Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Renewable World Energies

February 2, 2022

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

RE: Flambeau Hydroelectric Projects
FERC Project Number 2640 FERC Project Number 2421
FERC Project Number 2395 FERC Project Number 2473
Flambeau Hydro LLC
Final Report 2021 Water Quality Monitoring Data

Dear Ms. Bose:
On behalf of Flambeau Hydro LLC, "Flambeau" (Licensee), Renewable World Energies, LLC (RWE) is submitting a copy of the Final Report 2021 Water Quality Monitoring Data for each of the (4) Flambeau Hydroelectric Projects (Flambeau Upper, Flambeau Lower, Flambeau Pixley, and Flambeau Crowley). The report is a requirement of Flambeau's Federal license pursuant to articles 406 and 408 and the approved Water Quality Monitoring Plans for each. 2021 was the 18th year monitoring was conducted since the license was issued, but is the 10th year of submittal by RWE on the behalf of the Licensee.

Monitoring was conducted on April 7, July 14, and August 5, 2021. No issues were encountered during the 2021 monitoring season. All data has been given to the DNR to be entered into the SWIMS Data Base. The draft reports were sent to the agencies by attachment to an email dated November 16, 2021 for review and comment. A comment of no comment was received from the DNR. The DNR also asked for the water quality data in excel format, which was provided. The next scheduled monitoring event will be conducted in 2022.

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Document Accession #: 20220202-5074 Filed Date: 02/02/2022

If you have any questions concerning this submittal, please contact Brian Kreuscher at the Renewable World Energies, LLC offices @ 855-994-9376 Ext 230. He can also be reached by e-mail at bkreuscher@rwehydro.com.

Sincerely,
Renewable World Energies, LLC
Agent for Licensee

Mr. Jason Kreuscher
Vice President, Operations

Attachments: Flambeau Upper Final Rpt 2021 W Q Mon Data
Flambeau Lower Final Rpt 2021 W Q Mon Data
Flambeau Pixley Final Rpt 2021 W Q Mon Data
Flambeau Crowley Final Rpt 2021 W Q Mon Data
Correspondence

Cc: Cheryl Laatsch, WDNR
Darin Simpkins, USFWS

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Report

2021 Water Quality Monitoring Data

For the

Flambeau (Upper) Hydroelectric Project

FERC Project #2640

Flambeau Hydro, LLC

North Fork of the Flambeau River, Price 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 Flambeau (Upper) Hydroelectric Project – FERC #2640

2021 marked the eighteenth year of water quality sampling under FERC approved "Water Quality Monitoring Plan Per License Article 406 for the Flambeau (Upper) Hydroelectric Project – FERC Project # 2640 – Flambeau Hydro, LLC. Monitoring was conducted on April 7, July 14, and August 5, 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 Flambeau (Upper) 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. 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 between Agenda and Nine Mile Landing on the North Fork of the Flambeau River sometime during the week beginning March 22, 2021. The Ice-Out sampling event occurred on April 7, 2021. River flow, based on the Flambeau (Upper) Hydroelectric Project records was approximately 733 cubic feet per second. Sampling occurred between 7:46 a.m. and 8:01 a.m. 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 Flambeau (Upper) Hydroelectric Project records, was approximately 672 cubic feet per second during the July 14, 2021 sampling event. Sampling occurred between 7:40 a.m. and 7:45 a.m. Samples were taken without incident. No unusual Temperature or D.O. readings were observed. 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 August 2, 2021. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

River flow, based on Flambeau (Upper) Hydroelectric Project records, was approximately 500 cubic feet per second during the August 5, 2021 sampling event. Sampling occurred between 7:46 a.m. and 7:51 a.m. 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 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.

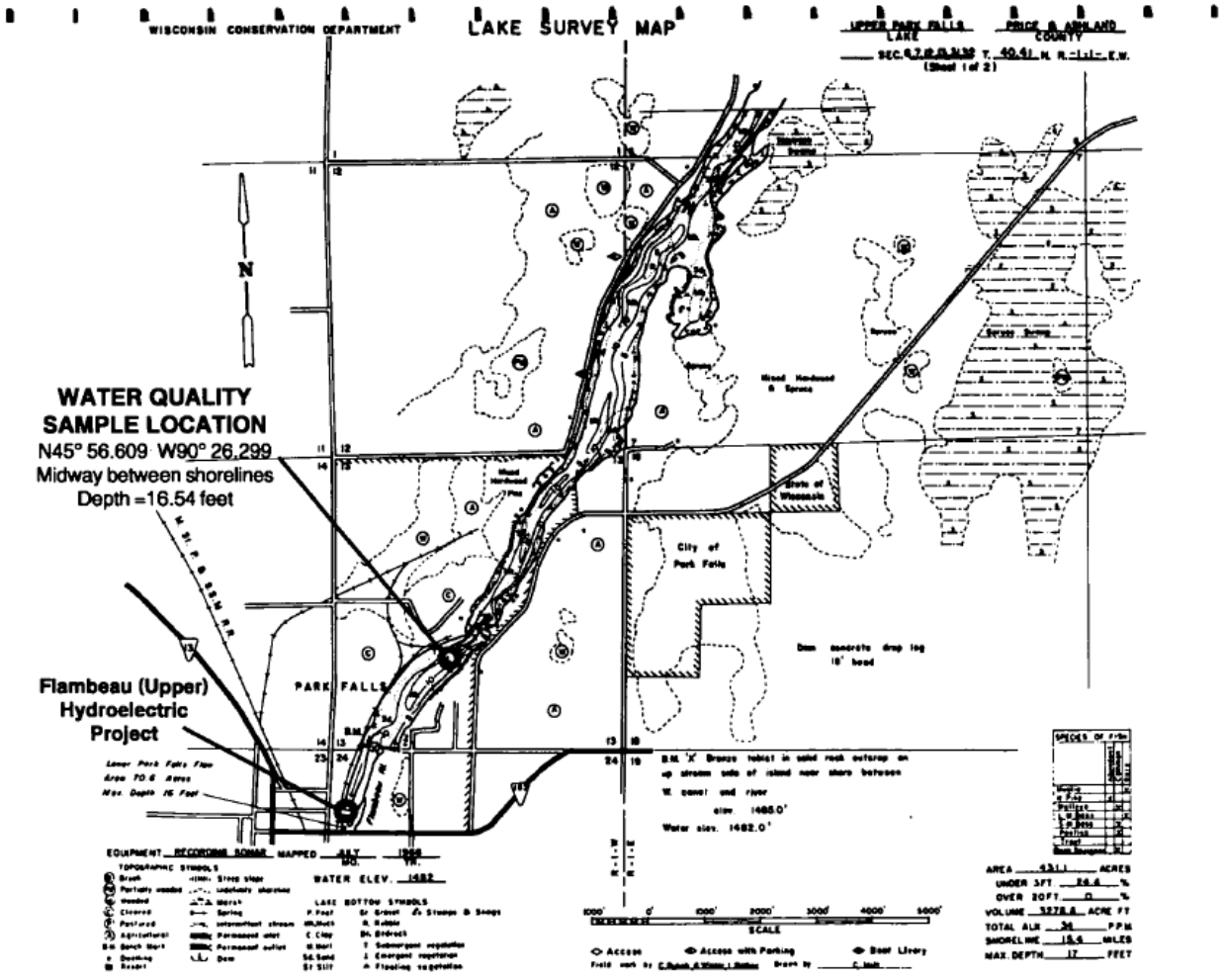
A summary of a comparison between the 2014 thru 2021 (Table 3) sampling results are as follows:

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

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

Appendix A – Flambeau (Upper) Hydroelectric Project Figures

Figure 1. Flambeau (Upper) Hydroelectric Project Map



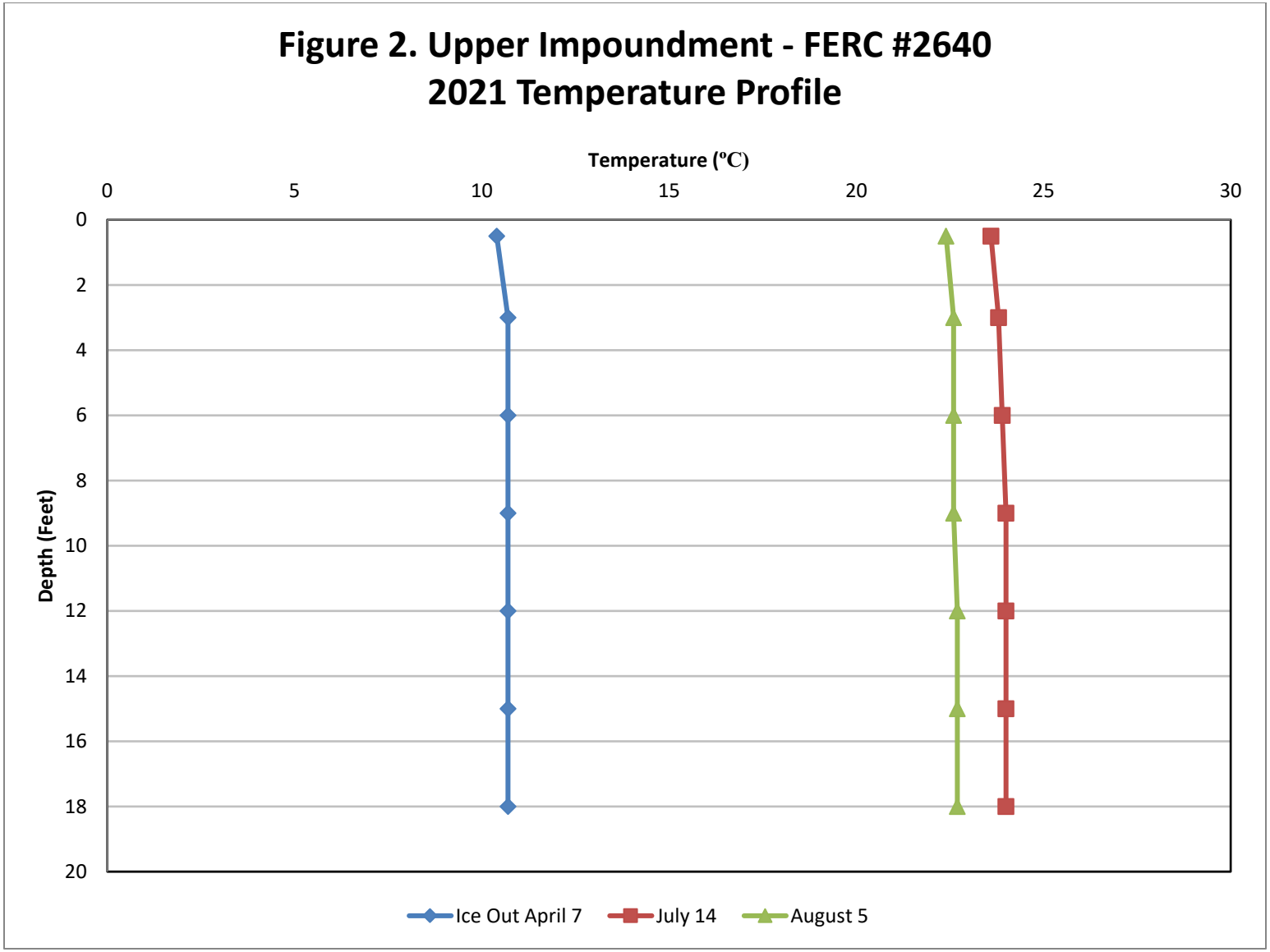


Figure 2. Upper Impoundment - FERC #2640
2021 Temperature Profile
Temperature (ºC)
0
5
10
15
20
25
30
Depth (Feet)
0
2
4
6
8
10
12
14
16
18
20
Ice Out April 7
July 14
August 5

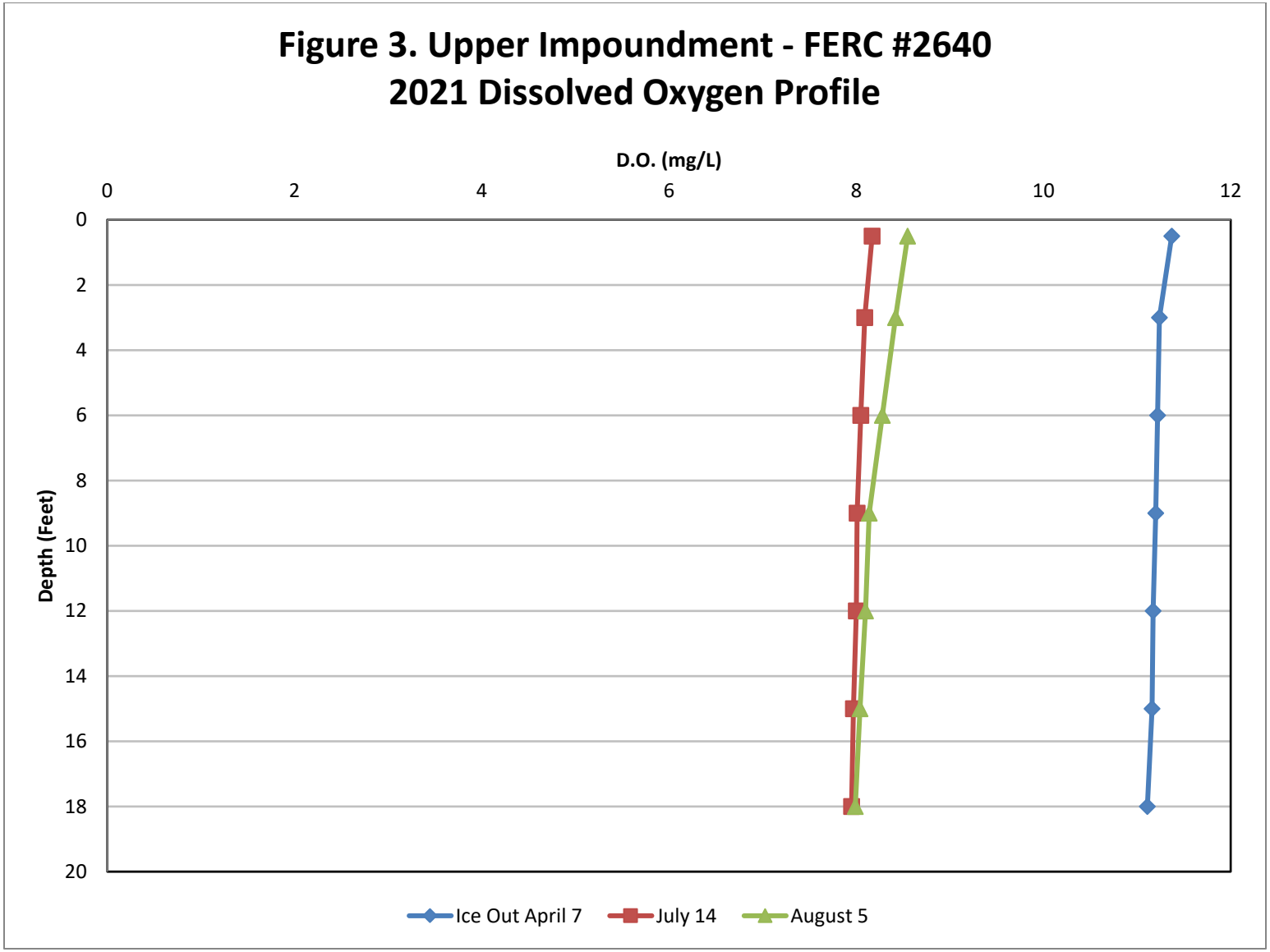


Figure 3. Upper Impoundment - FERC #2640
2021 Dissolved Oxygen Profile
D.O. (mg/L)
0
2
4
6
8
10
12
Depth (Feet)
0
2
4
6
8
10
12
14
16
18
20
Ice Out April 7
July 14
August 5

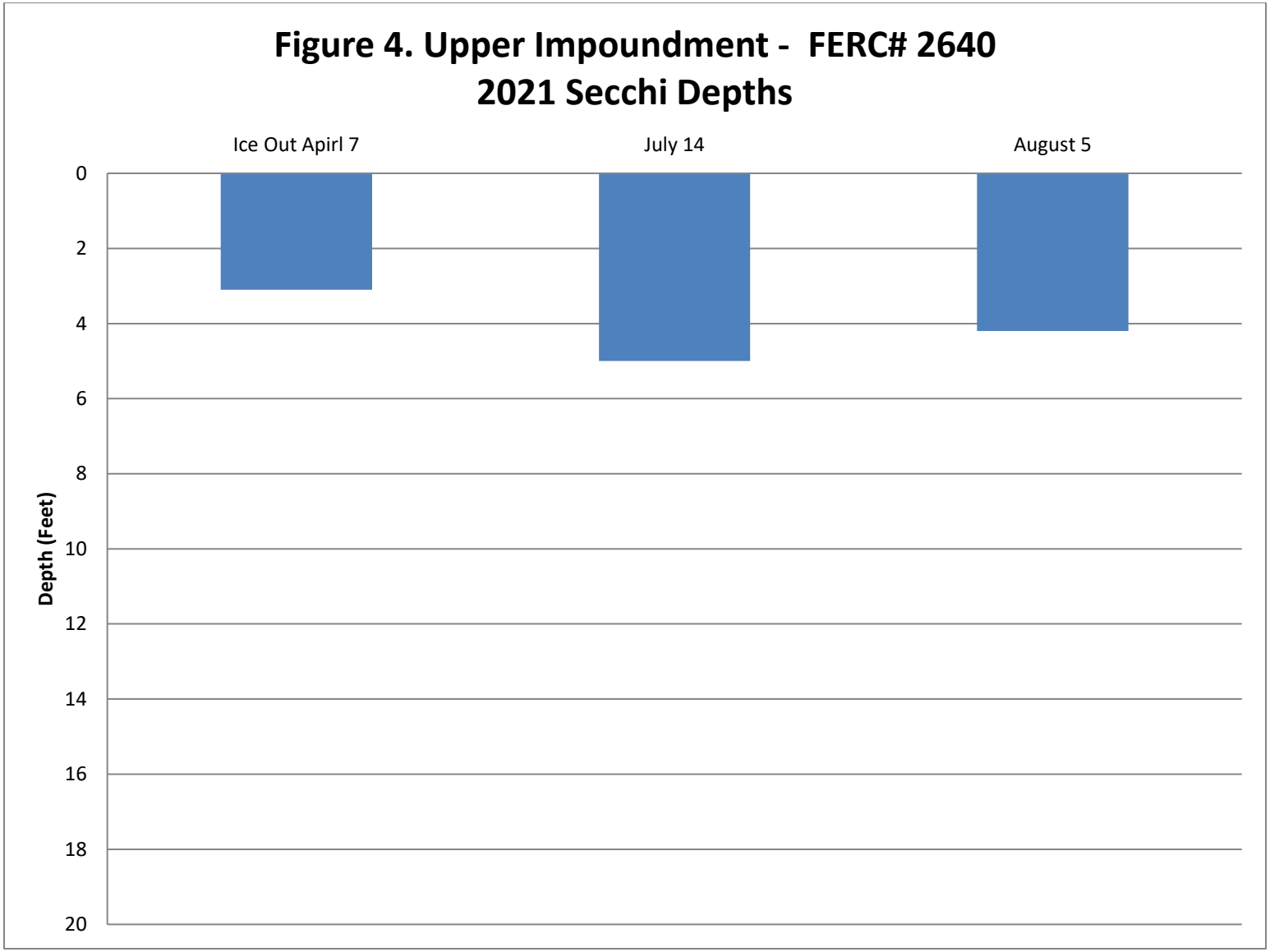


Figure 4. Upper Impoundment - FERC# 2640
2021 Secchi Depths
Ice Out Apirl 7
July 14
August 5
Depth (Feet)
0
2
4
6
8
10
12
14
16
18
20

Appendix B – Flambeau (Upper) Hydroelectric Project Tables

Table 1. Flambeau (Upper) Hydroelectric Project – FERC Project # 2640: 2021 Water Quality Sampling Data

	Ice Out April 7, 2021			July 14, 2021			August 5, 2021		
Project Flow (c.f.s)	733			672			500		
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 feet below surface	7:54.01	11.37	10.4	7:41.42	8.17	23.6	7:45.05	8.55	22.4
3 feet below surface	7:56.40	11.24	10.7	7:42.15	8.09	23.8	7:49.31	8.42	22.6
6 feet below surface	7:57.05	11.22	10.7	7:42.49	8.05	23.9	7:49.52	8.28	22.6
9 feet below surface	7:57.42	11.20	10.7	7:43.19	8.01	24.0	7:50.10	8.14	22.6
12 feet below surface	7:58.13	11.17	10.7	7:43.52	8.00	24.0	7:50.32	8.10	22.7
15 feet below surface	7:58.49	11.16	10.7	7:44.23	7.97	24.0	7:50.54	8.04	22.7
18 feet below surface	7:59.50	11.11	10.7	7:45.12	7.95	24.0	7:51.14	7.99	22.7
0.5 meter above bottom	8:00.15	11.10	10.7	7:45.35	7.94	24.0	7:51.44	7.99	22.7
Secchi Disk	**Time**	**Depth (ft)**		**Time**	**Depth (ft)**		**Time**	**Depth (ft)**	
Feet below surface	7:55	3.10		7:43	5.0		7:47	4.2	
Chlorophyll *a*	**Time**	**µg/L**		**Time**	**µg/L**		**Time**	**µg/L**	
3 feet below surface	7:57	1.6		7:45	3.6		7:48	4.6	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
3 feet below surface	7:57	50.00	5*	7:45	25.00	5*	7:48	40.00	5*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
3 feet below surface	7:57	0.021	0.008*	7:45	0.015	0.008*	7:48	0.028	0.008*
3 feet above bottom	8:02	0.017	0.008*	7:48	0.024	0.008*	7:51	0.028	0.008*
* Considered Method Detection Limit N/A = Not Applicable ND = No Detection									

Table 2. 2020/21 Water Year Monthly Temperature and Precipitation for Park Falls, 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. Flambeau (Upper) 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.**
		Feet	**µg/L**	**C.P.U. Units**	**Below Surface mg/L**	**Above Bottom mg/L**	**mg/L**	**mg/L**	**° C**	**° C**
2014	June	3.20	1.90	130.00	0.024	*	7.09	7.37	17.60	17.80
2015	April	3.60	2.90	130.00	0.026	*	9.80	10.04	9.20	9.60
2016	March	3.50	ND	30.00	0.020	0.010	11.88	12.13	2.50	2.60
2017	April	4.90	4.00	30.00	0.018	0.029	10.92	11.08	6.10	6.70
2018	May	4.70	0.69	50.00	0.022	0.022	8.79	8.95	13.1	13.2
2019	April	4.00	2.90	40.00	0.028	0.029	11.51	12.13	3.00	3.20
2020	April	5.40	1.60	60.00	ND	ND	11:38	11:49	5.4	5.4
2021	April	3.10	1.60	50.00	0.021	0.017	11.10	11.37	10.4	10.7
Minimum	March/April/May/June	3.10	0.69	30.00	0.018	0.010	7.09	7.37	2.50	2.60
Maximum	March/April/May/June	5.40	4.00	130.0	0.028	0.029	11.88	12.13	17.60	17.80
Average	March/April/May/June	4.05	2.23	65.00	0.023	0.021	10.31	10.50	8.41	8.65
2014	July	3.50	3.20	100.00	0.035	*	7.19	7.35	21.00	21.30
2015	July	3.90	3.50	80.00	0.017	*	6.91	7.10	20.30	20.70
2016	July	3.70	6.30	40.00	0.022	0.019	7.29	7.49	22.50	22.70
2017	July	5.40	3.10	35.00	0.023	0.019	7.02	7.23	24.40	25.20
2018	July	3.60	4.90	40.00	0.030	0.026	6.77	6.95	22.90	23.30
2019	July	5.40	5.90	25.00	0.017	0.016	7.70	7.98	22.80	23.30
2020	July	3.00	2.90	35.00	0.026	0.025	7.68	7.90	21.30	21.9
2021	July	5.00	3.60	25.00	0.015	0.024	7.94	8.17	23.6	24.0
Minimum	July	3.00	2.90	25.00	0.015	0.016	6.77	6.95	20.30	20.70
Maximum	July	5.40	6.30	100.00	0.035	0.026	7.94	8.17	23.60	24.00
Average	July	4.19	4.18	47.50	0.023	0.021	7.31	7.52	22.10	22.48
2014	August	3.10	5.60	100.00	0.024	*	6.88	7.12	21.00	21.60
2015	August	3.50	16.00	70.00	0.029	*	7.40	7.79	20.70	21.70
2016	August	4.70	8.50	35.00	0.022	0.022	6.52	7.31	23.70	23.80
2017	August	4.60	4.90	35.00	0.018	0.015	7.33	7.53	19.80	19.90
2018	August	4.70	7.30	50.00	0.023	0.024	6.98	7.25	21.80	22.40
2019	August	3.80	18.00	30.00	0.018	0.017	7.74	8.00	21.80	22.20
2020	August	4.00	5.70	52.00	ND	ND	8.32	8.57	22.1	22.5
2021	August	4.20	4.60	40.00	0.016	0.028	7.49	8.55	22.4	22.7
Minimum	August	3.10	4.60	30.00	0.016	0.015	6.52	7.12	19.80	19.90
Maximum	August	4.70	18.00	100.00	0.029	0.028	8.32	8.57	23.70	23.80
Average	August	4.08	8.83	51.50	0.021	0.021	7.40	7.77	21.66	22.10

***no sample taken**

Appendix C – Flambeau (Upper) Impoundment Project Sampling Logs

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location: Upper Flambeau

Hydroelectric Project – FERC #: 2640

Date: 7-14-21

Pre-Sampling Data:

HWL: 1484.56 TWL: 1467.3 CFS: 672

Sample Location: N 45° 56.609
W 90° 26.299

Performed by: Angie Stine Sean Caron

Time: 7:40 Barometer: 30.03

Air Temp: 61 °F Wind Speed: ESE 0

Sky Conditions: 5% 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: 95 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 17.5 Feet

Secchi Depth (± 0.1)		
Time 7:43 a.m.	5.0	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 7:45	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 7:45

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 7:45	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 7:48	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	7:41:42	8.17	23.6
3	7:42:15	8.09	23.8
6	7:42:49	8.05	23.9
9	7:43:19	8.01	24.0
12	7:43:52	8.00	24.0
15	7:44:23	7.97	24.0
~~18~~ 17.5	7:45:12	7.95	24.0
21			
24			
0.5 above bottom	7:45:35	7.94	24.0

*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 Upper Flambeau

Hydroelectric Project – FERC # 2640

Date: 8-5-21

Pre-Sampling Data:

HWL 1486.46 TWL 1467.2 CFS 500

Sample Location: N45° 54.609
W90° 26.299

Performed by: Kemppainen Caron

Time: 7:46 Barometer: 29.98

Air Temp: 65 °F Wind Speed: S 6

Sky Conditions: 50% cloudy

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: ~~50~~

Battery Status: 50 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 16.5 Feet

Secchi Depth (± 0.1)			
Time	7:47	4.2	(Feet)

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time	Quantity (ml)	Filtered
7:48	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 7:48

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 7:48	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 7:51	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	7:48:05	8.55	22.4
3	7:49.31	8.42	22.6
6	7:49.52	8.38	22.6
9	7:50:10	8.14	22.6
12	7:50.32	8.10	22.7
15	7:50:54	8.04	22.7
~~18~~ 16.5	7:51.14	7.99	22.7
21			
24			
0.5 above bottom	7:51.44	7.99	22.7

*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 Upper

Hydroelectric Project – FERC # 2640

Date: 4-7-21

Pre-Sampling Data:

HWL 1486.82 TWL 1467.4 CFS 733

Sample Location: N45°56.609 W90°26.299

Performed by: A. Stine, S. Caron

Time: 7:46 Barometer: 29.79

Air Temp: 50 °F Wind Speed: ENE 4mph

Sky Conditions: 100% 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: 70 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 16 Feet

Secchi Depth (± 0.1)		
Time 7:55	3.10 ft	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 7:57	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 7:57

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 7:57	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 8:02	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	7:54,01	11.37	10.4
3	7:56,40	11.24	10.7
6	7:57,05	11.22	10.7
9	7:57,42	11.20	10.7
12	7:58,13	11.17	10.7
15	7:58,49	11.16	10.7
~~18~~ 16	7:59,50	11.11	10.7
21			
24			
0.5 above bottom	8:00,15	11.10	10.7

*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.

Appendix D – Flambeau (Upper) 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 #:** 93994

Project: Monitoring

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

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
93994-001	Upper Flambeau Surface	4/7/2021 7:57	Water
93994-002	Upper Flambeau Bottom	4/7/2021 8:02	Water
93994-003	Lower Flambeau Surface	4/7/2021 8:37	Water
93994-004	Lower Flambeau Bottom	4/7/2021 8:35	Water
93994-005	Pixley Surface	4/7/2021 11:04	Water
93994-006	Pixley Bottom	4/7/2021 11:08	Water
93994-007	Crowley Surface	4/7/2021 12:00	Water
93994-008	Crowley Bottom	4/7/2021 12:04	Water

Cover Page..continued

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 #:** 93994

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

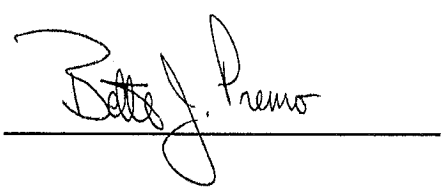
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 #:** 93994

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
93994-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	1.6		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	50	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.021	J	mg/L	4/14/2021 11:49	365.4	0.008	0.050	NK
93994-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.017	J	mg/L	4/14/2021 11:51	365.4	0.008	0.050	NK
93994-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	0.80		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	50	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.022	J	mg/L	4/14/2021 11:52	365.4	0.008	0.050	NK
93994-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.030	J	mg/L	4/14/2021 11:52	365.4	0.008	0.050	NK
93994-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	2.4		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	55	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.020	J	mg/L	4/14/2021 11:54	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)

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 #:** 93994

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
93994-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.023	J	mg/L	4/14/2021 11:55	365.4	0.008	0.050	NK
93994-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	2.9		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	60	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.026	J	mg/L	4/14/2021 11:55	365.4	0.008	0.050	NK
93994-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.028	J	mg/L	4/14/2021 11:56	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 160504

Job # (WWA office use): 93994

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): Angie Shu

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)

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	Chla (mg/m3)	T Phos	Color
1	Upper Flambeau Surface	4/7/21	7:57		X				X	X						3	X	X	X
2	Upper Flambeau Bottom		8:02													1		X	
3	Lower Flambeau Surface		8:37						X							3	X	X	X
4	Lower Flambeau Bottom		8:35													1		X	
5	Pixley Surface		11:04						X							3	X	X	X
6	Pixley Bottom		11:08													1		X	
7	Crowley Surface		12:00						X							3	X	X	X
8	Crowley Bottom		12:04													1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	4-5-21	16:49			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				4/8/21	8:30

Comments/Sample temp. on receipt:

Packing: Ice ✓ Cooler

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

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

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Login Checklist

WHITE WATER ASSOCIATES, INC.

Project No.:	93994	**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

  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.**

NOTES on #4:

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
95726-001	Upper Flambeau Surface	7/14/2021 7:45	Water
95726-002	Upper Flambeau Bottom	7/14/2021 7:48	Water
95726-003	Lower Flambeau Surface	7/14/2021 11:25	Water
95726-004	Lower Flambeau Bottom	7/14/2021 11:29	Water
95726-005	Pixley Surface	7/14/2021 13:17	Water
95726-006	Pixley Bottom	7/14/2021 13:22	Water
95726-007	Crowley Surface	7/14/2021 14:09	Water
95726-008	Crowley Bottom	7/14/2021 14:12	Water

Cover Page..continued

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 #:** 95726

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

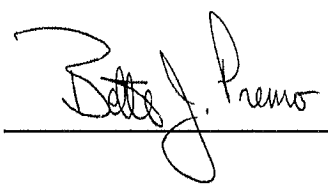
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
95726-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	3.6		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	25		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.015	J	mg/L	7/23/2021 14:22	365.4	0.008	0.050	NK
95726-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.024	J	mg/L	7/23/2021 14:23	365.4	0.008	0.050	NK
95726-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.7		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	20		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.025	J	mg/L	7/23/2021 14:23	365.4	0.008	0.050	NK
95726-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.023	J	mg/L	7/23/2021 14:24	365.4	0.008	0.050	NK
95726-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	11		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	25		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.026	J	mg/L	7/30/2021 12:58	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)

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
95726-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.021	J	mg/L	7/30/2021 13:00	365.4	0.008	0.050	NK
95726-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	8.9		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	30		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.031	J	mg/L	7/30/2021 13:01	365.4	0.008	0.050	NK
95726-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.027	J	mg/L	7/30/2021 13:01	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 160504

Job # (WWA office use): 95726

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.
429 River Lane, P.O. Box 27
Amasa, Michigan 49903
Phone: (906) 822-7869, 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 Stone
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): Cl/a, Phos, Color

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	Cl/a	Phos	Color
1 Upper Flambeau Surface	7/14/21	7:45		X				X	X						3	X	X	X
2 Upper Flambeau bottom		7:48													1		X	
3 Lower Flambeau Surface		11:25						X							3	X	X	X
4 Lower Flambeau bottom		11:29													1		X	
5 Pixley Surface		13:17						X							3	X	X	X
6 Pixley Bottom		13:22													1		X	
7 Crowley Surface		14:09						X							3	X	X	X
8 Crowley bottom		14:12													1		X	

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

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Login Checklist

WHITE WATER ASSOCIATES, INC.

Project No.:	95726	**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

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 #:** 96118

Project: Monitoring

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

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
96118-001	Upper Flambeau Surface	8/5/2021 7:48	Water
96118-002	Upper Flambeau Bottom	8/5/2021 7:51	Water
96118-003	Lower Flambeau Surface	8/5/2021 8:20	Water
96118-004	Lower Flambeau Bottom	8/5/2021 8:23	Water
96118-005	Pixley Surface	8/5/2021 10:34	Water
96118-006	Pixley Bottom	8/5/2021 10:38	Water
96118-007	Crowley Surface	8/5/2021 12:31	Water
96118-008	Crowley Bottom	8/5/2021 12:35	Water

Cover Page..continued

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 #:** 96118

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

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 #:** 96118

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
96118-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.6		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	40		CU	9/8/2021 15:45	2120B	5	5	NK
Total Phosphorus LL (t)	0.016	J	mg/L	8/10/2021 15:44	365.4	0.008	0.050	NK
96118-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.028	JM	mg/L	8/10/2021 15:47	365.4	0.008	0.050	NK
96118-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.8		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	40		CU	9/8/2021 15:47	2120B	5	5	NK
Total Phosphorus LL (t)	0.028	J	mg/L	8/10/2021 15:49	365.4	0.008	0.050	NK
96118-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	ND		mg/L	8/10/2021 15:51	365.4	0.008	0.050	NK
96118-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	6.9		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	35		CU	9/8/2021 15:48	2120B	5	5	NK
Total Phosphorus LL (t)	0.025	J	mg/L	8/10/2021 15:51	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)

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 #:** 96118

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
96118-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	ND		mg/L	8/10/2021 15:52	365.4	0.008	0.050	NK
96118-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	6.8		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	45		CU	9/8/2021 15:49	2120B	5	5	NK
Total Phosphorus LL (t)	0.024	J	mg/L	8/10/2021 15:52	365.4	0.008	0.050	NK
96118-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.027	J	mg/L	8/10/2021 15:54	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): 96118

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): 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	Cl2	T Phos	Color
1	Upper Flambeau Surface	8-5-21	7:48		X				X	X						3	X	X	X
2	Upper Flambeau Bottom	8-5-21	7:51		"					"						1		X	
3	Lower Flambeau Surface	8-5-21	8:20		"				X	"						3	X	X	X
4	Lower Flambeau Bottom	8-5-21	8:23		"					"						1		X	
5	Pixley Surface	8-5-21	10:34		"				X	"						3	X	X	X
6	Pixley bottom	8-5-21	10:38		"					"						1		X	
7	Crowley Surface	8-5-21	12:31		"				X	"						3	X	X	X
8	Crowley Bottom	8-5-21	12:35		"					"						1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	8-5-21	4:29			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				8/5/21	14:30

Comments/sample temp on receipt: 3

Packing: Ice ___ Cooler ✓

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

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Report

2021 Water Quality Monitoring Data

for the

Flambeau (Lower) Hydroelectric Project

FERC Project #2421

Flambeau Hydro, LLC

North Fork of the Flambeau River, Price 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 Flambeau (Lower) Hydroelectric Project – FERC #2421

2021 marked the eighteenth year of water quality sampling under FERC approved "Water Quality Monitoring Plan Per License Article 406 for the Flambeau (Lower) Hydroelectric Project – FERC Project # 2421 – Flambeau Hydro, LLC. Monitoring was conducted on April 7, July 14, and August 5, 2020. 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 Flambeau (Lower) 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. 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 between Agenda and Nine Mile Landing on the North Fork of the Flambeau River sometime during the week beginning March 22, 2021. The Ice-Out sampling event occurred on April 7, 2021. River flow, based on the Flambeau (Lower) Hydroelectric Project records was approximately 607 cubic feet per second. Sampling occurred between 8:30 a.m. and 8:30 a.m. 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 Flambeau (Lower) Hydroelectric Project records, was approximately 448 cubic feet per second during the July 14, 2021 sampling event. Sampling occurred between 11:23 a.m. and 11:27 a.m. 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 July 14, 2021. White Water Associates, Inc. issued a laboratory report on August 2, 2021. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

River flow, based on Flambeau (Lower) Hydroelectric Project records, was approximately 410 cubic feet per second during the August 5, 2021 sampling event. Sampling occurred between 8:15 a.m. and 8:23 a.m. 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 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.

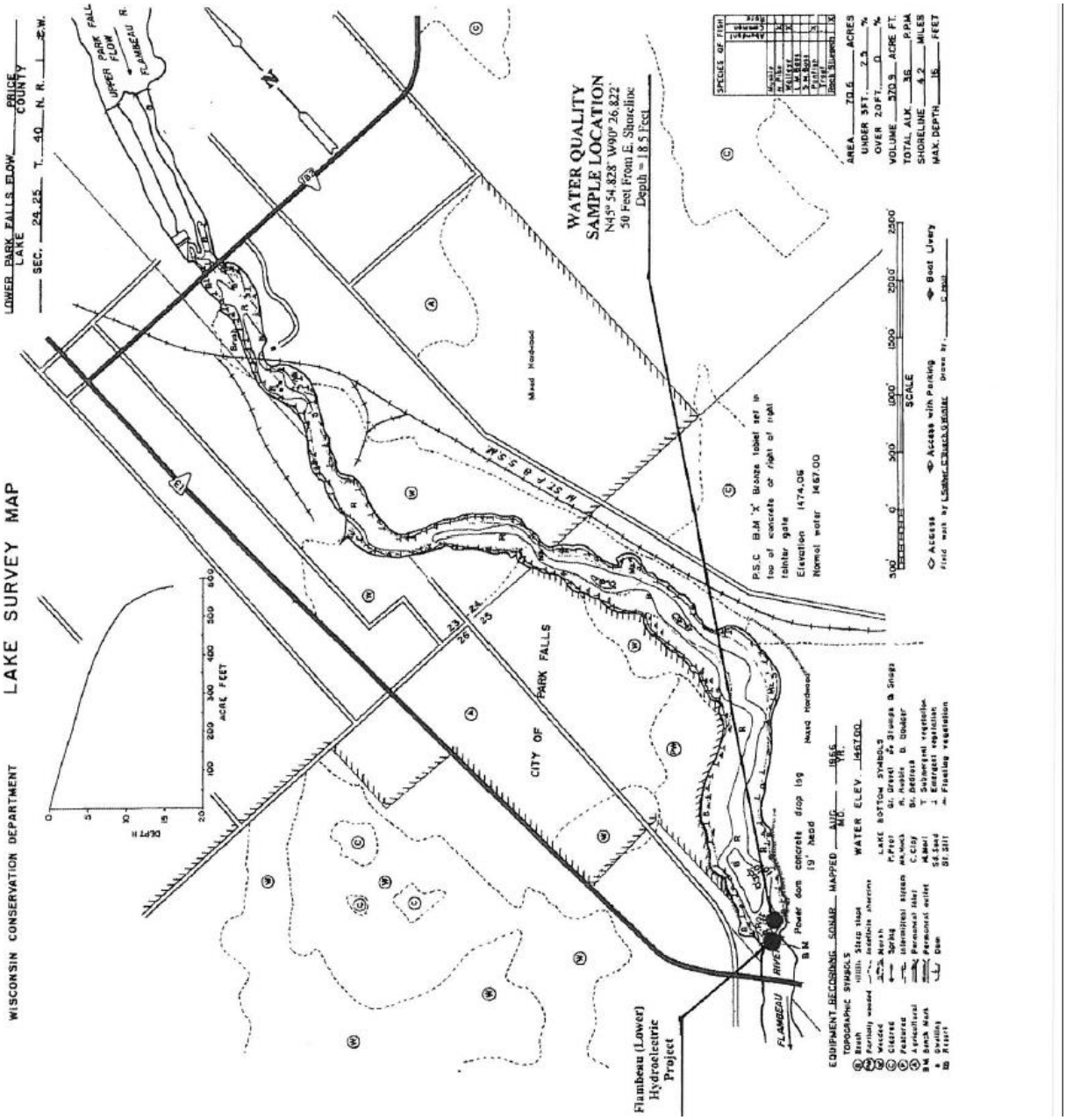
A summary of a comparison between the 2014 thru 2021 (Table 3) sampling results are as follows:

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

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

Appendix A – Flambeau (Lower) Hydroelectric Project Figures

Figure 1. Flambeau (Lower) Hydroelectric Project Map



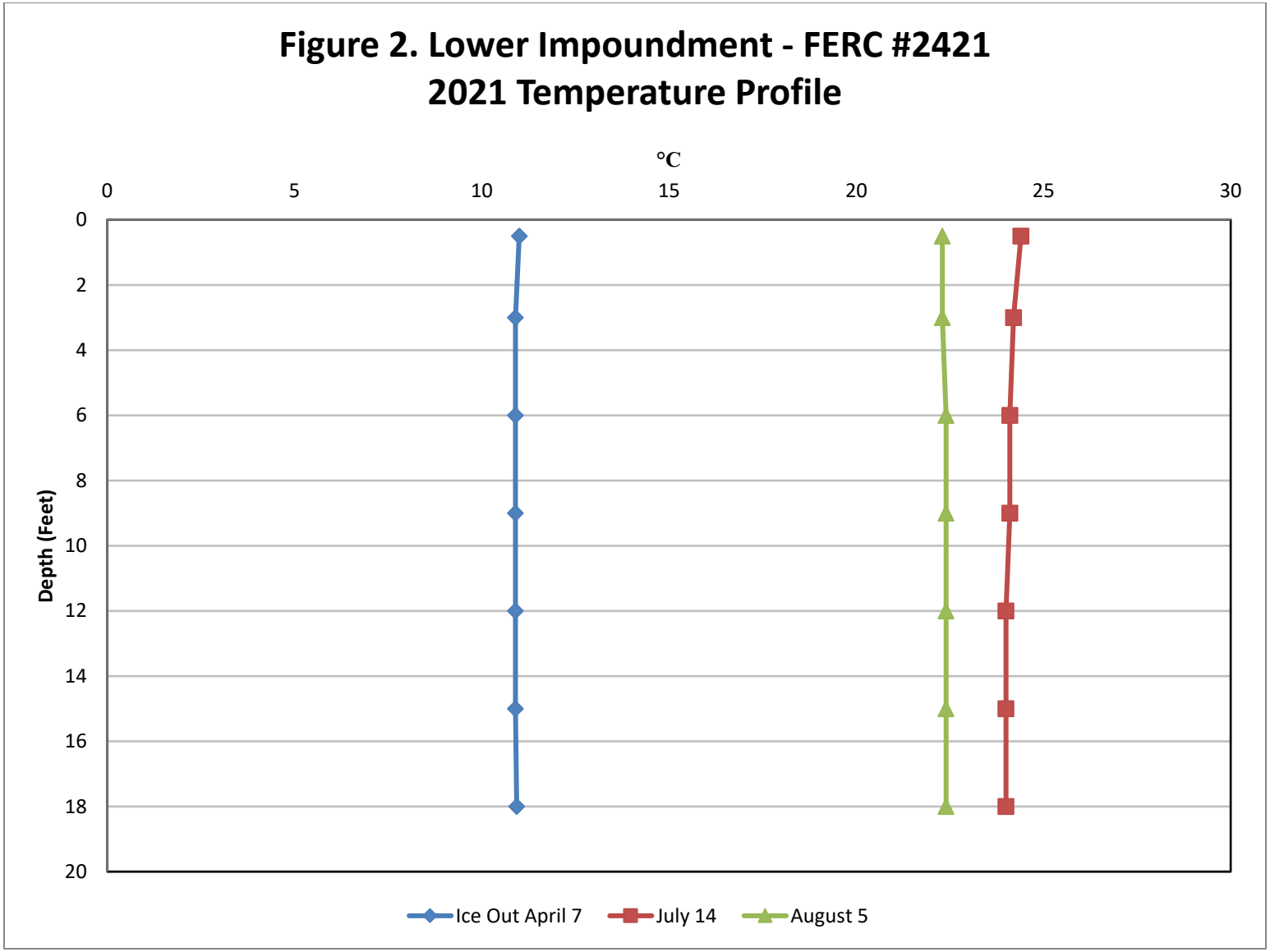


Figure 2. Lower Impoundment - FERC #2421
2021 Temperature Profile
°C
0
5
10
15
20
25
30
Depth (Feet)
0
2
4
6
8
10
12
14
16
18
20
Ice Out April 7
July 14
August 5

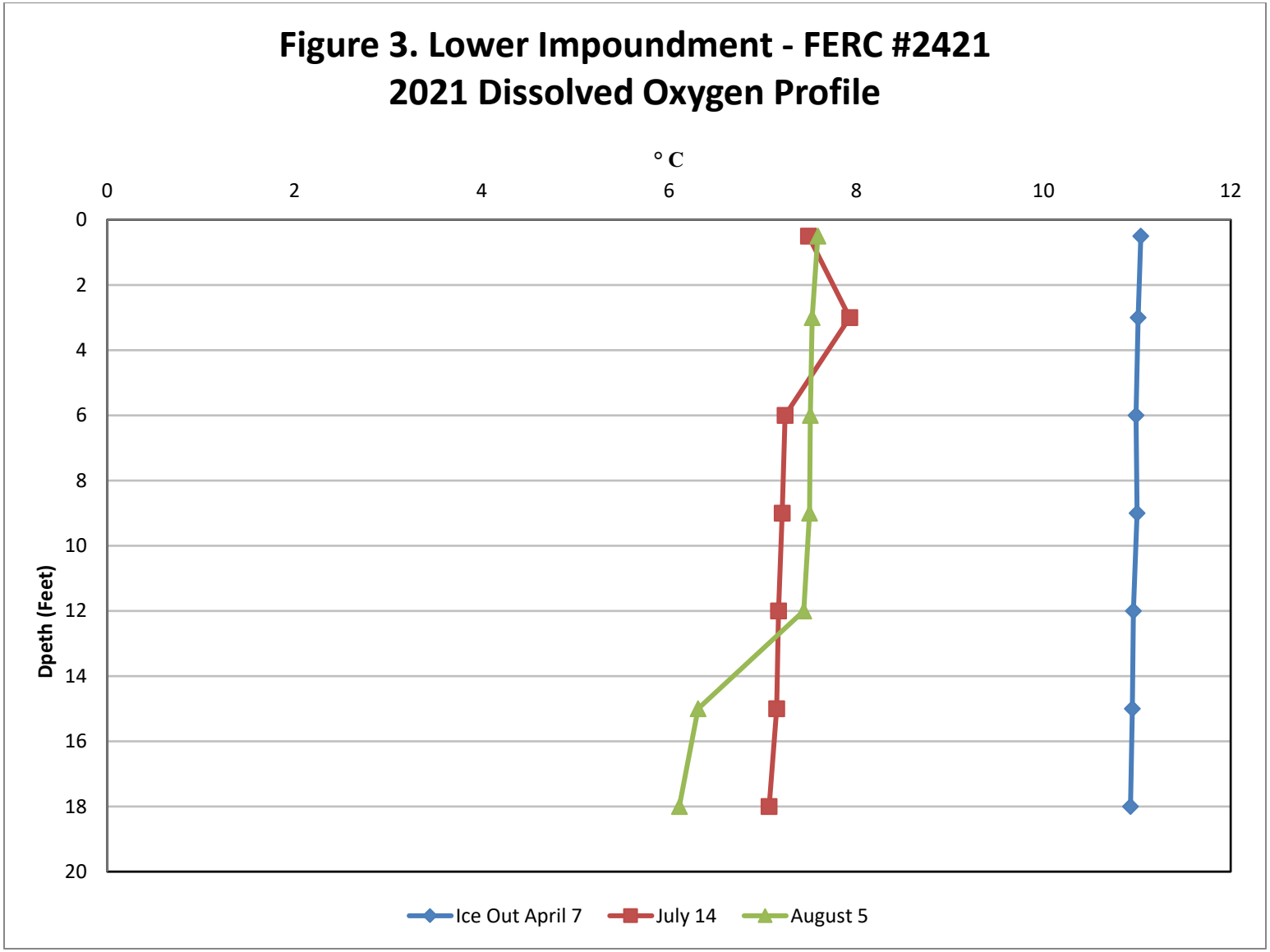


Figure 3. Lower Impoundment - FERC #2421
2021 Dissolved Oxygen Profile
° C
0
2
4
6
8
10
12
Dpeth (Feet)
0
2
4
6
8
10
12
14
16
18
20
Ice Out April 7
July 14
August 5

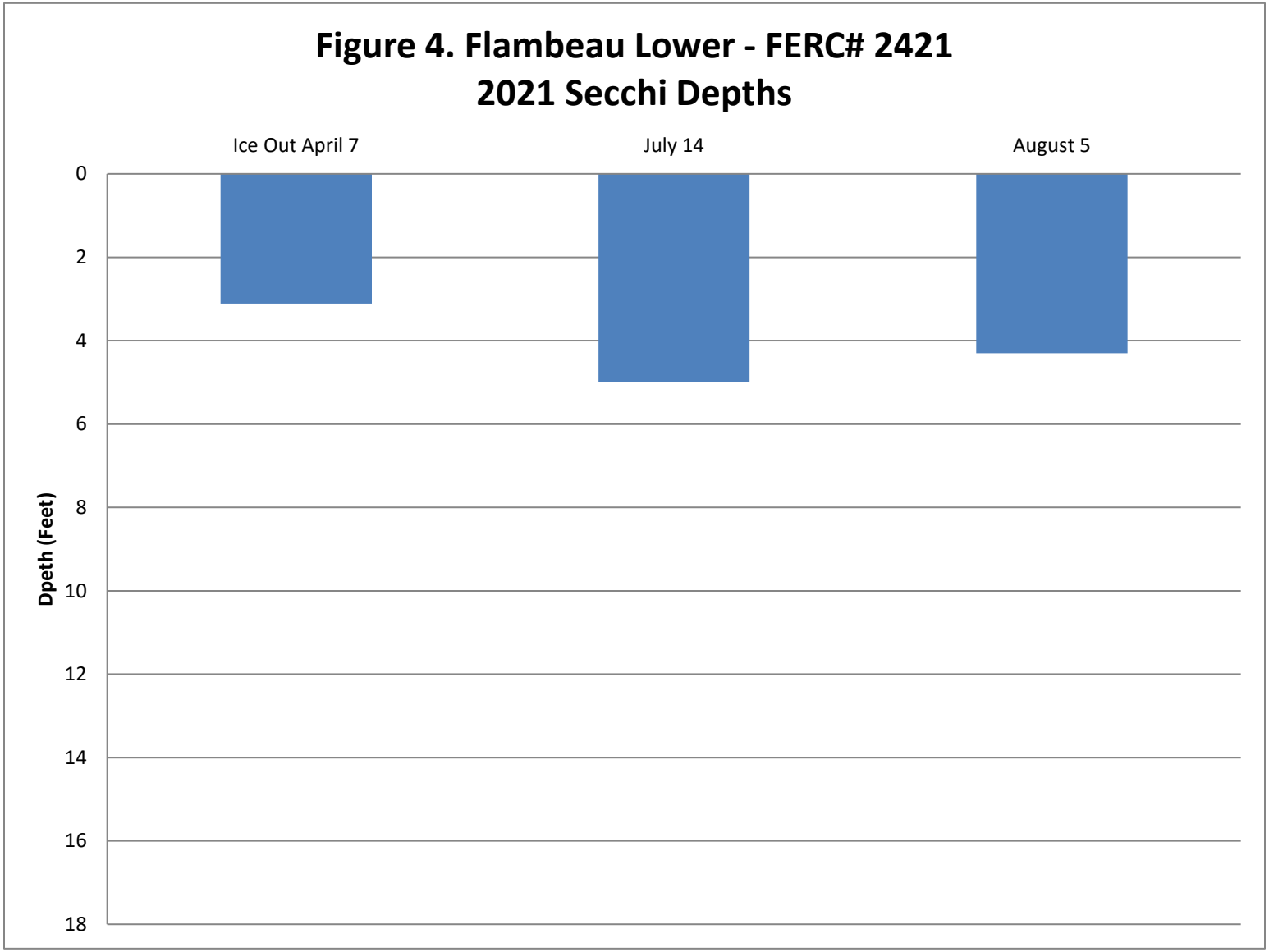


Figure 4. Flambeau Lower - FERC# 2421
2021 Secchi Depths
Ice Out April 7
July 14
August 5
Dpeth (Feet)
0
2
4
6
8
10
12
14
16
18

Appendix B – Flambeau (Lower) Hydroelectric Project Tables

Table 1. Flambeau (Lower) Hydroelectric Project – FERC Project # 2421: 2021 Water Quality Sampling Data

	Ice Out April 7, 2021			July 14, 2021			August 5, 2021		
Project Flow (c.f.s)	607			448			410		
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 feet below surface	8:32.07	11.04	11.0	11:27.47	7.49	24.4	8:19.26	7.59	22.3
3 feet below surface	8:34.02	11.01	10.9	11:23.19	7.93	24.2	8:20.05	7.53	22.3
6 feet below surface	8:35.35	10.99	10.9	11:24.05	7.24	24.1	8:20.32	7.51	22.4
9 feet below surface	8:35.55	11.00	10.9	11:24.32	7.21	24.1	8:20.52	7.50	22.4
12 feet below surface	8:36.23	10.96	10.9	11:25.05	7.17	24.0	8:21.21	7.44	22.4
15 feet below surface	8:36.47	10.95	10.9	11:25.35	7.15	24.0	8:22.42	6.31	22.4
18 feet below surface	8:37.22	10.93	10.93	11:26.35	7.07	24.0	8:23.11	6.11	22.4
19 feet below surface	8:38.15	10.83	10.9						
0.5 meter above bottom	8:38.53	10.87	10.9	11:27.26	7.08	24.0	8:23.11	6.11	22.4
Secchi Disk	**Time**	**Depth (ft)**		**Time**	**Depth (ft)**		**Time**	**Depth (ft)**	
Feet below surface	8:31	3.11		11:23	5.0		8:18	4.3	
Chlorophyll *a*	**Time**	**µg/L**		**Time**	**µg/L**		**Time**	**µg/L**	
3 feet below surface	8:37	0.80		11:25	4.7		8:20	4.8	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
3 feet below surface	8:37	50.00	5*	11:25	20.00	5*	8:20	40.00	5*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
3 feet below surface	8:37	0.022	0.008*	11:25	0.025	0.008*	8:20	0.028	0.008*
3 feet above bottom	8:35	0.030	0.008*	11:29	0.023	0.008*	8:23	ND	0.008*
* Considered Method Detection Limit N/A = Not Applicable ND = No Detection									

Table 2. 2020/21 Water Year Monthly Temperature and Precipitation for Park Falls, 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. Flambeau (Lower) 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.**
		Feet	**µg/L**	**C.P.U. Units**	**Below Surface mg/L**	**Above Bottom mg/L**	**mg/L**	**mg/L**	**° C**	**° C**
2014	June	3.80	1.10	130.00	0.025	0.027	7.30	7.60	18.80	19.60
2015	April	3.30	3.00	130.00	0.038	0.080	9.14	9.66	9.40	9.60
2016	March	2.90	ND	35.00	0.030	0.030	11.54	11.70	3.20	3.20
2017	April	4.30	2.30	30.00	0.027	0.020	10.49	10.70	6.30	6.90
2018	May	4.70	2.10	55.00	0.038	0.030	8.56	8.80	13.60	13.80
2019	April	2.00	4.50	55.00	0.036	0.039	11.67	11.74	3.30	3.80
2020	April	5.4	1.60	60.00	ND	ND	11.61	11.75	5.20	5.30
2021	April	3.11	0.80	50.00	0.022	0.030	10.83	11.04	10.90	11.00
Minimum	March/April/May/June	2.00	0.80	30.00	0.022	0.020	7.30	7.60	3.20	3.20
Maximum	March/April/May/June	5.40	4.50	130.00	0.038	0.080	11.67	11.75	18.80	19.60
Average	March/April/May/June	3.69	2.20	68.13	0.031	0.037	10.14	10.37	8.84	9.15
2014	July	3.30	3.00	100.00	0.037	0.038	6.30	7.20	20.70	21.20
2015	July	3.50	4.00	80.00	0.026	0.027	6.59	6.88	20.90	21.30
2016	July	3.70	6.70	45.00	0.021	0.026	6.80	6.93	22.80	22.80
2017	July	4.00	3.50	30.00	0.028	0.029	6.43	6.94	22.90	23.30
2018	July	3.80	5.60	45.00	0.031	0.029	6.36	6.87	23.50	23.80
2019	July	5.20	3.90	20.00	0.030	0.026	7.19	7.64	23.20	25.00
2020	July	3.40	1.90	30.00	0.032	0.033	7.58	7.77	21.6	22.20
2021	July	5.00	4.70	20.00	0.025	0.023	7.07	7.49	24.00	24.40
Minimum	July	3.30	1.90	20.00	0.021	0.023	6.30	6.87	20.70	21.20
Maximum	July	5.20	6.70	100.00	0.037	0.038	7.58	7.77	24.00	25.00
Average	July	3.99	4.16	46.25	0.029	0.029	6.79	7.22	22.45	23.00
2014	August	3.00	5.50	100.00	0.029	0.033	6.35	6.91	21.60	21.90
2015	August	4.00	14.00	70.00	0.031	*	6.96	7.21	22.10	22.20
2016	August	4.90	7.20	30.00	0.026	0.096	5.98	6.42	24.10	24.10
2017	August	4.60	5.60	40.00	0.032	0.033	6.77	7.23	21.00	20.90
2018	August	4.30	12.00	45.00	0.027	0.033	6.82	6.93	22.60	22.70
2019	August	2.11	6.90	35.00	0.031	0.027	6.93	7.48	21.90	22.50
2020	August	3.00	4.50	55.00	0.013	0.009	8.37	8.57	22.30	22.40
2021	August	4.30	4.80	40.00	0.028	ND	6.11	7.59	22.30	22.40
Minimum	August	2.11	4.50	30.00	0.013	0.009	5.98	6.42	21.00	20.00
Maximum	August	4.90	14.00	100.00	0.032	0.096	8.37	8.57	24.10	24.10
Average	August	3.78	7.56	51.88	0.027	0.039	6.79	7.29	22.24	22.39

* No sample taken

Appendix C – Flambeau (Lower) Impoundment Project Sampling Logs

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location: Lower Flambeau

Hydroelectric Project – FERC #: 2421

Date: 7-14-21

Pre-Sampling Data:

HWL 1467.29 TWL 1466.5 CFS 448

Sample Location: N45° 54.828 W90° 26.282

Performed by: Angie Stine Sean Caron

Time: 11:23 Barometer: 29.99

Air Temp: 77 °F Wind Speed: 5 2 mph

Sky Conditions: 100% 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: 95 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 16 Feet

Secchi Depth (± 0.1)	
Time 11:23	5.0 Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 11.25	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 11.25

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 11.25	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 11:29	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	11:22:47	7.49	24.4
3	11:23:19	7.43	24.2
6	11:24:05	7.24	24.1
9	11:24:32	7.21	24
12	11:25:05	7.17	24.0
15	11:25:35	7.15	24.0
~~18~~ 16	11:26:35	7.07	24.0
21			
24			
0.5 above bottom	11:27:26	7.08	24.0

*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 Lower Flambeau

Hydroelectric Project – FERC # 2421

Date: 4-[illegible]-21

Pre-Sampling Data:

HWL 1467.34 TWL 1448.6 CFS 607

Sample Location: N45° 54.828 W90° 26.282

Performed by: A. Stine S. Corum

Time: 8:30 Barometer: 29.79

Air Temp: 50 °F Wind Speed: ENE 4 mph

Sky Conditions: 100 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: 70 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 19 Feet

Secchi Depth (± 0.1)		
Time 8:31	3' 11"	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 8:37	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 8:37

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 8:37	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 8:35	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	8:32.07	11.04	11.0
3	8:34.02	11.01	10.9
6	8:35.35	10.99	10.9
9	8:35.55	11.00	10.9
12	8:36.23	10.96	10.9
15	8:36.41	10.95	10.9
18	8:37.22	10.93	10.93
~~21~~ 19	8:38:15	10.83	10.9
24			
0.5 above bottom	8:38.53	10.87	10.9

*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.

WHITE WATER ASSOCIATES, INC.

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location: lower Flambeau

Hydroelectric Project – FERC #: 2421

Date: 8-5-21

Pre-Sampling Data:

HWL 1467.23 TWL 1448.4 CFS 410

Sample Location: N45° 54.828 W90° 26.282

Performed by:
B. Kempfrainer Sean Carn

Time: 8:15 Barometer: 29.98

Air Temp: 66 °F Wind Speed: 5 8 mph

Sky Conditions: 50 % 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: 16 Feet

Secchi Depth (± 0.1)		
Time 8:18	4.3	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time	Quantity (ml)	Filtered
8:20	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 8:20

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 8:20	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 8:23	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	8:19:26	7.59	22.3
3	8:20:07	7.53	22.3
6	8:20:32	7.51	22.4
9	8:20:52	7.50	22.4
12	8:21:21	7.44	22.4
15	8:22:43	6.31	22.4
16	8:23:11	6.11	22.4
21			
24			
0.5 above bottom	8:23:11	6.11	22.4

*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.

Appendix D – Flambeau (Lower) 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 #:** 93994

Project: Monitoring

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

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
93994-001	Upper Flambeau Surface	4/7/2021 7:57	Water
93994-002	Upper Flambeau Bottom	4/7/2021 8:02	Water
93994-003	Lower Flambeau Surface	4/7/2021 8:37	Water
93994-004	Lower Flambeau Bottom	4/7/2021 8:35	Water
93994-005	Pixley Surface	4/7/2021 11:04	Water
93994-006	Pixley Bottom	4/7/2021 11:08	Water
93994-007	Crowley Surface	4/7/2021 12:00	Water
93994-008	Crowley Bottom	4/7/2021 12:04	Water

Cover Page..continued

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 #:** 93994

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

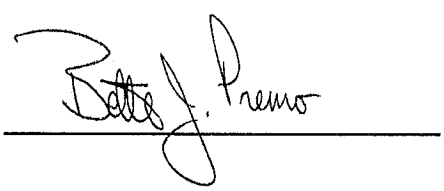
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 #:** 93994

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
93994-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	1.6		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	50	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.021	J	mg/L	4/14/2021 11:49	365.4	0.008	0.050	NK
93994-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.017	J	mg/L	4/14/2021 11:51	365.4	0.008	0.050	NK
93994-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	0.80		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	50	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.022	J	mg/L	4/14/2021 11:52	365.4	0.008	0.050	NK
93994-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.030	J	mg/L	4/14/2021 11:52	365.4	0.008	0.050	NK
93994-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	2.4		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	55	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.020	J	mg/L	4/14/2021 11:54	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)

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 #:** 93994

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
93994-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.023	J	mg/L	4/14/2021 11:55	365.4	0.008	0.050	NK
93994-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	2.9		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	60	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.026	J	mg/L	4/14/2021 11:55	365.4	0.008	0.050	NK
93994-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.028	J	mg/L	4/14/2021 11:56	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 160504

Job # (WWA office use): 93994

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): Angie Shu

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)

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	Chla (mg/m3)	T Phos	Color
1	Upper Flambeau Surface	4/7/21	7:57		X				X	X						3	X	X	X
2	Upper Flambeau Bottom		8:02													1		X	
3	Lower Flambeau Surface		8:37						X							3	X	X	X
4	Lower Flambeau Bottom		8:35													1		X	
5	Pixley Surface		11:04						X							3	X	X	X
6	Pixley Bottom		11:08													1		X	
7	Crowley Surface		12:00						X							3	X	X	X
8	Crowley Bottom		12:04													1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	4-5-21	16:49			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				4/8/21	8:30

Comments/Sample temp. on receipt:

Packing: Ice ✓ Cooler

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

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

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Login Checklist

WHITE WATER ASSOCIATES, INC.

Project No.:	93994	**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

  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.**

NOTES on #4:

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
95726-001	Upper Flambeau Surface	7/14/2021 7:45	Water
95726-002	Upper Flambeau Bottom	7/14/2021 7:48	Water
95726-003	Lower Flambeau Surface	7/14/2021 11:25	Water
95726-004	Lower Flambeau Bottom	7/14/2021 11:29	Water
95726-005	Pixley Surface	7/14/2021 13:17	Water
95726-006	Pixley Bottom	7/14/2021 13:22	Water
95726-007	Crowley Surface	7/14/2021 14:09	Water
95726-008	Crowley Bottom	7/14/2021 14:12	Water

Cover Page..continued

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 #:** 95726

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

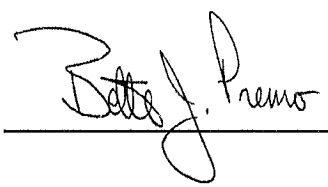
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
95726-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	3.6		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	25		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.015	J	mg/L	7/23/2021 14:22	365.4	0.008	0.050	NK
95726-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.024	J	mg/L	7/23/2021 14:23	365.4	0.008	0.050	NK
95726-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.7		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	20		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.025	J	mg/L	7/23/2021 14:23	365.4	0.008	0.050	NK
95726-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.023	J	mg/L	7/23/2021 14:24	365.4	0.008	0.050	NK
95726-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	11		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	25		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.026	J	mg/L	7/30/2021 12:58	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)

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
95726-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.021	J	mg/L	7/30/2021 13:00	365.4	0.008	0.050	NK
95726-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	8.9		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	30		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.031	J	mg/L	7/30/2021 13:01	365.4	0.008	0.050	NK
95726-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.027	J	mg/L	7/30/2021 13:01	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 160504

Job # (WWA office use): 95726

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.
429 River Lane, P.O. Box 27
Amasa, Michigan 49903
Phone: (906) 822-7869, 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 Stone
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): Cl/a, Phos, Color

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	Cl/a	Phos	Color
1 Upper Flambeau Surface	7/14/21	7:45		X				X	X						3	X	X	X
2 Upper Flambeau bottom		7:48													1		X	
3 Lower Flambeau Surface		11:25						X							3	X	X	X
4 Lower Flambeau bottom		11:29													1		X	
5 Pixley Surface		13:17						X							3	X	X	X
6 Pixley Bottom		13:22													1		X	
7 Crowley Surface		14:09						X							3	X	X	X
8 Crowley bottom		14:12													1		X	

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

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Login Checklist

WHITE WATER ASSOCIATES, INC.

Project No.:	95726	**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

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 #:** 96118

Project: Monitoring

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

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
96118-001	Upper Flambeau Surface	8/5/2021 7:48	Water
96118-002	Upper Flambeau Bottom	8/5/2021 7:51	Water
96118-003	Lower Flambeau Surface	8/5/2021 8:20	Water
96118-004	Lower Flambeau Bottom	8/5/2021 8:23	Water
96118-005	Pixley Surface	8/5/2021 10:34	Water
96118-006	Pixley Bottom	8/5/2021 10:38	Water
96118-007	Crowley Surface	8/5/2021 12:31	Water
96118-008	Crowley Bottom	8/5/2021 12:35	Water

Cover Page..continued

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 #:** 96118

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

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 #:** 96118

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
96118-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.6		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	40		CU	9/8/2021 15:45	2120B	5	5	NK
Total Phosphorus LL (t)	0.016	J	mg/L	8/10/2021 15:44	365.4	0.008	0.050	NK
96118-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.028	JM	mg/L	8/10/2021 15:47	365.4	0.008	0.050	NK
96118-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.8		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	40		CU	9/8/2021 15:47	2120B	5	5	NK
Total Phosphorus LL (t)	0.028	J	mg/L	8/10/2021 15:49	365.4	0.008	0.050	NK
96118-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	ND		mg/L	8/10/2021 15:51	365.4	0.008	0.050	NK
96118-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	6.9		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	35		CU	9/8/2021 15:48	2120B	5	5	NK
Total Phosphorus LL (t)	0.025	J	mg/L	8/10/2021 15:51	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)

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 #:** 96118

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
96118-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	ND		mg/L	8/10/2021 15:52	365.4	0.008	0.050	NK
96118-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	6.8		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	45		CU	9/8/2021 15:49	2120B	5	5	NK
Total Phosphorus LL (t)	0.024	J	mg/L	8/10/2021 15:52	365.4	0.008	0.050	NK
96118-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.027	J	mg/L	8/10/2021 15:54	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): 96118

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): 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	Cl2	T Phos	Color
1	Upper Flambeau Surface	8-5-21	7:48		X				X	X						3	X	X	X
2	Upper Flambeau Bottom	8-5-21	7:51		"					"						1		X	
3	Lower Flambeau Surface	8-5-21	8:20		"				X	"						3	X	X	X
4	Lower Flambeau Bottom	8-5-21	8:23		"					"						1		X	
5	Pixley Surface	8-5-21	10:34		"				X	"						3	X	X	X
6	Pixley bottom	8-5-21	10:38		"					"						1		X	
7	Crowley Surface	8-5-21	12:31		"				X	"						3	X	X	X
8	Crowley Bottom	8-5-21	12:35		"					"						1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	8-5-21	4:29			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				8/5/21	14:30

Comments/sample temp on receipt: 3

Packing: Ice ___ Cooler ✓

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

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Report

2021 Water Quality Monitoring Data

for the

Flambeau (Pixley) Hydroelectric Project

FERC Project #2395

Flambeau Hydro, LLC

North Fork of the Flambeau River, Price 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 Flambeau (Pixley) Hydroelectric Project – FERC #2395

2021 marked the eighteenth year of water quality sampling under FERC approved "Water Quality Monitoring Plan Per License Article 406 for the Flambeau (Pixley) Hydroelectric Project – FERC Project # 2395 – Flambeau Hydro, LLC. Monitoring was conducted on April 7, July 14, and August 5, 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 Flambeau (Pixley) 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. 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 between Agenda and Nine Mile Landing on the North Fork of the Flambeau River sometime during the week beginning March 22, 2021. The Ice-Out sampling event occurred on April 7, 2021. River flow, based on the Flambeau (Pixley) Hydroelectric Project records was approximately 864 cubic feet per second. Sampling occurred between 10:55 a.m. and 11:08 a.m. 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 August 12, 2021. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

River flow, based on Flambeau (Pixley) Hydroelectric Project records, was approximately 506 cubic feet per second during the July 14, 2021 sampling event. Sampling occurred between 13:15 and 13:20 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 July 14, 2021. White Water Associates, Inc. issued a laboratory report on August 2, 2021. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

River flow, based on Flambeau (Pixley) Hydroelectric Project records, was approximately 394 cubic feet per second during the August 5, 2021 sampling event. Sampling occurred between 10:32 a.m. and 10:37 p.m. 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 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 2014 thru 2021 (Table 3) sampling results are as follows:

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

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

Appendix A – Flambeau (Pixley) Hydroelectric Project Figures

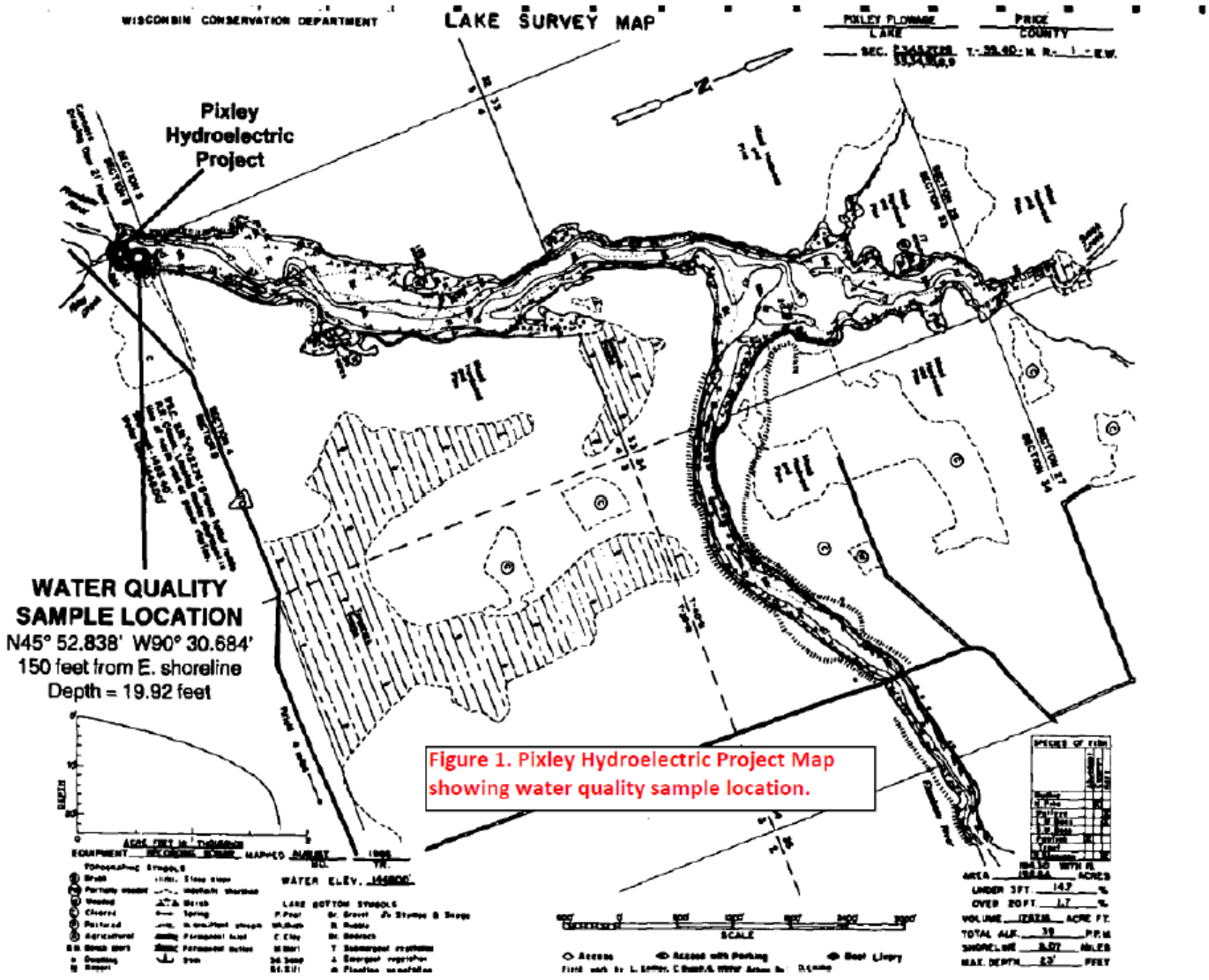


Figure 1. Pixley Hydroelectric Project Map showing water quality sample location.

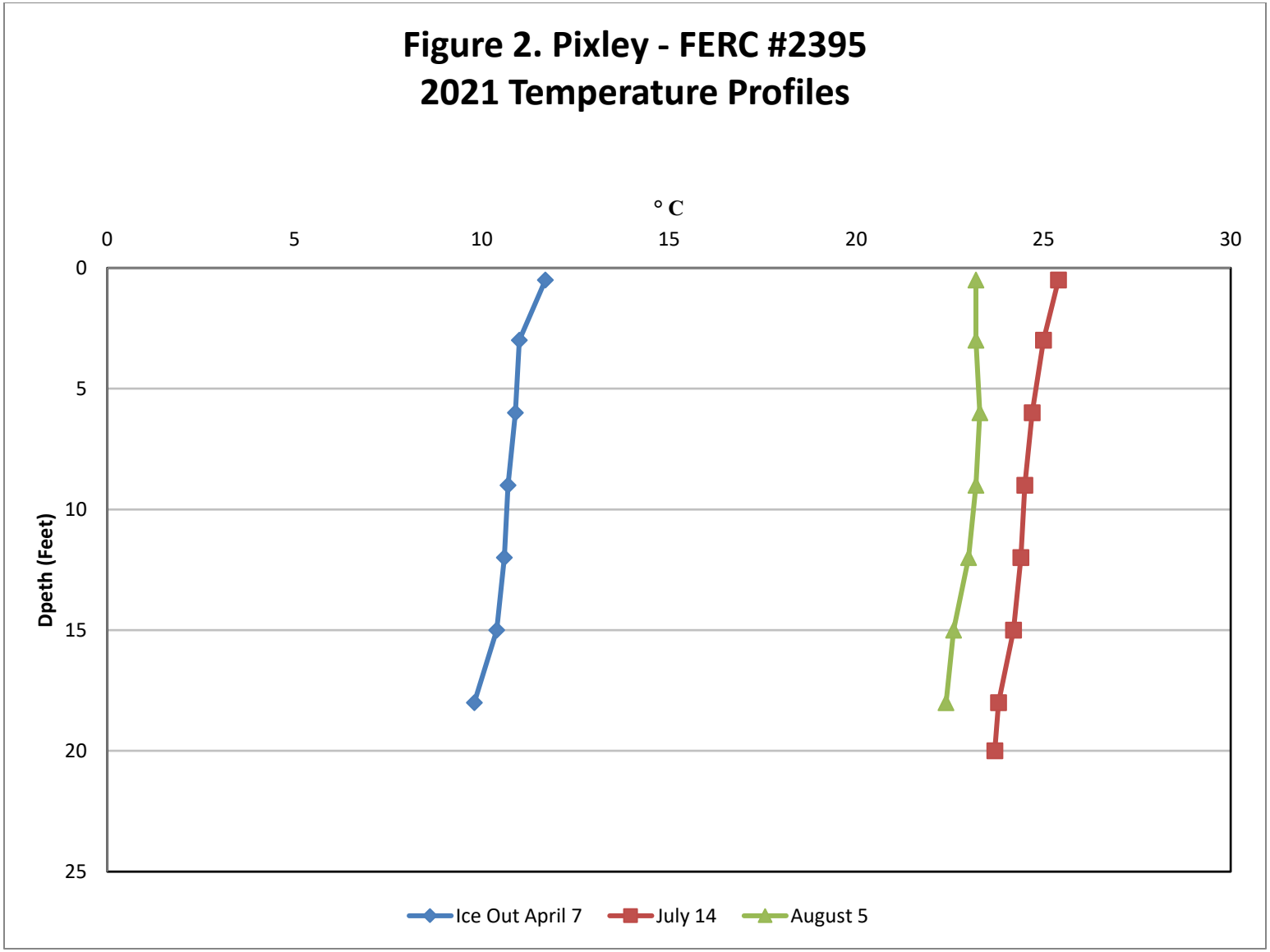


Figure 2. Pixley - FERC #2395
2021 Temperature Profiles
° C
0
5
10
15
20
25
30
Dpeth (Feet)
0
5
10
15
20
25
Ice Out April 7
July 14
August 5

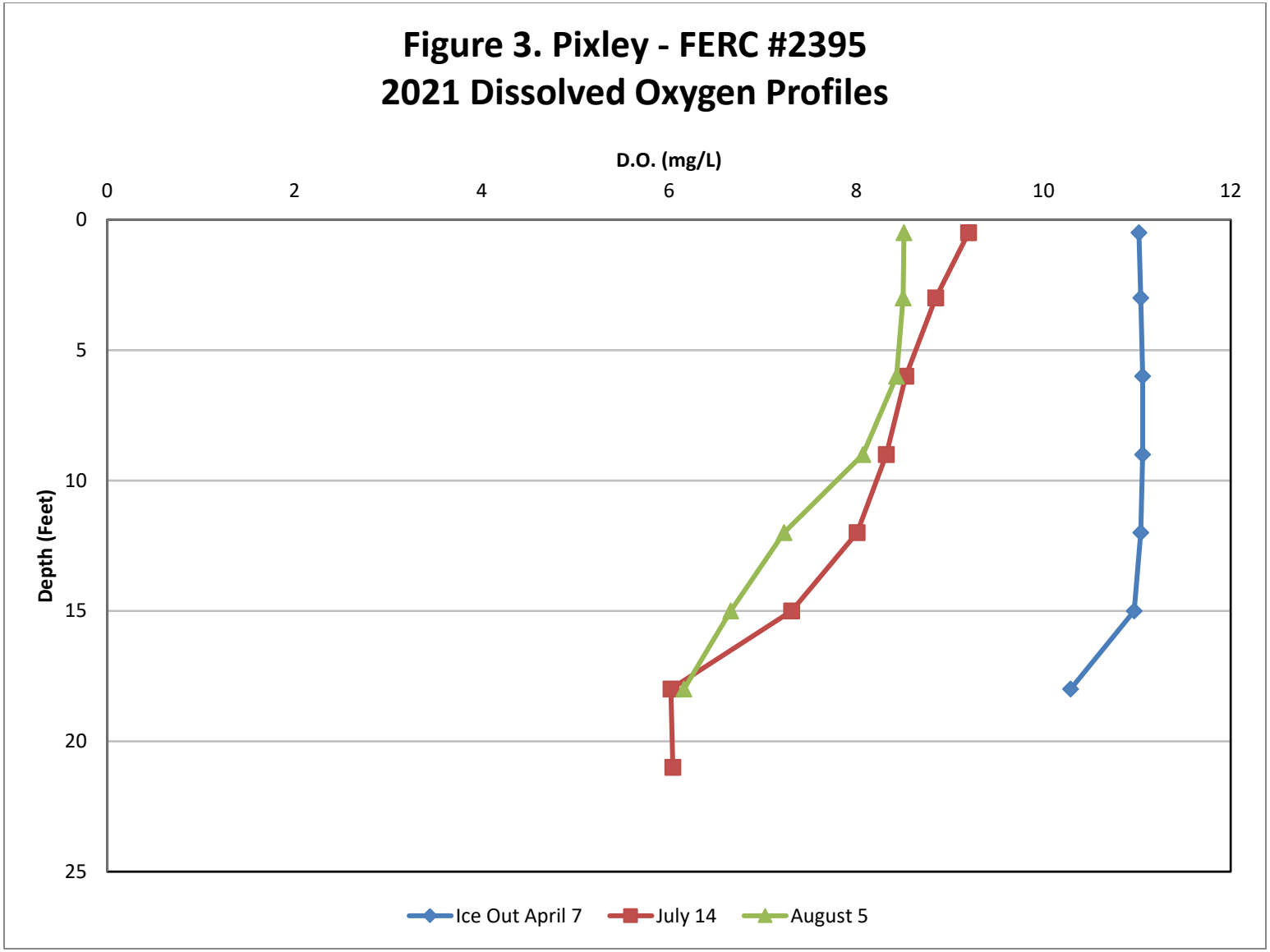


Figure 3. Pixley - FERC #2395
2021 Dissolved Oxygen Profiles
D.O. (mg/L)
0
2
4
6
8
10
12
Depth (Feet)
0
5
10
15
20
25
Ice Out April 7
July 14
August 5

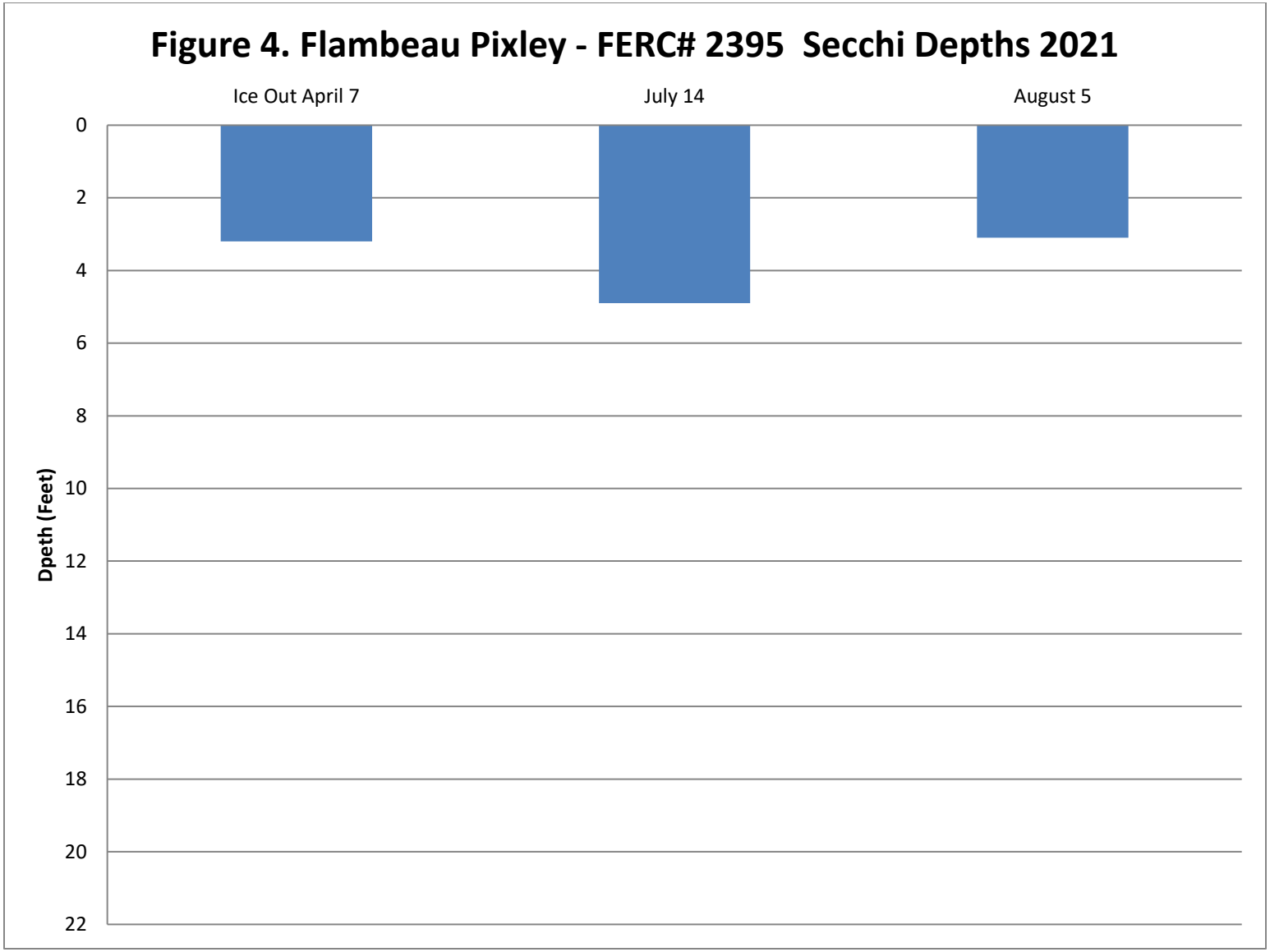


Figure 4. Flambeau Pixley - FERC# 2395 Secchi Depths 2021
Ice Out April 7
July 14
August 5
Dpeth (Feet)
0
2
4
6
8
10
12
14
16
18
20
22

Appendix B – Flambeau (Pixley) Hydroelectric Project Tables

Table 1. Pixley Hydroelectric Project – FERC Project # 2395: 2021 Water Quality Sampling Data

	Ice Out April 7, 2021			July 14, 2021			August 5, 2021		
Project Flow (c.f.s)	864			506			394		
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 feet below surface	11:04.13	11.02	11.7	13:14.33	9.20	25.4	10:34.09	8.51	23.2
3 feet below surface	11:04.45	11.04	11.0	13:15.05	8.85	25.0	10:34.30	8.50	23.2
6 feet below surface	11:05.11	11.06	10.9	13:15.58	8.53	24.7	10:34.52	8.43	23.3
9 feet below surface	11:05.38	11.06	10.7	13:16.39	8.32	24.5	10:35.23	8.07	23.2
12 feet below surface	11:06.04	11.04	10.6	13:17.23	8.01	24.4	10:35.51	7.23	23.0
15 feet below surface	11:06.31	10.97	10.4	13:17.59	7.31	24.2	10:36.01	6.66	22.6
18 feet below surface	11:07.46	10.29	9.8	13:18.39	6.02	23.8	10:36.40	6.16	22.4
20 feet below surface				13:19.33	6.04	23.7			
0.5 meter above bottom	11:08.27	10.30	9.5	13:20.25	5.94	23.7	10:37.06	6.13	22.4
Secchi Disk	**Time**	**Depth (ft)**		**Time**	**Depth (ft)**		**Time**	**Depth (ft)**	
Feet below surface	11:03	3.2		13:16	4.9		10:32	3.10	
Chlorophyll *a*	**Time**	**µg/L**		**Time**	**µg/L**		**Time**	**µg/L**	
3 feet below surface	11:04	2.4		13:17	11		10:34	6.9	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
3 feet below surface	11;04	55.00	5*	13:17	25.00	5*	10:34	35.00	5*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
3 feet below surface	11:04	0.020	0.01*	13:17	0.026	0.008*	10:34	0.025	0.008*
3 feet above bottom	11:08	0.023	0.01*	13:22	0.021	0.008*	10:38	ND	0.008*
*Considered Method Detection Limit N/A = Not Applicable									

Table 2. 2020/21 Water Year Monthly Temperature and Precipitation for Park Falls, 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. Flambeau Pixley 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.**
		Feet	**µg/L**	**C.P.U. Units**	**Below Surface mg/L**	**Above Bottom mg/L**	**mg/L**	**mg/L**	**° C**	**° C**
2014	June	3.00	1.40	130.00	0.030	0.031	6.70	6.94	19.00	22.30
2015	April	3.60	1.30	130.00	0.037	0.030	9.55	9.84	8.70	10.90
2016	March	3.60	0.40	35.00	0.030	0.030	11.19	11.69	3.00	3.30
2017	April	4.20	3.90	35.00	0.028	0.025	9.81	9.88	7.30	8.60
2018	May	3.7	8.00	45.00	0.038	0.033	7.92	8.25	14.4	14.5
2019	April	2.20	2.50	45.00	0.036	0.048	11.82	12.19	3.60	4.60
2020	April	4.20	1.10	60.00	ND	ND	11.39	11.66	5.30	5.50
2021	April	3.20	2.40	55.00	0.020	0.023	10.29	11.06	9.5	11.7
Minimum	March/April/May/June	2.20	0.40	35.00	0.028	0.025	6.70	6.94	3.00	3.30
Maximum	March/April/May/June	4.20	8.00	130.00	0.038	0.048	11.82	12.19	19.00	22.30
Average	March/April/May/June	3.46	2.63	66.88	0.033	0.033	9.83	10.19	8.85	10.18
2014	July	3.00	5.40	130.00	0.047	0.050	6.02	7.28	21.20	21.90
2015	July	3.20	4.20	80.00	0.032	0.031	5.40	6.43	21.60	21.80
2016	July	3.70	8.10	45.00	0.033	0.180	6.11	6.65	23.20	26.30
2017	July	4.00	6.30	35.00	0.036	0.110	6.00	7.32	23.50	25.10
2018	July	3.90	6.30	45.00	0.045	0.036	5.88	6.90	24.60	26.80
2019	July	4.00	12.00	25.00	0.041	0.034	6.22	8.27	23.40	26.40
2020	July	2.50	2.70	35.00	0.034	0.033	6.79	7.19	22.50	22.90
2021	July	4.90	11.0	25.00	0.026	0.021	5.94	9.20	23.70	25.4
Minimum	July	2.50	2.70	25.00	0.026	0.021	5.40	6.43	21.20	21.80
Maximum	July	4.90	12.00	130.00	0.047	0.180	6.79	9.20	24.60	26.80
Average	July	3.65	7.00	52.50	0.037	0.062	6.05	7.41	22.96	24.58
2014	August	3.70	6.20	100.00	0.037	0.035	6.18	6.56	22.30	22.60
2015	August	2.80	20.00	60.00	0.037	0.031	6.42	7.92	22.40	23.50
2016	August	3.20	15.00	45.00	0.036	0.048	3.93	7.82	23.50	25.30
2017	August	4.00	12.00	40.00	0.032	0.027	5.83	8.14	20.30	22.10
2018	August	3.80	19.00	50.00	0.040	0.040	6.37	6.88	22.80	22.60
2019	August	3.90	7.40	40.00	0.025	0.025	6.11	7.76	22.80	23.50
2020	August	3.00	9.60	60.00	0.0051	0.017	7.82	8.59	23.00	26.10
2021	August	3.10	6.90	35.00	0.025	ND	6.13	8.51	22.40	23.20
Minimum	August	2.80	6.20	35.00	0.005	0.017	3.93	6.56	20.30	22.10
Maximum	August	4.00	20.00	100.00	0.040	0.048	7.82	8.81	23.50	26.10
Average	August	3.44	12.01	53.75	0.030	0.032	6.10	7.81	22.41	23.64

*no sample taken

Appendix C – Flambeau (Pixley) Impoundment Project Sampling Logs

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Pixley

Hydroelectric Project – FERC # 2395

Date: 4-7-21

Pre-Sampling Data:

HWL 1448.11 TWL 1427.7 CFS 864

Sample Location: N45° 52.838 W090° 30.684

Performed by: A. Shaw S. Curran

Time: 10:55 Barometer: 24.70e

Air Temp: 57 °F Wind Speed: Calm

Sky Conditions: 50% 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: 70 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 18 Feet

Secchi Depth (± 0.1)		
Time 11:00	3' 2"	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 11:04	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 11:04

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 11:04	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 11:08	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	11:04:13	11.02	11.7
3	11:04:45	11.04	11.0
6	11:05:11	11.06	10.9
9	11:05:36	11.06	10.7
12	11:06:04	11.04	10.6
15	11:06:31	10.97	10.4
18 17.5	11:07:56	10.29	9.8
21			
24			
0.5 above bottom	11:08:27	10.30	9.5

*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 Pixley

Hydroelectric Project – FERC # 2395

Date: 7/14/21

Pre-Sampling Data:

HWL 1448.21 TWL 1427.55 CFS 504

Sample Location N 45° 52.838 W 090° 30.684

Performed by: Bryce Stai Sean Caron

Time: 13:15 Barometer: 29.9C

Air Temp: 77 °F Wind Speed: SSE 3mph

Sky Conditions: 100% 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: 95 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 19 Feet

Secchi Depth (± 0.1)		
Time 13:16	4'9"	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 13:17	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 13:17

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 13:17	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 13:22	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	1:14:33	9.20	25.4
3	1:15:05	8.85	25.0
6	1:15:58	8.53	24.7
9	1:16:39	8.32	24.5
12	1:17:23	8.01	24.4
15	1:17:59	7.31	24.2
18	1:18:39	6.02	23.8
~~21~~ 19	1:19:33	6.04	23.2
24			
0.5 above bottom	1:20:25	5.94	23.7

*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: Pixley

Hydroelectric Project – FERC #: 2395

Date: 8-5-21

Pre-Sampling Data:

HWL 1446.26 TWL 1427.5 CFS 394

Sample Location: N45° 52.838 W090° 30.1684

Performed by:

B Kempainen Sean Coon

Time: 10:32 Barometer: 29.95

Air Temp: 71 °F Wind Speed: S 9

Sky Conditions: 100 o/o clouds

Precipitation within Last 24 Hours: N/O

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: 17 Feet

Secchi Depth (± 0.1)			
Time	10:32	3.10	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time	Quantity (ml)	Filtered
10:34	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 10:34

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 10:34	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 10:38	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	10:34.09	8.51	23.2
3	10:34.31	8.5	23.2
6	10:34.52	8.43	23.3
9	10:35.28	8.07	23.2
12	10:35.51	7.23	23.0
15	10:36.01	6.66	22.6
18 16.5	10:36.40	6.06	22.4
21			
24			
0.5 above bottom	10:37.04	6.13	22.4

*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.

Appendix D – Flambeau (Pixley) 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 #:** 93994

Project: Monitoring

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

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
93994-001	Upper Flambeau Surface	4/7/2021 7:57	Water
93994-002	Upper Flambeau Bottom	4/7/2021 8:02	Water
93994-003	Lower Flambeau Surface	4/7/2021 8:37	Water
93994-004	Lower Flambeau Bottom	4/7/2021 8:35	Water
93994-005	Pixley Surface	4/7/2021 11:04	Water
93994-006	Pixley Bottom	4/7/2021 11:08	Water
93994-007	Crowley Surface	4/7/2021 12:00	Water
93994-008	Crowley Bottom	4/7/2021 12:04	Water

Cover Page..continued

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 #:** 93994

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

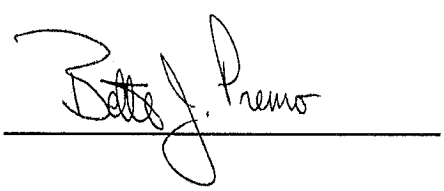
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 #:** 93994

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
93994-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	1.6		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	50	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.021	J	mg/L	4/14/2021 11:49	365.4	0.008	0.050	NK
93994-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.017	J	mg/L	4/14/2021 11:51	365.4	0.008	0.050	NK
93994-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	0.80		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	50	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.022	J	mg/L	4/14/2021 11:52	365.4	0.008	0.050	NK
93994-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.030	J	mg/L	4/14/2021 11:52	365.4	0.008	0.050	NK
93994-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	2.4		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	55	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.020	J	mg/L	4/14/2021 11:54	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)

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 #:** 93994

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
93994-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.023	J	mg/L	4/14/2021 11:55	365.4	0.008	0.050	NK
93994-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	2.9		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	60	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.026	J	mg/L	4/14/2021 11:55	365.4	0.008	0.050	NK
93994-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.028	J	mg/L	4/14/2021 11:56	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 160504

Job # (WWA office use): 93994

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): Angie Shu

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)

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	Chla (mg/m3)	T Phos	Color
1	Upper Flambeau Surface	4/7/21	7:57		X				X	X						3	X	X	X
2	Upper Flambeau Bottom		8:02													1		X	
3	Lower Flambeau Surface		8:37						X							3	X	X	X
4	Lower Flambeau Bottom		8:35													1		X	
5	Pixley Surface		11:04						X							3	X	X	X
6	Pixley Bottom		11:08													1		X	
7	Crowley Surface		12:00						X							3	X	X	X
8	Crowley Bottom		12:04													1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	4-5-21	16:49			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				4/8/21	8:30

Comments/Sample temp. on receipt:

Packing: Ice ✓ Cooler

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

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

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Login Checklist

WHITE WATER ASSOCIATES, INC.

Project No.:	93994	**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

  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.**

NOTES on #4:

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
95726-001	Upper Flambeau Surface	7/14/2021 7:45	Water
95726-002	Upper Flambeau Bottom	7/14/2021 7:48	Water
95726-003	Lower Flambeau Surface	7/14/2021 11:25	Water
95726-004	Lower Flambeau Bottom	7/14/2021 11:29	Water
95726-005	Pixley Surface	7/14/2021 13:17	Water
95726-006	Pixley Bottom	7/14/2021 13:22	Water
95726-007	Crowley Surface	7/14/2021 14:09	Water
95726-008	Crowley Bottom	7/14/2021 14:12	Water

Cover Page..continued

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 #:** 95726

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

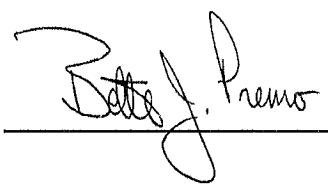
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
95726-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	3.6		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	25		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.015	J	mg/L	7/23/2021 14:22	365.4	0.008	0.050	NK
95726-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.024	J	mg/L	7/23/2021 14:23	365.4	0.008	0.050	NK
95726-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.7		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	20		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.025	J	mg/L	7/23/2021 14:23	365.4	0.008	0.050	NK
95726-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.023	J	mg/L	7/23/2021 14:24	365.4	0.008	0.050	NK
95726-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	11		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	25		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.026	J	mg/L	7/30/2021 12:58	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)

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
95726-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.021	J	mg/L	7/30/2021 13:00	365.4	0.008	0.050	NK
95726-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	8.9		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	30		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.031	J	mg/L	7/30/2021 13:01	365.4	0.008	0.050	NK
95726-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.027	J	mg/L	7/30/2021 13:01	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 160504

Job # (WWA office use): 95726

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.
429 River Lane, P.O. Box 27
Amasa, Michigan 49903
Phone: (906) 822-7869, 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 Stone
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): Cl/a, Phos, Color

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	Cl/a	Phos	Color
1 Upper Flambeau Surface	7/14/21	7:45		X				X	X						3	X	X	X
2 Upper Flambeau bottom		7:48													1		X	
3 Lower Flambeau Surface		11:25						X							3	X	X	X
4 Lower Flambeau bottom		11:29													1		X	
5 Pixley Surface		13:17						X							3	X	X	X
6 Pixley Bottom		13:22													1		X	
7 Crowley Surface		14:09						X							3	X	X	X
8 Crowley bottom		14:12													1		X	

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

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Login Checklist

WHITE WATER ASSOCIATES, INC.

Project No.:	95726	**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

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 #:** 96118

Project: Monitoring

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

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
96118-001	Upper Flambeau Surface	8/5/2021 7:48	Water
96118-002	Upper Flambeau Bottom	8/5/2021 7:51	Water
96118-003	Lower Flambeau Surface	8/5/2021 8:20	Water
96118-004	Lower Flambeau Bottom	8/5/2021 8:23	Water
96118-005	Pixley Surface	8/5/2021 10:34	Water
96118-006	Pixley Bottom	8/5/2021 10:38	Water
96118-007	Crowley Surface	8/5/2021 12:31	Water
96118-008	Crowley Bottom	8/5/2021 12:35	Water

Cover Page..continued

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 #:** 96118

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

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 #:** 96118

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
96118-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.6		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	40		CU	9/8/2021 15:45	2120B	5	5	NK
Total Phosphorus LL (t)	0.016	J	mg/L	8/10/2021 15:44	365.4	0.008	0.050	NK
96118-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.028	JM	mg/L	8/10/2021 15:47	365.4	0.008	0.050	NK
96118-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.8		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	40		CU	9/8/2021 15:47	2120B	5	5	NK
Total Phosphorus LL (t)	0.028	J	mg/L	8/10/2021 15:49	365.4	0.008	0.050	NK
96118-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	ND		mg/L	8/10/2021 15:51	365.4	0.008	0.050	NK
96118-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	6.9		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	35		CU	9/8/2021 15:48	2120B	5	5	NK
Total Phosphorus LL (t)	0.025	J	mg/L	8/10/2021 15:51	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)

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 #:** 96118

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
96118-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	ND		mg/L	8/10/2021 15:52	365.4	0.008	0.050	NK
96118-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	6.8		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	45		CU	9/8/2021 15:49	2120B	5	5	NK
Total Phosphorus LL (t)	0.024	J	mg/L	8/10/2021 15:52	365.4	0.008	0.050	NK
96118-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.027	J	mg/L	8/10/2021 15:54	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): 96118

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): 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	Cl2	T Phos	Color
1	Upper Flambeau Surface	8-5-21	7:48		X				X	X						3	X	X	X
2	Upper Flambeau Bottom	8-5-21	7:51		"					"						1		X	
3	Lower Flambeau Surface	8-5-21	8:20		"				X	"						3	X	X	X
4	Lower Flambeau Bottom	8-5-21	8:23		"					"						1		X	
5	Pixley Surface	8-5-21	10:34		"				X	"						3	X	X	X
6	Pixley bottom	8-5-21	10:38		"					"						1		X	
7	Crowley Surface	8-5-21	12:31		"				X	"						3	X	X	X
8	Crowley Bottom	8-5-21	12:35		"					"						1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	8-5-21	4:29			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				8/5/21	14:30

Comments/sample temp on receipt: 3

Packing: Ice ___ Cooler ✓

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

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Report

2021 Water Quality Monitoring Data

for the

Crowley Hydroelectric Project

FERC Project #2473

Flambeau Hydro, LLC

North Fork of the Flambeau River, Price 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 Flambeau (Crowley) Hydroelectric Project – FERC #2473

2021 marked the sixteenth year of water quality sampling under FERC approved "Water Quality Monitoring Plan Per License Article 406 for the Crowley Hydroelectric Project – FERC Project # 2473 – Flambeau Hydro, LLC. Monitoring was conducted on April 7, July 14, and August 5, 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 Flambeau (Crowley) 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. 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 between Agenda and Nine Mile Landing on the North Fork of the Flambeau River sometime during the week beginning March 22, 2021. The Ice-Out sampling event occurred on April 7, 2021. River flow, based on the Crowley Hydroelectric Project records was approximately 1252 cubic feet per second. Sampling occurred between 11:55 and 12:07. 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 August 12, 2021. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

River flow, based on Crowley Hydroelectric Project records, was approximately 775 cubic feet per second during the July 14, 2021 sampling event. Sampling occurred between 14:05 and 14:09. 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 July 14, 2021. White Water Associates, Inc. issued a laboratory report on August 2, 2021. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

River flow, based on Crowley Hydroelectric Project records, was approximately 712 cubic feet per second during the August 5, 2021 sampling event. Sampling occurred between 12:30 and 12:36. 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 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 2014 thru 2021 (Table 3) sampling results are as follows:

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

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

Appendix A – Crowley Hydroelectric Project Figures

Figure 1. Crowley Hydroelectric Project Map

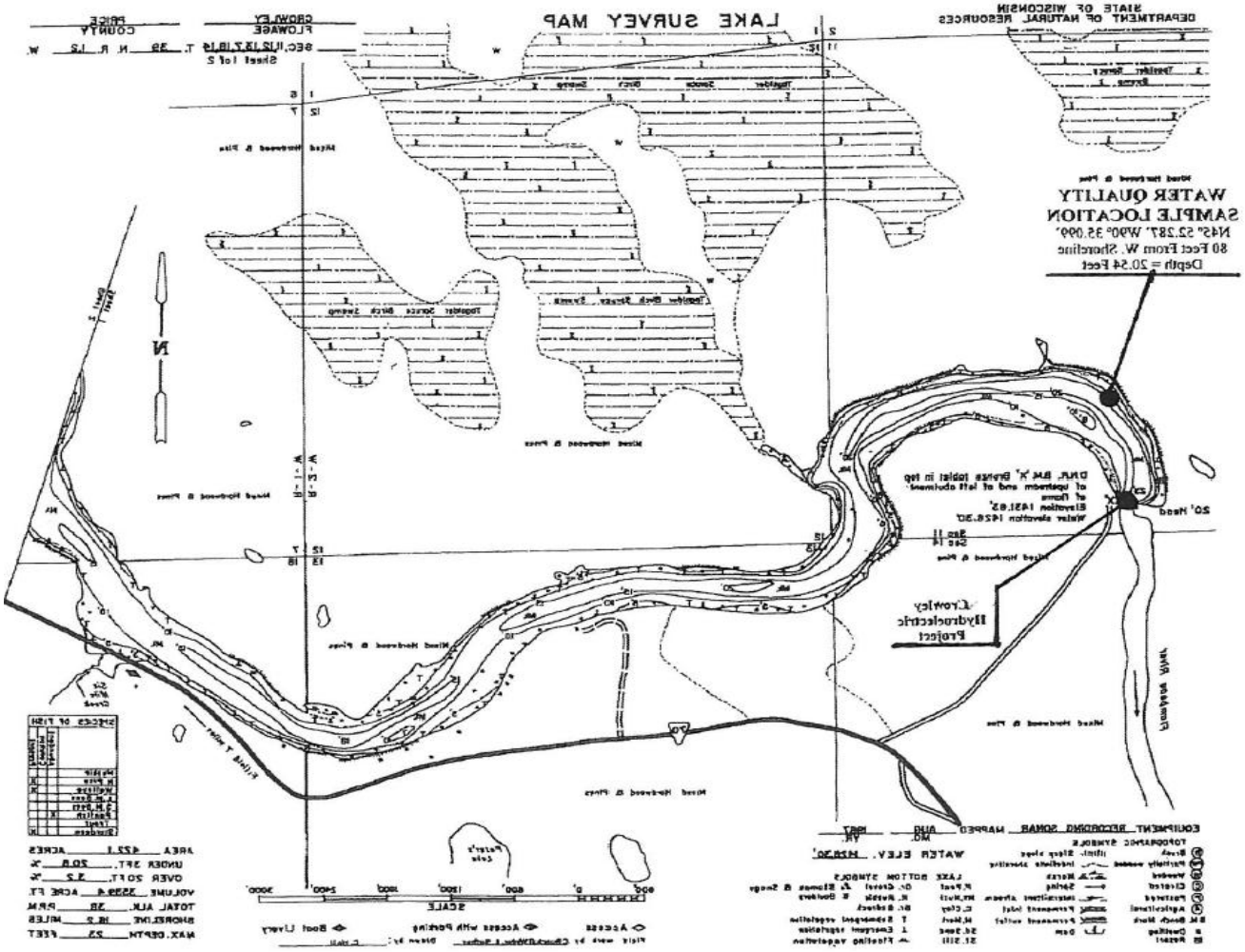
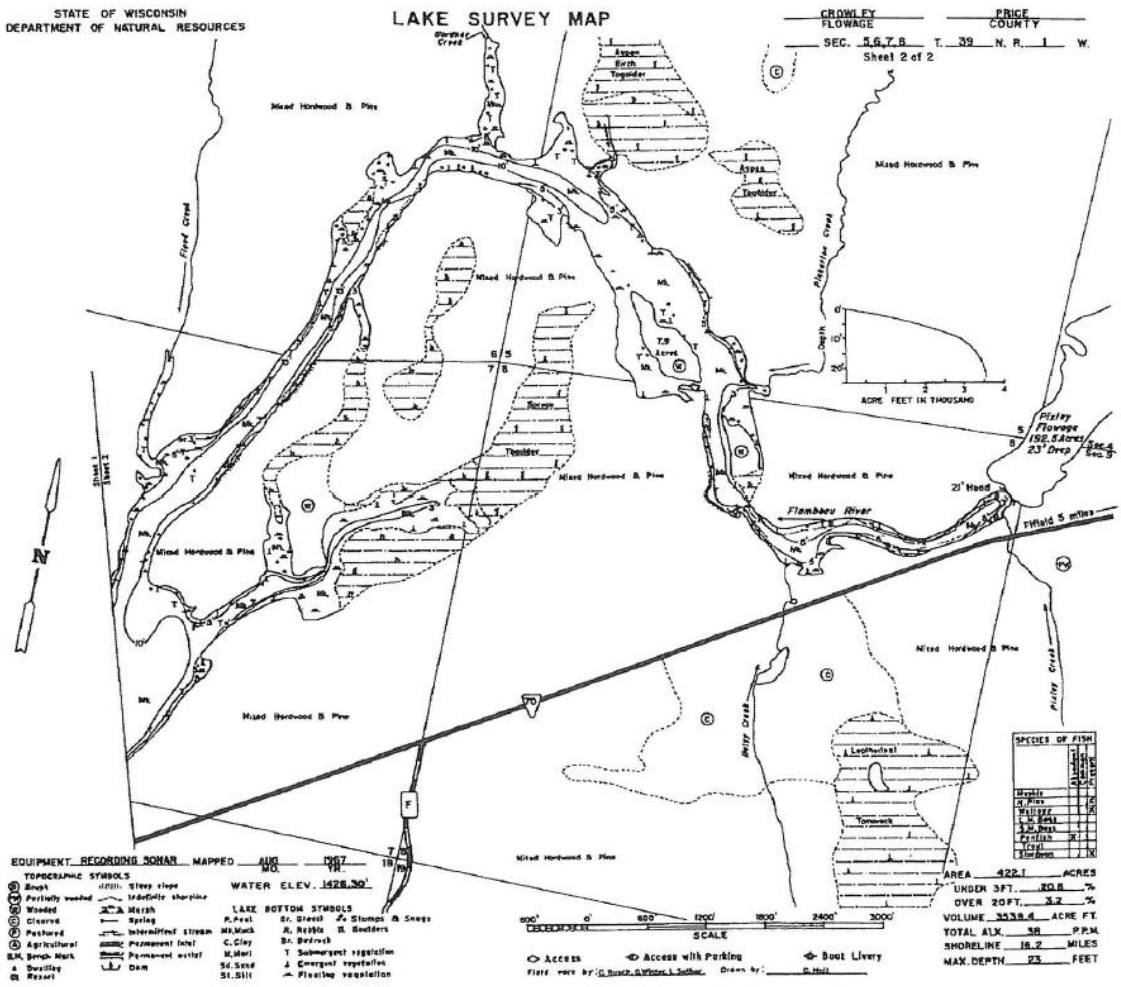


Figure 1. continued



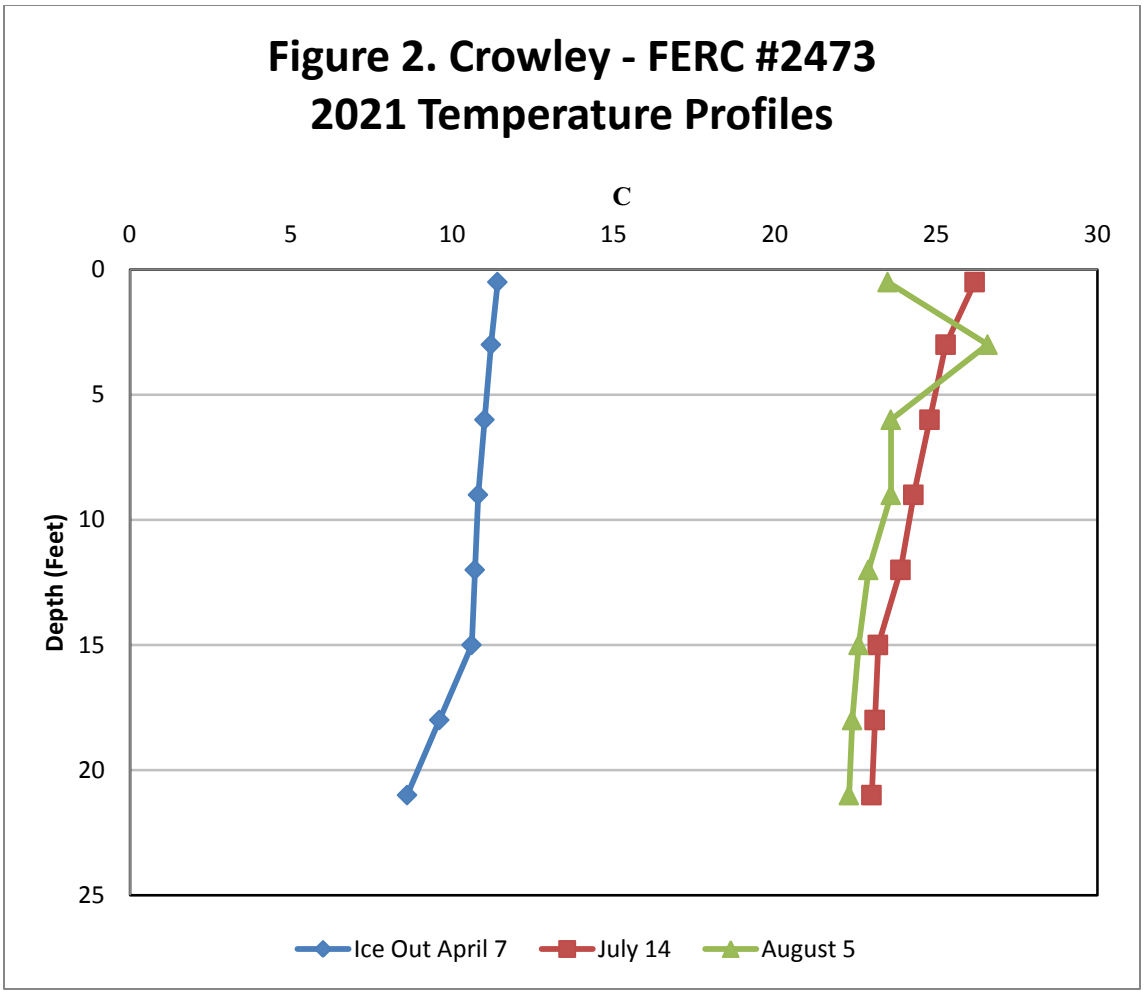


Figure 2. Crowley - FERC #2473
2021 Temperature Profiles
C
0
5
10
15
20
25
30
Depth (Feet)
0
5
10
15
20
25
Ice Out April 7
July 14
August 5

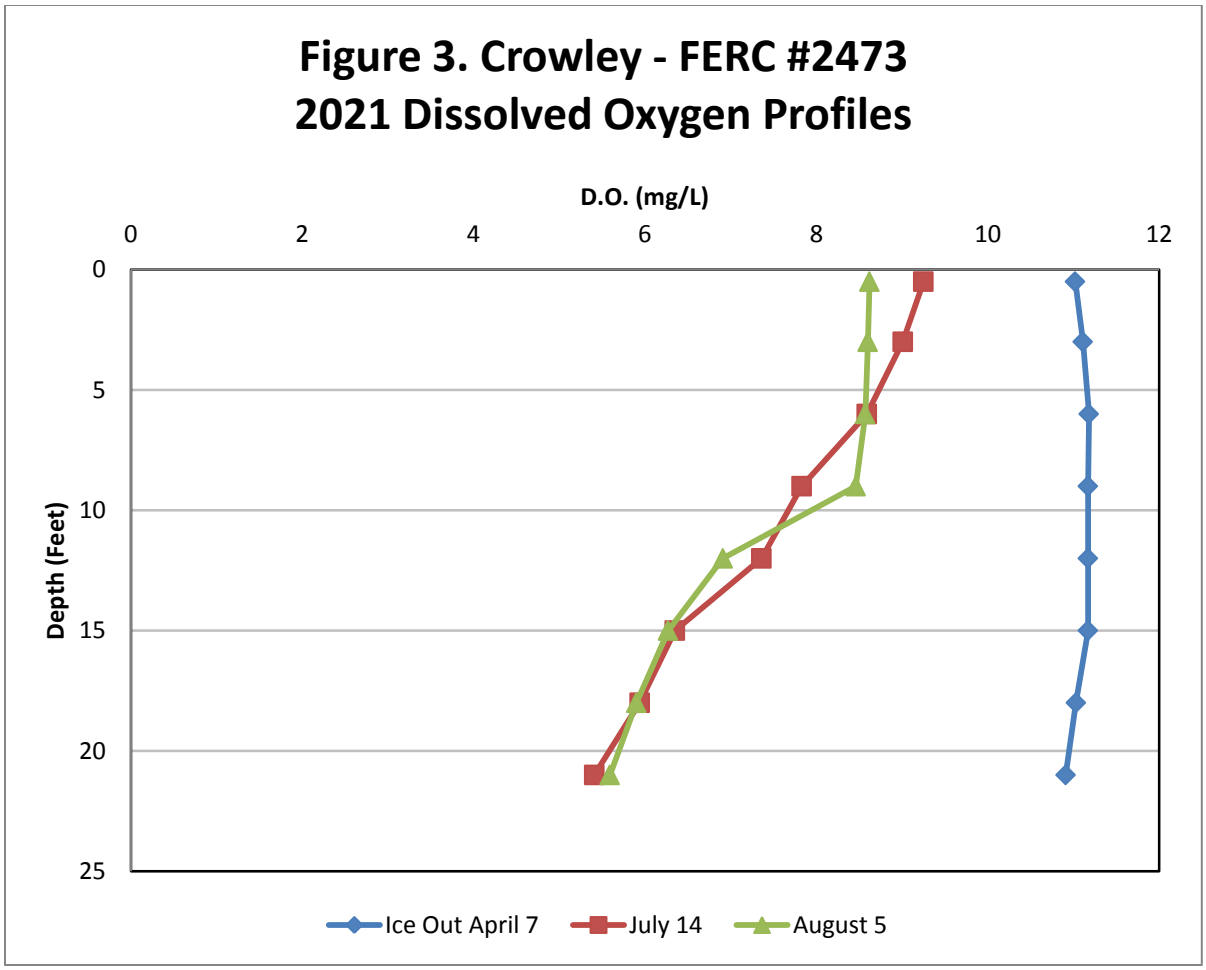


Figure 3. Crowley - FERC #2473
2021 Dissolved Oxygen Profiles
D.O. (mg/L)
0
2
4
6
8
10
12
Depth (Feet)
0
5
10
15
20
25
Ice Out April 7
July 14
August 5

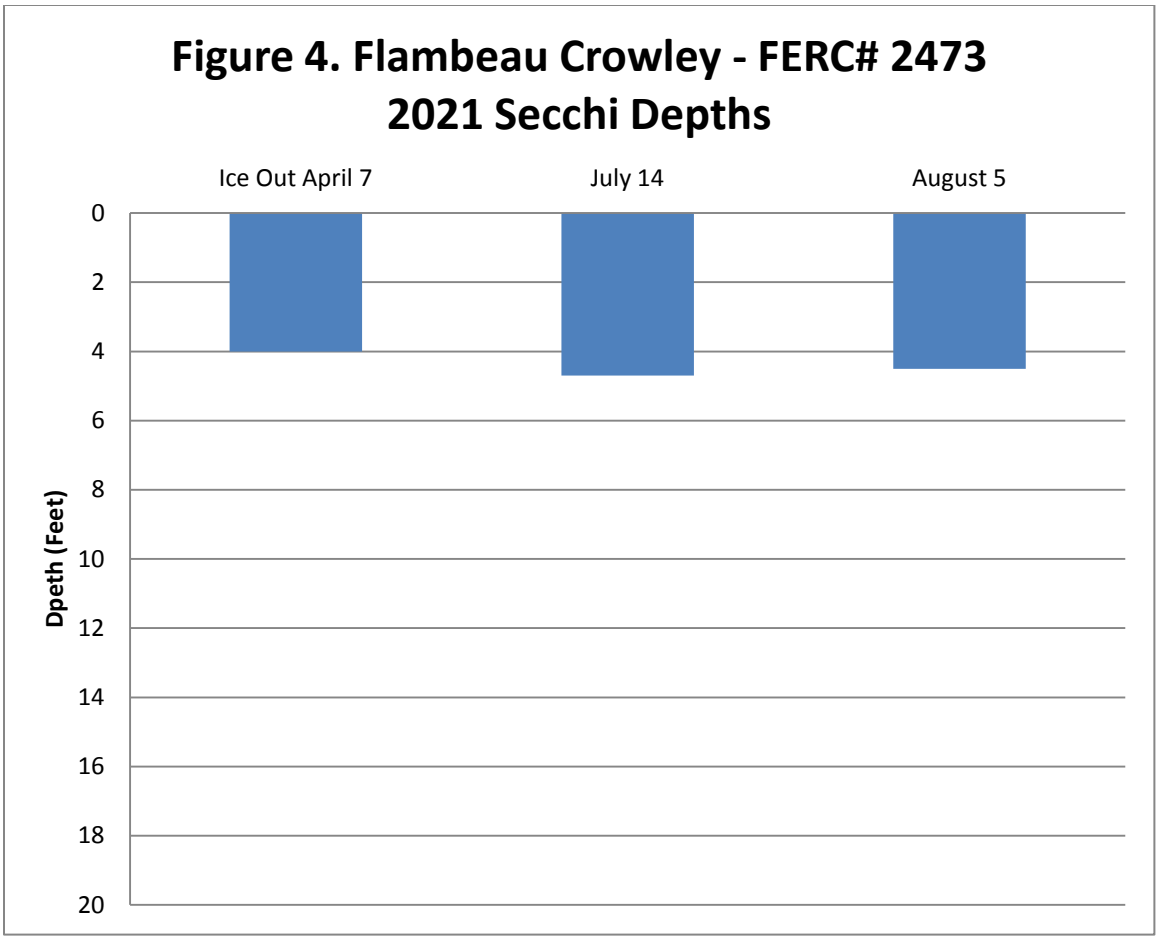


Figure 4. Flambeau Crowley - FERC# 2473
2021 Secchi Depths
Ice Out April 7
July 14
August 5
Dpeth (Feet)
0
2
4
6
8
10
12
14
16
18
20

Appendix B – Crowley Hydroelectric Project Tables

Table 1. Crowley Hydroelectric Project – FERC Project # 2473: 2021 Water Quality Sampling Data

	Ice Out April 7, 2021			July 14, 2021			August 5, 2021		
Project Flow (c.f.s)	1885			775			712		
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 feet below surface	11:59.57	11.02	11.4	14:04.09	9.25	26.2	12:32.32	8.62	23.5
3 feet below surface	12:00.29	11.11	11.2	14:04.41	9.01	25.3	12:32.48	8.60	26.6
6 feet below surface	12:01.05	11.18	11.0	14:05.14	8.59	24.8	12:33.07	8.57	23.6
9 feet below surface	12:01.34	11.17	10.8	14:05.45	7.83	24.3	12:33.24	8.46	23.6
12 feet below surface	12:01.36	11.17	10.7	14:06.25	7.36	23.9	12:33.49	6.91	22.9
15 feet below surface	12:02.13	11.17	10.6	14:07.19	6.35	23.2	12:34.30	6.27	22.6
18 feet below surface	12:02.49	11.03	9.6	14:08.05	5.94	23.1	12:35.17	5.90	22.4
21 feet below surface	12:03.46	10.91	8.6	14:08.53	5.41	23.0	12:36.31	5.59	22.3
0.5 meter above bottom	12:07.06	10.90	8.2	14:09.12	5.40	23.0	12:36.44	5.51	22.3
Secchi Disk	**Time**	**Depth (ft)**		**Time**	**Depth (ft)**		**Time**	**Depth (ft)**	
Feet below surface	12:00	4.0		14:09	4.7		12:30	4.5	
Chlorophyll a	**Time**	**µg/L**		**Time**	**µg/L**		**Time**	**µg/L**	
3 feet below surface	12:00	2.90		14:09	8.90		12:31	6.80	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
3 feet below surface	12:00	60.00	5*	14:09	30.00	5*	12:31	45.00	5*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
3 feet below surface	12:00	0.026	0.008*	14:09	0.031	0.008*	12:31	0.024	0.008*
3 feet above bottom	12:04	0.028	0.008*	14:12	0.027	0.008*	12:35	0.027	0.008*
*Considered Method Detection Limit									

Table 2. 2020/21 Water Year Monthly Temperature and Precipitation for Park Falls, 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. Flambeau Crowley 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.**
		Feet	**µg/L**	**C.P.U. Units**	**Below Surface mg/L**	**Above Bottom mg/L**	**mg/L**	**mg/L**	**° C**	**° C**
2014	June	3.50	1.70	150.00	0.031	0.029	6.61	6.97	19.00	21.90
2015	April	3.50	5.10	13.00	0.047	0.036	9.52	9.78	9.00	11.70
2016	March	3.60	0.41	40.00	0.030	0.030	11.35	11.61	2.90	3.70
2017	April	3.90	3.40	30.00	0.025	0.028	9.16	9.46	8.20	10.10
2018	May	4.00	5.20	40.00	0.036	0.032	7.65	8.10	14.5	14.8
2019	April	2.20	2.70	45.00	0.038	0.036	11.93	12.46	4.20	5.40
2020	April	4.20	0.80	60.00	0.056	0.051	11.32	11.75	5.30	5.70
2021	April	4.00	2.90	60.00	0.026	0028	10.86	11.18	8.20	11.40
Minimum	March/April/May/June	2.20	0.41	13.00	0.025	0.028	6.61	6.97	2.90	3.70
Maximum	March/April/May/June	4.20	5.20	150.00	0.056	0.051	11.93	12.46	19.00	21.90
Average	March/April/May/June	3.61	2.78	54.75	0.036	0.034	9.80	10.16	8.96	10.54
2014	July	3.25	5.30	130.00	0.046	0.044	5.78	6.38	21.70	22.20
2015	July	4.00	4.60	80.00	0.032	0.034	6.09	6.47	22.80	22.50
2016	July	3.40	6.50	55.00	0.036	0.030	5.60	6.10	22.70	26.50
2017	July	4.00	8.30	35.00	0.033	0.033	5.42	7.36	23.10	26.00
2018	July	4.00	10.00	35.00	0.061	0.043	6.12	7.18	24.70	27.70
2019	July	4.50	15.00	25.00	0.032	0.040	5.06	7.55	23.70	25.70
2020	July	2.60	3.20	35.00	0.038	0.037	6.77	7.14	23.40	23.60
2021	July	4.70	8.90	30.00	0.031	0.027	5.40	9.25	23.00	26.20
Minimum	July	2.60	3.20	25.00	0.031	0.027	5.06	6.10	21.70	22.20
Maximum	July	4.70	15.00	130.00	0.061	0.044	6.77	9.25	24.70	27.70
Average	July	3.81	7.73	53.13	0.039	0.036	5.78	7.18	23.14	25.05
2014	August	1.30	6.90	100.00	0.047	0.051	5.11	5.65	22.80	24.30
2015	August	3.00	17.00	60.00	0.039	0.030	6.48	7.32	22.70	23.10
2016	August	4.20	15.00	40.00	0.030	0.030	3.57	8.07	23.30	25.70
2017	August	4.20	13.00	30.00	0.032	0.030	5.55	8.71	20.30	22.90
2018	August	4.30	10.00	45.00	0.033	0036	6.02	7.69	23.10	23.10
2019	August	3.40	11.00	30.00	0.028	0.025	7.01	8.83	23.30	25.30
2020	August	3.50	12.00	70.00	0.034	0.019	8.01	9.35	23.30	25.70
2021	August	4.50	6.80	45.00	0.024	0.027	5.51	8.62	22.30	26.60
Minimum	August	1.30	6.80	30.00	0.024	0.019	3.57	5.65	20.30	22.90
Maximum	August	4.50	17.00	100.00	0.047	0.051	8.01	9.35	23.30	26.60
Average	August	3.55	11.46	52.50	0.033	0.031	5.91	8.03	22.63	24.60

*no sample taken

Appendix C – Crowley Impoundment Project Sampling Logs

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Crowley

Hydroelectric Project – FERC # 2473

Date: 4-7-21

Pre-Sampling Data:

HWL 1427.42 TWL 1407.2 CFS 1252

Sample Location: N 45° 52.287 W 90° 35.049

Performed by: A. Shim S. Corum

Time: 11:55 Barometer: 29.76

Air Temp: 57 °F Wind Speed: E 7 mpH

Sky Conditions: 50% 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: 70 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 21.5 Feet

Secchi Depth (± 0.1)		
Time 12:00	4.0	Feet

Comments: Bald Eagle

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 12:00	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 12:00

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 12:00	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 12:04	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	11:59:57	11.02	11.4
3	12:00:29	11.11	11.2
6	12:01:05	11.18	11.0
9	12:01:34	11.17	10.8
12	12:02:36	11.12	10.7
15	12:02:13	11.17	10.6
18	12:02:49	11.03	9.6
21	12:03:46	10.91	8.6
24 21.5	12:05:20	10.86	8.2
0.5 above bottom	12:07:06	10.90	8.3

*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 Crowley

Hydroelectric Project – FERC # 2473

Date: 7/14/21

Pre-Sampling Data:

HWL 1427.25 TWL 426.5 CFS 775

Sample Location: N 45° 52.287
W 90° 35.099

Performed by:
Angie Shin Seam Coram

Time: _____ Barometer: 29.95

Air Temp: 77 °F Wind Speed: 5 mpH

Sky Conditions: 100% 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: 95 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 19 Feet

Secchi Depth (± 0.1)	
Time 14:06	4'7" Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 14:09	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 14:09

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 14:09	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 14:12	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	2:04:09	9.25	26.2
3	2:04:41	9.01	25.3
6	2:05:14	8.59	24.8
9	2:05:45	7.83	24.3
12	2:06:25	7.36	23.9
15	2:07:19	6.35	23.2
18	2:08:05	5.94	23.1
~~19~~	2:08:53	5.41	23.0
24			
0.5 above bottom	2:09:22	5.40	23.0

*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 Crowley

Hydroelectric Project – FERC # 2473

Date: 8-5-21

Pre-Sampling Data:

HWL 1427.29 TWL 1426.2 CFS 717

Sample Location: N45° 52.287 W90° 35.049

Performed by:

Kemppainen Caron

Time: 12.30 Barometer: 29.93

Air Temp: 76 °F Wind Speed: S 10

Sky Conditions: raining

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: 45 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: ~~20.0~~ Feet

Secchi Depth (± 0.1)		
Time 12:30	4.5	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time	Quantity (ml)	Filtered
12:31	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 12:31

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 12:31	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 12:35	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature ° C
0.5 below surface	12:32:32	8.62	23.5
3	12.32.48	8.60	26.6
6	12.33.07	8.57	23.6
9	12.33.24	8.46	23.6
12	12.33.49	6.91	22.9
15	12.34.30	6.27	22.6
18	12:35.17	5.90	22.4
~~21~~20	12:36.31	5.59	22.3
24			
0.5 above bottom	12.36.44	5.51	22.3

*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.

Appendix D – Crowley 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 #:** 93994

Project: Monitoring

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

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
93994-001	Upper Flambeau Surface	4/7/2021 7:57	Water
93994-002	Upper Flambeau Bottom	4/7/2021 8:02	Water
93994-003	Lower Flambeau Surface	4/7/2021 8:37	Water
93994-004	Lower Flambeau Bottom	4/7/2021 8:35	Water
93994-005	Pixley Surface	4/7/2021 11:04	Water
93994-006	Pixley Bottom	4/7/2021 11:08	Water
93994-007	Crowley Surface	4/7/2021 12:00	Water
93994-008	Crowley Bottom	4/7/2021 12:04	Water

Cover Page..continued

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 #:** 93994

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

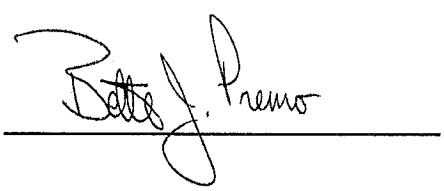
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 #:** 93994

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
93994-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	1.6		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	50	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.021	J	mg/L	4/14/2021 11:49	365.4	0.008	0.050	NK
93994-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.017	J	mg/L	4/14/2021 11:51	365.4	0.008	0.050	NK
93994-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	0.80		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	50	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.022	J	mg/L	4/14/2021 11:52	365.4	0.008	0.050	NK
93994-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.030	J	mg/L	4/14/2021 11:52	365.4	0.008	0.050	NK
93994-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	2.4		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	55	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.020	J	mg/L	4/14/2021 11:54	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)

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 #:** 93994

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
93994-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.023	J	mg/L	4/14/2021 11:55	365.4	0.008	0.050	NK
93994-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	2.9		mg/m3	4/30/2021 13:30	10200H	NA	NA	AH
Color	60	H	CU	5/3/2021 10:30	2120B	5	5	AH
Total Phosphorus LL (t)	0.026	J	mg/L	4/14/2021 11:55	365.4	0.008	0.050	NK
93994-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.028	J	mg/L	4/14/2021 11:56	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 160504

Job # (WWA office use): 93994

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): Angie Shu

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)

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	Chla (mg/m3)	T Phos	Color
1	Upper Flambeau Surface	4/7/21	7:57		X				X	X						3	X	X	X
2	Upper Flambeau Bottom		8:02													1		X	
3	Lower Flambeau Surface		8:37						X							3	X	X	X
4	Lower Flambeau Bottom		8:35													1		X	
5	Pixley Surface		11:04						X							3	X	X	X
6	Pixley Bottom		11:08													1		X	
7	Crowley Surface		12:00						X							3	X	X	X
8	Crowley Bottom		12:04													1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	4-5-21	16:49			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				4/8/21	8:30

Comments/Sample temp. on receipt:

Packing: Ice ✓ Cooler

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

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

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Login Checklist

WHITE WATER ASSOCIATES, INC.

Project No.:	93994	**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

  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.**

NOTES on #4:

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
95726-001	Upper Flambeau Surface	7/14/2021 7:45	Water
95726-002	Upper Flambeau Bottom	7/14/2021 7:48	Water
95726-003	Lower Flambeau Surface	7/14/2021 11:25	Water
95726-004	Lower Flambeau Bottom	7/14/2021 11:29	Water
95726-005	Pixley Surface	7/14/2021 13:17	Water
95726-006	Pixley Bottom	7/14/2021 13:22	Water
95726-007	Crowley Surface	7/14/2021 14:09	Water
95726-008	Crowley Bottom	7/14/2021 14:12	Water

Cover Page..continued

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 #:** 95726

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

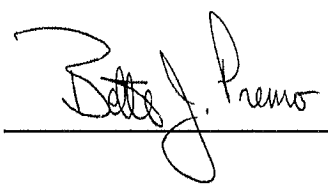
Sample Types:
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
95726-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	3.6		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	25		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.015	J	mg/L	7/23/2021 14:22	365.4	0.008	0.050	NK
95726-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.024	J	mg/L	7/23/2021 14:23	365.4	0.008	0.050	NK
95726-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.7		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	20		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.025	J	mg/L	7/23/2021 14:23	365.4	0.008	0.050	NK
95726-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.023	J	mg/L	7/23/2021 14:24	365.4	0.008	0.050	NK
95726-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	11		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	25		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.026	J	mg/L	7/30/2021 12:58	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)

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 #:** 95726

Project: Monitoring

Date Received: 7/15/2021 **Date Reported:** 8/2/2021

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
95726-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.021	J	mg/L	7/30/2021 13:00	365.4	0.008	0.050	NK
95726-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	8.9		mg/m3	7/16/2021 13:20	10200H	NA	NA	AH
Color	30		CU	7/16/2021 13:30	2120B	5	5	NK
Total Phosphorus LL (t)	0.031	J	mg/L	7/30/2021 13:01	365.4	0.008	0.050	NK
95726-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.027	J	mg/L	7/30/2021 13:01	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 160504

Job # (WWA office use): 95726

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.
429 River Lane, P.O. Box 27
Amasa, Michigan 49903
Phone: (906) 822-7869, 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 Stone
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): Cl/a, Phos, Color

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	Cl/a	Phos	Color
1 Upper Flambeau Surface	7/14/21	7:45		X				X	X						3	X	X	X
2 Upper Flambeau bottom		7:48													1		X	
3 Lower Flambeau Surface		11:25						X							3	X	X	X
4 Lower Flambeau bottom		11:29													1		X	
5 Pixley Surface		13:17						X							3	X	X	X
6 Pixley Bottom		13:22													1		X	
7 Crowley Surface		14:09						X							3	X	X	X
8 Crowley bottom		14:12													1		X	

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

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Login Checklist

WHITE WATER ASSOCIATES, INC.

Project No.:	95726	**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

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 #:** 96118

Project: Monitoring

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

Sample Number	Client Sample ID	Date/Time Sampled	Sample Matrix
96118-001	Upper Flambeau Surface	8/5/2021 7:48	Water
96118-002	Upper Flambeau Bottom	8/5/2021 7:51	Water
96118-003	Lower Flambeau Surface	8/5/2021 8:20	Water
96118-004	Lower Flambeau Bottom	8/5/2021 8:23	Water
96118-005	Pixley Surface	8/5/2021 10:34	Water
96118-006	Pixley Bottom	8/5/2021 10:38	Water
96118-007	Crowley Surface	8/5/2021 12:31	Water
96118-008	Crowley Bottom	8/5/2021 12:35	Water

Cover Page..continued

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 #:** 96118

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

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 #:** 96118

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
96118-001 / Upper Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.6		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	40		CU	9/8/2021 15:45	2120B	5	5	NK
Total Phosphorus LL (t)	0.016	J	mg/L	8/10/2021 15:44	365.4	0.008	0.050	NK
96118-002 / Upper Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.028	JM	mg/L	8/10/2021 15:47	365.4	0.008	0.050	NK
96118-003 / Lower Flambeau Surface / Water								
General Chemistry Parameters								
Chlorophyll a	4.8		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	40		CU	9/8/2021 15:47	2120B	5	5	NK
Total Phosphorus LL (t)	0.028	J	mg/L	8/10/2021 15:49	365.4	0.008	0.050	NK
96118-004 / Lower Flambeau Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	ND		mg/L	8/10/2021 15:51	365.4	0.008	0.050	NK
96118-005 / Pixley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	6.9		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	35		CU	9/8/2021 15:48	2120B	5	5	NK
Total Phosphorus LL (t)	0.025	J	mg/L	8/10/2021 15:51	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)

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 #:** 96118

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
96118-006 / Pixley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	ND		mg/L	8/10/2021 15:52	365.4	0.008	0.050	NK
96118-007 / Crowley Surface / Water								
General Chemistry Parameters								
Chlorophyll a	6.8		mg/m3	8/6/2021 15:40	10200H	NA	NA	AC
Color	45		CU	9/8/2021 15:49	2120B	5	5	NK
Total Phosphorus LL (t)	0.024	J	mg/L	8/10/2021 15:52	365.4	0.008	0.050	NK
96118-008 / Crowley Bottom / Water								
General Chemistry Parameters								
Total Phosphorus LL (t)	0.027	J	mg/L	8/10/2021 15:54	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): 96118

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): 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	Cl2	T Phos	Color
1	Upper Flambeau Surface	8-5-21	7:48		X				X	X						3	X	X	X
2	Upper Flambeau Bottom	8-5-21	7:51		"					"						1		X	
3	Lower Flambeau Surface	8-5-21	8:20		"				X	"						3	X	X	X
4	Lower Flambeau Bottom	8-5-21	8:23		"					"						1		X	
5	Pixley Surface	8-5-21	10:34		"				X	"						3	X	X	X
6	Pixley bottom	8-5-21	10:38		"					"						1		X	
7	Crowley Surface	8-5-21	12:31		"				X	"						3	X	X	X
8	Crowley Bottom	8-5-21	12:35		"					"						1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	8-5-21	4:29			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				8/5/21	14:30

Comments/sample temp on receipt: 3

Packing: Ice ___ Cooler ✓

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

UPS☐ FedEx☐ USPS☐ Client☐ Other WWA

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

FW: Flambeau Upper (P-2640) Flambeau Lower (P-2421) Pixley (P-2395) Crowley (P-2473) Draft Water Quality Reports

Gregory, Malcolm K - DNR <malcolm.gregory@wisconsin.gov>

Tue 11/30/2021 2:44 PM

To: Brian Kreuscher <bkreuscher@rwehydro.com>

Good morning Brian

Upon review WDNR does not have any comments for these water quality reports for P-2640, P-2421, P-2395, and P-2473.

If you have any questions, please feel free to reach out.

Best,

Malcolm

Malcolm Gregory (he/him)
Environmental Analysis & Review Specialist
Wisconsin Department of Natural Resources
101 S. Webster Street
Madison, WI 53707-7921
malcolm.gregory@wisconsin.gov

From: Brian Kreuscher <bkreuscher@rwehydro.com>
Sent: Tuesday, November 16, 2021 9:47 AM
To: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>; Darin_Simpkins@fws.gov
Subject: Flambeau Upper (P-2640) Flambeau Lower (P-2421) Pixley (P-2395) Crowley (P-2473) Draft Water Quality Reports

All,

Attached are the Draft Water Quality Reports for all four projects. Please review and provide any comments you may have to me within 60 days for FERC submittal.

Thanks

Brian Kreuscher

Renewable World Energies

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Regulatory & Compliance
855-994-9376 x230

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

RE: Flambeau Upper (P-2640) Flambeau Lower (P-2421) Pixley (P-2395) Crowley (P-2473) Draft Water Quality Reports

Gregory, Malcolm K - DNR <malcolm.gregory@wisconsin.gov>

Tue 12/21/2021 9:19 AM

To: Brian Kreuscher <bkreuscher@rwehydro.com>

Morning Brian,

Thanks for sending the spreadsheet. I have a meeting with Cheryl tomorrow and will make sure to pass it on.

Best,

Malcolm

Malcolm Gregory (he/him)
Environmental Analysis & Review Specialist
Wisconsin Department of Natural Resources
101 S. Webster Street
Madison, WI 53707-7921
malcolm.gregory@wisconsin.gov

From: Brian Kreuscher <bkreuscher@rwehydro.com>
Sent: Tuesday, December 21, 2021 9:07 AM
To: Gregory, Malcolm K - DNR <malcolm.gregory@wisconsin.gov>
Cc: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>
Subject: Re: Flambeau Upper (P-2640) Flambeau Lower (P-2421) Pixley (P-2395) Crowley (P-2473) Draft Water Quality Reports

Greg,
Here is the sheet with a tab for each project.

Thanks
Brian Kreuscher

From: Gregory, Malcolm K - DNR <malcolm.gregory@wisconsin.gov>
Sent: Tuesday, December 21, 2021 8:20 AM
To: Brian Kreuscher <bkreuscher@rwehydro.com>
Cc: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>
Subject: FW: Flambeau Upper (P-2640) Flambeau Lower (P-2421) Pixley (P-2395) Crowley (P-2473) Draft Water Quality Reports

Document Accession #: 20220202-5074 Filed Date: 02/02/2022

Good morning Brian,

Could you please send me the raw data for these four reports? WDNR would like to have the corresponding spreadsheets for the FERC licensee annual WQ reports.

Best,

Malcolm

Malcolm Gregory (he/him)
Environmental Analysis & Review Specialist
Wisconsin Department of Natural Resources
101 S. Webster Street
Madison, WI 53707-7921
malcolm.gregory@wisconsin.gov

From: Brian Kreuscher <bkreuscher@rwehydro.com>
Sent: Tuesday, November 16, 2021 9:47 AM
To: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>; Darin_Simpkins@fws.gov
Subject: Flambeau Upper (P-2640) Flambeau Lower (P-2421) Pixley (P-2395) Crowley (P-2473) Draft Water Quality Reports

All,

Attached are the Draft Water Quality Reports for all four projects. Please review and provide any comments you may have to me within 60 days for FERC submittal.

Thanks

Brian Kreuscher

Renewable World Energies
Regulatory & Compliance
855-994-9376 x230

Document Content(s)

22-02-02 BRK Flam 2021 WQ Data To FERC ALL.pdf 1