

January 31, 2018

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

**RE: Winter Hydroelectric Project
FERC Project Number P-2064
Flambeau Hydro LLC
Final Report 2017 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 2017 Water Quality Monitoring Data* for the Winter Hydroelectric Project. The Federal Energy Regulatory Commission "FERC" issued a License to Flambeau on August 12, 2005. A revised Water Quality Certification was issued August 19, 2008. This report is submitted as a requirement of that License pursuant to License Article 401 Condition N, Appendix A. 2017 was the eleventh year monitoring was conducted since the license was issued, but is the 6th year of submittal by RWE on the behalf of the Licensee.

Monitoring was conducted on April 11, July 18, and August 14, 2017. No unusual temperature or dissolved oxygen reading were observed. The draft report was sent to the agencies by an attachment to an email on November 16, 2017 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 2018.

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.

Corporate Office
P.O. Box 264
100 S. State Street
Neshkoro, WI 54960
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Neshkoro, WI 54960
Phone: 855-99HYDRO
Fax: 920-293-4100
www.renewableworldenergies.com

Sincerely,
Renewable World Energies, LLC
Agent for Licensee

A handwritten signature in black ink, appearing to read "Bill".

For Mr. Jason Kreuzscher
Vice President, Operations

Attachment: Final Report 2017 Water Quality Monitoring Data
Correspondence

Cc: Mr. Paul Strong, USFS
Mr. Dale Higgins, USFS
Ms. Sue Reinecke, USFS
Ms. Cheryl Laatsch, WDNR
Mr. Nick Utrup, USFWS
RWE, Corporate

Final Report

2017 Water Quality Monitoring Data

for the

Winter Hydroelectric Project

FERC Project #2064

Flambeau Hydro, LLC

East Fork of the Chippewa River,
Sawyer County, Wisconsin

Respectfully Submitted by:

Angie Stine



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

Phone: 906-822-7889

Summary Winter Hydroelectric Project – FERC #2064

2017 marked the eleventh year of water quality sampling under FERC License issued August 12, 2006 Per Article 401, Water Quality Certification Condition N, Appendix A for the Winter Hydroelectric Project – FERC Project # 2064 – Flambeau Hydro LLC. Monitoring was conducted on April 11, July 18, and August 14, 2017. This document contains all of the associated records for the 2017 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 Winter Hydroelectric Project is shown in Figure 1 indicating the water quality sampling location.

Monitoring results for 2017 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 2017 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). Sampling and testing of the samples was coordinated with the sampling done at the Flambeau Projects (Upper, Lower, Pixley, Crowley). These projects are located on the North Fork of the Flambeau River, Price County, Wisconsin. Protocol, procedures, and sampling design followed that of the Flambeau Projects.

Ice-Out occurred on the East Fork of the Chippewa sometime during the week beginning April 3, 2017. The Ice-Out sampling event occurred on April 11, 2017. River flow, based on the Winter Hydroelectric Project records, was approximately 471 cubic feet per second. Sampling occurred between 13:49 and 13:57. Samples were taken without incident. No unusual D.O. or Temperature readings were observed. Samples for laboratory analysis were delivered to White Water Associates, Inc. laboratory in Amasa, MI on April 13, 2017. White Water Associates, Inc. issued a laboratory report on April 27, 2017. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

River flow, based on the Winter Hydroelectric Project records, was approximately 110 cubic feet per second during the July 18, 2017 sampling event. Sampling occurred between 1344 and 1346. 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 20, 2017. White Water Associates, Inc. issued a laboratory report on September 21, 2017. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

River flow, based on the Winter Hydroelectric Project records, was approximately 135 cubic feet per second during the August 14, 2017 sampling event. Sampling occurred between 1350 and 1402. 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

16, 2017. White Water Associates, Inc. issued a laboratory report on September 14, 2017. No unusual levels of Chlorophyll *a*, True Color, or Total Phosphorus were noted in the laboratory reports.

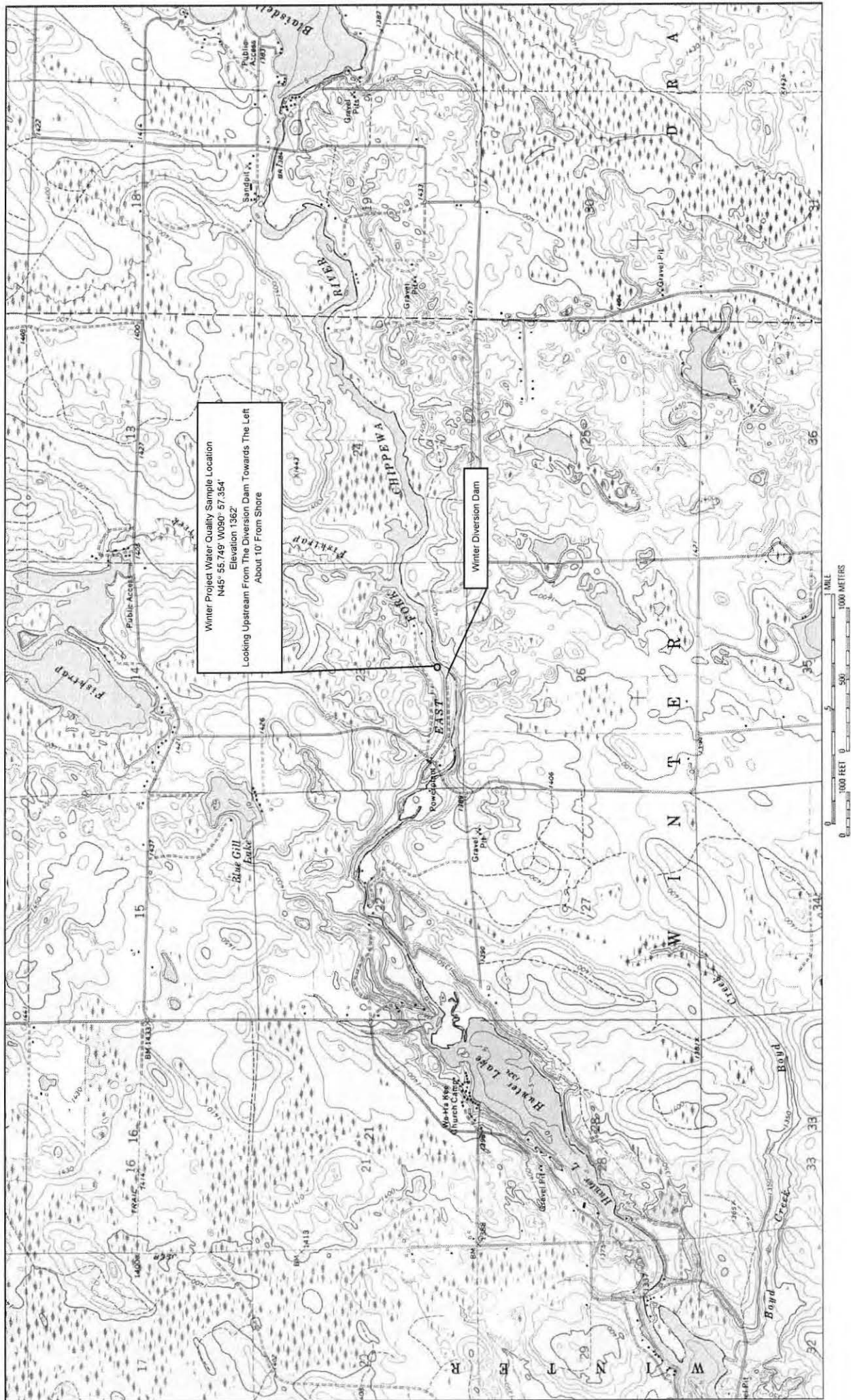
A summary of a comparison between the 2011 thru 2017 (Table 3) sampling results are as follows:

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

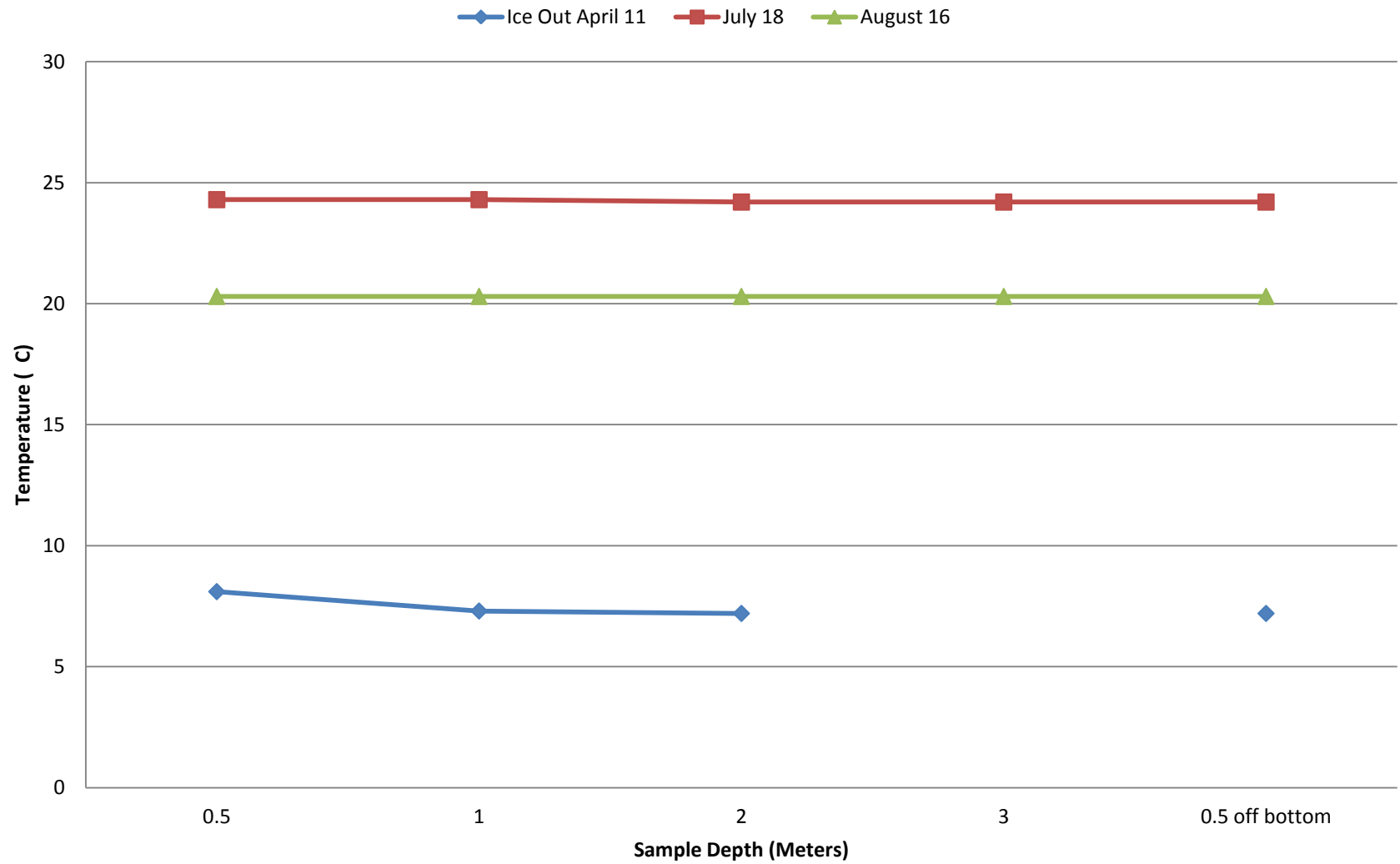
The next scheduled Water Quality Monitoring at the Winter Hydroelectric Project is set to take place in 2018 beginning with the Ice-Out sampling event.

Appendix A – Winter Hydroelectric Project Figures

Figure 1. Winter Impoundment Project Map (next page)



**Figure 2. Winter Impoundment - FERC #2064
2017 Temperature Samples**



**Figure 3. Winter Impoundment- FERC #2064
2017 Dissolved Oxygen Samples**

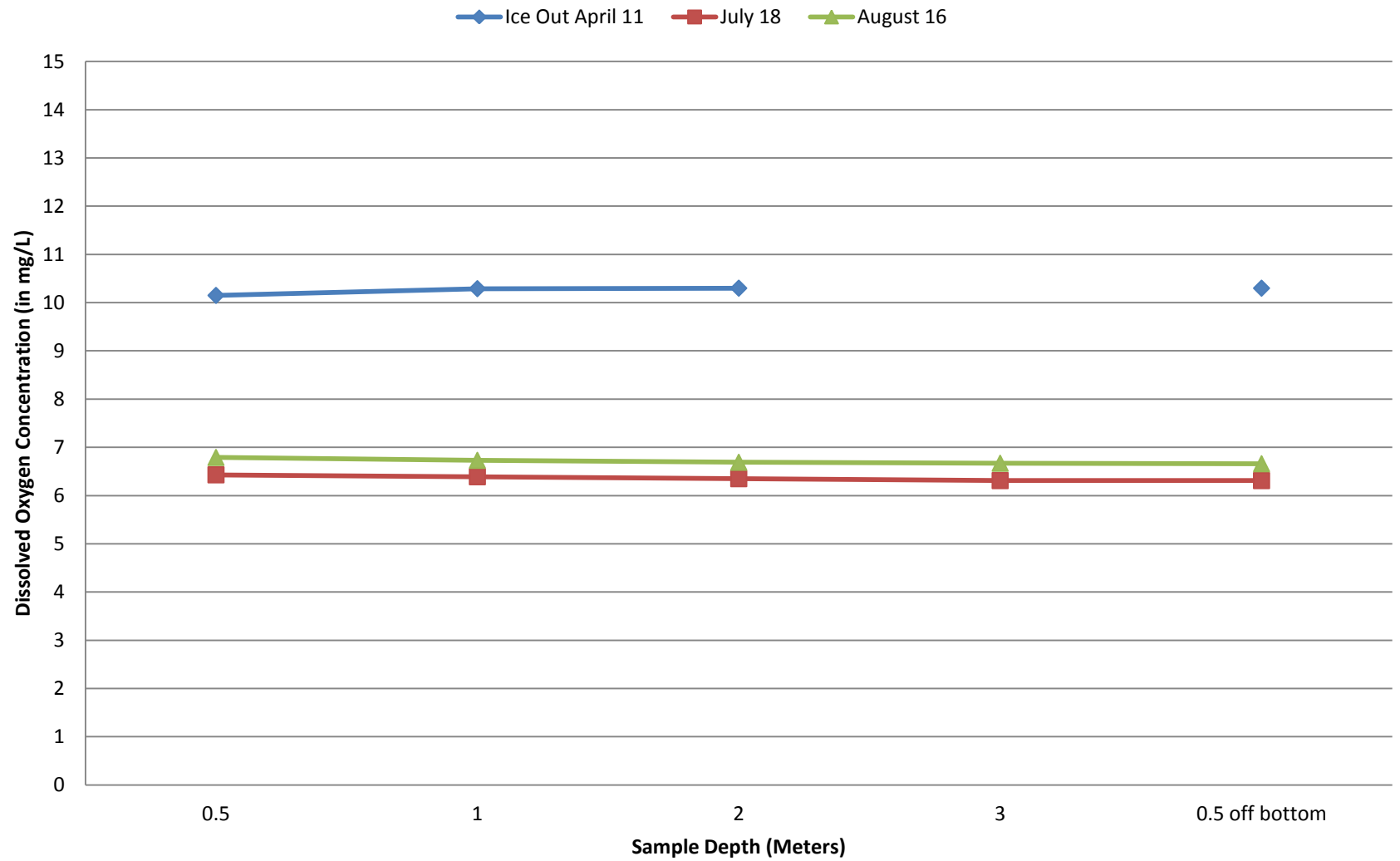
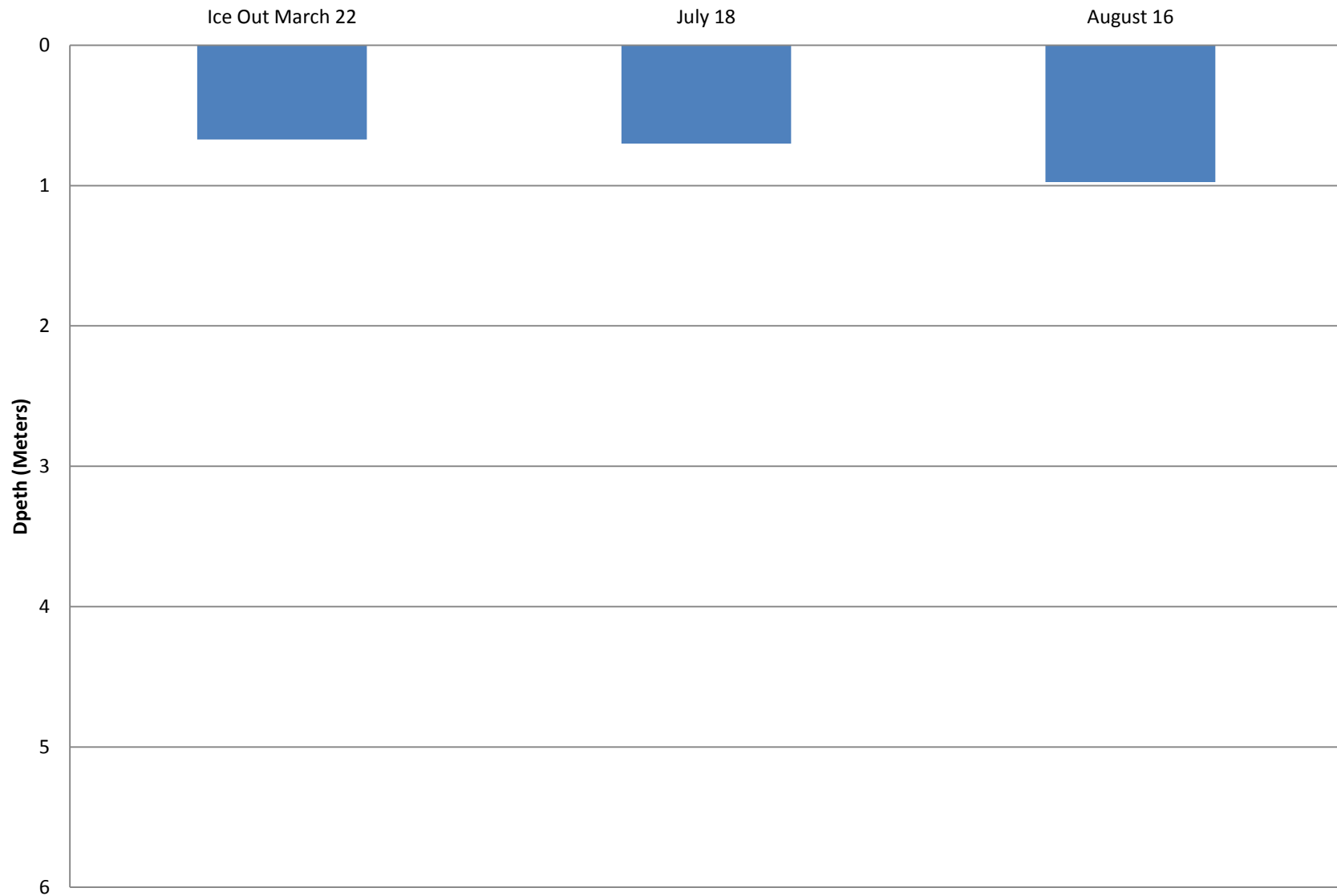


Figure 4. Winter Impoundment FERC# 2064 Secchi Depths 2017



Appendix B – Winter Hydroelectric Project Tables

Table 1. Winter Hydroelectric Project – FERC Project # 2064: 2017 Water Quality Sampling Data

	Ice Out April 11, 2017			July 18, 2017			August 14, 2017		
Project Flow (c.f.s)	471			110			135		
Dissolved Oxygen	Time	D.O. (mg/L)	Water Temp. (°C)	Time	D.O. (mg/L)	Water Temp. (°C)	Time	D.O. (mg/L)	Water Temp. (°C)
0.5 meter below surface	13:52:00	10.15	8.1	13:38:12	6.43	24.3	13:53:17	6.79	20.3
1 meter below surface	13:55:00	10.29	7.3	13:39:31	6.39	24.3	13:54:36	6.73	20.3
2 meter below surface	13:56:34	10.30	7.2	13:41:08	6.31	24.2	13:56:06	6.67	20.3
3 meter below surface	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
0.5 meter above bottom	13:57:20	10.30	7.2	13:41:59	6.31	24.2	13:56:47	6.66	20.3
Secchi Disk	Time	Depth (m)		Time	Depth (m)		Time	Depth (m)	
Meters below surface	13:55	1.0		14:46	1.4		14:02	1.4	
Chlorophyll <i>a</i>	Time	µg/L		Time	µg/L		Time	µg/L	
1 meter below surface	13:50	3.9		13:44	3.1		13:54	2.8	
Color (True)	Time	C.P.U. Units	LOD	Time	C.P.U. Units	LOD	Time	C.P.U. Units	LOD
1 meter below surface	13:50	35	5*	13:44	55	5*	13:54	40	5*
Total Phosphorus	Time	mg/L	LOD	Time	mg/L	LOD	Time	mg/L	LOD
1 meter below surface	13:50	0.022	0.01*	13:44	0.033	0.008*	13:54	0.023	0.008*
1 meter above bottom	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
* Considered Method Detection Limit N/A = Not Applicable									

Table 2. 2016/17 Water Year Monthly Temperature and Precipitation for Winter, 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 - 16	74	30	47.6	4.4	531	678	1.55	Trace	2.85	75
November - 16	70	10	40.2	11.4	735	1088	2.60	8.1	2.09	78
December - 16	39	-21	15.9	1.1	1512	1556	2.07	21.3	1.21	79
January – 17	45	-22	16.0	5.8	1511	1699	1.16	15.5	0.96	78
February – 17	52	-11	22.5	7.4	1185	1399	1.80	14.1	0.81	73
March – 17	59	-29	26.3	0.4	1193	1210	1.05	5.3	1.49	67
April – 17	70	23	42.2	2.6	678	762	3.02	1.9	2.43	68
May – 17	75	32	50.3	-1.1	446	426	4.11	0.8	3.23	68
June – 17	88	18	60.9	0.8	131	179	5.21	0.00	4.23	71
July – 17	86	48	65.3	-0.5	53	63	4.11	0.00	3.85	77
August – 17	82	46	61.5	-2.8	117	86	7.23	0.00	3.70	79
September - 17	83	37	58.6	3.0	212	298	3.55	0.00	4.11	81

Source: NOAA/Duluth, MN

Table 3. Winter Project Sampling Comparison Table: 2011 Thru Current Year

Year	Month	Secchi Depth	Chlorophyll <i>a</i>	Color (True)	Total Phosphorus	Low D.O.	High D.O.	Low Water Temp.	High Water Temp.
		meters	µg/L	C.P.U. Units	Below Surface mg/L	mg/L	mg/L	° C	° C
2011	April	1.00	0.00	150.00	0.028	11.85	12.10	8.10	8.60
2012	April	0.50	2.30	250.00	0.048	10.55	10.73	9.90	10.60
2013	May	1.20	1.90	250.00	0.036	9.34	9.61	6.90	7.80
2014	June	1.50	2.30	300.00	0.055	6.98	7.07	19.90	20.10
2015	April	0.80	3.70	180.00	0.036	9.57	9.72	10.00	11.60
2016	March	0.67	0.41	40.00	0.020	11.30	11.49	3.10	3.60
2017	April	1.03	3.90	35.00	0.022	10.15	10.30	7.20	8.10
Minimum	March/April/June	0.50	0.00	35.00	0.020	6.98	7.07	3.10	3.60
Maximum	March/April/June	1.50	3.90	300.00	0.055	11.85	12.10	19.90	20.10
Average	March/April/June	0.96	2.07	172.14	0.035	9.96	10.15	9.30	10.06
2011	July	0.80	4.30	250.00	0.055	5.84	6.44	26.10	27.70
2012	July	0.60	1.80	400.00	0.082	4.67	4.75	25.50	25.90
2013	July	0.80	1.90	400.00	0.064	5.05	5.21	25.20	26.10
2014	July	0.60	1.50	250.0	0.050	6.31	6.44	19.00	19.40
2015	July	0.70	1.80	25.00	0.044	6.47	6.53	22.30	22.30
2016	July	0.70	2.20	85.00	0.035	5.77	5.86	22.60	23.10
2017	July	1.40	3.10	55.00	0.033	6.31	6.43	24.20	24.30
Minimum	July	0.60	1.50	25.00	0.033	4.67	4.75	19.00	19.40
Maximum	July	1.40	4.30	400.00	0.082	6.47	6.53	26.10	27.70
Average	July	0.80	2.37	209.29	0.052	5.77	5.95	23.56	24.11
2011	August	0.70	3.70	250.00	0.055	7.25	7.27	24.70	25.10
2012	August	1.10	3.00	200.00	0.047	7.27	7.55	23.40	25.10
2013	August	0.90	2.00	200.00	0.120	5.49	6.10	20.00	20.10
2014	August	0.90	1.80	150.00	0.040	6.54	6.68	23.70	23.80
2015	August	0.70	3.30	300.00	0.051	5.95	6.10	22.80	23.20
2016	August	0.98	1.50	60.00	0.038	5.83	5.96	23.50	24.80
2017	August	1.40	2.80	40.00	0.023	6.66	6.79	20.30	20.30
Minimum	August	0.70	1.50	40.00	0.023	5.49	5.96	20.00	20.10
Maximum	August	1.40	3.70	300.00	0.120	7.27	7.55	24.70	25.10
Average	August	0.95	2.59	171.43	0.053	6.43	6.64	22.63	23.20

Appendix C – Winter Impoundment Project Sampling Logs

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Winter

Hydroelectric Project – FERC # 2064

Date: 4-11-17

Pre-Sampling Data:

HWL 1370.65 TWL 1346.42 CFS 471 CFS

Sample Location: Stream

N45° 55.749' W 90° 57.354'

Performed by: Arden T. Plummer

Time: 13:49 Barometer: 30.2

Air Temp: 42.8 Wind Speed: NNW 6 mph

Sky Conditions: 95% clouds

Precipitation within Last 24 Hours: 0.1"

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☒ Yes ☐ No

If yes, when were they changed: yes

Battery Status: 50 % Charge new 100

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 2.13 Meters

Secchi Depth (+0.1)		
Time	<u>13:55</u>	<u>3.4</u>
	Feet	Meters

Comments:

Chlorophyll a (1 Meter below surface horizontal sampler)		
Time <u>13:50</u>	Quantity (ml)	Filtered
	1000	In Lab
Preservative	MgCO ₃	

True Color (1 Meter below surface horizontal sampler)	
Time	<u>13:50</u>

Total Phosphorus (1 Meter below surface horizontal sampler)	
Time <u>13:50</u>	Preservative
	H ₂ SO ₄

Total Phosphorus (1 Meter above bottom horizontal sampler)	
Time	Preservative
	H₂SO₄

D.O. and Temperature Profile			
Depth (Meters)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	<u>13:52</u>	<u>10.15</u>	<u>8.16</u>
1	<u>13:53.46</u>	<u>10.25</u>	<u>7.5</u>
2	<u>13:53.33</u>	<u>10.27</u>	<u>7.4</u>
3	<u>13:54.01</u>	<u>10.29</u>	<u>7.3</u>
4	<u>13:55.43</u>	<u>10.29</u>	<u>7.3</u>
5	<u>13:55.54</u>	<u>10.30</u>	<u>7.3</u>
6	<u>13:56.24</u>	<u>10.30</u>	<u>7.2</u>
7	<u>13:57.04</u>	<u>10.30</u>	<u>7.2</u>
8			
0.5 above bottom	<u>13:57.20</u>	<u>10.30</u>	<u>7.2</u>

*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.

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Winter

Hydroelectric Project – FERC # 2064

Date: 7-18-17

Pre-Sampling Data:

HWL _____ TWL _____ CFS _____

Sample Location: N45° 55.249 W 98° 57.351'

Performed by:

Stine Tracy

Time: _____ Barometer: 29.9

Air Temp: 73 °F Wind Speed: wws mph

Sky Conditions: 100% clouds

Precipitation within Last 24 Hours: yes

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 100 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 2.5 Meters

Secchi Depth (± 0.1)	
Time <u>14:46</u>	Feet <u>1.4</u> Meters

Comments:

Chlorophyll a (1 Meter below surface horizontal sampler)		
Time <u>13:44</u>	Quantity (ml)	Filtered
	1000	In Lab
Preservative		MgCO ₃

True Color (1 Meter below surface horizontal sampler)	
Time <u>13:44</u>	

Total Phosphorus (1 Meter below surface horizontal sampler)	
Time <u>13:44</u>	Preservative
	H ₂ SO ₄

Total Phosphorus (1 Meter above bottom horizontal sampler)	
Time	Preservative
	H₂SO₄

D.O. and Temperature Profile			
Depth (Meters)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	<u>13:38:12</u>	<u>6.43</u>	<u>24.3</u>
1	<u>13:39:31</u>	<u>6.39</u>	<u>24.3</u>
2	<u>13:40:13</u>	<u>6.35</u>	<u>24.2</u>
3.25	<u>13:41:06</u>	<u>6.31</u>	<u>24.2</u>
4			
5			
6			
7			
8			
0.5 above bottom	<u>13:41:59</u>	<u>6.31</u>	<u>24.2</u>

*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.

IMPOUNDMENT SAMPLING LOG

Water Quality Study Location Winter

Hydroelectric Project – FERC # 2064

Date: 8-14-17

Pre-Sampling Data:

HWL _____ TWL _____ CFS _____

Sample Location: N 45° 55' 44"
W 90° 57' 35"

Performed by:

Stine Haag

Time: 13:50 Barometer: 29.8

Air Temp: 63° Wind Speed: ESE 3 mph

Sky Conditions: 100% clouds

Precipitation within Last 24 Hours: yes

D.O. Meter Calibration:

Instrument Model Used: HQ40D

Were the batteries changed? ☐ Yes ☒ No

If yes, when were they changed: _____

Battery Status: 75 % Charge

Calibration Method: Factory

Sampling Depth Profile: Measured depth to bottom of impoundment: 2.8 Meters

Secchi Depth (± 0.1)	
Time <u>14:02</u>	Feet <u>1.7</u> (Meters)

Comments:

Chlorophyll <i>a</i> (1 Meter below surface horizontal sampler)		
Time	Quantity (ml)	Filtered
<u>13:54</u>	1000	In Lab
Preservative		MgCO ₃

True Color (1 Meter below surface horizontal sampler)	
Time	<u>13:54</u>

Total Phosphorus (1 Meter below surface horizontal sampler)	
Time	<u>13:54</u>
Preservative	
H ₂ SO ₄	

Total Phosphorus (1 Meter above bottom horizontal sampler)	
Time	Preservative
	H₂SO₄

D.O. and Temperature Profile			
Depth (Meters)	Time	D.O. (mg/L)	Temperature °C
0.5 below surface	<u>13:53:17</u>	<u>6.99</u>	<u>20.3</u>
1	<u>13:54:36</u>	<u>6.73</u>	<u>20.3</u>
2	<u>13:55:10</u>	<u>6.69</u>	<u>20.3</u>
3	<u>13:56:06</u>	<u>6.67</u>	<u>20.3</u>
4			
5			
6			
7			
8			
0.5 above bottom	<u>13:56:47</u>	<u>6.66</u>	<u>20.3</u>

*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.

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



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 #: 68747

Project: Monitoring

Date Received: 4/14/2017

Date Reported: 4/27/2017

Sample Number	Client Sample ID
68747-001	Winter

Date Sampled	Sample Matrix
04/11/17	Water



Cover Page..continued

Client: RWE

WWA Job #: 68747

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



Client: RWE

WWA Job #: 68747

Project: Monitoring

Date Received: 4/14/2017

Date Reported: 5/5/2017

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
68747-001 / Winter / Water							
General Chemistry Parameters							
chlorophyll a	3.9		mg/m3	4/20/2017	10200H	NA	NA
Color	35		CU	4/14/2017	2120B	5	5
Total Phosphorus LL (t)	0.022	J	mg/L	4/19/2017	365.4	0.008	0.050

62 747

CHAIN-OF-CUSTODY RECORD

Version
160504



**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

[illegible]

ANALYSIS TYPE REQUESTED (Attach list if needed)

Instructions to White Water

Send my report by:

email

mail

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

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

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Comments/Sample temp. on receipt:	Packing: Ice <input checked="" type="checkbox"/> Cooler <input checked="" type="checkbox"/>
Relinquished by: <i>Am 5th</i>	Date: <i>4-13-17</i>	Time: <i>5:36am</i>	Received by: <i>Enah</i> ①	Date: <i>4-14-17</i>	Time: <i>1050</i>		

WHITE - RETURN W/ REPORT

CANARY - W/ SAMPLES

PINK - CUSTOMER

UPS ☐ FedEx ☐ USPS ☐ Client ☐ Other WVA



Cover Page

Client: RWE**WWA Job #:** 70826

Project: Monitoring**Date Received:** 7/21/2017**Date Reported:** 9/21/2017

Sample Number **Client Sample ID**
70826-001 Winter**Date Sampled** **Sample Matrix**
07/18/17 Water

**Cover Page..continued****Client:** RWE**WWA Job #:** 70826**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



Client: RWE

WWA Job #: 70826

Project: Monitoring

Date Received: 7/21/2017

Date Reported: 9/21/2017

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
70826-001 / Winter / Water								
General Chemistry Parameters								
chlorophyll a	3.1		mg/m3	8/10/2017 14:30	10200H	NA	NA	WS
Color	55		CU	7/21/2017 14:00	2120B	5	5	AH
Total Phosphorus LL (t)	0.033	J	mg/L	8/1/2017 10:25	365.4	0.008	0.050	NK

Job # (WWA office use): 70826

CHAIN-OF-CUSTODY RECORD

Version
160504



**WHITE WATER
ASSOCIATES, INC.**

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

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

CLIENT NAME / BILL TO

RWE

ADDRESS

CITY

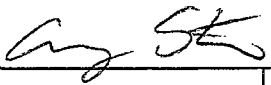
STATE

ZIP

SAMPLER NAME (print first/last name)

Angie Spri

SAMPLER'S SIGNATURE



SAMPLE ID AND LOCATION

Containers for each sample may be combined on one line.

Winter

DATE

7/18/17

TIME

1344

SAMPLE MATRIX

Drinking water

Aqueous

Sed.

Soil

Other:

CONTAINERS / PRESERVATIVES

None

H2SO4

HNO3

HCl

NaOH

ZnAc/NaOH

Na Thio

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

3

EMAIL ADDRESS

TELEPHONE

429 River Lane, P.O. Box 27

Amasa, Michigan 49903

Phone: (906) 822-7889, Fax -7977

Web: white-water-associates.com

ANALYSIS TYPE REQUESTED (Attach list if needed)

Chl a (mg/L)

T Phos

Color

Instructions to White Water

Send my report by:


email

mail

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

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

Relinquished by:



Date:

7/20/17

Time:

5:03 p.m.

Received by:

Angie Spri

Date:

7-21-17

Time:

10:45

Comments/Sample temp. on receipt:

35

Packing: Ice

Cooler

WHITE - RETURN W/ REPORT

CANARY - W/ SAMPLES

PINK - CUSTOMER

UPS ☐ FedEx ☐ USPS ☐ Client ☐ Other WWF

**Cover Page**

Client: RWE**WWA Job #:** 71381

Project: Monitoring**Date Received:** 8/17/2017**Date Reported:** 9/14/2017

Sample Number
71381-001**Client Sample ID**
Winter**Date Sampled**
08/14/17**Sample Matrix**
Water



Cover Page..continued

Client: RWE

WWA Job #: 71381

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:

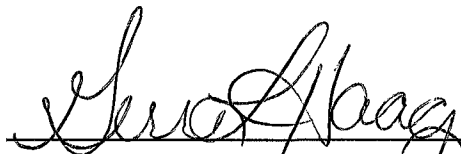
S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

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.

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WI DNR Lab Certification Number: 999971280

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DoD-ELAP Accreditation Number: 65802

ISO/IEC 17025:2005 Accredited



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

Client: RWE

WWA Job #: 71381

Project: Monitoring

Date Received: 8/17/2017

Date Reported: 9/14/2017

Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date/Time	Method	MDL	MQL	Analyst
71381-001 / Winter / surface / Water								
General Chemistry Parameters								
chlorophyll a	2.8		mg/m3	9/7/2017 10:00	10200H	NA	NA	WS
Color	40	H	CU	8/17/2017 11:40	2120B	5	5	AH
Total Phosphorus LL (t)	0.023	J	mg/L	8/18/2017 11:51	365.4	0.008	0.050	NK

Job # (WWA office use): 71381

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

[illegible]

ANALYSIS TYPE REQUESTED (Attach list if needed)

Instructions to White Water
Send my report by:

_____ email
_____ mail

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

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

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
<i>Am 5th</i>	<i>8-16-17</i>	<i>16:47</i>	<i>Am 9</i>	<i>8-17-17</i>	<i>830</i>

Comments/Sample temp. on receipt:

Packing: Ice ☒
Cooler ☒

UPS ☐ FedEx ☐ USPS ☐ Client ☐ Other ☒ WWF

Brian Kreuscher

From: Brian Kreuscher
Sent: Friday, November 17, 2017 8:43 AM
To: Cheryl Laatsch; Nick Utrup; Sue Reinecke; Paul Strong; Dale Higgins
Subject: Winter (P-2064) Draft Water Quality Report
Attachments: Draft Report 2017 Winter Final WQ-Complete.pdf

All,
Attached is the Draft Water Quality Report for Winter. Please review and provide any comments you may have to me within 30 days for FERC submittal.

Thanks
Brian Kreuscher
Renewable World Energies
Regulatory & Compliance
855-944-9376 x230

Brian Kreuscher

From: Brian Kreuscher
Sent: Friday, November 17, 2017 3:59 PM
To: Cheryl Laatsch; Nick Utrup; Sue Reinecke; Paul Strong; Dale Higgins
Subject: 2017 Draft Water Quality Report
Attachments: Draft Report 2017 Danbury Final WQ-Complete.pdf; Draft Report 2017 Flambeau Lower Final WQ-Complete.pdf; Draft Report 2017 Flambeau Upper Final WQ-Complete.pdf; Draft Report 2017 Pixley Final WQ-Complete.pdf; Draft Report 2017 Winter Final WQ-Complete.pdf; Draft Report 2017 Clam River Final WQ-Complete.pdf; Draft Report 2017 Crowley Final WQ-Complete.pdf

All,

In previous emails I said we need comments within 30 days for the FERC submittal. Correction, we are to allow 60 days for you to comment on the Water Quality Reports before the FERC submittal is required on these projects:

Winter (P-2064)

Clam River (P-9185)

Danbury (P-9184)

Flambeau Upper (P-2640)

Flambeau Lower (P-2421)

Pixley (P-2395)

Crowley (P-2473)

Sorry for the confusion, I have re-attached all reports noted for ease.

Thanks

Brian Kreuscher

Renewable World Energies

Regulatory & Compliance

855-944-9376 x230