

April 04, 2023

Prein & Newhof
3355 Evergreen Dr. NE
Grand Rapids, MI 49525

RE: Gun Lake

Order No.: 2303G76

Dear Mr. Tim Woodburne:

[Guide to Reading Lab Result](#)

Prein&Newhof Laboratory received 22 sample(s) on 3/30/2023 on your behalf. Your test results are provided in your Prein&Newhof Laboratory analytical report. Please carefully review your analytical report, noting the following.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Any analyte that exceeds the client provided permit level are noted on the report with an "*" in the Qual field. Quality control data is within laboratory defined or method specified acceptance limits except if noted.

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).

To learn more about interpreting 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.

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

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

Thank you for your business.
Sincerely,



Steve Bylsma
Laboratory Manager

Case Narrative

WO#: 2303G76
Date: 4/4/2023

CLIENT: Prein & Newhof

Project: Gun Lake

WorkOrder Narrative:

2303G76: Any comments or problems with the analytical events associated with this report are noted below.

Analytical Sequence Sample Comments:

2303G76-15A 619632: Analytical Comments for SW 6020B, Sample 2303G76-15A, Batch ID 5395 : Matrix Spike and Matrix Spike Duplicate failed high. All other QC was acceptable. Sample result should be considered estimated.

CLIENT: Prein & Newhof
Project: Gun Lake

Lab Order: 2303G76

Lab ID: 2303G76-01 **Matrix:** SOIL **Collection Date:** 3/30/2023 1:13:00 PM
Client ID: SS-1 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID					SW 6020B	Analyst: SB
Copper	56400	1290		µg/Kg-dry	1	4/3/2023 5:00:32 PM
PERCENT MOISTURE					D2216	Analyst: AB
Total Solids	7.41	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-02 **Matrix:** SOIL **Collection Date:** 3/30/2023 1:25:00 PM
Client ID: SS-2 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID					SW 6020B	Analyst: SB
Copper	222000	818		µg/Kg-dry	1	4/3/2023 1:55:32 PM
PERCENT MOISTURE					D2216	Analyst: AB
Total Solids	6.18	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-03 **Matrix:** SOIL **Collection Date:** 3/30/2023 1:40:00 PM
Client ID: SS-3 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID					SW 6020B	Analyst: SB
Copper	67600	574		µg/Kg-dry	1	4/3/2023 2:11:49 PM
PERCENT MOISTURE					D2216	Analyst: AB
Total Solids	13.8	0.0100		%	1	4/4/2023 8:38:07 AM

Qualifiers: < Not Detected at the Reporting Limit H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level PL Permit Limit
RL Reporting Limit S Spike Recovery outside accepted recovery limits

CLIENT: Prein & Newhof
Project: Gun Lake

Lab Order: 2303G76

Lab ID: 2303G76-04 **Matrix:** SOIL **Collection Date:** 3/30/2023 12:52:00 PM
Client ID: SS-4 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	79500	572		µg/Kg-dry	1	4/3/2023 2:17:14 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	12.1	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-05 **Matrix:** SOIL **Collection Date:** 3/30/2023 12:18:00 PM
Client ID: SS-5 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	25700	635		µg/Kg-dry	1	4/3/2023 5:06:01 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	15.9	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-06 **Matrix:** SOIL **Collection Date:** 3/30/2023 12:30:00 PM
Client ID: SS-6 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	148000	403		µg/Kg-dry	1	4/3/2023 2:44:39 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	10.1	0.0100		%	1	4/4/2023 8:38:07 AM

Qualifiers: < Not Detected at the Reporting Limit H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level PL Permit Limit
RL Reporting Limit S Spike Recovery outside accepted recovery limits

CLIENT: Prein & Newhof
Project: Gun Lake

Lab Order: 2303G76

Lab ID: 2303G76-07 **Matrix:** SOIL **Collection Date:** 3/30/2023 12:40:00 PM
Client ID: SS-7 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	89500	427		µg/Kg-dry	1	4/3/2023 2:50:09 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	16.6	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-08 **Matrix:** SOIL **Collection Date:** 3/30/2023 11:37:00 AM
Client ID: SS-8 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	848000	1030		µg/Kg-dry	1	4/3/2023 2:55:39 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	8.22	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-09 **Matrix:** SOIL **Collection Date:** 3/30/2023 11:48:00 AM
Client ID: SS-9 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	562000	760		µg/Kg-dry	1	4/3/2023 3:01:06 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	11.8	0.0100		%	1	4/4/2023 8:38:07 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: Prein & Newhof
Project: Gun Lake

Lab Order: 2303G76

Lab ID: 2303G76-10 **Matrix:** SOIL **Collection Date:** 3/30/2023 12:00:00 PM
Client ID: SS-10 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	376000	456		µg/Kg-dry	1	4/3/2023 3:17:21 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	18.1	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-11 **Matrix:** SOIL **Collection Date:** 3/30/2023 1:35:00 PM
Client ID: SS-11 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	295000	1440		µg/Kg-dry	1	4/3/2023 3:28:14 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	7.17	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-12 **Matrix:** SOIL **Collection Date:** 3/30/2023 11:25:00 AM
Client ID: SS-12 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	375000	414		µg/Kg-dry	1	4/3/2023 5:33:55 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	13.8	0.0100		%	1	4/4/2023 8:38:07 AM

Qualifiers: < Not Detected at the Reporting Limit H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level PL Permit Limit
RL Reporting Limit S Spike Recovery outside accepted recovery limits

CLIENT: Prein & Newhof
Project: Gun Lake

Lab Order: 2303G76

Lab ID: 2303G76-13 **Matrix:** SOIL **Collection Date:** 3/30/2023 10:20:00 AM
Client ID: SS-13 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	335000	547		µg/Kg-dry	1	4/3/2023 3:39:05 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	22.2	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-14 **Matrix:** SOIL **Collection Date:** 3/30/2023 10:25:00 AM
Client ID: SS-14 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	336000	347		µg/Kg-dry	1	4/3/2023 5:39:20 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	27.6	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-15 **Matrix:** SOIL **Collection Date:** 3/30/2023 10:40:00 AM
Client ID: SS-15 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	114000	177		µg/Kg-dry	1	4/3/2023 3:49:56 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	46.8	0.0100		%	1	4/4/2023 8:38:07 AM

Qualifiers: < Not Detected at the Reporting Limit H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level PL Permit Limit
RL Reporting Limit S Spike Recovery outside accepted recovery limits

CLIENT: Prein & Newhof
Project: Gun Lake

Lab Order: 2303G76

Lab ID: 2303G76-16 **Matrix:** SOIL **Collection Date:** 3/30/2023 10:12:00 AM
Client ID: SS-16 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID					SW 6020B	Analyst: SB
Copper	134000	172		µg/Kg-dry	1	4/3/2023 4:06:17 PM
PERCENT MOISTURE					D2216	Analyst: AB
Total Solids	44.4	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-17 **Matrix:** SOIL **Collection Date:** 3/30/2023 10:05:00 AM
Client ID: SS-17 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID					SW 6020B	Analyst: SB
Copper	1330000	1090		µg/Kg-dry	1	4/3/2023 6:01:01 PM
PERCENT MOISTURE					D2216	Analyst: AB
Total Solids	9.28	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-18 **Matrix:** SOIL **Collection Date:** 3/30/2023 9:45:00 AM
Client ID: SS-18 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID					SW 6020B	Analyst: SB
Copper	2090000	1710		µg/Kg-dry	1	4/3/2023 6:06:27 PM
PERCENT MOISTURE					D2216	Analyst: AB
Total Solids	5.63	0.0100		%	1	4/4/2023 8:38:07 AM

Qualifiers: < Not Detected at the Reporting Limit H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level PL Permit Limit
RL Reporting Limit S Spike Recovery outside accepted recovery limits

CLIENT: Prein & Newhof
Project: Gun Lake

Lab Order: 2303G76

Lab ID: 2303G76-19 **Matrix:** SOIL **Collection Date:** 3/30/2023 9:53:00 AM
Client ID: SS-19 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	134000	122		µg/Kg-dry	1	4/3/2023 6:11:53 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	26.1	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-20 **Matrix:** SOIL **Collection Date:** 3/30/2023 1:05:00 PM
Client ID: SS-20 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	6800	289		µg/Kg-dry	1	4/3/2023 6:17:19 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	31.3	0.0100		%	1	4/4/2023 8:38:07 AM

Lab ID: 2303G76-21 **Matrix:** SOIL **Collection Date:** 3/30/2023 1:50:00 PM
Client ID: SS-21 **Sampler:** S. Cathey **Received Date:** 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
METALS, SOLID				SW 6020B		Analyst: SB
Copper	1840	115		µg/Kg-dry	1	4/3/2023 6:39:20 PM
PERCENT MOISTURE				D2216		Analyst: AB
Total Solids	58.4	0.0100		%	1	4/4/2023 8:38:07 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: Prein & Newhof

Lab Order: 2303G76

Project: Gun Lake

Lab ID: 2303G76-22

Matrix: SOIL

Collection Date: 3/30/2023 10:50:00 AM

Client ID: SS-22

Sampler: S. Cathey

Received Date: 3/30/2023 3:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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METALS, SOLID

SW 6020B

Analyst: **SB**

Copper	1430	108		µg/Kg-dry	1	4/3/2023 6:44:54 PM
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PERCENT MOISTURE

D2216

Analyst: **AB**

Total Solids	67.9	0.0100		%	1	4/4/2023 8:38:07 AM
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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

Revision v1

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Prein & Newhof

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3260 Evergreen Drive, NE
Grand Rapids, MI 49525
t. 616-364-7600
f. 616-364-4222

CHAIN OF CUSTODY

Wastewater W
Drinking Water D
Groundwater G
Soil S
Sludge L
Other X

Client: _____
Billing Address: _____
Phone Number: _____
Project Name: Sun Lake
Project Number: 222 1124
Email Results To: Tim Woodburne
Sampling Personnel: Scott Catney

No. 51410

LAB USE	Sample Information			MATRIX	Preservative					Analysis Requested									
	Date Collected	Time Collected	Sample Description and Location (e.g. MW-1)		None	H2SO4	HNO3	HCL	NaOH	Other									
2976-1	3/30/23	1313	SS-1	S						X	Total Copper								
2		1325	SS-2																
3		1340	SS-3																
4		1252	SS-4																
5		1218	SS-5																
6		1230	SS-6																
7		1240	SS-7																
8		1137	SS-8																
9		1148	SS-9																
10		1200	SS-10																

10°C

Comments:

Relinquished By: (Signature) <i>SW</i>	Date 3/30/23	Time 1550	Received By: (Signature)	Date	Time
Relinquished By: (Signature) <i>SW</i>	Date	Time	Received By: (Signature)	Date	Time
Received for Laboratory By: <i>SW</i>	Date 3/30/23	Time 15:50	Data Package Relinquished By:	Date	Time

Prein & Newhof

Engineers ■ Surveyors ■ Environmental ■ Laboratory

3260 Evergreen Drive, NE
Grand Rapids, MI 49525
t. 616-364-7600
f. 616-364-4222

CHAIN OF CUSTODY

- Wastewater
- Drinking Water
- Groundwater
- Soil
- Sludge
- Other

- W
- D
- G
- S
- L
- X

Client: _____
Billing Address: _____
Phone Number: _____
Project Name: Sun Lake
Project Number: 2221124
Email Results To: Tim Woodburne
Sampling Personnel: Scott Coffey

No. 51411

LAB USE	Sample Information			MATRIX	Preservative					Analysis Requested						
	Lab Sample ID #	Date Collected	Time Collected		Sample Description and Location (e.g. MW-1)	None	H2SO4	HNO3	HCL	NaOH	Other					
	3gT6-11	3/30/23	1335	SS-11	S											
	12		1125	SS-12												
	13		1020	SS-13												
	14		1025	SS-14												
	15		1040	SS-15												
	16		1012	SS-16												
	17		1005	SS-17												
	18		0945	SS-18												
	19		0953	SS-19												
	20		1305	SS-20												

10°C

Comments:

Relinquished By: (Signature) <i>[Signature]</i>	Date 3/30/23	Time 1550	Received By: (Signature)	Date	Time
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
Received for Laboratory By: <i>[Signature]</i>	Date 3/30/23	Time 1550	Data Package Relinquished By:	Date	Time

Prein & Newhof

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 3260 Evergreen Drive, NE
 Grand Rapids, MI 49525
 t. 616-364-7600
 f. 616-364-4222

CHAIN OF CUSTODY

Wastewater W
 Drinking Water D
 Groundwater G
 Soil S
 Sludge L
 Other X

Client: _____
 Billing Address: _____
 Phone Number: _____
 Project Name: Gun Lake
 Project Number: 2221124
 Email Results To: Tim Woodburne
 Sampling Personnel: Scott Catney

No. 51412

LAB USE	Sample Information			MATRIX	Preservative					Analysis Requested									
	Date Collected	Time Collected	Sample Description and Location (e.g. MW-1)		None	H2SO4	HNO3	HCL	NaOH	Other									
	3/30/23	1350	SS-21	S															
	3/30/23	1050	SS-22	S															
Comments: <u>10°C</u>																			

Relinquished By: (Signature) <u>Scott Catney</u>	Date <u>3/30/23</u>	Time <u>1550</u>	Received By: (Signature)	Date	Time
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
Received for Laboratory By: <u>Tim Woodburne</u>	Date <u>3/30/23</u>	Time <u>1550</u>	Data Package Relinquished By:	Date	Time