From: Beggs, Tauren R - DNR
Sent: Thursday, July 6, 2023 12:19 PM
To: Paul Lindquist
Cc: Kloczko, Nathan F - DHS; Kristin Jones (Kristin.Jones@newellco.com); Jeanne Tarvin; Susan Petrofske
Subject: RE: BRRTS #02-36-588656 (Former Mirro Plant No. 2) May 2023 Potable Well Sampling Results

Thanks Paul

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, July 5, 2023 12:16 PM
To: Beggs, Tauren R - DNR <Tauren.Beggs@wisconsin.gov>
Cc: Kloczko, Nathan F - DHS <nathan.kloczko@dhs.wisconsin.gov>; 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) May 2023 Potable Well Sampling Results

Good afternoon Tauren,

Attached are copies of the data transmittal letters provided to the property owners at 2519 Woodland Drive and 2722 Woodland Drive for the May 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). We received the last Level IV analytical reports for the properties on June 20, 2023. The property owner names have been redacted for privacy purposes. No compounds were detected above the WDHS recommended groundwater 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

Connect with us

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

RAMBOLL

ENVIRONMENT
& HEALTH

Sent Via Overnight Delivery

[redacted]
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 [redacted]:

June 23, 2023

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

T +1 414 837 3607
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https://ramboll.com

Ref 1690026073

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 May 24, 2023, NOC's environmental consultant, Ramboll US Consulting, 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 established WDNR drinking water criteria applicable to public drinking water systems[1].

Perfluorooctanesulfonamide (PFOSA) was detected at a concentration of 3.1 nanograms per liter (ng/L) which is below the Wisconsin Department of Health Services (WDHS) recommended groundwater enforcement standard criteria[2] of 20 ng/L. No other PFAS were detected in the potable well sample.

[1] On August 1, 2022, Wisconsin Administrative Code (WAC) NR 809 drinking water criteria for PFOA and perfluorooctanesulfonic acid (PFOS) were promulgated. The WAC NR 809 criteria for PFOA and PFOS is 70 nanograms per liter (ng/L) or part per trillion (ppt) individually or combined. These criteria are applicable to public drinking water systems, but they do not apply to water from private potable wells.

[2] The WDHS recommended groundwater enforcement standard criteria of 20 ng/L for select PFAS is listed in Cycle 10 and 11 of Groundwater Standards Proposals submitted by the WDHS to the WDNR for promulgation. Please note that the Natural Resources Board rejected the Cycle 10 recommended groundwater criteria and, as of the date of this letter, has not approved the Cycle 11 recommended groundwater criteria.

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

D +1 262 901 3510
plindquist@ramboll.com

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

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Paul Lindquist
Ramboll US Corporation
234 W. Florida Street
Fifth Floor
Milwaukee, Wisconsin 53204

Generated 6/6/2023 9:14:11 AM

JOB DESCRIPTION

Manitowoc WI-169

JOB NUMBER

500-234427-1

Eurofins Chicago
2417 Bond Street
University Park IL 60484

See page two for job notes and contact information.

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.

Authorization

Generated
6/6/2023 9:14:11 AM

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

Table of Contents

Job ID: 500-234427-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-234427-1

Receipt
The samples were received on 5/25/2023 9:30 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 3.3º C.

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

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

Detection Summary

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

Client Sample ID: 2722-E — Lab Sample ID: 500-234427-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonamide (FOSA)	3.1		1.9	0.92	ng/L	1		537 (modified)	Total/NA

Client Sample ID: 2722-E-FB — Lab Sample ID: 500-234427-2

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

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 US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-234427-1	2722-E	Water	05/24/23 16:30	05/25/23 09:30
500-234427-2	2722-E-FB	Water	05/24/23 16:35	05/25/23 09:30

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

Client Sample ID: 2722-E

Date Collected: 05/24/23 16:30
Date Received: 05/25/23 09:30

Lab Sample ID: 500-234427-1

Matrix: Water

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.3		4.7	2.3	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluoropentanoic acid (PFPeA)	<0.46		1.9	0.46	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorohexanoic acid (PFHxA)	<0.55		1.9	0.55	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluoroheptanoic acid (PFHpA)	<0.24		1.9	0.24	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorooctanoic acid (PFOA)	<0.80		1.9	0.80	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorododecanoic acid (PFDoA)	<0.52		1.9	0.52	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.9	1.2	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorotetradecanoic acid (PFTeA)	<0.69		1.9	0.69	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorohexanesulfonic acid (PFHxS)	<0.54		1.9	0.54	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		1.9	0.18	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorooctanesulfonic acid (PFOS)	<0.51		1.9	0.51	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorododecanesulfonic acid (PFDoS)	<0.91		1.9	0.91	ng/L		06/02/23 10:19	06/03/23 20:48	1
Perfluorooctanesulfonamide (FOSA)	**3.1**		1.9	0.92	ng/L		06/02/23 10:19	06/03/23 20:48	1
NEtFOSA	<0.82		1.9	0.82	ng/L		06/02/23 10:19	06/03/23 20:48	1
NMeFOSA	<0.41		1.9	0.41	ng/L		06/02/23 10:19	06/03/23 20:48	1
NMeFOSAA	<1.1		4.7	1.1	ng/L		06/02/23 10:19	06/03/23 20:48	1
NEtFOSAA	<1.2		4.7	1.2	ng/L		06/02/23 10:19	06/03/23 20:48	1
NMeFOSE	<1.3		3.8	1.3	ng/L		06/02/23 10:19	06/03/23 20:48	1
NEtFOSE	<0.80		1.9	0.80	ng/L		06/02/23 10:19	06/03/23 20:48	1
4:2 FTS	<0.23		1.9	0.23	ng/L		06/02/23 10:19	06/03/23 20:48	1
6:2 FTS	<2.4		4.7	2.4	ng/L		06/02/23 10:19	06/03/23 20:48	1
8:2 FTS	<0.43		1.9	0.43	ng/L		06/02/23 10:19	06/03/23 20:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.38		1.9	0.38	ng/L		06/02/23 10:19	06/03/23 20:48	1
HFPO-DA (GenX)	<1.4		3.8	1.4	ng/L		06/02/23 10:19	06/03/23 20:48	1
9Cl-PF3ONS	<0.23		1.9	0.23	ng/L		06/02/23 10:19	06/03/23 20:48	1
11Cl-PF3OUdS	<0.30		1.9	0.30	ng/L		06/02/23 10:19	06/03/23 20:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*
13C5 PFPeA	*88*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*
13C2 PFHxA	*85*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*
13C4 PFHpA	*91*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*
13C4 PFOA	*85*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*
13C5 PFNA	*92*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*
13C2 PFDA	*87*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*
13C2 PFUnA	*83*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*
13C2 PFDoA	*79*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*
13C2 PFTeDA	*81*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*
13C3 PFBS	*82*		*25 - 150*	*06/02/23 10:19*	*06/03/23 20:48*	*1*

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

Client Sample ID: 2722-E
Date Collected: 05/24/23 16:30
Date Received: 05/25/23 09:30

Lab Sample ID: 500-234427-1
Matrix: Water

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	91		25 - 150	06/02/23 10:19	06/03/23 20:48	1
13C4 PFOS	89		25 - 150	06/02/23 10:19	06/03/23 20:48	1
13C8 FOSA	98		10 - 150	06/02/23 10:19	06/03/23 20:48	1
d3-NMeFOSAA	74		25 - 150	06/02/23 10:19	06/03/23 20:48	1
d5-NEtFOSAA	83		25 - 150	06/02/23 10:19	06/03/23 20:48	1
d-N-MeFOSA-M	70		10 - 150	06/02/23 10:19	06/03/23 20:48	1
d-N-EtFOSA-M	61		10 - 150	06/02/23 10:19	06/03/23 20:48	1
d7-N-MeFOSE-M	75		10 - 150	06/02/23 10:19	06/03/23 20:48	1
d9-N-EtFOSE-M	74		10 - 150	06/02/23 10:19	06/03/23 20:48	1
M2-4:2 FTS	56		25 - 150	06/02/23 10:19	06/03/23 20:48	1
M2-6:2 FTS	61		25 - 150	06/02/23 10:19	06/03/23 20:48	1
M2-8:2 FTS	69		25 - 150	06/02/23 10:19	06/03/23 20:48	1
13C3 HFPO-DA	92		25 - 150	06/02/23 10:19	06/03/23 20:48	1
13C2 10:2 FTS	89		25 - 150	06/02/23 10:19	06/03/23 20:48	1

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

Client Sample ID: 2722-E-FB

Date Collected: 05/24/23 16:35
Date Received: 05/25/23 09:30

Lab Sample ID: 500-234427-2

Matrix: Water

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.1		4.3	2.1	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluoropentanoic acid (PFPeA)	<0.42		1.7	0.42	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorohexanoic acid (PFHxA)	<0.50		1.7	0.50	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluoroheptanoic acid (PFHpA)	<0.21		1.7	0.21	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorooctanoic acid (PFOA)	<0.73		1.7	0.73	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorononanoic acid (PFNA)	<0.23		1.7	0.23	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorodecanoic acid (PFDA)	<0.27		1.7	0.27	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluoroundecanoic acid (PFUnA)	<0.94		1.7	0.94	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorododecanoic acid (PFDoA)	<0.47		1.7	0.47	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.7	1.1	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.7	0.63	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorobutanesulfonic acid (PFBS)	<0.17		1.7	0.17	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.7	0.26	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorohexanesulfonic acid (PFHxS)	<0.49		1.7	0.49	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.16		1.7	0.16	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorooctanesulfonic acid (PFOS)	<0.46		1.7	0.46	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorodecanesulfonic acid (PFDS)	<0.27		1.7	0.27	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorododecanesulfonic acid (PFDoS)	<0.83		1.7	0.83	ng/L		06/02/23 10:19	06/03/23 21:18	1
Perfluorooctanesulfonamide (FOSA)	<0.84		1.7	0.84	ng/L		06/02/23 10:19	06/03/23 21:18	1
NEtFOSA	<0.75		1.7	0.75	ng/L		06/02/23 10:19	06/03/23 21:18	1
NMeFOSA	<0.37		1.7	0.37	ng/L		06/02/23 10:19	06/03/23 21:18	1
NMeFOSAA	<1.0		4.3	1.0	ng/L		06/02/23 10:19	06/03/23 21:18	1
NEtFOSAA	<1.1		4.3	1.1	ng/L		06/02/23 10:19	06/03/23 21:18	1
NMeFOSE	<1.2		3.4	1.2	ng/L		06/02/23 10:19	06/03/23 21:18	1
NEtFOSE	<0.73		1.7	0.73	ng/L		06/02/23 10:19	06/03/23 21:18	1
4:2 FTS	<0.21		1.7	0.21	ng/L		06/02/23 10:19	06/03/23 21:18	1
6:2 FTS	<2.1		4.3	2.1	ng/L		06/02/23 10:19	06/03/23 21:18	1
8:2 FTS	<0.39		1.7	0.39	ng/L		06/02/23 10:19	06/03/23 21:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.34		1.7	0.34	ng/L		06/02/23 10:19	06/03/23 21:18	1
HFPO-DA (GenX)	<1.3		3.4	1.3	ng/L		06/02/23 10:19	06/03/23 21:18	1
9Cl-PF3ONS	<0.21		1.7	0.21	ng/L		06/02/23 10:19	06/03/23 21:18	1
11Cl-PF3OUdS	<0.27		1.7	0.27	ng/L		06/02/23 10:19	06/03/23 21:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*82*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
13C5 PFPeA	*85*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
13C2 PFHxA	*80*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
13C4 PFHpA	*84*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
13C4 PFOA	*83*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
13C5 PFNA	*85*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
13C2 PFDA	*87*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
13C2 PFUnA	*77*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
13C2 PFDoA	*73*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
13C2 PFTeDA	*72*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
13C3 PFBS	*79*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*
18O2 PFHxS	*82*		*25 - 150*	*06/02/23 10:19*	*06/03/23 21:18*	*1*

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

Client Sample ID: 2722-E-FB
Date Collected: 05/24/23 16:35
Date Received: 05/25/23 09:30

Lab Sample ID: 500-234427-2
Matrix: Water

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	80		25 - 150	06/02/23 10:19	06/03/23 21:18	1
13C8 FOSA	85		10 - 150	06/02/23 10:19	06/03/23 21:18	1
d3-NMeFOSAA	69		25 - 150	06/02/23 10:19	06/03/23 21:18	1
d5-NEtFOSAA	71		25 - 150	06/02/23 10:19	06/03/23 21:18	1
d-N-MeFOSA-M	58		10 - 150	06/02/23 10:19	06/03/23 21:18	1
d-N-EtFOSA-M	57		10 - 150	06/02/23 10:19	06/03/23 21:18	1
d7-N-MeFOSE-M	68		10 - 150	06/02/23 10:19	06/03/23 21:18	1
d9-N-EtFOSE-M	69		10 - 150	06/02/23 10:19	06/03/23 21:18	1
M2-4:2 FTS	52		25 - 150	06/02/23 10:19	06/03/23 21:18	1
M2-6:2 FTS	55		25 - 150	06/02/23 10:19	06/03/23 21:18	1
M2-8:2 FTS	70		25 - 150	06/02/23 10:19	06/03/23 21:18	1
13C3 HFPO-DA	87		25 - 150	06/02/23 10:19	06/03/23 21:18	1
13C2 10:2 FTS	78		25 - 150	06/02/23 10:19	06/03/23 21:18	1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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 US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

LCMS

Prep Batch: 679715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-234427-1	2722-E	Total/NA	Water	3535	
500-234427-2	2722-E-FB	Total/NA	Water	3535	
MB 320-679715/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-679715/2-A	Lab Control Sample	Total/NA	Water	3535	
500-234427-1 MS	2722-E	Total/NA	Water	3535	
500-234427-1 MSD	2722-E	Total/NA	Water	3535	

Analysis Batch: 679948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-234427-1	2722-E	Total/NA	Water	537 (modified)	679715
500-234427-2	2722-E-FB	Total/NA	Water	537 (modified)	679715
MB 320-679715/1-A	Method Blank	Total/NA	Water	537 (modified)	679715
LCS 320-679715/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	679715
500-234427-1 MS	2722-E	Total/NA	Water	537 (modified)	679715
500-234427-1 MSD	2722-E	Total/NA	Water	537 (modified)	679715

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-679715/1-A
Matrix: Water
Analysis Batch: 679948

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 679715

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorotridecanoic acid (PFTrDA)	<1.3		2.0	1.3	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		06/02/23 10:19	06/03/23 18:56	1
NEtFOSA	<0.87		2.0	0.87	ng/L		06/02/23 10:19	06/03/23 18:56	1
NMeFOSA	<0.43		2.0	0.43	ng/L		06/02/23 10:19	06/03/23 18:56	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		06/02/23 10:19	06/03/23 18:56	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		06/02/23 10:19	06/03/23 18:56	1
NMeFOSE	<1.4		4.0	1.4	ng/L		06/02/23 10:19	06/03/23 18:56	1
NEtFOSE	<0.85		2.0	0.85	ng/L		06/02/23 10:19	06/03/23 18:56	1
4:2 FTS	<0.24		2.0	0.24	ng/L		06/02/23 10:19	06/03/23 18:56	1
6:2 FTS	<2.5		5.0	2.5	ng/L		06/02/23 10:19	06/03/23 18:56	1
8:2 FTS	<0.46		2.0	0.46	ng/L		06/02/23 10:19	06/03/23 18:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		06/02/23 10:19	06/03/23 18:56	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		06/02/23 10:19	06/03/23 18:56	1
9Cl-PF3ONS	<0.24		2.0	0.24	ng/L		06/02/23 10:19	06/03/23 18:56	1
11Cl-PF3OUdS	<0.32		2.0	0.32	ng/L		06/02/23 10:19	06/03/23 18:56	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*86*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C5 PFPeA	*86*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C2 PFHxA	*83*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C4 PFHpA	*91*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C4 PFOA	*86*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C5 PFNA	*89*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C2 PFDA	*87*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C2 PFUnA	*81*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C2 PFDoA	*79*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C2 PFTeDA	*77*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*

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

Lab Sample ID: MB 320-679715/1-A
Matrix: Water
Analysis Batch: 679948

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 679715

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	77		25 - 150	06/02/23 10:19	06/03/23 18:56	1
18O2 PFHxS	82		25 - 150	06/02/23 10:19	06/03/23 18:56	1
13C4 PFOS	82		25 - 150	06/02/23 10:19	06/03/23 18:56	1
13C8 FOSA	90		10 - 150	06/02/23 10:19	06/03/23 18:56	1
d3-NMeFOSAA	76		25 - 150	06/02/23 10:19	06/03/23 18:56	1
d5-NEtFOSAA	80		25 - 150	06/02/23 10:19	06/03/23 18:56	1
d-N-MeFOSA-M	65		10 - 150	06/02/23 10:19	06/03/23 18:56	1
d-N-EtFOSA-M	63		10 - 150	06/02/23 10:19	06/03/23 18:56	1
d7-N-MeFOSE-M	74		10 - 150	06/02/23 10:19	06/03/23 18:56	1
d9-N-EtFOSE-M	74		10 - 150	06/02/23 10:19	06/03/23 18:56	1
M2-4:2 FTS	57		25 - 150	06/02/23 10:19	06/03/23 18:56	1
M2-6:2 FTS	59		25 - 150	06/02/23 10:19	06/03/23 18:56	1
M2-8:2 FTS	70		25 - 150	06/02/23 10:19	06/03/23 18:56	1
13C3 HFPO-DA	96		25 - 150	06/02/23 10:19	06/03/23 18:56	1
13C2 10:2 FTS	93		25 - 150	06/02/23 10:19	06/03/23 18:56	1

Lab Sample ID: LCS 320-679715/2-A
Matrix: Water
Analysis Batch: 679948

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 679715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	38.7		ng/L		97	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	41.6		ng/L		104	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	39.8		ng/L		99	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	43.4		ng/L		109	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	39.6		ng/L		99	60 - 135
Perfluorononanoic acid (PFNA)	40.0	41.9		ng/L		105	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	42.9		ng/L		107	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	44.4		ng/L		111	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	43.5		ng/L		109	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	35.4		ng/L		89	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	42.8		ng/L		107	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	36.6		ng/L		103	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	40.8		ng/L		108	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	37.1		ng/L		102	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.9		ng/L		99	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	36.1		ng/L		97	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	37.9		ng/L		99	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	37.6		ng/L		97	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	30.3		ng/L		78	60 - 135

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

Lab Sample ID: LCS 320-679715/2-A
Matrix: Water
Analysis Batch: 679948

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 679715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	39.1		ng/L		98	60 - 135
NEtFOSA	40.0	43.7		ng/L		109	60 - 135
NMeFOSA	40.0	43.2		ng/L		108	60 - 135
NMeFOSAA	40.0	43.6		ng/L		109	60 - 135
NEtFOSAA	40.0	46.4		ng/L		116	60 - 135
NMeFOSE	40.0	40.2		ng/L		101	60 - 135
NEtFOSE	40.0	43.0		ng/L		107	60 - 135
4:2 FTS	37.5	40.2		ng/L		107	60 - 135
6:2 FTS	38.1	39.8		ng/L		104	60 - 135
8:2 FTS	38.4	39.4		ng/L		103	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	45.1		ng/L		119	60 - 135
HFPO-DA (GenX)	40.0	41.6		ng/L		104	60 - 135
9Cl-PF3ONS	37.4	40.3		ng/L		108	60 - 135
11Cl-PF3OUdS	37.8	38.0		ng/L		101	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*99*		*25 - 150*
13C5 PFPeA	*94*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C4 PFHpA	*99*		*25 - 150*
13C4 PFOA	*98*		*25 - 150*
13C5 PFNA	*96*		*25 - 150*
13C2 PFDA	*94*		*25 - 150*
13C2 PFUnA	*84*		*25 - 150*
13C2 PFDoA	*86*		*25 - 150*
13C2 PFTeDA	*80*		*25 - 150*
13C3 PFBS	*89*		*25 - 150*
18O2 PFHxS	*96*		*25 - 150*
13C4 PFOS	*93*		*25 - 150*
13C8 FOSA	*93*		*10 - 150*
d3-NMeFOSAA	*74*		*25 - 150*
d5-NEtFOSAA	*81*		*25 - 150*
d-N-MeFOSA-M	*68*		*10 - 150*
d-N-EtFOSA-M	*65*		*10 - 150*
d7-N-MeFOSE-M	*78*		*10 - 150*
d9-N-EtFOSE-M	*79*		*10 - 150*
M2-4:2 FTS	*66*		*25 - 150*
M2-6:2 FTS	*68*		*25 - 150*
M2-8:2 FTS	*96*		*25 - 150*
13C3 HFPO-DA	*103*		*25 - 150*
13C2 10:2 FTS	*99*		*25 - 150*

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

Lab Sample ID: 500-234427-1 MS
Matrix: Water
Analysis Batch: 679948

Client Sample ID: 2722-E
Prep Type: Total/NA
Prep Batch: 679715

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	<2.3		35.9	35.4		ng/L		98	70 - 130
Perfluoropentanoic acid (PFPeA)	<0.46		35.9	37.3		ng/L		104	70 - 130
Perfluorohexanoic acid (PFHxA)	<0.55		35.9	34.5		ng/L		96	70 - 130
Perfluoroheptanoic acid (PFHpA)	<0.24		35.9	39.3		ng/L		109	70 - 130
Perfluorooctanoic acid (PFOA)	<0.80		35.9	36.6		ng/L		102	70 - 130
Perfluorononanoic acid (PFNA)	<0.25		35.9	38.0		ng/L		106	70 - 130
Perfluorodecanoic acid (PFDA)	<0.29		35.9	40.1		ng/L		112	70 - 130
Perfluoroundecanoic acid (PFUnA)	<1.0		35.9	41.7		ng/L		116	70 - 130
Perfluorododecanoic acid (PFDoA)	<0.52		35.9	41.8		ng/L		117	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<1.2		35.9	35.8		ng/L		100	70 - 130
Perfluorotetradecanoic acid (PFTeA)	<0.69		35.9	40.1		ng/L		112	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<0.19		31.9	32.5		ng/L		102	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<0.28		33.8	35.0		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<0.54		32.8	32.4		ng/L		99	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		34.3	35.4		ng/L		103	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<0.51		33.4	34.1		ng/L		102	70 - 130
Perfluorononanesulfonic acid (PFNS)	<0.35		34.6	34.8		ng/L		101	70 - 130
Perfluorodecanesulfonic acid (PFDS)	<0.30		34.6	32.3		ng/L		93	70 - 130
Perfluorododecanesulfonic acid (PFDoS)	<0.91		34.8	26.1		ng/L		75	70 - 130
Perfluorooctanesulfonamide (FOSA)	3.1		35.9	36.7		ng/L		94	70 - 130
NEtFOSA	<0.82		35.9	37.9		ng/L		106	70 - 130
NMeFOSA	<0.41		35.9	38.0		ng/L		106	70 - 130
NMeFOSAA	<1.1		35.9	42.2		ng/L		117	70 - 130
NEtFOSAA	<1.2		35.9	41.2		ng/L		115	70 - 130
NMeFOSE	<1.3		35.9	39.0		ng/L		109	70 - 130
NEtFOSE	<0.80		35.9	39.5		ng/L		110	70 - 130
4:2 FTS	<0.23		33.7	34.2		ng/L		101	70 - 130
6:2 FTS	<2.4		34.2	36.4		ng/L		107	70 - 130
8:2 FTS	<0.43		34.5	34.8		ng/L		101	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.38		33.9	39.3		ng/L		116	70 - 130
HFPO-DA (GenX)	<1.4		35.9	37.1		ng/L		103	70 - 130
9Cl-PF3ONS	<0.23		33.5	36.4		ng/L		108	70 - 130
11Cl-PF3OUdS	<0.30		33.9	35.4		ng/L		104	70 - 130

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C4 PFBA	*83*		*25 - 150*
13C5 PFPeA	*88*		*25 - 150*
13C2 PFHxA	*85*		*25 - 150*

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

Lab Sample ID: 500-234427-1 MS
Matrix: Water
Analysis Batch: 679948

Client Sample ID: 2722-E
Prep Type: Total/NA
Prep Batch: 679715

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C4 PFHpA	89		25 - 150
13C4 PFOA	92		25 - 150
13C5 PFNA	87		25 - 150
13C2 PFDA	86		25 - 150
13C2 PFUnA	77		25 - 150
13C2 PFDoA	77		25 - 150
13C2 PFTeDA	79		25 - 150
13C3 PFBS	86		25 - 150
18O2 PFHxS	90		25 - 150
13C4 PFOS	87		25 - 150
13C8 FOSA	94		10 - 150
d3-NMeFOSAA	67		25 - 150
d5-NEtFOSAA	81		25 - 150
d-N-MeFOSA-M	73		10 - 150
d-N-EtFOSA-M	70		10 - 150
d7-N-MeFOSE-M	73		10 - 150
d9-N-EtFOSE-M	71		10 - 150
M2-4:2 FTS	59		25 - 150
M2-6:2 FTS	60		25 - 150
M2-8:2 FTS	71		25 - 150
13C3 HFPO-DA	94		25 - 150
13C2 10:2 FTS	85		25 - 150

Lab Sample ID: 500-234427-1 MSD
Matrix: Water
Analysis Batch: 679948

Client Sample ID: 2722-E
Prep Type: Total/NA
Prep Batch: 679715

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	<2.3		36.8	36.1		ng/L		98	70 - 130	2	30
Perfluoropentanoic acid (PFPeA)	<0.46		36.8	39.2		ng/L		107	70 - 130	5	30
Perfluorohexanoic acid (PFHxA)	<0.55		36.8	37.8		ng/L		103	70 - 130	9	30
Perfluoroheptanoic acid (PFHpA)	<0.24		36.8	39.9		ng/L		108	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	<0.80		36.8	37.6		ng/L		102	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<0.25		36.8	39.1		ng/L		106	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<0.29		36.8	38.7		ng/L		105	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<1.0		36.8	40.2		ng/L		109	70 - 130	4	30
Perfluorododecanoic acid (PFDoA)	<0.52		36.8	41.0		ng/L		111	70 - 130	2	30
Perfluorotridecanoic acid (PFTrDA)	<1.2		36.8	34.0		ng/L		92	70 - 130	5	30
Perfluorotetradecanoic acid (PFTeA)	<0.69		36.8	38.7		ng/L		105	70 - 130	4	30
Perfluorobutanesulfonic acid (PFBS)	<0.19		32.7	33.8		ng/L		103	70 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)	<0.28		34.6	37.3		ng/L		108	70 - 130	6	30
Perfluorohexanesulfonic acid (PFHxS)	<0.54		33.6	32.7		ng/L		97	70 - 130	1	30
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		35.1	36.1		ng/L		103	70 - 130	2	30

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

Lab Sample ID: 500-234427-1 MSD
Matrix: Water
Analysis Batch: 679948

Client Sample ID: 2722-E
Prep Type: Total/NA
Prep Batch: 679715

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	<0.51		34.2	32.6		ng/L		95	70 - 130	4	30
Perfluorononanesulfonic acid (PFNS)	<0.35		35.4	35.6		ng/L		101	70 - 130	2	30
Perfluorodecanesulfonic acid (PFDS)	<0.30		35.5	34.0		ng/L		96	70 - 130	5	30
Perfluorododecanesulfonic acid (PFDoS)	<0.91		35.7	29.7		ng/L		83	70 - 130	13	30
Perfluorooctanesulfonamide (FOSA)	3.1		36.8	39.5		ng/L		99	70 - 130	7	30
NEtFOSA	<0.82		36.8	37.3		ng/L		101	70 - 130	2	30
NMeFOSA	<0.41		36.8	39.0		ng/L		106	70 - 130	3	30
NMeFOSAA	<1.1		36.8	39.9		ng/L		109	70 - 130	5	30
NEtFOSAA	<1.2		36.8	46.9		ng/L		127	70 - 130	13	30
NMeFOSE	<1.3		36.8	36.1		ng/L		98	70 - 130	8	30
NEtFOSE	<0.80		36.8	39.1		ng/L		106	70 - 130	1	30
4:2 FTS	<0.23		34.5	35.8		ng/L		104	70 - 130	4	30
6:2 FTS	<2.4		35.0	37.2		ng/L		106	70 - 130	2	30
8:2 FTS	<0.43		35.3	38.1		ng/L		108	70 - 130	9	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.38		34.7	41.5		ng/L		119	70 - 130	6	30
HFPO-DA (GenX)	<1.4		36.8	41.5		ng/L		113	70 - 130	11	30
9Cl-PF3ONS	<0.23		34.4	36.4		ng/L		106	70 - 130	0	30
11Cl-PF3OUdS	<0.30		34.7	35.7		ng/L		103	70 - 130	1	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C4 PFBA	*82*		*25 - 150*
13C5 PFPeA	*80*		*25 - 150*
13C2 PFHxA	*80*		*25 - 150*
13C4 PFHpA	*85*		*25 - 150*
13C4 PFOA	*87*		*25 - 150*
13C5 PFNA	*84*		*25 - 150*
13C2 PFDA	*82*		*25 - 150*
13C2 PFUnA	*76*		*25 - 150*
13C2 PFDoA	*75*		*25 - 150*
13C2 PFTeDA	*76*		*25 - 150*
13C3 PFBS	*80*		*25 - 150*
18O2 PFHxS	*86*		*25 - 150*
13C4 PFOS	*82*		*25 - 150*
13C8 FOSA	*89*		*10 - 150*
d3-NMeFOSAA	*67*		*25 - 150*
d5-NEtFOSAA	*76*		*25 - 150*
d-N-MeFOSA-M	*62*		*10 - 150*
d-N-EtFOSA-M	*55*		*10 - 150*
d7-N-MeFOSE-M	*69*		*10 - 150*
d9-N-EtFOSE-M	*67*		*10 - 150*
M2-4:2 FTS	*55*		*25 - 150*
M2-6:2 FTS	*56*		*25 - 150*
M2-8:2 FTS	*63*		*25 - 150*
13C3 HFPO-DA	*87*		*25 - 150*

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

Lab Sample ID: 500-234427-1 MSD
Matrix: Water
Analysis Batch: 679948

Client Sample ID: 2722-E
Prep Type: Total/NA
Prep Batch: 679715

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C2 10:2 FTS	78		25 - 150

Lab Chronicle

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

Client Sample ID: 2722-E
Date Collected: 05/24/23 16:30
Date Received: 05/25/23 09:30

Lab Sample ID: 500-234427-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			679715	VP	EET SAC	06/02/23 10:19
Total/NA	Analysis	537 (modified)		1	679948	RS1	EET SAC	06/03/23 20:48

Client Sample ID: 2722-E-FB
Date Collected: 05/24/23 16:35
Date Received: 05/25/23 09:30

Lab Sample ID: 500-234427-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			679715	VP	EET SAC	06/02/23 10:19
Total/NA	Analysis	537 (modified)		1	679948	RS1	EET SAC	06/03/23 21:18

Laboratory References:

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

Accreditation/Certification Summary

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-23

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

Chain of Custody Record

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Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
	K. HEIMSTEAD	Fredrick, Sandie		500-113234-44581.1
Client Contact	**Phone**	**E-Mail**	**State of Origin**	**Page**
Paul Lindquist	262-901-0129	Sandra.Fredrick@et.eurofinsus.com	WI	Page 1 of 1
Company	**PWSID**			**Job #**
Ramboll US Corporation				

Address	Due Date Requested	TAT Requested (days)	Preservation Codes
234 W. Florida Street Fifth Floor	STANDARD		A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify); Other:
City: Milwaukee			
State, Zip: WI, 53204	Compliance Project: Δ Yes Δ No		
Phone: 262-901-3510(Tel)	PO # MIRRO 2		
Email: plindquist@ramboll.com	WO #		
Project Name: Manitowoc, WI-169	Project # 50020429		
Site	SSOW#		

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, 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:
			Preservation Code				N		
2722-E	5/24/2023	1630	G	Water	N	Y	X	8	ADD'L VOL. FOR MS/MSD
2722-E-FB	5/24/2023	1635	G	Water	N	N	X	2	
				Water					
				Water					
				Water					
				Water					

500-234427 Chain of Custody

05/24/2023

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ 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	Date/Time	Company	Received by	Date/Time	Company
	05/24/2023 1915	RAMBOLL	FEDEX	05/24/2023	
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
				5/25/23 830	
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks
Δ Yes Δ No	2159770	5.3

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Ramboll US Corporation

Job Number: 500-234427-1
SDG Number:

Login Number: 234427
List Number: 2
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento
List Creation: 05/26/23 01:21 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	2159770
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	3.3C
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	

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Sacramento
Sample Receiving Notes

500-234427 Field Sheet

Job: _____

Tracking # 6483 4233 2878

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / 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: 40 Corr. Factor: (+ / -) _____ °C

Ice ~~_____~~ Wet _____ Gel _____ Other _____

Cooler Custody Seal: 2159770

Cooler ID: _____

Temp Observed: 3.3 °C Corrected: 3.3 °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: JF Date: 5/25/23

Unpacking/Labeling The Samples	Yes	No	NA
COC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
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 require splitting/compositing?	☐	☐	☑
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: SD Date: 5/26/23

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: SD Date: 5/26/23

Bottle Order Information

Bottle Order: *Manitowoc, WI-1690026073*
Bottle Order #: *44581*
Request From Client: *5/22/2023*
Date Order Posted: *7/25/2022 10:16:34AM*
Order Status: *Ready To Process*
Prepared By: *Sandie Fredrick*
Deliver By Date: ***5/23/2023 11:59:00PM***
Lab Project Number: *50020429*
PWSID:

Order Completion Information

Creator: *Sandie Fredrick*
Filled by:
Sent Date:
Sent Via:
Tracking #:

Sets	Bottles/Set	Qty	Bottle Type Description	Preservative	Method	Matrix	Sample Type	Comments	Lot #
4	2	8	Plastic 250ml - unpreserved	None	PFC_IDA_WI - PFAS, Standard List (33 analytes)	Water	Normal	PFAS	
1	2	2	Plastic 250ml - unpreserved	None		Water	Field Blank	PFAS Field blank	
1	1	1	Field Container	None		Water	Reagent Water	PFAS Free water (1 liter)	

Total Bottle Summary

Bottle Type Description	Preservative	Bottle Count
Field Container	None	1
Plastic 250ml - unpreserved	None	10
	Total Bottles:	**11**

Notes to Field Staff:

Health and Safety Notes:

Preservative | Comment

Relinquished By	Company	Date	Time	Received By	Company	Seal #
						Seal #
						Seal #
Relinquished By	Company	Date	Time	Received By	Company	Seal #
						Seal #
						Seal #

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.

Isotope Dilution Summary

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

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)
500-234427-1	2722-E	85	88	85	91	85	92	87	83
500-234427-1 MS	2722-E	83	88	85	89	92	87	86	77
500-234427-1 MSD	2722-E	82	80	80	85	87	84	82	76
500-234427-2	2722-E-FB	82	85	80	84	83	85	87	77
LCS 320-679715/2-A	Lab Control Sample	99	94	95	99	98	96	94	84
MB 320-679715/1-A	Method Blank	86	86	83	91	86	89	87	81

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
500-234427-1	2722-E	79	81	82	91	89	98	74	83
500-234427-1 MS	2722-E	77	79	86	90	87	94	67	81
500-234427-1 MSD	2722-E	75	76	80	86	82	89	67	76
500-234427-2	2722-E-FB	73	72	79	82	80	85	69	71
LCS 320-679715/2-A	Lab Control Sample	86	80	89	96	93	93	74	81
MB 320-679715/1-A	Method Blank	79	77	77	82	82	90	76	80

		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)
500-234427-1	2722-E	70	61	75	74	56	61	69	92
500-234427-1 MS	2722-E	73	70	73	71	59	60	71	94
500-234427-1 MSD	2722-E	62	55	69	67	55	56	63	87
500-234427-2	2722-E-FB	58	57	68	69	52	55	70	87
LCS 320-679715/2-A	Lab Control Sample	68	65	78	79	66	68	96	103
MB 320-679715/1-A	Method Blank	65	63	74	74	57	59	70	96

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	M102FTS (25-150)
500-234427-1	2722-E	89
500-234427-1 MS	2722-E	85
500-234427-1 MSD	2722-E	78
500-234427-2	2722-E-FB	78
LCS 320-679715/2-A	Lab Control Sample	99
MB 320-679715/1-A	Method Blank	93

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
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA

Isotope Dilution Summary

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234427-1

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

RAMBOLL

ENVIRONMENT
& HEALTH

Sent Via Overnight Delivery

[redacted]
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 [redacted]:

June 29, 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

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 May 24, 2023, NOC's environmental consultant, Ramboll US Consulting, 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

D +1 262 901 3510
plindquist@ramboll.com

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

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ANALYTICAL REPORT

PREPARED FOR

Attn: Paul Lindquist
Ramboll US Corporation
234 W. Florida Street
Fifth Floor
Milwaukee, Wisconsin 53204

Generated 6/20/2023 5:28:47 PM

JOB DESCRIPTION

Manitowoc WI-169

JOB NUMBER

500-234472-1

Eurofins Chicago
2417 Bond Street
University Park IL 60484

See page two for job notes and contact information.

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.

Authorization

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6/20/2023 5:28:47 PM

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

Table of Contents

Job ID: 500-234472-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-234472-1

Comments
No additional comments.

Receipt
The samples were received on 5/26/2023 9:25 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 1.9º C.

LCMS
Method 537 (modified): The following sample blanks contain a detection above one-half the reporting limit (RL) for 6:2 FTS: 2519-E-FB (500-234472-2). The sample was re-analyzed with concurring results. There is insufficient sample volume left for another extraction; therefore, the data have been reported.

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-682260.
Method: 3535PFC
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 US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

Client Sample ID: 2519-E — Lab Sample ID: 500-234472-1

No Detections.

Client Sample ID: 2519-E-FB — Lab Sample ID: 500-234472-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
6:2 FTS	4.5	J	4.7	2.3	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

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 US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-234472-1	2519-E	Water	05/24/23 17:15	05/26/23 09:25
500-234472-2	2519-E-FB	Water	05/24/23 17:20	05/26/23 09:25

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

Client Sample ID: 2519-E
Date Collected: 05/24/23 17:15
Date Received: 05/26/23 09:25

Lab Sample ID: 500-234472-1
Matrix: Water

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		06/02/23 10:20	06/03/23 22:50	1
Perfluoropentanoic acid (PFPeA)	<0.43		1.8	0.43	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorohexanoic acid (PFHxA)	<0.51		1.8	0.51	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluoroheptanoic acid (PFHpA)	<0.22		1.8	0.22	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorooctanoic acid (PFOA)	<0.75		1.8	0.75	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorononanoic acid (PFNA)	<0.24		1.8	0.24	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorodecanoic acid (PFDA)	<0.27		1.8	0.27	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluoroundecanoic acid (PFUnA)	<0.97		1.8	0.97	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorododecanoic acid (PFDoA)	<0.48		1.8	0.48	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.8	1.1	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.8	0.64	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorobutanesulfonic acid (PFBS)	<0.18		1.8	0.18	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.8	0.26	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorohexanesulfonic acid (PFHxS)	<0.50		1.8	0.50	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		1.8	0.17	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorooctanesulfonic acid (PFOS)	<0.48		1.8	0.48	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.8	0.28	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorododecanesulfonic acid (PFDoS)	<0.86		1.8	0.86	ng/L		06/02/23 10:20	06/03/23 22:50	1
Perfluorooctanesulfonamide (FOSA)	<0.86		1.8	0.86	ng/L		06/02/23 10:20	06/03/23 22:50	1
NEtFOSA	<0.77		1.8	0.77	ng/L		06/02/23 10:20	06/03/23 22:50	1
NMeFOSA	<0.38		1.8	0.38	ng/L		06/02/23 10:20	06/03/23 22:50	1
NMeFOSAA	<1.1		4.4	1.1	ng/L		06/02/23 10:20	06/03/23 22:50	1
NEtFOSAA	<1.1		4.4	1.1	ng/L		06/02/23 10:20	06/03/23 22:50	1
NMeFOSE	<1.2		3.5	1.2	ng/L		06/02/23 10:20	06/03/23 22:50	1
NEtFOSE	<0.75		1.8	0.75	ng/L		06/02/23 10:20	06/03/23 22:50	1
4:2 FTS	<0.21		1.8	0.21	ng/L		06/02/23 10:20	06/03/23 22:50	1
6:2 FTS	<2.2		4.4	2.2	ng/L		06/02/23 10:20	06/03/23 22:50	1
8:2 FTS	<0.41		1.8	0.41	ng/L		06/02/23 10:20	06/03/23 22:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		1.8	0.35	ng/L		06/02/23 10:20	06/03/23 22:50	1
HFPO-DA (GenX)	<1.3		3.5	1.3	ng/L		06/02/23 10:20	06/03/23 22:50	1
9Cl-PF3ONS	<0.21		1.8	0.21	ng/L		06/02/23 10:20	06/03/23 22:50	1
11Cl-PF3OUdS	<0.28		1.8	0.28	ng/L		06/02/23 10:20	06/03/23 22:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*82*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
13C5 PFPeA	*87*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
13C2 PFHxA	*82*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
13C4 PFHpA	*86*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
13C4 PFOA	*86*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
13C5 PFNA	*89*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
13C2 PFDA	*88*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
13C2 PFUnA	*83*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
13C2 PFDoA	*79*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
13C2 PFTeDA	*84*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
13C3 PFBS	*79*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*
18O2 PFHxS	*88*		*25 - 150*	*06/02/23 10:20*	*06/03/23 22:50*	*1*

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

Client Sample ID: 2519-E
Date Collected: 05/24/23 17:15
Date Received: 05/26/23 09:25

Lab Sample ID: 500-234472-1
Matrix: Water

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	86		25 - 150	06/02/23 10:20	06/03/23 22:50	1
13C8 FOSA	96		10 - 150	06/02/23 10:20	06/03/23 22:50	1
d3-NMeFOSAA	78		25 - 150	06/02/23 10:20	06/03/23 22:50	1
d5-NEtFOSAA	81		25 - 150	06/02/23 10:20	06/03/23 22:50	1
d-N-MeFOSA-M	73		10 - 150	06/02/23 10:20	06/03/23 22:50	1
d-N-EtFOSA-M	74		10 - 150	06/02/23 10:20	06/03/23 22:50	1
d7-N-MeFOSE-M	76		10 - 150	06/02/23 10:20	06/03/23 22:50	1
d9-N-EtFOSE-M	77		10 - 150	06/02/23 10:20	06/03/23 22:50	1
M2-4:2 FTS	58		25 - 150	06/02/23 10:20	06/03/23 22:50	1
M2-6:2 FTS	58		25 - 150	06/02/23 10:20	06/03/23 22:50	1
M2-8:2 FTS	78		25 - 150	06/02/23 10:20	06/03/23 22:50	1
13C3 HFPO-DA	90		25 - 150	06/02/23 10:20	06/03/23 22:50	1
13C2 10:2 FTS	88		25 - 150	06/02/23 10:20	06/03/23 22:50	1

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

Client Sample ID: 2519-E-FB
Date Collected: 05/24/23 17:20
Date Received: 05/26/23 09:25

Lab Sample ID: 500-234472-2
Matrix: Water

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.3		4.7	2.3	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluoropentanoic acid (PFPeA)	<0.46		1.9	0.46	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorohexanoic acid (PFHxA)	<0.54		1.9	0.54	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluoroheptanoic acid (PFHpA)	<0.23		1.9	0.23	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorooctanoic acid (PFOA)	<0.80		1.9	0.80	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorododecanoic acid (PFDoA)	<0.52		1.9	0.52	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.9	1.2	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorotetradecanoic acid (PFTeA)	<0.69		1.9	0.69	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorohexanesulfonic acid (PFHxS)	<0.54		1.9	0.54	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		1.9	0.18	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorooctanesulfonic acid (PFOS)	<0.51		1.9	0.51	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorododecanesulfonic acid (PFDoS)	<0.91		1.9	0.91	ng/L		06/12/23 04:53	06/14/23 04:58	1
Perfluorooctanesulfonamide (FOSA)	<0.92		1.9	0.92	ng/L		06/12/23 04:53	06/14/23 04:58	1
NEtFOSA	<0.82		1.9	0.82	ng/L		06/12/23 04:53	06/14/23 04:58	1
NMeFOSA	<0.40		1.9	0.40	ng/L		06/12/23 04:53	06/14/23 04:58	1
NMeFOSAA	<1.1		4.7	1.1	ng/L		06/12/23 04:53	06/14/23 04:58	1
NEtFOSAA	<1.2		4.7	1.2	ng/L		06/12/23 04:53	06/14/23 04:58	1
NMeFOSE	<1.3		3.8	1.3	ng/L		06/12/23 04:53	06/14/23 04:58	1
NEtFOSE	<0.80		1.9	0.80	ng/L		06/12/23 04:53	06/14/23 04:58	1
4:2 FTS	<0.23		1.9	0.23	ng/L		06/12/23 04:53	06/14/23 04:58	1
6:2 FTS	**4.5**	**J**	4.7	2.3	ng/L		06/12/23 04:53	06/14/23 04:58	1
8:2 FTS	<0.43		1.9	0.43	ng/L		06/12/23 04:53	06/14/23 04:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.38		1.9	0.38	ng/L		06/12/23 04:53	06/14/23 04:58	1
HFPO-DA (GenX)	<1.4		3.8	1.4	ng/L		06/12/23 04:53	06/14/23 04:58	1
9Cl-PF3ONS	<0.23		1.9	0.23	ng/L		06/12/23 04:53	06/14/23 04:58	1
11Cl-PF3OUdS	<0.30		1.9	0.30	ng/L		06/12/23 04:53	06/14/23 04:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*113*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
13C5 PFPeA	*106*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
13C2 PFHxA	*114*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
13C4 PFHpA	*116*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
13C4 PFOA	*110*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
13C5 PFNA	*116*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
13C2 PFDA	*124*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
13C2 PFUnA	*118*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
13C2 PFDoA	*107*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
13C2 PFTeDA	*107*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
13C3 PFBS	*106*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*
18O2 PFHxS	*109*		*25 - 150*	*06/12/23 04:53*	*06/14/23 04:58*	*1*

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

Client Sample ID: 2519-E-FB
Date Collected: 05/24/23 17:20
Date Received: 05/26/23 09:25

Lab Sample ID: 500-234472-2
Matrix: Water

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	116		25 - 150	06/12/23 04:53	06/14/23 04:58	1
13C8 FOSA	112		10 - 150	06/12/23 04:53	06/14/23 04:58	1
d3-NMeFOSAA	119		25 - 150	06/12/23 04:53	06/14/23 04:58	1
d5-NEtFOSAA	118		25 - 150	06/12/23 04:53	06/14/23 04:58	1
d-N-MeFOSA-M	95		10 - 150	06/12/23 04:53	06/14/23 04:58	1
d-N-EtFOSA-M	94		10 - 150	06/12/23 04:53	06/14/23 04:58	1
d7-N-MeFOSE-M	101		10 - 150	06/12/23 04:53	06/14/23 04:58	1
d9-N-EtFOSE-M	98		10 - 150	06/12/23 04:53	06/14/23 04:58	1
M2-4:2 FTS	103		25 - 150	06/12/23 04:53	06/14/23 04:58	1
M2-6:2 FTS	100		25 - 150	06/12/23 04:53	06/14/23 04:58	1
M2-8:2 FTS	110		25 - 150	06/12/23 04:53	06/14/23 04:58	1
13C3 HFPO-DA	108		25 - 150	06/12/23 04:53	06/14/23 04:58	1
13C2 10:2 FTS	131		25 - 150	06/12/23 04:53	06/14/23 04:58	1

Definitions/Glossary

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

Qualifiers

LCMS

Qualifier	Qualifier Description
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.
¤	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

LCMS

Prep Batch: 679715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-234472-1	2519-E	Total/NA	Water	3535	
MB 320-679715/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-679715/2-A	Lab Control Sample	Total/NA	Water	3535	
500-234472-1 MS	2519-E	Total/NA	Water	3535	
500-234472-1 MSD	2519-E	Total/NA	Water	3535	

Analysis Batch: 679948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-234472-1	2519-E	Total/NA	Water	537 (modified)	679715
MB 320-679715/1-A	Method Blank	Total/NA	Water	537 (modified)	679715
LCS 320-679715/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	679715
500-234472-1 MS	2519-E	Total/NA	Water	537 (modified)	679715
500-234472-1 MSD	2519-E	Total/NA	Water	537 (modified)	679715

Prep Batch: 682260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-234472-2	2519-E-FB	Total/NA	Water	3535	
MB 320-682260/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-682260/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-682260/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 682803

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-234472-2	2519-E-FB	Total/NA	Water	537 (modified)	682260
MB 320-682260/1-A	Method Blank	Total/NA	Water	537 (modified)	682260
LCS 320-682260/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	682260
LCSD 320-682260/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	682260

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-679715/1-A
Matrix: Water
Analysis Batch: 679948

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 679715

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorotridecanoic acid (PFTrDA)	<1.3		2.0	1.3	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		06/02/23 10:19	06/03/23 18:56	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		06/02/23 10:19	06/03/23 18:56	1
NEtFOSA	<0.87		2.0	0.87	ng/L		06/02/23 10:19	06/03/23 18:56	1
NMeFOSA	<0.43		2.0	0.43	ng/L		06/02/23 10:19	06/03/23 18:56	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		06/02/23 10:19	06/03/23 18:56	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		06/02/23 10:19	06/03/23 18:56	1
NMeFOSE	<1.4		4.0	1.4	ng/L		06/02/23 10:19	06/03/23 18:56	1
NEtFOSE	<0.85		2.0	0.85	ng/L		06/02/23 10:19	06/03/23 18:56	1
4:2 FTS	<0.24		2.0	0.24	ng/L		06/02/23 10:19	06/03/23 18:56	1
6:2 FTS	<2.5		5.0	2.5	ng/L		06/02/23 10:19	06/03/23 18:56	1
8:2 FTS	<0.46		2.0	0.46	ng/L		06/02/23 10:19	06/03/23 18:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		06/02/23 10:19	06/03/23 18:56	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		06/02/23 10:19	06/03/23 18:56	1
9Cl-PF3ONS	<0.24		2.0	0.24	ng/L		06/02/23 10:19	06/03/23 18:56	1
11Cl-PF3OUdS	<0.32		2.0	0.32	ng/L		06/02/23 10:19	06/03/23 18:56	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*86*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C5 PFPeA	*86*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C2 PFHxA	*83*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C4 PFHpA	*91*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C4 PFOA	*86*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C5 PFNA	*89*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C2 PFDA	*87*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C2 PFUnA	*81*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C2 PFDoA	*79*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*
13C2 PFTeDA	*77*		*25 - 150*	*06/02/23 10:19*	*06/03/23 18:56*	*1*

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

Lab Sample ID: MB 320-679715/1-A
Matrix: Water
Analysis Batch: 679948

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 679715

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	77		25 - 150	06/02/23 10:19	06/03/23 18:56	1
18O2 PFHxS	82		25 - 150	06/02/23 10:19	06/03/23 18:56	1
13C4 PFOS	82		25 - 150	06/02/23 10:19	06/03/23 18:56	1
13C8 FOSA	90		10 - 150	06/02/23 10:19	06/03/23 18:56	1
d3-NMeFOSAA	76		25 - 150	06/02/23 10:19	06/03/23 18:56	1
d5-NEtFOSAA	80		25 - 150	06/02/23 10:19	06/03/23 18:56	1
d-N-MeFOSA-M	65		10 - 150	06/02/23 10:19	06/03/23 18:56	1
d-N-EtFOSA-M	63		10 - 150	06/02/23 10:19	06/03/23 18:56	1
d7-N-MeFOSE-M	74		10 - 150	06/02/23 10:19	06/03/23 18:56	1
d9-N-EtFOSE-M	74		10 - 150	06/02/23 10:19	06/03/23 18:56	1
M2-4:2 FTS	57		25 - 150	06/02/23 10:19	06/03/23 18:56	1
M2-6:2 FTS	59		25 - 150	06/02/23 10:19	06/03/23 18:56	1
M2-8:2 FTS	70		25 - 150	06/02/23 10:19	06/03/23 18:56	1
13C3 HFPO-DA	96		25 - 150	06/02/23 10:19	06/03/23 18:56	1
13C2 10:2 FTS	93		25 - 150	06/02/23 10:19	06/03/23 18:56	1

Lab Sample ID: LCS 320-679715/2-A
Matrix: Water
Analysis Batch: 679948

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 679715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	38.7		ng/L		97	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	41.6		ng/L		104	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	39.8		ng/L		99	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	43.4		ng/L		109	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	39.6		ng/L		99	60 - 135
Perfluorononanoic acid (PFNA)	40.0	41.9		ng/L		105	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	42.9		ng/L		107	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	44.4		ng/L		111	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	43.5		ng/L		109	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	35.4		ng/L		89	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	42.8		ng/L		107	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	36.6		ng/L		103	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	40.8		ng/L		108	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	37.1		ng/L		102	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.9		ng/L		99	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	36.1		ng/L		97	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	37.9		ng/L		99	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	37.6		ng/L		97	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	30.3		ng/L		78	60 - 135

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

Lab Sample ID: LCS 320-679715/2-A
Matrix: Water
Analysis Batch: 679948

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 679715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	39.1		ng/L		98	60 - 135
NEtFOSA	40.0	43.7		ng/L		109	60 - 135
NMeFOSA	40.0	43.2		ng/L		108	60 - 135
NMeFOSAA	40.0	43.6		ng/L		109	60 - 135
NEtFOSAA	40.0	46.4		ng/L		116	60 - 135
NMeFOSE	40.0	40.2		ng/L		101	60 - 135
NEtFOSE	40.0	43.0		ng/L		107	60 - 135
4:2 FTS	37.5	40.2		ng/L		107	60 - 135
6:2 FTS	38.1	39.8		ng/L		104	60 - 135
8:2 FTS	38.4	39.4		ng/L		103	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	45.1		ng/L		119	60 - 135
HFPO-DA (GenX)	40.0	41.6		ng/L		104	60 - 135
9Cl-PF3ONS	37.4	40.3		ng/L		108	60 - 135
11Cl-PF3OUdS	37.8	38.0		ng/L		101	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*99*		*25 - 150*
13C5 PFPeA	*94*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C4 PFHpA	*99*		*25 - 150*
13C4 PFOA	*98*		*25 - 150*
13C5 PFNA	*96*		*25 - 150*
13C2 PFDA	*94*		*25 - 150*
13C2 PFUnA	*84*		*25 - 150*
13C2 PFDoA	*86*		*25 - 150*
13C2 PFTeDA	*80*		*25 - 150*
13C3 PFBS	*89*		*25 - 150*
18O2 PFHxS	*96*		*25 - 150*
13C4 PFOS	*93*		*25 - 150*
13C8 FOSA	*93*		*10 - 150*
d3-NMeFOSAA	*74*		*25 - 150*
d5-NEtFOSAA	*81*		*25 - 150*
d-N-MeFOSA-M	*68*		*10 - 150*
d-N-EtFOSA-M	*65*		*10 - 150*
d7-N-MeFOSE-M	*78*		*10 - 150*
d9-N-EtFOSE-M	*79*		*10 - 150*
M2-4:2 FTS	*66*		*25 - 150*
M2-6:2 FTS	*68*		*25 - 150*
M2-8:2 FTS	*96*		*25 - 150*
13C3 HFPO-DA	*103*		*25 - 150*
13C2 10:2 FTS	*99*		*25 - 150*

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

Lab Sample ID: 500-234472-1 MS
Matrix: Water
Analysis Batch: 679948

Client Sample ID: 2519-E
Prep Type: Total/NA
Prep Batch: 679715

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	<2.1		35.7	34.6		ng/L		97	70 - 130
Perfluoropentanoic acid (PFPeA)	<0.43		35.7	37.2		ng/L		104	70 - 130
Perfluorohexanoic acid (PFHxA)	<0.51		35.7	36.4		ng/L		102	70 - 130
Perfluoroheptanoic acid (PFHpA)	<0.22		35.7	37.8		ng/L		106	70 - 130
Perfluorooctanoic acid (PFOA)	<0.75		35.7	35.8		ng/L		100	70 - 130
Perfluorononanoic acid (PFNA)	<0.24		35.7	37.3		ng/L		104	70 - 130
Perfluorodecanoic acid (PFDA)	<0.27		35.7	39.0		ng/L		109	70 - 130
Perfluoroundecanoic acid (PFUnA)	<0.97		35.7	39.5		ng/L		111	70 - 130
Perfluorododecanoic acid (PFDoA)	<0.48		35.7	39.8		ng/L		112	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<1.1		35.7	33.7		ng/L		95	70 - 130
Perfluorotetradecanoic acid (PFTeA)	<0.64		35.7	36.5		ng/L		102	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<0.18		31.7	33.9		ng/L		107	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<0.26		33.5	36.7		ng/L		109	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<0.50		32.5	32.2		ng/L		99	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		34.0	35.2		ng/L		103	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<0.48		33.2	33.3		ng/L		100	70 - 130
Perfluorononanesulfonic acid (PFNS)	<0.33		34.3	32.9		ng/L		96	70 - 130
Perfluorodecanesulfonic acid (PFDS)	<0.28		34.4	32.6		ng/L		95	70 - 130
Perfluorododecanesulfonic acid (PFDoS)	<0.86		34.6	28.6		ng/L		83	70 - 130
Perfluorooctanesulfonamide (FOSA)	<0.86		35.7	37.9		ng/L		106	70 - 130
NEtFOSA	<0.77		35.7	36.4		ng/L		102	70 - 130
NMeFOSA	<0.38		35.7	38.8		ng/L		109	70 - 130
NMeFOSAA	<1.1		35.7	40.4		ng/L		113	70 - 130
NEtFOSAA	<1.1		35.7	42.9		ng/L		120	70 - 130
NMeFOSE	<1.2		35.7	37.3		ng/L		104	70 - 130
NEtFOSE	<0.75		35.7	36.0		ng/L		101	70 - 130
4:2 FTS	<0.21		33.5	35.6		ng/L		106	70 - 130
6:2 FTS	<2.2		34.0	33.6		ng/L		99	70 - 130
8:2 FTS	<0.41		34.3	37.2		ng/L		108	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		33.7	37.0		ng/L		110	70 - 130
HFPO-DA (GenX)	<1.3		35.7	35.9		ng/L		101	70 - 130
9Cl-PF3ONS	<0.21		33.3	35.6		ng/L		107	70 - 130
11Cl-PF3OUdS	<0.28		33.7	36.2		ng/L		108	70 - 130

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C4 PFBA	*84*		*25 - 150*
13C5 PFPeA	*83*		*25 - 150*
13C2 PFHxA	*81*		*25 - 150*

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

Lab Sample ID: 500-234472-1 MS
Matrix: Water
Analysis Batch: 679948

Client Sample ID: 2519-E
Prep Type: Total/NA
Prep Batch: 679715

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C4 PFHpA	86		25 - 150
13C4 PFOA	91		25 - 150
13C5 PFNA	86		25 - 150
13C2 PFDA	86		25 - 150
13C2 PFUnA	81		25 - 150
13C2 PFDoA	80		25 - 150
13C2 PFTeDA	85		25 - 150
13C3 PFBS	83		25 - 150
18O2 PFHxS	88		25 - 150
13C4 PFOS	87		25 - 150
13C8 FOSA	93		10 - 150
d3-NMeFOSAA	75		25 - 150
d5-NEtFOSAA	85		25 - 150
d-N-MeFOSA-M	78		10 - 150
d-N-EtFOSA-M	74		10 - 150
d7-N-MeFOSE-M	72		10 - 150
d9-N-EtFOSE-M	74		10 - 150
M2-4:2 FTS	61		25 - 150
M2-6:2 FTS	63		25 - 150
M2-8:2 FTS	72		25 - 150
13C3 HFPO-DA	86		25 - 150
13C2 10:2 FTS	89		25 - 150

Lab Sample ID: 500-234472-1 MSD
Matrix: Water
Analysis Batch: 679948

Client Sample ID: 2519-E
Prep Type: Total/NA
Prep Batch: 679715

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	<2.1		35.5	34.1		ng/L		96	70 - 130	2	30
Perfluoropentanoic acid (PFPeA)	<0.43		35.5	37.6		ng/L		106	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	<0.51		35.5	34.1		ng/L		96	70 - 130	7	30
Perfluoroheptanoic acid (PFHpA)	<0.22		35.5	39.7		ng/L		112	70 - 130	5	30
Perfluorooctanoic acid (PFOA)	<0.75		35.5	35.4		ng/L		100	70 - 130	1	30
Perfluorononanoic acid (PFNA)	<0.24		35.5	36.9		ng/L		104	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	<0.27		35.5	36.3		ng/L		102	70 - 130	7	30
Perfluoroundecanoic acid (PFUnA)	<0.97		35.5	38.3		ng/L		108	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	<0.48		35.5	38.4		ng/L		108	70 - 130	4	30
Perfluorotridecanoic acid (PFTrDA)	<1.1		35.5	35.0		ng/L		98	70 - 130	4	30
Perfluorotetradecanoic acid (PFTeA)	<0.64		35.5	36.7		ng/L		103	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	<0.18		31.5	32.2		ng/L		102	70 - 130	5	30
Perfluoropentanesulfonic acid (PFPeS)	<0.26		33.4	35.4		ng/L		106	70 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)	<0.50		32.4	32.7		ng/L		101	70 - 130	1	30
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		33.9	35.9		ng/L		106	70 - 130	2	30

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

Lab Sample ID: 500-234472-1 MSD
Matrix: Water
Analysis Batch: 679948

Client Sample ID: 2519-E
Prep Type: Total/NA
Prep Batch: 679715

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	<0.48		33.0	33.2		ng/L		101	70 - 130	0	30
Perfluorononanesulfonic acid (PFNS)	<0.33		34.2	34.4		ng/L		101	70 - 130	5	30
Perfluorodecanesulfonic acid (PFDS)	<0.28		34.2	33.4		ng/L		97	70 - 130	2	30
Perfluorododecanesulfonic acid (PFDoS)	<0.86		34.4	29.6		ng/L		86	70 - 130	4	30
Perfluorooctanesulfonamide (FOSA)	<0.86		35.5	36.5		ng/L		103	70 - 130	4	30
NEtFOSA	<0.77		35.5	37.2		ng/L		105	70 - 130	2	30
NMeFOSA	<0.38		35.5	37.0		ng/L		104	70 - 130	5	30
NMeFOSAA	<1.1		35.5	38.3		ng/L		108	70 - 130	5	30
NEtFOSAA	<1.1		35.5	40.9		ng/L		115	70 - 130	5	30
NMeFOSE	<1.2		35.5	37.0		ng/L		104	70 - 130	1	30
NEtFOSE	<0.75		35.5	37.3		ng/L		105	70 - 130	3	30
4:2 FTS	<0.21		33.3	32.6		ng/L		98	70 - 130	9	30
6:2 FTS	<2.2		33.8	34.5		ng/L		102	70 - 130	3	30
8:2 FTS	<0.41		34.1	36.6		ng/L		107	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		33.5	39.6		ng/L		118	70 - 130	7	30
HFPO-DA (GenX)	<1.3		35.5	37.1		ng/L		104	70 - 130	3	30
9Cl-PF3ONS	<0.21		33.2	35.3		ng/L		106	70 - 130	1	30
11Cl-PF3OUdS	<0.28		33.5	36.1		ng/L		108	70 - 130	0	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C4 PFBA	*82*		*25 - 150*
13C5 PFPeA	*82*		*25 - 150*
13C2 PFHxA	*83*		*25 - 150*
13C4 PFHpA	*81*		*25 - 150*
13C4 PFOA	*87*		*25 - 150*
13C5 PFNA	*87*		*25 - 150*
13C2 PFDA	*87*		*25 - 150*
13C2 PFUnA	*78*		*25 - 150*
13C2 PFDoA	*80*		*25 - 150*
13C2 PFTeDA	*83*		*25 - 150*
13C3 PFBS	*86*		*25 - 150*
18O2 PFHxS	*87*		*25 - 150*
13C4 PFOS	*83*		*25 - 150*
13C8 FOSA	*91*		*10 - 150*
d3-NMeFOSAA	*72*		*25 - 150*
d5-NEtFOSAA	*81*		*25 - 150*
d-N-MeFOSA-M	*76*		*10 - 150*
d-N-EtFOSA-M	*74*		*10 - 150*
d7-N-MeFOSE-M	*71*		*10 - 150*
d9-N-EtFOSE-M	*74*		*10 - 150*
M2-4:2 FTS	*63*		*25 - 150*
M2-6:2 FTS	*60*		*25 - 150*
M2-8:2 FTS	*75*		*25 - 150*
13C3 HFPO-DA	*86*		*25 - 150*

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

Lab Sample ID: 500-234472-1 MSD
Matrix: Water
Analysis Batch: 679948

Client Sample ID: 2519-E
Prep Type: Total/NA
Prep Batch: 679715

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C2 10:2 FTS	91		25 - 150

Lab Sample ID: MB 320-682260/1-A
Matrix: Water
Analysis Batch: 682803

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 682260

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorotridecanoic acid (PFTrDA)	<1.3		2.0	1.3	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		06/12/23 04:53	06/14/23 00:54	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		06/12/23 04:53	06/14/23 00:54	1
NEtFOSA	<0.87		2.0	0.87	ng/L		06/12/23 04:53	06/14/23 00:54	1
NMeFOSA	<0.43		2.0	0.43	ng/L		06/12/23 04:53	06/14/23 00:54	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		06/12/23 04:53	06/14/23 00:54	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		06/12/23 04:53	06/14/23 00:54	1
NMeFOSE	<1.4		4.0	1.4	ng/L		06/12/23 04:53	06/14/23 00:54	1
NEtFOSE	<0.85		2.0	0.85	ng/L		06/12/23 04:53	06/14/23 00:54	1
4:2 FTS	<0.24		2.0	0.24	ng/L		06/12/23 04:53	06/14/23 00:54	1
6:2 FTS	<2.5		5.0	2.5	ng/L		06/12/23 04:53	06/14/23 00:54	1
8:2 FTS	<0.46		2.0	0.46	ng/L		06/12/23 04:53	06/14/23 00:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		06/12/23 04:53	06/14/23 00:54	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		06/12/23 04:53	06/14/23 00:54	1
9Cl-PF3ONS	<0.24		2.0	0.24	ng/L		06/12/23 04:53	06/14/23 00:54	1
11Cl-PF3OUdS	<0.32		2.0	0.32	ng/L		06/12/23 04:53	06/14/23 00:54	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	100		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C5 PFPeA	98		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C2 PFHxA	104		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C4 PFHpA	101		25 - 150	06/12/23 04:53	06/14/23 00:54	1

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

Lab Sample ID: MB 320-682260/1-A
Matrix: Water
Analysis Batch: 682803

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 682260

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	102		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C5 PFNA	106		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C2 PFDA	113		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C2 PFUnA	106		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C2 PFDoA	102		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C2 PFTeDA	106		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C3 PFBS	94		25 - 150	06/12/23 04:53	06/14/23 00:54	1
18O2 PFHxS	96		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C4 PFOS	101		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C8 FOSA	102		10 - 150	06/12/23 04:53	06/14/23 00:54	1
d3-NMeFOSAA	111		25 - 150	06/12/23 04:53	06/14/23 00:54	1
d5-NEtFOSAA	109		25 - 150	06/12/23 04:53	06/14/23 00:54	1
d-N-MeFOSA-M	90		10 - 150	06/12/23 04:53	06/14/23 00:54	1
d-N-EtFOSA-M	86		10 - 150	06/12/23 04:53	06/14/23 00:54	1
d7-N-MeFOSE-M	95		10 - 150	06/12/23 04:53	06/14/23 00:54	1
d9-N-EtFOSE-M	88		10 - 150	06/12/23 04:53	06/14/23 00:54	1
M2-4:2 FTS	102		25 - 150	06/12/23 04:53	06/14/23 00:54	1
M2-6:2 FTS	91		25 - 150	06/12/23 04:53	06/14/23 00:54	1
M2-8:2 FTS	92		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C3 HFPO-DA	97		25 - 150	06/12/23 04:53	06/14/23 00:54	1
13C2 10:2 FTS	117		25 - 150	06/12/23 04:53	06/14/23 00:54	1

Lab Sample ID: LCS 320-682260/2-A
Matrix: Water
Analysis Batch: 682803

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 682260

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	37.0		ng/L		93	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	41.9		ng/L		105	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	41.2		ng/L		103	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	43.2		ng/L		108	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	41.3		ng/L		103	60 - 135
Perfluorononanoic acid (PFNA)	40.0	41.3		ng/L		103	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	39.4		ng/L		99	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	40.2		ng/L		101	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	42.4		ng/L		106	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	39.8		ng/L		100	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	37.5		ng/L		94	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	37.3		ng/L		105	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	42.7		ng/L		114	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.5		ng/L		97	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	39.2		ng/L		103	60 - 135

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

Lab Sample ID: LCS 320-682260/2-A
Matrix: Water
Analysis Batch: 682803

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 682260

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonic acid (PFOS)	37.2	37.8		ng/L		102	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	40.6		ng/L		106	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	42.6		ng/L		111	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	37.0		ng/L		95	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	40.6		ng/L		101	60 - 135
NEtFOSA	40.0	39.5		ng/L		99	60 - 135
NMeFOSA	40.0	40.6		ng/L		102	60 - 135
NMeFOSAA	40.0	42.5		ng/L		106	60 - 135
NEtFOSAA	40.0	40.3		ng/L		101	60 - 135
NMeFOSE	40.0	39.5		ng/L		99	60 - 135
NEtFOSE	40.0	44.2		ng/L		110	60 - 135
4:2 FTS	37.5	41.1		ng/L		109	60 - 135
6:2 FTS	38.1	39.6		ng/L		104	60 - 135
8:2 FTS	38.4	40.2		ng/L		105	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	44.2		ng/L		117	60 - 135
HFPO-DA (GenX)	40.0	42.4		ng/L		106	60 - 135
9Cl-PF3ONS	37.4	40.4		ng/L		108	60 - 135
11Cl-PF3OUdS	37.8	43.0		ng/L		114	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*105*		*25 - 150*
13C5 PFPeA	*96*		*25 - 150*
13C2 PFHxA	*102*		*25 - 150*
13C4 PFHpA	*103*		*25 - 150*
13C4 PFOA	*102*		*25 - 150*
13C5 PFNA	*103*		*25 - 150*
13C2 PFDA	*112*		*25 - 150*
13C2 PFUnA	*109*		*25 - 150*
13C2 PFDoA	*113*		*25 - 150*
13C2 PFTeDA	*111*		*25 - 150*
13C3 PFBS	*91*		*25 - 150*
18O2 PFHxS	*101*		*25 - 150*
13C4 PFOS	*99*		*25 - 150*
13C8 FOSA	*105*		*10 - 150*
d3-NMeFOSAA	*109*		*25 - 150*
d5-NEtFOSAA	*107*		*25 - 150*
d-N-MeFOSA-M	*86*		*10 - 150*
d-N-EtFOSA-M	*87*		*10 - 150*
d7-N-MeFOSE-M	*96*		*10 - 150*
d9-N-EtFOSE-M	*93*		*10 - 150*
M2-4:2 FTS	*94*		*25 - 150*
M2-6:2 FTS	*93*		*25 - 150*
M2-8:2 FTS	*99*		*25 - 150*
13C3 HFPO-DA	*91*		*25 - 150*

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

Lab Sample ID: LCS 320-682260/2-A
Matrix: Water
Analysis Batch: 682803

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 682260

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 10:2 FTS	122		25 - 150

Lab Sample ID: LCSD 320-682260/3-A
Matrix: Water
Analysis Batch: 682803

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 682260

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	38.5		ng/L		96	60 - 135	4	30
Perfluoropentanoic acid (PFPeA)			40.0	41.8		ng/L		104	60 - 135	0	30
Perfluorohexanoic acid (PFHxA)			40.0	42.2		ng/L		106	60 - 135	2	30
Perfluoroheptanoic acid (PFHpA)			40.0	43.7		ng/L		109	60 - 135	1	30
Perfluorooctanoic acid (PFOA)			40.0	42.1		ng/L		105	60 - 135	2	30
Perfluorononanoic acid (PFNA)			40.0	40.9		ng/L		102	60 - 135	1	30
Perfluorodecanoic acid (PFDA)			40.0	41.3		ng/L		103	60 - 135	5	30
Perfluoroundecanoic acid (PFUnA)			40.0	42.2		ng/L		106	60 - 135	5	30
Perfluorododecanoic acid (PFDoA)			40.0	43.7		ng/L		109	60 - 135	3	30
Perfluorotridecanoic acid (PFTrDA)			40.0	41.5		ng/L		104	60 - 135	4	30
Perfluorotetradecanoic acid (PFTeA)			40.0	38.0		ng/L		95	60 - 135	1	30
Perfluorobutanesulfonic acid (PFBS)			35.5	36.6		ng/L		103	60 - 135	2	30
Perfluoropentanesulfonic acid (PFPeS)			37.6	40.8		ng/L		108	60 - 135	5	30
Perfluorohexanesulfonic acid (PFHxS)			36.5	37.2		ng/L		102	60 - 135	5	30
Perfluoroheptanesulfonic acid (PFHpS)			38.2	38.9		ng/L		102	60 - 135	1	30
Perfluorooctanesulfonic acid (PFOS)			37.2	37.2		ng/L		100	60 - 135	1	30
Perfluorononanesulfonic acid (PFNS)			38.5	40.5		ng/L		105	60 - 135	0	30
Perfluorodecanesulfonic acid (PFDS)			38.6	40.2		ng/L		104	60 - 135	6	30
Perfluorododecanesulfonic acid (PFDoS)			38.8	37.3		ng/L		96	60 - 135	1	30
Perfluorooctanesulfonamide (FOSA)			40.0	41.4		ng/L		103	60 - 135	2	30
NEtFOSA			40.0	42.6		ng/L		106	60 - 135	8	30
NMeFOSA			40.0	39.8		ng/L		100	60 - 135	2	30
NMeFOSAA			40.0	40.4		ng/L		101	60 - 135	5	30
NEtFOSAA			40.0	41.7		ng/L		104	60 - 135	3	30
NMeFOSE			40.0	39.8		ng/L		99	60 - 135	1	30
NEtFOSE			40.0	42.5		ng/L		106	60 - 135	4	30
4:2 FTS			37.5	40.8		ng/L		109	60 - 135	1	30
6:2 FTS			38.1	36.8		ng/L		97	60 - 135	7	30
8:2 FTS			38.4	43.6		ng/L		113	60 - 135	8	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	42.7		ng/L		113	60 - 135	4	30
HFPO-DA (GenX)			40.0	39.8		ng/L		99	60 - 135	6	30

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

Lab Sample ID: LCSD 320-682260/3-A
Matrix: Water
Analysis Batch: 682803

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 682260

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
9Cl-PF3ONS			37.4	38.4		ng/L		103	60 - 135	5	30
11Cl-PF3OUdS			37.8	41.0		ng/L		109	60 - 135	5	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*97*		*25 - 150*
13C5 PFPeA	*91*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C4 PFHpA	*99*		*25 - 150*
13C4 PFOA	*98*		*25 - 150*
13C5 PFNA	*99*		*25 - 150*
13C2 PFDA	*103*		*25 - 150*
13C2 PFUnA	*100*		*25 - 150*
13C2 PFDoA	*100*		*25 - 150*
13C2 PFTeDA	*105*		*25 - 150*
13C3 PFBS	*92*		*25 - 150*
18O2 PFHxS	*96*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
13C8 FOSA	*96*		*10 - 150*
d3-NMeFOSAA	*103*		*25 - 150*
d5-NEtFOSAA	*104*		*25 - 150*
d-N-MeFOSA-M	*85*		*10 - 150*
d-N-EtFOSA-M	*81*		*10 - 150*
d7-N-MeFOSE-M	*88*		*10 - 150*
d9-N-EtFOSE-M	*87*		*10 - 150*
M2-4:2 FTS	*91*		*25 - 150*
M2-6:2 FTS	*94*		*25 - 150*
M2-8:2 FTS	*90*		*25 - 150*
13C3 HFPO-DA	*88*		*25 - 150*
13C2 10:2 FTS	*112*		*25 - 150*

Lab Chronicle

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

Client Sample ID: 2519-E
Date Collected: 05/24/23 17:15
Date Received: 05/26/23 09:25

Lab Sample ID: 500-234472-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			679715	VP	EET SAC	06/02/23 10:20
Total/NA	Analysis	537 (modified)		1	679948	RS1	EET SAC	06/03/23 22:50

Client Sample ID: 2519-E-FB
Date Collected: 05/24/23 17:20
Date Received: 05/26/23 09:25

Lab Sample ID: 500-234472-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			682260	HJA	EET SAC	06/12/23 04:53
Total/NA	Analysis	537 (modified)		1	682803	C1P	EET SAC	06/14/23 04:58

Laboratory References:

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

Accreditation/Certification Summary

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-23

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

Chain of Custody Record

eurofins

Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
	K. HEDMSTEAD	Fredrick, Sandie		500-113235-44581 1
Client Contact: Paul Lindquist	Phone: 262-901-0129	E-Mail: Sandra.Fredrick@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: Ramboll US Corporation	PWSID:			Job #:

Address	Due Date Requested	Preservation Codes
234 W. Florida Street Fifth Floor	STANDARD	A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify), Other:
City: Milwaukee	TAT Requested (days):	
State, Zip: WI, 53204	Compliance Project: Δ Yes Δ No	
Phone: 262-901-3510(Tel)	PO #: MIRRO 2	
Email: plindquist@ramboll.com	WO #:	
Project Name: Manitowoc, WI-169	Project #: 50020429	
Site:	SSOW#:	

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wasteoil, 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:
			Preservation Code:				N		
2519-E	5/24/2023	1715	G	Water	N	Y	X	8	ADD'L VOL FOR MS/MSD
2519-E-FB	5/24/2023	1720	G	Water	N	N	X	2	
				Water					
				Water					
				Water					
				Water					

500-234472 Chain of Custody

K. K. - Z 05/24/2023

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ 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	Date/Time	Company	Received by	Date/Time	Company
K. K. - Z	05/24/2023 1915	RAMBOLL	FEDEX	05/24/2023	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
				5/26/2023 0925	EET SAC
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Yes Δ No	Custody Seal No.: 2159271	Cooler Temperature(s) °C and Other Remarks: 1.9

Ver: 06/08/2021

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6/20/2023

Login Sample Receipt Checklist

Client: Ramboll US Corporation

Job Number: 500-234472-1
SDG Number:

Login Number: 234472
List Number: 2
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento
List Creation: 05/30/23 04:42 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	2159271
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	1.9C
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	

eurofins | Environment Testing TestAmerica

Sacramento Sample Receiving Notes

500-234472 Field Sheet

Job: _____

Tracking # : 6483 4233 2867

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / 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: 204 Corr. Factor: (+ / -) N/A °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: 2159271

Cooler ID: ~~159~~

Temp Observed: 1.9 °C Corrected: 1.9 °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: [illegible] Date: 5/26/23

Unpacking/Labeling The Samples	Yes	No	NA
COC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
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 require splitting/compositing?	☐	☐	☑
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: SO Date: 5/30/23

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: SO Date: 5/30/23

Isotope Dilution Summary

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

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)
500-234472-1	2519-E	82	87	82	86	86	89	88	83
500-234472-1 MS	2519-E	84	83	81	86	91	86	86	81
500-234472-1 MSD	2519-E	82	82	83	81	87	87	87	78
500-234472-2	2519-E-FB	113	106	114	116	110	116	124	118
LCS 320-679715/2-A	Lab Control Sample	99	94	95	99	98	96	94	84
LCS 320-682260/2-A	Lab Control Sample	105	96	102	103	102	103	112	109
LCSD 320-682260/3-A	Lab Control Sample Dup	97	91	95	99	98	99	103	100
MB 320-679715/1-A	Method Blank	86	86	83	91	86	89	87	81
MB 320-682260/1-A	Method Blank	100	98	104	101	102	106	113	106

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
500-234472-1	2519-E	79	84	79	88	86	96	78	81
500-234472-1 MS	2519-E	80	85	83	88	87	93	75	85
500-234472-1 MSD	2519-E	80	83	86	87	83	91	72	81
500-234472-2	2519-E-FB	107	107	106	109	116	112	119	118
LCS 320-679715/2-A	Lab Control Sample	86	80	89	96	93	93	74	81
LCS 320-682260/2-A	Lab Control Sample	113	111	91	101	99	105	109	107
LCSD 320-682260/3-A	Lab Control Sample Dup	100	105	92	96	97	96	103	104
MB 320-679715/1-A	Method Blank	79	77	77	82	82	90	76	80
MB 320-682260/1-A	Method Blank	102	106	94	96	101	102	111	109

		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)
500-234472-1	2519-E	73	74	76	77	58	58	78	90
500-234472-1 MS	2519-E	78	74	72	74	61	63	72	86
500-234472-1 MSD	2519-E	76	74	71	74	63	60	75	86
500-234472-2	2519-E-FB	95	94	101	98	103	100	110	108
LCS 320-679715/2-A	Lab Control Sample	68	65	78	79	66	68	96	103
LCS 320-682260/2-A	Lab Control Sample	86	87	96	93	94	93	99	91
LCSD 320-682260/3-A	Lab Control Sample Dup	85	81	88	87	91	94	90	88
MB 320-679715/1-A	Method Blank	65	63	74	74	57	59	70	96
MB 320-682260/1-A	Method Blank	90	86	95	88	102	91	92	97

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M102FTS (25-150)							
500-234472-1	2519-E	88							
500-234472-1 MS	2519-E	89							
500-234472-1 MSD	2519-E	91							
500-234472-2	2519-E-FB	131							
LCS 320-679715/2-A	Lab Control Sample	99							
LCS 320-682260/2-A	Lab Control Sample	122							
LCSD 320-682260/3-A	Lab Control Sample Dup	112							
MB 320-679715/1-A	Method Blank	93							
MB 320-682260/1-A	Method Blank	117							

Surrogate Legend

PFBA = 13C4 PFBA

PFPeA = 13C5 PFPeA

Isotope Dilution Summary

Client: Ramboll US Corporation
Project/Site: Manitowoc WI-169

Job ID: 500-234472-1

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