

From: Beggs, Tauren R - DNR
Sent: Thursday, December 21, 2023 10:52 AM
To: Paul Lindquist; Kloczko, Nathan F - DHS
Cc: Kristin Jones (Kristin.Jones@newellco.com); Jeanne Tarvin; Susan Petrofske
Subject: RE: BRRTS #02-36-588656 (Former Mirro Plant No. 2) December 2023 Potable Well Sampling Results

Thanks for submitting the results Paul.

Happy Holidays,

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: Paul Lindquist <PLINDQUIST@ramboll.com>
Sent: Wednesday, December 20, 2023 3:31 PM
To: Beggs, Tauren R - DNR <Tauren.Beggs@wisconsin.gov>; Kloczko, Nathan F - DHS <nathan.kloczko@dhs.wisconsin.gov>
Cc: Kristin Jones (<Kristin.Jones@newellco.com>) <Kristin.Jones@newellco.com>; Jeanne Tarvin <jtarvin@ramboll.com>; Susan Petrofske <SPETROFSKE@ramboll.com>
Subject: BRRTS #02-36-588656 (Former Mirro Plant No. 2) December 2023 Potable Well Sampling Results

Tauren and Nathan,

Attached are copies of the data transmittal letters provided to the property owners at 2519 Woodland Drive and 2722 Woodland Drive for the December 2023 potable well sampling activities completed as part of the WDNR request to collect an additional one-year of semi-annual potable well samples for the former Mirro Plant No. 2 project (BRRTS #02-36-588656). This was the final scheduled sampling event as part of the WDNR request. The property owner names have been redacted for privacy purposes. No compounds were detected above the WDHS recommended groundwater Preventative Action Limit or Enforcement Standard criteria for PFAS.

Please let us know if you have any questions or if you would like us to upload these letters to the WDNR submittal portal.

Paul Lindquist

Managing Consultant
1692722 - Great Lakes

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plindquist@ramboll.com

Ramboll
234 W. Florida Street
Fifth Floor
Milwaukee, WI 53204

Sent Via Overnight Delivery

██████████
2519 Woodland Drive
Manitowoc, WI 54220

**POTABLE WELL SAMPLING RESULTS AT 2519 WOODLAND DRIVE
FORMER MIRRO PLANT NO. 2, 2009 MIRRO DRIVE
MANITOWOC, WISCONSIN, BRRTS NO. 02-36-588656**

Dear ██████████

The purpose of this letter is to provide you with the results of the recent potable well testing from your property completed by Newell Operating Company (NOC) with the oversight of the Wisconsin Department of Natural Resources (WDNR). As you are aware, this testing was conducted because of the potential for per- and polyfluoroalkyl substances (PFAS) contaminated groundwater to migrate off site from the nearby former Mirro Plant No. 2 facility.

On December 5, 2023, NOC's environmental consultant, Ramboll Americas Engineering Solutions, Inc. (Ramboll), collected water samples from your potable well using the spigot prior to your pressure tank. Ramboll submitted the samples to Eurofins Environment Testing (Eurofins) in Sacramento, California, a State of Wisconsin PFAS certified laboratory.

Your Test Results

A copy of the laboratory report for your potable well sample is enclosed. The analyses did not detect any PFAS in the potable well sample.

If you have any questions regarding the quality of your potable well water, please contact the following:

- Tauren Beggs, WDNR, (920) 510-3472, Tauren.Beggs@wisconsin.gov; or
- Nathan Kloczko, WDHS, (608) 267-3227, Nathan.Kloczko@dhs.wisconsin.gov.

For any other questions regarding this letter, please contact Lou Meschede at (219) 781-7177.

Yours sincerely,



Paul D. Lindquist
Managing Consultant

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plindquist@ramboll.com



Jeanne M. Tarvin, PG, CPG
E&H Americas Country Market Director

D +1 262 901 0085
jtarkin@ramboll.com

cc: Kristin Jones, NOC
Tauren Beggs, WDNR
Nathan Kloczko, WDHS

December 19, 2023

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Ref 1690026073



ENCLOSURE

EUROFINS LABORATORY ANALYTICAL REPORT



ANALYTICAL REPORT

PREPARED FOR

Attn: Paul Lindquist
Ramboll Americas Engineering Solutions
234 W. Florida Street
Fifth Floor
Milwaukee, Wisconsin 53204

Generated 12/12/2023 12:26:53 PM

JOB DESCRIPTION

Fmr Mirro Plt 2 - 1690026073

JOB NUMBER

500-243466-1

Eurofins Chicago

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Compliance Statement

The LOD and LOQ reported are adjusted by the dilution factor when a dilution factor greater than 1 is needed. Additionally, where results are indicated as being reported on a dry weight basis, the LOD and LOQ are adjusted for moisture content as well.

Definitions of Limits

- LOD = Limit of Detection = MDL as defined by 40 CFR part 136 Appendix B
- LOQ = Limit of Quantitation = 3.33 x LOD as defined by Wisconsin
- RL = Report Limit = a concentration supported by a standard in the calibration curves

Authorization



Generated
12/12/2023 12:26:53 PM

Authorized for release by
Sandie Fredrick, Senior Project Manager
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660



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Case Narrative

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Job ID: 500-243466-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative 500-243466-1

Receipt

The samples were received on 12/6/2023 9:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.3° C.

LCMS

Method 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 320-725600 and analytical batch 320-726507 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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

Organic Prep

Method 3535: The following samples in preparation batch 320-725600 were yellow in color prior to extraction. 2519-E (500-243466-1), 2519-E (500-243466-1[MS]) and 2519-E (500-243466-1[MSD])
preparation batch 320-725600
Method: 3535 PFC-W
Matrix: Aqueous

Method 3535: The following samples in preparation batch 320-725600 were yellow in color following extraction. 2519-E (500-243466-1), 2519-E (500-243466-1[MS]) and 2519-E (500-243466-1[MSD])
preparation batch 320-725600
Method: 3535 PFC-W
Matrix: Aqueous

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

Detection Summary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Client Sample ID: 2519-E

Lab Sample ID: 500-243466-1

No Detections.

Client Sample ID: 2519-E-FB

Lab Sample ID: 500-243466-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

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

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
500-243466-1	2519-E	Water	12/05/23 14:15	12/06/23 09:15
500-243466-2	2519-E-FB	Water	12/05/23 14:20	12/06/23 09:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Client Sample ID: 2519-E

Lab Sample ID: 500-243466-1

Date Collected: 12/05/23 14:15

Matrix: Water

Date Received: 12/06/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.2	F1	4.6	2.2	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluoropentanoic acid (PFPeA)	<0.45		1.9	0.45	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorohexanoic acid (PFHxA)	<0.54		1.9	0.54	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluoroheptanoic acid (PFHpA)	<0.23		1.9	0.23	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorooctanoic acid (PFOA)	<0.79		1.9	0.79	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.9	0.51	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.9	1.2	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorotetradecanoic acid (PFTeA)	<0.68		1.9	0.68	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorohexanesulfonic acid (PFHxS)	<0.53		1.9	0.53	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.9	0.50	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.9	0.34	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorododecanesulfonic acid (PFDoS)	<0.90		1.9	0.90	ng/L		12/06/23 20:00	12/09/23 13:26	1
Perfluorooctanesulfonamide (FOSA)	<0.91		1.9	0.91	ng/L		12/06/23 20:00	12/09/23 13:26	1
NEtFOSA	<0.80		1.9	0.80	ng/L		12/06/23 20:00	12/09/23 13:26	1
NMeFOSA	<0.40		1.9	0.40	ng/L		12/06/23 20:00	12/09/23 13:26	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		12/06/23 20:00	12/09/23 13:26	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		12/06/23 20:00	12/09/23 13:26	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/06/23 20:00	12/09/23 13:26	1
NEtFOSE	<0.79		1.9	0.79	ng/L		12/06/23 20:00	12/09/23 13:26	1
4:2 FTS	<0.22		1.9	0.22	ng/L		12/06/23 20:00	12/09/23 13:26	1
6:2 FTS	<2.3		4.6	2.3	ng/L		12/06/23 20:00	12/09/23 13:26	1
8:2 FTS	<0.43		1.9	0.43	ng/L		12/06/23 20:00	12/09/23 13:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.37		1.9	0.37	ng/L		12/06/23 20:00	12/09/23 13:26	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/06/23 20:00	12/09/23 13:26	1
9Cl-PF3ONS	<0.22		1.9	0.22	ng/L		12/06/23 20:00	12/09/23 13:26	1
11Cl-PF3OUdS	<0.30		1.9	0.30	ng/L		12/06/23 20:00	12/09/23 13:26	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	88		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C5 PFPeA	53		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C2 PFHxA	117		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C4 PFHpA	113		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C4 PFOA	103		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C5 PFNA	102		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C2 PFDA	122		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C2 PFUnA	126		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C2 PFDoA	119		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C2 PFTeDA	109		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C3 PFBS	84		25 - 150	12/06/23 20:00	12/09/23 13:26	1
18O2 PFHxS	102		25 - 150	12/06/23 20:00	12/09/23 13:26	1

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Client Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Client Sample ID: 2519-E

Lab Sample ID: 500-243466-1

Date Collected: 12/05/23 14:15

Matrix: Water

Date Received: 12/06/23 09:15

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOS	105		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C8 FOSA	104		10 - 150	12/06/23 20:00	12/09/23 13:26	1
d3-NMeFOSAA	93		25 - 150	12/06/23 20:00	12/09/23 13:26	1
d5-NEtFOSAA	80		25 - 150	12/06/23 20:00	12/09/23 13:26	1
d-N-MeFOSA-M	92		10 - 150	12/06/23 20:00	12/09/23 13:26	1
d-N-EtFOSA-M	94		10 - 150	12/06/23 20:00	12/09/23 13:26	1
d7-N-MeFOSE-M	103		10 - 150	12/06/23 20:00	12/09/23 13:26	1
d9-N-EtFOSE-M	98		10 - 150	12/06/23 20:00	12/09/23 13:26	1
M2-4:2 FTS	85		25 - 150	12/06/23 20:00	12/09/23 13:26	1
M2-6:2 FTS	77		25 - 150	12/06/23 20:00	12/09/23 13:26	1
M2-8:2 FTS	94		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C3 HFPO-DA	102		25 - 150	12/06/23 20:00	12/09/23 13:26	1
13C2 10:2 FTS	120		25 - 150	12/06/23 20:00	12/09/23 13:26	1

Client Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Client Sample ID: 2519-E-FB

Lab Sample ID: 500-243466-2

Date Collected: 12/05/23 14:20

Matrix: Water

Date Received: 12/06/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.1		4.4	2.1	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluoropentanoic acid (PFPeA)	<0.43		1.7	0.43	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorohexanoic acid (PFHxA)	<0.51		1.7	0.51	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluoroheptanoic acid (PFHpA)	<0.22		1.7	0.22	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorooctanoic acid (PFOA)	<0.74		1.7	0.74	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorononanoic acid (PFNA)	<0.24		1.7	0.24	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorodecanoic acid (PFDA)	<0.27		1.7	0.27	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluoroundecanoic acid (PFUnA)	<0.96		1.7	0.96	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorododecanoic acid (PFDoA)	<0.48		1.7	0.48	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.7	1.1	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.7	0.64	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorobutanesulfonic acid (PFBS)	<0.17		1.7	0.17	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.7	0.26	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorohexanesulfonic acid (PFHxS)	<0.50		1.7	0.50	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		1.7	0.17	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorooctanesulfonic acid (PFOS)	<0.47		1.7	0.47	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.7	0.28	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorododecanesulfonic acid (PFDoS)	<0.85		1.7	0.85	ng/L		12/06/23 20:00	12/09/23 13:59	1
Perfluorooctanesulfonamide (FOSA)	<0.85		1.7	0.85	ng/L		12/06/23 20:00	12/09/23 13:59	1
NEtFOSA	<0.76		1.7	0.76	ng/L		12/06/23 20:00	12/09/23 13:59	1
NMeFOSA	<0.38		1.7	0.38	ng/L		12/06/23 20:00	12/09/23 13:59	1
NMeFOSAA	<1.0		4.4	1.0	ng/L		12/06/23 20:00	12/09/23 13:59	1
NEtFOSAA	<1.1		4.4	1.1	ng/L		12/06/23 20:00	12/09/23 13:59	1
NMeFOSE	<1.2		3.5	1.2	ng/L		12/06/23 20:00	12/09/23 13:59	1
NEtFOSE	<0.74		1.7	0.74	ng/L		12/06/23 20:00	12/09/23 13:59	1
4:2 FTS	<0.21		1.7	0.21	ng/L		12/06/23 20:00	12/09/23 13:59	1
6:2 FTS	<2.2		4.4	2.2	ng/L		12/06/23 20:00	12/09/23 13:59	1
8:2 FTS	<0.40		1.7	0.40	ng/L		12/06/23 20:00	12/09/23 13:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		1.7	0.35	ng/L		12/06/23 20:00	12/09/23 13:59	1
HFPO-DA (GenX)	<1.3		3.5	1.3	ng/L		12/06/23 20:00	12/09/23 13:59	1
9Cl-PF3ONS	<0.21		1.7	0.21	ng/L		12/06/23 20:00	12/09/23 13:59	1
11Cl-PF3OUdS	<0.28		1.7	0.28	ng/L		12/06/23 20:00	12/09/23 13:59	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	97		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C5 PFPeA	60		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C2 PFHxA	109		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C4 PFHpA	106		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C4 PFOA	102		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C5 PFNA	104		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C2 PFDA	116		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C2 PFUnA	109		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C2 PFDoA	116		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C2 PFTeDA	105		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C3 PFBS	83		25 - 150	12/06/23 20:00	12/09/23 13:59	1
18O2 PFHxS	98		25 - 150	12/06/23 20:00	12/09/23 13:59	1

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Client Sample Results

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Client Sample ID: 2519-E-FB

Lab Sample ID: 500-243466-2

Date Collected: 12/05/23 14:20

Matrix: Water

Date Received: 12/06/23 09:15

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOS	99		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C8 FOSA	99		10 - 150	12/06/23 20:00	12/09/23 13:59	1
d3-NMeFOSAA	85		25 - 150	12/06/23 20:00	12/09/23 13:59	1
d5-NEtFOSAA	82		25 - 150	12/06/23 20:00	12/09/23 13:59	1
d-N-MeFOSA-M	90		10 - 150	12/06/23 20:00	12/09/23 13:59	1
d-N-EtFOSA-M	97		10 - 150	12/06/23 20:00	12/09/23 13:59	1
d7-N-MeFOSE-M	99		10 - 150	12/06/23 20:00	12/09/23 13:59	1
d9-N-EtFOSE-M	90		10 - 150	12/06/23 20:00	12/09/23 13:59	1
M2-4:2 FTS	82		25 - 150	12/06/23 20:00	12/09/23 13:59	1
M2-6:2 FTS	71		25 - 150	12/06/23 20:00	12/09/23 13:59	1
M2-8:2 FTS	93		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C3 HFPO-DA	97		25 - 150	12/06/23 20:00	12/09/23 13:59	1
13C2 10:2 FTS	104		25 - 150	12/06/23 20:00	12/09/23 13:59	1

Definitions/Glossary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Qualifiers

LCMS

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Glossary

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

QC Association Summary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

LCMS

Prep Batch: 725600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-243466-1	2519-E	Total/NA	Water	3535	
500-243466-2	2519-E-FB	Total/NA	Water	3535	
MB 320-725600/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-725600/2-A	Lab Control Sample	Total/NA	Water	3535	
500-243466-1 MS	2519-E	Total/NA	Water	3535	
500-243466-1 MSD	2519-E	Total/NA	Water	3535	

Analysis Batch: 726507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-243466-1	2519-E	Total/NA	Water	537 (modified)	725600
500-243466-2	2519-E-FB	Total/NA	Water	537 (modified)	725600
MB 320-725600/1-A	Method Blank	Total/NA	Water	537 (modified)	725600
LCS 320-725600/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	725600
500-243466-1 MS	2519-E	Total/NA	Water	537 (modified)	725600
500-243466-1 MSD	2519-E	Total/NA	Water	537 (modified)	725600

QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-725600/1-A
Matrix: Water
Analysis Batch: 726507

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 725600

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorotridecanoic acid (PFTrDA)	<1.3		2.0	1.3	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		12/06/23 20:00	12/09/23 12:18	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/06/23 20:00	12/09/23 12:18	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/06/23 20:00	12/09/23 12:18	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/06/23 20:00	12/09/23 12:18	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/06/23 20:00	12/09/23 12:18	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/06/23 20:00	12/09/23 12:18	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/06/23 20:00	12/09/23 12:18	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/06/23 20:00	12/09/23 12:18	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/06/23 20:00	12/09/23 12:18	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/06/23 20:00	12/09/23 12:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		12/06/23 20:00	12/09/23 12:18	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/06/23 20:00	12/09/23 12:18	1
9Cl-PF3ONS	<0.24		2.0	0.24	ng/L		12/06/23 20:00	12/09/23 12:18	1
11Cl-PF3OUdS	<0.32		2.0	0.32	ng/L		12/06/23 20:00	12/09/23 12:18	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	101		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C5 PFPeA	60		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 PFHxA	116		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C4 PFHpA	120		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C4 PFOA	105		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C5 PFNA	114		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 PFDA	119		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 PFUnA	117		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 PFDoA	115		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 PFTeDA	108		25 - 150	12/06/23 20:00	12/09/23 12:18	1

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QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

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

Lab Sample ID: MB 320-725600/1-A
Matrix: Water
Analysis Batch: 726507

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 725600

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	91		25 - 150	12/06/23 20:00	12/09/23 12:18	1
18O2 PFHxS	111		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C4 PFOS	105		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C8 FOSA	101		10 - 150	12/06/23 20:00	12/09/23 12:18	1
d3-NMeFOSAA	95		25 - 150	12/06/23 20:00	12/09/23 12:18	1
d5-NEtFOSAA	87		25 - 150	12/06/23 20:00	12/09/23 12:18	1
d-N-MeFOSA-M	96		10 - 150	12/06/23 20:00	12/09/23 12:18	1
d-N-EtFOSA-M	99		10 - 150	12/06/23 20:00	12/09/23 12:18	1
d7-N-MeFOSE-M	104		10 - 150	12/06/23 20:00	12/09/23 12:18	1
d9-N-EtFOSE-M	94		10 - 150	12/06/23 20:00	12/09/23 12:18	1
M2-4:2 FTS	86		25 - 150	12/06/23 20:00	12/09/23 12:18	1
M2-6:2 FTS	70		25 - 150	12/06/23 20:00	12/09/23 12:18	1
M2-8:2 FTS	100		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C3 HFPO-DA	113		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 10:2 FTS	120		25 - 150	12/06/23 20:00	12/09/23 12:18	1

Lab Sample ID: LCS 320-725600/2-A
Matrix: Water
Analysis Batch: 726507

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 725600

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	27.2		ng/L		68	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	42.9		ng/L		107	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	38.1		ng/L		95	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	38.5		ng/L		96	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	37.7		ng/L		94	60 - 135
Perfluorononanoic acid (PFNA)	40.0	36.9		ng/L		92	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	35.8		ng/L		89	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	39.3		ng/L		98	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	39.3		ng/L		98	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	37.1		ng/L		93	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	41.1		ng/L		103	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	35.0		ng/L		99	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	42.5		ng/L		113	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	32.1		ng/L		88	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.3		ng/L		98	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	35.8		ng/L		96	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	41.5		ng/L		108	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	41.3		ng/L		107	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	42.5		ng/L		110	60 - 135

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QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

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

Lab Sample ID: LCS 320-725600/2-A
Matrix: Water
Analysis Batch: 726507

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 725600

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	37.0		ng/L		92	60 - 135
NEtFOSA	40.0	39.0		ng/L		98	60 - 135
NMeFOSA	40.0	38.9		ng/L		97	60 - 135
NMeFOSAA	40.0	40.9		ng/L		102	60 - 135
NEtFOSAA	40.0	37.2		ng/L		93	60 - 135
NMeFOSE	40.0	39.1		ng/L		98	60 - 135
NEtFOSE	40.0	39.5		ng/L		99	60 - 135
4:2 FTS	37.5	38.3		ng/L		102	60 - 135
6:2 FTS	38.1	38.8		ng/L		102	60 - 135
8:2 FTS	38.4	38.1		ng/L		99	60 - 135
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	37.8	41.2		ng/L		109	60 - 135
HFPO-DA (GenX)	40.0	37.7		ng/L		94	60 - 135
9Cl-PF3ONS	37.4	37.7		ng/L		101	60 - 135
11Cl-PF3OUdS	37.8	40.1		ng/L		106	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	102		25 - 150
13C5 PFPeA	56		25 - 150
13C2 PFHxA	106		25 - 150
13C4 PFHpA	111		25 - 150
13C4 PFOA	103		25 - 150
13C5 PFNA	102		25 - 150
13C2 PFDA	117		25 - 150
13C2 PFUnA	113		25 - 150
13C2 PFDoA	113		25 - 150
13C2 PFTeDA	104		25 - 150
13C3 PFBS	90		25 - 150
18O2 PFHxS	106		25 - 150
13C4 PFOS	96		25 - 150
13C8 FOSA	105		10 - 150
d3-NMeFOSAA	85		25 - 150
d5-NEtFOSAA	88		25 - 150
d-N-MeFOSA-M	90		10 - 150
d-N-EtFOSA-M	99		10 - 150
d7-N-MeFOSE-M	100		10 - 150
d9-N-EtFOSE-M	92		10 - 150
M2-4:2 FTS	72		25 - 150
M2-6:2 FTS	69		25 - 150
M2-8:2 FTS	81		25 - 150
13C3 HFPO-DA	104		25 - 150
13C2 10:2 FTS	112		25 - 150

QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

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

Lab Sample ID: 500-243466-1 MS

Matrix: Water

Analysis Batch: 726507

Client Sample ID: 2519-E

Prep Type: Total/NA

Prep Batch: 725600

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Perfluorobutanoic acid (PFBA)	<2.2	F1	38.0	25.2	F1	ng/L		66		70 - 130
Perfluoropentanoic acid (PFPeA)	<0.45		38.0	40.4		ng/L		106		70 - 130
Perfluorohexanoic acid (PFHxA)	<0.54		38.0	39.2		ng/L		103		70 - 130
Perfluoroheptanoic acid (PFHpA)	<0.23		38.0	38.0		ng/L		100		70 - 130
Perfluorooctanoic acid (PFOA)	<0.79		38.0	37.2		ng/L		98		70 - 130
Perfluorononanoic acid (PFNA)	<0.25		38.0	36.1		ng/L		95		70 - 130
Perfluorodecanoic acid (PFDA)	<0.29		38.0	36.2		ng/L		95		70 - 130
Perfluoroundecanoic acid (PFUnA)	<1.0		38.0	39.6		ng/L		104		70 - 130
Perfluorododecanoic acid (PFDoA)	<0.51		38.0	36.3		ng/L		96		70 - 130
Perfluorotridecanoic acid (PFTTrDA)	<1.2		38.0	37.8		ng/L		99		70 - 130
Perfluorotetradecanoic acid (PFTeA)	<0.68		38.0	39.6		ng/L		104		70 - 130
Perfluorobutanesulfonic acid (PFBS)	<0.19		33.7	34.2		ng/L		101		70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<0.28		35.7	42.8		ng/L		120		70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<0.53		34.7	33.0		ng/L		95		70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		36.2	35.1		ng/L		97		70 - 130
Perfluorooctanesulfonic acid (PFOS)	<0.50		35.3	35.4		ng/L		100		70 - 130
Perfluorononanesulfonic acid (PFNS)	<0.34		36.6	42.4		ng/L		116		70 - 130
Perfluorodecanesulfonic acid (PFDS)	<0.30		36.6	37.3		ng/L		102		70 - 130
Perfluorododecanesulfonic acid (PFDoS)	<0.90		36.9	40.8		ng/L		111		70 - 130
Perfluorooctanesulfonamide (FOSA)	<0.91		38.0	41.2		ng/L		108		70 - 130
NEtFOSA	<0.80		38.0	35.3		ng/L		93		70 - 130
NMeFOSA	<0.40		38.0	35.9		ng/L		95		70 - 130
NMeFOSAA	<1.1		38.0	41.0		ng/L		108		70 - 130
NEtFOSAA	<1.2		38.0	40.6		ng/L		107		70 - 130
NMeFOSE	<1.3		38.0	36.9		ng/L		97		70 - 130
NEtFOSE	<0.79		38.0	41.4		ng/L		109		70 - 130
4:2 FTS	<0.22		35.6	32.6		ng/L		91		70 - 130
6:2 FTS	<2.3		36.2	34.1		ng/L		94		70 - 130
8:2 FTS	<0.43		36.5	39.6		ng/L		109		70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.37		35.9	40.3		ng/L		112		70 - 130
HFPO-DA (GenX)	<1.4		38.0	38.7		ng/L		102		70 - 130
9CI-PF3ONS	<0.22		35.5	38.5		ng/L		109		70 - 130
11CI-PF3OUdS	<0.30		35.9	43.0		ng/L		120		70 - 130
		MS MS								
Isotope Dilution	%Recovery	Qualifier	Limits							
13C4 PFBA	72		25 - 150							
13C5 PFPeA	45		25 - 150							
13C2 PFHxA	95		25 - 150							

QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

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

Lab Sample ID: 500-243466-1 MS
Matrix: Water
Analysis Batch: 726507

Client Sample ID: 2519-E
Prep Type: Total/NA
Prep Batch: 725600

<i>Isotope Dilution</i>	<i>MS</i>	<i>MS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C4 PFHpA	101		25 - 150
13C4 PFOA	95		25 - 150
13C5 PFNA	97		25 - 150
13C2 PFDA	105		25 - 150
13C2 PFUnA	100		25 - 150
13C2 PFDoA	104		25 - 150
13C2 PFTeDA	95		25 - 150
13C3 PFBS	75		25 - 150
18O2 PFHxS	94		25 - 150
13C4 PFOS	90		25 - 150
13C8 FOSA	93		10 - 150
d3-NMeFOSAA	81		25 - 150
d5-NEtFOSAA	75		25 - 150
d-N-MeFOSA-M	83		10 - 150
d-N-EtFOSA-M	89		10 - 150
d7-N-MeFOSE-M	92		10 - 150
d9-N-EtFOSE-M	83		10 - 150
M2-4:2 FTS	82		25 - 150
M2-6:2 FTS	72		25 - 150
M2-8:2 FTS	90		25 - 150
13C3 HFPO-DA	93		25 - 150
13C2 10:2 FTS	112		25 - 150

Lab Sample ID: 500-243466-1 MSD
Matrix: Water
Analysis Batch: 726507

Client Sample ID: 2519-E
Prep Type: Total/NA
Prep Batch: 725600

<i>Analyte</i>	<i>Sample</i>	<i>Sample</i>	<i>Spike</i>	<i>MSD</i>		<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>		<i>RPD</i>	<i>Limit</i>
	<i>Result</i>	<i>Qualifier</i>	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>	<i>RPD</i>		
Perfluorobutanoic acid (PFBA)	<2.2	F1	37.6	24.6	F1	ng/L		66	70 - 130	2	30	
Perfluoropentanoic acid (PFPeA)	<0.45		37.6	41.5		ng/L		110	70 - 130	3	30	
Perfluorohexanoic acid (PFHxA)	<0.54		37.6	38.1		ng/L		102	70 - 130	3	30	
Perfluoroheptanoic acid (PFHpA)	<0.23		37.6	38.6		ng/L		103	70 - 130	1	30	
Perfluorooctanoic acid (PFOA)	<0.79		37.6	38.5		ng/L		103	70 - 130	3	30	
Perfluorononanoic acid (PFNA)	<0.25		37.6	36.4		ng/L		97	70 - 130	1	30	
Perfluorodecanoic acid (PFDA)	<0.29		37.6	36.7		ng/L		98	70 - 130	1	30	
Perfluoroundecanoic acid (PFUnA)	<1.0		37.6	37.6		ng/L		100	70 - 130	5	30	
Perfluorododecanoic acid (PFDoA)	<0.51		37.6	35.7		ng/L		95	70 - 130	2	30	
Perfluorotridecanoic acid (PFTTrDA)	<1.2		37.6	35.2		ng/L		94	70 - 130	7	30	
Perfluorotetradecanoic acid (PFTeA)	<0.68		37.6	38.9		ng/L		103	70 - 130	2	30	
Perfluorobutanesulfonic acid (PFBS)	<0.19		33.4	36.2		ng/L		108	70 - 130	6	30	
Perfluoropentanesulfonic acid (PFPeS)	<0.28		35.3	46.0		ng/L		130	70 - 130	7	30	
Perfluorohexanesulfonic acid (PFHxS)	<0.53		34.3	32.1		ng/L		94	70 - 130	3	30	
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		35.8	33.0		ng/L		92	70 - 130	6	30	

Eurofins Chicago

QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

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

Lab Sample ID: 500-243466-1 MSD

Matrix: Water

Analysis Batch: 726507

Client Sample ID: 2519-E

Prep Type: Total/NA

Prep Batch: 725600

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	<0.50		34.9	34.4		ng/L		98	70 - 130	3	30
Perfluorononanesulfonic acid (PFNS)	<0.34		36.1	38.4		ng/L		106	70 - 130	10	30
Perfluorodecanesulfonic acid (PFDS)	<0.30		36.2	38.8		ng/L		107	70 - 130	4	30
Perfluorododecanesulfonic acid (PFDoS)	<0.90		36.4	41.6		ng/L		114	70 - 130	2	30
Perfluorooctanesulfonamide (FOSA)	<0.91		37.6	39.1		ng/L		104	70 - 130	5	30
NEtFOSA	<0.80		37.6	37.0		ng/L		98	70 - 130	5	30
NMeFOSA	<0.40		37.6	36.8		ng/L		98	70 - 130	2	30
NMeFOSAA	<1.1		37.6	39.3		ng/L		105	70 - 130	4	30
NEtFOSAA	<1.2		37.6	39.6		ng/L		105	70 - 130	2	30
NMeFOSE	<1.3		37.6	36.9		ng/L		98	70 - 130	0	30
NEtFOSE	<0.79		37.6	37.2		ng/L		99	70 - 130	11	30
4:2 FTS	<0.22		35.2	35.4		ng/L		100	70 - 130	8	30
6:2 FTS	<2.3		35.8	38.6		ng/L		108	70 - 130	12	30
8:2 FTS	<0.43		36.1	33.5		ng/L		93	70 - 130	17	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.37		35.5	38.4		ng/L		108	70 - 130	5	30
HFPO-DA (GenX)	<1.4		37.6	39.0		ng/L		104	70 - 130	1	30
9Cl-PF3ONS	<0.22		35.1	35.1		ng/L		100	70 - 130	9	30
11Cl-PF3OUdS	<0.30		35.5	40.6		ng/L		114	70 - 130	6	30

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	81		25 - 150
13C5 PFPeA	48		25 - 150
13C2 PFHxA	104		25 - 150
13C4 PFHpA	108		25 - 150
13C4 PFOA	100		25 - 150
13C5 PFNA	102		25 - 150
13C2 PFDA	106		25 - 150
13C2 PFUnA	111		25 - 150
13C2 PFDoA	119		25 - 150
13C2 PFTeDA	105		25 - 150
13C3 PFBS	77		25 - 150
18O2 PFHxS	99		25 - 150
13C4 PFOS	98		25 - 150
13C8 FOSA	101		10 - 150
d3-NMeFOSAA	84		25 - 150
d5-NEtFOSAA	87		25 - 150
d-N-MeFOSA-M	86		10 - 150
d-N-EtFOSA-M	92		10 - 150
d7-N-MeFOSE-M	97		10 - 150
d9-N-EtFOSE-M	92		10 - 150
M2-4:2 FTS	81		25 - 150
M2-6:2 FTS	68		25 - 150
M2-8:2 FTS	96		25 - 150
13C3 HFPO-DA	94		25 - 150

QC Sample Results

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

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

Lab Sample ID: 500-243466-1 MSD

Matrix: Water

Analysis Batch: 726507

Client Sample ID: 2519-E

Prep Type: Total/NA

Prep Batch: 725600

<i>Isotope Dilution</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C2 10:2 FTS	116		25 - 150

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Lab Chronicle

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Client Sample ID: 2519-E

Date Collected: 12/05/23 14:15

Date Received: 12/06/23 09:15

Lab Sample ID: 500-243466-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			725600	ERR	EET SAC	12/06/23 20:00
Total/NA	Analysis	537 (modified)		1	726507	S1M	EET SAC	12/09/23 13:26

Client Sample ID: 2519-E-FB

Date Collected: 12/05/23 14:20

Date Received: 12/06/23 09:15

Lab Sample ID: 500-243466-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			725600	ERR	EET SAC	12/06/23 20:00
Total/NA	Analysis	537 (modified)		1	726507	S1M	EET SAC	12/09/23 13:59

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-24

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- 2
- 3
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Eurofins Sacramento

880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

Client Information			Sampler: K. HELMSTEDT	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 500-118943-45320.1			
Client Contact Paul Lindquist			Phone: 262-901-0129	E-Mail: Sandra.Fredrick@et.eurofinsus.com	State of Origin: WI	Page: Page 1 of 1			
Company: Ramboll Americas Engineering Solutions			PWSID:			Job #:			
Address: 234 W. Florida Street Fifth Floor			Due Date Requested:			Analysis Requested Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)			
City: Milwaukee			TAT Requested (days): STANDARD						
State, Zip: WI, 53204			Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No						
Phone: 262-901-3510(Tel)			PO #: MIRRO 2						
Email: plindquist@ramboll.com			WO #:						
Project Name: Fmr Mirro Pit 2 - 1690026073			Project #: 50020429						
Site:			SSOW#:						
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA_WI - PFAS, Standard List (33 analytes)	Total Number of containers	Special Instructions/Note:
					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N		
2519-E	12/05/2023	1415	G	Water	N	Y	X	8	ADD'L VOL FOR MS/MSD
2519-E-FB	12/05/2023	1420	G	Water	N	N	X	2	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:				
Empty Kit Relinquished by:			Date:	Time:	Method of Shipment:				
Relinquished by: [Signature]			Date/Time: 12/05/2023 1810	Company: RAMBOLL	Received by: FEDER			Date/Time:	Company:
Relinquished by:			Date/Time:	Company:	Received by: [Signature]			Date/Time: 12/06/23 0915	Company: EETSOL
Relinquished by:			Date/Time:	Company:	Received by:			Date/Time:	Company:
Custody Seals Intact:	Custody Seal No.: 2327518			Cooler Temperature(s) °C and Other Remarks: 1.3°C					



500-243466 Chain of Custody



Login Sample Receipt Checklist

Client: Ramboll Americas Engineering Solutions

Job Number: 500-243466-1

Login Number: 243466

List Number: 2

Creator: Morazzini, Dominic S

List Source: Eurofins Sacramento

List Creation: 12/06/23 04:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2327518
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Testing

Sacramento Sample Receiving Notes (SSRN)



500-243466 Field Sheet

Tracking #: 716315008125

Job: _____

SO (PO) FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSL / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Therm. ID: L06 Corr. Factor: (+/-) NA °C

Ice Wet _____ Gel _____ Other _____

Cooler Custody Seal: 23275/8

Cooler ID: _____

Temp Observed: 1.3 °C Corrected: 1.3 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frozen samples show signs of thaw?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: DM Date: 12/6/23

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COC is complete w/o discrepancies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the Field Sampler's name on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: ANH Date: 12/6/23

Notes: _____

Trizma Lot #(s): _____

Ammonium
Acetate Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples received within hold time?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Log Release checked in TALS?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: ANH Date: 12/6/23

Isotope Dilution Summary

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243466-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
500-243466-1	2519-E	88	53	117	113	103	102	122	126
500-243466-1 MS	2519-E	72	45	95	101	95	97	105	100
500-243466-1 MSD	2519-E	81	48	104	108	100	102	106	111
500-243466-2	2519-E-FB	97	60	109	106	102	104	116	109
LCS 320-725600/2-A	Lab Control Sample	102	56	106	111	103	102	117	113
MB 320-725600/1-A	Method Blank	101	60	116	120	105	114	119	117

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
500-243466-1	2519-E	119	109	84	102	105	104	93	80
500-243466-1 MS	2519-E	104	95	75	94	90	93	81	75
500-243466-1 MSD	2519-E	119	105	77	99	98	101	84	87
500-243466-2	2519-E-FB	116	105	83	98	99	99	85	82
LCS 320-725600/2-A	Lab Control Sample	113	104	90	106	96	105	85	88
MB 320-725600/1-A	Method Blank	115	108	91	111	105	101	95	87

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
500-243466-1	2519-E	92	94	103	98	85	77	94	102
500-243466-1 MS	2519-E	83	89	92	83	82	72	90	93
500-243466-1 MSD	2519-E	86	92	97	92	81	68	96	94
500-243466-2	2519-E-FB	90	97	99	90	82	71	93	97
LCS 320-725600/2-A	Lab Control Sample	90	99	100	92	72	69	81	104
MB 320-725600/1-A	Method Blank	96	99	104	94	86	70	100	113

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M102FTS (25-150)
500-243466-1	2519-E	120
500-243466-1 MS	2519-E	112
500-243466-1 MSD	2519-E	116
500-243466-2	2519-E-FB	104
LCS 320-725600/2-A	Lab Control Sample	112
MB 320-725600/1-A	Method Blank	120

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA

Isotope Dilution Summary

Client: Ramboll Americas Engineering Solutions

Job ID: 500-243466-1

Project/Site: Fmr Mirro Plt 2 - 1690026073

d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFm = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
M102FTS = 13C2 10:2 FTS

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Sent Via Overnight Delivery

██████████
2722 Woodland Drive
Manitowoc, WI 54220

**POTABLE WELL SAMPLING RESULTS AT 2722 WOODLAND DRIVE
FORMER MIRRO PLANT NO. 2, 2009 MIRRO DRIVE
MANITOWOC, WISCONSIN, BRRTS NO. 02-36-588656**

Dear ██████████:

The purpose of this letter is to provide you with the results of the recent potable well testing from your property completed by Newell Operating Company (NOC) with the oversight of the Wisconsin Department of Natural Resources (WDNR). As you are aware, this testing was conducted because of the potential for per- and polyfluoroalkyl substances (PFAS) contaminated groundwater to migrate off site from the nearby former Mirro Plant No. 2 facility.

On December 5, 2023, NOC's environmental consultant, Ramboll Americas Engineering Solutions, Inc. (Ramboll), collected water samples from your potable well using the spigot prior to your pressure tank. Ramboll submitted the samples to Eurofins Environment Testing (Eurofins) in Sacramento, California, a State of Wisconsin PFAS certified laboratory.

Your Test Results

A copy of the laboratory report for your potable well sample is enclosed. The analyses did not detect any PFAS compounds above the Wisconsin Department of Health Services (WDHS) recommended groundwater criteria¹. Perfluorooctanesulfonamide (PFOSA) was detected at an estimated concentration of 1.9 nanograms per liter (ng/L) which is below the WDHS recommended groundwater Preventative Action Limit (PAL) criteria of 2.0 ng/L and Enforcement Standard (ES) criteria of 20 ng/L. No other PFAS were detected in the potable well sample.

If you have any questions regarding the quality of your potable well water, please contact the following:

- Tauren Beggs, WDNR, (920) 510-3472, Tauren.Beggs@wisconsin.gov; or
- Nathan Kloczko, WDHS, (608) 267-3227, Nathan.Kloczko@dhs.wisconsin.gov.

¹ The WDHS recommended groundwater PAL and ES criteria for PFOSA is 2.0 ng/L and 20 ng/L, respectively. However, at the date of this letter, the recommended criteria for PFOSA have not been promulgated.

December 19, 2023

Ramboll
234 W. Florida Street
Fifth Floor
Milwaukee, WI 53204
USA

T +1 414 837 3607
F +1 414 837 3608
<https://ramboll.com>

Ref 1690026073



For any other questions regarding this letter, please contact Lou Meschede at (219) 781-7177.

Yours sincerely,

A handwritten signature in blue ink that reads "Paul D. Lindquist".

Paul D. Lindquist

Managing Consultant

D +1 262 901 3510

plindquist@ramboll.com

A handwritten signature in blue ink that reads "Jeanne M. Tarvin".

Jeanne M. Tarvin, PG, CPG

E&H Americas Country Market Director

D +1 262 901 0085

jtarvin@ramboll.com

cc: Kristin Jones, NOC
Tauren Beggs, WDNR
Nathan Kloczko, WDHS



ENCLOSURE

EUROFINS LABORATORY ANALYTICAL REPORT



ANALYTICAL REPORT

PREPARED FOR

Attn: Paul Lindquist
Ramboll Americas Engineering Solutions
234 W. Florida Street
Fifth Floor
Milwaukee, Wisconsin 53204

Generated 12/12/2023 12:30:27 PM

JOB DESCRIPTION

Fmr Mirro Plt 2 - 1690026073

JOB NUMBER

500-243468-1

Eurofins Chicago

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Compliance Statement

The LOD and LOQ reported are adjusted by the dilution factor when a dilution factor greater than 1 is needed. Additionally, where results are indicated as being reported on a dry weight basis, the LOD and LOQ are adjusted for moisture content as well.

Definitions of Limits

- LOD = Limit of Detection = MDL as defined by 40 CFR part 136 Appendix B
- LOQ = Limit of Quantitation = 3.33 x LOD as defined by Wisconsin
- RL = Report Limit = a concentration supported by a standard in the calibration curves

Authorization



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Authorized for release by
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Case Narrative

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Job ID: 500-243468-1

Laboratory: Eurofins Chicago

Narrative

**Job Narrative
500-243468-1**

Receipt

The samples were received on 12/6/2023 9:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.8° C.

LCMS

Method 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 320-725600 and analytical batch 320-726507 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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

Organic Prep

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

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Detection Summary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Client Sample ID: 2722-E

Lab Sample ID: 500-243468-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonamide (FOSA)	1.9	J	2.0	1.0	ng/L	1		537 (modified)	Total/NA

Client Sample ID: 2722-E-FB

Lab Sample ID: 500-243468-2

No Detections.

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

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

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
500-243468-1	2722-E	Water	12/05/23 15:15	12/06/23 09:15
500-243468-2	2722-E-FB	Water	12/05/23 15:20	12/06/23 09:15

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Client Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Client Sample ID: 2722-E

Lab Sample ID: 500-243468-1

Date Collected: 12/05/23 15:15

Matrix: Water

Date Received: 12/06/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4	F1	5.1	2.4	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluoropentanoic acid (PFPeA)	<0.50		2.0	0.50	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorohexanoic acid (PFHxA)	<0.59		2.0	0.59	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorooctanoic acid (PFOA)	<0.86		2.0	0.86	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorodecanoic acid (PFDA)	<0.32		2.0	0.32	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorododecanoic acid (PFDoA)	<0.56		2.0	0.56	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorotridecanoic acid (PFTrDA)	<1.3		2.0	1.3	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorotetradecanoic acid (PFTeA)	<0.74		2.0	0.74	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluoropentanesulfonic acid (PFPeS)	<0.31	F1	2.0	0.31	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorohexanesulfonic acid (PFHxS)	<0.58		2.0	0.58	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorooctanesulfonic acid (PFOS)	<0.55		2.0	0.55	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorononanesulfonic acid (PFNS)	<0.38		2.0	0.38	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorodecanesulfonic acid (PFDS)	<0.33		2.0	0.33	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorododecanesulfonic acid (PFDoS)	<0.99		2.0	0.99	ng/L		12/06/23 20:00	12/09/23 14:33	1
Perfluorooctanesulfonamide (FOSA)	1.9	J	2.0	1.0	ng/L		12/06/23 20:00	12/09/23 14:33	1
NEtFOSA	<0.88		2.0	0.88	ng/L		12/06/23 20:00	12/09/23 14:33	1
NMeFOSA	<0.44		2.0	0.44	ng/L		12/06/23 20:00	12/09/23 14:33	1
NMeFOSAA	<1.2		5.1	1.2	ng/L		12/06/23 20:00	12/09/23 14:33	1
NEtFOSAA	<1.3		5.1	1.3	ng/L		12/06/23 20:00	12/09/23 14:33	1
NMeFOSE	<1.4		4.1	1.4	ng/L		12/06/23 20:00	12/09/23 14:33	1
NEtFOSE	<0.86		2.0	0.86	ng/L		12/06/23 20:00	12/09/23 14:33	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/06/23 20:00	12/09/23 14:33	1
6:2 FTS	<2.5		5.1	2.5	ng/L		12/06/23 20:00	12/09/23 14:33	1
8:2 FTS	<0.47		2.0	0.47	ng/L		12/06/23 20:00	12/09/23 14:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.41		2.0	0.41	ng/L		12/06/23 20:00	12/09/23 14:33	1
HFPO-DA (GenX)	<1.5		4.1	1.5	ng/L		12/06/23 20:00	12/09/23 14:33	1
9Cl-PF3ONS	<0.24		2.0	0.24	ng/L		12/06/23 20:00	12/09/23 14:33	1
11Cl-PF3OUdS	<0.33		2.0	0.33	ng/L		12/06/23 20:00	12/09/23 14:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	76		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C5 PFPeA	44		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C2 PFHxA	101		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C4 PFHpA	102		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C4 PFOA	98		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C5 PFNA	95		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C2 PFDA	105		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C2 PFUnA	93		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C2 PFDoA	109		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C2 PFTeDA	97		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C3 PFBS	76		25 - 150	12/06/23 20:00	12/09/23 14:33	1

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Client Sample Results

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Client Sample ID: 2722-E

Lab Sample ID: 500-243468-1

Date Collected: 12/05/23 15:15

Matrix: Water

Date Received: 12/06/23 09:15

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	94		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C4 PFOS	92		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C8 FOSA	99		10 - 150	12/06/23 20:00	12/09/23 14:33	1
d3-NMeFOSAA	87		25 - 150	12/06/23 20:00	12/09/23 14:33	1
d5-NEtFOSAA	74		25 - 150	12/06/23 20:00	12/09/23 14:33	1
d-N-MeFOSA-M	88		10 - 150	12/06/23 20:00	12/09/23 14:33	1
d-N-EtFOSA-M	86		10 - 150	12/06/23 20:00	12/09/23 14:33	1
d7-N-MeFOSE-M	91		10 - 150	12/06/23 20:00	12/09/23 14:33	1
d9-N-EtFOSE-M	86		10 - 150	12/06/23 20:00	12/09/23 14:33	1
M2-4:2 FTS	79		25 - 150	12/06/23 20:00	12/09/23 14:33	1
M2-6:2 FTS	66		25 - 150	12/06/23 20:00	12/09/23 14:33	1
M2-8:2 FTS	99		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C3 HFPO-DA	91		25 - 150	12/06/23 20:00	12/09/23 14:33	1
13C2 10:2 FTS	103		25 - 150	12/06/23 20:00	12/09/23 14:33	1

Client Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Client Sample ID: 2722-E-FB

Lab Sample ID: 500-243468-2

Date Collected: 12/05/23 15:20

Matrix: Water

Date Received: 12/06/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.2		4.6	2.2	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluoropentanoic acid (PFPeA)	<0.46		1.9	0.46	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorohexanoic acid (PFHxA)	<0.54		1.9	0.54	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluoroheptanoic acid (PFHpA)	<0.23		1.9	0.23	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorooctanoic acid (PFOA)	<0.79		1.9	0.79	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.9	0.51	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.9	1.2	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorotetradecanoic acid (PFTeA)	<0.68		1.9	0.68	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorohexanesulfonic acid (PFHxS)	<0.53		1.9	0.53	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.9	0.50	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.9	0.34	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorododecanesulfonic acid (PFDoS)	<0.90		1.9	0.90	ng/L		12/06/23 20:00	12/09/23 15:07	1
Perfluorooctanesulfonamide (FOSA)	<0.91		1.9	0.91	ng/L		12/06/23 20:00	12/09/23 15:07	1
NEtFOSA	<0.81		1.9	0.81	ng/L		12/06/23 20:00	12/09/23 15:07	1
NMeFOSA	<0.40		1.9	0.40	ng/L		12/06/23 20:00	12/09/23 15:07	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		12/06/23 20:00	12/09/23 15:07	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		12/06/23 20:00	12/09/23 15:07	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/06/23 20:00	12/09/23 15:07	1
NEtFOSE	<0.79		1.9	0.79	ng/L		12/06/23 20:00	12/09/23 15:07	1
4:2 FTS	<0.22		1.9	0.22	ng/L		12/06/23 20:00	12/09/23 15:07	1
6:2 FTS	<2.3		4.6	2.3	ng/L		12/06/23 20:00	12/09/23 15:07	1
8:2 FTS	<0.43		1.9	0.43	ng/L		12/06/23 20:00	12/09/23 15:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.37		1.9	0.37	ng/L		12/06/23 20:00	12/09/23 15:07	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/06/23 20:00	12/09/23 15:07	1
9Cl-PF3ONS	<0.22		1.9	0.22	ng/L		12/06/23 20:00	12/09/23 15:07	1
11Cl-PF3OUdS	<0.30		1.9	0.30	ng/L		12/06/23 20:00	12/09/23 15:07	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	103		25 - 150				12/06/23 20:00	12/09/23 15:07	1
13C5 PFPeA	61		25 - 150				12/06/23 20:00	12/09/23 15:07	1
13C2 PFHxA	116		25 - 150				12/06/23 20:00	12/09/23 15:07	1
13C4 PFHpA	119		25 - 150				12/06/23 20:00	12/09/23 15:07	1
13C4 PFOA	109		25 - 150				12/06/23 20:00	12/09/23 15:07	1
13C5 PFNA	106		25 - 150				12/06/23 20:00	12/09/23 15:07	1
13C2 PFDA	119		25 - 150				12/06/23 20:00	12/09/23 15:07	1
13C2 PFUnA	117		25 - 150				12/06/23 20:00	12/09/23 15:07	1
13C2 PFDoA	112		25 - 150				12/06/23 20:00	12/09/23 15:07	1
13C2 PFTeDA	110		25 - 150				12/06/23 20:00	12/09/23 15:07	1
13C3 PFBS	87		25 - 150				12/06/23 20:00	12/09/23 15:07	1
18O2 PFHxS	105		25 - 150				12/06/23 20:00	12/09/23 15:07	1

Eurofins Chicago

Client Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Client Sample ID: 2722-E-FB

Lab Sample ID: 500-243468-2

Date Collected: 12/05/23 15:20

Matrix: Water

Date Received: 12/06/23 09:15

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOS	104		25 - 150	12/06/23 20:00	12/09/23 15:07	1
13C8 FOSA	105		10 - 150	12/06/23 20:00	12/09/23 15:07	1
d3-NMeFOSAA	86		25 - 150	12/06/23 20:00	12/09/23 15:07	1
d5-NEtFOSAA	95		25 - 150	12/06/23 20:00	12/09/23 15:07	1
d-N-MeFOSA-M	96		10 - 150	12/06/23 20:00	12/09/23 15:07	1
d-N-EtFOSA-M	100		10 - 150	12/06/23 20:00	12/09/23 15:07	1
d7-N-MeFOSE-M	95		10 - 150	12/06/23 20:00	12/09/23 15:07	1
d9-N-EtFOSE-M	91		10 - 150	12/06/23 20:00	12/09/23 15:07	1
M2-4:2 FTS	93		25 - 150	12/06/23 20:00	12/09/23 15:07	1
M2-6:2 FTS	84		25 - 150	12/06/23 20:00	12/09/23 15:07	1
M2-8:2 FTS	98		25 - 150	12/06/23 20:00	12/09/23 15:07	1
13C3 HFPO-DA	104		25 - 150	12/06/23 20:00	12/09/23 15:07	1
13C2 10:2 FTS	112		25 - 150	12/06/23 20:00	12/09/23 15:07	1

Definitions/Glossary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Qualifiers

LCMS

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

QC Association Summary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

LCMS

Prep Batch: 725600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-243468-1	2722-E	Total/NA	Water	3535	
500-243468-2	2722-E-FB	Total/NA	Water	3535	
MB 320-725600/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-725600/2-A	Lab Control Sample	Total/NA	Water	3535	
500-243468-1 MS	2722-E	Total/NA	Water	3535	
500-243468-1 MSD	2722-E	Total/NA	Water	3535	

Analysis Batch: 726507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-243468-1	2722-E	Total/NA	Water	537 (modified)	725600
500-243468-2	2722-E-FB	Total/NA	Water	537 (modified)	725600
MB 320-725600/1-A	Method Blank	Total/NA	Water	537 (modified)	725600
LCS 320-725600/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	725600
500-243468-1 MS	2722-E	Total/NA	Water	537 (modified)	725600
500-243468-1 MSD	2722-E	Total/NA	Water	537 (modified)	725600

QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-725600/1-A
Matrix: Water
Analysis Batch: 726507

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 725600

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorotridecanoic acid (PFTrDA)	<1.3		2.0	1.3	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		12/06/23 20:00	12/09/23 12:18	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		12/06/23 20:00	12/09/23 12:18	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/06/23 20:00	12/09/23 12:18	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/06/23 20:00	12/09/23 12:18	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/06/23 20:00	12/09/23 12:18	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/06/23 20:00	12/09/23 12:18	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/06/23 20:00	12/09/23 12:18	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/06/23 20:00	12/09/23 12:18	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/06/23 20:00	12/09/23 12:18	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/06/23 20:00	12/09/23 12:18	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/06/23 20:00	12/09/23 12:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		12/06/23 20:00	12/09/23 12:18	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/06/23 20:00	12/09/23 12:18	1
9Cl-PF3ONS	<0.24		2.0	0.24	ng/L		12/06/23 20:00	12/09/23 12:18	1
11Cl-PF3OUdS	<0.32		2.0	0.32	ng/L		12/06/23 20:00	12/09/23 12:18	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	101		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C5 PFPeA	60		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 PFHxA	116		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C4 PFHpA	120		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C4 PFOA	105		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C5 PFNA	114		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 PFDA	119		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 PFUnA	117		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 PFDoA	115		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 PFTeDA	108		25 - 150	12/06/23 20:00	12/09/23 12:18	1

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QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

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

Lab Sample ID: MB 320-725600/1-A
Matrix: Water
Analysis Batch: 726507

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 725600

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	91		25 - 150	12/06/23 20:00	12/09/23 12:18	1
18O2 PFHxS	111		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C4 PFOS	105		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C8 FOSA	101		10 - 150	12/06/23 20:00	12/09/23 12:18	1
d3-NMeFOSAA	95		25 - 150	12/06/23 20:00	12/09/23 12:18	1
d5-NEtFOSAA	87		25 - 150	12/06/23 20:00	12/09/23 12:18	1
d-N-MeFOSA-M	96		10 - 150	12/06/23 20:00	12/09/23 12:18	1
d-N-EtFOSA-M	99		10 - 150	12/06/23 20:00	12/09/23 12:18	1
d7-N-MeFOSE-M	104		10 - 150	12/06/23 20:00	12/09/23 12:18	1
d9-N-EtFOSE-M	94		10 - 150	12/06/23 20:00	12/09/23 12:18	1
M2-4:2 FTS	86		25 - 150	12/06/23 20:00	12/09/23 12:18	1
M2-6:2 FTS	70		25 - 150	12/06/23 20:00	12/09/23 12:18	1
M2-8:2 FTS	100		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C3 HFPO-DA	113		25 - 150	12/06/23 20:00	12/09/23 12:18	1
13C2 10:2 FTS	120		25 - 150	12/06/23 20:00	12/09/23 12:18	1

Lab Sample ID: LCS 320-725600/2-A
Matrix: Water
Analysis Batch: 726507

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 725600

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	27.2		ng/L		68	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	42.9		ng/L		107	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	38.1		ng/L		95	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	38.5		ng/L		96	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	37.7		ng/L		94	60 - 135
Perfluorononanoic acid (PFNA)	40.0	36.9		ng/L		92	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	35.8		ng/L		89	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	39.3		ng/L		98	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	39.3		ng/L		98	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	37.1		ng/L		93	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	41.1		ng/L		103	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	35.0		ng/L		99	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	42.5		ng/L		113	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	32.1		ng/L		88	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.3		ng/L		98	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	35.8		ng/L		96	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	41.5		ng/L		108	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	41.3		ng/L		107	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	42.5		ng/L		110	60 - 135

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QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

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

Lab Sample ID: LCS 320-725600/2-A
Matrix: Water
Analysis Batch: 726507

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 725600

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	37.0		ng/L		92	60 - 135
NEtFOSA	40.0	39.0		ng/L		98	60 - 135
NMeFOSA	40.0	38.9		ng/L		97	60 - 135
NMeFOSAA	40.0	40.9		ng/L		102	60 - 135
NEtFOSAA	40.0	37.2		ng/L		93	60 - 135
NMeFOSE	40.0	39.1		ng/L		98	60 - 135
NEtFOSE	40.0	39.5		ng/L		99	60 - 135
4:2 FTS	37.5	38.3		ng/L		102	60 - 135
6:2 FTS	38.1	38.8		ng/L		102	60 - 135
8:2 FTS	38.4	38.1		ng/L		99	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	41.2		ng/L		109	60 - 135
HFPO-DA (GenX)	40.0	37.7		ng/L		94	60 - 135
9Cl-PF3ONS	37.4	37.7		ng/L		101	60 - 135
11Cl-PF3OUdS	37.8	40.1		ng/L		106	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	102		25 - 150
13C5 PFPeA	56		25 - 150
13C2 PFHxA	106		25 - 150
13C4 PFHpA	111		25 - 150
13C4 PFOA	103		25 - 150
13C5 PFNA	102		25 - 150
13C2 PFDA	117		25 - 150
13C2 PFUnA	113		25 - 150
13C2 PFDoA	113		25 - 150
13C2 PFTeDA	104		25 - 150
13C3 PFBS	90		25 - 150
18O2 PFHxS	106		25 - 150
13C4 PFOS	96		25 - 150
13C8 FOSA	105		10 - 150
d3-NMeFOSAA	85		25 - 150
d5-NEtFOSAA	88		25 - 150
d-N-MeFOSA-M	90		10 - 150
d-N-EtFOSA-M	99		10 - 150
d7-N-MeFOSE-M	100		10 - 150
d9-N-EtFOSE-M	92		10 - 150
M2-4:2 FTS	72		25 - 150
M2-6:2 FTS	69		25 - 150
M2-8:2 FTS	81		25 - 150
13C3 HFPO-DA	104		25 - 150
13C2 10:2 FTS	112		25 - 150

QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

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

Lab Sample ID: 500-243468-1 MS

Matrix: Water

Analysis Batch: 726507

Client Sample ID: 2722-E

Prep Type: Total/NA

Prep Batch: 725600

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Perfluorobutanoic acid (PFBA)	<2.4	F1	36.1	25.1	F1	ng/L		69		70 - 130
Perfluoropentanoic acid (PFPeA)	<0.50		36.1	40.8		ng/L		113		70 - 130
Perfluorohexanoic acid (PFHxA)	<0.59		36.1	36.3		ng/L		101		70 - 130
Perfluoroheptanoic acid (PFHpA)	<0.25		36.1	35.8		ng/L		99		70 - 130
Perfluorooctanoic acid (PFOA)	<0.86		36.1	37.8		ng/L		105		70 - 130
Perfluorononanoic acid (PFNA)	<0.27		36.1	34.3		ng/L		95		70 - 130
Perfluorodecanoic acid (PFDA)	<0.32		36.1	34.8		ng/L		96		70 - 130
Perfluoroundecanoic acid (PFUnA)	<1.1		36.1	36.5		ng/L		101		70 - 130
Perfluorododecanoic acid (PFDoA)	<0.56		36.1	36.1		ng/L		100		70 - 130
Perfluorotridecanoic acid (PFTTrDA)	<1.3		36.1	37.4		ng/L		104		70 - 130
Perfluorotetradecanoic acid (PFTeA)	<0.74		36.1	38.4		ng/L		106		70 - 130
Perfluorobutanesulfonic acid (PFBS)	<0.20		32.0	36.3		ng/L		113		70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<0.31	F1	33.9	43.8		ng/L		129		70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<0.58		32.9	32.6		ng/L		99		70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		34.4	34.1		ng/L		99		70 - 130
Perfluorooctanesulfonic acid (PFOS)	<0.55		33.5	34.9		ng/L		104		70 - 130
Perfluorononanesulfonic acid (PFNS)	<0.38		34.7	36.9		ng/L		106		70 - 130
Perfluorodecanesulfonic acid (PFDS)	<0.33		34.8	36.8		ng/L		106		70 - 130
Perfluorododecanesulfonic acid (PFDoS)	<0.99		35.0	39.2		ng/L		112		70 - 130
Perfluorooctanesulfonamide (FOSA)	1.9	J	36.1	38.3		ng/L		101		70 - 130
NEtFOSA	<0.88		36.1	33.5		ng/L		93		70 - 130
NMeFOSA	<0.44		36.1	36.0		ng/L		100		70 - 130
NMeFOSAA	<1.2		36.1	36.8		ng/L		102		70 - 130
NEtFOSAA	<1.3		36.1	36.5		ng/L		101		70 - 130
NMeFOSE	<1.4		36.1	38.7		ng/L		107		70 - 130
NEtFOSE	<0.86		36.1	39.3		ng/L		109		70 - 130
4:2 FTS	<0.24		33.8	34.8		ng/L		103		70 - 130
6:2 FTS	<2.5		34.3	33.6		ng/L		98		70 - 130
8:2 FTS	<0.47		34.6	38.0		ng/L		110		70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.41		34.1	36.7		ng/L		108		70 - 130
HFPO-DA (GenX)	<1.5		36.1	37.2		ng/L		103		70 - 130
9CI-PF3ONS	<0.24		33.7	37.5		ng/L		111		70 - 130
11CI-PF3OUdS	<0.33		34.1	37.5		ng/L		110		70 - 130
				MS	MS					
Isotope Dilution				%Recovery	Qualifier					Limits
13C4 PFBA				92						25 - 150
13C5 PFPeA				58						25 - 150
13C2 PFHxA				121						25 - 150

QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

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

Lab Sample ID: 500-243468-1 MS
Matrix: Water
Analysis Batch: 726507

Client Sample ID: 2722-E
Prep Type: Total/NA
Prep Batch: 725600

<i>Isotope Dilution</i>	<i>MS</i>	<i>MS</i>	<i>Limits</i>
<i>%Recovery</i>	<i>Qualifier</i>		
13C4 PFHpA	123		25 - 150
13C4 PFOA	110		25 - 150
13C5 PFNA	115		25 - 150
13C2 PFDA	127		25 - 150
13C2 PFUnA	130		25 - 150
13C2 PFDaA	125		25 - 150
13C2 PFTeDA	110		25 - 150
13C3 PFBS	89		25 - 150
18O2 PFHxS	107		25 - 150
13C4 PFOS	108		25 - 150
13C8 FOSA	115		10 - 150
d3-NMeFOSAA	101		25 - 150
d5-NEtFOSAA	91		25 - 150
d-N-MeFOSA-M	92		10 - 150
d-N-EtFOSA-M	99		10 - 150
d7-N-MeFOSE-M	99		10 - 150
d9-N-EtFOSE-M	98		10 - 150
M2-4:2 FTS	97		25 - 150
M2-6:2 FTS	73		25 - 150
M2-8:2 FTS	109		25 - 150
13C3 HFPO-DA	113		25 - 150
13C2 10:2 FTS	122		25 - 150

Lab Sample ID: 500-243468-1 MSD
Matrix: Water
Analysis Batch: 726507

Client Sample ID: 2722-E
Prep Type: Total/NA
Prep Batch: 725600

<i>Analyte</i>	<i>Sample</i>	<i>Sample</i>	<i>Spike</i>	<i>MSD</i>		<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>		<i>RPD</i>	
	<i>Result</i>	<i>Qualifier</i>	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>	<i>RPD</i>	<i>Limit</i>	
Perfluorobutanoic acid (PFBA)	<2.4	F1	38.5	24.1	F1	ng/L		63	70 - 130	4	30	
Perfluoropentanoic acid (PFPeA)	<0.50		38.5	41.7		ng/L		108	70 - 130	2	30	
Perfluorohexanoic acid (PFHxA)	<0.59		38.5	37.8		ng/L		98	70 - 130	4	30	
Perfluoroheptanoic acid (PFHpA)	<0.25		38.5	39.5		ng/L		103	70 - 130	10	30	
Perfluorooctanoic acid (PFOA)	<0.86		38.5	38.2		ng/L		99	70 - 130	1	30	
Perfluorononanoic acid (PFNA)	<0.27		38.5	37.3		ng/L		97	70 - 130	8	30	
Perfluorodecanoic acid (PFDA)	<0.32		38.5	36.3		ng/L		94	70 - 130	4	30	
Perfluoroundecanoic acid (PFUnA)	<1.1		38.5	37.9		ng/L		98	70 - 130	4	30	
Perfluorododecanoic acid (PFDaA)	<0.56		38.5	37.6		ng/L		98	70 - 130	4	30	
Perfluorotridecanoic acid (PFTTrDA)	<1.3		38.5	36.9		ng/L		96	70 - 130	1	30	
Perfluorotetradecanoic acid (PFTeA)	<0.74		38.5	38.3		ng/L		99	70 - 130	0	30	
Perfluorobutanesulfonic acid (PFBS)	<0.20		34.2	35.6		ng/L		104	70 - 130	2	30	
Perfluoropentanesulfonic acid (PFPeS)	<0.31	F1	36.2	48.1	F1	ng/L		133	70 - 130	9	30	
Perfluorohexanesulfonic acid (PFHxS)	<0.58		35.1	31.4		ng/L		90	70 - 130	4	30	
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		36.7	34.0		ng/L		93	70 - 130	0	30	

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QC Sample Results

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

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

Lab Sample ID: 500-243468-1 MSD

Matrix: Water

Analysis Batch: 726507

Client Sample ID: 2722-E

Prep Type: Total/NA

Prep Batch: 725600

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	<0.55		35.8	35.0		ng/L		98	70 - 130	0	30
Perfluorononanesulfonic acid (PFNS)	<0.38		37.0	40.4		ng/L		109	70 - 130	9	30
Perfluorodecanesulfonic acid (PFDS)	<0.33		37.1	38.1		ng/L		103	70 - 130	4	30
Perfluorododecanesulfonic acid (PFDoS)	<0.99		37.3	38.0		ng/L		102	70 - 130	3	30
Perfluorooctanesulfonamide (FOSA)	1.9	J	38.5	37.7		ng/L		93	70 - 130	1	30
NEtFOSA	<0.88		38.5	38.7		ng/L		100	70 - 130	14	30
NMeFOSA	<0.44		38.5	38.1		ng/L		99	70 - 130	6	30
NMeFOSAA	<1.2		38.5	35.9		ng/L		93	70 - 130	2	30
NEtFOSAA	<1.3		38.5	37.6		ng/L		98	70 - 130	3	30
NMeFOSE	<1.4		38.5	37.7		ng/L		98	70 - 130	3	30
NEtFOSE	<0.86		38.5	40.2		ng/L		104	70 - 130	2	30
4:2 FTS	<0.24		36.1	34.6		ng/L		96	70 - 130	1	30
6:2 FTS	<2.5		36.6	37.3		ng/L		102	70 - 130	10	30
8:2 FTS	<0.47		36.9	35.0		ng/L		95	70 - 130	8	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.41		36.4	35.7		ng/L		98	70 - 130	3	30
HFPO-DA (GenX)	<1.5		38.5	39.1		ng/L		102	70 - 130	5	30
9Cl-PF3ONS	<0.24		35.9	37.3		ng/L		104	70 - 130	0	30
11Cl-PF3OUdS	<0.33		36.3	40.3		ng/L		111	70 - 130	7	30

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	94		25 - 150
13C5 PFPeA	54		25 - 150
13C2 PFHxA	109		25 - 150
13C4 PFHpA	109		25 - 150
13C4 PFOA	103		25 - 150
13C5 PFNA	104		25 - 150
13C2 PFDA	117		25 - 150
13C2 PFUnA	124		25 - 150
13C2 PFDoA	121		25 - 150
13C2 PFTeDA	113		25 - 150
13C3 PFBS	80		25 - 150
18O2 PFHxS	107		25 - 150
13C4 PFOS	106		25 - 150
13C8 FOSA	111		10 - 150
d3-NMeFOSAA	93		25 - 150
d5-NEtFOSAA	93		25 - 150
d-N-MeFOSA-M	98		10 - 150
d-N-EtFOSA-M	95		10 - 150
d7-N-MeFOSE-M	101		10 - 150
d9-N-EtFOSE-M	95		10 - 150
M2-4:2 FTS	87		25 - 150
M2-6:2 FTS	73		25 - 150
M2-8:2 FTS	114		25 - 150
13C3 HFPO-DA	106		25 - 150

Eurofins Chicago

QC Sample Results

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

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

Lab Sample ID: 500-243468-1 MSD

Matrix: Water

Analysis Batch: 726507

Client Sample ID: 2722-E

Prep Type: Total/NA

Prep Batch: 725600

<i>Isotope Dilution</i>	<i>MSD MSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C2 10:2 FTS	119		25 - 150

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Lab Chronicle

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Client Sample ID: 2722-E

Date Collected: 12/05/23 15:15

Date Received: 12/06/23 09:15

Lab Sample ID: 500-243468-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			725600	ERR	EET SAC	12/06/23 20:00
Total/NA	Analysis	537 (modified)		1	726507	S1M	EET SAC	12/09/23 14:33

Client Sample ID: 2722-E-FB

Date Collected: 12/05/23 15:20

Date Received: 12/06/23 09:15

Lab Sample ID: 500-243468-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			725600	ERR	EET SAC	12/06/23 20:00
Total/NA	Analysis	537 (modified)		1	726507	S1M	EET SAC	12/09/23 15:07

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Ramboll Americas Engineering Solutions
Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-24

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Eurofins Sacramento

880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

Client Information: K. HEIMSTED, Fredrick, Sandie, WI
Analysis Requested: Table with columns for analytes and sample details. Includes sample dates 12/05/2023, sample types G, and matrices Water.
Possible Hazard Identification: Non-Hazard, Flammable, Skin Irritant, Poison B, Unknown, Radiological.
Sample Disposal: Return To Client, Disposal By Lab, Archive For Months.
Relinquished by: Paul Lindquist, Received by: FEDER, Date/Time: 12/06/23 0915.
Custody Seals Intact: Yes, Custody Seal No.: 2327519, Cooler Temperature(s): 1.8°C.

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12/12/2023



Login Sample Receipt Checklist

Client: Ramboll Americas Engineering Solutions

Job Number: 500-243468-1

Login Number: 243468

List Number: 2

Creator: Medeiros, Ryan M

List Source: Eurofins Sacramento

List Creation: 12/06/23 02:39 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2327519
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8 c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Environment Testing

Sacramento Sample Receiving Notes (SSRN)



Job: _____

500-243468 Field Sheet

Tracking #: 7163 1500 8114

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSL / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Therm. ID: LO6 Corr. Factor: (+/-) NA °C

Ice Wet _____ Gel _____ Other _____

Cooler Custody Seal: 2327519

Cooler ID: _____

Temp Observed: 1.8 °C Corrected: 1.8 °C
From: Temp Blank Sample

Opening/Processing The Shipment Yes No NA

Cooler compromised/tampered with?

Cooler Temperature is acceptable?

Frozen samples show signs of thaw?

Initials: DM Date: 12/06/23

Unpacking/Labeling The Samples Yes No NA

Containers are not broken or leaking?

Samples compromised/tampered with?

COC is complete w/o discrepancies

Sample custody seal?

Sample containers have legible labels?

Sample date/times are provided?

Appropriate containers are used?

Sample bottles are completely filled?

Sample preservatives verified?

Is the Field Sampler's name on COC?

Samples w/o discrepancies?

Zero headspace?*

Alkalinity has no headspace?

Perchlorate has headspace?
(Methods 314, 331, 6850)

Multiphasic samples are not present?

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: DM Date: 12/06/23

Notes: _____

Trizma Lot #(s): _____

Ammonium

Acetate Lot #(s): _____

Login Completion Yes No NA

Receipt Temperature on COC?

NCM Filed?

Samples received within hold time?

Log Release checked in TALS?

Initials: DM Date: 12/06/23

W23 3D

Isotope Dilution Summary

Client: Ramboll Americas Engineering Solutions
 Project/Site: Fmr Mirro Plt 2 - 1690026073

Job ID: 500-243468-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
500-243468-1	2722-E	76	44	101	102	98	95	105	93
500-243468-1 MS	2722-E	92	58	121	123	110	115	127	130
500-243468-1 MSD	2722-E	94	54	109	109	103	104	117	124
500-243468-2	2722-E-FB	103	61	116	119	109	106	119	117
LCS 320-725600/2-A	Lab Control Sample	102	56	106	111	103	102	117	113
MB 320-725600/1-A	Method Blank	101	60	116	120	105	114	119	117

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
500-243468-1	2722-E	109	97	76	94	92	99	87	74
500-243468-1 MS	2722-E	125	110	89	107	108	115	101	91
500-243468-1 MSD	2722-E	121	113	80	107	106	111	93	93
500-243468-2	2722-E-FB	112	110	87	105	104	105	86	95
LCS 320-725600/2-A	Lab Control Sample	113	104	90	106	96	105	85	88
MB 320-725600/1-A	Method Blank	115	108	91	111	105	101	95	87

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
500-243468-1	2722-E	88	86	91	86	79	66	99	91
500-243468-1 MS	2722-E	92	99	99	98	97	73	109	113
500-243468-1 MSD	2722-E	98	95	101	95	87	73	114	106
500-243468-2	2722-E-FB	96	100	95	91	93	84	98	104
LCS 320-725600/2-A	Lab Control Sample	90	99	100	92	72	69	81	104
MB 320-725600/1-A	Method Blank	96	99	104	94	86	70	100	113

		M102FTS (25-150)
500-243468-1	2722-E	103
500-243468-1 MS	2722-E	122
500-243468-1 MSD	2722-E	119
500-243468-2	2722-E-FB	112
LCS 320-725600/2-A	Lab Control Sample	112
MB 320-725600/1-A	Method Blank	120

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA

Isotope Dilution Summary

Client: Ramboll Americas Engineering Solutions

Job ID: 500-243468-1

Project/Site: Fmr Mirro Plt 2 - 1690026073

d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFm = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
M102FTS = 13C2 10:2 FTS

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