

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



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

October 18, 2022

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

RE: Trace Project 22J0245  
Client Project Quarterly Analysis- PFAS

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](mailto: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

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Muskegon, MI 49444-2673



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### SAMPLE SUMMARY

Trace Project ID: 22J0245  
Client Project ID: Quarterly Analysis- PFAS

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
22J0245-01	Plant Tap	Drinking Water	TQ	10/05/22 11:00	10/06/22 11:20

## 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.

October 18, 2022

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

RE: 22J0245

Order No.: 2210498

Dear Mr. Tim Brewer:

[Guide to reading Lab Result](#)

Prein&Newhof Laboratory received 2 sample(s) on 10/7/2022 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](mailto:sbylsma@preinnewhof.com).

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

Sincerely,



Steve Bylsma  
Laboratory Manager

<b>CLIENT:</b>	Trace Analytical Laboratories, Inc.	<b>Collection Date</b>	10/5/2022 11:00:00 AM
<b>Project:</b>	22J0245	<b>Received Date:</b>	10/7/2022 9:20:00 AM
<b>Lab ID:</b>	2210498-01	<b>Matrix:</b>	DRINKING WATER
<b>Client Sample ID:</b>	22J0245-01	<b>Sampled By:</b>	TQ
<b>Location:</b>	Plant Tap		

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

**EPA 537.1**

Analyst: JS

PFBS	4.2	2.0		ng/L	420	10/18/2022 3:28:00 AM
PFHxA	< 2.0	2.0		ng/L	400000	10/18/2022 3:28:00 AM
HFPO-DA	< 2.0	2.0		ng/L	370	10/18/2022 3:28:00 AM
PFHxS	7.5	2.0		ng/L	51	10/18/2022 3:28:00 AM
PFHpA	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
ADONA	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
PFOA	< 2.0	2.0		ng/L	8.0	10/18/2022 3:28:00 AM
PFOS	4.8	2.0		ng/L	16	10/18/2022 3:28:00 AM
PFNA	< 2.0	2.0		ng/L	6.0	10/18/2022 3:28:00 AM
9CI-PF3ONS	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
PFDA	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
NMeFOSAA	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
NEtFOSAA	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
PFUnA	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
11CI-PF3OUdS	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
PFDaA	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
PFTrDA	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
PFTA	< 2.0	2.0		ng/L		10/18/2022 3:28:00 AM
Surr: d5-N-EtFOSSA	97.6	70 - 130		%Rec		10/18/2022 3:28:00 AM
Surr: M3HFPO-DA	113	70 - 130		%Rec		10/18/2022 3:28:00 AM
Surr: MPFDA	110	70 - 130		%Rec		10/18/2022 3:28:00 AM
Surr: MPFHxA	96.0	70 - 130		%Rec		10/18/2022 3:28:00 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

<b>CLIENT:</b>	Trace Analytical Laboratories, Inc.	<b>Collection Date</b>	10/5/2022 11:00:00 AM
<b>Project:</b>	22J0245	<b>Received Date:</b>	10/7/2022 9:20:00 AM
<b>Lab ID:</b>	2210498-02	<b>Matrix:</b>	BLANK
<b>Client Sample ID:</b>	Field Blank	<b>Sampled By:</b>	KT/JT
<b>Location:</b>			

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	10/18/2022 12:07:00 AM
PFHxA	< 2.0	2.0		ng/L	400000	10/18/2022 12:07:00 AM
HFPO-DA	< 2.0	2.0		ng/L	370	10/18/2022 12:07:00 AM
PFHxS	< 2.0	2.0		ng/L	51	10/18/2022 12:07:00 AM
PFHpA	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
ADONA	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
PFOA	< 2.0	2.0		ng/L	8.0	10/18/2022 12:07:00 AM
PFOS	< 2.0	2.0		ng/L	16	10/18/2022 12:07:00 AM
PFNA	< 2.0	2.0		ng/L	6.0	10/18/2022 12:07:00 AM
9CI-PF3ONS	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
PFDA	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
NMeFOSAA	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
NEtFOSAA	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
PFUnA	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
11CI-PF3OUdS	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
PFDoA	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
PFTTrDA	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
PFTA	< 2.0	2.0		ng/L		10/18/2022 12:07:00 AM
Surr: d5-N-EtFOSSA	85.0	70 - 130		%Rec		10/18/2022 12:07:00 AM
Surr: M3HFPO-DA	110	70 - 130		%Rec		10/18/2022 12:07:00 AM
Surr: MPFDA	107	70 - 130		%Rec		10/18/2022 12:07:00 AM
Surr: MPFHxA	89.1	70 - 130		%Rec		10/18/2022 12:07:00 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

WO#: 2210498

10/18/2022

**Client:** Trace Analytical Laboratories, Inc.

**Project:** 22J0245

**TestCode:** PFAS-DW

Sample ID: <b>MB-L9-4837</b>	SampType: <b>MBLK</b>	TestCode: <b>PFAS-DW</b>	Units: <b>ng/L</b>	Prep Date: <b>10/13/2022</b>	RunNo: <b>29422</b>						
Client ID: <b>PBW</b>	Batch ID: <b>4837</b>	TestNo: <b>EPA 537.1</b>		Analysis Date: <b>10/17/2022</b>	SeqNo: <b>564386</b>						
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	71		80.00		88.7	70	130				
Surr: M3HFPO-DA	240		200.0		119	70	130				
Surr: MPFDA	91		80.00		113	70	130				
Surr: MPFHxA	76		80.00		94.6	70	130				

**Qualifiers:** < Not Detected at the Reporting Limit  
PL Permit Limit

H Holding times for preparation or analysis exceeded  
RL Reporting Limit

MCL Maximum Contaminant Level

Original  
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WO#: 2210498

10/18/2022

**Client:** Trace Analytical Laboratories, Inc.

**Project:** 22J0245

**TestCode:** PFAS-DW

Sample ID: <b>LCS-mid-4837 A</b>	SampType: <b>LCS-MID</b>	TestCode: <b>PFAS-DW</b>	Units: <b>ng/L</b>	Prep Date: <b>10/13/2022</b>	RunNo: <b>29422</b>						
Client ID: <b>BatchQC</b>	Batch ID: <b>4837</b>	TestNo: <b>EPA 537.1</b>		Analysis Date: <b>10/17/2022</b>	SeqNo: <b>564387</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	82	1.8	80.00	0	102	70	130				
PFHxA	82	1.8	80.00	0	103	70	130				
HFPO-DA	80	1.8	80.00	0	99.9	70	130				
PFHxS	81	1.8	80.00	0	102	70	130				
PFHpA	66	1.8	80.00	0	82.5	70	130				
ADONA	81	1.8	80.00	0	102	70	130				
PFOA	81	1.8	80.00	0	101	70	130				
PFOS	79	1.8	80.00	0	98.9	70	130				
PFNA	79	1.8	80.00	0	98.3	70	130				
9CI-PF3ONS	79	1.8	80.00	0	98.7	70	130				
PFDA	81	1.8	80.00	0	101	70	130				
NMeFOSAA	72	1.8	80.00	0	90.4	70	130				
NEtFOSAA	76	1.8	80.00	0	94.7	70	130				
PFUnA	80	1.8	80.00	0	99.6	70	130				
11CI-PF3OUdS	78	1.8	80.00	0	97.8	70	130				
PFDoA	77	1.8	80.00	0	96.7	70	130				
PFTTrDA	76	1.8	80.00	0	94.8	70	130				
PFTA	74	1.8	80.00	0	92.0	70	130				
Surr: d5-N-EtFOSSA	67		80.00		83.7	70	130				
Surr: M3HFPO-DA	230		200.0		116	70	130				
Surr: MPFDA	89		80.00		112	70	130				
Surr: MPFHxA	75		80.00		94.4	70	130				

**Qualifiers:** < Not Detected at the Reporting Limit  
PL Permit Limit

H Holding times for preparation or analysis exceeded  
RL Reporting Limit

MCL Maximum Contaminant Level

Original  
Page 5 of 7



WO#: 2210498

10/18/2022

**Client:** Trace Analytical Laboratories, Inc.

**Project:** 22J0245

**TestCode:** PFAS-DW

Sample ID: <b>2210674-01AMS</b>	SampType: <b>MS-LOW</b>	TestCode: <b>PFAS-DW</b>	Units: <b>ng/L</b>	Prep Date: <b>10/13/2022</b>	RunNo: <b>29422</b>						
Client ID: <b>BatchQC</b>	Batch ID: <b>4837</b>	TestNo: <b>EPA 537.1</b>		Analysis Date: <b>10/18/2022</b>	SeqNo: <b>564392</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	8.1	1.8	4.000	3.524	113	50	150				
PFHxA	5.7	1.8	4.000	1.500	104	50	150				
HFPO-DA	3.6	1.8	4.000	0	89.3	50	150				
PFHxS	5.0	1.8	4.000	0	124	50	150				
PFHpA	4.6	1.8	4.000	1.448	77.8	50	150				
ADONA	3.9	1.8	4.000	0	97.0	50	150				
PFOA	4.8	1.8	4.000	0	120	50	150				
PFOS	5.0	1.8	4.000	0.9552	101	50	150				
PFNA	4.1	1.8	4.000	0	103	50	150				
9CI-PF3ONS	3.8	1.8	4.000	0	95.8	50	150				
PFDA	4.3	1.8	4.000	0	107	50	150				
NMeFOSAA	3.8	1.8	4.000	0	96.1	50	150				
NEtFOSAA	4.2	1.8	4.000	0	106	50	150				
PFUnA	4.2	1.8	4.000	0	105	50	150				
11CI-PF3OUdS	3.9	1.8	4.000	0	97.0	50	150				
PFDoA	4.1	1.8	4.000	0	103	50	150				
PFTTrDA	4.1	1.8	4.000	0	102	50	150				
PFTA	4.0	1.8	4.000	0	100	50	150				
Surr: d5-N-EtFOSSA	62		80.00		77.4	70	130				
Surr: M3HFPO-DA	240		200.0		121	70	130				
Surr: MPFDA	83		80.00		103	70	130				
Surr: MPFHxA	75		80.00		94.0	70	130				

**Qualifiers:** < Not Detected at the Reporting Limit  
PL Permit Limit

H Holding times for preparation or analysis exceeded  
RL Reporting Limit

MCL Maximum Contaminant Level

WO#: 2210498

10/18/2022

**Client:** Trace Analytical Laboratories, Inc.

**Project:** 22J0245

**TestCode:** PFAS-DW

Sample ID: <b>2210604-01ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PFAS-DW</b>	Units: <b>ng/L</b>	Prep Date: <b>10/13/2022</b>	RunNo: <b>29422</b>						
Client ID: <b>BatchQC</b>	Batch ID: <b>4837</b>	TestNo: <b>EPA 537.1</b>		Analysis Date: <b>10/18/2022</b>	SeqNo: <b>564401</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
PFBS	< 1.6	1.6						0	0	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	
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	65		72.73		89.7	70	130		0	0	
Surr: M3HFPO-DA	210		181.8		115	70	130		0	0	
Surr: MPFDA	81		72.73		112	70	130		0	0	
Surr: MPFHxA	68		72.73		93.0	70	130		0	0	

**Qualifiers:** < Not Detected at the Reporting Limit  
PL Permit Limit

H Holding times for preparation or analysis exceeded  
RL Reporting Limit

MCL Maximum Contaminant Level

**SUBCONTRACT ORDER**

**22J0245**

**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

Project Manager: Tim Brewer

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

**PO # 22J0245**

**Sample ID: Plant Tap 22J0245-01**

Matrix: Drinking Water

Sampled: 10/05/22 11:00

TAT: Standard

10498-1

Sampled By: TQ

***Analysis Needed:***

**PFAS Drinking Water- EGLE List with Field Blank**

2

8°C

*MA*  
Released By

10/6/22  
Date

*JMS*  
Received By

10/7/22  
Date

0920

Released By

Date

Received By

Date



**22J0245**

Clare, City of  
 Project Manager: Tim Brewer

**Sample Log In Checklist**

Date: 10/6/22	Original Observation	Corrected Temperature	IR-9 (CF: +0.1°C)	IR-10 (CF: 0.0°C)	20B12743 (CF: -0.2°C)	Temp Blank	Client Sample
Time: 15:08							
Logged by: BV							
Package Description: Cooler							
Package Temp °C	-1.5	-1.5	✓	✓	✓		
Representative Sample Temp °C	4.0	4.0	✓	✓	✓		✓

**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: HC291593)  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:**

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