From: Altenbach, Lanette <Lanette.Altenbach@aecom.com>
Sent: Thursday, February 17, 2022 10:12 AM
To: Beggs, Tauren R - DNR
Subject: RE: Update for Sampling for Mirro Co Plant 2 (Former)
Attachments: Frmr Mirro#2PW_Laboratory Data Validation.pdf; Table 1 Summary of PFAS in PW.pdf; Summary_2112147 Revision 1.pdf

Hi Tauren,
I have attached the laboratory data validation memo, the final tabulated results and the laboratory analytical report.
The data was valid as provided to you in the draft.
Let me know if you need any other documentation to complete this project.

Lanette,
414-944-6186

From: Beggs, Tauren R - DNR <Tauren.Beggs@wisconsin.gov>
Sent: Wednesday, February 16, 2022 3:50 PM
To: Altenbach, Lanette <Lanette.Altenbach@aecom.com>
Subject: [EXTERNAL] RE: Update for Sampling for Mirro Co Plant 2 (Former)

Hi Lanette,

Did you ever get a corrected lab data package from the lab? DNR already used the data provided to notify the residents and other limited actions DNR took, but still would be good to get the corrected version.

Regards,

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Tauren R. Beggs
Phone: (920) 510-3472
Tauren.Beggs@wisconsin.gov (preferred contact method during work at home)

From: Altenbach, Lanette <Lanette.Altenbach@aecom.com>
Sent: Friday, January 14, 2022 12:02 PM
To: Beggs, Tauren R - DNR <Tauren.Beggs@wisconsin.gov>
Subject: RE: Update for Sampling for Mirro Co Plant 2 (Former)

Hi Tauren,
I have attached a draft table of results and included a copy of the laboratory analytical report.
I am still waiting on the lab for a corrected lab data package so that we can validate the data. In the meantime, I believe the data is valid and useable.

Lanette,
414-944-6186

From: Beggs, Tauren R - DNR <Tauren.Beggs@wisconsin.gov>
Sent: Friday, January 14, 2022 10:06 AM
To: Altenbach, Lanette <Lanette.Altenbach@aecom.com>
Subject: [EXTERNAL] RE: Update for Sampling for Mirro Co Plant 2 (Former)

Good morning Lanette,

Any results yet? I keep getting asked by other DNR staff because the externals are asking us.

Please let me know.

Regards,

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Tauren R. Beggs
Phone: (920) 510-3472
Tauren.Beggs@wisconsin.gov (preferred contact method during work at home)

From: Altenbach, Lanette <Lanette.Altenbach@aecom.com>
Sent: Monday, January 10, 2022 1:09 PM
To: Beggs, Tauren R - DNR <Tauren.Beggs@wisconsin.gov>
Subject: RE: Update for Sampling for Mirro Co Plant 2 (Former)

Hi Tauren,
I double checked the sample receipt from the laboratory and it says the results are due today. Based on my experience that may mean by the end of today as a calendar day. I have had no other emails to indicate there would be a reporting delay. I will share as soon as we get the results.
Regards,

Lanette,
414-944-6186

From: Beggs, Tauren R - DNR <Tauren.Beggs@wisconsin.gov>
Sent: Monday, January 10, 2022 12:49 PM
To: Altenbach, Lanette <Lanette.Altenbach@aecom.com>
Subject: [EXTERNAL] Update for Sampling for Mirro Co Plant 2 (Former)

Hi Lanette,

Do you have an idea of when we will be getting the private well results back from the lab? I am assuming they should be coming back from the lab sometime this week based on your estimated timeframe you provided before the holidays.

Thanks,

We are committed to service excellence.

Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Tauren R. Beggs
Hydrogeologist & Northeast Region Land Recycling Expert
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
2984 Shawano Ave
Green Bay, WI 54313
Phone: (920) 510-3472
Tauren.Beggs@wisconsin.gov (preferred contact method during work at home)

dnr.wi.gov

Table 1
Laboratory Analytical Results of PFAS in Private Wells
Former Mirro Plant #2
Manitowoc, Wisconsin

						Location:	1750 Mirro Dr	2519 Woodland Dr	2722 Woodland Dr	3104 Woodland Dr
						Sample Date:	12/15/2021	12/15/2021	12/16/2021	12/16/2021
Abbr	**Analyte**	**Cas Number**	**Units**	**ES (proposed)**	**PAL (proposed)**					
Carboxylic Acids:										
PFBA	Perfluorobutanoic acid (PFBA)	375-22-4	ng/L	10,000	2,000		< 0.991 U	< 1.02 U	< 1.02 U	< 1.03 U
PFPeA	Perfluoropentanoic acid (PFPeA)	2706-90-3	ng/L	--	--		< 0.741 U	< 0.76 U	< 0.76 U	< 0.77 U
PFHxA	Perfluorohexanoic acid (PFHxA)	307-24-4	ng/L	150,000	30,000		< 0.8 U	< 0.82 U	< 0.82 U	< 0.831 U
PFHpA	Perfluoroheptanoic acid (PFHpA)	375-85-9	ng/L	--	--		< 0.918 U	< 0.941 U	0.942 J	< 0.953 U
PFOA	Perfluorooctanoic acid (PFOA)	335-67-1	ng/L	20[c]	2[c]		< 0.937 U	< 0.961 U	*8.98*	< 0.974 U
PFNA	Perfluorononanoic acid (PFNA)	375-95-1	ng/L	30	3		< 0.741 U	< 0.76 U	< 0.76 U	< 0.77 U
PFDA	Perfluorodecanoic acid (PFDA)	335-76-2	ng/L	300	60		< 0.927 U	< 0.951 U	< 0.951 U	< 0.964 U
PFUnA	Perfluoroundecanoic acid (PFUnA)	2058-94-8	ng/L	3,000	600		< 0.741 U	< 0.76 U	< 0.76 U	< 0.77 U
PFDoA	Perfluorododecanoic acid (PFDoA)	307-55-1	ng/L	500	100		< 0.957 U	< 0.981 U	< 0.981 U	< 0.994 U
PFTrDA	Perfluorotridecanoic acid (PFTriA)	72629-94-8	ng/L	--	--		< 0.643 U	< 0.659 U	< 0.659 U	< 0.668 U
PFTeDA	Perfluorotetradecanoic acid (PFTeA)	376-06-7	ng/L	10,000	2,000		< 0.8 U	< 0.82 U	< 0.82 U	< 0.831 U
Sulfonic Acids:										
PFBS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	ng/L	450,000	90,000		< 0.888 U	< 0.911 U	< 0.911 U	< 0.923 U
PFPeS	Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	ng/L	--	--		< 0.805 U	< 0.825 U	< 0.825 U	< 0.836 U
PFHxS	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	ng/L	40	4		< 1.01 U	< 1.04 U	< 1.04 U	< 1.05 U
PFHpS	Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	ng/L	--	--		< 0.584 U	< 0.599 U	< 0.599 U	< 0.607 U
PFOS	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	ng/L	20[c]	2[c]		< 1.11 U	< 1.14 U	< 1.14 U	< 1.15 U
PFNS	Perfluorononanesulfonic acid (PFNS)	68259-12-1	ng/L	--	--		< 1.13 U	< 1.16 U	< 1.16 U	< 1.18 U
PFDS	Perfluorodecanesulfonic acid (PFDS)	335-77-3	ng/L	--	--		< 0.746 U	< 0.765 U	< 0.765 U	< 0.775 U
PFDoS	Perfluorododecanesulfonic acid (PFDoS)	79780-39-5	ng/L	--	--		< 1.39 U	< 1.42 U	< 1.42 U	< 1.44 U
4:2 FTS	4:2 FTS	757124-72-4	ng/L	--	--		< 0.932 U	< 0.956 U	< 0.956 U	< 0.969 U
6:2 FTS	6:2 FTS	27619-97-2	ng/L	--	--		< 1.1 U	< 1.13 U	< 1.13 U	< 1.15 U
8:2 FTS	8:2 FTS	39108-34-4	ng/L	--	--		< 1.11 U	< 1.14 U	< 1.14 U	< 1.16 U
Sulfonamides, Sulfomidoacetic acids, Sulfonamidoethanols:										
PFOSA	Perfluorooctanesulfonamide (PFOSA)	754-91-6	ng/L	20[c]	2[c]		*9.08*	**21.1**	**106**	*11.5*
NMeFOSA	NMeFOSA	31506-32-8	ng/L	--	--		< 2.2 U	< 2.25 U	< 2.25 U	< 2.28 U
NEtFOSA	NEtFOSA	4151-50-2	ng/L	20[c]	2[c]		< 2.28 U	< 2.34 U	< 2.34 U	< 2.37 U
MeFOSAA	N-Methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	ng/L	--	--		< 0.932 U	< 0.956 U	< 0.956 U	< 0.969 U
EtFOSAA	N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	ng/L	20[c]	2[c]		< 1.02 U	< 1.05 U	< 1.05 U	< 1.06 U
NMeFOSE	NMeFOSE	24448-09-7	ng/L	--	--		< 1.96 U	< 2.01 U	< 2.01 U	< 2.04 U
NEtFOSE	NEtFOSE	1691-99-2	ng/L	20[c]	2[c]		< 1.54 U	< 1.58 U	< 1.58 U	< 1.6 U
Replacement Chemicals:										
GenX	HFPO-DA (GenX)	13252-13-6	ng/L	300	30		< 1.54 U	< 1.58 U	< 1.57 U	< 1.6 U
DONA	DONA	919005-14-4	ng/L	3,000	600		< 0.628 U	< 0.644 U	< 0.644 U	< 0.653 U
F-53B Major	F-53B Major	756426-58-1	ng/L	--	--		< 1.05 U	< 1.07 U	< 1.07 U	< 1.09 U
F-53B Minor	F-53B Minor	763051-92-9	ng/L	--	--		< 0.972 U	< 0.996 U	< 0.996 U	< 1.01 U
*Combined Six	NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA	N/A	ng/L	20[c]	2[c]		*9.08*	**21.1**	**115**	*11.5*

Note:
[c]DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, PFOSA, PFOS and PFOA.
ng/L - nagograms per liter
J - Estimated value (+/- indicates bias)
Non-detects reported as < LOD
Underlined italics indicates a PAL exceedance, proposed.
Bold indicates an ES exceedance, proposed.
-- No NR 140 ES or PAL established.

AECOM
1555 N. RiverCenter Drive
Suite 214
Milwaukee, WI 53212

T: +1-414-944-6080
aecom.com

To: Tauren Beggs
Wisconsin Department of
Natural Resources

CC: Lanette Altenbach, PG,
AECOM Project Manager

Project name: Frmr Mirro #2 Sampling
Project ref: 60673908
From: Lisa Smith (CEAC)
Date: February 17, 2022

Data Validation Report

Project:	Former Mirro Plant #2 Private Well Samples, Manitowoc, Wisconsin
Laboratory:	Vista Analytical Laboratory
Work Order (WO):	2112147
Analyses/Method:	Per- and Polyfluorinated Alkyl Substances (PFAS) / PFAS Isotope Dilution Method
Validation Level:	Level 2
Prepared by:	Lisa Smith (CEAC) Completed on: 2/12/2022

The private well samples listed below were collected by AECOM on December 15 and 16, 2021.

Sample ID	Quality Control	Sample Date/Time	Laboratory ID
Private Well Samples:			
1750 MIRRO DR		12/15/2021	2112147-01
2519 WOODLAND DR		12/15/2021	2112147-04
2722 WOODLAND DR		12/16/2021	2112147-02
3104 WOODLAND DR		12/16/2021	2112147-03

Data validation activities were conducted with reference to:

- *Wisconsin DNR PFAS Updates,* March 1, 2021
- *Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations*, EA-19-0001-C, 12/19/2019.
- *Data Validation Guidelines Module3: Data Validation Procedure for Per- and Polyfluoroalkyl Substances Analysis by QSM Table B-15,* Department of Defense, 5/1/2020.

In the absence of method-specific information, laboratory quality control (QC) limits, or project-specific requirements, AECOMs professional judgment was used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

✓ Data completeness (chain-of-custody (COC)/sample integrity
✓ Holding times
✓ Laboratory blanks/equipment blanks/field blanks/trip blanks
✓ Extracted Internal Standards (EIS)
✓ Laboratory control sample (LCS) / Laboratory control sample duplicate (LCSD)
✓ Ion ratios
NA Field duplicates

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. The symbol (✗) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

SUMMARY

Based on the results of the validation, the data are valid as reported and may be used for decision making purposes. Results were acceptable without qualification. A detailed data validation discussion is provided below.

DETAILED REVIEW

Data Completeness

The data packages were reviewed and met the following acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times

Samples were extracted within the 28-day holding time, and analyzed within 30 days of extraction.

Laboratory Blanks

Laboratory method blanks are analyzed to assess contamination from laboratory procedures. Method blanks were analyzed at the correct frequency. Contaminants were not detected in the method blanks, with the exception that EtFOSE was detected at a concentration of 2.18 ng/L. EtFOSE was not detected in the private well samples.

Field Quality Control Blanks

Field quality control blanks were not associated with this data set.

Extracted Internal Standards

Extracted internal standards (EISs) are spiked into all field samples, field QC samples, and method QC samples and are used to quantitate the analytes. The EIS recoveries were within the WI limits of 10-150% for the FOSA, NMeFOSA, NEtFOSA, NMeFOSE, and NEtFOSE EISs, and were within the limits of 25-150% for other EISs.

LCS/LCSD Results

LCS/LCSDs are analyzed to monitor accuracy and precision of the analytical method independent of matrix effects. Recoveries (%Rs) were within the WI limits 50% to 100% limit for low range LCSs, and relative percent differences were within the 30% limit, with the exception of MeFOSA which reported an RPD of 37.7%. The MeFOSA results for the private well samples were nondetect, and were acceptable without qualification.

Ion Transition Ratios

No laboratory qualifiers were present that indicate transition ratio were outside of criteria.

Field Duplicate Results

Field duplicates are collected to assess the overall precision of field sampling and laboratory analysis. Field duplicates were not collected for this data set.

Sample Results and Quantitation

Sample results were reviewed for correct methods, units, and reported analytes. No issues or discrepancies were found during this review.

January 18, 2022

Vista Work Order No. 2112147

Ms. Lanette Altenbach
AECOM
1555 N. River Center Drive
Milwaukee, WI 53212

Dear Ms. Altenbach,

Enclosed are the amended results for the sample set received at Vista Analytical Laboratory on December 17, 2021 under your Project Name 'Frmr Mirro #2 PW Sampling / 60673908'.

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 Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2112147
Case Narrative

Sample Condition on Receipt:

Four 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. This report was amended to update the project name to "Frmr Mirro #2 PW Sampling."

Analytical Notes:

PFAS Isotope Dilution Method

Sample "2519 Woodland Dr" contained particulate and was centrifuged prior to extraction.

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

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

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

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. The concentration of EtFOSE was detected in the Method Blank over the Reporting Limit. This analyte was not detected in the samples. The LCS/LCSD recoveries were within the method acceptance criteria. The RPD of MeFOSA was greater than 30% in the LCS/LCSD. This analyte was not detected in the samples. The recoveries and RPDs of all other analytes were within the acceptance criteria.

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

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2112147-01	1750 Mirro Dr	15-Dec-21 17:15	17-Dec-21 10:20	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2112147-02	2722 Woodland Dr	16-Dec-21 08:15	17-Dec-21 10:20	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2112147-03	3104 Woodland Dr	16-Dec-21 08:45	17-Dec-21 10:20	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2112147-04	2519 Woodland Dr	15-Dec-21 17:45	17-Dec-21 10:20	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

Vista Project: 2112147

Client Project: Frmr Mirro #2 PW Sampling / 60673908

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Frmr Mirro #2 PW Sampling / 60673908
Matrix: Aqueous

Laboratory Data

Lab Sample: B1L0185-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	<1.01	1.01	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFPeA	2706-90-3	<0.755	0.755	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFBS	375-73-5	<0.905	0.905	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
4:2 FTS	757124-72-4	<0.950	0.950	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFHxA	307-24-4	<0.815	0.815	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFPeS	2706-91-4	<0.820	0.820	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
HFPO-DA	13252-13-6	<1.57	1.57	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFHpA	375-85-9	<0.935	0.935	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
ADONA	919005-14-4	<0.640	0.640	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFHxS	355-46-4	<1.03	1.03	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
6:2 FTS	27619-97-2	<1.13	1.13	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFOA	335-67-1	<0.955	0.955	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFHpS	375-92-8	<0.595	0.595	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFNA	375-95-1	<0.755	0.755	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFOSA	754-91-6	<1.09	1.09	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFOS	1763-23-1	<1.13	1.13	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
9Cl-PF3ONS	756426-58-1	<1.07	1.07	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFDA	335-76-2	<0.945	0.945	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
8:2 FTS	39108-34-4	<1.14	1.14	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFNS	68259-12-1	<1.16	1.16	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
MeFOSAA	2355-31-9	<0.950	0.950	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
EtFOSAA	2991-50-6	<1.04	1.04	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFUnA	2058-94-8	<0.755	0.755	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFDS	335-77-3	<0.760	0.760	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
11Cl-PF3OUdS	763051-92-9	<0.990	0.990	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFDoA	307-55-1	<0.975	0.975	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
MeFOSA	31506-32-8	<2.24	2.24	2.50		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFTrDA	72629-94-8	<0.655	0.655	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFDoS	79780-39-5	<1.42	1.42	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
PFTeDA	376-06-7	<0.815	0.815	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
EtFOSA	4151-50-2	<2.33	2.33	2.50		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
EtFOSE	1691-99-2	2.18	1.57	2.00		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
MeFOSE	24448-09-7	<2.00	2.00	2.50		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.1	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C3-PFPeA	IS	94.9	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C3-PFBS	IS	96.2	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C3-HFPO-DA	IS	107	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Frmr Mirro #2 PW Sampling / 60673908
Matrix: Aqueous

Laboratory Data

Lab Sample: B1L0185-BLK1
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	101	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C2-PFHxA	IS	94.2	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C4-PFHpA	IS	92.7	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C3-PFHxS	IS	95.0	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C2-6:2 FTS	IS	96.1	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C5-PFNA	IS	106	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C8-PFOSA	IS	44.5	10 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C2-PFOA	IS	101	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C8-PFOS	IS	96.5	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C2-PFDA	IS	102	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C2-8:2 FTS	IS	97.8	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
d3-MeFOSAA	IS	102	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C2-PFUnA	IS	92.4	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
d5-EtFOSAA	IS	76.6	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C2-PFDoA	IS	81.5	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
d3-MeFOSA	IS	16.8	10 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
13C2-PFTeDA	IS	75.0	25 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
d5-EtFOSA	IS	16.3	10 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
d7-MeFOSE	IS	23.4	10 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1
d9-EtFOSE	IS	26.4	10 - 150		B1L0185	30-Dec-21	0.250 L	31-Dec-21 16:08	1

MDL - Method Detection Limit RL - Reporting limit Results reported to MDL.

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: LCSD **PFAS Isotope Dilution Method**

Name:	AECOM	Lab Sample:	B1L0185-BS1/B1L0185-BSD1
Project:	Frmr Mirro #2 PW Sampling / 60673908	QC Batch:	B1L0185
Matrix:	Aqueous	Samp Size:	0.250/0.250 L
		Date Extracted:	30-Dec-21
		Column:	BEH C18

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	4.38	4.00	110		4.57	4.00	114	4.26		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFPeA	2706-90-3	3.98	4.00	99.4		4.37	4.00	109	9.40		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFBS	375-73-5	4.19	4.00	105		4.24	4.00	106	1.27		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
4:2 FTS	757124-72-4	3.40	4.00	85.0		4.28	4.00	107	22.9		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFHxA	307-24-4	4.23	4.00	106		4.09	4.00	102	3.47		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFPeS	2706-91-4	3.78	4.00	94.4		4.68	4.00	117	21.4		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
HFPO-DA	13252-13-6	3.82	4.00	95.6		4.92	4.00	123	25.0		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFHpA	375-85-9	3.91	4.00	97.7		4.15	4.00	104	6.01		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
ADONA	919005-14-4	3.83	4.00	95.8		4.18	4.00	105	8.70		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFHxS	355-46-4	3.93	4.00	98.2		4.41	4.00	110	11.6		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
6:2 FTS	27619-97-2	4.37	4.00	109		4.40	4.00	110	0.726		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFOA	335-67-1	3.92	4.00	98.1		4.33	4.00	108	9.93		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFHpS	375-92-8	3.88	4.00	96.9		4.07	4.00	102	4.84		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFNA	375-95-1	3.84	4.00	96.0		3.86	4.00	96.6	0.650		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFOSA	754-91-6	3.96	4.00	99.1		3.69	4.00	92.3	7.09		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFOS	1763-23-1	3.26	4.00	81.4		3.71	4.00	92.7	12.9		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
9Cl-PF3ONS	756426-58-1	4.30	4.00	108		4.27	4.00	107	0.778		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFDA	335-76-2	3.76	4.00	94.0		4.36	4.00	109	14.8		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
8:2 FTS	39108-34-4	4.05	4.00	101		4.04	4.00	101	0.257		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFNS	68259-12-1	3.91	4.00	97.9		3.75	4.00	93.7	4.34		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
MeFOSAA	2355-31-9	4.30	4.00	107		4.03	4.00	101	6.35		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
EtFOSAA	2991-50-6	4.10	4.00	102		3.97	4.00	99.2	3.23		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFUnA	2058-94-8	4.30	4.00	108		4.95	4.00	124	13.9		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFDS	335-77-3	3.68	4.00	92.0		3.36	4.00	83.9	9.24		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
11Cl-PF3OUdS	763051-92-9	4.52	4.00	113		3.96	4.00	98.9	13.3		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFDoA	307-55-1	4.07	4.00	102		4.03	4.00	101	1.10		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
MeFOSA	31506-32-8	2.93	4.00	73.2	Q	4.29	4.00	107	37.7	H	50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFTrDA	72629-94-8	3.93	4.00	98.3	Q	3.08	4.00	77.0	24.2		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFDoS	79780-39-5	4.48	4.00	112		3.65	4.00	91.2	20.4		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
PFTeDA	376-06-7	4.24	4.00	106		4.37	4.00	109	2.99		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
EtFOSA	4151-50-2	4.68	4.00	117		3.56	4.00	88.9	27.3		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
EtFOSE	1691-99-2	4.20	4.00	105	B	3.39	4.00	84.9	21.2	B	50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1
MeFOSE	24448-09-7	5.17	4.00	129		4.86	4.00	121	6.28		50-150	30	31-Dec-21 16:18	1	31-Dec-21 16:29	1

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

Name:	AECOM	Lab Sample:	B1L0185-BS1/B1L0185-BSD1	Date Extracted:	30-Dec-21
Project:	Frmr Mirro #2 PW Sampling / 60673908	QC Batch:	B1L0185	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	86.8		80.3		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C3-PFPeA	IS	94.4		86.5		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C3-PFBS	IS	93.9		83.1		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C3-HFPO-DA	IS	98.5		78.7		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C2-4:2 FTS	IS	101		88.3		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C2-PFHxA	IS	91.1		88.0		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C4-PFHpA	IS	94.4		88.0		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C3-PFHxS	IS	93.0		83.0		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C2-6:2 FTS	IS	81.4		83.4		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C5-PFNA	IS	109		95.9		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C8-PFOSA	IS	45.4		42.3		10 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C2-PFOA	IS	98.5		92.0		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C8-PFOS	IS	93.2		88.6		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C2-PFDA	IS	101		88.5		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C2-8:2 FTS	IS	82.1		76.4		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
d3-MeFOSAA	IS	96.2		93.3		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C2-PFUnA	IS	90.4		88.2		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
d5-EtFOSAA	IS	73.7		71.3		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C2-PFDoA	IS	79.9		77.6		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
d3-MeFOSA	IS	17.2		18.4		10 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
13C2-PFTeDA	IS	74.1		57.7		25 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
d5-EtFOSA	IS	17.3		18.8		10 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
d7-MeFOSE	IS	25.6		24.6		10 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1
d9-EtFOSE	IS	26.1		26.1		10 - 150	31-Dec-21 16:18	1	31-Dec-21 16:29	1

Sample ID: 1750 Mirro Dr

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Frmr Mirro #2 PW Sampling / 60673908
Location: Residence
Matrix: Aqueous
Date Collected: 15-Dec-21 17:15

Laboratory Data

Lab Sample: 2112147-01
Date Received: 17-Dec-21 10:20
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	<0.991	0.991	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFPeA	2706-90-3	<0.741	0.741	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFBS	375-73-5	<0.888	0.888	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
4:2 FTS	757124-72-4	<0.932	0.932	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFHxA	307-24-4	<0.800	0.800	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFPeS	2706-91-4	<0.805	0.805	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
HFPO-DA	13252-13-6	<1.54	1.54	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFHpA	375-85-9	<0.918	0.918	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
ADONA	919005-14-4	<0.628	0.628	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFHxS	355-46-4	<1.01	1.01	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
6:2 FTS	27619-97-2	<1.10	1.10	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFOA	335-67-1	<0.937	0.937	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFHpS	375-92-8	<0.584	0.584	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFNA	375-95-1	<0.741	0.741	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFOSA	754-91-6	9.08	1.07	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFOS	1763-23-1	<1.11	1.11	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
9Cl-PF3ONS	756426-58-1	<1.05	1.05	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFDA	335-76-2	<0.927	0.927	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
8:2 FTS	39108-34-4	<1.11	1.11	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFNS	68259-12-1	<1.13	1.13	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
MeFOSAA	2355-31-9	<0.932	0.932	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
EtFOSAA	2991-50-6	<1.02	1.02	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFUnA	2058-94-8	<0.741	0.741	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFDS	335-77-3	<0.746	0.746	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
11Cl-PF3OUdS	763051-92-9	<0.972	0.972	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFDoA	307-55-1	<0.957	0.957	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
MeFOSA	31506-32-8	<2.20	2.20	2.45		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFTrDA	72629-94-8	<0.643	0.643	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFDoS	79780-39-5	<1.39	1.39	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
PFTeDA	376-06-7	<0.800	0.800	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
EtFOSA	4151-50-2	<2.28	2.28	2.45		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
EtFOSE	1691-99-2	<1.54	1.54	1.96		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
MeFOSE	24448-09-7	<1.96	1.96	2.45		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	67.1	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C3-PFPeA	IS	84.2	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C3-PFBS	IS	83.2	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1

Sample ID: 1750 Mirro Dr

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Frmr Mirro #2 PW Sampling / 60673908
Location: Residence
Matrix: Aqueous
Date Collected: 15-Dec-21 17:15

Laboratory Data

Lab Sample: 2112147-01
Date Received: 17-Dec-21 10:20
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-HFPO-DA	IS	81.9	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C2-4:2 FTS	IS	97.7	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C2-PFHxA	IS	87.9	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C4-PFHpA	IS	86.1	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C3-PFHxS	IS	87.0	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C2-6:2 FTS	IS	88.2	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C5-PFNA	IS	105	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C8-PFOSA	IS	60.8	10 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C2-PFOA	IS	96.1	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C8-PFOS	IS	78.0	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C2-PFDA	IS	78.3	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C2-8:2 FTS	IS	79.8	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
d3-MeFOSAA	IS	98.0	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C2-PFUnA	IS	86.5	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
d5-EtFOSAA	IS	74.4	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C2-PFDoA	IS	82.8	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
d3-MeFOSA	IS	31.6	10 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
13C2-PFTeDA	IS	84.6	25 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
d5-EtFOSA	IS	32.5	10 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
d7-MeFOSE	IS	58.1	10 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1
d9-EtFOSE	IS	55.0	10 - 150		B1L0185	30-Dec-21	0.255 L	31-Dec-21 16:39	1

MDL - Method Detection Limit RL - Reporting limit Results reported to MDL.

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: 2722 Woodland Dr

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Frmr Mirro #2 PW Sampling / 60673908
Location: Residence
Matrix: Aqueous
Date Collected: 16-Dec-21 08:15

Laboratory Data

Lab Sample: 2112147-02
Date Received: 17-Dec-21 10:20
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	<1.02	1.02	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFPeA	2706-90-3	<0.760	0.760	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFBS	375-73-5	<0.911	0.911	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
4:2 FTS	757124-72-4	<0.956	0.956	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFHxA	307-24-4	<0.820	0.820	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFPeS	2706-91-4	<0.825	0.825	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
HFPO-DA	13252-13-6	<1.57	1.57	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFHpA	375-85-9	0.942	0.941	2.01	J	B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
ADONA	919005-14-4	<0.644	0.644	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFHxS	355-46-4	<1.04	1.04	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
6:2 FTS	27619-97-2	<1.13	1.13	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFOA	335-67-1	8.98	0.961	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFHpS	375-92-8	<0.599	0.599	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFNA	375-95-1	<0.760	0.760	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFOSA	754-91-6	106	1.10	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFOS	1763-23-1	<1.14	1.14	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
9Cl-PF3ONS	756426-58-1	<1.07	1.07	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFDA	335-76-2	<0.951	0.951	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
8:2 FTS	39108-34-4	<1.14	1.14	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFNS	68259-12-1	<1.16	1.16	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
MeFOSAA	2355-31-9	<0.956	0.956	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
EtFOSAA	2991-50-6	<1.05	1.05	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFUnA	2058-94-8	<0.760	0.760	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFDS	335-77-3	<0.765	0.765	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
11Cl-PF3OUdS	763051-92-9	<0.996	0.996	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFDoA	307-55-1	<0.981	0.981	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
MeFOSA	31506-32-8	<2.25	2.25	2.52		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFTrDA	72629-94-8	<0.659	0.659	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFDoS	79780-39-5	<1.42	1.42	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
PFTeDA	376-06-7	<0.820	0.820	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
EtFOSA	4151-50-2	<2.34	2.34	2.52		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
EtFOSE	1691-99-2	<1.58	1.58	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
MeFOSE	24448-09-7	<2.01	2.01	2.52		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	65.7	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C3-PFPeA	IS	87.8	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C3-PFBS	IS	87.7	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1

Sample ID: 2722 Woodland Dr

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Frmr Mirro #2 PW Sampling / 60673908
Location: Residence
Matrix: Aqueous
Date Collected: 16-Dec-21 08:15

Laboratory Data

Lab Sample: 2112147-02
Date Received: 17-Dec-21 10:20
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-HFPO-DA	IS	80.1	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C2-4:2 FTS	IS	100	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C2-PFHxA	IS	85.6	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C4-PFHpA	IS	84.8	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C3-PFHxS	IS	90.4	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C2-6:2 FTS	IS	84.5	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C5-PFNA	IS	102	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C8-PFOSA	IS	68.5	10 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C2-PFOA	IS	91.2	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C8-PFOS	IS	91.0	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C2-PFDA	IS	94.1	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C2-8:2 FTS	IS	90.4	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
d3-MeFOSAA	IS	99.5	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C2-PFUnA	IS	89.2	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
d5-EtFOSAA	IS	80.8	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C2-PFDoA	IS	84.6	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
d3-MeFOSA	IS	40.4	10 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
13C2-PFTeDA	IS	83.8	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
d5-EtFOSA	IS	40.4	10 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
d7-MeFOSE	IS	63.7	10 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1
d9-EtFOSE	IS	68.5	10 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 16:49	1

MDL - Method Detection Limit RL - Reporting limit Results reported to MDL.

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: 3104 Woodland Dr

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Frmr Mirro #2 PW Sampling / 60673908
Location: Residence
Matrix: Aqueous
Date Collected: 16-Dec-21 08:45

Laboratory Data

Lab Sample: 2112147-03
Date Received: 17-Dec-21 10:20
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	<1.03	1.03	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFPeA	2706-90-3	<0.770	0.770	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFBS	375-73-5	<0.923	0.923	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
4:2 FTS	757124-72-4	<0.969	0.969	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFHxA	307-24-4	<0.831	0.831	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFPeS	2706-91-4	<0.836	0.836	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
HFPO-DA	13252-13-6	<1.60	1.60	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFHpA	375-85-9	<0.953	0.953	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
ADONA	919005-14-4	<0.653	0.653	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFHxS	355-46-4	<1.05	1.05	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
6:2 FTS	27619-97-2	<1.15	1.15	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFOA	335-67-1	<0.974	0.974	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFHpS	375-92-8	<0.607	0.607	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFNA	375-95-1	<0.770	0.770	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFOSA	754-91-6	11.5	1.11	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFOS	1763-23-1	<1.15	1.15	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
9Cl-PF3ONS	756426-58-1	<1.09	1.09	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFDA	335-76-2	<0.964	0.964	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
8:2 FTS	39108-34-4	<1.16	1.16	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFNS	68259-12-1	<1.18	1.18	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
MeFOSAA	2355-31-9	<0.969	0.969	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
EtFOSAA	2991-50-6	<1.06	1.06	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFUnA	2058-94-8	<0.770	0.770	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFDS	335-77-3	<0.775	0.775	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
11Cl-PF3OUdS	763051-92-9	<1.01	1.01	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFDoA	307-55-1	<0.994	0.994	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
MeFOSA	31506-32-8	<2.28	2.28	2.55		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFTrDA	72629-94-8	<0.668	0.668	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFDoS	79780-39-5	<1.44	1.44	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
PFTeDA	376-06-7	<0.831	0.831	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
EtFOSA	4151-50-2	<2.37	2.37	2.55		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
EtFOSE	1691-99-2	<1.60	1.60	2.04		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
MeFOSE	24448-09-7	<2.04	2.04	2.55		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	70.0	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C3-PFPeA	IS	89.6	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C3-PFBS	IS	84.0	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1

Sample ID: 3104 Woodland Dr

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Frmr Mirro #2 PW Sampling / 60673908
Location: Residence
Matrix: Aqueous
Date Collected: 16-Dec-21 08:45

Laboratory Data

Lab Sample: 2112147-03
Date Received: 17-Dec-21 10:20
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-HFPO-DA	IS	98.9	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C2-4:2 FTS	IS	99.0	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C2-PFHxA	IS	88.8	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C4-PFHpA	IS	87.5	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C3-PFHxS	IS	80.8	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C2-6:2 FTS	IS	80.3	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C5-PFNA	IS	101	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C8-PFOSA	IS	57.6	10 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C2-PFOA	IS	86.6	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C8-PFOS	IS	79.4	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C2-PFDA	IS	92.4	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C2-8:2 FTS	IS	80.4	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
d3-MeFOSAA	IS	93.6	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C2-PFUnA	IS	87.5	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
d5-EtFOSAA	IS	84.6	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C2-PFDoA	IS	80.3	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
d3-MeFOSA	IS	25.2	10 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
13C2-PFTeDA	IS	81.3	25 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
d5-EtFOSA	IS	25.2	10 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
d7-MeFOSE	IS	51.5	10 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1
d9-EtFOSE	IS	52.4	10 - 150		B1L0185	30-Dec-21	0.245 L	31-Dec-21 17:30	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

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: 2519 Woodland Dr

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Frmr Mirro #2 PW Sampling / 60673908
Location: Residence
Matrix: Aqueous
Date Collected: 15-Dec-21 17:45

Laboratory Data

Lab Sample: 2112147-04
Date Received: 17-Dec-21 10:20
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	<1.02	1.02	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFPeA	2706-90-3	<0.760	0.760	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFBS	375-73-5	<0.911	0.911	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
4:2 FTS	757124-72-4	<0.956	0.956	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFHxA	307-24-4	<0.820	0.820	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFPeS	2706-91-4	<0.825	0.825	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
HFPO-DA	13252-13-6	<1.58	1.58	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFHpA	375-85-9	<0.941	0.941	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
ADONA	919005-14-4	<0.644	0.644	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFHxS	355-46-4	<1.04	1.04	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
6:2 FTS	27619-97-2	<1.13	1.13	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFOA	335-67-1	<0.961	0.961	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFHpS	375-92-8	<0.599	0.599	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFNA	375-95-1	<0.760	0.760	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFOSA	754-91-6	21.1	1.10	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFOS	1763-23-1	<1.14	1.14	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
9Cl-PF3ONS	756426-58-1	<1.07	1.07	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFDA	335-76-2	<0.951	0.951	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
8:2 FTS	39108-34-4	<1.14	1.14	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFNS	68259-12-1	<1.16	1.16	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
MeFOSAA	2355-31-9	<0.956	0.956	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
EtFOSAA	2991-50-6	<1.05	1.05	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFUnA	2058-94-8	<0.760	0.760	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFDS	335-77-3	<0.765	0.765	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
11Cl-PF3OUdS	763051-92-9	<0.996	0.996	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFDoA	307-55-1	<0.981	0.981	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
MeFOSA	31506-32-8	<2.25	2.25	2.52		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFTrDA	72629-94-8	<0.659	0.659	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFDoS	79780-39-5	<1.42	1.42	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
PFTeDA	376-06-7	<0.820	0.820	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
EtFOSA	4151-50-2	<2.34	2.34	2.52		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
EtFOSE	1691-99-2	<1.58	1.58	2.01		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
MeFOSE	24448-09-7	<2.01	2.01	2.52		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	57.2	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C3-PFPeA	IS	88.5	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C3-PFBS	IS	85.2	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1

Sample ID: 2519 Woodland Dr

PFAS Isotope Dilution Method

Client Data

Name: AECOM
Project: Frmr Mirro #2 PW Sampling / 60673908
Location: Residence
Matrix: Aqueous
Date Collected: 15-Dec-21 17:45

Laboratory Data

Lab Sample: 2112147-04
Date Received: 17-Dec-21 10:20
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-HFPO-DA	IS	83.0	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C2-4:2 FTS	IS	75.9	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C2-PFHxA	IS	89.9	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C4-PFHpA	IS	91.4	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C3-PFHxS	IS	87.7	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C2-6:2 FTS	IS	87.3	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C5-PFNA	IS	105	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C8-PFOSA	IS	64.9	10 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C2-PFOA	IS	95.3	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C8-PFOS	IS	86.1	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C2-PFDA	IS	94.1	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C2-8:2 FTS	IS	75.0	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
d3-MeFOSAA	IS	103	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C2-PFUnA	IS	86.9	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
d5-EtFOSAA	IS	80.3	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C2-PFDoA	IS	81.7	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
d3-MeFOSA	IS	30.4	10 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
13C2-PFTeDA	IS	80.7	25 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
d5-EtFOSA	IS	28.4	10 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
d7-MeFOSE	IS	62.8	10 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1
d9-EtFOSE	IS	65.9	10 - 150		B1L0185	30-Dec-21	0.248 L	31-Dec-21 17:40	1

MDL - Method Detection Limit RL - Reporting limit Results reported to MDL.

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 #: 2112147 Temp: 0.9 °C
Storage ID: R-13 WR-2 Storage Secured: Yes ☑ No ☐

Project ID: 60673908 PO#: _____ Sampler: R. Weseljak (name)

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

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Robert Weseljak	12/15/21	10:00am	Karen J. Frost	12/17/21	10:20

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

ATTN: _____

Method of Shipment: FedEx
Tracking No.: _____

Add Analysis(es) Requested

Sample ID	Date	Time	Location/ Sample Description	Container(s) Quantity	Type	Matrix	REDA/PFOS PFAS	UCMR3 PFAS List:6	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFOA/ PFOS	UCMR3 PFAS List:6	537.1 List of 14	537.1 List of 18	Comments
1750 Mirro Dr	12/15/21	17:15	Residente	2	P	AQ	X									
2722 Woodland Dr	12/(6/21	8:15		2	P	AQ	X									
3104 Woodland Dr	12/(6/21	8:45		2	P	AQ	X									
2519 Woodland Dr	12/15/21	17:45		2	P	AQ	X									

Special Instructions/Comment: Ask PM about New MDL

SEND DOCUMENTATION AND RESULTS TO:

Name: Lanette Altenbach
Company: Aecom
Address: 1555 N. RiverCenter Dr, Ste 214
City: Milwaukee State: WI Zip: 53212
Phone: 414-944-6186
Email: lanette.altenbach@aecom.com

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

Bottle Preservation Type: TZ= Trizma: _____

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

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 2112147 TAT STD

Samples Arrival:	Date/Time: 12/17/21 10:20	Initials: KL	Location: WR-2 Shelf/Rack: NW2

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: 0.9 (corrected)		

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Airbill / Trk # 2876 7952 9456	✓		
Shipping Documentation Present?	✓		
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Shipping Container	~~Vista~~	Client	~~Retain~~	Return	Dispose

Logged In:	Date/Time: 12/18/21 0747	Initials: [illegible]	Location: R-13 WR-2 Shelf/Rack: A-1 F-4

COC Anomaly/Sample Acceptance Form completed?		—	—

Comments:

CoC/Label Reconciliation Report WO# 2112147

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2112147-01	A 1750 Mirro Dr	☑	Residence	15-Dec-21 17:15	☑	HDPE Bottle, 250 mL	Aqueous	
2112147-01	B 1750 Mirro Dr	☑	Residence	15-Dec-21 17:15	☑	HDPE Bottle, 250 mL	Aqueous	
2112147-02	A 2722 Woodland Dr	☑	Residence	16-Dec-21 08:15	☑	HDPE Bottle, 250 mL	Aqueous	
2112147-02	B 2722 Woodland Dr	☑	Residence	16-Dec-21 08:15	☑	HDPE Bottle, 250 mL	Aqueous	
2112147-03	A 3104 Woodland Dr	☑	Residence	16-Dec-21 08:45	☑	HDPE Bottle, 250 mL	Aqueous	
2112147-03	B 3104 Woodland Dr	☑	Residence	16-Dec-21 08:45	☑	HDPE Bottle, 250 mL	Aqueous	
2112147-04	A 2519 Woodland Dr	☑	Residence	15-Dec-21 17:45	☑	HDPE Bottle, 250 mL	Aqueous	
2112147-04	B 2519 Woodland Dr	☑	Residence	15-Dec-21 17:45	☐	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:
*onginally labeled + reconciled on 12/18/21

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 None (ALL) Other

Verifed by/Date: 12/23/21 *