

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



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

January 31, 2024

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

RE: Trace Project 24A0777
Client Project DW PFAS- January 2024

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.

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". The signature is written in a cursive style with a long, sweeping underline.

Tim Brewer
Project Manager

Enclosures

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



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SAMPLE SUMMARY

Trace Project ID: 24A0777
Client Project ID: DW PFAS- January 2024

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
24A0777-01	DW PFAS	Drinking Water	TQ	01/17/24 13:55	01/18/24 10:47

January 31, 2024

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

RE: 24A0777

Order No.: 2401B09

Dear Mr. Jon Mink:

[Guide to Reading Lab Result](#)

Prein&Newhof Laboratory received 2 sample(s) on 1/23/2024 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.

Collection Date 1/17/2024 1:55:00 PM

Project: 24A0777

Received Date: 1/23/2024 12:35:00 PM

Lab ID: 2401B09-01

Matrix: DRINKING WATER

Client Sample ID: 24A0777-01

Sampled By: TQ

Location:

Analyses	Result	RL	Qual	Units	MCL	Date Analyzed
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PFAS, DRINKING WATER

EPA 537.1

Analyst: **JS**

PFBS	2.9	2.0		ng/L	420	1/30/2024 10:17:00 AM
PFHxA	< 2.0	2.0		ng/L	400000	1/30/2024 10:17:00 AM
HFPO-DA	< 2.0	2.0		ng/L	370	1/30/2024 10:17:00 AM
PFHxS	4.5	2.0		ng/L	51	1/30/2024 10:17:00 AM
PFHpA	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
ADONA	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
PFOA	< 2.0	2.0		ng/L	8.0	1/30/2024 10:17:00 AM
PFOS	4.6	2.0		ng/L	16	1/30/2024 10:17:00 AM
PFNA	< 2.0	2.0		ng/L	6.0	1/30/2024 10:17:00 AM
9CI-PF3ONS	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
PFDA	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
NMeFOSAA	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
NEtFOSAA	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
PFUnA	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
11CI-PF3OUdS	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
PFDoA	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
PFTTrDA	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
PFTA	< 2.0	2.0		ng/L		1/30/2024 10:17:00 AM
Surr: d5-N-EtFOSSA	99.8	70 - 130		%Rec		1/30/2024 10:17:00 AM
Surr: M3HFPO-DA	96.6	70 - 130		%Rec		1/30/2024 10:17:00 AM
Surr: MPFDA	118	70 - 130		%Rec		1/30/2024 10:17:00 AM
Surr: MPFHxA	92.1	70 - 130		%Rec		1/30/2024 10:17:00 AM

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.	Collection Date	1/17/2024 1:55:00 PM
Project:	24A0777	Received Date:	1/23/2024 12:35:00 PM
Lab ID:	2401B09-02	Matrix:	BLANK
Client Sample ID:	Field Blank	Sampled By:	TQ
Location:			

Analyses	Result	RL	Qual	Units	MCL	Date Analyzed
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PFAS, DRINKING WATER

EPA 537.1

Analyst: **JS**

PFBS	< 2.0	2.0		ng/L	420	1/29/2024 9:02:00 PM
PFHxA	< 2.0	2.0		ng/L	400000	1/29/2024 9:02:00 PM
HFPO-DA	< 2.0	2.0		ng/L	370	1/29/2024 9:02:00 PM
PFHxS	< 2.0	2.0		ng/L	51	1/29/2024 9:02:00 PM
PFHpA	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
ADONA	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
PFOA	< 2.0	2.0		ng/L	8.0	1/29/2024 9:02:00 PM
PFOS	< 2.0	2.0		ng/L	16	1/29/2024 9:02:00 PM
PFNA	< 2.0	2.0		ng/L	6.0	1/29/2024 9:02:00 PM
9CI-PF3ONS	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
PFDA	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
NMeFOSAA	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
NEtFOSAA	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
PFUnA	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
11CI-PF3OUdS	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
PFDaA	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
PFTrDA	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
PFTA	< 2.0	2.0		ng/L		1/29/2024 9:02:00 PM
Surr: d5-N-EtFOSSA	93.4	70 - 130		%Rec		1/29/2024 9:02:00 PM
Surr: M3HFPO-DA	102	70 - 130		%Rec		1/29/2024 9:02:00 PM
Surr: MPFDA	106	70 - 130		%Rec		1/29/2024 9:02:00 PM
Surr: MPFHxA	93.7	70 - 130		%Rec		1/29/2024 9:02:00 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#: **2401B09**

1/31/2024

Client: Trace Analytical Laboratories, Inc.

Project: 24A0777

TestCode: PFAS-DW

Sample ID: MB-L7-6380	SampType: MBLK	TestCode: PFAS-DW	Units: ng/L	Prep Date: 1/24/2024	RunNo: 37033						
Client ID: PBW	Batch ID: 6380	TestNo: EPA 537.1		Analysis Date: 1/29/2024	SeqNo: 731448						
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	310		320.0		96.5	70	130				
Surr: M3HFPO-DA	180		200.0		90.8	70	130				
Surr: MPFDA	86		80.00		108	70	130				
Surr: MPFHxA	72		80.00		89.4	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#: **2401B09**

1/31/2024

Client: Trace Analytical Laboratories, Inc.

Project: 24A0777

TestCode: PFAS-DW

Sample ID: LCS-low-6380 A	SampType: LCS-LOW	TestCode: PFAS-DW	Units: ng/L	Prep Date: 1/24/2024	RunNo: 37033						
Client ID: BatchQC	Batch ID: 6380	TestNo: EPA 537.1		Analysis Date: 1/29/2024	SeqNo: 731449						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	3.5	1.8	4.000	0	88.0	50	150				
PFHxA	3.5	1.8	4.000	0	87.8	50	150				
HFPO-DA	3.4	1.8	4.000	0	85.7	50	150				
PFHxS	3.2	1.8	4.000	0	80.7	50	150				
PFHpA	3.2	1.8	4.000	0	79.4	50	150				
ADONA	3.4	1.8	4.000	0	85.3	50	150				
PFOA	3.9	1.8	4.000	0	97.4	50	150				
PFOS	4.2	1.8	4.000	0	104	50	150				
PFNA	4.2	1.8	4.000	0	105	50	150				
9CI-PF3ONS	3.8	1.8	4.000	0	94.4	50	150				
PFDA	4.5	1.8	4.000	0	112	50	150				
NMeFOSAA	4.6	1.8	4.000	0	114	50	150				
NEtFOSAA	5.1	1.8	4.000	0	127	50	150				
PFUnA	4.4	1.8	4.000	0	111	50	150				
11CI-PF3OUdS	3.9	1.8	4.000	0	97.5	50	150				
PFDoA	4.5	1.8	4.000	0	112	50	150				
PFTTrDA	4.3	1.8	4.000	0	108	50	150				
PFTA	4.8	1.8	4.000	0	121	50	150				
Surr: d5-N-EtFOSSA	270		320.0		85.1	70	130				
Surr: M3HFPO-DA	190		200.0		93.2	70	130				
Surr: MPFDA	85		80.00		106	70	130				
Surr: MPFHxA	71		80.00		88.4	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 5 of 8

QC SUMMARY REPORT

WO#: **2401B09**

1/31/2024

Client: Trace Analytical Laboratories, Inc.

Project: 24A0777

TestCode: PFAS-DW

Sample ID: 2401790-02ADUP	SampType: DUP	TestCode: PFAS-DW	Units: ng/L	Prep Date: 1/24/2024	RunNo: 37033						
Client ID: BatchQC	Batch ID: 6380	TestNo: EPA 537.1	Analysis Date: 1/30/2024	SeqNo: 731468							
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	
PFHxA	< 1.7	1.7						0	0	30	
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	R
PFOA	< 1.7	1.7						0	0	30	R
PFOS	< 1.7	1.7						0	0	30	
PFNA	< 1.7	1.7						0	0	30	R
9CI-PF3ONS	< 1.7	1.7						0	0	30	
PFDA	< 1.7	1.7						0	0	30	R
NMeFOSAA	< 1.7	1.7						0	0	30	R
NEtFOSAA	< 1.7	1.7						0	0	30	R
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	240		313.7		75.2	70	130		0	0	
Surr: M3HFPO-DA	190		196.1		96.0	70	130		0	0	
Surr: MPFDA	74		78.43		95.0	70	130		0	0	
Surr: MPFHxA	68		78.43		86.3	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#: **2401B09**

1/31/2024

Client: Trace Analytical Laboratories, Inc.

Project: 24A0777

TestCode: PFAS-DW

Sample ID: 2401899-01AMS	SampType: MS-MID	TestCode: PFAS-DW	Units: ng/L	Prep Date: 1/24/2024	RunNo: 37033						
Client ID: BatchQC	Batch ID: 6380	TestNo: EPA 537.1	Analysis Date: 1/30/2024	SeqNo: 731470							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	75	1.7	76.92	0	97.9	70	130				
PFHxA	80	1.7	76.92	0	104	70	130				
HFPO-DA	85	1.7	76.92	0	110	70	130				
PFHxS	68	1.7	76.92	0	88.9	70	130				
PFHpA	76	1.7	76.92	0	98.3	70	130				
ADONA	77	1.7	76.92	0	100	70	130				
PFOA	88	1.7	76.92	0	114	70	130				
PFOS	82	1.7	76.92	0	106	70	130				
PFNA	93	1.7	76.92	0	121	70	130				
9CI-PF3ONS	79	1.7	76.92	0	103	70	130				
PFDA	96	1.7	76.92	0	125	70	130				
NMeFOSAA	82	1.7	76.92	0	106	70	130				
NEtFOSAA	84	1.7	76.92	0	109	70	130				
PFUnA	91	1.7	76.92	0	119	70	130				
11CI-PF3OUdS	80	1.7	76.92	0	104	70	130				
PFDoA	95	1.7	76.92	0	124	70	130				
PFTTrDA	100	1.7	76.92	0	131	70	130				S
PFTA	130	1.7	76.92	0	175	70	130				S
Surr: d5-N-EtFOSSA	280		307.7		91.5	70	130				
Surr: M3HFPO-DA	190		192.3		99.2	70	130				
Surr: MPFDA	82		76.92		107	70	130				
Surr: MPFHxA	69		76.92		90.2	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

SUBCONTRACT ORDER
24A0777

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

1B09/1-2

Project Manager: Tim Brewer

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

PO # 24A0777

Matrix: Drinking Water Sampled: 01/17/24 13:55 TAT: Standard

Sample ID: DW PFAS 24A0777-01

Sampled By: TQ

Analysis Needed:

PFAS Drinking Water- EGLE List with Field Blank

Released By	<u>Cora Mink</u>	Date	<u>01-18-24</u>	Received By	<u>[Signature]</u>	Date	<u>1-23-24</u>
Released By	<u>[Signature]</u>	Date	<u>1-23-24</u>	Received By	<u>SD</u>	Date	<u>1/23/24 12:35</u>



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

Phone 231.773.5998
Fax 888.979.4469
www.trace-labs.com

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Report Results To:

Bill To:

Trace User:

Company Name: City of Clare
Report To: Dale Clark
Mailing Address: 202 W. Fifth St
City/State/Zip Code: Clare, MI 49717
Office Phone: 285-386-2321 Call Phone: 985-494-1225
Email Address: dclark@cityofclare.gov

PO #: _____
Contact Name: Sinye
Billing Address (if different):
City/State/Zip Code:
Phone Number:
Billing Email Address:

Logged By: CM
Checked By: ME
Soil Vials Preserved (circle if applicable):
MeOH Low Level Lab
Sample Collection Time (Hrs):

Requested Turnaround Times (TAT)
 Standard: 5-10 Business days
 3 Business Days*
 1 Business Day*
* Rush TAT Requires Prior Approval

Matrix Key:
WW = Wastewater
DW = Drinking Water
GW = Groundwater
LW = Liquid Waste
O = Oil
WI = Wipes
S = Solid
SL = Sludge
A = Air
U = Unknown

Analysis Requested

Project Name: City of Clare
Sampled By (print): Tom Burt
Trace No.: _____
Sample Collection Date: 1-17-24/1:55
Sample Collection Time: _____
Sample ID/Name: DW PFAS

Metals Field Filtered (Y or N)
Matrix - see above →
Number of Containers: DW 2
Cool ≤ 4°C: _____
Hydrochloric Acid (HCl): _____
Nitric Acid (HNO3): _____
Sulfuric Acid (H2SO4): _____
Sodium Thiosulfate: _____
Sodium Hydroxide (NaOH): _____
Ascorbic Acid: _____
Trizma: _____
Other: _____

Preservation
Possible Health Hazards? _____

Please Sign		Released By	Received By	Date	Time	Released By	Date	Time
1)	Tom Burt	Tom Burt	Tom Burt	1/18/24	10:47	Tom Burt	1/18/24	1:55
2)								
3)								
4)								

Check this box if you would not like your samples analyzed if received outside of the conditions outlined in the Trace Sample Acceptance Policy at www.trace-labs.com/downloads.

Form 70-Z-2

24A0777

Clare, City of
 Project Manager: Tim Brewer

Sample Log In Checklist

Date: 1/18/24	Original Observation	Corrected Temperature	IR-9 (CF: 0.0°C)	IR-10 (CF: +0.1°C)	IR-12 (CF: 0.0°C)	SR1 (CF: -0.2°C)	SR2 (CF: -0.1°C)	Temp Blank	Client Sample
Time: 15:35									
Initials: BV									
Package Description: Cooler									
Package Temp °C	0.0	0.0							
Representative Sample Temp °C	1.0	0.8							

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: HC311850) 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:
