023	
PFTrDA	38.1	2	ng/L	40.00		95.4	70-130			03/13/2023	
PFUnA	37.2	2	ng/L	40.00		93.1	70-130			03/13/2023	
Surrogate: 13C2-PFDA	*42.0*		ng/L	*40.00*		*105*	*70-130*			03/13/2023	
Surrogate: 13C2-PFHxA	*40.7*		ng/L	*40.00*		*102*	*70-130*			03/13/2023	
Surrogate: 13C3-HFPO-DA	*45.6*		ng/L	*40.00*		*114*	*70-130*			03/13/2023	
Surrogate: d5-NEtFOSAA	*147*		ng/L	*160.0*		*91.9*	*70-130*			03/13/2023	
Matrix Spike (B3C1304-MS1)	**Source: 2303062-02**										
11Cl-PF3OUdS	30.2	2	ng/L	34.57	ND	87.4	70-130			03/13/2023	
9Cl-PF3ONS	30.3	2	ng/L	34.20	ND	88.6	70-130			03/13/2023	

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
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 B3C1304 - Method: 537.1				**Prepared: 03/13/2023**							
Matrix Spike (B3C1304-MS1)	**Source: 2303062-02**										
ADONA	32.8	2	ng/L	34.75	ND	94.4	70-130			03/13/2023	
HFPO-DA	35.0	2	ng/L	36.78	ND	95.1	70-130			03/13/2023	
NEtFOSAA	26.6	2	ng/L	36.78	ND	72.2	70-130			03/13/2023	
NMeFOSAA	28.3	2	ng/L	36.78	ND	76.9	70-130			03/13/2023	
PFBS	29.9	2	ng/L	32.55	ND	91.9	70-130			03/13/2023	
PFDA	33.4	2	ng/L	36.78	ND	90.8	70-130			03/13/2023	
PFDoA	31.1	2	ng/L	36.78	ND	84.6	70-130			03/13/2023	
PFHpA	34.4	2	ng/L	36.78	ND	93.4	70-130			03/13/2023	
PFHxA	32.9	2	ng/L	36.78	ND	89.5	70-130			03/13/2023	
PFHxS	32.0	2	ng/L	33.54	0.0778	95.0	70-130			03/13/2023	
PFNA	34.4	2	ng/L	36.78	ND	93.5	70-130			03/13/2023	
PFOA	36.0	2	ng/L	36.78	ND	97.8	70-130			03/13/2023	
PFOS	30.3	2	ng/L	34.04	ND	89.0	70-130			03/13/2023	
PFTA	31.6	2	ng/L	36.78	ND	86.0	70-130			03/13/2023	
PFTrDA	31.1	2	ng/L	36.78	ND	84.5	70-130			03/13/2023	
PFUnA	31.6	2	ng/L	36.78	ND	86.0	70-130			03/13/2023	
Surrogate: 13C2-PFDA	*35.7*		ng/L	*36.78*		*97.2*	*70-130*			03/13/2023	
Surrogate: 13C2-PFHxA	*37.3*		ng/L	*36.78*		*102*	*70-130*			03/13/2023	
Surrogate: 13C3-HFPO-DA	*41.7*		ng/L	*36.78*		*113*	*70-130*			03/13/2023	
Surrogate: d5-NEtFOSAA	*112*		ng/L	*147.1*		*76.4*	*70-130*			03/13/2023	
Matrix Spike Dup (B3C1304-MSD1)	**Source: 2303062-02**										
11Cl-PF3OUdS	31.1	2	ng/L	34.76	ND	89.6	70-130	2.96	30	03/13/2023	
9Cl-PF3ONS	30.7	2	ng/L	34.39	ND	89.2	70-130	1.23	30	03/13/2023	
ADONA	32.7	2	ng/L	34.94	ND	93.5	70-130	0.338	30	03/13/2023	
HFPO-DA	34.7	2	ng/L	36.98	ND	93.9	70-130	0.742	30	03/13/2023	
NEtFOSAA	27.9	2	ng/L	36.98	ND	75.5	70-130	4.93	30	03/13/2023	
NMeFOSAA	29.7	2	ng/L	36.98	ND	80.3	70-130	4.83	30	03/13/2023	
PFBS	30.2	2	ng/L	32.72	ND	92.4	70-130	1.03	30	03/13/2023	
PFDA	33.6	2	ng/L	36.98	ND	90.8	70-130	0.543	30	03/13/2023	
PFDoA	31.4	2	ng/L	36.98	ND	84.9	70-130	0.893	30	03/13/2023	
PFHpA	34.5	2	ng/L	36.98	ND	93.2	70-130	0.342	30	03/13/2023	
PFHxA	33.2	2	ng/L	36.98	ND	89.8	70-130	0.843	30	03/13/2023	
PFHxS	32.2	2	ng/L	33.72	0.0778	95.1	70-130	0.654	30	03/13/2023	
PFNA	34.4	2	ng/L	36.98	ND	92.9	70-130	0.142	30	03/13/2023	
PFOA	36.5	2	ng/L	36.98	ND	98.7	70-130	1.41	30	03/13/2023	
PFOS	30.8	2	ng/L	34.22	ND	89.9	70-130	1.51	30	03/13/2023	
PFTA	31.3	2	ng/L	36.98	ND	84.6	70-130	1.12	30	03/13/2023	
PFTrDA	31.6	2	ng/L	36.98	ND	85.4	70-130	1.61	30	03/13/2023	
PFUnA	32.1	2	ng/L	36.98	ND	86.9	70-130	1.53	30	03/13/2023	
Surrogate: 13C2-PFDA	*35.3*		ng/L	*36.98*		*95.6*	*70-130*			03/13/2023	
Surrogate: 13C2-PFHxA	*36.3*		ng/L	*36.98*		*98.1*	*70-130*			03/13/2023	
Surrogate: 13C3-HFPO-DA	*39.9*		ng/L	*36.98*		*108*	*70-130*			03/13/2023	
Surrogate: d5-NEtFOSAA	*115*		ng/L	*147.9*		*77.5*	*70-130*			03/13/2023	

EGLE

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

PFAS Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
2303062	Palo Area of Interest	DRINKING WATER

Location ID: 08N06W02RW	Program: MPART	Report CC Email 1: RuhalaS@michigan.gov	Project TAT Days*:	Sample Collector: Joshua Walker	
Dept-Division-District: RRD	Activity:	Report CC Email 2: mdhhs-data-pfas@michigan.gov	Report Batch QC Yes [X] No [ ]	Sample Collector Phone: (616) 490-8403	
State Project Manager: Mike Jury	Funding Source: M99953571	Report CC Email 3: Emily.Daniels@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	01	FB2303101050JW	3/10/23	1050	1	8105 Judevine	; Field Blank
2	02	WT2303101050JW	3/10/23	1050	6	8105 Judevine	; Orig/MS/MSD
3	03	WT2303101050JW-Dup	3/10/23	1050	2	8105 Judevine	; 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. Joshua Walker AECOM Signature:		3/10/2022 12:30
Print Name & Org. Signature:		/2022 :
Print Name & Org. Signature:		/2022 :

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

06 April 2023

Work Order: 2303199

Price: $500.00

Mike Jury
EGLE-RRD-LANSING
525 W. Allegan Street
Lansing, MI 48909

RE: PALO AREA OF INTEREST

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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ENVIRONMENTAL LABORATORY

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Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

EGLE-RRD-LANSING	Project: PALO AREA OF INTEREST	
525 W. Allegan Street	Site Code: 08N06W02RW	**Reported:**
Lansing MI, 48909	Project Manager: Mike Jury	04/06/2023

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
FB2303281010TLO	2303199-01	Drinking Water	03/28/2023	03/30/2023	
WR2303281005TLO	2303199-02	Drinking Water	03/28/2023	03/30/2023	
WR2303281005TLO - DUP	2303199-03	Drinking Water	03/28/2023	03/30/2023	

Notes and Definitions

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 **3/30/2023 2:55:00PM** for client **EGLE-RRD-LANSING** as a part of project **PALO AREA OF INTEREST**.

Samples were logged and designated as Work Order # **2303199** on **3/31/2023 10:18:00AM**.

This Report was created **4/6/2023 8:42:20AM**.

Additional Notes/Narrative (if applicable):

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ENVIRONMENTAL LABORATORY

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

Client ID: FB2303281010TLO

Lab ID: 2303199-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
Surrogate: 13C2-PFDA			*94.1 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*92.2 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*87.2 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*95.2 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	

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ENVIRONMENTAL LABORATORY

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

Client ID: WR2303281005TLO

Lab ID: 2303199-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
Surrogate: 13C2-PFDA			*84.9 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*76.3 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*75.1 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*88.8 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	

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: WR2303281005TLO - DUP

Lab ID: 2303199-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Analyst	Qualifier
Organics-Semivolatiles										
763051-92-9	11Cl-PF3OUdS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
756426-58-1	9Cl-PF3ONS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
919005-14-4	ADONA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
13252-13-6	HFPO-DA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
2991-50-6	NEtFOSAA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
2355-31-9	NMeFOSAA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
375-73-5	PFBS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
335-76-2	PFDA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
307-55-1	PFDoA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
375-85-9	PFHpA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
307-24-4	PFHxA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
355-46-4	PFHxS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
375-95-1	PFNA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
335-67-1	PFOA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
1763-23-1	PFOS	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
376-06-7	PFTA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
72629-94-8	PFTrDA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
2058-94-8	PFUnA	ND	2	ng/L	1	04/04/23	B3D0316	537.1	AM	
Surrogate: 13C2-PFDA			*90.2 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	
Surrogate: 13C2-PFHxA			*77.2 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	
Surrogate: 13C3-HFPO-DA			*74.6 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	
Surrogate: d5-NEtFOSAA			*92.5 %*	*70-130*		*04/04/23*	B3D0316	*537.1*	*AM*	

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Lansing, MI 48909
TEL: (517) 335-9800
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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 B3D0316 - Method: 537.1				**Prepared: 04/03/2023**							
Blank (B3D0316-BLK1)											
11Cl-PF3OUdS	ND	2	ng/L							04/04/2023	
9Cl-PF3ONS	ND	2	ng/L							04/04/2023	
ADONA	ND	2	ng/L							04/04/2023	
HFPO-DA	ND	2	ng/L							04/04/2023	
NEtFOSAA	ND	2	ng/L							04/04/2023	
NMeFOSAA	ND	2	ng/L							04/04/2023	
PFBS	ND	2	ng/L							04/04/2023	
PFDA	ND	2	ng/L							04/04/2023	
PFDoA	ND	2	ng/L							04/04/2023	
PFHpA	ND	2	ng/L							04/04/2023	
PFHxA	ND	2	ng/L							04/04/2023	
PFHxS	ND	2	ng/L							04/04/2023	
PFNA	ND	2	ng/L							04/04/2023	
PFOA	ND	2	ng/L							04/04/2023	
PFOS	ND	2	ng/L							04/04/2023	
PFTA	ND	2	ng/L							04/04/2023	
PFTrDA	ND	2	ng/L							04/04/2023	
PFUnA	ND	2	ng/L							04/04/2023	
Surrogate: 13C2-PFDA	*41.0*		ng/L	*40.00*		*102*	*70-130*			04/04/2023	
Surrogate: 13C2-PFHxA	*40.3*		ng/L	*40.00*		*101*	*70-130*			04/04/2023	
Surrogate: 13C3-HFPO-DA	*38.9*		ng/L	*40.00*		*97.2*	*70-130*			04/04/2023	
Surrogate: d5-NEtFOSAA	*163*		ng/L	*160.0*		*102*	*70-130*			04/04/2023	
LCS (B3D0316-BS1)											
11Cl-PF3OUdS	1.91	2	ng/L	1.880		101	70-130			04/04/2023	
9Cl-PF3ONS	1.83	2	ng/L	1.860		98.6	70-130			04/04/2023	
ADONA	1.88	2	ng/L	1.890		99.4	70-130			04/04/2023	
HFPO-DA	1.85	2	ng/L	2.000		92.4	70-130			04/04/2023	
NEtFOSAA	2.37	2	ng/L	2.000		118	70-130			04/04/2023	
NMeFOSAA	1.99	2	ng/L	2.000		99.4	70-130			04/04/2023	
PFBS	1.57	2	ng/L	1.770		88.5	70-130			04/04/2023	
PFDA	2.07	2	ng/L	2.000		104	70-130			04/04/2023	
PFDoA	1.94	2	ng/L	2.000		97.0	70-130			04/04/2023	
PFHpA	2.15	2	ng/L	2.000		108	70-130			04/04/2023	
PFHxA	1.92	2	ng/L	2.000		96.2	70-130			04/04/2023	
PFHxS	1.85	2	ng/L	1.824		102	70-130			04/04/2023	
PFNA	2.27	2	ng/L	2.000		113	70-130			04/04/2023	
PFOA	2.17	2	ng/L	2.000		108	70-130			04/04/2023	
PFOS	2.02	2	ng/L	1.851		109	70-130			04/04/2023	
PFTA	1.92	2	ng/L	2.000		95.8	70-130			04/04/2023	
PFTrDA	1.88	2	ng/L	2.000		93.9	70-130			04/04/2023	
PFUnA	2.11	2	ng/L	2.000		105	70-130			04/04/2023	
Surrogate: 13C2-PFDA	*37.5*		ng/L	*40.00*		*93.7*	*70-130*			04/04/2023	
Surrogate: 13C2-PFHxA	*35.3*		ng/L	*40.00*		*88.2*	*70-130*			04/04/2023	
Surrogate: 13C3-HFPO-DA	*34.5*		ng/L	*40.00*		*86.3*	*70-130*			04/04/2023	
Surrogate: d5-NEtFOSAA	*151*		ng/L	*160.0*		*94.4*	*70-130*			04/04/2023	
Matrix Spike (B3D0316-MS1)	**Source: 2303199-02**										
11Cl-PF3OUdS	1.66	2	ng/L	1.694	ND	97.7	70-130			04/04/2023	
9Cl-PF3ONS	1.63	2	ng/L	1.676	ND	97.2	70-130			04/04/2023	

EGLE
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

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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 B3D0316 - Method: 537.1				**Prepared: 04/03/2023**							
Matrix Spike (B3D0316-MS1)	**Source: 2303199-02**										
ADONA	1.36	2	ng/L	1.703	ND	80.1	70-130			04/04/2023	
HFPO-DA	1.49	2	ng/L	1.802	ND	82.6	70-130			04/04/2023	
NEtFOSAA	1.92	2	ng/L	1.802	ND	107	70-130			04/04/2023	
NMeFOSAA	1.86	2	ng/L	1.802	ND	103	70-130			04/04/2023	
PFBS	1.69	2	ng/L	1.595	ND	106	70-130			04/04/2023	
PFDA	1.77	2	ng/L	1.802	ND	98.2	70-130			04/04/2023	
PFDoA	1.60	2	ng/L	1.802	ND	89.0	70-130			04/04/2023	
PFHpA	1.50	2	ng/L	1.802	ND	83.1	70-130			04/04/2023	
PFHxA	1.56	2	ng/L	1.802	ND	86.4	70-130			04/04/2023	
PFHxS	1.58	2	ng/L	1.643	0.150	87.3	70-130			04/04/2023	
PFNA	1.98	2	ng/L	1.802	0.0411	107	70-130			04/04/2023	
PFOA	1.96	2	ng/L	1.802	ND	109	70-130			04/04/2023	
PFOS	1.72	2	ng/L	1.668	ND	103	70-130			04/04/2023	
PFTA	1.52	2	ng/L	1.802	ND	84.3	70-130			04/04/2023	
PFTrDA	1.51	2	ng/L	1.802	ND	84.0	70-130			04/04/2023	
PFUnA	1.71	2	ng/L	1.802	ND	95.0	70-130			04/04/2023	
Surrogate: 13C2-PFDA	*32.3*		ng/L	*36.04*		*89.5*	*70-130*			04/04/2023	
Surrogate: 13C2-PFHxA	*28.1*		ng/L	*36.04*		*78.0*	*70-130*			04/04/2023	
Surrogate: 13C3-HFPO-DA	*26.3*		ng/L	*36.04*		*72.9*	*70-130*			04/04/2023	
Surrogate: d5-NEtFOSAA	*132*		ng/L	*144.1*		*91.2*	*70-130*			04/04/2023	
Matrix Spike Dup (B3D0316-MSD1)	**Source: 2303199-02**										
11Cl-PF3OUdS	1.65	2	ng/L	1.724	ND	95.8	70-130	0.174	30	04/04/2023	
9Cl-PF3ONS	1.73	2	ng/L	1.706	ND	101	70-130	5.99	30	04/04/2023	
ADONA	1.42	2	ng/L	1.733	ND	81.9	70-130	4.06	30	04/04/2023	
HFPO-DA	1.52	2	ng/L	1.834	ND	82.9	70-130	2.21	30	04/04/2023	
NEtFOSAA	1.98	2	ng/L	1.834	ND	108	70-130	3.29	30	04/04/2023	
NMeFOSAA	2.04	2	ng/L	1.834	ND	111	70-130	9.26	30	04/04/2023	
PFBS	1.71	2	ng/L	1.623	ND	105	70-130	1.46	30	04/04/2023	
PFDA	1.87	2	ng/L	1.834	ND	102	70-130	5.71	30	04/04/2023	
PFDoA	1.77	2	ng/L	1.834	ND	96.7	70-130	10.1	30	04/04/2023	
PFHpA	1.51	2	ng/L	1.834	ND	82.4	70-130	1.01	30	04/04/2023	
PFHxA	1.67	2	ng/L	1.834	ND	90.8	70-130	6.81	30	04/04/2023	
PFHxS	1.66	2	ng/L	1.673	0.150	90.0	70-130	4.33	30	04/04/2023	
PFNA	2.06	2	ng/L	1.834	0.0411	110	70-130	4.08	30	04/04/2023	
PFOA	2.02	2	ng/L	1.834	ND	110	70-130	2.93	30	04/04/2023	
PFOS	1.77	2	ng/L	1.698	ND	104	70-130	2.61	30	04/04/2023	
PFTA	1.84	2	ng/L	1.834	ND	100	70-130	19.2	30	04/04/2023	
PFTrDA	1.84	2	ng/L	1.834	ND	100	70-130	19.2	30	04/04/2023	
PFUnA	1.87	2	ng/L	1.834	ND	102	70-130	8.94	30	04/04/2023	
Surrogate: 13C2-PFDA	*34.3*		ng/L	*36.68*		*93.6*	*70-130*			04/04/2023	
Surrogate: 13C2-PFHxA	*28.6*		ng/L	*36.68*		*77.9*	*70-130*			04/04/2023	
Surrogate: 13C3-HFPO-DA	*27.6*		ng/L	*36.68*		*75.3*	*70-130*			04/04/2023	
Surrogate: d5-NEtFOSAA	*146*		ng/L	*146.7*		*99.5*	*70-130*			04/04/2023	

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

PFAS Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
230319	Palo Area of Interest	DRINKING WATER

Location ID	Program	Report CC Email 1	Project TAT Days*	Sample Collector
08N06W02RW	MPART	RuhalaS@michigan.gov		Traci McWhorter-Ott
Dept-Division-District	**Activity**	**Report CC Email 2**	**Report Batch QC**	**Sample Collector Phone**
RRD		mdhhs-data-pfas@michigan.gov	Yes [X] No [ ]	314-382-9333
State Project Manager	**Funding Source**	**Report CC Email 3**	**Lab Use Only**	**Contract Firm**
Mike Jury	M99953571	Emily.Daniels@aecom.com	Sample Receipt Temperature: 3.1 °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	FB230324 1010 TLO	3/24/23	10:10	1	8619 Jude vine ; Field Blank
2	02	WR230324 1005 TLO	3/24/23	10:05	6	8619 Jude vine ; Orig/MS/MSD
3	03	WR230324 1005 TLO-DUP	3/24/23	10:05	2	8619 Jude vine ; 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.: Traci McWhorter-Ott / AECOM		
Signature: Traci McWhorter-Ott		3/30/2023 14:55
Print Name & Org.:		/ /2023 :
Signature:		
Print Name & Org.:		/ /2023 :
Signature:		