

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673



231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

July 25, 2023

Mr. Dale Clark
Clare, City of
202 W. Fifth St.
Clare, Mi 48617

RE: Trace Project 23G0136
Client Project DW PFAS 7/6/23

Dear Mr. Clark:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

The results were obtained from Prein and Newhof.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at tbrewer@trace-labs.com.

Sincerely,

A handwritten signature in black ink that reads "Timothy W. Brewer".

Tim Brewer
Project Manager

Enclosures



NJDEP Accreditation No. MI008

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673



231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

SAMPLE SUMMARY

Trace Project ID: 23G0136
Client Project ID: DW PFAS 7/6/23

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
23G0136-01	DW PFAS	Drinking Water	SD	07/05/23 10:40	07/06/23 13:55

AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

July 24, 2023

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

RE: 23G0136

Order No.: 2307295

Dear Mr. Jon Mink:

[Guide to Reading Lab Result](#)

Prein&Newhof Laboratory received 2 sample(s) on 7/7/2023 on your behalf. Your test results are provided in your Prein&Newhof Laboratory analytical report. Please carefully review your analytical report, noting the following.

- You can be assured that the sample results meet the Safe Drinking Water Criteria as no analyte tested exceeds the EPA Maximum Contaminant Level unless indicated by an " * " in the "Qual" column.
- You can be assured that all samples were received and analyzed within required holding times unless noted by a "H" in the "Qual" column.
- You can be assured that all quality control data is within laboratory-defined or method-specified acceptance limits unless defined by the addition of an attached Case Narrative document.
- When testing for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA results include both branched and linear isotopes. We extract a Method Blank and analyze it with the preparation batch. Method Blank analytes are within the Reporting Limit (RL).

We use EPA Approved Methods for all regulated parameters. EPA Lab #: MI000014

We are certified by the State of Michigan for Drinking Water Analysis for: Coliform Bacteria, Metals, Cyanide, Minerals, Anions, Volatile Organics, THM's, Haloacetic Acids, and PFAS.
Michigan Lab ID#: 0020

To learn more about interpreting your Drinking Water Test Results and reading your Lab Report, follow the link above to view our "Guide to Reading Lab Results". If you have any concerns about your test results or need additional help, please call: 616-364-7600 or email me: sbylsma@preinnewhof.com.

Thank you for trusting Prein&Newhof with your testing needs.

Sincerely,



Steve Bylsma
Laboratory Manager

CLIENT: Trace Analytical Laboratories, Inc.
Project: 23G0136
Lab ID: 2307295-01
Client Sample ID: 23G0136-01
Location:

Collection Date: 7/5/2023 10:40:00 AM
Received Date: 7/7/2023 11:40:00 AM
Matrix: DRINKING WATER
Sampled By: SD

Analyses	Result	RL	Qual	Units	MCL	Date Analyzed
----------	--------	----	------	-------	-----	---------------

PFAS, DRINKING WATER

EPA 537.1

Analyst: JS

PFBS	2.4	2.0		ng/L	420	7/14/2023 7:56:00 PM
PFHxA	< 2.0	2.0		ng/L	400000	7/14/2023 7:56:00 PM
HFPO-DA	< 2.0	2.0		ng/L	370	7/14/2023 7:56:00 PM
PFHxS	4.7	2.0		ng/L	51	7/14/2023 7:56:00 PM
PFHpA	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
ADONA	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
PFOA	< 2.0	2.0		ng/L	8.0	7/14/2023 7:56:00 PM
PFOS	3.8	2.0		ng/L	16	7/14/2023 7:56:00 PM
PFNA	< 2.0	2.0		ng/L	6.0	7/14/2023 7:56:00 PM
9CI-PF3ONS	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
PFDA	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
NMeFOSAA	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
NEtFOSAA	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
PFUnA	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
11CI-PF3OUdS	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
PFDaA	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
PFTrDA	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
PFTA	< 2.0	2.0		ng/L		7/14/2023 7:56:00 PM
Surr: d5-N-EtFOSSA	86.2	70 - 130		%Rec		7/14/2023 7:56:00 PM
Surr: M3HFPO-DA	91.3	70 - 130		%Rec		7/14/2023 7:56:00 PM
Surr: MPFDA	94.0	70 - 130		%Rec		7/14/2023 7:56:00 PM
Surr: MPFHxA	103	70 - 130		%Rec		7/14/2023 7:56:00 PM

Qualifiers: < Not Detected at the Reporting Limit
MCL Maximum Contaminant Level
RL Reporting Limit

H Holding times for preparation or analysis exceeded
PL Permit Limit
S Spike Recovery outside accepted recovery limits

CLIENT: Trace Analytical Laboratories, Inc.
Project: 23G0136
Lab ID: 2307295-02
Client Sample ID: Field Blank
Location:

Collection Date: 7/5/2023 10:40:00 AM
Received Date: 7/7/2023 11:40:00 AM
Matrix: BLANK
Sampled By: SD

Analyses	Result	RL	Qual	Units	MCL	Date Analyzed
----------	--------	----	------	-------	-----	---------------

PFAS, DRINKING WATER

EPA 537.1

Analyst: JS

PFBS	< 2.0	2.0		ng/L	420	7/20/2023 9:16:00 PM
PFHxA	< 2.0	2.0		ng/L	400000	7/20/2023 9:16:00 PM
HFPO-DA	< 2.0	2.0		ng/L	370	7/20/2023 9:16:00 PM
PFHxS	< 2.0	2.0		ng/L	51	7/20/2023 9:16:00 PM
PFHpA	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
ADONA	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
PFOA	< 2.0	2.0		ng/L	8.0	7/20/2023 9:16:00 PM
PFOS	< 2.0	2.0		ng/L	16	7/20/2023 9:16:00 PM
PFNA	< 2.0	2.0		ng/L	6.0	7/20/2023 9:16:00 PM
9CI-PF3ONS	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
PFDA	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
NMeFOSAA	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
NEtFOSAA	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
PFUnA	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
11CI-PF3OUdS	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
PFDoA	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
PFTTrDA	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
PFTA	< 2.0	2.0		ng/L		7/20/2023 9:16:00 PM
Surr: d5-N-EtFOSSA	88.7	70 - 130		%Rec		7/20/2023 9:16:00 PM
Surr: M3HFPO-DA	90.3	70 - 130		%Rec		7/20/2023 9:16:00 PM
Surr: MPFDA	96.4	70 - 130		%Rec		7/20/2023 9:16:00 PM
Surr: MPFHxA	95.3	70 - 130		%Rec		7/20/2023 9:16:00 PM

Qualifiers: < Not Detected at the Reporting Limit
MCL Maximum Contaminant Level
RL Reporting Limit

H Holding times for preparation or analysis exceeded
PL Permit Limit
S Spike Recovery outside accepted recovery limits

WO#: 2307295

7/24/2023

Client: Trace Analytical Laboratories, Inc.

Project: 23G0136

TestCode: PFAS-DW

Sample ID: MB-L4-5739	SampType: MBLK	TestCode: PFAS-DW	Units: ng/L	Prep Date: 7/13/2023	RunNo: 33746						
Client ID: PBW	Batch ID: 5739	TestNo: EPA 537.1		Analysis Date: 7/14/2023	SeqNo: 659874						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	< 1.8	1.8									
PFHxA	< 1.8	1.8									
HFPO-DA	< 1.8	1.8									
PFHxS	< 1.8	1.8									
PFHpA	< 1.8	1.8									
ADONA	< 1.8	1.8									
PFOA	< 1.8	1.8									
PFOS	< 1.8	1.8									
PFNA	< 1.8	1.8									
9CI-PF3ONS	< 1.8	1.8									
PFDA	< 1.8	1.8									
NMeFOSAA	< 1.8	1.8									
NEtFOSAA	< 1.8	1.8									
PFUnA	< 1.8	1.8									
11CI-PF3OUdS	< 1.8	1.8									
PFDoA	< 1.8	1.8									
PFTTrDA	< 1.8	1.8									
PFTA	< 1.8	1.8									
Surr: d5-N-EtFOSSA	270		320.0		84.6	70	130				
Surr: M3HFPO-DA	170		200.0		84.9	70	130				
Surr: MPFDA	71		80.00		89.1	70	130				
Surr: MPFHxA	78		80.00		97.7	70	130				

Qualifiers:
 < Not Detected at the Reporting Limit
 PL Permit Limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

MCL Maximum Contaminant Level
 RL Reporting Limit

WO#: 2307295

7/24/2023

Client: Trace Analytical Laboratories, Inc.

Project: 23G0136

TestCode: PFAS-DW

Sample ID: LCS-high-5739 A	SampType: LCS-HIGH	TestCode: PFAS-DW	Units: ng/L	Prep Date: 7/13/2023	RunNo: 33746						
Client ID: BatchQC	Batch ID: 5739	TestNo: EPA 537.1	Analysis Date: 7/14/2023	SeqNo: 659875							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	260	1.8	320.0	0	82.4	70	130				
PFHxA	290	1.8	320.0	0	91.1	70	130				
HFPO-DA	270	1.8	320.0	0	85.0	70	130				
PFHxS	270	1.8	320.0	0	85.7	70	130				
PFHpA	280	1.8	320.0	0	87.6	70	130				
ADONA	280	1.8	320.0	0	87.0	70	130				
PFOA	280	1.8	320.0	0	88.0	70	130				
PFOS	270	1.8	320.0	0	84.7	70	130				
PFNA	290	1.8	320.0	0	90.7	70	130				
9CI-PF3ONS	260	1.8	320.0	0	82.0	70	130				
PFDA	280	1.8	320.0	0	86.3	70	130				
NMeFOSAA	260	1.8	320.0	0	81.1	70	130				
NEtFOSAA	260	1.8	320.0	0	79.8	70	130				
PFUnA	250	1.8	320.0	0	76.8	70	130				
11CI-PF3OUdS	230	1.8	320.0	0	72.2	70	130				
PFDoA	230	1.8	320.0	0	71.1	70	130				
PFTTrDA	200	1.8	320.0	0	63.8	70	130				S
PFTA	240	1.8	320.0	0	76.1	70	130				
Surr: d5-N-EtFOSSA	240		320.0		74.5	70	130				
Surr: M3HFPO-DA	170		200.0		84.7	70	130				
Surr: MPFDA	72		80.00		90.3	70	130				
Surr: MPFHxA	78		80.00		97.4	70	130				

Qualifiers: < Not Detected at the Reporting Limit
 PL Permit Limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

MCL Maximum Contaminant Level
 RL Reporting Limit

WO#: 2307295

7/24/2023

Client: Trace Analytical Laboratories, Inc.

Project: 23G0136

TestCode: PFAS-DW

Sample ID: 2307356-07ADUP	SampType: DUP	TestCode: PFAS-DW	Units: ng/L	Prep Date: 7/13/2023	RunNo: 33746						
Client ID: BatchQC	Batch ID: 5739	TestNo: EPA 537.1		Analysis Date: 7/14/2023	SeqNo: 659885						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	< 1.7	1.7						0	0	30	R
PFHxA	< 1.7	1.7						0	0	30	R
HFPO-DA	< 1.7	1.7						0	0	30	
PFHxS	< 1.7	1.7						0	0	30	
PFHpA	< 1.7	1.7						0	0	30	
ADONA	< 1.7	1.7						0	0	30	
PFOA	< 1.7	1.7						0	0	30	
PFOS	< 1.7	1.7						0	0	30	
PFNA	< 1.7	1.7						0	0	30	
9CI-PF3ONS	< 1.7	1.7						0	0	30	
PFDA	< 1.7	1.7						0	0	30	
NMeFOSAA	< 1.7	1.7						0	0	30	
NEtFOSAA	< 1.7	1.7						0	0	30	
PFUnA	< 1.7	1.7						0	0	30	
11CI-PF3OUdS	< 1.7	1.7						0	0	30	
PFDoA	< 1.7	1.7						0	0	30	
PFTTrDA	< 1.7	1.7						0	0	30	
PFTA	< 1.7	1.7						0	0	30	
Surr: d5-N-EtFOSSA	180		301.9		60.8	70	130		0	0	S
Surr: M3HFPO-DA	170		188.7		92.2	70	130		0	0	
Surr: MPFDA	55		75.47		73.0	70	130		0	0	
Surr: MPFHxA	78		75.47		103	70	130		0	0	

Qualifiers:
 < Not Detected at the Reporting Limit
 PL Permit Limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

MCL Maximum Contaminant Level
 RL Reporting Limit

WO#: 2307295

7/24/2023

Client: Trace Analytical Laboratories, Inc.

Project: 23G0136

TestCode: PFAS-DW

Sample ID: 2307395-01AMS	SampType: MS-LOW	TestCode: PFAS-DW	Units: ng/L	Prep Date: 7/13/2023	RunNo: 33746						
Client ID: BatchQC	Batch ID: 5739	TestNo: EPA 537.1		Analysis Date: 7/15/2023	SeqNo: 659893						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	3.7	1.7	3.774	0	98.5	50	150				
PFHxA	4.2	1.7	3.774	0	112	50	150				
HFPO-DA	4.4	1.7	3.774	0	116	50	150				
PFHxS	3.9	1.7	3.774	0	102	50	150				
PFHpA	3.8	1.7	3.774	0	99.7	50	150				
ADONA	3.8	1.7	3.774	0	102	50	150				
PFOA	4.0	1.7	3.774	0	107	50	150				
PFOS	3.9	1.7	3.774	0	105	50	150				
PFNA	4.1	1.7	3.774	0	110	50	150				
9CI-PF3ONS	3.5	1.7	3.774	0	93.1	50	150				
PFDA	3.8	1.7	3.774	0	100	50	150				
NMeFOSAA	3.8	1.7	3.774	0	101	50	150				
NEtFOSAA	3.8	1.7	3.774	0	99.5	50	150				
PFUnA	3.3	1.7	3.774	0	88.4	50	150				
11CI-PF3OUdS	3.1	1.7	3.774	0	83.4	50	150				
PFDoA	2.9	1.7	3.774	0	76.2	50	150				
PFTTrDA	2.7	1.7	3.774	0	70.4	50	150				
PFTA	2.3	1.7	3.774	0	59.7	50	150				
Surr: d5-N-EtFOSSA	280		301.9		92.5	70	130				
Surr: M3HFPO-DA	170		188.7		92.0	70	130				
Surr: MPFDA	71		75.47		94.1	70	130				
Surr: MPFHxA	76		75.47		101	70	130				

Qualifiers: < Not Detected at the Reporting Limit
 PL Permit Limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

MCL Maximum Contaminant Level
 RL Reporting Limit

Original
 Page 7 of 14

WO#: 2307295

7/24/2023

Client: Trace Analytical Laboratories, Inc.

Project: 23G0136

TestCode: PFAS-DW

Sample ID: LCS-high-5739 B	SampType: LCS-HIGH	TestCode: PFAS-DW	Units: ng/L	Prep Date: 7/13/2023	RunNo: 33746						
Client ID: BatchQC	Batch ID: 5739	TestNo: EPA 537.1	Analysis Date: 7/15/2023	SeqNo: 659894							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	260	1.8	320.0	0	81.6	70	130				
PFHxA	290	1.8	320.0	0	89.2	70	130				
HFPO-DA	270	1.8	320.0	0	83.0	70	130				
PFHxS	270	1.8	320.0	0	84.8	70	130				
PFHpA	280	1.8	320.0	0	87.2	70	130				
ADONA	280	1.8	320.0	0	86.7	70	130				
PFOA	280	1.8	320.0	0	88.2	70	130				
PFOS	270	1.8	320.0	0	84.5	70	130				
PFNA	290	1.8	320.0	0	91.9	70	130				
9CI-PF3ONS	260	1.8	320.0	0	82.4	70	130				
PFDA	270	1.8	320.0	0	84.5	70	130				
NMeFOSAA	260	1.8	320.0	0	81.6	70	130				
NEtFOSAA	260	1.8	320.0	0	80.2	70	130				
PFUnA	240	1.8	320.0	0	75.9	70	130				
11CI-PF3OUdS	230	1.8	320.0	0	72.9	70	130				
PFDoA	230	1.8	320.0	0	70.8	70	130				
PFTTrDA	200	1.8	320.0	0	63.7	70	130				S
PFTA	230	1.8	320.0	0	72.6	70	130				
Surr: d5-N-EtFOSSA	240		320.0		75.1	70	130				
Surr: M3HFPO-DA	170		200.0		86.0	70	130				
Surr: MPFDA	71		80.00		88.1	70	130				
Surr: MPFHxA	75		80.00		93.1	70	130				

Qualifiers: < Not Detected at the Reporting Limit
 PL Permit Limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

MCL Maximum Contaminant Level
 RL Reporting Limit

Original
 Page 8 of 14

WO#: 2307295

7/24/2023

Client: Trace Analytical Laboratories, Inc.

Project: 23G0136

TestCode: PFAS-DW

Sample ID: MB-L6-5757	SampType: MBLK	TestCode: PFAS-DW	Units: ng/L	Prep Date: 7/19/2023	RunNo: 33874						
Client ID: PBW	Batch ID: 5757	TestNo: EPA 537.1		Analysis Date: 7/20/2023	SeqNo: 663165						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	< 1.8	1.8									
PFHxA	< 1.8	1.8									
HFPO-DA	< 1.8	1.8									
PFHxS	< 1.8	1.8									
PFHpA	< 1.8	1.8									
ADONA	< 1.8	1.8									
PFOA	< 1.8	1.8									
PFOS	< 1.8	1.8									
PFNA	< 1.8	1.8									
9CI-PF3ONS	< 1.8	1.8									
PFDA	< 1.8	1.8									
NMeFOSAA	< 1.8	1.8									
NEtFOSAA	< 1.8	1.8									
PFUnA	< 1.8	1.8									
11CI-PF3OUdS	< 1.8	1.8									
PFDoA	< 1.8	1.8									
PFTTrDA	< 1.8	1.8									
PFTA	< 1.8	1.8									
Surr: d5-N-EtFOSSA	270		320.0		84.6	70	130				
Surr: M3HFPO-DA	180		200.0		89.3	70	130				
Surr: MPFDA	74		80.00		92.9	70	130				
Surr: MPFHxA	74		80.00		92.5	70	130				

Qualifiers:
 < Not Detected at the Reporting Limit
 PL Permit Limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

MCL Maximum Contaminant Level
 RL Reporting Limit

Original
 Page 9 of 14

WO#: 2307295

7/24/2023

Client: Trace Analytical Laboratories, Inc.

Project: 23G0136

TestCode: PFAS-DW

Sample ID: LCS-low-5757 A	SampType: LCS-LOW	TestCode: PFAS-DW	Units: ng/L	Prep Date: 7/19/2023	RunNo: 33874						
Client ID: BatchQC	Batch ID: 5757	TestNo: EPA 537.1		Analysis Date: 7/20/2023	SeqNo: 663166						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	2.0	1.8	2.000	0	98.6	50	150				
PFHxA	2.0	1.8	2.000	0	102	50	150				
HFPO-DA	1.9	1.8	2.000	0	97.0	50	150				
PFHxS	2.1	1.8	2.000	0	104	50	150				
PFHpA	2.0	1.8	2.000	0	102	50	150				
ADONA	2.0	1.8	2.000	0	99.2	50	150				
PFOA	2.1	1.8	2.000	0	106	50	150				
PFOS	2.2	1.8	2.000	0	109	50	150				
PFNA	2.0	1.8	2.000	0	99.6	50	150				
9CI-PF3ONS	2.0	1.8	2.000	0	99.2	50	150				
PFDA	2.0	1.8	2.000	0	102	50	150				
NMeFOSAA	1.8	1.8	2.000	0	90.2	50	150				
NEtFOSAA	1.8	1.8	2.000	0	89.8	50	150				
PFUnA	1.9	1.8	2.000	0	93.0	50	150				
11CI-PF3OUdS	2.0	1.8	2.000	0	99.0	50	150				
PFDoA	1.9	1.8	2.000	0	93.4	50	150				
PFTTrDA	1.8	1.8	2.000	0	91.4	50	150				
PFTA	< 1.8	1.8	2.000	0	83.6	50	150				
Surr: d5-N-EtFOSSA	280		320.0		86.1	70	130				
Surr: M3HFPO-DA	180		200.0		89.3	70	130				
Surr: MPFDA	76		80.00		94.6	70	130				
Surr: MPFHxA	75		80.00		93.4	70	130				

Qualifiers: < Not Detected at the Reporting Limit
 PL Permit Limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

MCL Maximum Contaminant Level
 RL Reporting Limit

Original
 Page 10 of 14

WO#: 2307295

7/24/2023

Client: Trace Analytical Laboratories, Inc.

Project: 23G0136

TestCode: PFAS-DW

Sample ID: 2307700-01ADUP	SampType: DUP	TestCode: PFAS-DW	Units: ng/L	Prep Date: 7/19/2023	RunNo: 33874						
Client ID: BatchQC	Batch ID: 5757	TestNo: EPA 537.1		Analysis Date: 7/21/2023	SeqNo: 663182						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	5.5	1.6						5.414	2.24	30	
PFHxA	< 1.6	1.6						0	0	30	
HFPO-DA	< 1.6	1.6						0	0	30	
PFHxS	< 1.6	1.6						0	0	30	R
PFHpA	< 1.6	1.6						0	0	30	
ADONA	< 1.6	1.6						0	0	30	
PFOA	< 1.6	1.6						0	0	30	
PFOS	< 1.6	1.6						0	0	30	
PFNA	< 1.6	1.6						0	0	30	
9CI-PF3ONS	< 1.6	1.6						0	0	30	
PFDA	< 1.6	1.6						0	0	30	
NMeFOSAA	< 1.6	1.6						0	0	30	
NEtFOSAA	< 1.6	1.6						0	0	30	
PFUnA	< 1.6	1.6						0	0	30	
11CI-PF3OUdS	< 1.6	1.6						0	0	30	
PFDoA	< 1.6	1.6						0	0	30	
PFTTrDA	< 1.6	1.6						0	0	30	
PFTA	< 1.6	1.6						0	0	30	
Surr: d5-N-EtFOSSA	240		296.3		82.2	70	130		0	0	
Surr: M3HFPO-DA	150		185.2		78.4	70	130		0	0	
Surr: MPFDA	59		74.07		79.9	70	130		0	0	
Surr: MPFHxA	58		74.07		78.1	70	130		0	0	

Qualifiers: < Not Detected at the Reporting Limit
 PL Permit Limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

MCL Maximum Contaminant Level
 RL Reporting Limit

WO#: 2307295

7/24/2023

Client: Trace Analytical Laboratories, Inc.

Project: 23G0136

TestCode: PFAS-DW

Sample ID: 2307696-03AMS	SampType: MS-MID	TestCode: PFAS-DW	Units: ng/L	Prep Date: 7/19/2023	RunNo: 33874						
Client ID: BatchQC	Batch ID: 5757	TestNo: EPA 537.1		Analysis Date: 7/21/2023	SeqNo: 663184						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	64	1.6	74.07	0	87.0	70	130				
PFHxA	64	1.6	74.07	0	86.4	70	130				
HFPO-DA	63	1.6	74.07	0	84.7	70	130				
PFHxS	65	1.6	74.07	0	88.0	70	130				
PFHpA	64	1.6	74.07	0	86.7	70	130				
ADONA	66	1.6	74.07	0	89.1	70	130				
PFOA	67	1.6	74.07	0	90.5	70	130				
PFOS	65	1.6	74.07	0	87.4	70	130				
PFNA	68	1.6	74.07	0	91.4	70	130				
9CI-PF3ONS	63	1.6	74.07	0	84.8	70	130				
PFDA	64	1.6	74.07	0	86.7	70	130				
NMeFOSAA	60	1.6	74.07	0	80.8	70	130				
NEtFOSAA	58	1.6	74.07	0	78.8	70	130				
PFUnA	60	1.6	74.07	0	81.2	70	130				
11CI-PF3OUdS	62	1.6	74.07	0	83.9	70	130				
PFDoA	56	1.6	74.07	0	75.9	70	130				
PFTTrDA	57	1.6	74.07	0	76.3	70	130				
PFTA	55	1.6	74.07	0	74.1	70	130				
Surr: d5-N-EtFOSSA	250		296.3		83.4	70	130				
Surr: M3HFPO-DA	170		185.2		93.7	70	130				
Surr: MPFDA	70		74.07		94.8	70	130				
Surr: MPFHxA	69		74.07		93.7	70	130				

Qualifiers: < Not Detected at the Reporting Limit
 PL Permit Limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

MCL Maximum Contaminant Level
 RL Reporting Limit

WO#: 2307295

7/24/2023

Client: Trace Analytical Laboratories, Inc.

Project: 23G0136

TestCode: PFAS-DW

Sample ID: LCS-low-5757 B	SampType: LCS-LOW	TestCode: PFAS-DW	Units: ng/L	Prep Date: 7/19/2023	RunNo: 33874						
Client ID: BatchQC	Batch ID: 5757	TestNo: EPA 537.1		Analysis Date: 7/21/2023	SeqNo: 663185						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	1.9	1.8	2.000	0	95.8	50	150				
PFHxA	1.9	1.8	2.000	0	97.4	50	150				
HFPO-DA	2.0	1.8	2.000	0	99.2	50	150				
PFHxS	2.0	1.8	2.000	0	102	50	150				
PFHpA	2.0	1.8	2.000	0	97.6	50	150				
ADONA	2.0	1.8	2.000	0	97.6	50	150				
PFOA	2.1	1.8	2.000	0	105	50	150				
PFOS	2.1	1.8	2.000	0	103	50	150				
PFNA	2.1	1.8	2.000	0	103	50	150				
9CI-PF3ONS	2.0	1.8	2.000	0	101	50	150				
PFDA	2.0	1.8	2.000	0	99.6	50	150				
NMeFOSAA	1.9	1.8	2.000	0	96.8	50	150				
NEtFOSAA	1.8	1.8	2.000	0	88.8	50	150				
PFUnA	1.8	1.8	2.000	0	89.0	50	150				
11CI-PF3OUdS	1.9	1.8	2.000	0	96.8	50	150				
PFDoA	< 1.8	1.8	2.000	0	84.6	50	150				
PFTTrDA	< 1.8	1.8	2.000	0	81.6	50	150				
PFTA	< 1.8	1.8	2.000	0	75.2	50	150				
Surr: d5-N-EtFOSSA	280		320.0		87.6	70	130				
Surr: M3HFPO-DA	180		200.0		92.1	70	130				
Surr: MPFDA	74		80.00		92.5	70	130				
Surr: MPFHxA	70		80.00		87.6	70	130				

Qualifiers: < Not Detected at the Reporting Limit
 PL Permit Limit
 S Spike Recovery outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

MCL Maximum Contaminant Level
 RL Reporting Limit

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673



231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

SUBCONTRACT ORDER
23G0136

SENDING LABORATORY:

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444
Phone: 231.773.5998

RECEIVING LABORATORY:

Prein and Newhof
3260 Evergreen Drive NE
Grand Rapids, MI 49525
Phone :(616) 364-7600

7295-1

Project Manager: Tim Brewer

Note Our New Email address: TraceSubOut@trace-labs.com

PO # 23G0136

Matrix: Drinking Water Sampled: 07/05/23 10:40 TAT: Standard

Sample ID: DW PFAS 23G0136-01

Sampled By: SD

Analysis Needed:

PFAS Drinking Water- EGLE List with Field Blank

 7/6/23  7/7/23 11:40A 10c
Released By Date Received By Date

Released By Date Received By Date

23G0136

Clare, City of
 Project Manager: Tim Brewer

Sample Log In Checklist

Date: 7/6/23	Original Observation	Corrected Temperature	IR-9 (CF: 0.0°C)	IR-10 (CF: 0.0°C)	IR-12 (CF: +0.1°C)	SR1 (CF: 0.0°C)	SR2 (CF: -0.1°C)	Temp Blank	Client Sample
Time: 17:21									
Logged by: MJ									
Package Description: Coder									
Package Temp °C	-0.8	-0.8		/					
Representative Sample Temp °C									

Sample Receipt

- Yes No
- Received on ice or other coolant
- Ice still present upon receipt
- Custody seals present
- Trace Courier Client Drop-off
- Yes No Custody seals intact (if applicable)
- UPS Fed Ex US Mail Other

Sample Condition

- Yes No N/A
- All sample containers arrived unbroken and labeled
- Sufficient sample to run requested analyses
- Correct chemical preservative added to samples
- Samples preserved at Trace
- Chemical preservation verified, check EMD pH test strip used (if applicable)
- pH 0-2.5 (Lot: HC201854) pH 11.0-13.0 (Lot: HC022540) Other
- Air bubbles absent from VOAs

Chain of Custody (COC)

- Yes No
- All bottle labels agree with COC
- COC filled out properly
- COC signed by client

Notes: