Report

2020 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

2020 marked the thirteenth 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 8, July 21, and August 11, 2020. This document contains all of the associated records for the 2020 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 2020 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 21 feet and in August the D.O. was below 5.0 mg/L at 11 feet. The Secchi depths are shown in Figure 4.

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

Ice-Out occurred on the Clam River sometime during the week beginning April 1, 2020. The Ice-Out sampling event occurred on April 8, 2020. River flow, based on the Clam River Hydroelectric Project records, was approximately 738 cubic feet per second. Sampling occurred between 11:00 and 11:10. 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 9, 2020. White Water Associates, Inc. issued a laboratory report on August 31, 2020. 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 252 cubic feet per second during the July 21, 2020 sampling event. Sampling occurred between 10:15 and 10:38. Samples were taken without incident. No unusual Temperature readings were observed. The D.O. went below 5.00 mg/L at 23.0 feet (4.97 mg/L). The 0.5 ft above bottom D.O. was 0.72 mg/L. Samples for laboratory analysis were delivered to White Water Associates, Inc. laboratory in Amasa, MI on July 23, 2020. White Water Associates, Inc. issued a laboratory report on August 31, 2020. 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 234 cubic feet per second during the August 11, 2020 sampling event. Sampling occurred between 10:07 and 10:37. Samples were taken without incident. No unusual Temperature readings were observed. The D.O. went below 5.00 mg/L at 20 feet (4.86 mg/L). The 0.5 ft above bottom D.O. was 3.90 mg/L. Samples for laboratory analysis were delivered to White Water Associates, Inc. laboratory in Amasa, MI on August

14, 2020. White Water Associates, Inc. issued a laboratory report on September 11, 2020. 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 Decreased Ice Out and July, Increased August
2. Chlorophyll a – Increased Ice Out, Decreased July and August
3. Color – Decreased Ice Out and August
4. Total Phosphorus – Increased Ice Out and Decreased August
5. Overall, D.O. – Increased Ice Out, Decreased July and August
6. Water Temperatures – Decreased Ice Out and August, Increased July

The next scheduled Water Quality Monitoring at the Clam River Hydroelectric Project is set to take place in 2021 beginning with the Ice-Out sampling event.

Appendix A – Clam River Hydroelectric Project Figures

Figure 1. Clam River Hydroelectric Project Map

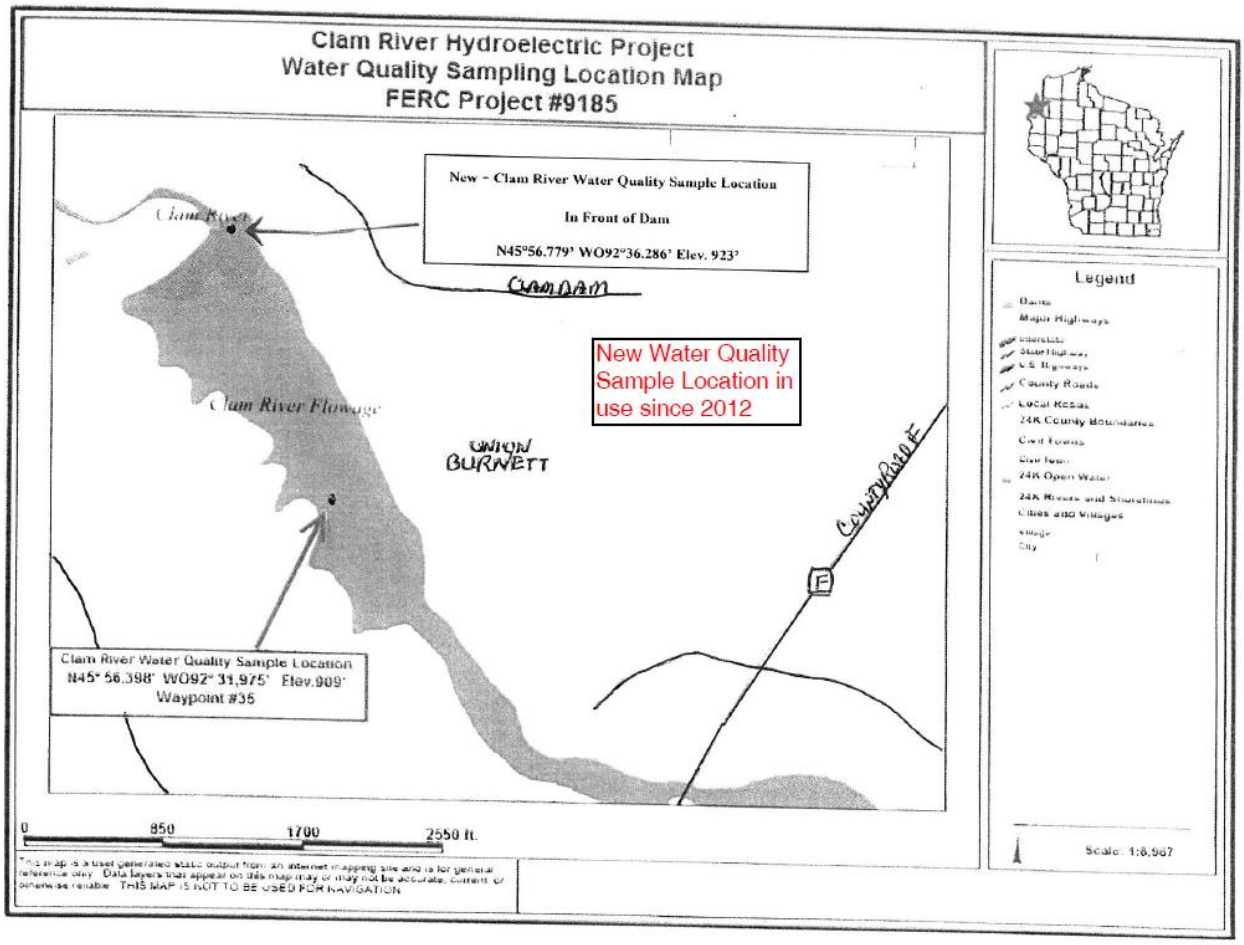


Figure 2. Clam River Impoundment - FERC #9185
2020 Temperature Profiles

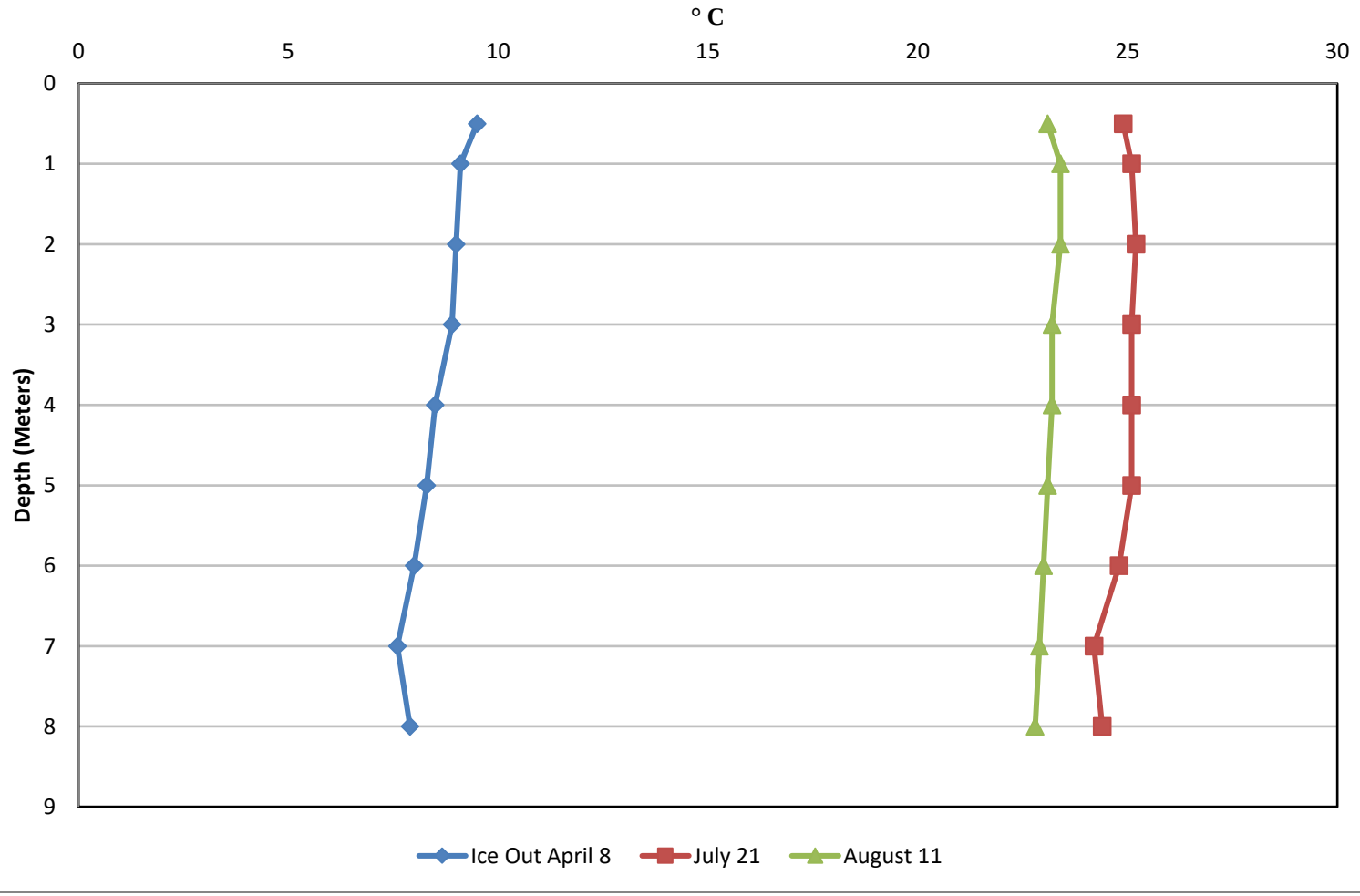
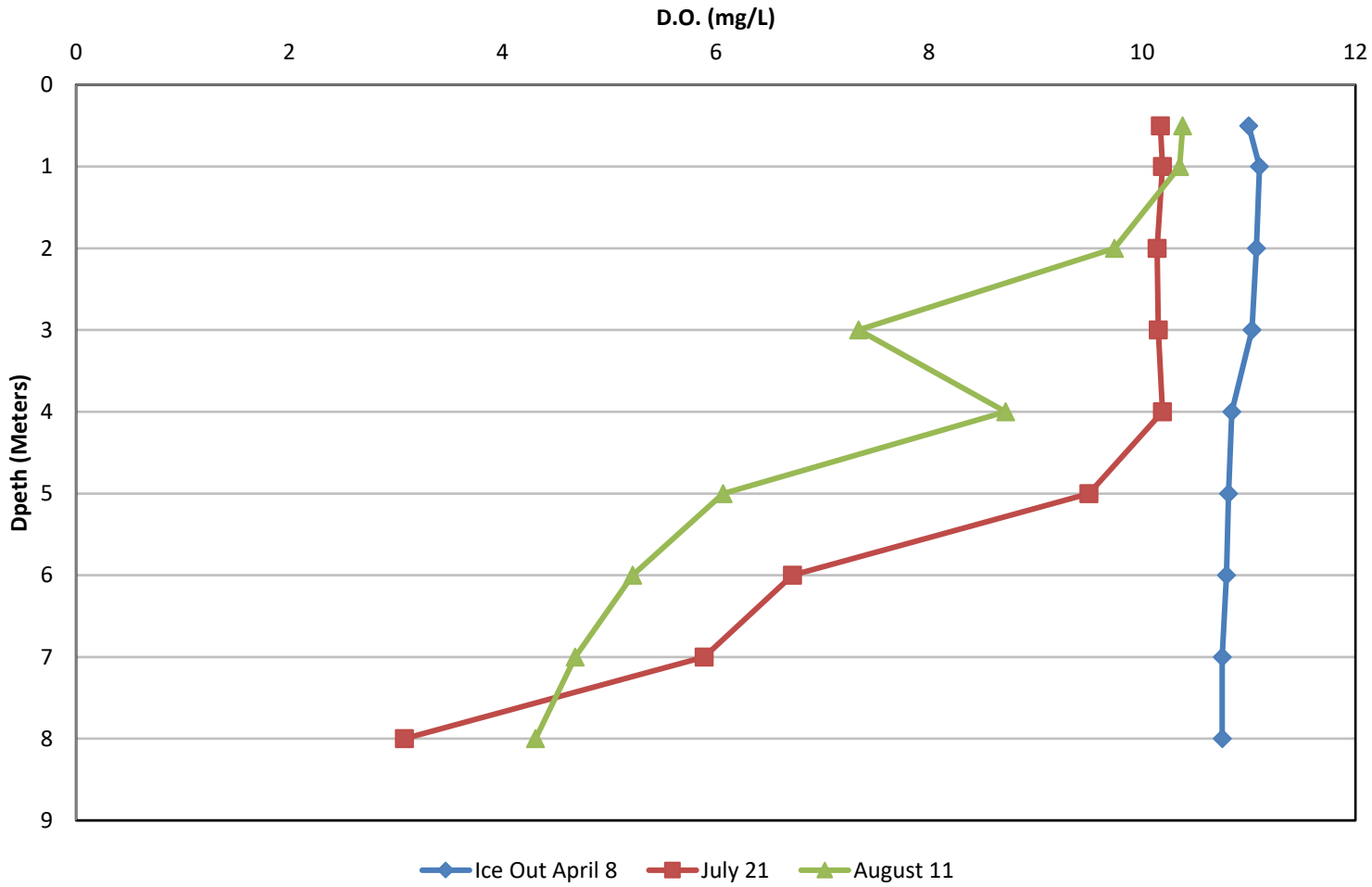


Figure 3. Clam River Impoundment - FERC #9185
2020 Dissolved Oxygen Profiles



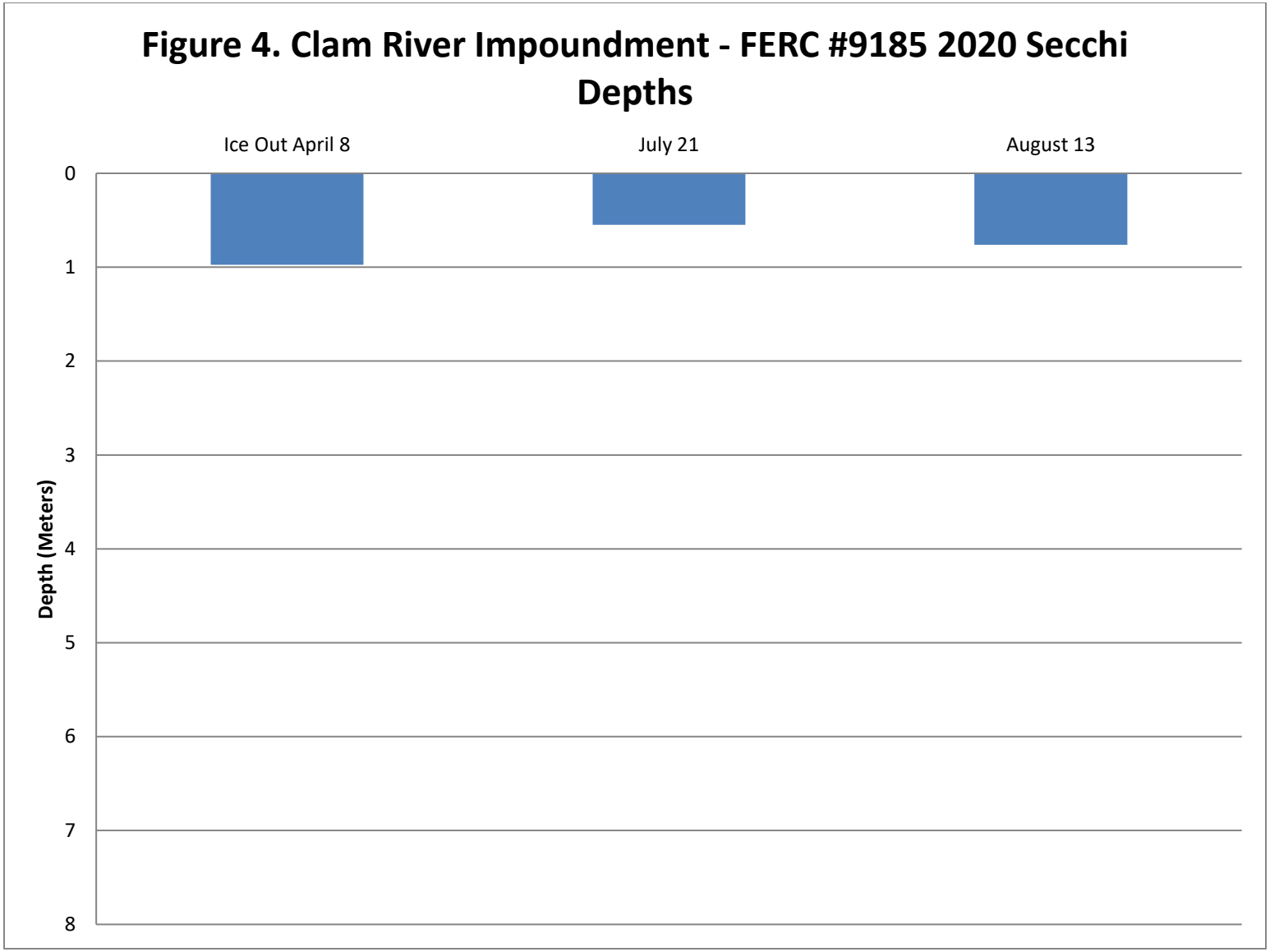


Figure 4. Clam River Impoundment - FERC #9185 2020 Secchi Depths
Ice Out April 8
July 21
August 13
0
1
2
3
4
5
6
7
8
Depth (Meters)

Appendix B – Clam River Hydroelectric Project Tables

Table 1. Clam River Hydroelectric Project – FERC Project # 9185: 2020 Water Quality Sampling Data

	Ice Out April 8, 2020			July 21, 2020			August 11, 2020		
Project Flow (c.f.s)	738			252			234		
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	10:57:04	11.0	9.5	10:29:11	10:17	24.9	10:01:31	10.38	23.1
1 meter below surface	10:58:16	11.10	9.1	10:32:41	10:19	25.1	10:03:45	10:35	23.4
2 meters below surface	11:00:15	11.07	9.0	10:34:30	10:14	25.2	10:05:37	9.74	23.4
3 meters below surface	11:00:57	11.03	8.9	10:35:55	10:15	25.1	10:08:24	7.34	23.2
4 meters below surface	11:02:14	10.84	8.5	10:37:25	10:19	25.1	10:13:42	8.72	23.2
5 meters below surface	11:03:03	10.81	8.3	10:39:05	9.50	25.1	10:16:15	6.07	23.1
6 meters below surface	11:04:32	10.79	8.0	10:40:30	6.72	24.8	10:18:01	5.22	23.0
7 meters below surface	11:05:29	10.75	7.6	10:42:00	5.89	24.7	10:19:47	4.68	22.9
8 meters below surface	11:05:05	10.75	7.9	10:44:00	3.08	24.4	10:21:07	4.31	22.8
0.5 meter above bottom	11:07:05	10.75	7.9	10:46:00	0.72	24.1	10:22:37	3.90	22.8
Secchi Disk	**Time**	**Depth (m)**		**Time**	**Depth (m)**		**Time**	**Depth (m)**	
Meters below surface	11:02	0.975		10:25	0.54		10:10	0.762	
Chlorophyll *a*	**Time**	**µg/L**		**Time**	**µg/L**		**Time**	**µg/L**	
1 meter below surface	11:02	14.0		10:15	17.00		10:11	27.0	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
1 meter below surface	11:02	35.0	5*	10:15	25.0	5*	10:11	28.0	5*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
1 meter below surface	11:02	0.066	0.008*	10:15	0.057	0.008*	10:11	0.022	0.008*
1 meter above bottom	11:10	0.048	0.008*	10:48	0.059	0.008*	10:16	0.026	0.008*
*Considered Method Detection Limit N/A = Not Applicable									

Table 2. 2019/20 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 - 19	72	19	44.5	1.3	625	678	4.42	0.9	2.85	64
November - 19	47	-2	26.3	-2.5	1156	1088	2.30	27.7	2.09	91
December - 19	39	-16	17.4	2.6	1470	1556	2.69	22.7	1.21	45
January – 20	32	-16	16.1	5.9	1509	1699	1.37	17.7	0.96	70
February – 20	43	-21	14.4	-2.2	1461	1399	0.18	5.4	0.81	22
March – 20	51	3	29.4	3.5	1098	1210	1.74	10.1	1.49	86
April – 20	66	14	37.2	-2.4	824	762	1.30	50.8	2.43	53
May – 20	81	25	51.6	0.2	412	426	0.94	0.00	3.23	29
June – 20	89	38	64.2	4.1	89	179	0.69	0.00	4.23	16
July – 20	93	47	69.9	4.1	22	63	5.25	0.00	3.85	73
August – 20	86	48	67.0	2.7	24	86	2.72	0.00	3.70	74
September - 20	81	28	54.6	-1.0	305	298	0.85	0.00	4.11	21

Source: NOAA/Duluth, MN

Table 3. Clam River Project Sampling Comparison Table: 2013 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**
2013	May	1.00	17.00	70.00	0.069	0.069	10.91	12.16	10.10	14.20
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
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	0.069	0.069	10.91	12.16	17.50	18.10
Average	March-June	1.12	13.23	36.25	0.047	0.046	9.72	10.79	9.95	11.76
2013	July	1.20	23.00	70.00	0.064	0.067	0.97	7.22	23.70	24.10
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
Minimum	July	0.055	12.00	25.00	0.033	0.043	0.07	7.22	20.40	22.50
Maximum	July	1.20	44.00	70.00	0.090	0.093	7.48	12.44	24.90	26.60
Average	July	0.80	23.38	36.25	0.058	0.062	3.26	9.95	23.29	24.53
2013	August	0.50	48.00	100.00	0.110	0.098	3.78	12.47	20.40	21.90
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
Minimum	August	0.50	11.00	20.00	0.022	0.026	0.04	9.84	20.40	21.40
Maximum	August	1.00	120.00	100.00	0.110	0.098	5.50	16.91	23.10	25.50
Average	August	0.65	51.63	45.25	0.066	0.059	2.65	12.32	22.19	23.85

*no sample taken

Appendix C – Clam River Impoundment Project Sampling Logs

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Clam River

Hydroelectric Project – FERC # 9185

Date: 4-8-2020

Pre-Sampling Data:

HWL 896.76 TWL 881.8 CFS 738

Sample Location: N45° 56.799

91092° 36286

Performed by:

Angie Strid Sean Caron

Time: 11:00 Barometer: 29.79

Air Temp: 52 °F Wind Speed: NW 15mph

Sky Conditions: 75% Clouds

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: 50 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 23 Ft Meters

Secchi Depth (± 0.1)			
Time 10:59	3.2	Feet	Meters

Chlorophyll *a* (1 Meter below surface horizontal sampler)		
Time 11:02	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

11:03

True Color (1 Meter below surface horizontal sampler)
Time 11:02

Total Phosphorus (1 Meter below surface horizontal sampler)	
Time 11:02	Preservative
	H_2SO_4

Total Phosphorus (1 Meter above bottom horizontal sampler)	
Time 11:10	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Meters)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	10:54:04	11.08	9.5
1	10:58:16	11.10	9.4
2	11:03:15	11.07	9.0
3	11:07:51	11.03	8.9
4	11:12:24	10.89	8.5
5	11:17:03	10.81	8.3
6	11:21:32	10.79	8.0
7	11:26:29	10.75	7.6
~~8~~ 7.5	11:31:05	10.75	7.9
0.5 above bottom	11:31:55	10.75	7.9

*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:

Loon, Ducks, 2 fishermen

WHITE WATER ASSOCIATES, INC.

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Clam River

Hydroelectric Project – FERC # 9185

Date: 7-21-2020

Pre-Sampling Data:

HWL 898.81 TWL 863.90 CFS 252

Sample Location: N45° 47.799 W92° 36.286

Performed by: Breanna Kemppainen Sean Carson

Time: 10:15 Barometer: 29.97

Air Temp: 60°F Wind Speed: SE 4mph

Sky Conditions: 100% clouds / rain

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: 40 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 26 ~~Meters~~ ft

Secchi Depth (± 0.1)		
Time 10:25 1.8	(Feet) circled	Meters

Chlorophyll *a* (1 Meter below surface horizontal sampler)		
Time	Quantity (ml)	Filtered
10:15	1000	In Lab
Preservative	$MgCO_3$	

True Color (1 Meter below surface horizontal sampler)
Time 10:15

Total Phosphorus (1 Meter below surface horizontal sampler)	
Time 10:15	Preservative
	H_2SO_4

Total Phosphorus (1 Meter above bottom horizontal sampler)	
Time 10:20	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Meters)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	10:18.17	10.46	24.5
1	10:20.39	10.31	24.8
2	10:21.14	10.20	25.0
3	10.22.46	10.24	25.0
4	10.23.01	10.26	25.0
5	10.24.22	8.41	24.9
6	10.25.30	6.32	24.7
7	10.26.11	4.76	24.6
8	10:28.11	0.14	23.7
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: eagle by nest

WHITE WATER ASSOCIATES, INC.

Water Quality Location:
Clam River

Date: 7-20-2020

*D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	10:29:11	10.17	24.9
1	10:30:45	10.20	25.0
2	10:31:20	10.19	25.1
3	10:32:41	10.19	25.1
4	10:33:31	10.21	25.1
5	10:34:01	10.17	25.2
6	10:34:30	10.14	25.2
7	10:34:55	10.09	25.2
8	10:35:20	10.09	25.1
9	10:35:55	10.15	25.1
10	10:36:30	10.21	25.1
11	10:36:59	10.18	25.1
12	10:37:25	10.19	25.1
13	10:37:57	10.10	25.1
14	10:38:28	9.87	25.1
15	10:39:00	9.50	25.1
16	10:39:30	8.02	25.0
17	10:39:59	6.87	24.9
18	10:40:30	6.72	24.8
19	10:40:55	6.39	24.8
20	10:41:30	5.97	24.7
21	10:42:00	5.89	24.7
22	10:42:45	5.24	24.6
23	10:43:20	4.97	24.6
24	10:44:05	3.06	24.4
25	10:45:00	1.60	24.2
0.5 above bottom	10:46:50	.72	24.1

2.6 ft total Depth

WHITE WATER ASSOCIATES, INC.

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Clam River

Hydroelectric Project – FERC # 9185

Date: 8-11-2020

Pre-Sampling Data:

HWL 848.45 TWL 843.8 CFS 234

Sample Location: N45° 24.799
W92° 34.284

Performed by:
Angie Shine Sean Loran

Time: 10:07 Barometer: 29.9

Air Temp: 89 °F Wind Speed: SW 12mph

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: _____% Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: _____ Meters

Secchi Depth (± 0.1)			
Time 10:10	8.5 (Feet)	Meters	

Comments:

Chlorophyll *a* (1 Meter below surface horizontal sampler)		
Time	Quantity (ml)	Filtered
10:11	1000	In Lab
Preservative	$MgCO_3$	

True Color (1 Meter below surface horizontal sampler)
Time 10:11

Total Phosphorus (1 Meter below surface horizontal sampler)	
Time 10:11	Preservative
	H_2SO_4

Total Phosphorus (1 Meter above bottom horizontal sampler)	
Time 10:16	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Meters)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface			
1			
2			
3			
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.

WHITE WATER ASSOCIATES, INC.

Water Quality Location:
Clam River

Date: 8-11-2020

*D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	10:01.3	10.38	23.1
1	10:02.19	10.38	23.3
2	10:03:06	10.42	23,4
3	10:03:55	10.35	23.4
4	10:04:23	10.10	23,4
5	10:04:53	9.99	23.4
6	10:05:37	9.94	23.4
7	10:06:09	9.81	23.4
8	10:06.41	9.20	23,3
9	10:08:24	7.34	23.2
10	10:10:34	8.29	23.2
11	10:11:09	8.21	23.2
12	10:13:42	8.72	23.2
13	10:14:57	7.03	23.2
14	10:15.48	6.05	23.1
15	10:16.15	6.07	23.1
16	10:17:00	5.55	23.0
17	10:17:33	5.43	23.0
18	10:18:01	5.22	23.0
19	10:18:30	5.03	22.9
20	10:19:06	4.86	22.9
21	10:19:47	4.68	22.9
22	10:20:19	4.42	22.9
23	10:20:53	4.28	22.8
24	10:21.47	4.31	22.8
25			
0.5 above bottom	10:22:37	3.90	22.8

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 #:** 88428

Project: Monitoring

Date Received: 4/9/2020 **Date Reported:** 8/31/2020

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
88428-001	Clam River	4/8/2020 11:02	Water
88428-002	Clam River	4/8/2020 11:10	Water
88428-003	Danbury	4/8/2020 13:11	Water
88428-004	Danbury	4/8/2020 13:18	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 #:** 88428

Comments (if any):

TAL Cert. 9937, 9925

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.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.
N: For reporting results that are non-target analytes, when requested by client for Mass Spec reporting.
T: Tentatively Identified Compound.
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

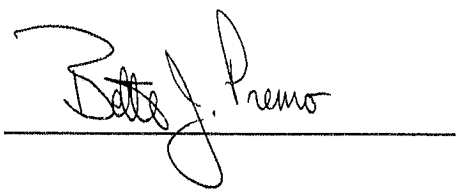
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 #:** 88428

Project: Monitoring

Date Received: 4/9/2020 **Date Reported:** 8/31/2020

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
88428-001 / Clam River / Surface / Water								
General Chemistry Parameters								
Chlorophyll a	14		mg/m3	4/10/2020 13:20	10200H	NA	NA	AH
Color	35		CU	4/13/2020 12:00	2120B	5	5	WS
Total Phosphorus LL (t)	0.066	J	mg/L	5/6/2020 10:15	4500-P E	0.041	0.10	OL
88428-002 / Clam River / Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.048	J	mg/L	5/6/2020 10:14	4500-P E	0.041	0.10	OL
88428-003 / Danbury / Surface / Water								
General Chemistry Parameters								
Chlorophyll a	13		mg/m3	4/10/2020 13:20	10200H	NA	NA	AH
Color	25		CU	4/13/2020 12:00	2120B	5	5	WS
Total Phosphorus LL (t)	ND		mg/L	5/6/2020 10:18	4500-P E	0.041	0.10	OL
88428-004 / Danbury / Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	ND		mg/L	5/6/2020 10:16	4500-P E	0.041	0.10	OL

TAL Cert. 9937, 9925

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)

JGLA 4/14/20

Version 160504

Job # (WWA office use): 88428 -

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 Shinn			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 neeeded)

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

Unless otherwise noted, drinking water report copies are sent to MDEQ 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	ZnAc/NaOH	Na Thio	Total Number of Containers	Chl G	T Phos	Color
1	Clam River Surface	4-8-20	11:02		X				X	X						3	X	X	X
2	Clam River Bottom	"	11:10		X					X						1		X	
3	Danbury Surface	"	13:11		X				X	X						3	X	X	X
4	Danbury Bottom	"	13:18		X					X						1		X	

	Date	Time		Date	Time
Relinquished by:	4-9-20	15:47	Received by:		
Relinquished by:			Received by:	4-9-20	1550

Comments/Sample temp. on receipt: 1

Packing: Ice ✓ Cooler ____

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

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

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 #:** 90258

Project: Monitoring

Date Received: 7/23/2020 **Date Reported:** 8/31/2020

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
90258-001	Clam River Surface	7/21/2020 10:15	Water
90258-002	Clam River Bottom	7/21/2020 10:20	Water
90258-003	Danbury Surface	7/21/2020 13:04	Water
90258-004	Danbury Bottom	7/21/2020 13:06	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 #:** 90258

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.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.
N: For reporting results that are non-target analytes, when requested by client for Mass Spec reporting.
T: Tentatively Identified Compound.
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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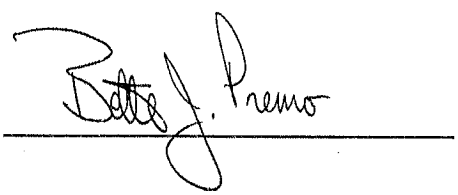
Approved By: Electronically signed by Bette J. Premo



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 #:** 90258

Project: Monitoring

Date Received: 7/23/2020 **Date Reported:** 8/31/2020

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
90258-001 / Clam River Surface / Water								
General Chemistry Parameters								
Chlorophyll a	17		mg/m3	7/27/2020 12:50	10200H	NA	NA	AH
Color	25		CU	7/23/2020 15:30	2120B	5	5	WS
Total Phosphorus (t)	0.057		mg/L	7/31/2020 14:19	365.4	0.008	0.050	NK
90258-002 / Clam River Bottom / Water								
General Chemistry Parameters								
Total Phosphorus (t)	0.059		mg/L	7/31/2020 14:20	365.4	0.008	0.050	NK
90258-003 / Danbury Surface / Water								
General Chemistry Parameters								
Chlorophyll a	6.4		mg/m3	7/27/2020 12:50	10200H	NA	NA	AH
Color	20		CU	7/23/2020 15:30	2120B	5	5	WS
Total Phosphorus (t)	0.040	J	mg/L	7/31/2020 14:20	365.4	0.008	0.050	NK
90258-004 / Danbury Bottom / Water								
General Chemistry Parameters								
Total Phosphorus (t)	0.045	J	mg/L	7/31/2020 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)

JGC 7/23/20

Version 160504

Job # (WWA office use): 90257 90258 ①

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			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)
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 neeeded)

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

Unless otherwise noted, drinking water report copies are sent to MDEQ 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	ZnAc/NaOH	Na Thio	Total Number of Containers	Chls	T Phos	Color
1	Clam River Surface	7-21-20	10:15		X				X	X						3	X	X	X
2	Clam River Bottom	7-21-20	10:20		X					X						1		X	
3	Danbury Surface	7-21-20	13:04		X				X	X						3	X	X	X
4	Danbury Bottom	7-21-20	13:06		X					X						1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	7-22-20	16:50			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
			[signature] ①	7/23/20	8:50

Comments/Sample temp. on receipt: 5°

Packing: Ice ✓ Cooler ✓

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

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

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 #:** 90678

Project: Monitoring

Date Received: 8/14/2020 **Date Reported:** 9/11/2020

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
90678-001	Clam River Surface	8/11/2020 10:11	Water
90678-002	Clam River Bottom	8/11/2020 10:16	Water
90678-003	Danbury Surface	8/10/2020 15:20	Water
90678-004	Danbury Bottom	8/10/2020 15:23	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 #:** 90678

Comments (if any):

Key to Laboratory Flags:

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T: Tentatively Identified Compound.
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

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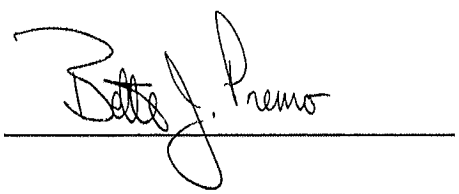
Approved By: Electronically signed by Bette J. Premo



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 #:** 90678

Project: Monitoring

Date Received: 8/14/2020 **Date Reported:** 9/11/2020

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
90678-001 / Clam River Surface / Water								
General Chemistry Parameters								
Chlorophyll a	27		mg/m3	8/18/2020 10:00	10200H	NA	NA	AH
Color	28		CU	8/14/2020 14:05	2120B	5	5	NK
Total Phosphorus (t)	0.022		mg/L	9/9/2020 17:51	4500-P E	0.005	0.010	OL
90678-002 / Clam River Bottom / Water								
General Chemistry Parameters								
Total Phosphorus (t)	0.026		mg/L	9/9/2020 17:51	4500-P E	0.005	0.010	OL
90678-003 / Danbury Surface / Water								
General Chemistry Parameters								
Chlorophyll a	5.9		mg/m3	8/18/2020 10:00	10200H	NA	NA	AH
Color	20		CU	8/14/2020 14:10	2120B	5	5	NK
Total Phosphorus (t)	0.022		mg/L	9/9/2020 17:51	4500-P E	0.005	0.010	OL
90678-004 / Danbury Bottom / Water								
General Chemistry Parameters								
Total Phosphorus (t)	0.019		mg/L	9/9/2020 17:51	4500-P E	0.005	0.010	OL

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)

JGet 8/17/20
Version 160504

Job # (WWA office use): 90678 -

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): Sean Caron

COUNTY OF LOCATION:

PAGE 1 OF 1 — Indicate if more than one page of COC records used

SAMPLER'S SIGNATURE: Sean Caron

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 MDEQ 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	ZnAc/NaOH	Na Thio	Total Number of Containers	Chl a	T Phos	Color
1	Clam River Surface	8-11-20	10:11		X				X	X						3	X	X	X
2	Clam River Bottom	"	10:16		X					X						1		X	
3	Danbury Surface	8-10-20	15:20		X				X	X						3	X	X	X
4	Danbury Bottom	8-10-20	15:23		X					X						1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Sean Caron	8-13-20	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				8/13/20	4:30

Comments/Sample temp. on receipt: 2

Packing: Ice __ Cooler ✓

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

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA