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# Hagerman Lake (Iron County, Michigan) Water Quality Monitoring Report

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**This is a product of annual monitoring conducted on behalf of:**

the Hagerman Lake Property Owners Association

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**Date: October 9, 2025**

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## **Chapter 1. Introduction**

White Water Associates, Inc. has been retained to conduct an annual monitoring in Hagerman Lake (Iron County, Michigan) by the Hagerman Lake Property Owners Association. White Water professional staff has conducted annual monitoring since 2015. Besides this introduction chapter, chapter 2 describes the methods used. Chapter 3 presents our findings.

## **Chapter 2. Methods**

The field work was conducted on August 7, 2025 by the White Water team (biologist Jesse Gabbard and technician Alexandra Knope) using a White Water boat. The water quality Monitoring involved obtaining a dissolved oxygen/temperature profile and Secchi transparency in the field. At the deep hole of Hagerman Lake, surface (epilimnion) and bottom (hypolimnion) water samples were collected for analysis of chlorophyll a (surface sample only), total phosphorus, nitrate-nitrite, total Kjeldahl nitrogen, ammonia-N, pH, hardness, alkalinity, calcium, magnesium and conductivity. *E. coli* samples were taken at the two swimming beaches.



## Chapter 3. Monitoring Results

Hagerman lake is a seepage lake (no inlet or outlet) which means that the water exchange is very slow. Water monitoring is important to track lake health and respond to unusual changes.

The Secchi depth in 2025 was 20.1 feet. This value is similar to the last monitoring event (2023, Table 1). This water value places it at threshold of the “very good” transparency category (Shaw et al., 2004).

*Table 1. Historic and 2025 Secchi Depth (feet).*

| Date of the survey | Secchi Depth (feet) |
|--------------------|---------------------|
| 09/10/2015         | 23                  |
| 08/19/2017         | 16                  |
| 08/10/2019         | 22                  |
| 08/31/2021         | 27                  |
| 08/31/2023         | 19.6                |
| 08/07/2025         | 20.1                |

Values for the 2025 water quality parameters are low and very similar to the previous sampling years. This indicates that the water quality remains excellent (Table 2). In seepage lakes like Hagerman Lake, the pH can be a critical parameter since precipitation is a major water source for the lake (another important water source is groundwater). Rain water pH tends to be somewhat acidic and can cause a lake to become more acidic (less than pH 7). For Hagerman Lake, the pH is close to neutral (pH=7). Hagerman Lake alkalinity provides a moderate buffer (protection) against acidification. The total phosphorus and chlorophyll “a” are non-detected in the epilimnion sample. This combined with the high Secchi reading would suggest a classification of oligotrophic (this is consistent with past readings). The *E. coli* values are very low and not of concern.

The values for total phosphorus and total Kjeldahl nitrogen were higher in the hypolimnion (deeper water of the lake) than any past measurements. While these values by themselves are not of particular concern, they both exhibit an upward trend in the Hagerman Lake water quality data starting in 2015 (Table 2). Increases in nutrient concentrations can sometimes result from fertilizing of nearby lawns and/or faulty septic systems. This trend should be scrutinized in future monitoring and is an example of how consistent monitoring over time can reveal subtle changes.



Table 2. Historic and 2025 water chemistry results.

| Analyte and Units                       | Epilimnion Value |      |      |      |       |       | Hypolimnion Value |      |      |      |      |      |
|-----------------------------------------|------------------|------|------|------|-------|-------|-------------------|------|------|------|------|------|
|                                         | 2015             | 2017 | 2019 | 2021 | 2023  | 2025  | 2015              | 2017 | 2019 | 2021 | 2023 | 2025 |
| Secchi depth (feet)                     | 23               | 16   | 22   | 27   | 19.6  | 20.1  |                   |      |      |      |      |      |
| Chlorophyll "a"<br>(mg/m <sup>3</sup> ) | 1.6              | 2.1  | 1.6  | 2.1  | 0.8   | ND    |                   |      |      |      |      |      |
| Total Phosphorus<br>(µg/L)              | ND               | ND   | ND   | 9    | ND    | ND    | 20                | 63   | 36   | 85   | 84   | 150  |
| Nitrate-Nitrite (mg/L)                  | ND               | ND   | ND   | ND   | ND    | ND    | ND                | ND   | ND   | ND   | ND   | ND   |
| Total Kjeldahl<br>Nitrogen (mg/L)       | 0.44             | 0.31 | 0.32 | 0.25 | 0.26  | 0.66  | 0.35              | 0.52 | 0.43 | 0.55 | 0.7  | 2.2  |
| Ammonia-N (mg/L)                        | 0.02             | 0.01 | ND   | ND   | ND    | ND    | ND                | 0.04 | ND   | 0.04 | 0.19 | ND   |
| pH (pH units)                           | 8                | 8.1  | 8.3  | 7.7  | 8.4   | 8.2   | 7.2               | 6.9  | 6.7  | 6.4  | 7    | 7.2  |
| Conductivity<br>(µmhos/cm)              | 130              | 130  | 130  | 130  | 136.6 | 139.6 | 140               | 140  | 140  | 130  |      |      |
| Calcium (mg/L)                          |                  | 15   | 14   | 15   | 17    | 16.7  |                   | 17   |      |      | 19   | 17.8 |
| Magnesium (mg/L)                        |                  | 5.8  | 5.8  | 6.3  | 6.5   | 5.9   |                   | 6.1  |      |      | 6.7  | 6    |
| Alkalinity (mg/L)                       | 58               | 64   | 56   | 66   | 67    | 67    | 62                | 66   | 57   | 69   | 75   | 70   |
| Hardness (mg/L)                         | 66               | 62   | 60   | 64   | 68    | 76    | 67                | 68   | 64   | 69   | 74   | 80   |
| E. coli (MPN/100<br>mL) at deep hole    |                  |      |      |      |       | ND    |                   |      |      |      |      |      |
| E. coli (MPN/100<br>mL) at swim beach 1 | 4                | 4    | 12   | 35   | 3     | 89    |                   |      |      |      |      |      |
| E. coli (MPN/100<br>mL) at swim beach 2 |                  |      |      |      | 5     | 1     |                   |      |      |      |      |      |



Table 3 and Figure 1, 2 and 3 provide the temperature, dissolved oxygen, and percent saturation data for Hagerman Lake. A thermocline existed between 6.0- and 10.0-meters depth (between approximately 17 to 33 feet). The water temperatures of the first six meters were the highest values since the beginning of the water monitoring. The 2025 dissolved oxygen and percentage saturation values are consistent with the historic data. In Hagerman Lake, the dissolved oxygen concentrations are very good and result from oxygen dissolving into the water from the air and from photosynthesis of aquatic plants and algae.

*Table 3. Temperature and Dissolved Oxygen Profile, August 7, 2025.*

| DEPTH (m) | TEMPERATURE (°C) | DISSOLVED OXYGEN (mg/l) | % SATURATION |
|-----------|------------------|-------------------------|--------------|
| 0.5       | 24.7             | 8.94                    | 113.0        |
| 1.0       | 24.6             | 9.01                    | 113.6        |
| 1.5       | 24.4             | 9.01                    | 113.5        |
| 2.0       | 24.3             | 9.02                    | 113.4        |
| 2.5       | 24.3             | 9.02                    | 113.3        |
| 3.0       | 24.2             | 9.01                    | 113.0        |
| 3.5       | 24.2             | 9.02                    | 112.9        |
| 4.0       | 24.0             | 9.03                    | 113.0        |
| 4.5       | 24.0             | 9.02                    | 112.7        |
| 5.0       | 24.0             | 9.02                    | 112.7        |
| 5.5       | 23.9             | 9.00                    | 112.3        |
| 6.0       | 23.7             | 9.02                    | 112.0        |
| 6.5       | 21.7             | 9.87                    | 117.9        |
| 7.0       | 20.3             | 10.80                   | 125.6        |
| 7.5       | 18.7             | 11.96                   | 134.5        |
| 8.0       | 16.9             | 12.55                   | 136.2        |
| 8.5       | 15.4             | 11.57                   | 121.7        |
| 9.0       | 13.9             | 8.97                    | 91.3         |
| 9.5       | 13.5             | 6.98                    | 70.4         |
| 10.0      | 12.6             | 0.45                    | 4.5          |
| 10.5      | 11.7             | 0.30                    | 2.9          |
| 11.0      | 11.2             | 0.19                    | 1.8          |
| 11.5      | 11.0             | 0.17                    | 1.6          |
| 12.0      | 10.9             | 0.16                    | 1.5          |



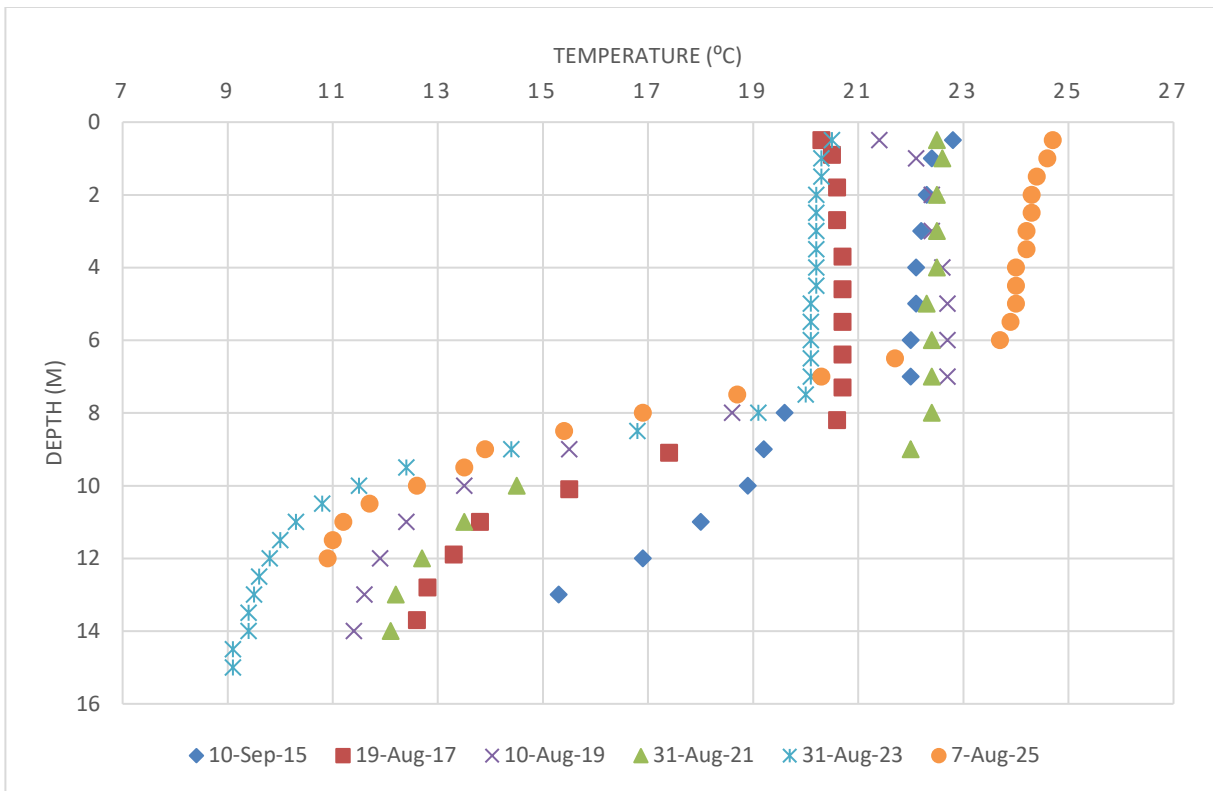


Figure 1. Historic and 2025 temperature profiles.

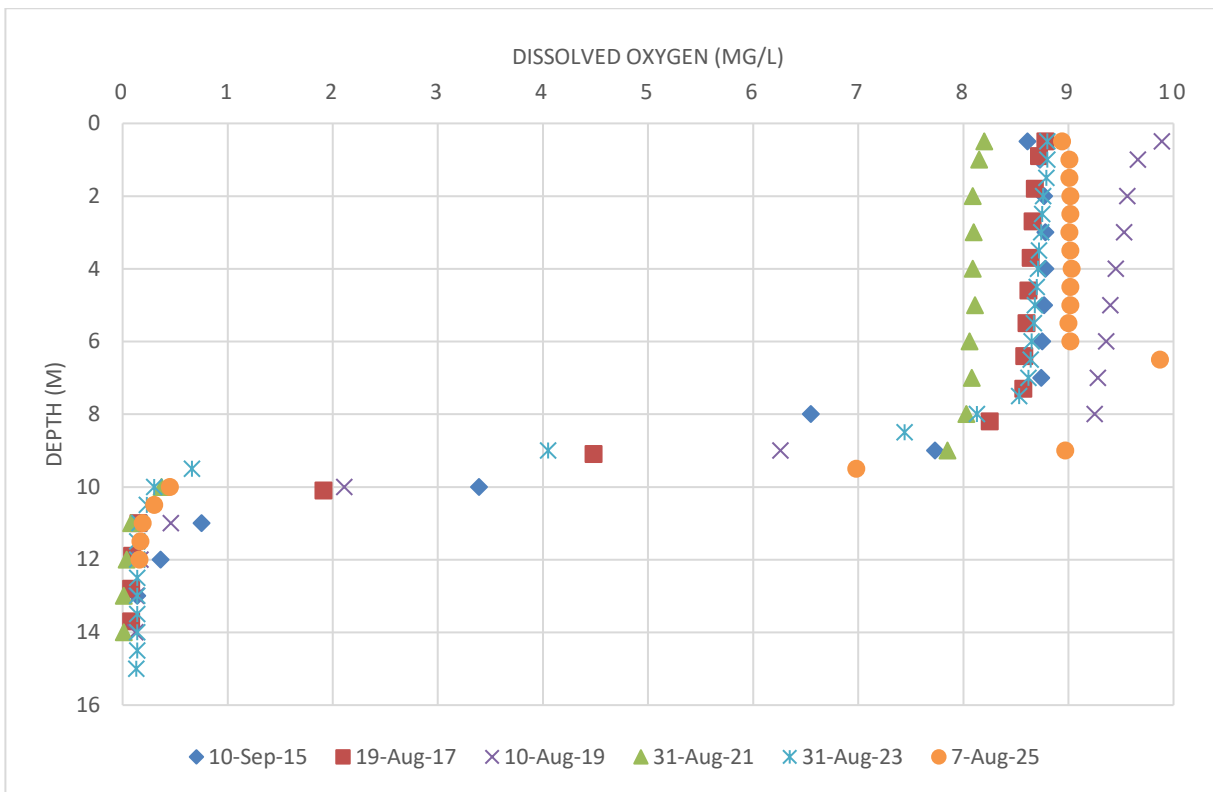


Figure 2. Historic and 2025 dissolved oxygen profiles.



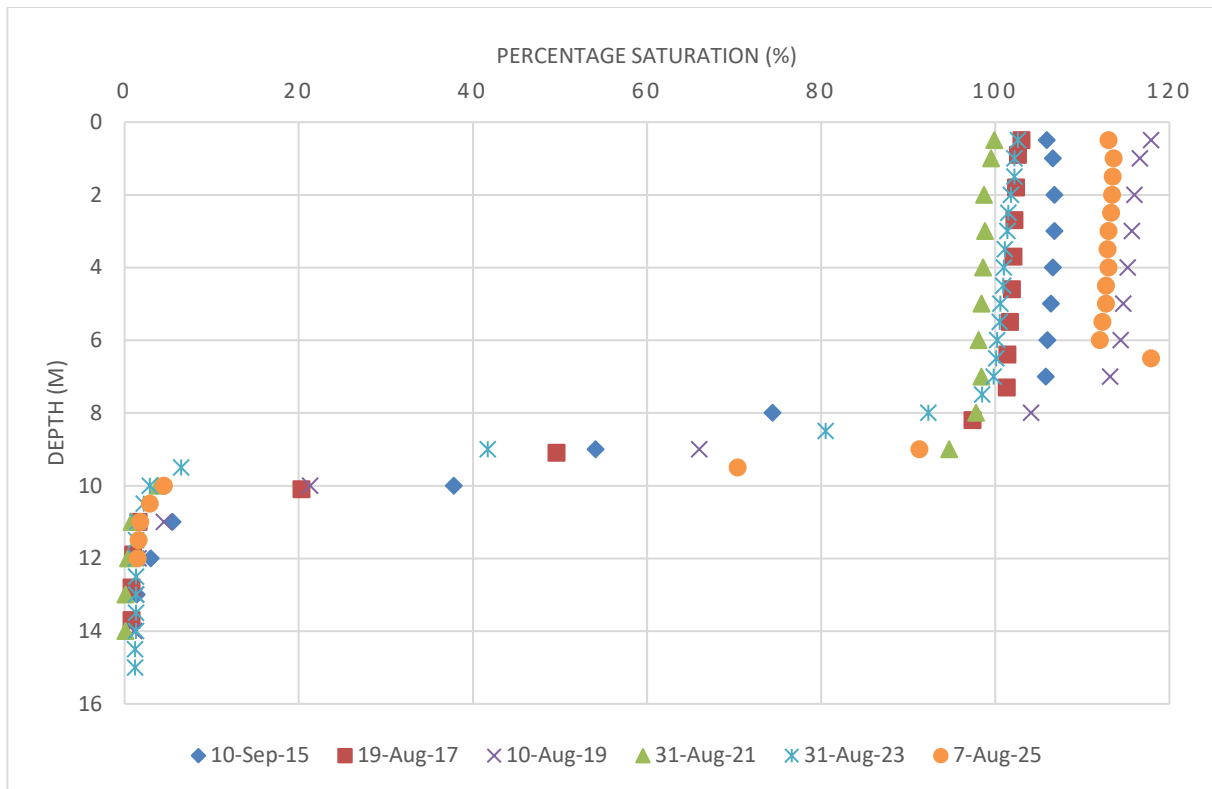


Figure 3. Historic and 2025 percentage saturation profiles.

We appreciate the opportunity to serve the Hagerman Lake Property Owners Association. If there are any questions about this report or special need of services, please contact us at your convenience.

### Literature cited

Shaw, B. Mechenich, C, and Klessig, L. 2004. *Understanding Lake Data (G3582)*. Board of Regents of the University of Wisconsin System. Madison, WI.





429 River Lane • PO Box 27 Amasa, MI 49903 • (906) 822-7889

**COVER PAGE**

**Client:** Hagerman Lake

**WWA Job #:** 116775

**Project:** Surface Water

**Date Received:** 8/7/2025

**Date Reported:** 9/19/2025

| Sample Number | Client Sample ID      | Date/Time Sampled | Sample Matrix |
|---------------|-----------------------|-------------------|---------------|
| 116775-001    | Hagerman Lake Surface | 8/7/2025 9:03     | Water         |

**Comments (if any):**

**Key to Laboratory Flags:**

\*: RPD/RSD exceeds limits.

B: The analyte was found in the associated blank as well as in the sample.

J: The quantitation is an estimated value because the result is less than the sample quantitation limit but greater than the detection limit.

M: A matrix effect was present.

Q: Batch QC data associated with the analysis does not meet the stated objectives

H: Indicates analytical holding time exceedance.

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit

ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

For MI EGLE Coliform, Negative = No Coliform bacteria detected, Positive = Coliform bacteria detected

**Sample Types:**

S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without the written approval of this laboratory. The Chain of Custody is attached.

This report satisfies the requirements of your project but has not been prepared to comply with NELAP and DoD QSM V5.4 reporting requirements.

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and White Water Associates Standard Operating Procedures. Exceptions, if any, are discussed in the accompanying sample narrative. Release of this Final Report is authorized by White Water Associates management, as is verified by the following signature.

**Approved By:**

Electronically signed by  
Jen Toivonen

WI DNR Lab Certification Number: 999971280

MI EGLE Certification Number: 9306

DoD-ELAP QSM V5.4 Accreditation Number:

65802 by PJLA for Environmental Testing

ISO/IEC 17025:2017 Accredited PJLA 65802



429 River Lane • PO Box 27 Amasa, MI 49903 • (906) 822-7889

Client: Hagerman Lake

WWA Job #: 116775

Project: Surface Water

Date Received: 8/7/2025

Date Reported: 9/19/2025

## Sample Results

| Sample No. / ID / Description / Matrix | Result | Flags | Units | Date/Time | Method | Dilution | MDL | MQL | Analyst |
|----------------------------------------|--------|-------|-------|-----------|--------|----------|-----|-----|---------|
|----------------------------------------|--------|-------|-------|-----------|--------|----------|-----|-----|---------|

116775-001 / Hagerman Lake Surface / Water

## General Chemistry Parameters

|                                 |      |   |                   |                 |                          |   |       |       |    |
|---------------------------------|------|---|-------------------|-----------------|--------------------------|---|-------|-------|----|
| Alkalinity as CaCO <sub>3</sub> | 67   |   | mg/L              | 8/11/2025 15:27 | 310.2                    | 1 | 9.1   | 30    | NK |
| Ammonia-N LL (t)                | ND   | M | mg/L              | 8/7/2025 12:41  | 4500-NH <sub>3</sub> G   | 1 | 0.03  | 0.10  | NK |
| Chlorophyll a                   | ND   |   | mg/m <sup>3</sup> | 8/7/2025 12:05  | 10200H                   | 1 | 1.2   | 1.2   | EA |
| Coliforms                       | 61   |   | MPN/100mL         | 8/7/2025 12:42  | 9223B                    | 1 | 1     | 1     | BL |
| Nitrate/Nitrite-N               | ND   |   | mg/L              | 8/12/2025 18:45 | 4500-NO <sub>3</sub> - F | 1 | 0.13  | 0.40  | NK |
| pH Lab                          | 8.2  |   | pH Units          | 8/7/2025 13:34  | 4500H+ B                 | 1 | 0.10  | 0.10  | EA |
| Total Kjeldahl Nitrogen (t)     | 0.66 |   | mg/L-N            | 8/22/2025 11:26 | 351.2                    | 1 | 0.14  | 0.50  | NK |
| Total Phosphorus LL (t)         | ND   |   | mg/L              | 8/21/2025 12:37 | 365.4                    | 1 | 0.020 | 0.050 | NK |
| E. coli                         | ND   |   | MPN/100mL         | 8/7/2025 12:42  | 9223B                    | 1 | 1     | 1     | BL |

## Trace Metals - Total

|                      |      |  |      |                 |       |   |       |      |    |
|----------------------|------|--|------|-----------------|-------|---|-------|------|----|
| Metals Digestion (t) | Done |  |      |                 | 3010  | 1 |       |      | OL |
| Calcium (t)          | 16.7 |  | mg/L | 8/13/2025 17:54 | 6010C | 1 | 0.10  | 0.50 | OL |
| Hardness (t)         | 76.0 |  | mg/L | 8/22/2025 12:00 | 2340C | 1 | 1.1   | 4.0  | OL |
| Magnesium (t)        | 5.9  |  | mg/L | 8/13/2025 17:54 | 6010C | 1 | 0.043 | 0.20 | OL |



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## LOGIN CHECKLIST

**Client:** Hagerman Lake  
**Project:** Surface Water  
**Date Received:** 8/7/2025

**WWA Job #:** 116775  
**Date Reported:** 9/19/2025

**Date logged in.:** 8/7/2025      **Number of coolers:** 1  
**Login person's initials:** BL      **Courier/shipper:** WWA

- ☒ 01) The COC is signed. (either Sampler or Relinquished by)
- ☒ 02) Custody seals/original packing tape were intact (if applicable).
- ☒ 03) Samples are in good condition, i.e. not broken or leaking.
- ☒ 04) Samples matched the Chain of Custody (COC).
- ☒ 05) Samples were received within holding times.
- ☒ 06) Samples were received on ice (in direct contact with the samples).
- ☒ 07) Temperature of the samples was between 0-6°C.
- ☒ 08) Temp.: 

|     |
|-----|
| 4.5 |
|-----|

|   |
|---|
| 5 |
|---|

  
Observed      Corrected
- ☒ 09) Proper containers were used.
- ☒ 10) Samples were collected in White Water lab containers.
- ☒ 11) There is adequate sample volume for requested analyses and QC.
- ☐ 12) Samples are preserved to the proper pH. Sample bottles and preservation are noted in LIMS Sample Container Section.
- ☐ 13) Sub-sampling (SS) is required. Bottles created are noted in sample containers section of log-in form.
- ☐ 14) For Dissolved Analysis (when applicable), samples were filtered in the lab.
- ☐ 15) For water VOC samples, headspace is less than the size of a pea.
- ☐ 16) For soil VOCs, methanol preserved samples were received.
- ☐ 17) For Soil VOCs, samples were preserved with methanol in the lab.
- ☐ 18) Client contact is necessary. Provide documentation below.

**COMMENTS/CORRECTIVE ACTION**

**CLIENT RESPONSE**

**Note:** Samples not between 0-6°C that are received at the laboratory on the day of sample collections do not require client notification.

**Note:** If hold time, volume, and received on ice or temperature criteria are not met when required by the method, results may not be able to be used for regulatory purposes. Check with your reporting agency for more information.

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OF  
1

**Amasa MI:** PO Box 27, 429 River Ln, Amasa MI 49903, 906-822-7889  
**Kewaunee WI:** 223B Milwaukee St, Kewaunee WI 54216, 920-388-9067

TEST / ANALYSIS REQUESTED (Attach list if needed)

Unless otherwise noted, drinking water reports are sent to the local and/or state regulating agencies

|                          |  |
|--------------------------|--|
| Chlorophyll a            |  |
| Total Phosphorus         |  |
| Nitrate-nitrite          |  |
| Total kjeldahl nitrogen  |  |
| Ammonia-N                |  |
| PH, hardness, alkalinity |  |
| Calcium, magnesium       |  |
| Enum Surface Water       |  |

**REMARKS** (Note any special instructions provided by client or conditions of receipt noted by WWA lab staff.)

|           |  |
|-----------|--|
| Comments: |  |
|-----------|--|

Packing: Ice ☒  
Cooler ☒

**Matrix Code:** Drinking Water (DW) , Water (W), Sediment (Sd), Soil/Solid (S), TCLP (TC), SPLP (SP), Other (O)

Note: Drinking Water records retained for a minimum of 12 years unless directed by client for regulatory agency \*Preservative noted upon arrival, see LIMS for bottle preservation details.

Sample temp (°C) on receipt: obs: 4.5 corr: 5

UPS ☐ FedEx ☐ USPS ☐ Client ☐ Other ☒



429 River Lane • PO Box 27 Amasa, MI 49903 • (906) 822-7889

Client: Hagerman Lake

WWA Job #: 116790

## Project:

Date Received: 8/7/2025

Date Reported: 9/10/2025

| Sample Number | Client Sample ID | Date/Time Sampled | Sample Matrix |
|---------------|------------------|-------------------|---------------|
| 116790-001    | Hagerman Bottom  | 8/7/2025 14:10    | Water         |
| 116790-002    | Beach 1          | 8/7/2025 15:00    | Water         |
| 116790-003    | Beach 1          | 8/7/2025 15:00    | Water         |
| 116790-004    | Beach 1          | 8/7/2025 15:00    | Water         |
| 116790-005    | Beach 2          | 8/7/2025 14:40    | Water         |
| 116790-006    | Beach 2          | 8/7/2025 14:40    | Water         |
| 116790-007    | Beach 2          | 8/7/2025 14:40    | Water         |

## Comments (if any):

## Key to Laboratory Flags:

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B: The analyte was found in the associated blank as well as in the sample.

J: The quantitation is an estimated value because the result is less than the sample quantitation limit but greater than the detection limit.

M: A matrix effect was present.

Q: Batch QC data associated with the analysis does not meet the stated objectives

H: Indicates analytical holding time exceedance.

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit

ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

For MI EGLE Coliform, Negative = No Coliform bacteria detected, Positive = Coliform bacteria detected

## Sample Types:

S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without the written approval of this laboratory. The Chain of Custody is attached.

This report satisfies the requirements of your project but has not been prepared to comply with NELAP and DoD QSM V5.4 reporting requirements.

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and White Water Associates Standard Operating Procedures. Exceptions, if any, are discussed in the accompanying sample narrative. Release of this Final Report is authorized by White Water Associates management, as is verified by the following signature.

## Approved By:

Electronically signed by  
Jen Toivonen

WI DNR Lab Certification Number: 999971280

MI EGLE Certification Number: 9306

DoD-ELAP QSM V5.4 Accreditation Number:

65802 by PJLA for Environmental Testing

ISO/IEC 17025:2017 Accredited PJLA 65802



429 River Lane • PO Box 27 Amasa, MI 49903 • (906) 822-7889

Client: Hagerman Lake

WWA Job #: 116790

Project:

Sample Matrix: Water

Date Received: 8/7/2025

Date Reported: 9/10/2025

## Sample Number | ID | Date/Time Sampled

## 116790-001 | Hagerman Bottom | 8/7/2025 2:10:00 PM

| Test                                | Result | Flags | Units    | Date/Time       | Method                   | Dilution | MDL   | MQL   | Analyst |
|-------------------------------------|--------|-------|----------|-----------------|--------------------------|----------|-------|-------|---------|
| <b>General Chemistry Parameters</b> |        |       |          |                 |                          |          |       |       |         |
| Alkalinity as CaCO <sub>3</sub>     | 70     |       | mg/L     | 8/11/2025 15:28 | 310.2                    | 1        | 9.1   | 30    | NK      |
| Ammonia-N LL (t)                    | ND     |       | mg/L     | 8/20/2025 10:52 | 4500-NH <sub>3</sub> G   | 1        | 0.03  | 0.10  | NK      |
| Nitrate/Nitrite-N                   | ND     |       | mg/L     | 8/12/2025 18:49 | 4500-NO <sub>3</sub> - F | 1        | 0.13  | 0.40  | NK      |
| pH Lab                              | 7.2    |       | pH Units | 8/7/2025 16:15  | 4500H+ B                 | 1        | 0.10  | 0.10  | TP      |
| Total Kjeldahl Nitrogen (t)         | 2.2    |       | mg/L-N   | 8/22/2025 11:30 | 351.2                    | 1        | 0.14  | 0.50  | NK      |
| Total Phosphorus LL (t)             | 0.15   |       | mg/L     | 8/21/2025 12:40 | 365.4                    | 1        | 0.020 | 0.050 | NK      |

## 116790-002 | Beach 1 | L | 8/7/2025 3:00:00 PM

| Test                                | Result | Flags | Units     | Date/Time      | Method | Dilution | MDL | MQL | Analyst |
|-------------------------------------|--------|-------|-----------|----------------|--------|----------|-----|-----|---------|
| <b>General Chemistry Parameters</b> |        |       |           |                |        |          |     |     |         |
| E. coli                             | 44     |       | MPN/100mL | 8/7/2025 16:26 | 9223B  | 1        | 1   | 1   | EL      |

## 116790-003 | Beach 1 | C | 8/7/2025 3:00:00 PM

| Test                                | Result | Flags | Units     | Date/Time      | Method | Dilution | MDL | MQL | Analyst |
|-------------------------------------|--------|-------|-----------|----------------|--------|----------|-----|-----|---------|
| <b>General Chemistry Parameters</b> |        |       |           |                |        |          |     |     |         |
| E. coli                             | 170    |       | MPN/100mL | 8/7/2025 16:26 | 9223B  | 1        | 1   | 1   | EL      |

## 116790-004 | Beach 1 | R | 8/7/2025 3:00:00 PM

| Test                                | Result | Flags | Units     | Date/Time      | Method | Dilution | MDL | MQL | Analyst |
|-------------------------------------|--------|-------|-----------|----------------|--------|----------|-----|-----|---------|
| <b>General Chemistry Parameters</b> |        |       |           |                |        |          |     |     |         |
| E. coli                             | 53     |       | MPN/100mL | 8/7/2025 16:26 | 9223B  | 1        | 1   | 1   | EL      |

## 116790-005 | Beach 2 | L | 8/7/2025 2:40:00 PM

| Test                                | Result | Flags | Units     | Date/Time      | Method | Dilution | MDL | MQL | Analyst |
|-------------------------------------|--------|-------|-----------|----------------|--------|----------|-----|-----|---------|
| <b>General Chemistry Parameters</b> |        |       |           |                |        |          |     |     |         |
| E. coli                             | ND     |       | MPN/100mL | 8/7/2025 16:26 | 9223B  | 1        | 1   | 1   | EL      |

## 116790-006 | Beach 2 | C | 8/7/2025 2:40:00 PM

| Test                                | Result | Flags | Units     | Date/Time      | Method | Dilution | MDL | MQL | Analyst |
|-------------------------------------|--------|-------|-----------|----------------|--------|----------|-----|-----|---------|
| <b>General Chemistry Parameters</b> |        |       |           |                |        |          |     |     |         |
| E. coli                             | 1      |       | MPN/100mL | 8/7/2025 16:26 | 9223B  | 1        | 1   | 1   | EL      |



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|                       |               |                       |           |
|-----------------------|---------------|-----------------------|-----------|
| <b>Client:</b>        | Hagerman Lake | <b>WWA Job #:</b>     | 116790    |
| <b>Project:</b>       |               | <b>Sample Matrix:</b> | Water     |
| <b>Date Received:</b> | 8/7/2025      | <b>Date Reported:</b> | 9/10/2025 |

Sample Number | ID | Date/Time Sampled

116790-007 | Beach 2 | R | 8/7/2025 2:40:00 PM

| Test                         | Result | Flags | Units     | Date/Time      | Method | Dilution | MDL | ML | Analyst |
|------------------------------|--------|-------|-----------|----------------|--------|----------|-----|----|---------|
| General Chemistry Parameters |        |       |           |                |        |          |     |    |         |
| E. coli                      | ND     |       | MPN/100mL | 8/7/2025 16:26 | 9223B  | 1        | 1   | 1  | EL      |



429 River Lane • PO Box 27 Amasa, MI 49903 • (906) 822-7889

**Client:** Hagerman Lake**WWA Job #:** 116790**Project:****Date Reported:** 9/10/2025**Date Received:** 8/7/2025**Date logged in.:** 8/7/2025**Number of coolers:** 1**Login person's initials:** BL**Courier/shipper:** WWA

- ☒ 01) The COC is signed. (either Sampler or Relinquished by)
- ☒ 02) Custody seals/original packing tape were intact (if applicable).
- ☒ 03) Samples are in good condition, i.e. not broken or leaking.
- ☒ 04) Samples matched the Chain of Custody (COC).
- ☒ 05) Samples were received within holding times.
- ☒ 06) Samples were received on ice (in direct contact with the samples).
- ☒ 07) Temperature of the samples was between 0-6°C.
- ☒ 09) Proper containers were used.
- ☒ 10) Samples were collected in White Water lab containers.
- ☒ 11) There is adequate sample volume for requested analyses and QC.
- ☐ 12) Samples are preserved to the proper pH. Sample bottles and preservation are noted in LIMS Sample Container Section.
- ☐ 13) Sub-sampling (SS) is required. Bottles created are noted in sample containers section of log-in form.
- ☐ 14) For Dissolved Analysis (when applicable), samples were filtered in the lab.
- ☐ 15) For water VOC samples, headspace is less than the size of a pea.
- ☐ 16) For soil VOCs, methanol preserved samples were received.
- ☐ 17) For Soil VOCs, samples were preserved with methanol in the lab.
- ☐ 18) Client contact is necessary. Provide documentation below.

**Comments:****08) Temp.:**

5.8

6

Observed

Corrected

**COMMENTS/CORRECTIVE ACTION****CLIENT RESPONSE****Note:** Samples not between 0-6°C that are received at the laboratory on the day of sample collections do not require client notification.**Note:** If hold time, volume, and received on ice or temperature criteria are not met when required by the method, results may not be able to be used for regulatory purposes. Check with your reporting agency for more information.

Job # (WWA office use):

116790

## CHAIN-OF-CUSTODY RECORD

Version 240627

Page: 1 OF 1



Amasa MI: PO Box 27, 429 River Ln, Amasa MI 49903, 906-822-7889  
Kewaunee WI: 223B Milwaukee St, Kewaunee WI 54216, 920-388-9067

|                                                                |       |     |                      |           |  |
|----------------------------------------------------------------|-------|-----|----------------------|-----------|--|
| CLIENT NAME / BILL TO<br><b>Hagerman Lake</b>                  |       |     | EMAIL ADDRESS        |           |  |
| ADDRESS                                                        |       |     | TELEPHONE            |           |  |
| CITY                                                           | STATE | ZIP | PROJECT NAME / WSSN# |           |  |
| SAMPLER NAME (print first/last name)<br><b>Alexandra Knape</b> |       |     | COUNTY OF LOCATION   | SITE CODE |  |

TEST / ANALYSIS REQUESTED (Attach list if needed)

Unless otherwise noted, drinking water reports are sent to the local and/or state regulating agencies

|                                               |                                                                                                      |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------|
| SAMPLER'S SIGNATURE<br><b>Alexandra Knape</b> | <b>Public Water Suppliers</b><br>CIRCLE Sample Type Below<br>Routine, Repeat, Raw, Process, or Other |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------|

| WWA Sample # | SAMPLE ID AND LOCATION<br>(Containers for each sample may be combined on one line) | Sample Collection |      | Matrix Code (key below) | (G)rab (C)omp | Filtered | Residual Chlorine | PRESERVATIVES* |       |      |     |      |         |        |        | Number of Containers | LL Phos, Nitrate/Nitrite<br>TKN, Ammonia<br>Hardness, Ca, Mg<br>pH<br>Alkalinity<br>Enumerated SW | REMARKS (Note any special instructions provided by client or conditions of receipt noted by WWA lab staff.) |   |   |   |  |
|--------------|------------------------------------------------------------------------------------|-------------------|------|-------------------------|---------------|----------|-------------------|----------------|-------|------|-----|------|---------|--------|--------|----------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---|---|---|--|
|              |                                                                                    | DATE              | TIME |                         |               |          |                   | None           | H2SO4 | HNO3 | HCl | NaOH | Na Thio | Trizma | Other: |                      |                                                                                                   |                                                                                                             |   |   |   |  |
|              |                                                                                    |                   |      |                         |               |          |                   |                |       |      |     |      |         |        |        |                      |                                                                                                   |                                                                                                             |   |   |   |  |
|              | Hagerman Lake                                                                      | 8/7/25            |      |                         |               |          |                   |                |       |      |     |      |         |        |        |                      |                                                                                                   |                                                                                                             |   |   |   |  |
| 1            | Bottom                                                                             | 8/7/25            | 1410 | W                       |               |          |                   | X              |       |      |     |      |         |        | 4      | X                    | X                                                                                                 | X                                                                                                           | X | X |   |  |
| 2            | Beach 1 - Left                                                                     |                   | 1500 | W                       |               |          |                   |                |       |      |     |      |         |        | 1      |                      |                                                                                                   |                                                                                                             |   |   | X |  |
| 3            | ↓ - Center                                                                         |                   |      | W                       |               |          |                   |                |       |      |     |      |         |        | 1      |                      |                                                                                                   |                                                                                                             |   |   | X |  |
| 4            | ↓ - Right                                                                          |                   |      | W                       |               |          |                   |                |       |      |     |      |         |        | 1      |                      |                                                                                                   |                                                                                                             |   |   | X |  |
| 5            | Beach 2 - Left                                                                     |                   | 1440 | W                       |               |          |                   |                |       |      |     |      |         |        | 1      |                      |                                                                                                   |                                                                                                             |   |   | X |  |
| 6            | ↓ - Center                                                                         |                   |      | W                       |               |          |                   |                |       |      |     |      |         |        | 1      |                      |                                                                                                   |                                                                                                             |   |   | X |  |
| 7            | ↓ - Right                                                                          |                   |      | W                       |               |          |                   |                |       |      |     |      |         |        | 1      |                      |                                                                                                   |                                                                                                             |   |   | X |  |

Relinquished by: **Alexandra Knape**Date: **8/7/25**Time: **1552**Received by: **Brian J. Appell**Date: **8.7.25**Time: **6:52**

Comments:

 Packing: Ice ☒  
 Cooler ☒

Matrix Code: Drinking Water (DW), Water (W), Sediment (Sd), Soil/Solid (S), TCLP (TC), SPLP (SP), Other (O)

Note: Drinking Water records retained for a minimum of 12 years unless directed by client for regulatory agency \*Preservative noted upon arrival, see LIMS for bottle preservation details.

Sample temp (°C) on receipt: obs: **58** corr: **6**UPS ☐ FedEx ☐ USPS ☐ Client ☐ Other **WWA**

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Jen Toivonen  
White Water Associates  
429 River Lane  
PO BOX 27  
Amasa, Michigan 49903

Generated 8/26/2025 5:23:33 PM

## JOB DESCRIPTION

White Water Associates - 116790

## JOB NUMBER

480-231842-1

# Eurofins Buffalo

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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 Environment Testing Northeast, LLC Project Manager.

## Authorization



Generated  
8/26/2025 5:23:33 PM

Authorized for release by  
John Beninati, Project Manager I  
[John.Beninati@et.eurofinsus.com](mailto:John.Beninati@et.eurofinsus.com)  
(716)504-9874

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## Definitions/Glossary

Client: White Water Associates  
Project/Site: White Water Associates - 116790

Job ID: 480-231842-1

### 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                                                                                       |

## Case Narrative

Client: White Water Associates  
Project: White Water Associates - 116790

Job ID: 480-231842-1

**Job ID: 480-231842-1**

**Eurofins Buffalo**

### **Job Narrative 480-231842-1**

The analytical test results presented in this report meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page, unless otherwise noted. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable. Regulated compliance samples (e.g. SDWA, NPDES) must comply with associated agency requirements/permits.

- Matrix-specific batch QC (e.g., MS, MSD, SD) may not be reported when insufficient sample volume is available or when site-specific QC samples are not submitted. In such cases, a Laboratory Control Sample Duplicate (LCSD) may be analyzed to provide precision data for the batch.
- For samples analyzed using surrogate and/or isotope dilution analytes, any recoveries falling outside of established acceptance criteria are re-prepared and/or re-analyzed to confirm results, unless the deviation is due to sample dilution or otherwise explained in the case narrative.

### **Receipt**

The sample was received on 8/14/2025 9:00 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 21.2°C.

### **Metals**

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

### **General Chemistry**

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

Eurofins Buffalo

## Detection Summary

Client: White Water Associates

Job ID: 480-231842-1

Project/Site: White Water Associates - 116790

**Client Sample ID: 116790-001**

**Lab Sample ID: 480-231842-1**

| Analyte                       | Result | Qualifier | RL   | MDL   | Unit | Dil Fac | D | Method | Prep Type |
|-------------------------------|--------|-----------|------|-------|------|---------|---|--------|-----------|
| Calcium                       | 17.8   |           | 0.50 | 0.10  | mg/L | 1       |   | 6010C  | Total/NA  |
| Magnesium                     | 6.0    |           | 0.20 | 0.043 | mg/L | 1       |   | 6010C  | Total/NA  |
| Hardness as calcium carbonate | 80.0   |           | 4.0  | 1.1   | mg/L | 1       |   | 2340 C | Total/NA  |

This Detection Summary does not include radiochemical test results.

Eurofins Buffalo

## Client Sample Results

Client: White Water Associates  
Project/Site: White Water Associates - 116790

Job ID: 480-231842-1

**Client Sample ID: 116790-001**

**Lab Sample ID: 480-231842-1**

Date Collected: 08/07/25 14:10

Matrix: Water

Date Received: 08/14/25 09:00

### Method: SW846 6010C - Metals (ICP)

| Analyte   | Result | Qualifier | RL   | MDL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|-----------|--------|-----------|------|-------|------|---|----------------|----------------|---------|
| Calcium   | 17.8   |           | 0.50 | 0.10  | mg/L |   | 08/18/25 08:37 | 08/18/25 15:15 | 1       |
| Magnesium | 6.0    |           | 0.20 | 0.043 | mg/L |   | 08/18/25 08:37 | 08/18/25 15:15 | 1       |

### General Chemistry

| Analyte                                        | Result | Qualifier | RL  | MDL | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------------------------------|--------|-----------|-----|-----|------|---|----------|----------------|---------|
| Hardness as calcium carbonate<br>(SM20 2340 C) | 80.0   |           | 4.0 | 1.1 | mg/L |   |          | 08/22/25 12:00 | 1       |

# QC Sample Results

Client: White Water Associates  
Project/Site: White Water Associates - 116790

Job ID: 480-231842-1

## Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-754503/1-A  
Matrix: Water  
Analysis Batch: 754692

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 754503

| Analyte   | MB<br>Result | MB<br>Qualifier | RL   | MDL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|-----------|--------------|-----------------|------|-------|------|---|----------------|----------------|---------|
| Calcium   | <0.10        |                 | 0.50 | 0.10  | mg/L |   | 08/18/25 08:37 | 08/18/25 15:02 | 1       |
| Magnesium | <0.043       |                 | 0.20 | 0.043 | mg/L |   | 08/18/25 08:37 | 08/18/25 15:02 | 1       |

Lab Sample ID: LCS 480-754503/2-A  
Matrix: Water  
Analysis Batch: 754692

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 754503

| Analyte   | Spike<br>Added | LCS<br>Result | LCS<br>Qualifier | Unit | D | %Rec | %Rec<br>Limits |
|-----------|----------------|---------------|------------------|------|---|------|----------------|
| Calcium   | 25.0           | 25.86         |                  | mg/L |   | 103  | 80 - 120       |
| Magnesium | 25.0           | 24.83         |                  | mg/L |   | 99   | 80 - 120       |

## Method: 2340 C - Total Hardness (Titrimetric Method)

Lab Sample ID: MB 480-755259/3  
Matrix: Water  
Analysis Batch: 755259

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

| Analyte                       | MB<br>Result | MB<br>Qualifier | RL  | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
|-------------------------------|--------------|-----------------|-----|------|------|---|----------|----------------|---------|
| Hardness as calcium carbonate | <0.53        |                 | 2.0 | 0.53 | mg/L |   |          | 08/22/25 12:00 | 1       |

Lab Sample ID: LCS 480-755259/4  
Matrix: Water  
Analysis Batch: 755259

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

| Analyte                       | Spike<br>Added | LCS<br>Result | LCS<br>Qualifier | Unit | D | %Rec | %Rec<br>Limits |
|-------------------------------|----------------|---------------|------------------|------|---|------|----------------|
| Hardness as calcium carbonate | 238            | 240.0         |                  | mg/L |   | 101  | 90 - 110       |

## QC Association Summary

Client: White Water Associates  
Project/Site: White Water Associates - 116790

Job ID: 480-231842-1

### Metals

#### Prep Batch: 754503

| Lab Sample ID      | Client Sample ID   | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 480-231842-1       | 116790-001         | Total/NA  | Water  | 3005A  |            |
| MB 480-754503/1-A  | Method Blank       | Total/NA  | Water  | 3005A  |            |
| LCS 480-754503/2-A | Lab Control Sample | Total/NA  | Water  | 3005A  |            |

#### Analysis Batch: 754692

| Lab Sample ID      | Client Sample ID   | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 480-231842-1       | 116790-001         | Total/NA  | Water  | 6010C  | 754503     |
| MB 480-754503/1-A  | Method Blank       | Total/NA  | Water  | 6010C  | 754503     |
| LCS 480-754503/2-A | Lab Control Sample | Total/NA  | Water  | 6010C  | 754503     |

### General Chemistry

#### Analysis Batch: 755259

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix | Method | Prep Batch |
|------------------|--------------------|-----------|--------|--------|------------|
| 480-231842-1     | 116790-001         | Total/NA  | Water  | 2340 C |            |
| MB 480-755259/3  | Method Blank       | Total/NA  | Water  | 2340 C |            |
| LCS 480-755259/4 | Lab Control Sample | Total/NA  | Water  | 2340 C |            |

Lab Chronicle

Client: White Water Associates  
Project/Site: White Water Associates - 116790

Job ID: 480-231842-1

Client Sample ID: 116790-001

Lab Sample ID: 480-231842-1

Date Collected: 08/07/25 14:10

Matrix: Water

Date Received: 08/14/25 09:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total/NA  | Prep       | 3005A        |     |                 | 754503       | EMO     | EET BUF | 08/18/25 08:37       |
| Total/NA  | Analysis   | 6010C        |     | 1               | 754692       | MP      | EET BUF | 08/18/25 15:15       |
| Total/NA  | Analysis   | 2340 C       |     | 1               | 755259       | CG      | EET BUF | 08/22/25 12:00       |

Laboratory References:  
EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

## Accreditation/Certification Summary

Client: White Water Associates  
Project/Site: White Water Associates - 116790

Job ID: 480-231842-1

### Laboratory: Eurofins Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

| Authority | Program | Identification Number | Expiration Date |
|-----------|---------|-----------------------|-----------------|
| Michigan  | State   | 9937                  | 10-11-25        |

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

| Analysis Method | Prep Method | Matrix | Analyte                       |
|-----------------|-------------|--------|-------------------------------|
| 2340 C          |             | Water  | Hardness as calcium carbonate |
| 6010C           | 3005A       | Water  | Calcium                       |
| 6010C           | 3005A       | Water  | Magnesium                     |

## Method Summary

Client: White Water Associates  
Project/Site: White Water Associates - 116790

Job ID: 480-231842-1

| Method | Method Description                  | Protocol | Laboratory |
|--------|-------------------------------------|----------|------------|
| 6010C  | Metals (ICP)                        | SW846    | EET BUF    |
| 2340 C | Total Hardness (Titrimetric Method) | SM20     | EET BUF    |
| 3005A  | Preparation, Total Metals           | SW846    | EET BUF    |

### Protocol References:

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

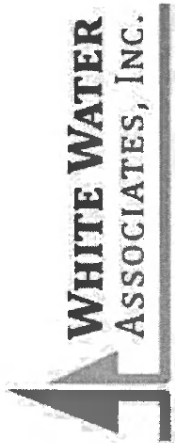
Sample Summary

Client: White Water Associates  
Project/Site: White Water Associates - 116790

Job ID: 480-231842-1

| Lab Sample ID | Client Sample ID | Matrix | Collected      | Received       | Sample Origin |
|---------------|------------------|--------|----------------|----------------|---------------|
| 480-231842-1  | 116790-001       | Water  | 08/07/25 14:10 | 08/14/25 09:00 | Michigan      |

- 1
- 2
- 3
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- 7
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- 9
- 10
- 11
- 12
- 13
- 14



429 River Lane (906) 822-7889  
Amasa, MI 49903 White-Water-Associates.com

25D813 - Buffalo  
Company Eurofins - Buffalo  
Contact John Beninati  
Email John.Beninati@et.eurofins.com

### Chain of Custody

Address 10 Hazelwood Dr  
Amherst, NY 14228-2223

Date Shipped 08/11/2025  
Due Date

Site Contact: Jen Toivonen, jen.toivonen@white-water-associates.com

| Sample No. | State | Test          | Method | Matrix | Preservation              | Type* | Sampler | No of Cont. | Notes                     |
|------------|-------|---------------|--------|--------|---------------------------|-------|---------|-------------|---------------------------|
| 116790-001 | MI    | Hardness (t)  | 2340B  | Water  | HNO <sub>3</sub> , pH < 2 |       | W/WA    |             | Sampled: 08/07/2025 14:10 |
| 116790-001 | MI    | Calcium (t)   | 200.7  | Water  | HNO <sub>3</sub> , pH < 2 |       | W/WA    |             | Sampled: 08/07/2025 14:10 |
| 116790-001 | MI    | Magnesium (t) | 200.7  | Water  | HNO <sub>3</sub> , pH < 2 |       | W/WA    |             | Sampled: 08/07/2025 14:10 |

Metals Aqueous by 200.7, 200.8, 6010, or 6020 - report units in ug/L, except Ca, Mg, K, and Na

Special Instructions/QC Requirements & Comments

|                                             |          |                  |              |                                                                 |           |               |  |
|---------------------------------------------|----------|------------------|--------------|-----------------------------------------------------------------|-----------|---------------|--|
| Custody Seals Intact:<br>Yes _____ No _____ |          | Custody Seal No: |              | Cooler Temp (°C): 21.2 no ICE<br>Observed _____ Corrected _____ |           | Therm ID No.: |  |
| Relinquished by:                            | Company: | Date/Time        | Received by: | Company:                                                        | Date/Time | 8-14-25 900   |  |
| Relinquished by:                            | Company: | Date/Time        | Received by: | Company:                                                        | Date/Time |               |  |



480-231842 Chain of Custody

## Login Sample Receipt Checklist

Client: White Water Associates

Job Number: 480-231842-1

**Login Number: 231842**

**List Source: Eurofins Buffalo**

**List Number: 1**

**Creator: Yeager, Brian A**

| Question                                                                         | Answer | Comment            |
|----------------------------------------------------------------------------------|--------|--------------------|
| Radioactivity either was not measured or, if measured, is at or below background | True   |                    |
| The cooler's custody seal, if present, is intact.                                | True   |                    |
| The cooler or samples do not appear to have been compromised or tampered with.   | True   |                    |
| Samples were received on ice.                                                    | False  |                    |
| Cooler Temperature is acceptable.                                                | True   |                    |
| Cooler Temperature is recorded.                                                  | True   | 21.2 NO ICE IR# SC |
| 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 sample IDs on the containers 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                                                     | True   |                    |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True   |                    |
| VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.     | N/A    |                    |
| If necessary, staff have been informed of any short hold time or quick TAT needs | True   |                    |
| Multiphasic samples are not present.                                             | True   |                    |
| Samples do not require splitting or compositing.                                 | True   |                    |
| Sampling Company provided.                                                       | True   | WWA                |
| Samples received within 48 hours of sampling.                                    | False  |                    |
| Samples requiring field filtration have been filtered in the field.              | True   |                    |
| Chlorine Residual checked.                                                       | N/A    |                    |