Report

2021 Water Quality Monitoring Data
(Per License Article 401 WQC, Condition K)

for the

Clam River Hydroelectric Project

FERC Project #9185

Flambeau Hydro, LLC

Clam River,
Burnett County, Wisconsin

Respectfully Submitted by:

Angie Stine

WHITE WATER ASSOCIATES, INC.

429 River Lane, P.O. Box 27
Amasa, Michigan 49903

Phone: 906-822-7889

Summary Clam River Hydroelectric Project – FERC #9185

2021 marked the fourteenth year of water quality sampling under FERC License issued on July 24, 2006 to Flambeau Hydro, LLC for the Clam River Hydroelectric Project – FERC Project # 9185 and specifically Appendix A Section 401 K. Monitoring was conducted on April 6, July 13, and August 4, 2021. This document contains all of the associated records for the 2021 monitoring along with summary figures and tables in four appendices: (1) Appendix A (Figures 1-4), (2) Appendix B (Tables 1-3), (3) Appendix C (sampling logs by date), and (4) Appendix D (laboratory reports and chains of custody).

A map of the Clam River Hydroelectric Project is shown in Figure 1 indicating the water quality sampling location.

Monitoring results for 2021 are shown in Table 1. No unusual Temperature (Figure 2) or Dissolved Oxygen (Figure 3) readings were observed in April but in July the D.O. was below 5.0 mg/L at 15 feet and in August the D.O. was below 5.0 mg/L at 9 feet. The Secchi depths are shown in Figure 4.

In general, the weather (temperature and rainfall) during 2020-2021 monitoring season appeared slightly warmer December, February, and April through December with lower-than-normal precipitation in October, November, January, February, June, July, August, and September, and normal to high precipitation in the months of December, April, and May (Table 2).

Ice-Out occurred on the Clam River sometime during the week beginning March 22, 2021. The Ice-Out sampling event occurred on April 6, 2021. River flow, based on the Clam River Hydroelectric Project records, was approximately 437 cubic feet per second. Sampling occurred between 10:10 and 10:28. Samples were taken without incident. No unusual D.O. or Temperature readings were observed. Samples for laboratory analysis were delivered to White Water Associates, Inc. laboratory in Amasa, MI on April 7, 2021. White Water Associates, Inc. issued a laboratory report on May 12, 2021. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

River flow, based on the Clam River Hydroelectric Project records, was approximately 113 cubic feet per second during the July 13, 2021 sampling event. Sampling occurred between 10:35 and 11:06. Samples were taken without incident. No unusual Temperature readings were observed. The D.O. went below 5.00 mg/L at 15.0 feet (4.71 mg/L). The 0.5 ft above bottom D.O. was 2.59 mg/L. Samples for laboratory analysis were delivered to White Water Associates, Inc. laboratory in Amasa, MI on July 14, 2021. White Water Associates, Inc. issued a laboratory report on July 30, 2021. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

River flow, based on the Clam River Hydroelectric Project records, was approximately 107 cubic feet per second during the August 4, 2021 sampling event. Sampling occurred between 9:51 and 10:38. Samples were taken without incident. No unusual Temperature readings were observed. The D.O. went below 5.00 mg/L at 9 feet (4.72 mg/L). The 0.5 ft above bottom D.O. was 0.87 mg/L. Samples for laboratory analysis were delivered to White Water Associates, Inc. laboratory in Amasa, MI on August 5, 2021.

White Water Associates, Inc. issued a laboratory report on September 12, 2021. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

A summary of a comparison between the 2013 thru 2020 (Table 3) sampling results are as follows:

1. Water Clarity – Secchi increased Ice Out and July, decreased August
2. Chlorophyll a – Decreased Ice Out, increased July and August
3. Color – stayed the same Ice Out, decreased July and August
4. Total Phosphorus – Decreased Ice Out, increased July and August
5. Overall, D.O. – Increased Ice Out, July and August
6. Water Temperatures – Increased Ice Out, July, and August

The next scheduled Water Quality Monitoring at the Clam River Hydroelectric Project is set to take place in 2022 beginning with the Ice-Out sampling event.

Appendix A – Clam River Hydroelectric Project Figures

Figure 1. Clam River Hydroelectric Project Map

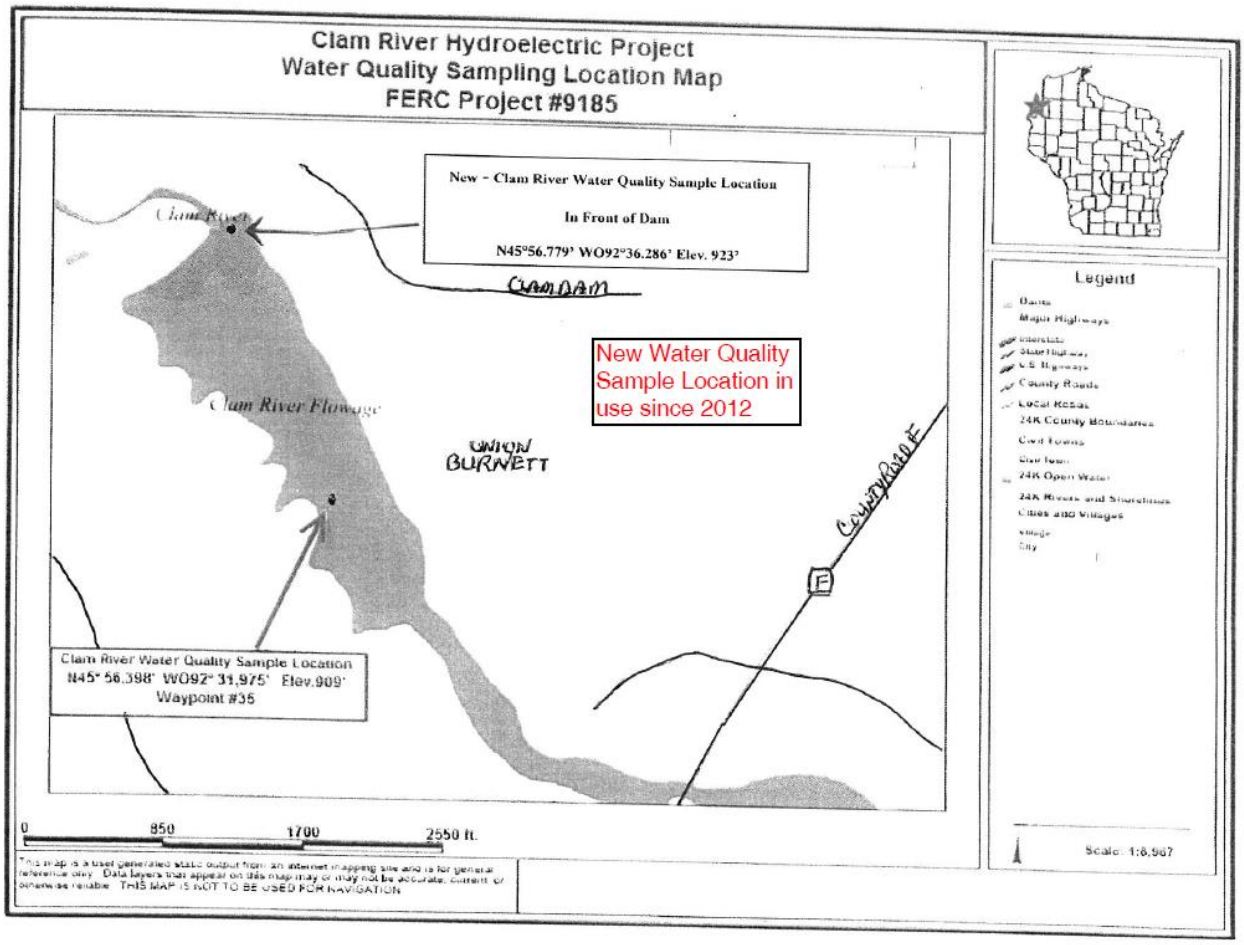


Figure 2. Clam River Impoundment - FERC #9185
2021 Temperature Profiles

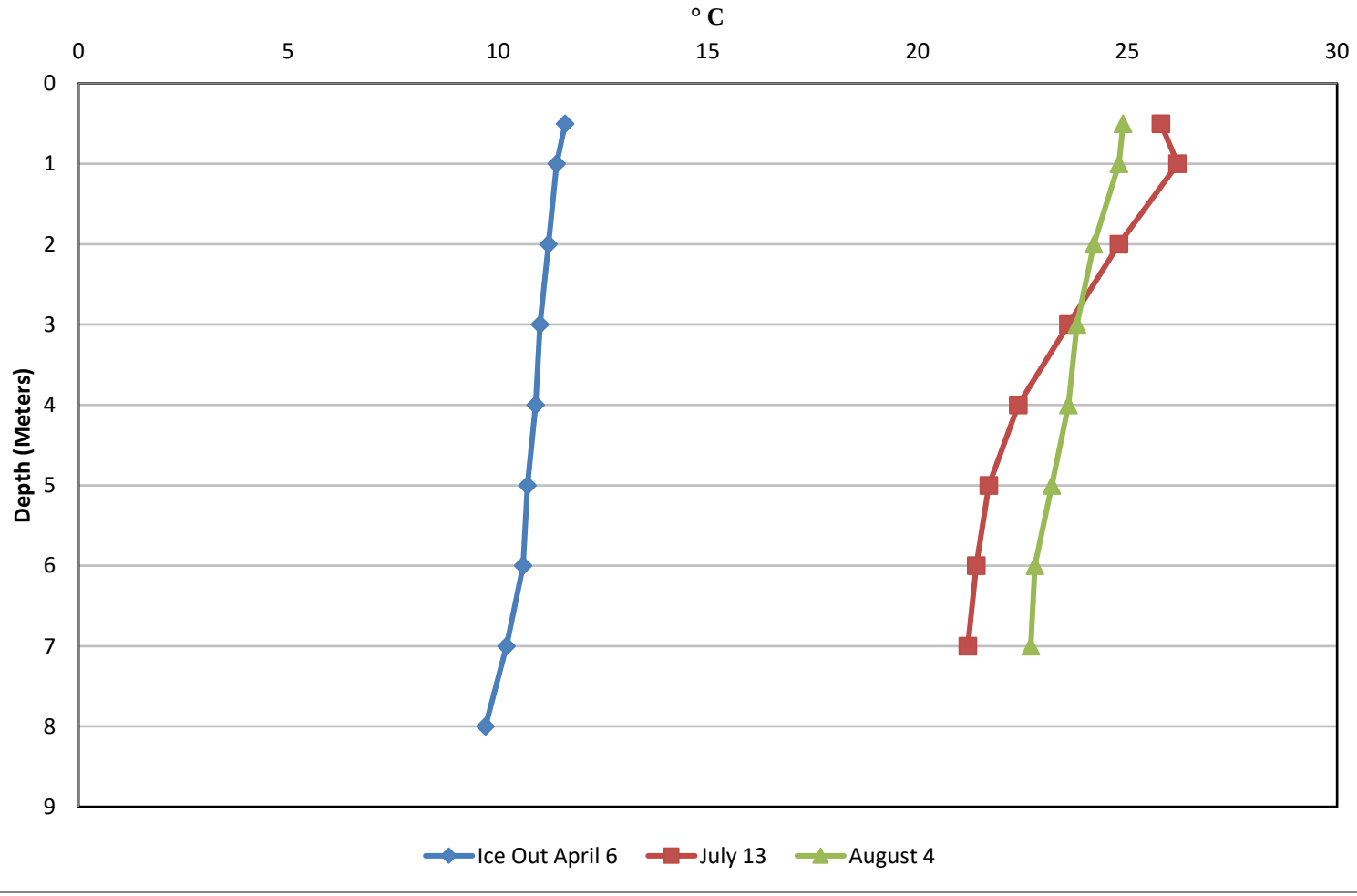
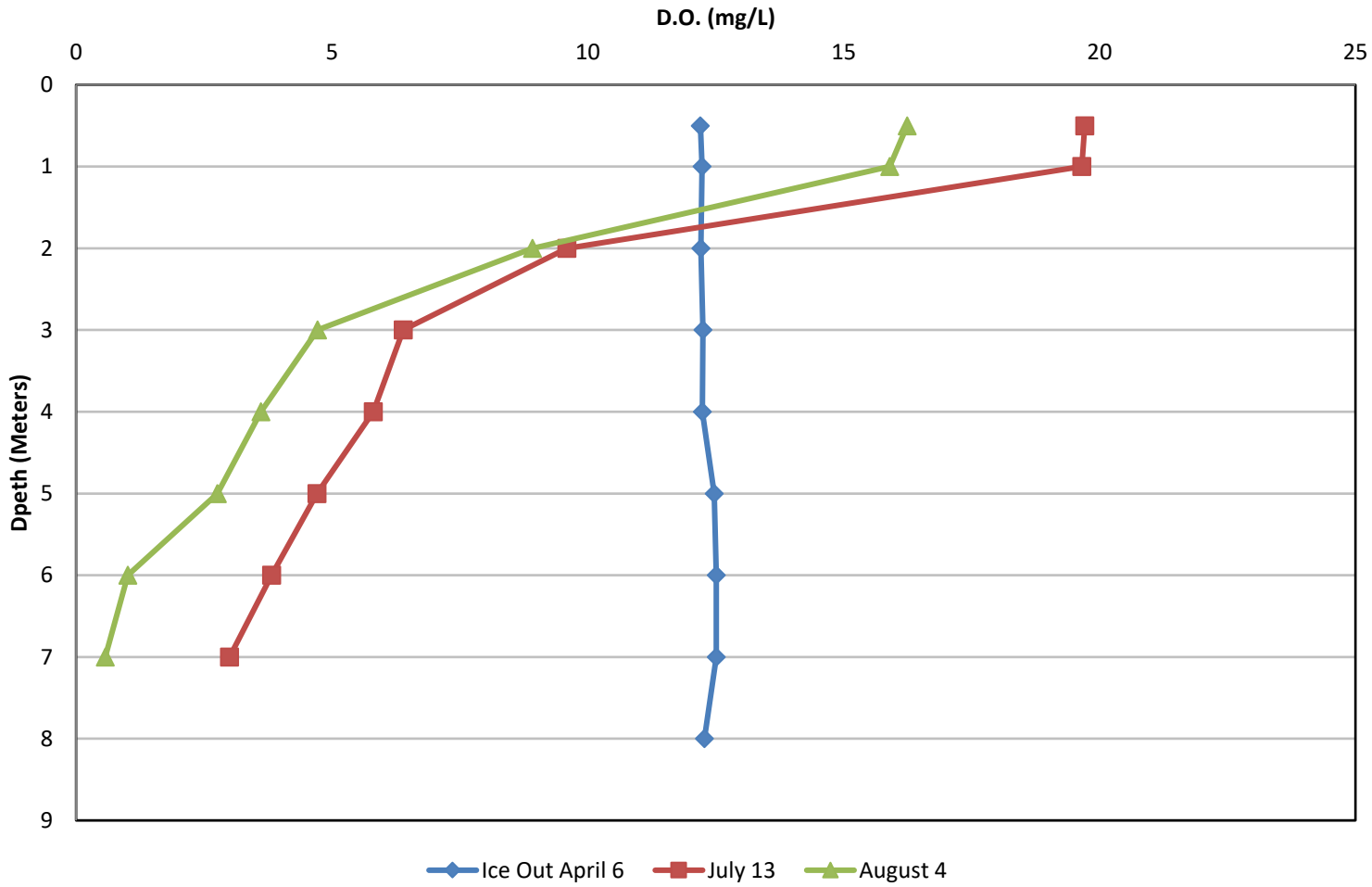


Figure 3. Clam River Impoundment - FERC #9185
2021 Dissolved Oxygen Profiles



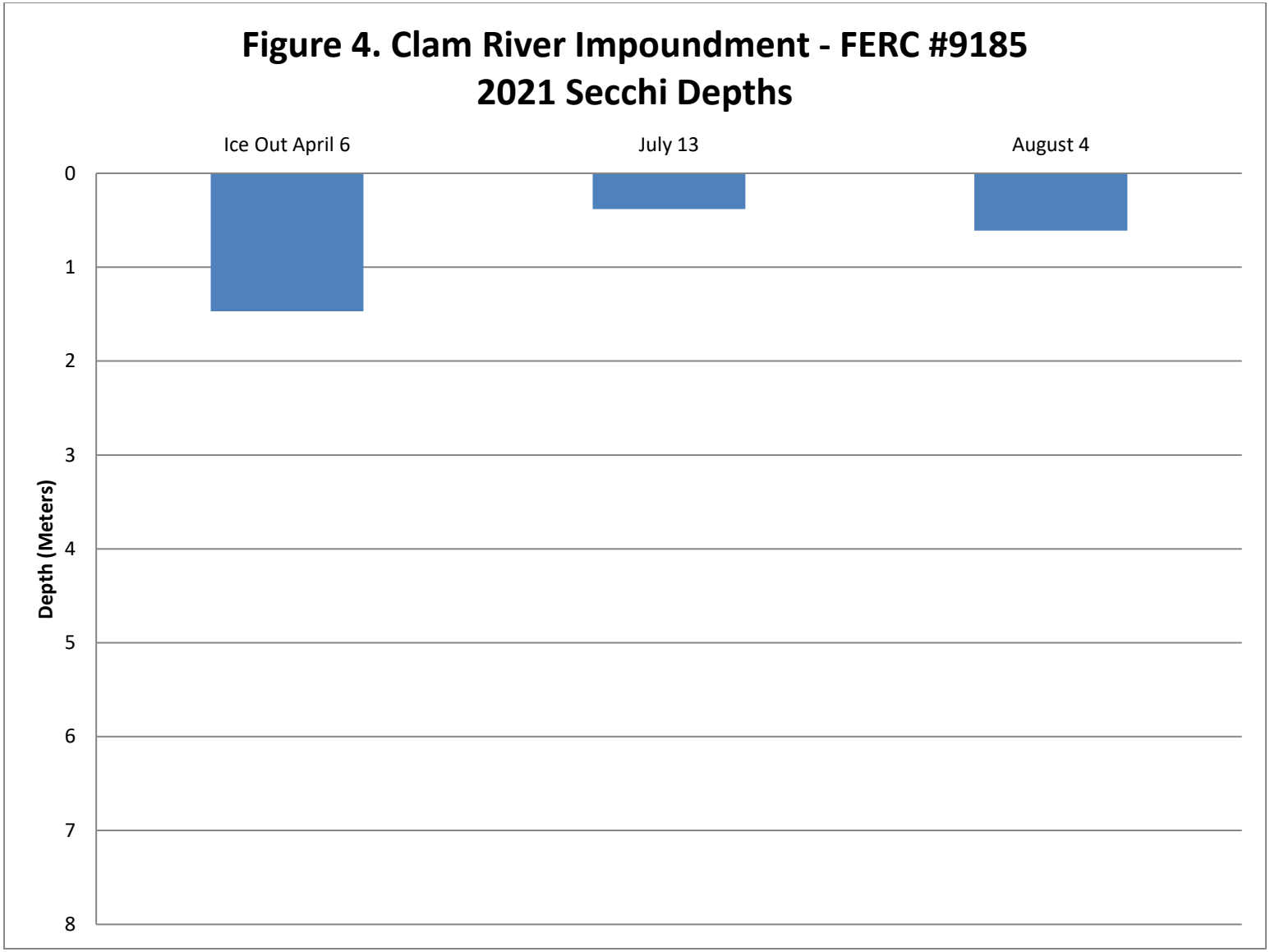


Figure 4. Clam River Impoundment - FERC #9185
2021 Secchi Depths
Ice Out April 6
July 13
August 4
Depth (Meters)
0
1
2
3
4
5
6
7
8

Appendix B – Clam River Hydroelectric Project Tables

Table 1. Clam River Hydroelectric Project – FERC Project # 9185: 2021 Water Quality Sampling Data

	Ice Out April 6, 2021			July 13, 2021			August 4, 2021		
Project Flow (c.f.s)	437			113			107		
Dissolved Oxygen	**Time**	**D.O. (mg/L)**	**Water Temp. (°C)**	**Time**	**D.O. (mg/L)**	**Water Temp. (°C)**	**Time**	**D.O. (mg/L)**	**Water Temp. (°C)**
0.5 meter below surface	10:21.37	12.20	11.6	10:44.29	19.71	25.8	10:21.16	16.24	24.9
1 meter below surface	10:22.26	12.23	11.4	10:44.50	19.74	26.1	10:23.27	15.90	24.8
2 meters below surface	10:22.57	12.21	11.2	10:49.48	19.65	26.2	10:26.11	8.92	24.2
3 meters below surface	10:23.40	12.25	11.0	10:53.35	9.59	24.8	10:29.04	4.72	23.8
4 meters below surface	10:24.10	12.24	10.9	10:57.06	6.39	23.6	10:31.54	3.61	23.6
5 meters below surface	10:24.54	12.47	10.7	10:59.29	5.81	22.4	10:34.27	2.76	23.2
6 meters below surface	10:23.34	12.51	10.6	11:01.36	4.71	21.7	10:35.47	1.01	22.8
7 meters below surface	10:26.09	12.51	10.2	11:03.38	3.82	21.4	10:38.29	0.87	22.7
8 meters below surface	10:27.15	12.28	9.7	11:05.50	3.00	21.1			
0.5 meter above bottom	10:28.18	12.31	9.7	11:07.20	2.59	21.1	10:38.21	0.87	22.7
Secchi Disk	**Time**	**Depth (m)**		**Time**	**Depth (m)**		**Time**	**Depth (m)**	
Meters below surface	10:19	1.47		10:37	0.381		10:15	0.6096	
Chlorophyll *a*	**Time**	**µg/L**		**Time**	**µg/L**		**Time**	**µg/L**	
1 meter below surface	10:19	9.20		10:40	27.00		10:16	72.00	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
1 meter below surface	10:19	35.00	5*	10:40	10.00	5*	10:16	25.00	5*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
1 meter below surface	10:19	0.043	0.008*	10:40	0.086	0.008*	10:16	0.099	0.008*
1 meter above bottom	10:23	0.036	0.008*	10:45	0.041	0.008*	10:19	0.070	0.008*
*Considered Method Detection Limit N/A = Not Applicable									

Table 2. 2020/21 Water Year Monthly Temperature and Precipitation for Clam River, Wisconsin

Month	Highest Temp.	Lowest Temp.	Average Temp.	Departure From Normal	Heating Degree Days	Normal Degree Days	Total Precip.	Total Snowfall	Normal Precip.	% of Normal Precipitation
October - 20	81	28	54.6	-1.0	305	298	0.85	0.00	4.11	69
November - 20	80	13	38.0	-5.2	831	678	2.78	12.0	2.85	66
December - 20	75	11	33.3	4.5	948	1088	2.45	19.2	2.09	70
January – 21	44	-12	19.7	-0.22	1394	1556	0.99	16.5	1.21	75
February – 21	38	-14	17.9	7.7	1453	1699	0.61	9.1	0.96	75
March – 21	42	-35	7.2	-7.9	1612	1399	0.53	8.6	0.81	65
April – 21	61	0	33.2	7.3	979	1210	2.64	8.7	2.64	64
May – 21	66	12	41	1.4	713	762	2.91	2.3	2.43	67
June – 21	83	26	53.5	1.5	372	410	1.88	0.00	3.37	60
July – 21	94	41	66.6	5.4	54	152	1.79	0.00	4.39	67
August – 21	92	40	68.2	1.2	41	50	2.75	0.00	3.92	67
September - 21	89	46	68.6	3.1	24	64	2.44	0.00	3.73	70

Source: NOAA/Duluth, MN

Table 3. Clam River Project Sampling Comparison Table: 2014 Thru Current Year										
Year	**Month**	**Secchi Depth**	**Chlorophyll *a***	**Color (True)**	**Total Phosphorus**	**Total Phosphorus**	**Low D.O.**	**High D.O.**	**Low Water Temp.**	**High Water Temp.**
		meters	**µg/L**	**C.P.U. Units**	**Below Surface mg/L**	**Above Bottom mg/L**	**mg/L**	**mg/L**	**° C**	**° C**
2014	June	1.10	8.60	70.00	0.041	0.042	9.14	9.40	11.50	12.70
2015	April	1.50	13.00	25.00	0.049	0.039	8.45	11.93	9.90	14.40
2016	March	1.19	11.00	15.00	0.040	0.040	10.91	12.09	3.90	4.80
2017	April	1.30	15.00	10.00	0.024	0.025	9.91	11.03	9.70	10.80
2018	May	0.44	22.00	25.00	0.053	0.055	8.71	9.28	17.50	18.10
2019	April	1.46	5.200	40.00	0.032	0.047	8.94	9.39	9.11	9.60
2020	April	0.975	14.00	35.00	0.066	0.048	10.75	11.00	7.90	9.50
2021	April	1.47	9.20	35.00	0.043	0.036	12.20	12.51	9.70	11.60
Minimum	March-June	0.44	5.20	10.00	0.024	0.025	8.45	9.28	3.90	4.80
Maximum	March-June	1.50	22.00	70.00	0.066	0.055	12.20	12.51	17.50	18.10
Average	March-June	1.18	12.25	31.88	0.044	0.042	9.88	10.83	9.90	11.44
2014	July	0.80	18.00	50.00	0.056	0.055	7.06	12.44	20.40	22.50
2015	July	1.10	12.00	35.00	0.061	0.043	7.48	9.77	22.00	23.10
2016	July	0.88	44.00	30.00	0.043	0.043	0.70	11.31	24.40	26.60
2017	July	1.00	15.00	25.00	0.033	0.075	5.83	9.47	23.50	23.90
2018	July	0.46	26.00	30.00	0.090	0.093	0.07	8.47	24.90	26.10
2019	July	0.91	36.00	25.00	0.057	0.058	3.21	10.72	23.30	24.70
2020	July	0.549	17.00	25.00	0.057	0.059	0.72	10.17	24.10	24.90
2021	July	0.38	27.00	10.00	0.86	0.041	2.54	19.51	21.60	26.10
Minimum	July	0.055	12.00	10.00	0.033	0.041	0.07	8.47	20.40	22.50
Maximum	July	1.10	44.00	50.00	0.090	0.093	7.48	19.51	24.90	26.60
Average	July	0.70	24.38	28.75	0.060	0.058	3.45	11.49	23.03	24.78
2014	August	0.60	34.00	50.00	0.081	0.075	4.91	10.13	22.70	24.20
2015	August	0.50	120.00	40.00	0.076	0.043	5.50	16.91	22.60	24.70
2016	August	0.70	61.00	25.00	0.050	0.053	0.16	14.89	22.80	25.30
2017	August	1.00	11.00	20.00	0.034	0.034	3.30	9.84	20.70	21.40
2018	August	0.58	20.00	30.00	0.067	0.074	0.07	10.85	23.10	25.50
2019	August	0.58	92.00	45.00	0.090	0.065	0.04	13.08	22.40	24.40
2020	August	0.762	27.00	28.00	0.022	0.026	3.90	10.38	22.8	23.10
2021	August	0.61	72.00	25.00	0.099	0.070	0.870	16.24	22.70	24.90
Minimum	August	0.50	11.00	20.00	0.022	0.026	0.04	9.84	20.70	21.40
Maximum	August	1.00	120.00	50.00	0.099	0.075	5.50	16.91	23.10	25.50
Average	August	0.67	54.63	32.88	0.065	0.055	2.28	12.80	22.48	24.23

*no sample taken

Appendix C – Clam River Impoundment Project Sampling Logs

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Clamriver

Hydroelectric Project – FERC # 9185

Date: 4-6-21

Pre-Sampling Data:

HWL 898.64 TWL 864.4 CFS 437

Sample Location: N45° 56.799
W092° 36.286

Performed by:
A. Stine Sean Caron

Time: 10:10 Barometer: 29.8

Air Temp: 50 °F Wind Speed: NW 12 mpH

Sky Conditions: 25% Clouds

Precipitation within Last 24 Hours: yes

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 99 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 27 ft / 7.5 Meters

Secchi Depth (± 0.1)			
Time 10:19	4.10	Feet	Meters
	1.47 Meters		

Comments:

Chlorophyll *a* (1 Meter below surface horizontal sampler)		
Time 10:19	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (1 Meter below surface horizontal sampler)
Time 10:19

Total Phosphorus (1 Meter below surface horizontal sampler)	
Time 10:19	Preservative
	H_2SO_4

Total Phosphorus (1 Meter above bottom horizontal sampler)	
Time 10:23	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Meters)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	10:21:37	12.20	11.6
1	10:22:26	12.23	11.4
2	10:22:57	12.21	11.2
3	10:23:40	12.25	11.0
4	10:24:10	12.24	10.9
5	10:24:54	12.47	10.7
6	10:23:34	12.51	10.6
7	10:24:09	12.51	10.2
7.5	10:29:15	12.26	9.7
0.5 above bottom	10:28:18	12.31	9.7

*If D.O. is below 5.0 mg/L notify agency and measure D.O. at 1.0 foot intervals if <5.0 mg/L.

WHITE WATER ASSOCIATES, INC.

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Clum River

Hydroelectric Project – FERC # 9185

Date: 7-13-21

Pre-Sampling Data:

HWL 898.78 TWL 863 CFS 113

Sample Location: N45° 9.799
W 092° 36.286

Performed by: Angie Stine Sean Corcoran

Time: 10:35 Barometer: 29.97

Air Temp: 73 °F Wind Speed: SW Comp H

Sky Conditions: Clear

Precipitation within Last 24 Hours: NO

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 65 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 22 Meters 6.71 meters feet

Secchi Depth (± 0.1)			
Time 10:37	1.3	Feet	Meters

0.381 meters

Chlorophyll *a* (1 Meter below surface horizontal sampler)		
Time 10:40	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (1 Meter below surface horizontal sampler)
Time 10:40

Total Phosphorus (1 Meter below surface horizontal sampler)	
Time 10:40	Preservative
	H_2SO_4

Total Phosphorus (1 Meter above bottom horizontal sampler)	
Time 10:45	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Meters),	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	10:37:44	9.51	26.1
1	10:38:28	9.15	26.0
2	10:40:35	7.67	24.1
3	10:41:19	7.19	23.4
4	10:42:21	5.09	22.3
5	10:43:01	4.10	21.6
6			
7			
8			
0.5 above bottom			

*If D.O. is below 5.0 mg/L notify agency and measure D.O. at 1.0 foot intervals if <5.0 mg/L.

Comments:
Bald Eagle
Painted Turtles

CLRUPIC20f N45.93768
20+ Purple Loosestrife plants W-92.52978

WHITE WATER ASSOCIATES, INC.

Water Quality Location:
Clam River

Date: 7.13-21

*D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	10.44.29	19.71	25.8
1	10.45.05	~~19.74~~	~~25.7~~
2	10.46.42	~~19.87~~	~~26.7~~
3	~~10.48.48~~	19.65	26.2
4	10.50.38	19.10	26.1
5	10.52.50	13.70	25.2
6	10.58.35	9.59	24.8
7	10.55.38	7.55	24.1
8	10.56.15	7.32	23.8
9	10.57.06	6.39	23.6
10	10.57.59	6.98	23.1
11	10.58.33	6.83	22.8
12	10.59.29	5.81	22.4
13	11.00.04	5.41	22.2
14	11.00.49	5.16	21.9
15	11.01.36	4.71	21.7
16	11.02.19	4.23	21.5
17	11.02.59	3.97	21.4
18	11.03.38	3.42	21.4
19	11.04.20	3.47	21.3
20	11.04.56	3.43	21.3
21	11.05.50	3.00	21.2
22	11.06.39	2.54	21.1
23			
24			
25			
0.5 above bottom	11.07.20	2.59	21.1

WHITE WATER ASSOCIATES, INC.

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Clam River

Hydroelectric Project – FERC # 9185

Date: 8-4-21

Pre-Sampling Data:

HWL 898.8e TWL 863.1 CFS 107

Sample Location: N45° 56.799
W 092° 36.286

Performed by:
Kemppainen / Caron

Time: 9:51 Barometer: 30.10

Air Temp: 67 °F Wind Speed: 3 NW

Sky Conditions: Clear

Precipitation within Last 24 Hours: NO

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 65 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 21 ~~Meters~~ feet
6.4 meters

Secchi Depth (± 0.1)			
Time 10:15	2 (Feet)	Meters	
	0.609 meters		

Comments:

Chlorophyll *a* (1 Meter below surface horizontal sampler)		
Time	Quantity (ml)	Filtered
10:16	1000	In Lab
Preservative	$MgCO_3$	

True Color (1 Meter below surface horizontal sampler)
Time 10:16

Total Phosphorus (1 Meter below surface horizontal sampler)	
Time 10:16	Preservative
	H_2SO_4

Total Phosphorus (1 Meter above bottom horizontal sampler)	
Time 10:19	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Meters)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	10:16:21	16.56	24.8
1	10:17:42	15.91	24.7
2	10:18.11	7.76	24.0
3	10:19.17	4.57	23.7
4			
5			
6			
7			
8			
0.5 above bottom			

*If D.O. is below 5.0 mg/L notify agency and measure D.O. at 1.0 foot intervals if <5.0 mg/L.

Below 5 mg/L →

WHITE WATER ASSOCIATES, INC.

Water Quality Location:
Clam River

Date: 8-4-21

*D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	10:21:16	16.24	24.9
1	10:21:58	15.97	24.8
2	10:22:40	15.92	24.9
3	10:23:21	15.90	24.8
4	10:24:58	16.13	24.8
5	10:25:31	13.65	24.7
6	10:26:11	8.92	24.2
7	10:27:21	8.03	24.1
8	10:28:16	5.74	24.0
9	10:29:04	4.72	23.8
10	10:30:21	4.10	23.7
11	10:31:21	3.95	23.6
12	10:31:54	3.61	23.6
13	10:32:21	2.55	23.5
14	10:33:13	2.46	23.3
15	10:34:21	2.76	23.2
16	10:34:58	2.25	23.1
17	10:35:11	1.91	22.9
18	10:35:41	1.01	22.8
19	10:36:42	1.02	22.7
20	10:37:11	0.92	22.8
21	10:38:21	0.87	22.7
22			
23			
24			
25			
0.5 above bottom	10:38:21	0.87	22.7

WHITE WATER ASSOCIATES, INC.

Appendix D – Clam River Hydroelectric Project Lab Reports and Chains of Custody

Cover Page

ANALYTICAL REPORT

WHITE WATER ASSOCIATES, INC.
429 River Lane • PO Box 27 Amasa, MI 49903 • Ph (906) 822-7889 • Fax -7977

Client: RWE **WWA Job #:** 93995

Project: Monitoring

Date Received: 4/8/2021 **Date Reported:** 5/12/2021

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
93995-001	Clam River Surface	4/6/2021 10:19	Water
93995-002	Clam River Bottom	4/6/2021 10:23	Water
93995-003	Danbury Surface	4/6/2021 13:41	Water
93995-004	Danbury Bottom	4/6/2021 13:46	Water

ANALYTICAL REPORT

WHITE WATER ASSOCIATES, INC.
429 River Lane • PO Box 27 Amasa, MI 49903 • Ph (906) 822-7889 • Fax -7977

Client: RWE **WWA Job #:** 93995

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 coliform, Negative = No coliform bacteria detected, Positive = Coliform bacteria detected

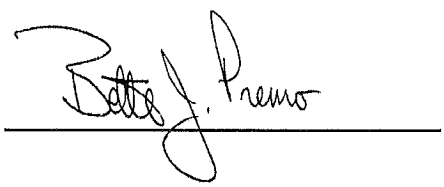
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 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 Bette J. Premo



WI DNR Lab Certification Number: 999971280
MI EGLE Certification Number: 9306
DoD-ELAP Accreditation Number: 65802 by PJLA for Environmental Testing
ISO/IEC 17025:2005 Accredited

ANALYTICAL REPORT

WHITE WATER ASSOCIATES, INC.
429 River Lane • PO Box 27 Amasa, MI 49903 • Ph (906) 822-7889 • Fax -7977

Client: RWE **WWA Job #:** 93995

Project: Monitoring

Date Received: 4/8/2021 **Date Reported:** 5/12/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
93995-001 / Clam River Surface / Water								
General Chemistry Parameters								
Chlorophyll a	9.2		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	35	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.043	J	mg/L	4/14/2021 11:57	365.4	0.008	0.050	NK
93995-002 / Clam River Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.036	J	mg/L	4/14/2021 11:58	365.4	0.008	0.050	NK
93995-003 / Danbury Surface / Water								
General Chemistry Parameters								
Chlorophyll a	7.6		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	20	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.014	J	mg/L	4/14/2021 11:58	365.4	0.008	0.050	NK
93995-004 / Danbury Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.021	J	mg/L	4/14/2021 11:59	365.4	0.008	0.050	NK

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)

Version 191002

Job # (WWA office use): 93995

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

429 River Lane, P.O. Box 27
Amasa, Michigan 49903
Phone: (906) 822-7889, Fax -7977
Web: white-water-associates.com

CLIENT NAME / BILL TO: KWE
EMAIL ADDRESS:
ADDRESS:
TELEPHONE:
CITY: STATE: ZIP:
CONTRACT / PO / PROJECT NAME / WSSN#: Monitoring
SAMPLER NAME (print first/last name): Angie Stai
COUNTY OF LOCATION:
PAGE 1 OF 1 — Indicate if more than one page of COC records used
SAMPLER'S SIGNATURE:

Check off preservatives for each bottle upon arrival and indicate total number of bottles. WWA database contains bottle preservation details.

ANALYSIS TYPE REQUESTED (Attach list if needed): CHL a; TPhos; Color

Instructions to White Water
Send my report by:
____ email
____ mail

Unless otherwise noted, drinking water report copies are sent to EGLE and Health Dept.

REMARKS (Note any special instructions provided by client or conditions of receipt noted by WWA lab staff. Also note any residual chlorine.)

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H2SO4	HNO3	HCl	NaOH	Na Thio	Other:	Total Number of Containers
1	Clam River surface	4-6-21	10:19		X				X	X						3
2	Clam River Bottom	4-6-21	10:23		X					X						1
3	Dunbarry Surface	4-6-21	13:41		X				X	X						3
4	Dunbarry Bottom	4-6-21	13:46		X					X						1

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	4-7-21	16:49			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				4/8/21	8:30

Comments/sample temp on receipt: 3

Packing: Ice ✓ Cooler

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

WHITE - RETURN W/ REPORT CANARY - W/ SAMPLES PINK - CUSTOMER

Login Checklist

WHITE WATER ASSOCIATES, INC.

Project No.:	93995	**Date logged in.:** 4/8/2021		**Login person's initials:**	JT
Client:	RWE			**Number of coolers:**	1
Project name:	Monitoring			**Courier/shipper:**	WWA

- ☑ **1. Custody seals/original packing tape were intact (if applicable).**
- ☑ **2. Samples are in good condition, i.e. not broken or leaking.**
- ☑ **3. Samples were received within holding times.**
- ☑ **4. Samples were received on ice (in direct contact with the samples).**
- ☑ **5. Temperature of the samples was between 0-6°C. Temp.:** 3

NOTES on #4:

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

- ☑ **6. Samples matched the Chain of Custody (COC).**
- ☑ **7. Proper containers were used.**
- ☑ **8. Samples were collected in White Water lab containers.**
- ☑ **9. There is adequate sample volume for requested analyses and QC.**
- ☐ **10. For water VOC samples, headspace is less than the size of a pea.**
- ☑ **11. Samples are preserved to the proper pH. Sample bottles and preservation are noted in LIMS Sample Container Section.**
- ☑ **12. The COC is signed. (either Sampler or Relinquished by)**
- ☐ **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 soil VOCs, methanol preserved samples were received.**
- ☐ **16. For Soil VOCs, samples were preserved with methanol in the lab.**
- ☐ **17. Client contact is necessary. Provide documentation below.**

COMMENTS/CORRECTIVE ACTION

CLIENT RESPONSE

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.

Cover Page

ANALYTICAL REPORT

WHITE WATER ASSOCIATES, INC.

429 River Lane • PO Box 27 Amasa, MI 49903 • Ph (906) 822-7889 • Fax -7977

Client: RWE **WWA Job #:** 95725

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 7/30/2021

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
95725-001	Clam River Surface	7/13/2021 10:40	Water
95725-002	Clam River Bottom	7/13/2021 10:45	Water
95725-003	Danbury Surface	7/13/2021 13:38	Water
95725-004	Danbury Bottom	7/13/2021 13:41	Water

ANALYTICAL REPORT

WHITE WATER ASSOCIATES, INC.
429 River Lane • PO Box 27 Amasa, MI 49903 • Ph (906) 822-7889 • Fax-7977

Client: RWE **WWA Job #:** 95725

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 coliform, Negative = No coliform bacteria detected, Positive = Coliform bacteria detected

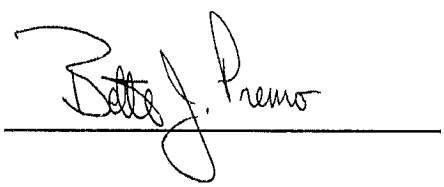
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 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 Bette J. Premo



WI DNR Lab Certification Number: 999971280
MI EGLE Certification Number: 9306
DoD-ELAP Accreditation Number: 65802 by PJLA for Environmental Testing
ISO/IEC 17025:2005 Accredited

ANALYTICAL REPORT

WHITE WATER ASSOCIATES, INC.
429 River Lane • PO Box 27 Amasa, MI 49903 • Ph (906) 822-7889 • Fax -7977

Client: RWE **WWA Job #:** 95725

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 7/30/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
95725-001 / Clam River Surface / Water								
General Chemistry Parameters								
Chlorophyll a	27		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	10		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.086		mg/L	7/23/2021 14:18	365.4	0.008	0.050	NK
95725-002 / Clam River Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.041	J	mg/L	7/23/2021 14:19	365.4	0.008	0.050	NK
95725-003 / Danbury Surface / Water								
General Chemistry Parameters								
Chlorophyll a	6.4		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	10		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.036	J	mg/L	7/23/2021 14:19	365.4	0.008	0.050	NK
95725-004 / Danbury Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.037	J	mg/L	7/23/2021 14:21	365.4	0.008	0.050	NK

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)

Job # (WWA office use): 95725

CHAIN-OF-CUSTODY RECORD

Version 191002

WHITE WATER ASSOCIATES, INC.

429 River Lane, P.O. Box 27
Amasa, Michigan 49903

Phone: (906) 822-7889, Fax -7977
Web: white-water-associates.com

CLIENT NAME / BILL TO			EMAIL ADDRESS
KWE			
ADDRESS			TELEPHONE
CITY	STATE	ZIP	CONTRACT / PO / PROJECT NAME / WSSN#
			Monitoring
SAMPLER NAME (print first/last name)			COUNTY OF LOCATION / PAGE 1 OF 1 (Indicate if more than one page of COC records used)
Angie Shine			
SAMPLER'S SIGNATURE			Check off preservatives for each bottle upon arrival and indicate total number of bottles. WWA database contains bottle preservation details.

SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H2SO4	HNO3	HCl	NaOH	Na Thio	Other:	Total Number of Containers	Chl a	T Phos	Color	ANALYSIS TYPE REQUESTED (Attach list if needed)
1 Clam River Surface	7-13-21	10:40		X				X	X						3	X	X	X	
2 Clam River Bottom	"	10:45		X					X						1		X		
3 Danbury Surface	"	13:38		X				X	X						3	X	X	X	
4 Danbury Bottom	"	13:41		X					X						1		X		

Instructions to White Water
Send my report by:
____ email
____ mail

Unless otherwise noted, drinking water report copies are sent to EGLE and Health Dept.

REMARKS (Note any special instructions provided by client or conditions of receipt noted by WWA lab staff. Also note any residual chlorine.)

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	7-14-21	5:33			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				7/15/21	8:00

Comments/sample temp on receipt: 1

Packing: Ice ✓ Cooler

WHITE - RETURN W/ REPORT CANARY - W/ SAMPLES PINK - CUSTOMER

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

Login Checklist

WHITE WATER ASSOCIATES, INC.

Project No.:	95725	**Date logged in.:** 7/15/2021	**Login person's initials:**	JT
Client:	RWE		**Number of coolers:**	1
Project name:	Monitoring		**Courier/shipper:**	WWA

- ☑ **1. Custody seals/original packing tape were intact (if applicable).**
- ☑ **2. Samples are in good condition, i.e. not broken or leaking.**
- ☑ **3. Samples were received within holding times.**
- ☑ **4. Samples were received on ice (in direct contact with the samples).**
- ☑ **5. Temperature of the samples was between 0-6°C. Temp.:** 1

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

NOTES on #4:

- ☑ **6. Samples matched the Chain of Custody (COC).**
- ☑ **7. Proper containers were used.**
- ☑ **8. Samples were collected in White Water lab containers.**
- ☑ **9. There is adequate sample volume for requested analyses and QC.**
- ☐ **10. For water VOC samples, headspace is less than the size of a pea.**
- ☑ **11. Samples are preserved to the proper pH. Sample bottles and preservation are noted in LIMS Sample Container Section.**
- ☑ **12. The COC is signed. (either Sampler or Relinquished by)**
- ☐ **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 soil VOCs, methanol preserved samples were received.**
- ☐ **16. For Soil VOCs, samples were preserved with methanol in the lab.**
- ☐ **17. Client contact is necessary. Provide documentation below.**

COMMENTS/CORRECTIVE ACTION

CLIENT RESPONSE

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.

Cover Page

ANALYTICAL REPORT

WHITE WATER ASSOCIATES, INC.
429 River Lane • PO Box 27 Amasa, MI 49903 • Ph (906) 822-7889 • Fax -7977

Client: RWE **WWA Job #:** 96119

Project: Monitoring

Date Received: 8/5/2021 **Date Reported:** 9/12/2021

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
96119-001	Clam River Surface	8/4/2021 10:16	Water
96119-002	Clam River Bottom	8/4/2021 10:19	Water
96119-003	Danbury Surface	8/4/2021 12:18	Water
96119-004	Danbury Bottom	8/4/2021 12:20	Water

ANALYTICAL REPORT

WHITE WATER ASSOCIATES, INC.
429 River Lane • PO Box 27 Amasa, MI 49903 • Ph (906) 822-7889 • Fax-7977

Client: RWE **WWA Job #:** 96119

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 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.

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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 Bette J. Premo

Bette J. Premo

WI DNR Lab Certification Number: 999971280
MI EGLE Certification Number: 9306
DoD-ELAP Accreditation Number: 65802 by PJLA for Environmental Testing
ISO/IEC 17025:2005 Accredited

ANALYTICAL REPORT

WHITE WATER ASSOCIATES, INC.
429 River Lane • PO Box 27 Amasa, MI 49903 • Ph (906) 822-7889 • Fax -7877

Client: RWE **WWA Job #:** 96119

Project: Monitoring

Date Received: 8/5/2021 **Date Reported:** 9/12/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
96119-001 / Clam River Surface / Water								
General Chemistry Parameters								
Chlorophyll a	72		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	25		CU	9/8/2021 15:50	2120B	5	5	NK
Total Phosphorus LL (t)	0.099		mg/L	8/10/2021 15:55	365.4	0.008	0.050	NK
96119-002 / Clam River Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.070		mg/L	8/10/2021 15:55	365.4	0.008	0.050	NK
96119-003 / Danbury Surface / Water								
General Chemistry Parameters								
Chlorophyll a	18		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	10		CU	9/8/2021 15:52	2120B	5	5	NK
Total Phosphorus LL (t)	0.073		mg/L	8/10/2021 15:56	365.4	0.008	0.050	NK
96119-004 / Danbury Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.038	J	mg/L	8/10/2021 15:57	365.4	0.008	0.050	NK

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)

Version 191002

Job # (WWA office use): 96119

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

429 River Lane, P.O. Box 27
Amasa, Michigan 49903

Phone: (906) 822-7889, Fax -7977
Web: white-water-associates.com

CLIENT NAME / BILL TO: RWE			EMAIL ADDRESS
ADDRESS			TELEPHONE
CITY	STATE	ZIP	CONTRACT / PO / PROJECT NAME / WSSN#: Monitoring
SAMPLER NAME (print first/last name): Breanna Kemppainen			COUNTY OF LOCATION / PAGE: 1 OF 1 (Indicate if more than one page of COC records used)
SAMPLER'S SIGNATURE: Breanna Kemppainen			Check off preservatives for each bottle upon arrival and indicate total number of bottles. WWA database contains bottle preservation details.

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

Instructions to White Water
Send my report by:
____ email
____ mail

Unless otherwise noted, drinking water report copies are sent to EGLE and Health Dept.

REMARKS (Note any special instructions provided by client or conditions of receipt noted by WWA lab staff. Also note any residual chlorine.)

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H2SO4	HNO3	HCl	NaOH	Na Thio	Other:	Total Number of Containers	Chl a	TPhos	Color
1	Clam River Surface	8-4-21	10:16		X				X	X						3	X	X	X
2	Clam River Bottom	8-4-21	10:19		X					X						1		X	
3	Duncan Surface	8-4-21	12:18		X				X	X						3	X	X	X
4	Duncan Bottom	8-4-21	12:20		X					X						1		X	

Relinquished by:	Date: 8-5-21	Time: 4:29	Received by:	Date:	Time:	Comments/sample temp on receipt: 3	Packing: Ice ✓ Cooler ✓
Relinquished by:	Date:	Time:	Received by:	Date: 8/5/21	Time: 16:30		

WHITE - RETURN W/ REPORT CANARY - W/ SAMPLES PINK - CUSTOMER

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA