Renewable World Energies

February 17, 2017

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 2016 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 2016 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. 2016 was the thirteenth year monitoring was conducted since the license was issued, but is the 5th year of submittal by RWE on the behalf of the Licensee.
Monitoring was conducted on March 22, July 19, and August 18, 2016. No issues were encountered during the 2015 monitoring season. All data has been entered into the SWIMS Data Base. The draft report was sent to the agencies by letter dated November 16, 2016 for review and comment. No comments have been received as of the date of this letter. The next scheduled monitoring event will be conducted in 2017.

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.

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Sincerely,
Renewable World Energies, LLC
Agent for Licensee

Mr. Jason Kreuscher
Vice President, Operations

Attachments: Flambeau Upper Final Rpt 2016 W Q Mon Data
Flambeau Lower Final Rpt 2016 W Q Mon Data
Flambeau Pixley Final Rpt 2016 W Q Mon Data
Flambeau Crowley Final Rpt 2016 W Q Mon Data

Cc: Ms. Cheryl Laatsch, WDNR
Mr. Nick Utrup, USFWS
RWE, Corporate

Final Report

2016 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

2016 marked the thirteenth 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 March 22, July 19, and August 18, 2016. This document contains all of the associated records for the 2016 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 2016 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 2016 monitoring season appeared slightly warmer in May, June, and July, & August, with lower than normal precipitation in April and May, and normal to high precipitation in the months of June, July and August (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 14th, 2016. The Ice-Out sampling event occurred on March 22, 2016. River flow, based on the Flambeau (Upper) Hydroelectric Project records was approximately 690 cubic feet per second. Sampling occurred between 7:45 a.m. and 8:20 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 March 24, 2016. White Water Associates, Inc. issued a laboratory report on May 9, 2016. 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 1147 cubic feet per second during the July 19, 2016 sampling event. Sampling occurred between 8:00 a.m. and 8:15 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 21, 2016. White Water Associates, Inc. issued a laboratory report on August 10, 2016. 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 552 cubic feet per second during the August 18, 2016 sampling event. Sampling occurred between 7:55 a.m. and 8:05 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 18, 2016. White Water Associates, Inc. issued a laboratory report on September 6, 2016. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

A summary of a comparison between the 2011 thru 2016 (Table 3) sampling results are as follows:

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

The next scheduled Water Quality Monitoring at the Flambeau (Upper) Hydroelectric Project is set to take place in 2017 beginning with the Ice-Out sampling event.

Appendix A – Flambeau (Upper) Hydroelectric Project Figures

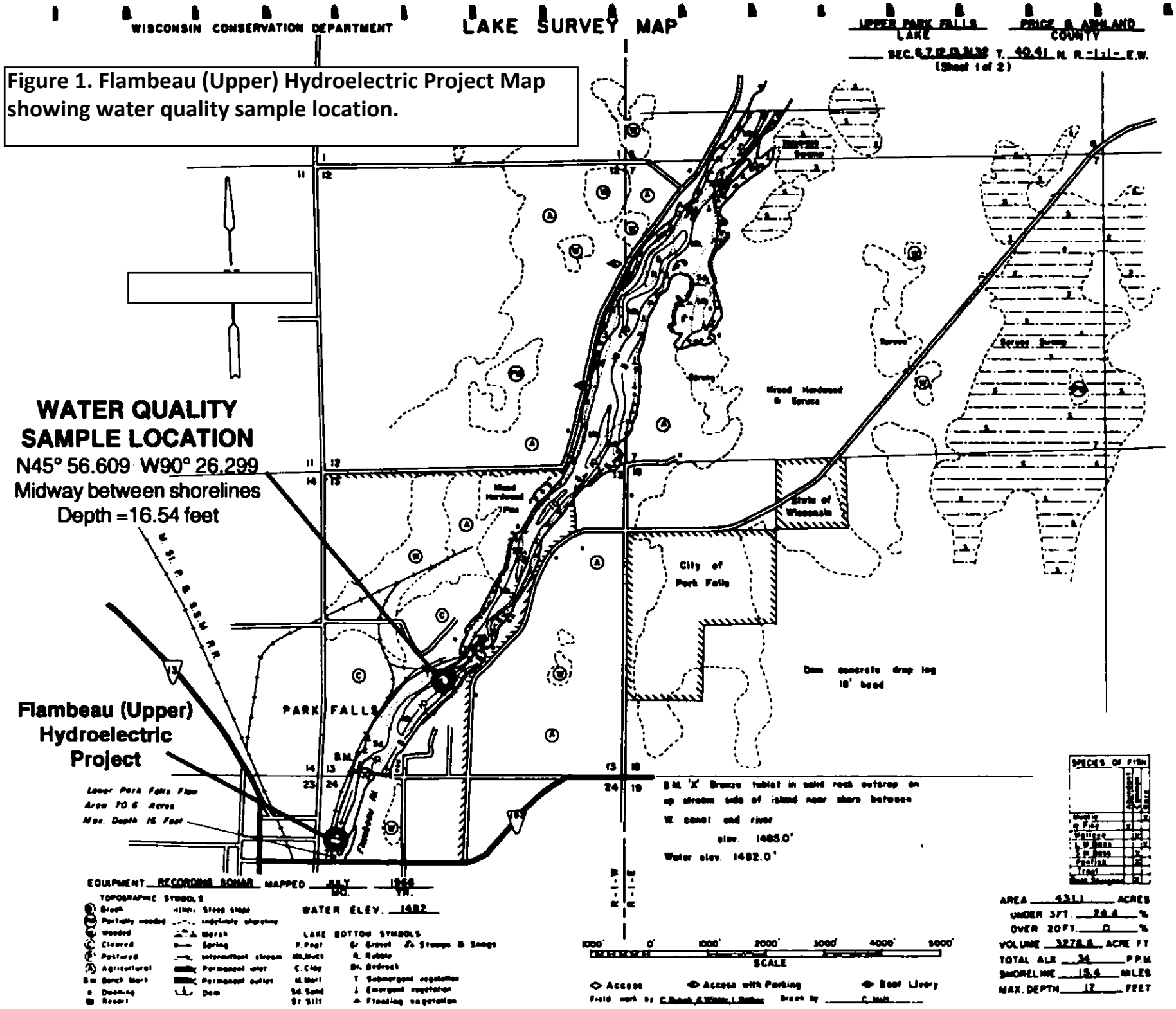


Figure 1. Flambeau (Upper) Hydroelectric Project Map showing water quality sample location.

Figure 2. Flambeau Upper - FERC #2640
2016 Temperature Samples

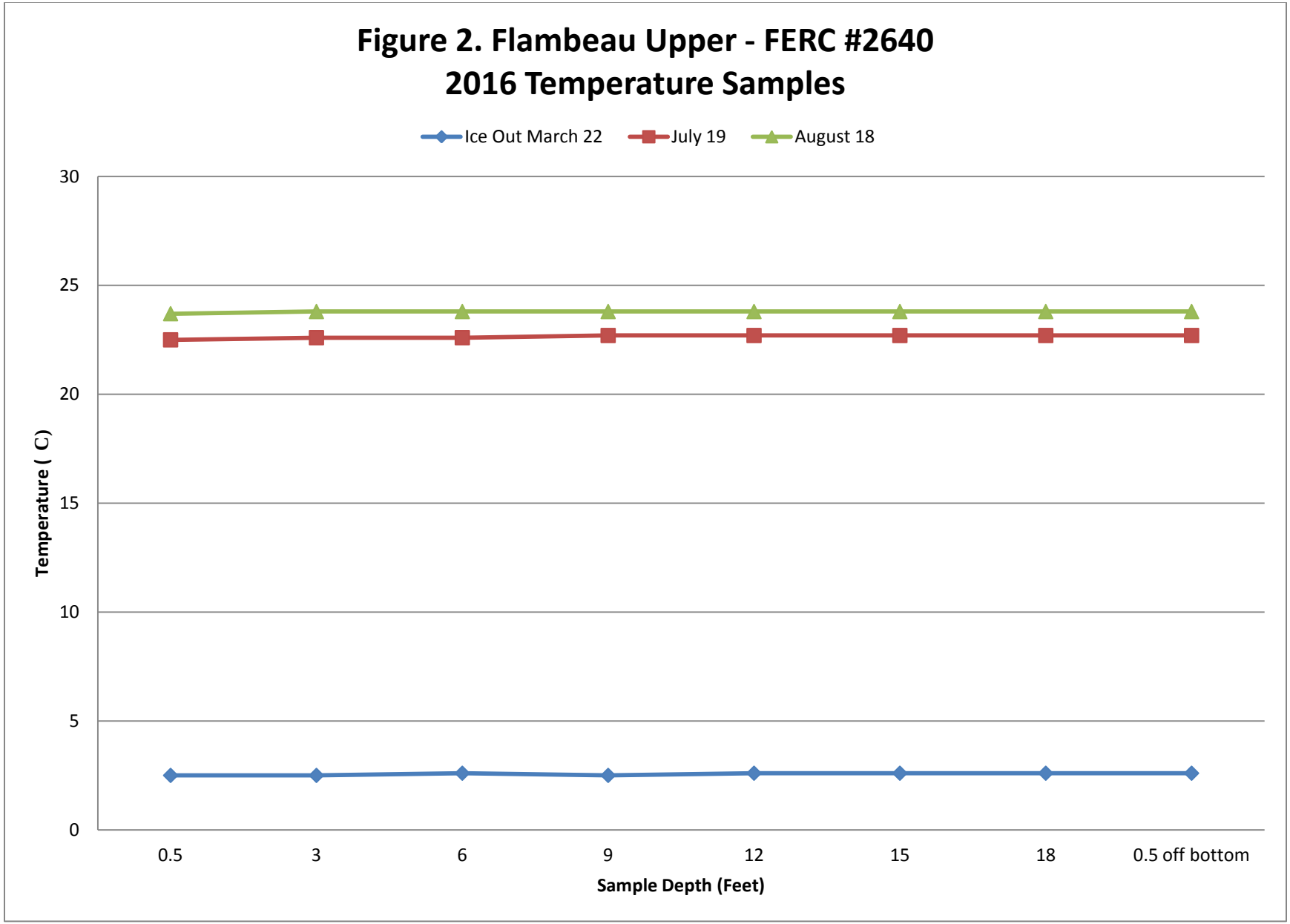


Figure 3. Flambeua Upper - FERC #2640
2016 Dissolved Oxygen Samples

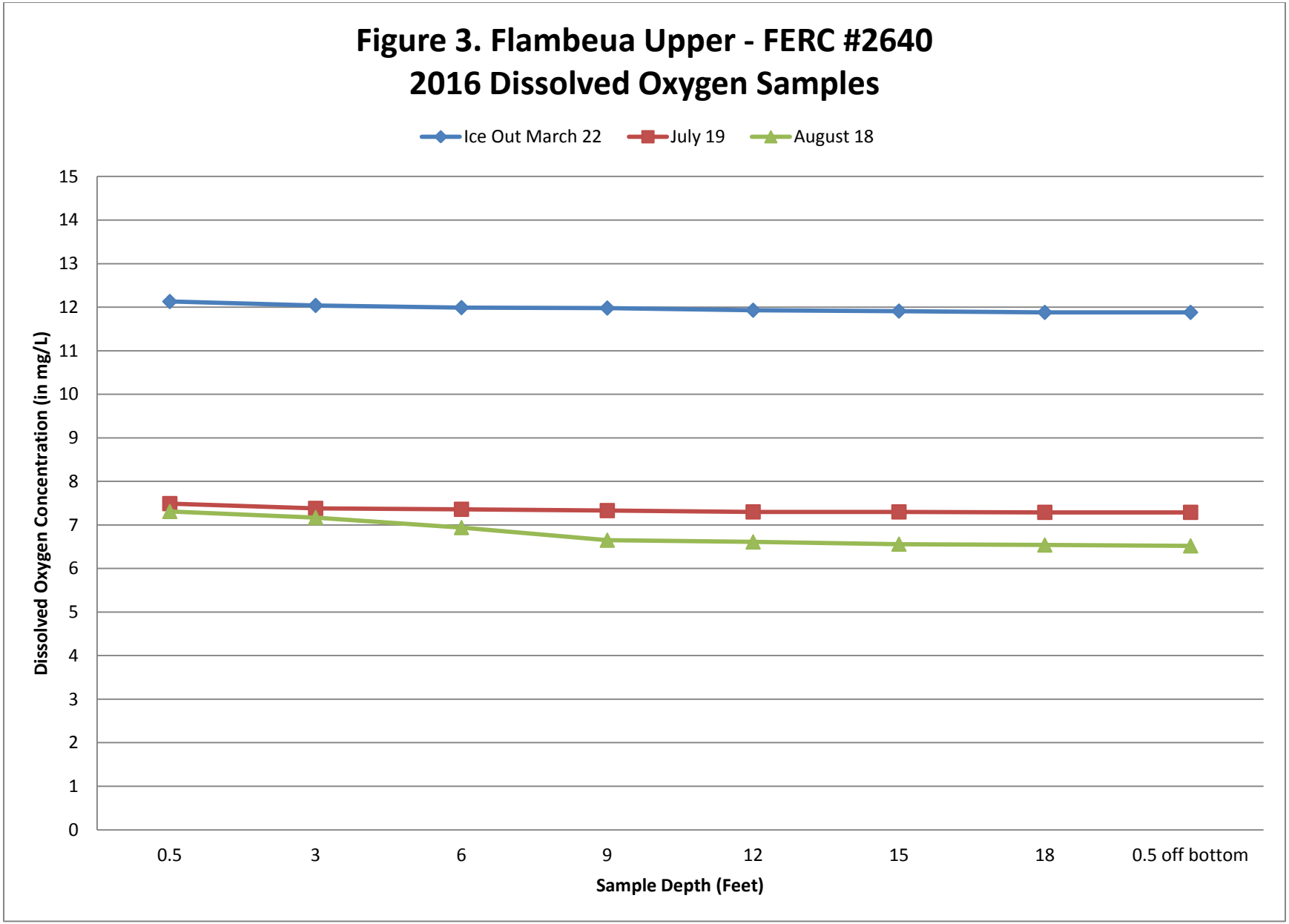
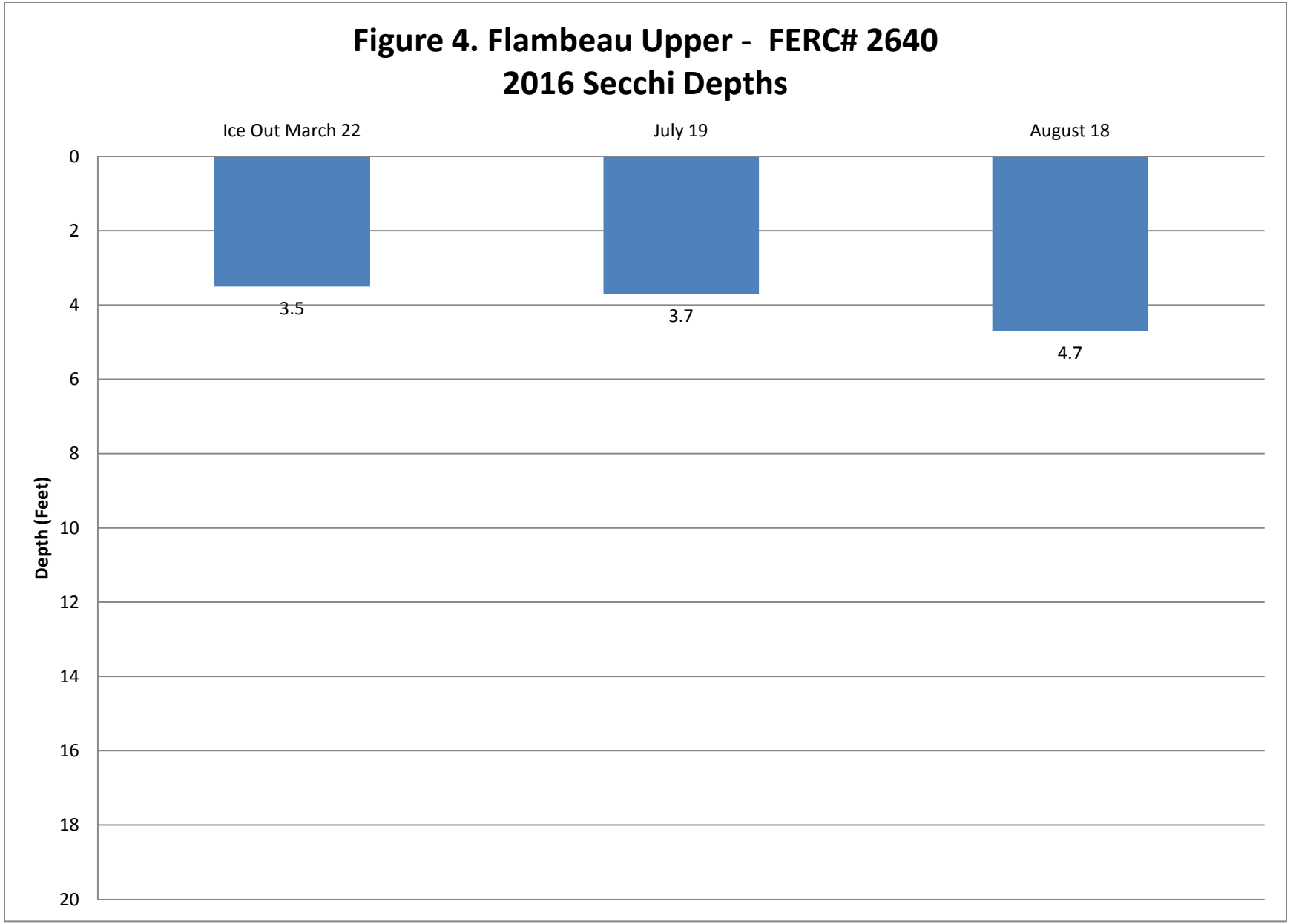


Figure 4. Flambeau Upper - FERC# 2640
2016 Secchi Depths



Appendix B – Flambeau (Upper) Hydroelectric Project Tables

Table 1. Flambeau (Upper) Hydroelectric Project – FERC Project # 2640: 2016 Water Quality Sampling Data

	Ice Out March 22, 2016			July 19, 2016			August 18, 2016		
Project Flow (c.f.s)	690			1147			552		
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	8:08:00	12.13	2.5	8:08:06	7.49	22.5	7:56:28	7.31	23.7
3 feet below surface	8:09:30	12.04	2.5	8:08:49	7.38	22.6	7:57:09	7.17	23.8
6 feet below surface	8:09:42	11.99	2.6	8:09:43	7.36	22.6	7:58:09	6.94	23.8
9 feet below surface	8:10:16	11.98	2.5	8:10:17	7.33	22.7	7:58:48	6.65	23.8
12 feet below surface	8:10:54	11.93	2.6	8:10:54	7.30	22.7	7:59:19	6.61	23.8
15 feet below surface	8:11:26	11.91	2.6	8:11:24	7.30	22.7	8:00:07	6.56	23.8
18 feet below surface	8:12:04	11.88	2.6	8:11:52	7.29	22.7	8:01:09	6.54	23.8
0.5 meter above bottom	8:12:42	11.88	2.6	8:12:20	7.29	22.7	8:00:45	6.52	23.8
Secchi Disk	**Time**	**Depth (ft)**		**Time**	**Depth (ft)**		**Time**	**Depth (ft)**	
Feet below surface	7:49	3.5		8:05	3.7		8:04	4.7	
Chlorophyll *a*	**Time**	**µg/L**		**Time**	**µg/L**		**Time**	**µg/L**	
3 feet below surface	8:04	ND		8:04	6.3		7:58	8.5	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
3 feet below surface	8:16	30	5*	8:06	40	5*	7:56	35	5*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
3 feet below surface	8:16	0.02	0.01*	8:06	0.022	0.008*	7:56	0.022	0.008*
3 feet above bottom	8:20	0.01	0.01*	8:10	0.019	0.008*	7:59	0.022	0.008*
* Considered Method Detection Limit N/A = Not Applicable ND = No Detection									

Table 2. 2015/16 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 - 15	84	24	46.3	3.1	574	678	1.90	Trace	2.85	67
November - 15	64	10	36.7	7.9	844	1088	2.75	4.40	2.09	132
December - 15	43	2	26.4	11.6	1187	1556	3.70	24.60	1.21	306
January – 16	41	-21	12.8	2.6	1611	1699	1.05	13.00	0.96	109
February – 16	52	-17	17.3	2.2	1376	1399	0.83	12.20	0.81	102
March – 16	60	-2	31.6	5.7	1028	1210	3.96	17.30	1.49	266
April – 16	71	2	37.7	-1.9	809	762	2.40	9.80	2.43	99
May – 16	92	28	53.2	1.8	370	426	1.87	0.10	3.23	58
June – 16	89	37	61.5	1.4	142	179	4.46	0.00	4.23	105
July – 16	90	45	67.1	1.3	29	63	4.39	0.00	3.85	114
August – 16	85	50	67.5	3.2	25	86	4.96	0.00	3.70	134
September - 16	80	40	59.9	4.3	162	298	3.52	0.00	4.11	86

Source: NOAA/Duluth, MN

Table 3. Flambeau (Upper) Project Sampling Comparison Table2011 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**
2011	April	3.50	0.51	100.00	0.025	0.028	12.63	12.91	5.90	6.40
2012	April	3.50	1.00	100.00	0.027	*	12.01	11.71	8.50	8.90
2013	May	*	*	*	*	*	*	*	*	*
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
Minimum	March/April/June	3.20	0.51	30.00	0.020	0.010	7.09	7..37	2.50	2.60
Maximum	March/April/June	3.60	2.90	130.00	0.027	0.028	12.63	12.91	17.60	17.80
Average	March/April/June	3.46	1.58	98.00	0.024	0.019	10.68	10.83	8.74	9.06
2011	July	3.80	5.80	70.00	0.038	*	7.37	7.70	24.40	25.20
2012	July	3.50	5.90	70.00	0.036	*	6.56	6.91	24.30	24.80
2013	July	3.10	1.60	150.00	0.026	*	6.35	6.41	24.00	24.20
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
Minimum	July	3.10	1.60	40.00	0.017	0.019	6.35	6.41	20.30	20.70
Maximum	July	3.90	6.30	150.00	0.038	0.019	7.37	7.70	24.40	25.20
Average	July	3.58	4.38	85.00	0.029	0.019	6.95	7.16	22.75	23.15
2011	August	2.90	11.00	120.00	0.033	*	8.13	8.43	22.20	22.90
2012	August	2.70	12.00	70.00	0.037	*	7.61	8.08	22.70	22.90
2013	August	3.30	6.00	130.00	0.066	*	7.45	7.69	19.50	19.70
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
Minimum	August	2.70	5.60	35.00	0.022	0.022	6.52	7.12	19.50	19.70
Maximum	August	4.70	16.00	130.00	0.066	0.022	8.13	8.43	23.70	23.80
Average	August	3.37	9.85	87.50	0.035	0.022	7.33	7.74	21.60	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: 3-22-2016

Pre-Sampling Data:

HWL 1486.533 TWL 1467.6 CFS 690

Sample Location: UpFlWQS
N 45.94289 W090.43889

Performed by:
A Stine, T. Plummer

Time: 7:45 Barometer: 29.70 in

Air Temp: 34 °F °C Wind Speed: 4 mph

Sky Conditions: 75% clouds

Precipitation within Last 24 Hours: none

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 101 % Charge

Calibration Method: Factory

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

Secchi Depth (± 0.1)		
Time 7:49	3.5	Feet

Comments:
Used horizontal sampler

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 8:04	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$ 8:45	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 8:16

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 8:16	Preservative
	H_2SO_4 8:45

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 8:20	Preservative
	H_2SO_4 8:45

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	8:08	12.13	25
3	8:09,00	12:04	2.5
6	8:09,42	11.99	2.6
9	8:10:16	11.98	2.5
12	8:10:54	11.93	2.6
15	8:11:26	11.91	2.6
18	8:12:04	11.88	2.6
21			
24			
0.5 above bottom	8:12:42	11.88	2.6

*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 Flambeau Upper

Hydroelectric Project – FERC # 2640

Date: 7-19-2016

Pre-Sampling Data:

HWL 1486.51 TWL 1467.60 CFS 1147

Sample Location: N45.94289 W90.43889

Performed by:

A. Stine S. Hacag

Time: 8:00 Barometer: 30.30

Air Temp: 64 °F Wind Speed: Calm 2mph

Sky Conditions: Clear

Precipitation within Last 24 Hours: 0

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: 18 Feet

Secchi Depth (± 0.1)		
Time 8:05	3.7	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 8:04	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time: 8:04	

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 8:06	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 8:10	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	8:06:06	7.49	22.5
3	8:08:59	7.38	22.6
6	8:09:43	7.36	22.6
9	8:10:17	7.33	22.7
12	8:10:54	7.30	22.7
15	8:11:24	7.30	22.7
18	8:11:52	7.29	22.7
21			
24			
0.5 above bottom	8:12:20	7.29	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 Flambeau Upper

Hydroelectric Project – FERC # 2640

Date: 8-18-16

Pre-Sampling Data:

HWL 1486.62 TWL 1467.6 CFS 552

Sample Location: _____

Performed by:
Stine Haag

Time: 7:55 Barometer: 30.10

Air Temp: 63 °F Wind Speed: E 0 mph

Sky Conditions: clear

Precipitation within Last 24 Hours: no

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 90 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 17 Feet

Secchi Depth (± 0.1)		
Time 8:04	4.7	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 7:58	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 7:56

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 7:56	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 7:59	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	7:56.28	7.31	23.7
3	7:57.09	7.17	23.8
6	7:58.09	6.94	23.8
9	7:58.48	6.65	23.8
12	7:59.19	6.61	23.8
15	8:00.07	6.56	23.8
~~18~~ 17	8:01.09	6.54	23.8
21			
24			
0.5 above bottom 16.5	8:00.45	6.52	23.8

*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

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
62079-001	Upper Flambeau Surface	03/22/16	Water
62079-002	Upper Flambeau Bottom	03/22/16	Water
62079-003	Lower Flambeau Surface	03/22/16	Water
62079-004	Lower Flambeau Bottom	03/22/16	Water
62079-005	Pixley Surface	03/22/16	Water
62079-006	Pixley Bottom	03/22/16	Water
62079-007	Crowley Surface	03/22/16	Water
62079-008	Crowley Bottom	03/22/16	Water
62079-009	Winter Surface	03/22/16	Water
62079-010	Clam River Surface	03/23/16	Water
62079-011	Clam River Bottom	03/23/16	Water
62079-012	Danbury Surface	03/23/16	Water
62079-013	Danbury Bottom	03/23/16	Water

ANALYTICAL REPORT

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

Cover Page..continued

Client: RWE **WWA Job #:** 62079

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

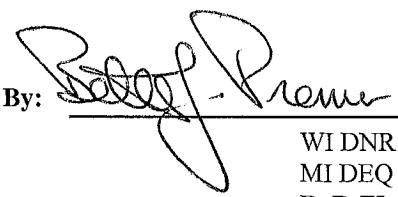
ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)
For coliform, Negative = No coliform bacteria detected, Positive = Coliform bacteria detected

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: 

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-001 / Upper Flambeau Surface / Water							
General Chemistry Parameters							
chlorophyll a	ND		mg/m3	3/28/2016	10200H	NA	NA
Color	30		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-002 / Upper Flambeau Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.01	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-003 / Lower Flambeau Surface / Water							
General Chemistry Parameters							
chlorophyll a	ND		mg/m3	3/28/2016	10200H	NA	NA
Color	35		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-004 / Lower Flambeau Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-005 / Pixley Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.40		mg/m3	3/28/2016	10200H	NA	NA
Color	35		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-006 / Pixley Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-007 / Crowley Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.41		mg/m3	3/28/2016	10200H	NA	NA
Color	40		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-008 / Crowley Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-009 / Winter Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.41		mg/m3	3/28/2016	10200H	NA	NA
Color	40		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-010 / Clam River Surface / Water							
General Chemistry Parameters							
chlorophyll a	11		mg/m3	3/28/2016	10200H	NA	NA
Color	15		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.04		mg/L	3/25/2016	365.4	0.01	0.04
62079-011 / Clam River Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.04		mg/L	3/25/2016	365.4	0.01	0.04
62079-012 / Danbury Surface / Water							
General Chemistry Parameters							
chlorophyll a	9.5		mg/m3	3/28/2016	10200H	NA	NA
Color	15		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-013 / Danbury Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 62079

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

CLIENT NAME / BILL TO	EMAIL ADDRESS
RWE	
ADDRESS	TELEPHONE
CITY / STATE / ZIP	CONTRACT / PO / PROJECT NAME / WSSN#
	Monitoring
SAMPLER NAME (print first/last name)	COUNTY OF LOCATION / PAGE
Angie Stein	PAGE 1 OF 2 — Indicate if more than one page of COC records used
SAMPLER'S SIGNATURE	Check off preservatives for each bottle upon arrival and indicate total number of bottles. WWA database contains bottle preservation details.

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chloro phyll a	TP	Color	T
1	Upper Flambeau Surface	3-22-16	8:16						X						①	3	X	X	X	
2	Upper Flambeau Bottom		"													1		X		
3	lower Flambeau Surf		9:44													3	X	X	X	
4	lower Flambeau Bottom		"													1		X		
5	Pixley Surface		11:07													3	X	X	X	
6	Pixley Bottom		"													1		X		
7	Crowley Surface		12:30													3	X	X	X	
8	Crowley Bottom		"													1		X		
9	Winter Surface	"	14:21												②	3	X	X	X	
10	Clam River Surface	3/23	12:44													3	X	X	X	
11	Clam River Bottom	"	"													1		X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
	3-24-16	9:14	①	3-24-16	950	1.4

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

Job # (WWA office use): 62079

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

CLIENT NAME / BILL TO	EMAIL ADDRESS
RWE	
ADDRESS	TELEPHONE
CITY / STATE / ZIP	CONTRACT / PO / PROJECT NAME / WSSN#
	Monitoring
SAMPLER NAME (print first/last name)	COUNTY OF LOCATION / PAGE
Angie Stone	PAGE 2 OF 2 (Indicate if more than one page of COC records used)
SAMPLER'S SIGNATURE	

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a	TP	Color
12	Danbury Surface	3/23/16	14:45		X				X							3	X	X	X
13	Danbury Bottom	"	"		X				X							1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
Relinquished by:	Date: 3-24-16	Time: 9:14	Received by:	Date: 3-24-16	Time: 950	

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

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
64453-001	Upper Flambeau	07/19/16	Water
64453-002	Upper Flambeau	07/19/16	Water
64453-003	Lower Flambeau	07/19/16	Water
64453-004	Lower Flambeau	07/19/16	Water
64453-005	Pixley	07/19/16	Water
64453-006	Pixley	07/19/16	Water
64453-007	Crowley	07/19/16	Water
64453-008	Crowley	07/19/16	Water
64453-009	Winter	07/18/16	Water
64453-010	Clam River	07/20/16	Water
64453-011	Clam River	07/20/16	Water
64453-012	Danbury	07/20/16	Water
64453-013	Danbury	07/20/16	Water

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

Cover Page..continued

Client: RWE **WWA Job #:** 64453

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

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: Betty J. Prewo

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-001 / Upper Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.3		mg/m3	7/21/2016	10200H	NA	NA
Color	40		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-002 / Upper Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.019	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-003 / Lower Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.7		mg/m3	7/21/2016	10200H	NA	NA
Color	45		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.021	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-004 / Lower Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.026	J	mg/L	8/1/2016	365.4	0.008	0.050

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)

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Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-005 / Pixley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	8.1		mg/m3	7/21/2016	10200H	NA	NA
Color	45		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.033	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-006 / Pixley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.180		mg/L	8/1/2016	365.4	0.008	0.050
64453-007 / Crowley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.5		mg/m3	7/21/2016	10200H	NA	NA
Color	55		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.036	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-008 / Crowley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.030	J	mg/L	8/1/2016	365.4	0.008	0.050

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

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Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-009 / Winter / Surface / Water							
General Chemistry Parameters							
chlorophyll a	2.2		mg/m3	7/21/2016	10200H	NA	NA
Color	85		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.035	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-010 / Clam River / Surface / Water							
General Chemistry Parameters							
chlorophyll a	44		mg/m3	7/21/2016	10200H	NA	NA
Color	30		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.043	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-011 / Clam River / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.043	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-012 / Danbury / Surface / Water							
General Chemistry Parameters							
chlorophyll a	10		mg/m3	7/21/2016	10200H	NA	NA
Color	20		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050

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

ANALYTICAL REPORT

WHITE WATER ASSOCIATES, INC.
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Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-013 / Danbury / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 64453

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a	Total Phos	Color
1	Upper Flambeau Surface	7-19-16	8:06		X				X	X						3	X	X	X
2	Upper Flambeau Bottom	7-19-16	8:10													1		X	
3	Lower Flambeau Surface	7-19-16	9:04						X							3	X	X	X
4	Lower Flambeau Bottom	7-19-16	9:08													1		X	
5	Pixley Surface	7-19-16	11:26						X							3	X	X	X
6	Pixley Bottom	7-19-16	11:27													1		X	
7	Crowley Surface	7-19-16	13:25						X							3	X	X	X
8	Crowley Bottom	7-19-16	13:27													1		X	
9	Winter Surface	7-18-16	14:00						X							3	X	X	X
10	Clam River Surface	7-18-16	10:15						X							3	X	X	X
11	Clam River Bottom	7-20-16	10:20						X	⊙						1		X	
12	Danbury Surface	7-20-16	1234						X							3	X	X	X
13	Danbury Bottom	7-20-16	1236													1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
	7/20/16	18:12				
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
			⊙	7-21-16	1150	1.3

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

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
65014-001	Upper Flambeau	08/18/16	Water
65014-002	Upper Flambeau	08/18/16	Water
65014-003	Lower Flambeau	08/18/16	Water
65014-004	Lower Flambeau	08/18/16	Water
65014-005	Pixley	08/18/16	Water
65014-006	Pixley	08/18/16	Water
65014-007	Crowley	08/18/16	Water
65014-008	Crowley	08/18/16	Water
65014-009	Winter	08/18/16	Water
65014-010	Clam River	08/18/16	Water
65014-011	Clam River	08/18/16	Water
65014-012	Danbury	08/18/16	Water
65014-013	Danbury	08/18/16	Water

WHITE WATER ASSOCIATES, INC.
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Cover Page..continued

Client: RWE **WWA Job #:** 65014

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

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: _____

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-001 / Upper Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	8.5		mg/m3	8/24/2016	10200H	NA	NA
Color	35		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-002 / Upper Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.022	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-003 / Lower Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	7.2		mg/m3	8/24/2016	10200H	NA	NA
Color	30		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.026	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-004 / Lower Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.096		mg/L	8/25/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-005 / Pixley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	15		mg/m3	8/24/2016	10200H	NA	NA
Color	45		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.036	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-006 / Pixley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.048	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-007 / Crowley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	15		mg/m3	8/24/2016	10200H	NA	NA
Color	40		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.030	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-008 / Crowley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.030	J	mg/L	8/25/2016	365.4	0.008	0.050

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)

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Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-009 / Winter / Surface / Water							
General Chemistry Parameters							
chlorophyll a	1.5		mg/m3	8/24/2016	10200H	NA	NA
Color	60		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.038	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-010 / Clam River / Surface / Water							
General Chemistry Parameters							
chlorophyll a	61		mg/m3	8/24/2016	10200H	NA	NA
Color	25		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.050		mg/L	8/25/2016	365.4	0.008	0.050
65014-011 / Clam River / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.053		mg/L	8/25/2016	365.4	0.008	0.050
65014-012 / Danbury / Surface / Water							
General Chemistry Parameters							
chlorophyll a	5.2		mg/m3	8/24/2016	10200H	NA	NA
Color	20		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.037	J	mg/L	8/25/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-013 / Danbury / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.040	J	mg/L	8/25/2016	365.4	0.008	0.050

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 65014

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

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

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a (mg/L)	Total PO_4 ($\mu g/cm^2$)	Color							
1	Upper Flambeau Surface	8-18-16	7:58						X	X						3	X	X	X							
2	Upper Flambeau Bottom	8-18-16	7:59													1		X								
3	Lower Flambeau Surface	8-18-16	9:44													3	X	X	X							
4	Lower Flambeau Bottom	8-18-16	9:45													1		X								
5	Pixley Surface	8-18-16	11:10													3	X	X	X							
6	Pixley Bottom	8-18-16	11:12													1		X								
7	Crowley Surface	8-18-16	12:59													3	X	X	X							
8	Crowley Bottom	8-18-16	13:00													1		X								
9	Winter Surface	8-16-16	13:07													3	X	X	X							
10	Clam River Surface	8-17-16	10:28													3	X	X	X							
11	Clam River Bottom	8-17-16	10:29													1		X								
12	Dunbury Surface	8-17-16	13:06													3	X	X	X							
13	Dunbury Bottom	8-17-16	13:08													1		X								

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
			Email	8-18-16	1615	
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
	8/18/16	1634	Login email	8-19-16	1107	3.7

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

Final Report

2016 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

2016 marked the thirteenth 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 March 22, July 19, and August 18, 2016. This document contains all of the associated records for the 2016 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 2016 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 2016 monitoring season appeared slightly warmer in May, June, and July, & August, with lower than normal precipitation in April and May, and normal to high precipitation in the months of June, July and August (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 14th, 2016. The Ice-Out sampling event occurred on March 22, 2016. River flow, based on the Flambeau (Lower) Hydroelectric Project records was approximately 682 cubic feet per second. Sampling occurred between 9:30 a.m. and 9:50 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 March 24, 2016. White Water Associates, Inc. issued a laboratory report on May 9, 2016. 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 968 cubic feet per second during the July 19, 2016 sampling event. Sampling occurred between 9:00 a.m. and 9:10 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 21, 2016. White Water Associates, Inc. issued a laboratory report on August 10, 2016. 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 502 cubic feet per second during the August 18, 2016 sampling event. Sampling occurred between 9:44 a.m. and 9:53 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 18, 2016. White Water Associates, Inc. issued a laboratory report on September 6, 2016. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

A summary of a comparison between the 2011 thru 2016 (Table 3) sampling results are as follows:

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

The next scheduled Water Quality Monitoring at the Flambeau (Lower) Hydroelectric Project is set to take place in 2017 beginning with the Ice-Out sampling event.

Appendix A – Flambeau (Lower) Hydroelectric Project Figures

Figure 1. Flambeau (Lower) Hydroelectric Project Map showing water quality sample location.

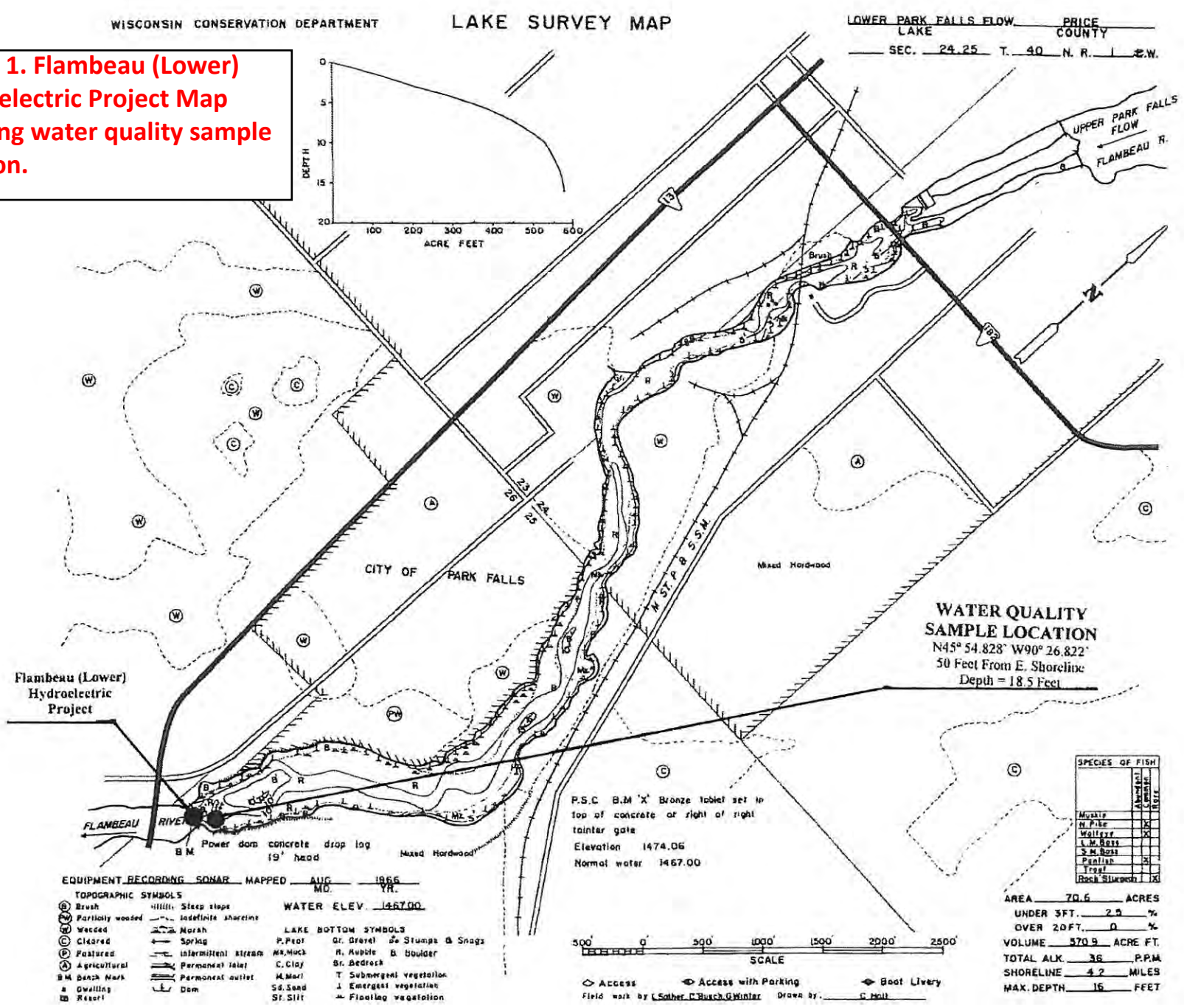


Figure 2. Flambeau Lower - FERC #2421
2016 Temperature Samples

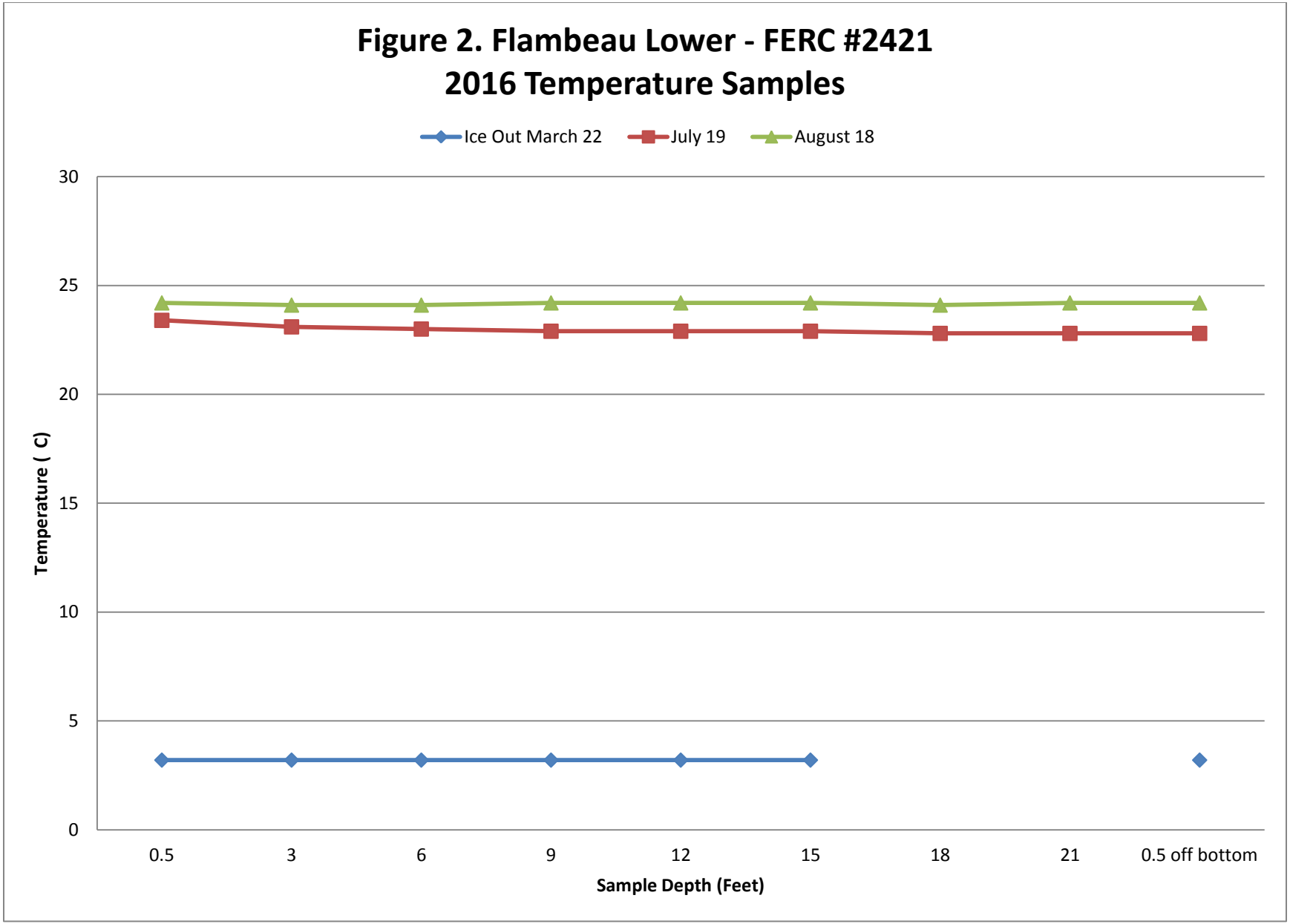
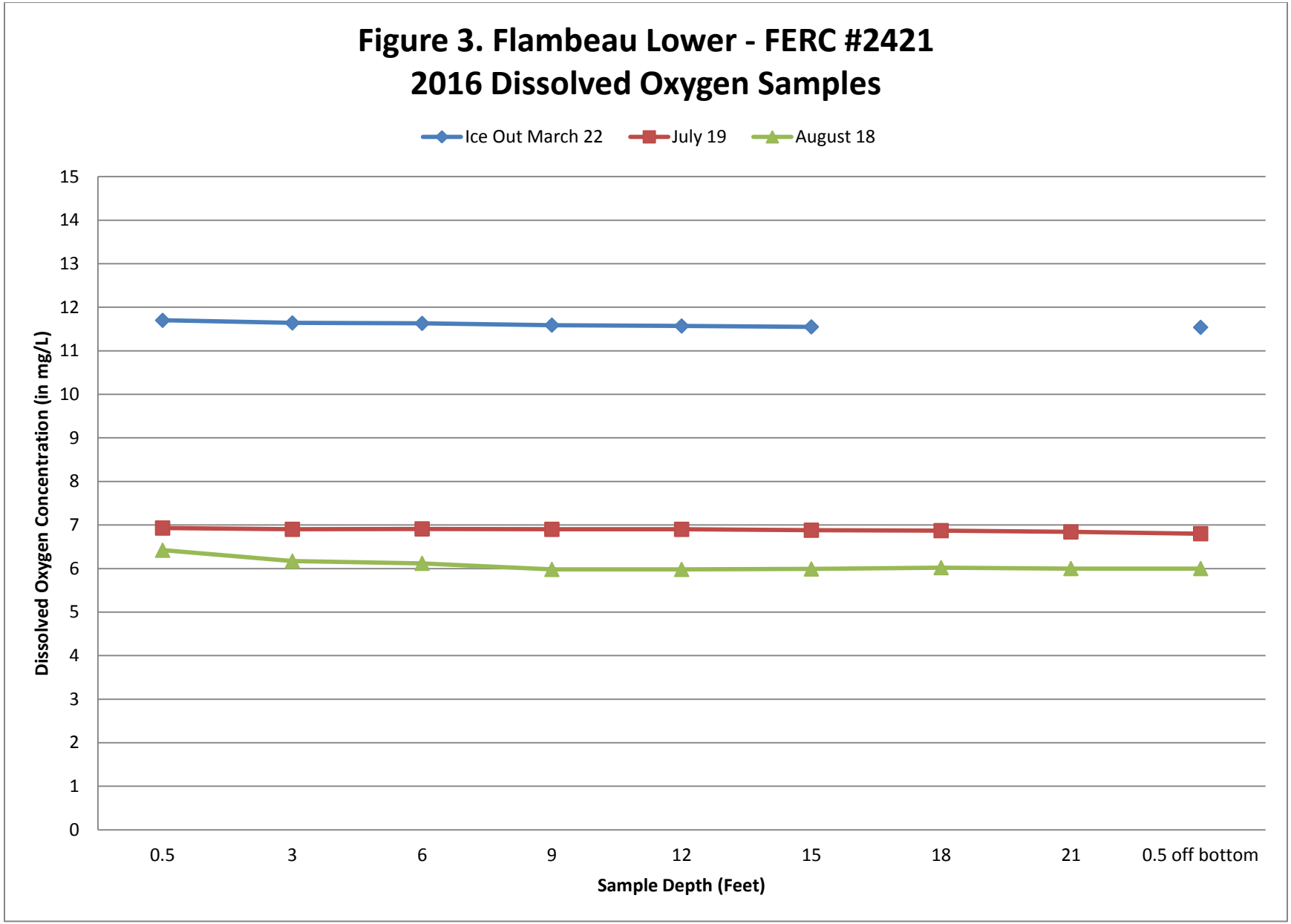


Figure 3. Flambeau Lower - FERC #2421
2016 Dissolved Oxygen Samples



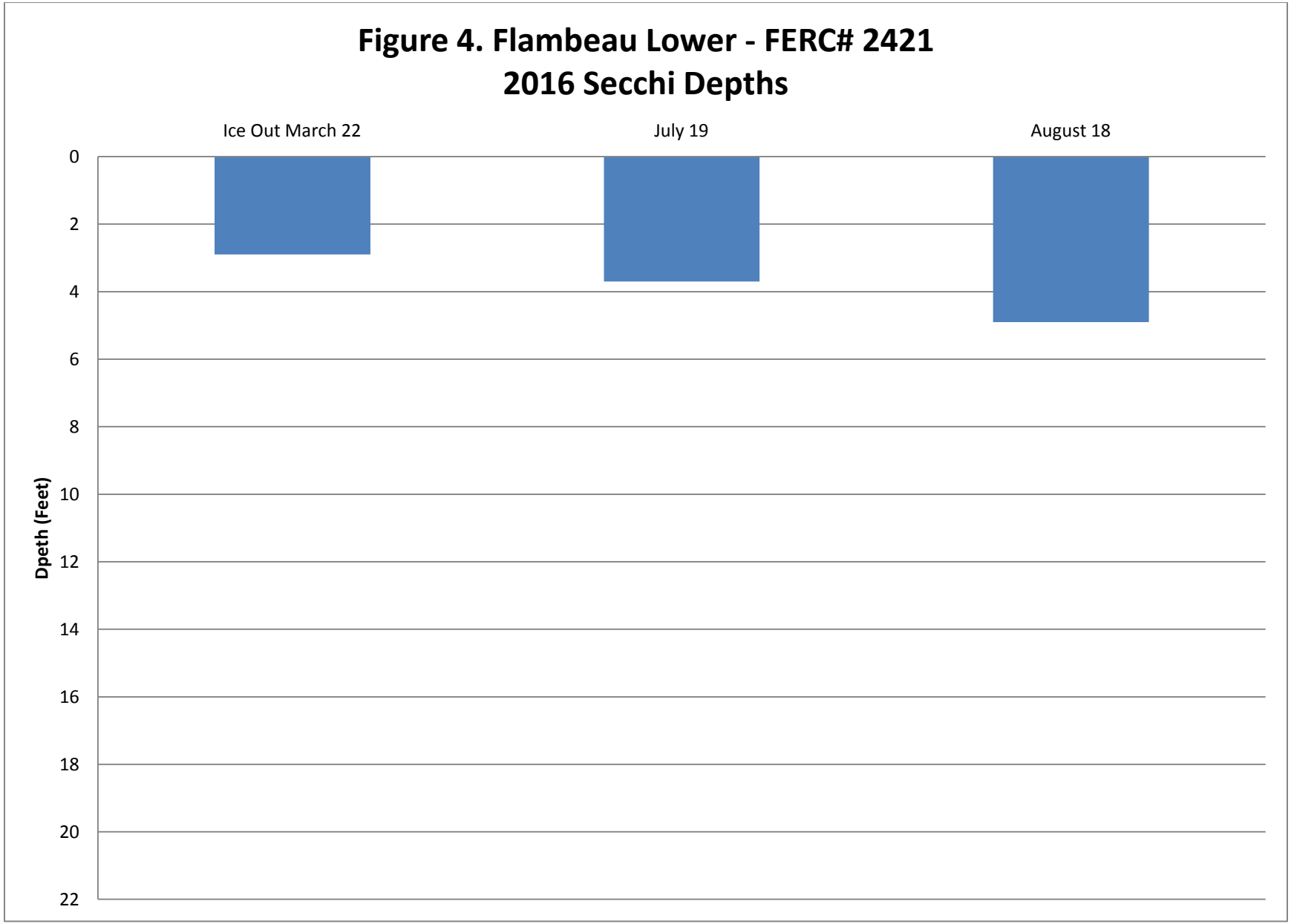


Figure 4. Flambeau Lower - FERC# 2421
2016 Secchi Depths
Ice Out March 22
July 19
August 18
Dpeth (Feet)
0
2
4
6
8
10
12
14
16
18
20
22

Appendix B – Flambeau (Lower) Hydroelectric Project Tables

Table 1. Flambeau (Lower) Hydroelectric Project – FERC Project # 2421: 2016 Water Quality Sampling Data

	Ice Out March 22, 2016			July 19, 2016			August 18, 2016		
Project Flow (c.f.s)	682			968			502		
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	9:40:16	11.70	3.2	9:05:36	6.93	23.4	9:43:09	6.42	24.2
3 feet below surface	9:40:56	11.64	3.2	9:06:09	6.90	23.1	9:43:39	6.17	24.1
6 feet below surface	9:41:30	11.63	3.2	9:06:34	6.91	23.0	9:44:07	6.12	24.1
9 feet below surface	9:42:10	11.59	3.2	9:07:01	6.90	22.9	9:44:42	5.98	24.2
12 feet below surface	9:42:52	11.57	3.2	9:07:27	6.90	22.9	9:45:49	5.98	24.2
15 feet below surface	9:43:32	11.55	3.2	9:07:53	6.88	22.9	9:46:31	5.99	24.2
18 feet below surface	N/A	N/A	N/A	9:08:20	6.87	22.8	9:52:03	6.02	24.1
21 feet below surface	N/A	N/A	N/A	9:09:18	6.84	22.8	9:52:47	6.00	2432
0.5 meter above bottom	9:44:05	11.54	3.2	9:10:06	6.80	22.8	9:52:47	6.00	24.2
Secchi Disk	**Time**	**Depth (ft)**		**Time**	**Depth (ft)**		**Time**	**Depth (ft)**	
Feet below surface	9:38	2.9		9:04	3.7		9:58	4.9	
Chlorophyll *a*	**Time**	**µg/L**		**Time**	**µg/L**		**Time**	**µg/L**	
3 feet below surface	9:42	ND		9:04	6.7		9:44	7.2	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
3 feet below surface	9:44	35	5*	9:05	45	5*	9:43	30	5*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
3 feet below surface	9:44	0.03	0.01*	9:05	0.021	0.008*	9:43	0.026	0.008*
3 feet above bottom	9:47	0.03	0.01*	9:08	0.026	0.008*	9:45	0.096	0.008*
* Considered Method Detection Limit N/A = Not Applicable ND = No Detection									

Table 2. 2015/16 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 - 15	84	24	46.3	3.1	574	678	1.90	Trace	2.85	67
November - 15	64	10	36.7	7.9	844	1088	2.75	4.40	2.09	132
December - 15	43	2	26.4	11.6	1187	1556	3.70	24.60	1.21	306
January – 16	41	-21	12.8	2.6	1611	1699	1.05	13.00	0.96	109
February – 16	52	-17	17.3	2.2	1376	1399	0.83	12.20	0.81	102
March – 16	60	-2	31.6	5.7	1028	1210	3.96	17.30	1.49	266
April – 16	71	2	37.7	-1.9	809	762	2.40	9.80	2.43	99
May – 16	92	28	53.2	1.8	370	426	1.87	0.10	3.23	58
June – 16	89	37	61.5	1.4	142	179	4.46	0.00	4.23	105
July – 16	90	45	67.1	1.3	29	63	4.39	0.00	3.85	114
August – 16	85	50	67.5	3.2	25	86	4.96	0.00	3.70	134
September - 16	80	40	59.9	4.3	162	298	3.52	0.00	4.11	86

Source: NOAA/Duluth, MN

Table 3. Flambeau (Lower) Project Sampling Comparison Table: 2011 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**
2011	April	2.70	0.77	80.00	0.028	0.031	11.64	12.48	5.90	8.00
2012	April	2.60	2.10	120.00	0.038	0.055	10.94	11.35	8.80	9.00
2013	May	*	*	*	*	*	*	*	*	*
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
Minimum	March/April/June	2.60	0.77	35.00	0.030	0.030	7.30	7.60	3.20	3.20
Maximum	March/April/June	3.80	3.00	130.00	0.040	0.080	11.64	12.48	18.80	19.60
Average	March/April/June	3.06	1.74	99.00	0.032	0.045	10.11	10.56	9.22	9.88
2011	July	3.70	5.60	80.00	0.042	0.041	6.62	6.91	24.90	25.30
2012	July	4.70	4.00	80.00	0.038	0.041	5.52	6.15	25.30	25.90
2013	July	3.50	3.20	150.00	0.041	0.041	5.91	6.04	25.00	25.00
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
Minimum	July	3.30	3.00	45.00	0.021	0.026	5.52	6.04	20.70	21.20
Maximum	July	4.70	6.70	150.00	0.042	0.041	6.80	7.20	25.30	25.90
Average	July	3.73	4.42	89.17	0.034	0.036	6.29	6.69	23.27	23.58
2011	August	3.25	13.00	120.00	0.048	0.047	7.74	7.14	23.20	24.30
2012	August	2.75	14.00	80.00	0.051	0.050	5.93	6.75	23.50	23.70
2013	August	3.20	5.30	130.00	0.071	0.110	7.06	7.24	19.90	20.00
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
Minimum	August	2.75	5.30	30.00	0.026	0.033	5.93	6.42	19.90	20.00
Maximum	August	4.90	14.00	130.00	0.071	0.110	7.74	7.24	24.10	24.30
Average	August	3.52	9.83	88.33	0.043	0.067	6.67	6.95	22.40	22.70

* 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: 3-22-2016

Pre-Sampling Data:

HWL 1467.222 TWL 1448.4 CFS 682

Sample Location: LOFLWQS
N45, 91379 W090.44757

Performed by:
A. Stine T Plummer

Time: 9:35 Barometer: 29.7

Air Temp: 36°F °C Wind Speed: ENE 7mph

Sky Conditions: 70% Clouds

Precipitation within Last 24 Hours: 0

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: ~~100~~ 95 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: ~~29~~ 15 Feet

Secchi Depth (± 0.1)		
Time 9:38	2.9	Feet

Comments:
Used Kemmerer sampler
pressure holding rubber stretched

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time	Quantity (ml)	Filtered
9:42	1000	In Lab
Preservative	$MgCO_3$ 10:10	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 9:44

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 9:44	Preservative
	H_2SO_4 10:10

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time	Preservative
9:47	H_2SO_4 10:10

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	9:40:16	11.70	3.2
3	9:40:56	11.64	3.2
6	9:41:30	11.63	3.2
9	9:42:10	11.59	3.2
12	9:42:52	11:57	3.2
15	9:43:32	11:55	3.2
18			
21			
24			
0.5 above bottom	9:44:05	11:54	3.2

*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: 7-19-2016

Pre-Sampling Data:

HWL 1467.31 TWL 1448.5 CFS 968

Sample Location: N45.91379 W090.44757

Performed by:

A. Stine Steve Haag

Time: 9:02 Barometer: 30.30

Air Temp: 70 °F Wind Speed: SSE 5mph

Sky Conditions: Clear

Precipitation within Last 24 Hours: 0

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: 21.9 Feet

Secchi Depth (± 0.1)		
Time 9:04	3.7	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time	Quantity (ml)	Filtered
9:04	1000	In Lab
Preservative		$MgCO_3$

True Color (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time: 9:05	

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 9:05	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 9:08	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	9:05:36	6.93	23.4
3	9:06:09	6.90	23.1
6	9:06:34	6.91	23.0
9	9:07:01	6.90	22.9
12	9:07:27	6.90	22.9
15	9:07:53	6.88	22.9
18	9:08:20	6.87	22.8
21	9:09:18	6.84	22.8
24			
0.5 above bottom	9:10:06	6.80	22.8

*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: 8-18-14

Pre-Sampling Data:

HWL 1467.08 TWL 1448.6 CFS 502

Sample Location: N45.91379 W090.44757

Performed by:
Staci Haag

Time: 9:44 Barometer: 30.00

Air Temp: 70 °F Wind Speed: 0

Sky Conditions: clear

Precipitation within Last 24 Hours: 0

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 90 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 12' Feet

Secchi Depth (± 0.1)		
Time 9:58	4.9	Feet

Comments:

3534
photo taken of Secchi

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time	Quantity (ml)	Filtered
9:44	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 9:43

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 9:43	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 9:45	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	9:43:09	6.42	24.2
3	9:43:39	6.17	24.1
6	9:44:07	6.12	24.1
9	9:44:42	5.98	24.2
12	9:45:49	5.98	24.2
15	9:46:31	5.99	24.2
18	9:52:03	6.02	24.1
21	9:52:47	6.00	24.2
24			
0.5 above bottom	9:52:47	6.00	24.2

*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

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
62079-001	Upper Flambeau Surface	03/22/16	Water
62079-002	Upper Flambeau Bottom	03/22/16	Water
62079-003	Lower Flambeau Surface	03/22/16	Water
62079-004	Lower Flambeau Bottom	03/22/16	Water
62079-005	Pixley Surface	03/22/16	Water
62079-006	Pixley Bottom	03/22/16	Water
62079-007	Crowley Surface	03/22/16	Water
62079-008	Crowley Bottom	03/22/16	Water
62079-009	Winter Surface	03/22/16	Water
62079-010	Clam River Surface	03/23/16	Water
62079-011	Clam River Bottom	03/23/16	Water
62079-012	Danbury Surface	03/23/16	Water
62079-013	Danbury Bottom	03/23/16	Water

ANALYTICAL REPORT

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

Cover Page..continued

Client: RWE **WWA Job #:** 62079

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

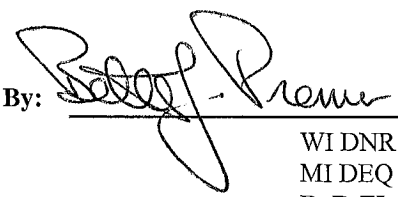
ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)
For coliform, Negative = No coliform bacteria detected, Positive = Coliform bacteria detected

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: 

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-001 / Upper Flambeau Surface / Water							
General Chemistry Parameters							
chlorophyll a	ND		mg/m3	3/28/2016	10200H	NA	NA
Color	30		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-002 / Upper Flambeau Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.01	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-003 / Lower Flambeau Surface / Water							
General Chemistry Parameters							
chlorophyll a	ND		mg/m3	3/28/2016	10200H	NA	NA
Color	35		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-004 / Lower Flambeau Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-005 / Pixley Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.40		mg/m3	3/28/2016	10200H	NA	NA
Color	35		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-006 / Pixley Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-007 / Crowley Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.41		mg/m3	3/28/2016	10200H	NA	NA
Color	40		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-008 / Crowley Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-009 / Winter Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.41		mg/m3	3/28/2016	10200H	NA	NA
Color	40		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-010 / Clam River Surface / Water							
General Chemistry Parameters							
chlorophyll a	11		mg/m3	3/28/2016	10200H	NA	NA
Color	15		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.04		mg/L	3/25/2016	365.4	0.01	0.04
62079-011 / Clam River Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.04		mg/L	3/25/2016	365.4	0.01	0.04
62079-012 / Danbury Surface / Water							
General Chemistry Parameters							
chlorophyll a	9.5		mg/m3	3/28/2016	10200H	NA	NA
Color	15		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-013 / Danbury Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 62079

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

CLIENT NAME / BILL TO	EMAIL ADDRESS
RWE	
ADDRESS	TELEPHONE
CITY / STATE / ZIP	CONTRACT / PO / PROJECT NAME / WSSN#
	Monitoring
SAMPLER NAME (print first/last name)	COUNTY OF LOCATION / PAGE
Angie Stein	PAGE 1 OF 2 — Indicate if more than one page of COC records used
SAMPLER'S SIGNATURE	Check off preservatives for each bottle upon arrival and indicate total number of bottles. WWA database contains bottle preservation details.

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chloro phyll a	TP	Color	T
1	Upper Flambeau Surface	3-22-16	8:16						X						①	3	X	X	X	
2	Upper Flambeau Bottom		"													1		X		
3	lower Flambeau Surf		9:44													3	X	X	X	
4	lower Flambeau Bottom		"													1		X		
5	Pixley Surface		11:07													3	X	X	X	
6	Pixley Bottom		"													1		X		
7	Crowley Surface		12:30													3	X	X	X	
8	Crowley Bottom		"													1		X		
9	Winter Surface	"	14:21												②	3	X	X	X	
10	Clam River Surface	3/23	12:44													3	X	X	X	
11	Clam River Bottom	"	"													1		X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
	3-24-16	9:14	①	3-24-16	950	1.4

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

Job # (WWA office use): 62079

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

CLIENT NAME / BILL TO	EMAIL ADDRESS
RWE	
ADDRESS	TELEPHONE
CITY / STATE / ZIP	CONTRACT / PO / PROJECT NAME / WSSN#
	Monitoring
SAMPLER NAME (print first/last name)	COUNTY OF LOCATION / PAGE
Angie Stone	PAGE 2 OF 2 (Indicate if more than one page of COC records used)
SAMPLER'S SIGNATURE	

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a	TP	Color
12	Danbury Surface	3/23/16	14:45		X				X							3	X	X	X
13	Danbury Bottom	"	"		X				X							1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
Relinquished by:	Date: 3-24-16	Time: 9:14	Received by:	Date: 3-24-16	Time: 950	

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

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
64453-001	Upper Flambeau	07/19/16	Water
64453-002	Upper Flambeau	07/19/16	Water
64453-003	Lower Flambeau	07/19/16	Water
64453-004	Lower Flambeau	07/19/16	Water
64453-005	Pixley	07/19/16	Water
64453-006	Pixley	07/19/16	Water
64453-007	Crowley	07/19/16	Water
64453-008	Crowley	07/19/16	Water
64453-009	Winter	07/18/16	Water
64453-010	Clam River	07/20/16	Water
64453-011	Clam River	07/20/16	Water
64453-012	Danbury	07/20/16	Water
64453-013	Danbury	07/20/16	Water

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

Cover Page..continued

Client: RWE **WWA Job #:** 64453

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

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: Betty J. Prewo

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-001 / Upper Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.3		mg/m3	7/21/2016	10200H	NA	NA
Color	40		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-002 / Upper Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.019	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-003 / Lower Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.7		mg/m3	7/21/2016	10200H	NA	NA
Color	45		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.021	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-004 / Lower Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.026	J	mg/L	8/1/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-005 / Pixley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	8.1		mg/m3	7/21/2016	10200H	NA	NA
Color	45		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.033	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-006 / Pixley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.180		mg/L	8/1/2016	365.4	0.008	0.050
64453-007 / Crowley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.5		mg/m3	7/21/2016	10200H	NA	NA
Color	55		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.036	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-008 / Crowley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.030	J	mg/L	8/1/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-009 / Winter / Surface / Water							
General Chemistry Parameters							
chlorophyll a	2.2		mg/m3	7/21/2016	10200H	NA	NA
Color	85		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.035	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-010 / Clam River / Surface / Water							
General Chemistry Parameters							
chlorophyll a	44		mg/m3	7/21/2016	10200H	NA	NA
Color	30		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.043	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-011 / Clam River / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.043	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-012 / Danbury / Surface / Water							
General Chemistry Parameters							
chlorophyll a	10		mg/m3	7/21/2016	10200H	NA	NA
Color	20		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050

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 #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-013 / Danbury / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 64453

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a	Total Phos	Color
1	Upper Flambeau Surface	7-19-16	8:06		X				X	X						3	X	X	X
2	Upper Flambeau Bottom	7-19-16	8:10													1		X	
3	Lower Flambeau Surface	7-19-16	9:04						X							3	X	X	X
4	Lower Flambeau Bottom	7-19-16	9:08													1		X	
5	Pixley Surface	7-19-16	11:26						X							3	X	X	X
6	Pixley Bottom	7-19-16	11:27													1		X	
7	Crowley Surface	7-19-16	13:25						X							3	X	X	X
8	Crowley Bottom	7-19-16	13:27													1		X	
9	Winter Surface	7-18-16	14:00						X							3	X	X	X
10	Clam River Surface	7-18-16	10:15						X							3	X	X	X
11	Clam River Bottom	7-20-16	10:20						X	⊙						1		X	
12	Danbury Surface	7-20-16	1234						X							3	X	X	X
13	Danbury Bottom	7-20-16	1236													1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
	7/20/16	18:12				
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
			⊙	7-21-16	1150	1.3

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

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
65014-001	Upper Flambeau	08/18/16	Water
65014-002	Upper Flambeau	08/18/16	Water
65014-003	Lower Flambeau	08/18/16	Water
65014-004	Lower Flambeau	08/18/16	Water
65014-005	Pixley	08/18/16	Water
65014-006	Pixley	08/18/16	Water
65014-007	Crowley	08/18/16	Water
65014-008	Crowley	08/18/16	Water
65014-009	Winter	08/18/16	Water
65014-010	Clam River	08/18/16	Water
65014-011	Clam River	08/18/16	Water
65014-012	Danbury	08/18/16	Water
65014-013	Danbury	08/18/16	Water

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Cover Page..continued

Client: RWE **WWA Job #:** 65014

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

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: _____

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-001 / Upper Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	8.5		mg/m3	8/24/2016	10200H	NA	NA
Color	35		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-002 / Upper Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.022	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-003 / Lower Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	7.2		mg/m3	8/24/2016	10200H	NA	NA
Color	30		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.026	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-004 / Lower Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.096		mg/L	8/25/2016	365.4	0.008	0.050

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)

WHITE WATER ASSOCIATES, INC.
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Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-005 / Pixley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	15		mg/m3	8/24/2016	10200H	NA	NA
Color	45		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.036	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-006 / Pixley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.048	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-007 / Crowley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	15		mg/m3	8/24/2016	10200H	NA	NA
Color	40		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.030	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-008 / Crowley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.030	J	mg/L	8/25/2016	365.4	0.008	0.050

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)

WHITE WATER ASSOCIATES, INC.
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Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-009 / Winter / Surface / Water							
General Chemistry Parameters							
chlorophyll a	1.5		mg/m3	8/24/2016	10200H	NA	NA
Color	60		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.038	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-010 / Clam River / Surface / Water							
General Chemistry Parameters							
chlorophyll a	61		mg/m3	8/24/2016	10200H	NA	NA
Color	25		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.050		mg/L	8/25/2016	365.4	0.008	0.050
65014-011 / Clam River / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.053		mg/L	8/25/2016	365.4	0.008	0.050
65014-012 / Danbury / Surface / Water							
General Chemistry Parameters							
chlorophyll a	5.2		mg/m3	8/24/2016	10200H	NA	NA
Color	20		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.037	J	mg/L	8/25/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-013 / Danbury / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.040	J	mg/L	8/25/2016	365.4	0.008	0.050

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 65014

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

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

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a (mg/L)	Total PO_4 ($\mu g/cm^2$)	Color							
1	Upper Flambeau Surface	8-18-16	7:58						X	X						3	X	X	X							
2	Upper Flambeau Bottom	8-18-16	7:59													1		X								
3	Lower Flambeau Surface	8-18-16	9:44													3	X	X	X							
4	Lower Flambeau Bottom	8-18-16	9:45													1		X								
5	Pixley Surface	8-18-16	11:10													3	X	X	X							
6	Pixley Bottom	8-18-16	11:12													1		X								
7	Crowley Surface	8-18-16	12:59													3	X	X	X							
8	Crowley Bottom	8-18-16	13:00													1		X								
9	Winter Surface	8-16-16	13:07													3	X	X	X							
10	Clam River Surface	8-17-16	10:28													3	X	X	X							
11	Clam River Bottom	8-17-16	10:29													1		X								
12	Dunbury Surface	8-17-16	13:06													3	X	X	X							
13	Dunbury Bottom	8-17-16	13:08													1		X								

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
			Email	8-18-16	1615	
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
	8/18/16	1634	Login email	8-19-16	1107	3.7

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

Final Report

2016 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

2016 marked the thirteenth 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 March 22, July 19, and August 18, 2016. This document contains all of the associated records for the 2016 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 2016 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 2016 monitoring season appeared slightly warmer in May, June, and July, & August, with lower than normal precipitation in April and May, and normal to high precipitation in the months of June, July and August (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 14th, 2016. The Ice-Out sampling event occurred on March 22, 2016. River flow, based on the Flambeau (Pixley) Hydroelectric Project records was approximately 782 cubic feet per second. Sampling occurred between 10:49 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 March 24, 2016. White Water Associates, Inc. issued a laboratory report on May 9, 2016. 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 1071 cubic feet per second during the July 19, 2016 sampling event. Sampling occurred between 11:15 a.m. and 11:30 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 July 21, 2016. White Water Associates, Inc. issued a laboratory report on August 10, 2016. 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 480 cubic feet per second during the August 18, 2016 sampling event. Sampling occurred between 11:03 a.m. and 11:33 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 18, 2016. White Water Associates, Inc. issued a laboratory report on September 6, 2016. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

A summary of a comparison between the 2011 thru 2016 (Table 3) sampling results are as follows:

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

The next scheduled Water Quality Monitoring at the Pixley Hydroelectric Project is set to take place in 2017 beginning with the Ice-Out sampling event.

Appendix A – Flambeau (Pixley) Hydroelectric Project Figures

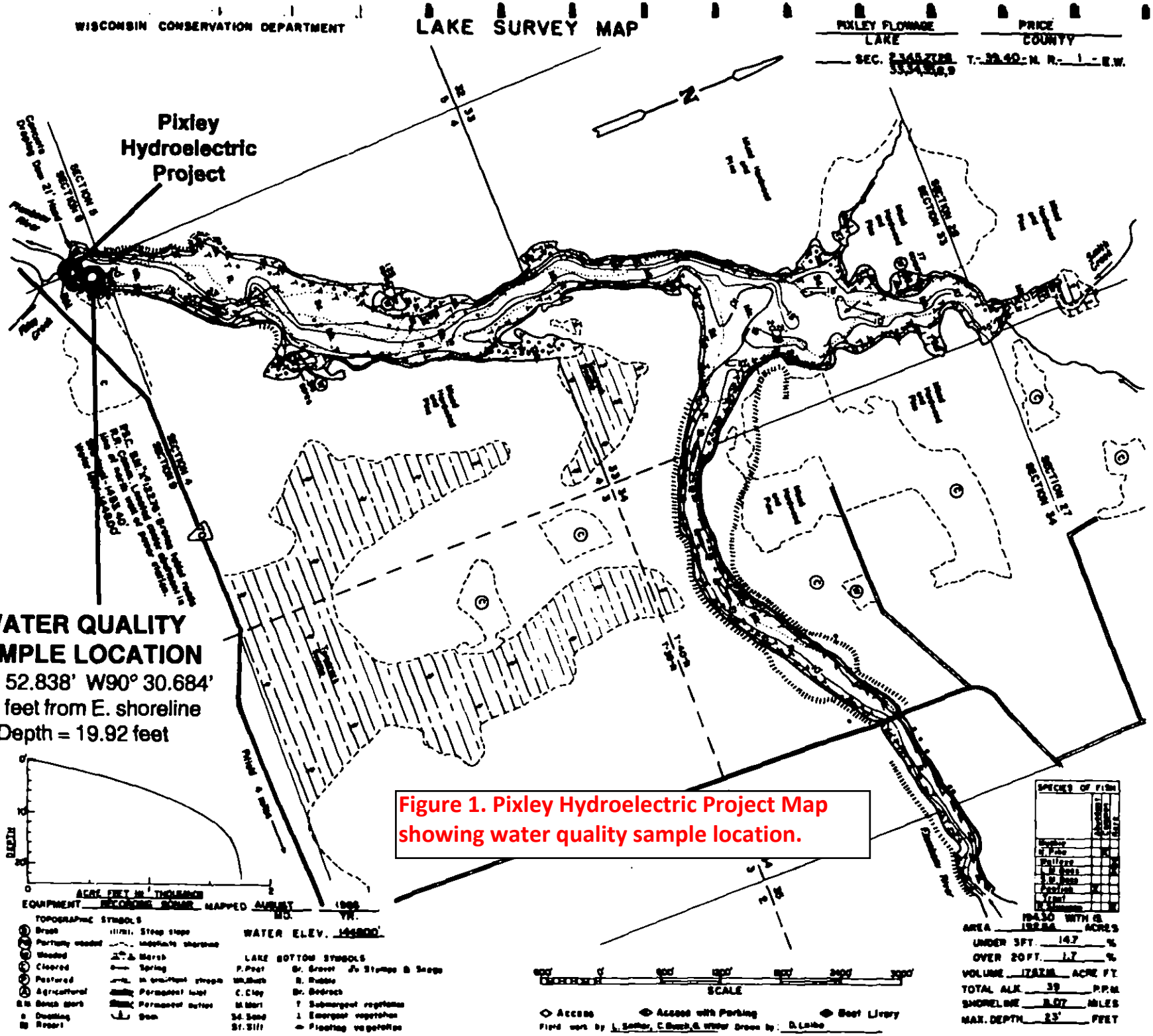


Figure 1. Pixley Hydroelectric Project Map showing water quality sample location.

Figure 2. Pixley - FERC #2395
2016 Temperature Samples

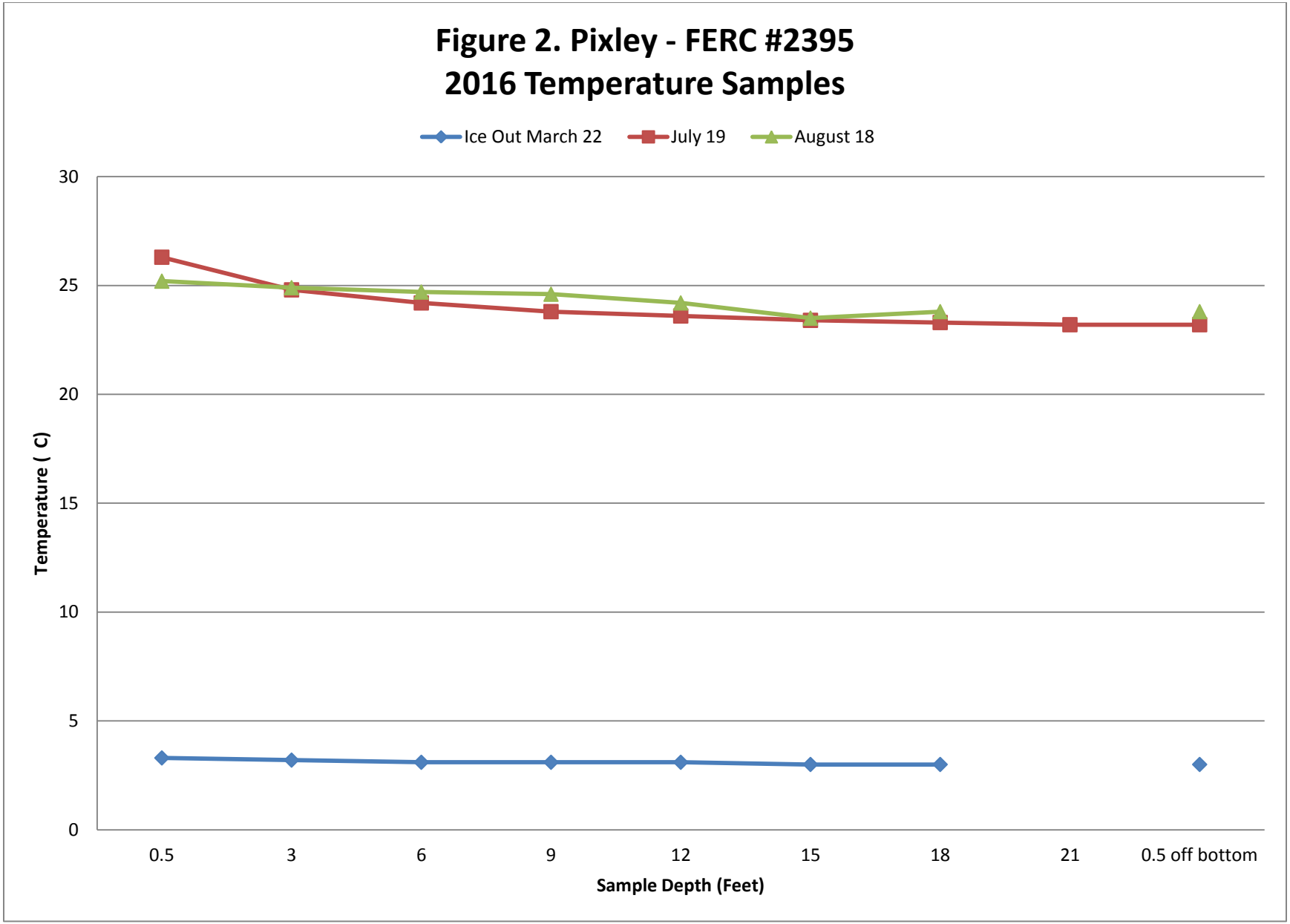


Figure 3. Pixley- FERC #2395
2016 Dissolved Oxygen Samples

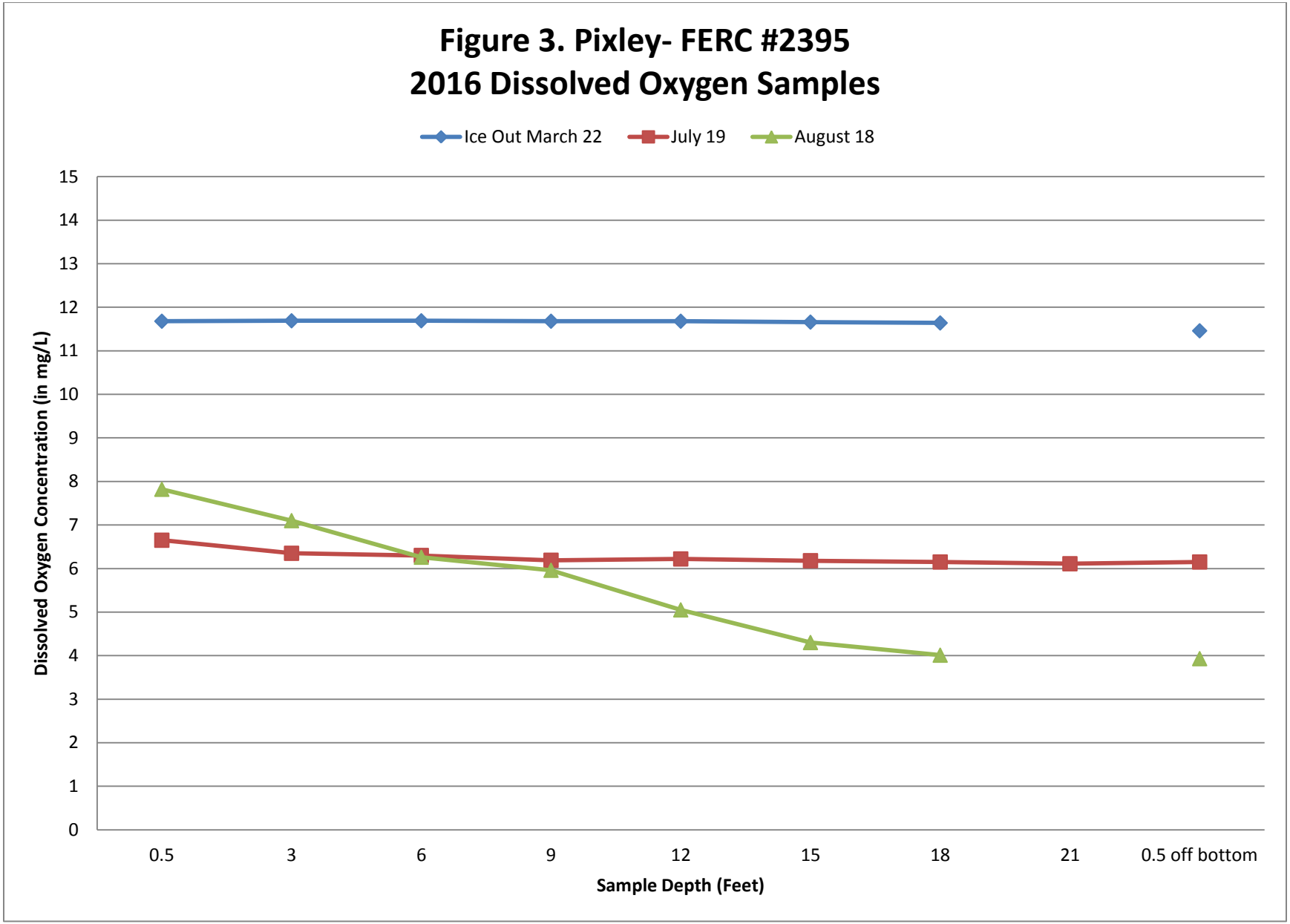
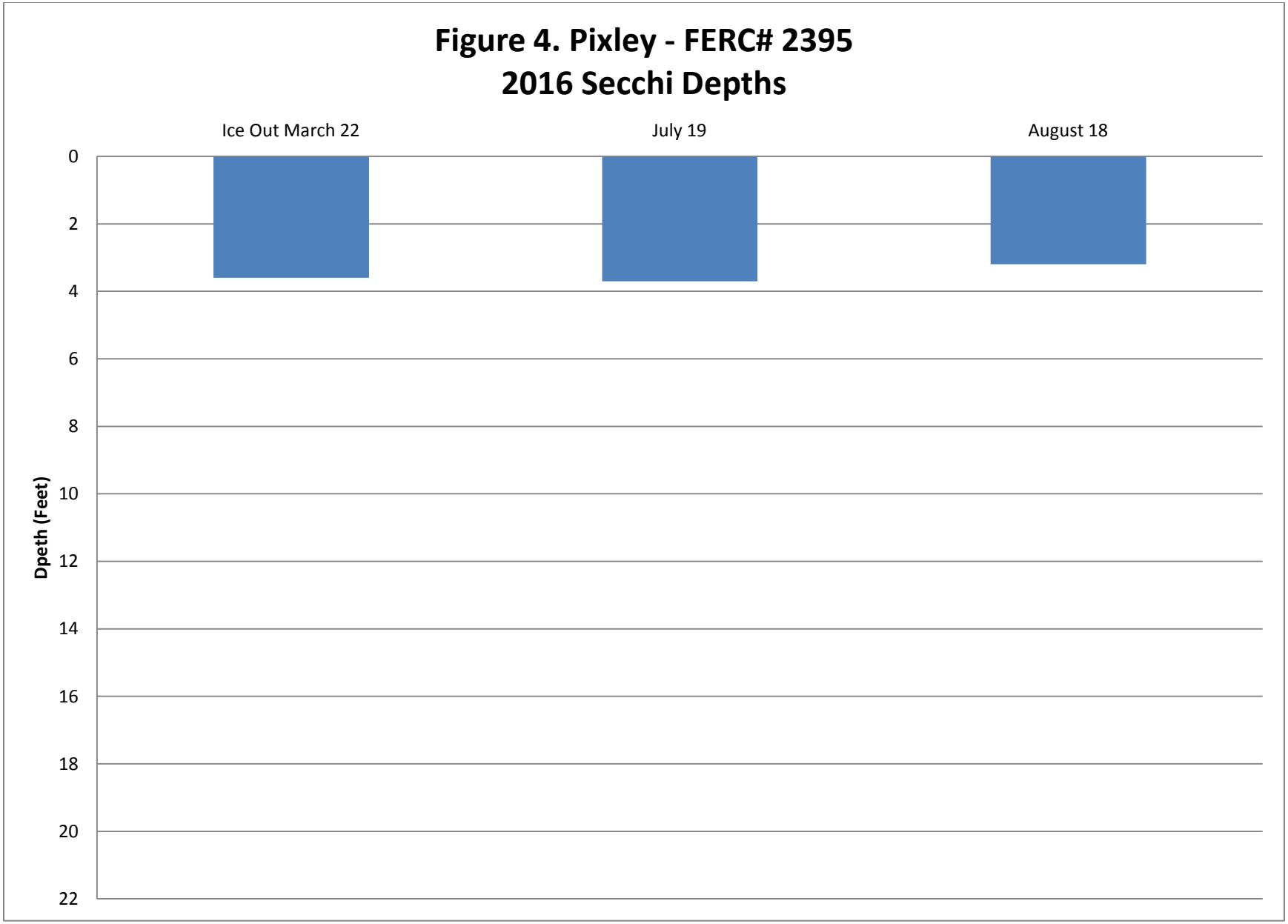


Figure 4. Pixley - FERC# 2395
2016 Secchi Depths



Appendix B – Flambeau (Pixley) Hydroelectric Project Tables

Table 3. Flambeau Pixley Project Sampling Comparison Table: 2011 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**
2011	April	3.20	2.10	80.00	0.033	0.031	11.64	12.05	6.60	11.70
2012	April	3.10	1.70	140.00	0.039	*	10.94	11.26	9.30	10.00
2013	May	*	*	*	*	*	*	*	*	*
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
Minimum	March/April/June	3.00	0.40	35.00	0.030	0.030	6.70	6.94	3.00	3.30
Maximum	March/April/June	3.60	2.10	140.00	0.039	0.031	11.64	12.05	19.00	22.30
Average	March/April/June	3.30	1.38	103.00	0.034	0.031	10.00	10.36	9.32	11.64
2011	July	3.00	16.00	70.00	0.057	0.041	6.62	8.25	25.40	25.80
2012	July	3.10	8.80	100.00	0.057	0.041	5.52	6.40	25.70	27.20
2013	July	2.10	6.20	150.00	0.044	0.043	5.24	5.85	25.10	25.30
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
Minimum	July	2.10	4.20	45.00	0.030	0.031	5.24	5.85	21.20	21.80
Maximum	July	3.70	16.00	150.00	0.060	0.180	6.62	8.25	25.70	22.20
Average	July	3.20	8.12	95.83	0.050	0.064	5.82	6.81	23.70	24.72
2011	August	3.10	14.00	140.00	0.052	0.047	7.74	7.44	25.50	26.00
2012	August	2.50	26.00	100.00	0.048	0.050	5.93	9.32	23.80	24.60
2013	August	3.33	6.30	150.00	0.110	0.071	6.41	6.84	20.10	20.60
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
Minimum	August	2.50	6.20	45.00	0.036	0.031	3.93	6.56	20.10	20.60
Maximum	August	3.70	26.00	150.00	0.110	0.071	7.74	9.32	25.50	26.00
Average	August	3.11	14.58	99.17	0.053	0.047	6.10	7.65	22.93	23.77

*no sample taken

Table 1. Pixley Hydroelectric Project – FERC Project # 2395: 2016 Water Quality Sampling Data

	Ice Out March 22, 2016			July 19, 2016			August 18, 2016		
Project Flow (c.f.s)	783			1071			480		
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	10:59:50	11.68	3.3	11:24:33	6.65	26.3	11:09:31	7.58	25.8
3 feet below surface	11:00:43	11.69	3.2	11:25:09	6.35	24.8	11:10:04	7.38	25.3
6 feet below surface	11:01:24	11.69	3.1	11:25:41	6.30	24.2	11:10:42	6.30	24.9
9 feet below surface	11:02:86	11.68	3.1	11:26:15	6.19	23.8	11:11:13	6.01	24.7
12 feet below surface	11:02:30	11.68	3.1	11:26:44	6.22	23.6	11:11:53	5.02	24.4
15 feet below surface	11:03:05	11.66	3.0	11:27:30	6.18	23.4	11:13:02	4.32	24.1
18 feet below surface	11:03:34	11.64	3.0	11:28:05	6.15	23.3	11:13:41	4.12	23.9
19 feet below surface	11:04:33	11.19	3.0	N/A	N/A	N/A	11:14:41	3.92	23.8
21 feet below surface	N/A	N/A	N/A	11:29:25	6.11	23.2	N/A	N/A	N/A
0.5 meter above bottom	11:05:24	11.46	3.0	11:30:09	6.15	23.2	11:15:11	2.85	23.8
Secchi Disk	**Time**	**Depth (ft)**		**Time**	**Depth (ft)**		**Time**	**Depth (ft)**	
Feet below surface	10:56	3.6		11:21	3.7		11:33	3.2	
Chlorophyll *a*	**Time**	**µg/L**		**Time**	**µg/L**		**Time**	**µg/L**	
3 feet below surface	11:03	0.40		11:25	8.1		11:10	15	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
3 feet below surface	11:07	35	5*	11:26	45	5*	11:09	45	5*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
3 feet below surface	11:07	0.03	0.01*	11:26	0.033	0.008*	11:09	0.036	0.008*
3 feet above bottom	11:08	0.03	0.01*	11:27	0.180	0.008*	11:12	0.048	0.008*
*Considered Method Detection Limit N/A = Not Applicable									

Table 2. 2015/16 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 - 15	84	24	46.3	3.1	574	678	1.90	Trace	2.85	67
November - 15	64	10	36.7	7.9	844	1088	2.75	4.40	2.09	132
December - 15	43	2	26.4	11.6	1187	1556	3.70	24.60	1.21	306
January – 16	41	-21	12.8	2.6	1611	1699	1.05	13.00	0.96	109
February – 16	52	-17	17.3	2.2	1376	1399	0.83	12.20	0.81	102
March – 16	60	-2	31.6	5.7	1028	1210	3.96	17.30	1.49	266
April – 16	71	2	37.7	-1.9	809	762	2.40	9.80	2.43	99
May – 16	92	28	53.2	1.8	370	426	1.87	0.10	3.23	58
June – 16	89	37	61.5	1.4	142	179	4.46	0.00	4.23	105
July – 16	90	45	67.1	1.3	29	63	4.39	0.00	3.85	114
August – 16	85	50	67.5	3.2	25	86	4.96	0.00	3.70	134
September - 16	80	40	59.9	4.3	162	298	3.52	0.00	4.11	86

Source: NOAA/Duluth, MN

Appendix C – Flambeau (Pixley) Impoundment Project Sampling Logs

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Pixley

Hydroelectric Project – FERC # 2395

Date: 3-22-16

Pre-Sampling Data:

HWL 2049 TWL 1427.8 CFS 783

Sample Location: PXWQSP
N45.88049 W090.51169

Performed by:
A Stine T Plummer

Time: 10:49 Barometer: 29.7

Air Temp: 37° F °C Wind Speed: ENE 9mph

Sky Conditions: 100 Cloudy

Precipitation within Last 24 Hours: none

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: ___________

Battery Status: 90 % Charge

Calibration Method: Factory

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

Secchi Depth (± 0.1)		
Time 10:56	3.6	Feet

Comments: Used Kemmerer Sampler - problems with other rubber stretched
buffle heads (3)
Appliated wood pecker

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 11:03	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$ 11:25	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 11:07

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 11:07	Preservative
	H_2SO_4 11:25

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 11:08	Preservative
	H_2SO_4 11:35

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	10:59:50	11.68	3.3
3	11:00:43	11.69	3.2
6	11:01:24	11.69	3.1
9	11:02:06	11.68	3.1
12	11:02:30	11.68	3.1
15	11:03:05	11.66	3.0
18	11:03:34	11.64	3.0
~~21~~ 19	11:04:33	11.19	3.0
~~24~~			
0.5 above bottom	11:05:24	11.46	3.0

*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 Pixley

Hydroelectric Project – FERC # 2395

Date: 7-19-2016

Pre-Sampling Data:

HWL 1469.202 TWL 1421.8 CFS 1071

Sample Location: N45.88019 W090.51169

Performed by: A. Sxine S. Hvay

Time: 11:15 Barometer: 30.30 in

Air Temp: 75 °F Wind Speed: 5-6 mph

Sky Conditions: Clear

Precipitation within Last 24 Hours: 0

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: 21 Feet

Secchi Depth (± 0.1)		
Time 11:21	3.7	Feet

Comments:

Saw 1 eagle

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time	Quantity (ml)	Filtered
11:25	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 11:26

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 11:26	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 11:27	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	11:24:37	6.65	26.3
3	11:25:09	6.35	24.8
6	11:25:41	6.30	24.2
9	11:26:15	6.19	23.8
12	11:26:44	6.22	23.6
15	11:27:30	6.18	23.4
18	11:28:05	6.15	23.3
21	11:29:25	6.11	23.2
24 —	—	—	—
0.5 above bottom	11:30:09	6.15	23.2

*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: 8-18-16

Pre-Sampling Data:

HWL 1448.23 TWL 1427.5 CFS 480

Sample Location: N45. 88049 W090.51169

Performed by:
Steve Haag

Time: 11:03 Barometer: 30.0

Air Temp: 77 °F Wind Speed: 5 mph

Sky Conditions: Partly Cloudy

Precipitation within Last 24 Hours: Nil

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 90 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 19.5 Feet

Secchi Depth (± 0.1)		
Time 11:33	3.2	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 11:10	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 11:09

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 11:09	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 11:12	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	11:09:31	7.58	25.8
3	11:10:04	7.38	25.3
6	11:10:42	6.30	24.9
9	11:11:13	6.01	24.7
12	11:11:53	5.02	24.4
15	11:13:02	4.32	24.1
18	11:13:41	4.12	23.9
~~21~~ 19	11:14:41	3.92	23.8
24			
0.5 above bottom 19	11:15:11	2.85	23.8

*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.

Pixley 8-18-16

*D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	11:16.56	7.82	25.2
1	11:17.38	7.75	25.3
2	11:18.05	7.51	25.0
3	11:18.40	7.10	24.9
4	11:19.13	6.64	24.8
5	11:19.46	6.43	24.7
6	11:20.14	6.26	24.7
7	11:20.51	6.08	24.6
8	11:21.10	6.05	24.6
9	11:21.34	5.96	24.6
10	11:22.12	5.55	24.5
11	11:22.37	5.37	24.4
12	11:23.12	5.05	24.2
13	11:23.54	4.91	24.2
14	11:24.20	4.61	24.1
15	11:24.53	4.36	23.9
16	11:25.19	4.21	23.9
17	11:25.44	4.13	23.8
18	11:26.06	4.01	23.8
19	11:26.42	3.95	23.8
20	[illegible]	3.	23.
21			
22			
23			
24			
25			
0.5 above bottom	11:27.26	3.93	23.8

WHITE WATER ASSOCIATES, INC.

Appendix D – Flambeau (Pixley) Hydroelectric Project Lab Reports and Chains of Custody

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
62079-001	Upper Flambeau Surface	03/22/16	Water
62079-002	Upper Flambeau Bottom	03/22/16	Water
62079-003	Lower Flambeau Surface	03/22/16	Water
62079-004	Lower Flambeau Bottom	03/22/16	Water
62079-005	Pixley Surface	03/22/16	Water
62079-006	Pixley Bottom	03/22/16	Water
62079-007	Crowley Surface	03/22/16	Water
62079-008	Crowley Bottom	03/22/16	Water
62079-009	Winter Surface	03/22/16	Water
62079-010	Clam River Surface	03/23/16	Water
62079-011	Clam River Bottom	03/23/16	Water
62079-012	Danbury Surface	03/23/16	Water
62079-013	Danbury Bottom	03/23/16	Water

ANALYTICAL REPORT

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

Cover Page..continued

Client: RWE **WWA Job #:** 62079

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

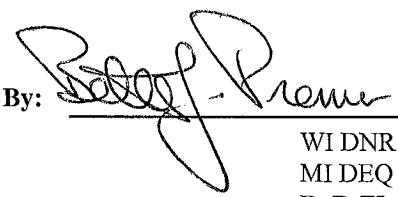
ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)
For coliform, Negative = No coliform bacteria detected, Positive = Coliform bacteria detected

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: 

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-001 / Upper Flambeau Surface / Water							
General Chemistry Parameters							
chlorophyll a	ND		mg/m3	3/28/2016	10200H	NA	NA
Color	30		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-002 / Upper Flambeau Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.01	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-003 / Lower Flambeau Surface / Water							
General Chemistry Parameters							
chlorophyll a	ND		mg/m3	3/28/2016	10200H	NA	NA
Color	35		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-004 / Lower Flambeau Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-005 / Pixley Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.40		mg/m3	3/28/2016	10200H	NA	NA
Color	35		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-006 / Pixley Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-007 / Crowley Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.41		mg/m3	3/28/2016	10200H	NA	NA
Color	40		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-008 / Crowley Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-009 / Winter Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.41		mg/m3	3/28/2016	10200H	NA	NA
Color	40		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-010 / Clam River Surface / Water							
General Chemistry Parameters							
chlorophyll a	11		mg/m3	3/28/2016	10200H	NA	NA
Color	15		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.04		mg/L	3/25/2016	365.4	0.01	0.04
62079-011 / Clam River Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.04		mg/L	3/25/2016	365.4	0.01	0.04
62079-012 / Danbury Surface / Water							
General Chemistry Parameters							
chlorophyll a	9.5		mg/m3	3/28/2016	10200H	NA	NA
Color	15		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-013 / Danbury Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 62079

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

CLIENT NAME / BILL TO	EMAIL ADDRESS
RWE	
ADDRESS	TELEPHONE
CITY / STATE / ZIP	CONTRACT / PO / PROJECT NAME / WSSN#
	Monitoring
SAMPLER NAME (print first/last name)	COUNTY OF LOCATION / PAGE
Angie Stein	PAGE 1 OF 2 — Indicate if more than one page of COC records used
SAMPLER'S SIGNATURE	Check off preservatives for each bottle upon arrival and indicate total number of bottles. WWA database contains bottle preservation details.

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chloro phyll a	TP	Color	T
1	Upper Flambeau Surface	3-22-16	8:16						X						①	3	X	X	X	
2	Upper Flambeau Bottom		"													1		X		
3	lower Flambeau Surf		9:44													3	X	X	X	
4	lower Flambeau Bottom		"													1		X		
5	Pixley Surface		11:07													3	X	X	X	
6	Pixley Bottom		"													1		X		
7	Crowley Surface		12:30													3	X	X	X	
8	Crowley Bottom		"													1		X		
9	Winter Surface	"	14:21												②	3	X	X	X	
10	Clam River Surface	3/23	12:44													3	X	X	X	
11	Clam River Bottom	"	"													1		X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
	3-24-16	9:14	①	3-24-16	950	1.4

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

Job # (WWA office use): 62079

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

CLIENT NAME / BILL TO	EMAIL ADDRESS
RWE	
ADDRESS	TELEPHONE
CITY / STATE / ZIP	CONTRACT / PO / PROJECT NAME / WSSN#
	Monitoring
SAMPLER NAME (print first/last name)	COUNTY OF LOCATION / PAGE
Angie Stone	PAGE 2 OF 2 (Indicate if more than one page of COC records used)
SAMPLER'S SIGNATURE	

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a	TP	Color
12	Danbury Surface	3/23/16	14:45		X				X							3	X	X	X
13	Danbury Bottom	"	"		X				X							1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
Relinquished by:	Date: 3-24-16	Time: 9:14	Received by:	Date: 3-24-16	Time: 950	

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

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
64453-001	Upper Flambeau	07/19/16	Water
64453-002	Upper Flambeau	07/19/16	Water
64453-003	Lower Flambeau	07/19/16	Water
64453-004	Lower Flambeau	07/19/16	Water
64453-005	Pixley	07/19/16	Water
64453-006	Pixley	07/19/16	Water
64453-007	Crowley	07/19/16	Water
64453-008	Crowley	07/19/16	Water
64453-009	Winter	07/18/16	Water
64453-010	Clam River	07/20/16	Water
64453-011	Clam River	07/20/16	Water
64453-012	Danbury	07/20/16	Water
64453-013	Danbury	07/20/16	Water

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

Cover Page..continued

Client: RWE **WWA Job #:** 64453

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

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: Betty J. Prewo

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-001 / Upper Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.3		mg/m3	7/21/2016	10200H	NA	NA
Color	40		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-002 / Upper Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.019	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-003 / Lower Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.7		mg/m3	7/21/2016	10200H	NA	NA
Color	45		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.021	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-004 / Lower Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.026	J	mg/L	8/1/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-005 / Pixley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	8.1		mg/m3	7/21/2016	10200H	NA	NA
Color	45		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.033	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-006 / Pixley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.180		mg/L	8/1/2016	365.4	0.008	0.050
64453-007 / Crowley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.5		mg/m3	7/21/2016	10200H	NA	NA
Color	55		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.036	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-008 / Crowley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.030	J	mg/L	8/1/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-009 / Winter / Surface / Water							
General Chemistry Parameters							
chlorophyll a	2.2		mg/m3	7/21/2016	10200H	NA	NA
Color	85		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.035	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-010 / Clam River / Surface / Water							
General Chemistry Parameters							
chlorophyll a	44		mg/m3	7/21/2016	10200H	NA	NA
Color	30		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.043	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-011 / Clam River / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.043	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-012 / Danbury / Surface / Water							
General Chemistry Parameters							
chlorophyll a	10		mg/m3	7/21/2016	10200H	NA	NA
Color	20		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050

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 #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-013 / Danbury / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 64453

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a	Total Phos	Color
1	Upper Flambeau Surface	7-19-16	8:06		X				X	X						3	X	X	X
2	Upper Flambeau Bottom	7-19-16	8:10													1		X	
3	Lower Flambeau Surface	7-19-16	9:04						X							3	X	X	X
4	Lower Flambeau Bottom	7-19-16	9:08													1		X	
5	Pixley Surface	7-19-16	11:26						X							3	X	X	X
6	Pixley Bottom	7-19-16	11:27													1		X	
7	Crowley Surface	7-19-16	13:25						X							3	X	X	X
8	Crowley Bottom	7-19-16	13:27													1		X	
9	Winter Surface	7-18-16	14:00						X							3	X	X	X
10	Clam River Surface	7-18-16	10:15						X							3	X	X	X
11	Clam River Bottom	7-20-16	10:20						X	⊙						1		X	
12	Danbury Surface	7-20-16	1234						X							3	X	X	X
13	Danbury Bottom	7-20-16	1236													1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
	7/20/16	18:12				
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
			⊙	7-21-16	1150	1.3

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

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
65014-001	Upper Flambeau	08/18/16	Water
65014-002	Upper Flambeau	08/18/16	Water
65014-003	Lower Flambeau	08/18/16	Water
65014-004	Lower Flambeau	08/18/16	Water
65014-005	Pixley	08/18/16	Water
65014-006	Pixley	08/18/16	Water
65014-007	Crowley	08/18/16	Water
65014-008	Crowley	08/18/16	Water
65014-009	Winter	08/18/16	Water
65014-010	Clam River	08/18/16	Water
65014-011	Clam River	08/18/16	Water
65014-012	Danbury	08/18/16	Water
65014-013	Danbury	08/18/16	Water

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

Cover Page..continued

Client: RWE **WWA Job #:** 65014

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

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: _____

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-001 / Upper Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	8.5		mg/m3	8/24/2016	10200H	NA	NA
Color	35		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-002 / Upper Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.022	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-003 / Lower Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	7.2		mg/m3	8/24/2016	10200H	NA	NA
Color	30		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.026	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-004 / Lower Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.096		mg/L	8/25/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-005 / Pixley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	15		mg/m3	8/24/2016	10200H	NA	NA
Color	45		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.036	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-006 / Pixley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.048	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-007 / Crowley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	15		mg/m3	8/24/2016	10200H	NA	NA
Color	40		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.030	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-008 / Crowley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.030	J	mg/L	8/25/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-009 / Winter / Surface / Water							
General Chemistry Parameters							
chlorophyll a	1.5		mg/m3	8/24/2016	10200H	NA	NA
Color	60		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.038	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-010 / Clam River / Surface / Water							
General Chemistry Parameters							
chlorophyll a	61		mg/m3	8/24/2016	10200H	NA	NA
Color	25		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.050		mg/L	8/25/2016	365.4	0.008	0.050
65014-011 / Clam River / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.053		mg/L	8/25/2016	365.4	0.008	0.050
65014-012 / Danbury / Surface / Water							
General Chemistry Parameters							
chlorophyll a	5.2		mg/m3	8/24/2016	10200H	NA	NA
Color	20		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.037	J	mg/L	8/25/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-013 / Danbury / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.040	J	mg/L	8/25/2016	365.4	0.008	0.050

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 65014

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

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

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a (mg/L)	Total PO_4 ($\mu g/cm^2$)	Color							
1	Upper Flambeau Surface	8-18-16	7:58						X	X						3	X	X	X							
2	Upper Flambeau Bottom	8-18-16	7:59													1		X								
3	Lower Flambeau Surface	8-18-16	9:44													3	X	X	X							
4	Lower Flambeau Bottom	8-18-16	9:45													1		X								
5	Pixley Surface	8-18-16	11:10													3	X	X	X							
6	Pixley Bottom	8-18-16	11:12													1		X								
7	Crowley Surface	8-18-16	12:59													3	X	X	X							
8	Crowley Bottom	8-18-16	13:00													1		X								
9	Winter Surface	8-16-16	13:07													3	X	X	X							
10	Clam River Surface	8-17-16	10:28													3	X	X	X							
11	Clam River Bottom	8-17-16	10:29													1		X								
12	Dunbury Surface	8-17-16	13:06													3	X	X	X							
13	Dunbury Bottom	8-17-16	13:08													1		X								

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
			Email	8-18-16	1615	
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
	8/18/16	1634	Login email	8-19-16	1107	3.7

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

Final Report

2016 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

2016 marked the thirteenth 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 March 22, July 19, and August 18, 2016. This document contains all of the associated records for the 2016 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 2016 are shown in Table 1. No unusual Temperature (Figure 2) readings were observed and no unusual Dissolved Oxygen readings were observed at Ice-Out or July but in August the D.O. was below 5.0 mg/L at 10 feet (Figure 3). The Secchi depths are shown in Figure 4.

In general, the weather (temperature and rainfall) during 2016 monitoring season appeared slightly warmer in May, June, and July, & August, with lower than normal precipitation in April and May, and normal to high precipitation in the months of June, July and August (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 14th, 2016. The Ice-Out sampling event occurred on March 22, 2016. River flow, based on the Crowley Hydroelectric Project records was approximately 996 cubic feet per second. Sampling occurred between 12:23 p.m. and 12:32 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 March 24, 2016. White Water Associates, Inc. issued a laboratory report on May 9, 2016. 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 1417 cubic feet per second during the July 19, 2016 sampling event. Sampling occurred between 1325 and 1337. 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 21, 2016. White Water Associates, Inc. issued a laboratory report on August 10, 2016. 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 584 cubic feet per second during the August 18, 2016 sampling event. Sampling occurred between 12:57 p.m. and 13:20 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 18, 2016. White Water Associates, Inc. issued a laboratory report on September 6, 2016. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

A summary of a comparison between the 2011 thru 2016 (Table 3) sampling results are as follows:

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

The next scheduled Water Quality Monitoring at the Crowley Hydroelectric Project is set to take place in 2017 beginning with the Ice-Out sampling event.

Appendix A – Crowley Hydroelectric Project Figures

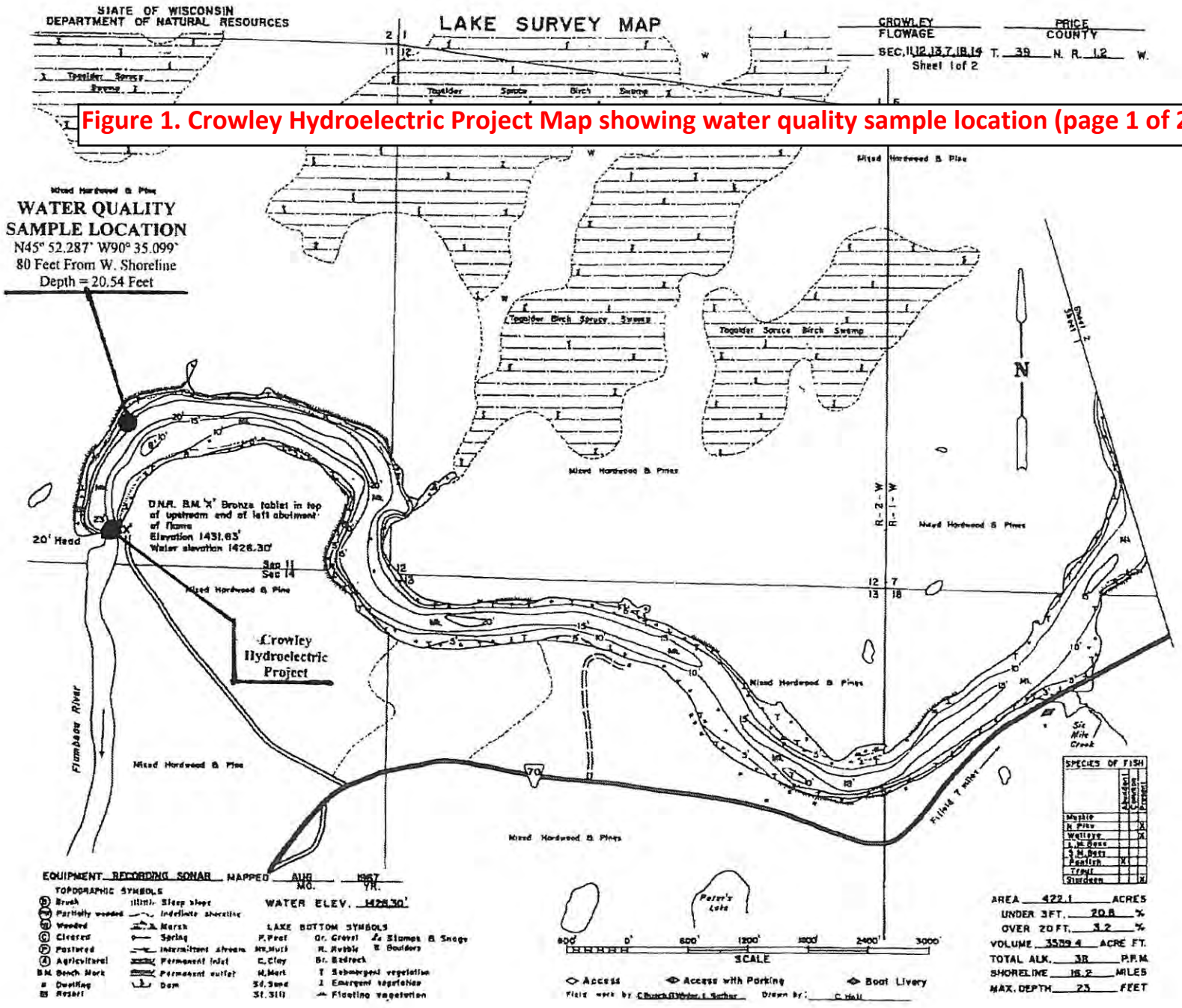
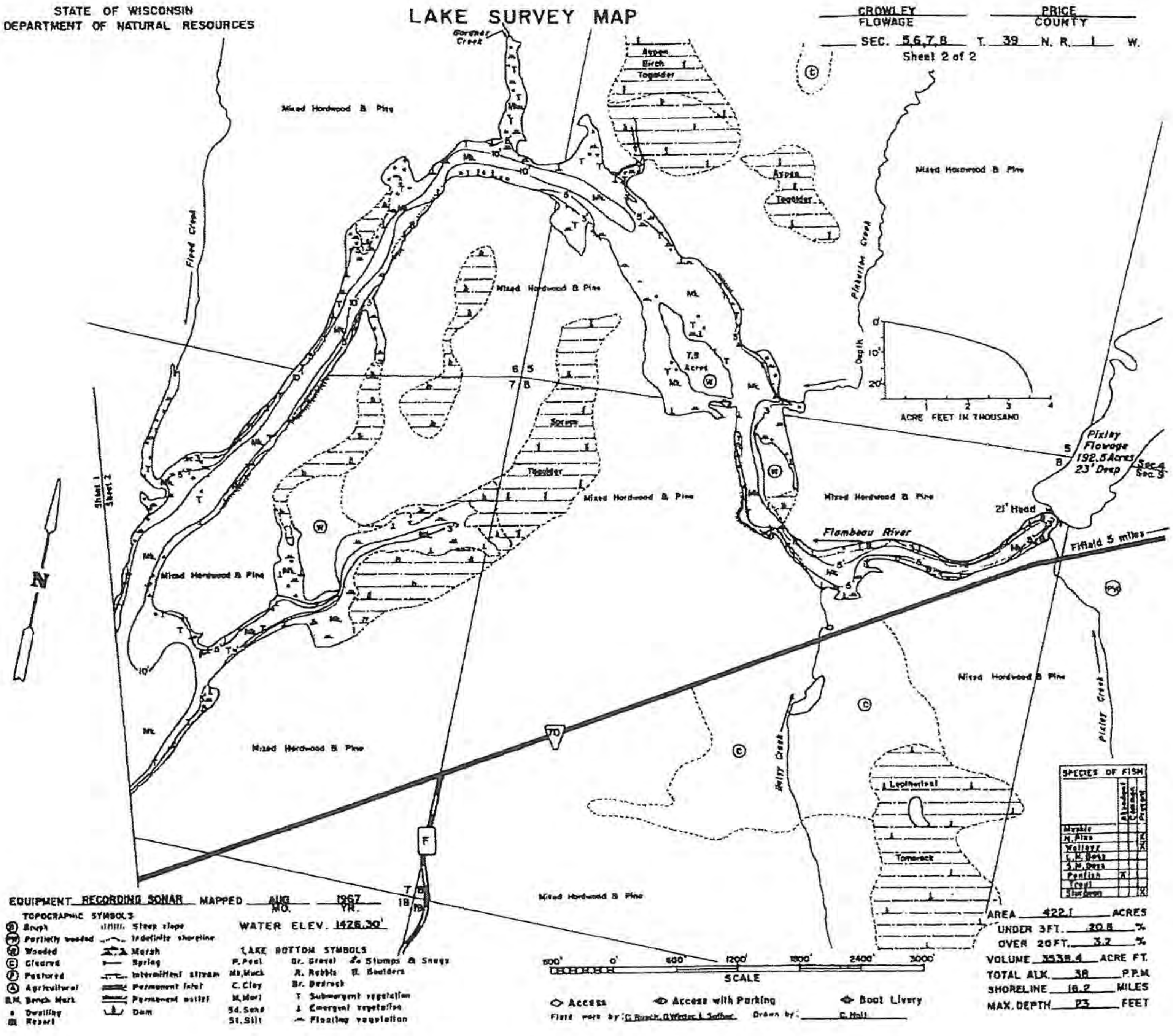


Figure 1. Crowley Hydroelectric Project Map showing water quality sample location (page 1 of 2)


STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
LAKE SURVEY MAP
CROWLEY FLOWAGE
PRICE COUNTY
SEC. 5,6,7,8 T. 39 N. R. 1 W.
Sheet 2 of 2
Gardner Creek
Aspen
Birch
Tagalder
Mixed Hardwood & Pine
Flood Creek
Pixley Creek
Spruce
Tagalder
7.5 Acres
Flambeau River
Pixley Flowage
192.5 Acres
23' Deep
Sec 4
Sec 9
21' Head
Fifield 5 miles
Depth
ACRE FEET IN THOUSAND
Sheet 1
Sheet 2
N
Betty Creek
Leatherleaf
Tamarack
70
F
SPECIES OF FISH
Abundant
Common
Present
Muskie
N. Pike
Walleye
L.M. Bass
S.M. Bass
Panfish
Trout
Sturgeon
AREA 422.1 ACRES
UNDER 3FT. 20.8 %
OVER 20FT. 3.2 %
VOLUME 3539.4 ACRE FT.
TOTAL ALK. 38 P.P.M.
SHORELINE 16.2 MILES
MAX. DEPTH 23 FEET
EQUIPMENT RECORDING SONAR MAPPED AUG MO. 1967 YR.
WATER ELEV. 1426.30'
TOPOGRAPHIC SYMBOLS
Brush
Partially wooded
Wooded
Cleared
Pastured
Agricultural
B.M. Bench Mark
Dwelling
Resort
Steep slope
Indefinite shoreline
Marsh
Spring
Intermittent stream
Permanent inlet
Permanent outlet
Dam
LAKE BOTTOM SYMBOLS
P. Peat
Mk. Muck
C. Clay
M. Marl
Sd. Sand
St. Silt
Gr. Gravel
R. Rubble
Br. Bedrock
Stumps & Snags
Boulders
T Submergent vegetation
Emergent vegetation
Floating vegetation
SCALE
Access
Access with Parking
Boat Livery

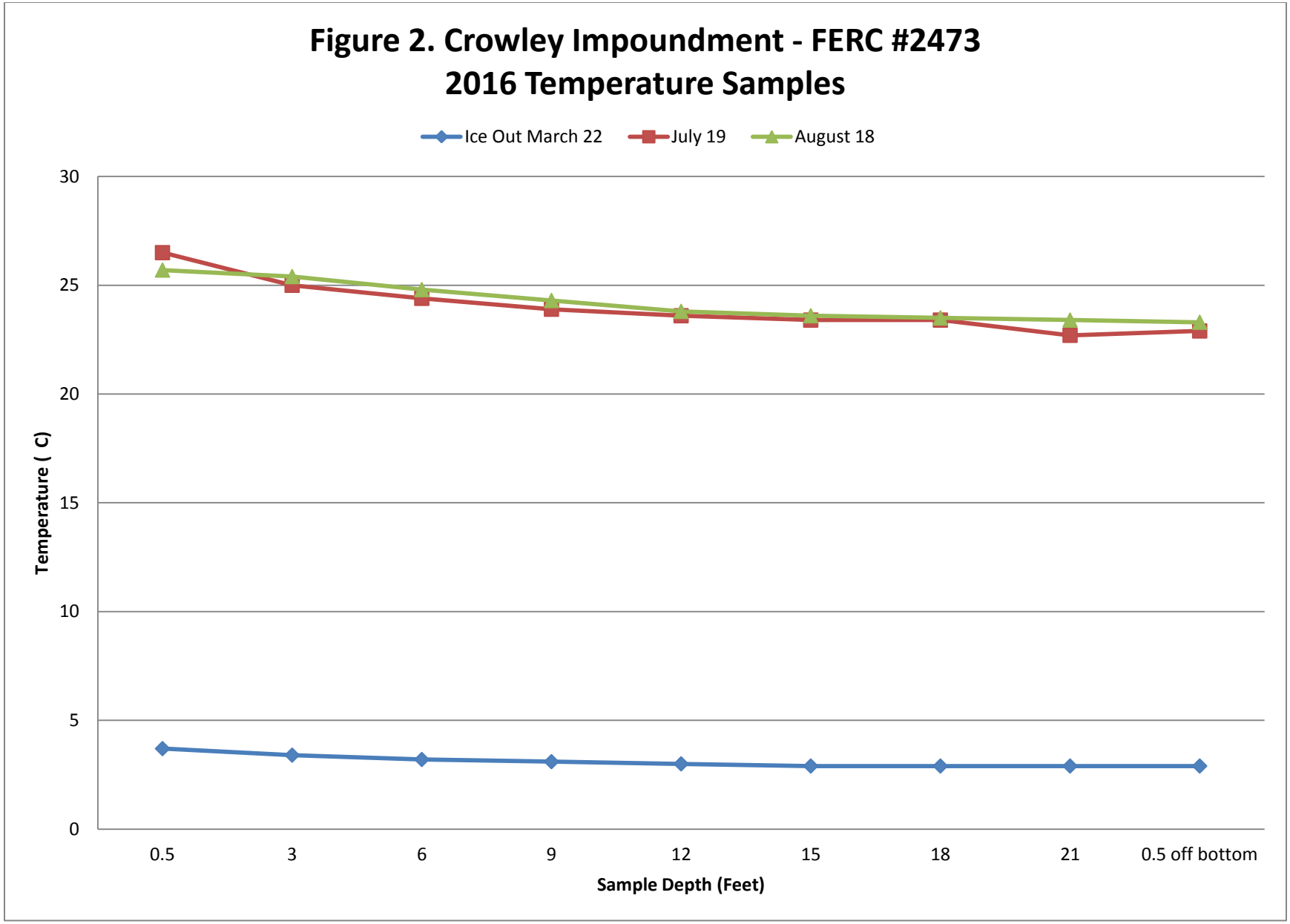


Figure 2. Crowley Impoundment - FERC #2473
2016 Temperature Samples
Ice Out March 22
July 19
August 18
30
25
20
15
10
5
0
Temperature (C)
0.5
3
6
9
12
15
18
21
0.5 off bottom
Sample Depth (Feet)

Figure 3. Crowley Impoundment- FERC #2473
2016 Dissolved Oxygen Samples

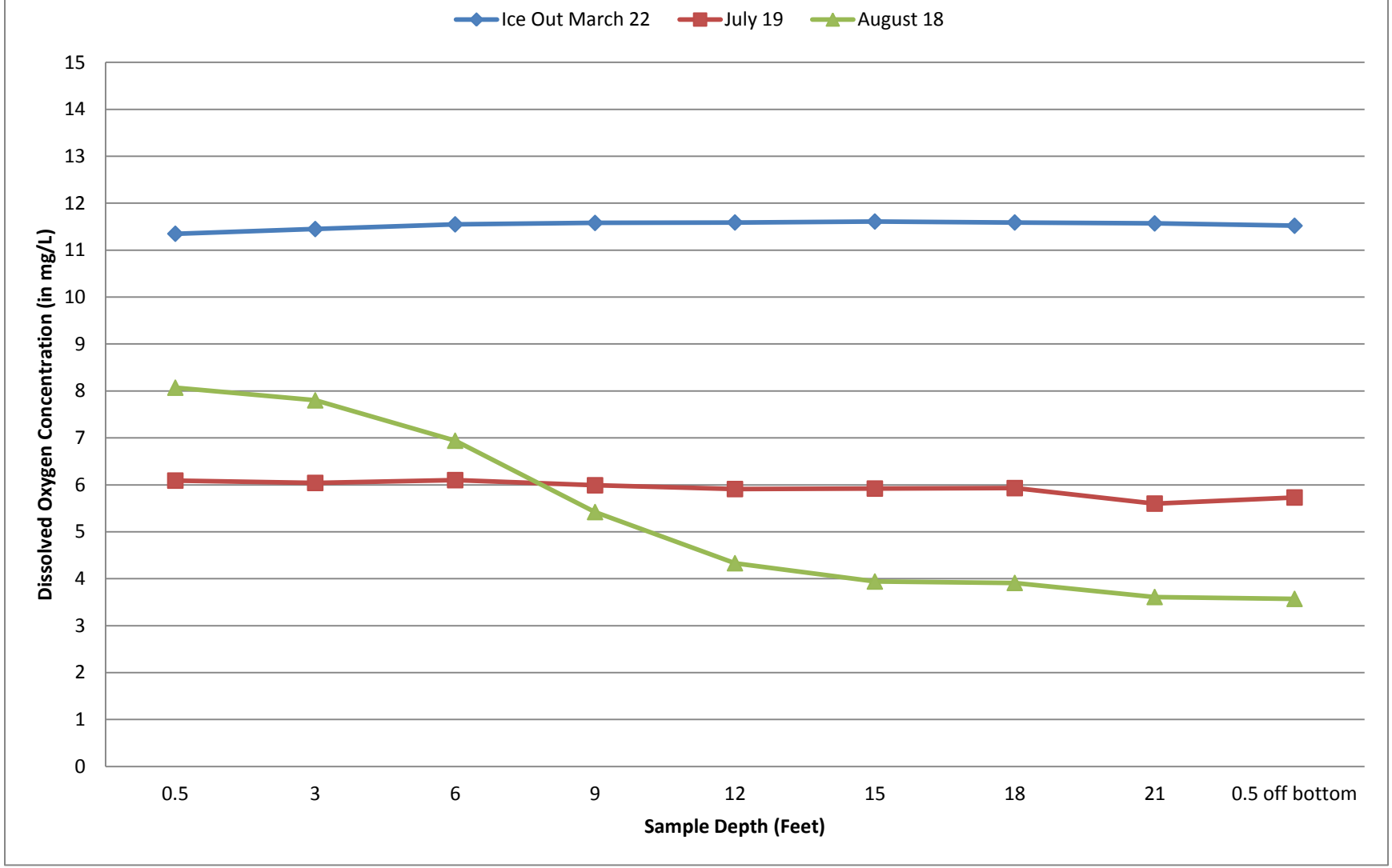
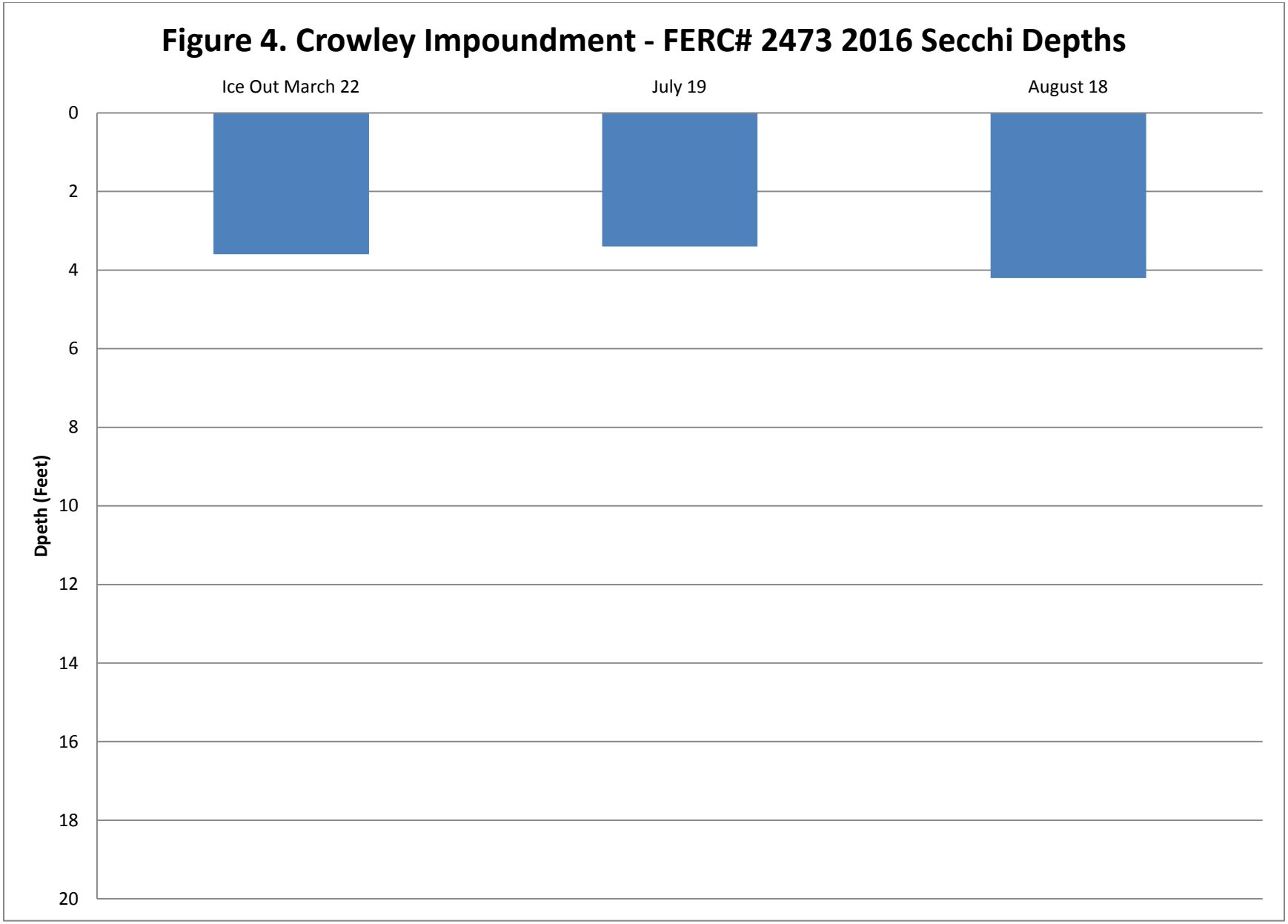


Figure 4. Crowley Impoundment - FERC# 2473 2016 Secchi Depths



Appendix B – Crowley Hydroelectric Project Tables

Table 1. Crowley Hydroelectric Project – FERC Project # 2473: 2016 Water Quality Sampling Data

	Ice Out March 22, 2016			July 19, 2016			August 18, 2016		
Project Flow (c.f.s)	996			1417			584		
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	12:26:27	11.35	3.7	13:30:10	6.09	26.5	13:02:48	8.07	25.7
3 feet below surface	12:26:35	11.45	3.4	13:30:46	6.04	25.0	13:04:25	7.80	25.4
6 feet below surface	12:27:40	11.55	3.2	13:31:28	6.10	24.4	13:07:20	6.94	24.8
9 feet below surface	12:28:13	11.58	3.1	13:32:00	5.99	23.9	13:09:46	5.42	24.3
12 feet below surface	12:28:50	11.59	3.0	13:32:46	5.91	23.6	13:11:16	4.33	23.8
15 feet below surface	12:29:32	11.61	2.9	13:33:21	5.92	23.4	13:12:35	3.94	23.6
18 feet below surface	12:30:04	11.59	2.9	13:33:54	5.93	23.4	13:13:39	3.91	23.5
21 feet below surface	12:30:51	11.57	2.9	13:35:56	5.60	22.7	13:16:06	3.61	23.4
0.5 meter above bottom	12:32:19	11.52	2.9	13:37:10	5.73	22.9	13:16:02	3.51	23.3
Secchi Disk	**Time**	**Depth (ft)**		**Time**	**Depth (ft)**		**Time**	**Depth (ft)**	
Feet below surface	12:25	3.6		13:27	3.4		13:20	4.2	
Chlorophyll a	**Time**	**µg/L**		**Time**	**µg/L**		**Time**	**µg/L**	
3 feet below surface	12:28	0.41		13:25	6.5		12:58	15	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
3 feet below surface	12:30	40	5*	13:37	55	5*	12:58	40	5*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
3 feet below surface	12:30	0.03	0.01*	13:37	0.036	0.008*	12:58	0.03	0.008*
3 feet above bottom	12:32	0.03	0.01*	13:30	0.030	0.008*	13:00	0.03	0.008*
*Considered Method Detection Limit									

Table 2. 2015/16 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 - 15	84	24	46.3	3.1	574	678	1.90	Trace	2.85	67
November - 15	64	10	36.7	7.9	844	1088	2.75	4.40	2.09	132
December - 15	43	2	26.4	11.6	1187	1556	3.70	24.60	1.21	306
January – 16	41	-21	12.8	2.6	1611	1699	1.05	13.00	0.96	109
February – 16	52	-17	17.3	2.2	1376	1399	0.83	12.20	0.81	102
March – 16	60	-2	31.6	5.7	1028	1210	3.96	17.30	1.49	266
April – 16	71	2	37.7	-1.9	809	762	2.40	9.80	2.43	99
May – 16	92	28	53.2	1.8	370	426	1.87	0.10	3.23	58
June – 16	89	37	61.5	1.4	142	179	4.46	0.00	4.23	105
July – 16	90	45	67.1	1.3	29	63	4.39	0.00	3.85	114
August – 16	85	50	67.5	3.2	25	86	4.96	0.00	3.70	134
September - 16	80	40	59.9	4.3	162	298	3.52	0.00	4.11	86

Source: NOAA/Duluth, MN

Table 3. Flambeau Crowley Project Sampling Comparison Table: 2011 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**
2011	April	3.00	3.90	100.00	0.039	0.044	11.73	12.01	6.50	10.40
2012	April	3.30	1.70	120.00	0.041	*	9.30	10.37	8.80	11.80
2013	May	*	*	*	*	*	*	*	*	*
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
Minimum	March/April/June	3.00	0.41	40.00	0.030	0.029	6.61	6.97	2.90	3.70
Maximum	March/April/June	3.60	5.10	150.00	0.047	0.044	11.73	12.01	19.00	21.90
Average	March/April/June	3.38	2.56	84.60	0.038	0.035	9.70	10.15	9.24	11.90
2011	July	2.90	21.00	80.00	0.061	0.075	3.52	8.90	24.40	26.20
2012	July	3.20	17.00	120.00	0.061	0.087	1.67	7.38	25.30	28.00
2013	July	3.00	5.50	150.00	0.046	0.045	3.83	5.65	24.60	25.20
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
Minimum	July	2.90	4.60	55.00	0.030	0.030	1.67	5.65	21.70	22.20
Maximum	July	4.00	21.00	150.00	0.060	0.090	6.09	8.90	25.30	28.00
Average	July	3.29	9.98	102.50	0.050	0.050	4.42	6.81	23.58	25.10
2011	August	3.30	14.00	140.00	0.051	0.051	7.96	7.96	22.40	25.40
2012	August	3.00	17.00	80.00	0.043	0.042	5.22	9.27	23.70	25.30
2013	August	3.10	4.80	130.00	0.099	0.063	5.65	6.24	20.60	21.80
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
Minimum	August	1.30	4.80	40.00	0.030	0.030	3.57	5.65	20.60	21.80
Maximum	August	4.20	17.00	140.00	0.100	0.060	7.96	9.27	23.70	25.70
Average	August	2.98	12.45	91.67	0.050	0.040	5.67	7.42	22.58	24.27

*no sample taken

Appendix C – Crowley Impoundment Project Sampling Logs

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Crowley

Hydroelectric Project – FERC # 2473

Date: 3-22-16

Pre-Sampling Data:

HWL 206.2 TWL 1406.7 CFS 996

Sample Location: CROWWQSP
N 45. 87169
W 090.58451

Performed by:
Plummer A. Stone

Time: 12:23 Barometer: 29.7

Air Temp: 37°F °C Wind Speed: ENE 9 mph

Sky Conditions: 75% clouds

Precipitation within Last 24 Hours: 0

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 91 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 21 Feet

Secchi Depth (± 0.1)		
Time 12.25	3.6	Feet

Comments:

Bluebills Painted turtle
Chinese ms

Hoodie Meganzers

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 12:28	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$ 1:16 p.m	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 12:30

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 12:30	Preservative
	H_2SO_4 1:16 pm

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 12:32	Preservative
	H_2SO_4 1:16 p.m

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	12:26:27	11.35	3.7
3	12:26:55	11.45	3.4
6	12:27:40	11.55	3.2
9	12:28:13	11.58	3.1
12	12:28:50	11.59	3.0
15	12:29:32	11.61	2.9
18	12:30:04	11.59	2.9
21	12:30:51	11.57	2.9
~~24~~			
0.5 above bottom	12:32:19	11.52	2.9

*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 Crowley

Hydroelectric Project – FERC # 2473

Date: 7-19-2016

Pre-Sampling Data:

HWL 4027.200 TWL 1407 CFS 1417

Sample Location: N45, 87169 W090, 58475

Performed by: A. Stine S. Haag

Time: 13:25 Barometer: 30.30

Air Temp: 81 °F Wind Speed: SSW 5 mph

Sky Conditions: partly cloudy

Precipitation within Last 24 Hours: 0

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: 22.0 Feet

Secchi Depth (± 0.1)		
Time 13:27	3.4	Feet

Comments:

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time	Quantity (ml)	Filtered
13:25	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 13:27

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 13:27	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 13:30	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	13:30:10	6.09	26.5
3	13:30:46	6.04	25.0
6	13:31:26	6.10	24.4
9	13:32:	5.99	23.9
12	13:32:46	5.91	23.6
15	13:33:21	5.92	23.4
18	13:33:54	5.93	23.4
21	13:35:2	5.60	22.7
24			
0.5 above bottom	13:37:10	5.73	22.9

*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 Crowley

Hydroelectric Project – FERC # 2473

Date: 8-18-16

Pre-Sampling Data:

HWL 1427.270 TWL 1406.5 CFS 584

Sample Location: N45.87169 W90.58951

Performed by: Steve Haug

Time: ~~8:00~~ 12:57 Barometer: 30.00

Air Temp: 77 °F Wind Speed: 5 mph

Sky Conditions: Partly Cloudy

Precipitation within Last 24 Hours: none

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 90 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 9 Feet

Secchi Depth (± 0.1)		
Time 1320	4.2	Feet

Comments:

3535
photo of taking DO

Chlorophyll *a* (3 feet below surface horizontal sampler)		
Lab Sample I.D. #:		
Time 12:58	Quantity (ml)	Filtered
	1000	In Lab
Preservative	$MgCO_3$	

True Color (3 feet below surface horizontal sampler)
Lab Sample I.D. # :
Time: 12:58

Total Phosphorus (3 feet below surface horizontal sampler)	
Lab Sample I.D. # :	
Time 12:58	Preservative
	H_2SO_4

Total Phosphorus (3 feet above bottom horizontal sampler)	
Lab Sample I.D. # :	
Time 13:00	Preservative
	H_2SO_4

D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	12:58:43	7.89	26.3
3	12:59:29	7.62	25.6
6	1:00:05	7.19	25.1
9	1:01:12	4.76	24.3
12			
15			
18			
21			
24			
0.5 above bottom			

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

WHITE WATER ASSOCIATES, INC.

Crowley 8-18-16

*D.O. and Temperature Profile			
Depth (Feet)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	1:02:48	8.07	25.7
1	1:03:15	7.98	25.6
2	1:03:40	7.93	25.5
3	1:04:25	7.80	25.4
4	1:05.49	7.70	25.2
5	1:06.24	7.09	24.9
6	1:07.20	6.94	24.8
7	1:08.11	7.21	24.8
8	1:09.02	5.73	24.5
9	1:09.46	5.42	24.3
10	1:10.21	4.58	24.0
11	1:10 55	4.34	23.9
12	1:11.16	4.33	23.8
13	1:11.41	4.21	23.7
14	1:12.14	3.97	23.6
15	1:12 35	3.94	23.6
16	1:12 56	3.92	23.5
17	1:13.17	3.91	23.5
18	1:13.39	3.91	23.5
19	1:14.16	3.77	23.5
20	1:14.40	3.69	23.4
21	1:15.06	3.61	23.4
22			
23			
24			
25			
0.5 above bottom	1:16.02	3.57	23.3

WHITE WATER ASSOCIATES, INC.

Appendix D – Crowley Hydroelectric Project Lab Reports and Chains of Custody

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
62079-001	Upper Flambeau Surface	03/22/16	Water
62079-002	Upper Flambeau Bottom	03/22/16	Water
62079-003	Lower Flambeau Surface	03/22/16	Water
62079-004	Lower Flambeau Bottom	03/22/16	Water
62079-005	Pixley Surface	03/22/16	Water
62079-006	Pixley Bottom	03/22/16	Water
62079-007	Crowley Surface	03/22/16	Water
62079-008	Crowley Bottom	03/22/16	Water
62079-009	Winter Surface	03/22/16	Water
62079-010	Clam River Surface	03/23/16	Water
62079-011	Clam River Bottom	03/23/16	Water
62079-012	Danbury Surface	03/23/16	Water
62079-013	Danbury Bottom	03/23/16	Water

ANALYTICAL REPORT

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

Cover Page..continued

Client: RWE **WWA Job #:** 62079

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

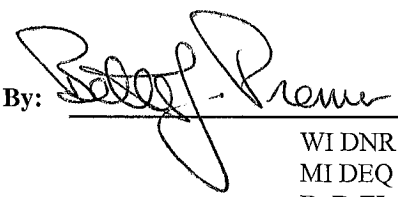
ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)
For coliform, Negative = No coliform bacteria detected, Positive = Coliform bacteria detected

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: 

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-001 / Upper Flambeau Surface / Water							
General Chemistry Parameters							
chlorophyll a	ND		mg/m3	3/28/2016	10200H	NA	NA
Color	30		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-002 / Upper Flambeau Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.01	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-003 / Lower Flambeau Surface / Water							
General Chemistry Parameters							
chlorophyll a	ND		mg/m3	3/28/2016	10200H	NA	NA
Color	35		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-004 / Lower Flambeau Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-005 / Pixley Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.40		mg/m3	3/28/2016	10200H	NA	NA
Color	35		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-006 / Pixley Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-007 / Crowley Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.41		mg/m3	3/28/2016	10200H	NA	NA
Color	40		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-008 / Crowley Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.03	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-009 / Winter Surface / Water							
General Chemistry Parameters							
chlorophyll a	0.41		mg/m3	3/28/2016	10200H	NA	NA
Color	40		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04
62079-010 / Clam River Surface / Water							
General Chemistry Parameters							
chlorophyll a	11		mg/m3	3/28/2016	10200H	NA	NA
Color	15		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.04		mg/L	3/25/2016	365.4	0.01	0.04
62079-011 / Clam River Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.04		mg/L	3/25/2016	365.4	0.01	0.04
62079-012 / Danbury Surface / Water							
General Chemistry Parameters							
chlorophyll a	9.5		mg/m3	3/28/2016	10200H	NA	NA
Color	15		CU	3/25/2016	2120B	5	5
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04

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)

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

Client: RWE **WWA Job #:** 62079

Project: Monitoring

Date Received: 3/24/2016 **Date Reported:** 5/9/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
62079-013 / Danbury Bottom / Water							
General Chemistry Parameters							
Total Phosphorus (t)	0.02	J	mg/L	3/25/2016	365.4	0.01	0.04

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 62079

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

CLIENT NAME / BILL TO	EMAIL ADDRESS
RWE	
ADDRESS	TELEPHONE
CITY / STATE / ZIP	CONTRACT / PO / PROJECT NAME / WSSN#
	Monitoring
SAMPLER NAME (print first/last name)	COUNTY OF LOCATION / PAGE
Angie Stein	PAGE 1 OF 2 — Indicate if more than one page of COC records used
SAMPLER'S SIGNATURE	Check off preservatives for each bottle upon arrival and indicate total number of bottles. WWA database contains bottle preservation details.

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chloro phyll a	TP	Color	T
1	Upper Flambeau Surface	3-22-16	8:16						X						①	3	X	X	X	
2	Upper Flambeau Bottom		"													1		X		
3	lower Flambeau Surf		9:44													3	X	X	X	
4	lower Flambeau Bottom		"													1		X		
5	Pixley Surface		11:07													3	X	X	X	
6	Pixley Bottom		"													1		X		
7	Crowley Surface		12:30													3	X	X	X	
8	Crowley Bottom		"													1		X		
9	Winter Surface	"	14:21												②	3	X	X	X	
10	Clam River Surface	3/23	12:44													3	X	X	X	
11	Clam River Bottom	"	"													1		X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
	3-24-16	9:14	①	3-24-16	950	1.4

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

Job # (WWA office use): 62079

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

CLIENT NAME / BILL TO	EMAIL ADDRESS
RWE	
ADDRESS	TELEPHONE
CITY / STATE / ZIP	CONTRACT / PO / PROJECT NAME / WSSN#
	Monitoring
SAMPLER NAME (print first/last name)	COUNTY OF LOCATION / PAGE
Angie Stone	PAGE 2 OF 2 (Indicate if more than one page of COC records used)
SAMPLER'S SIGNATURE	

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a	TP	Color
12	Danbury Surface	3/23/16	14:45		X				X							3	X	X	X
13	Danbury Bottom	"	"		X				X							1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
Relinquished by:	Date: 3-24-16	Time: 9:14	Received by:	Date: 3-24-16	Time: 950	

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

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
64453-001	Upper Flambeau	07/19/16	Water
64453-002	Upper Flambeau	07/19/16	Water
64453-003	Lower Flambeau	07/19/16	Water
64453-004	Lower Flambeau	07/19/16	Water
64453-005	Pixley	07/19/16	Water
64453-006	Pixley	07/19/16	Water
64453-007	Crowley	07/19/16	Water
64453-008	Crowley	07/19/16	Water
64453-009	Winter	07/18/16	Water
64453-010	Clam River	07/20/16	Water
64453-011	Clam River	07/20/16	Water
64453-012	Danbury	07/20/16	Water
64453-013	Danbury	07/20/16	Water

WHITE WATER ASSOCIATES, INC.
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Cover Page..continued

Client: RWE **WWA Job #:** 64453

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

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: Betty J. Prewo

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-001 / Upper Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.3		mg/m3	7/21/2016	10200H	NA	NA
Color	40		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-002 / Upper Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.019	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-003 / Lower Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.7		mg/m3	7/21/2016	10200H	NA	NA
Color	45		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.021	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-004 / Lower Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.026	J	mg/L	8/1/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-005 / Pixley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	8.1		mg/m3	7/21/2016	10200H	NA	NA
Color	45		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.033	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-006 / Pixley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.180		mg/L	8/1/2016	365.4	0.008	0.050
64453-007 / Crowley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	6.5		mg/m3	7/21/2016	10200H	NA	NA
Color	55		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.036	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-008 / Crowley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.030	J	mg/L	8/1/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-009 / Winter / Surface / Water							
General Chemistry Parameters							
chlorophyll a	2.2		mg/m3	7/21/2016	10200H	NA	NA
Color	85		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.035	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-010 / Clam River / Surface / Water							
General Chemistry Parameters							
chlorophyll a	44		mg/m3	7/21/2016	10200H	NA	NA
Color	30		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.043	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-011 / Clam River / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.043	J	mg/L	8/1/2016	365.4	0.008	0.050
64453-012 / Danbury / Surface / Water							
General Chemistry Parameters							
chlorophyll a	10		mg/m3	7/21/2016	10200H	NA	NA
Color	20		CU	7/21/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050

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 #:** 64453

Project: Monitoring

Date Received: 7/21/2016 **Date Reported:** 8/10/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
64453-013 / Danbury / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.022	J	mg/L	8/1/2016	365.4	0.008	0.050

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 64453

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a	Total Phos	Color
1	Upper Flambeau Surface	7-19-16	8:06		X				X	X						3	X	X	X
2	Upper Flambeau Bottom	7-19-16	8:10													1		X	
3	Lower Flambeau Surface	7-19-16	9:04						X							3	X	X	X
4	Lower Flambeau Bottom	7-19-16	9:08													1		X	
5	Pixley Surface	7-19-16	11:26						X							3	X	X	X
6	Pixley Bottom	7-19-16	11:27													1		X	
7	Crowley Surface	7-19-16	13:25						X							3	X	X	X
8	Crowley Bottom	7-19-16	13:27													1		X	
9	Winter Surface	7-18-16	14:00						X							3	X	X	X
10	Clam River Surface	7-18-16	10:15						X							3	X	X	X
11	Clam River Bottom	7-20-16	10:20						X	⊙						1		X	
12	Danbury Surface	7-20-16	1234						X							3	X	X	X
13	Danbury Bottom	7-20-16	1236													1		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
	7/20/16	18:12				
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
			⊙	7-21-16	1150	1.3

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

ANALYTICAL REPORT

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

Cover Page

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
65014-001	Upper Flambeau	08/18/16	Water
65014-002	Upper Flambeau	08/18/16	Water
65014-003	Lower Flambeau	08/18/16	Water
65014-004	Lower Flambeau	08/18/16	Water
65014-005	Pixley	08/18/16	Water
65014-006	Pixley	08/18/16	Water
65014-007	Crowley	08/18/16	Water
65014-008	Crowley	08/18/16	Water
65014-009	Winter	08/18/16	Water
65014-010	Clam River	08/18/16	Water
65014-011	Clam River	08/18/16	Water
65014-012	Danbury	08/18/16	Water
65014-013	Danbury	08/18/16	Water

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

Cover Page..continued

Client: RWE **WWA Job #:** 65014

Comments (if any):

Key to Laboratory Flags:

*: RPD 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.
U: The analyte was analyzed for, but not detected.
P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

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: _____

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
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 #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-001 / Upper Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	8.5		mg/m3	8/24/2016	10200H	NA	NA
Color	35		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-002 / Upper Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.022	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-003 / Lower Flambeau / Surface / Water							
General Chemistry Parameters							
chlorophyll a	7.2		mg/m3	8/24/2016	10200H	NA	NA
Color	30		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.026	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-004 / Lower Flambeau / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.096		mg/L	8/25/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-005 / Pixley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	15		mg/m3	8/24/2016	10200H	NA	NA
Color	45		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.036	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-006 / Pixley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.048	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-007 / Crowley / Surface / Water							
General Chemistry Parameters							
chlorophyll a	15		mg/m3	8/24/2016	10200H	NA	NA
Color	40		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.030	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-008 / Crowley / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.030	J	mg/L	8/25/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-009 / Winter / Surface / Water							
General Chemistry Parameters							
chlorophyll a	1.5		mg/m3	8/24/2016	10200H	NA	NA
Color	60		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.038	J	mg/L	8/25/2016	365.4	0.008	0.050
65014-010 / Clam River / Surface / Water							
General Chemistry Parameters							
chlorophyll a	61		mg/m3	8/24/2016	10200H	NA	NA
Color	25		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.050		mg/L	8/25/2016	365.4	0.008	0.050
65014-011 / Clam River / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.053		mg/L	8/25/2016	365.4	0.008	0.050
65014-012 / Danbury / Surface / Water							
General Chemistry Parameters							
chlorophyll a	5.2		mg/m3	8/24/2016	10200H	NA	NA
Color	20		CU	8/19/2016	2120B	5	5
Total Phosphorus LL (t)	0.037	J	mg/L	8/25/2016	365.4	0.008	0.050

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)

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

Client: RWE **WWA Job #:** 65014

Project: Monitoring

Date Received: 8/19/2016 **Date Reported:** 9/6/2016

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
65014-013 / Danbury / Bottom / Water							
General Chemistry Parameters							
Total Phosphorus LL (t)	0.040	J	mg/L	8/25/2016	365.4	0.008	0.050

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)

Job # (WWA office use): 65014

CHAIN-OF-CUSTODY RECORD

WHITE WATER ASSOCIATES, INC.

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

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

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

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

ANALYSIS TYPE REQUESTED (Attach list if neeeded)

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

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

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

	SAMPLE ID AND LOCATION (Containers for each sample may be combined on one line.)	DATE	TIME	SAMPLE MATRIX: Drinking water	Aqueous	Sed.	Soil	Other:	CONTAINERS / PRESERVATIVES: None	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Na Thio	Total Number of Containers	Chlorophyll a (mg/L)	Total PO_4 ($\mu g/cm^2$)	Color							
1	Upper Flambeau Surface	8-18-16	7:58						X	X						3	X	X	X							
2	Upper Flambeau Bottom	8-18-16	7:59													1		X								
3	Lower Flambeau Surface	8-18-16	9:44													3	X	X	X							
4	Lower Flambeau Bottom	8-18-16	9:45													1		X								
5	Pixley Surface	8-18-16	11:10													3	X	X	X							
6	Pixley Bottom	8-18-16	11:12													1		X								
7	Crowley Surface	8-18-16	12:59													3	X	X	X							
8	Crowley Bottom	8-18-16	13:00													1		X								
9	Winter Surface	8-16-16	13:07													3	X	X	X							
10	Clam River Surface	8-17-16	10:28													3	X	X	X							
11	Clam River Bottom	8-17-16	10:29													1		X								
12	Dunbury Surface	8-17-16	13:06													3	X	X	X							
13	Dunbury Bottom	8-17-16	13:08													1		X								

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments / Sample temperature on receipt:
			Email	8-18-16	1615	
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
	8/18/16	1634	Login email	8-19-16	1107	3.7

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