Draft Report

2007 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:

North American Hydro Holdings, Inc.
116 North State Street
Neshkoro, Wisconsin 54960

Draft – November 7, 2007

Table of Contents

Summary

2007 marked the fourth year of water quality sampling under the FERC approved "Water Quality Monitoring Plan Per License Article 406 for the Flambeau (Lower) Hydroelectric Project – FERC Project # 2421 – Flambeau Hydro, LLC".

Ice-Out occurred between Agenda and Nine Mile Landing on the North Fork of the Flambeau River during the later part of the first week in April 2007. The Ice-Out sampling event occurred on April 18, 2007. River flow, based on Flambeau (Lower) Hydroelectric Project records, was approximately 398 cubic feet per second. Sampling occurred between 10:30 am and 10:57 am. Samples were taken without incident. No unusual D.O. or Temperature readings were observed. Samples for laboratory analysis were delivered to Northern Lake Service, Inc in Crandon, WI on April 20, 2007. Northern Lake Service, Inc. issued a laboratory report on April 26, 2007. 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 264 cubic feet per second during the July 17, 2007 sampling event. Sampling occurred between 10:30 am and 11:08 am. Samples were taken without incident. Samples for laboratory analysis were delivered to Northern Lake Service, Inc in Crandon, WI on July 19, 2007. Northern Lake Service, Inc issued a laboratory report on July 24, 2007. 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 260 cubic feet per second during the August 08, 2007 sampling event. Sampling occurred between 10:00 am and 11:03 am. Samples were taken without incident. No unusual D.O. or temperature readings were observed. Samples for laboratory analysis were delivered to Northern Lake Service, Inc in Crandon, WI on August 10, 2007. Northern Lake Service, Inc issued a laboratory report on August 21, 2007. No unusual levels of Chlorophyll a, True Color, or Total Phosphorus were noted in the laboratory reports.

In general, the weather (temperature and precipitation) received over the summer months was not normal. Temperatures were slightly warmer than normal. Precipitation was 15% higher in April but 47% and 55% lower in July and August. (**Refer to 2007 Monthly Temperature and Precipitation Table page 5**)

A summary of a comparison between the 2006 and 2007 (**Refer to 2007 Flambeau Lower Project Sampling Comparison Table 2006-2007 page 6**) sampling results are as follows:

1. Water Clarity improved in 2007 over 2006
2. Chlorophyll a (2007) was slightly higher in April and significantly lower in July and August than 2006
3. Color and Total Phosphorus showed similar results to 2006
4. Overall, D.O. declined slightly in 2007 over the 2006 survey
5. Water Temperatures in 2007 were somewhat colder in April & July and slightly warmer in August than in 2006

2007
Sampling Results
Table

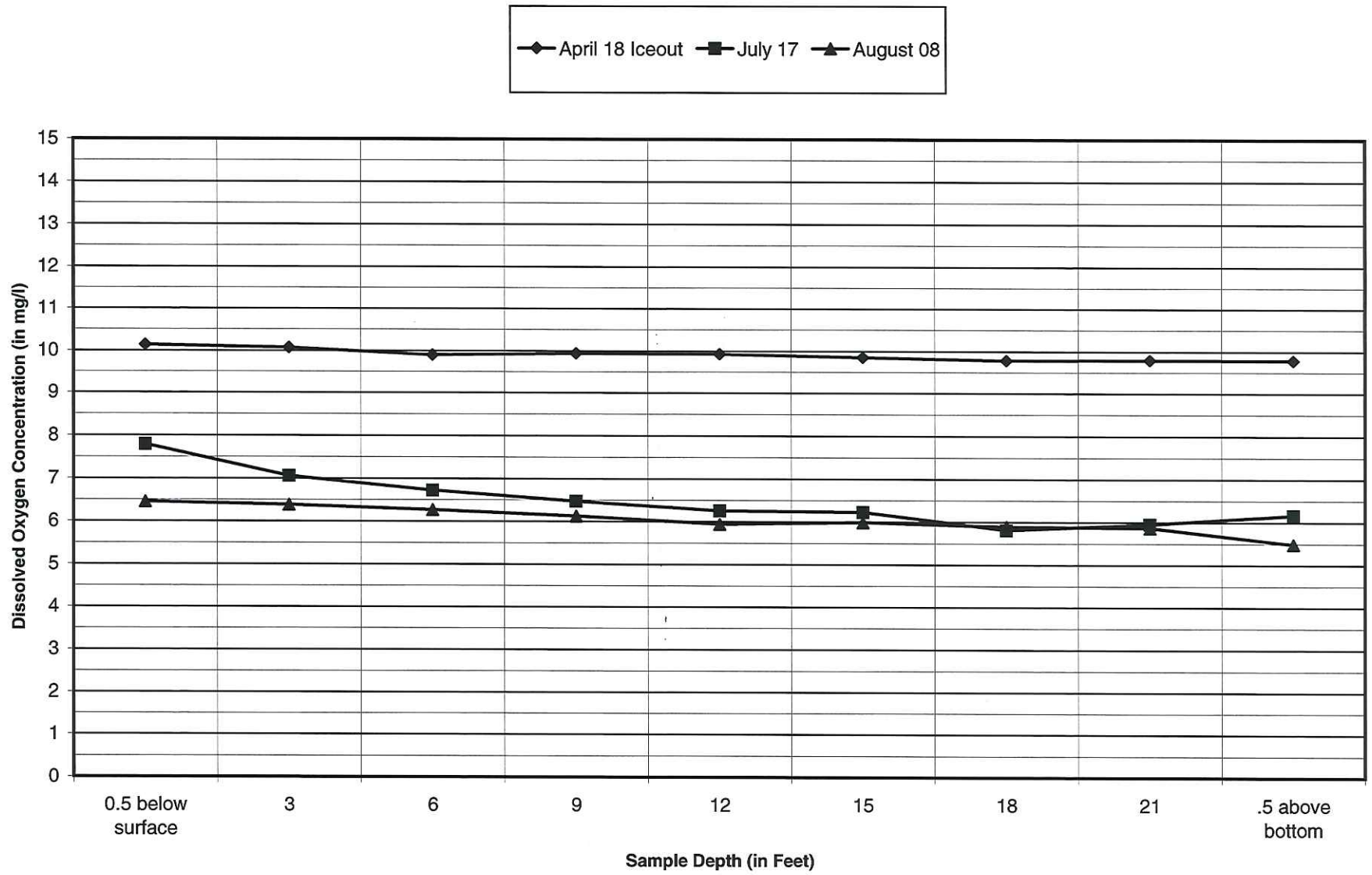
Flambeau (Lower) Hydroelectric Project - FERC Project # 2421
2007 Water Quality Sampling Data

	April 18, 2007			July 17, 2007			August 8, 2007		
Project Flow (c.f.s.)	398			264			291		
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	10:43 AM	10.13	8.9	10:46 AM	7.79	24.1	10:37 AM	6.45	25.6
3 feet below surface	10:45 AM	10.07	8.9	10:47 AM	7.06	22.9	10:38 AM	6.38	25.1
6 feet below surface	10:46 AM	9.90	8.8	10:48 AM	6.72	22.3	10:39 AM	6.26	24.9
9 feet below surface	10:47 AM	9.94	8.8	10:55 AM	6.47	21.9	10:40 AM	6.12	24.7
12 feet below surface	10:48 AM	9.93	8.8	10:56 AM	6.25	21.8	10:41 AM	5.94	24.6
15 feet below surface	10:54 AM	9.85	9.1	10:57 AM	6.22	21.8	10:55 AM	5.99	24.5
18 feet below surface	10:55 AM	9.78	8.8	10:58 AM	5.81	21.7	10:56 AM	5.89	24.5
21 feet below surface	10:56 AM	9.79	8.8	11:05 AM	10:48 PM	21.8	10:57 AM	5.87	24.5
0.5 feet above bottom	10:57 AM	9.78	8.8	11:08 AM	6.16	21.7	11:03 AM	5.49	24.5
Secchi Disk	**Time**	**Depth (ft)**		**Time**	**Depth (ft)**		**Time**	**Depth (ft)**	
Feet below surface	10:30 AM	5.00		10:45 AM	4.50		10:05 AM	4.90	
Chlorophyll a	**Time**	**ug/L**		**Time**	**ug/L**		**Time**	**ug/L**	
3 feet below surface	10:32 AM	3.60		10:30 AM	2.70		10:07 AM	5.50	
Color (True)	**Time**	**C.P.U. Units**	**LOD**	**Time**	**C.P.U Units**	**LOD**	**Time**	**C.P.U. Units**	**LOD**
3 feet below surface	10:33 AM	100.0	10*	10:31 AM	60.0	5.0*	10:09 AM	50.0	5.0*
Total Phosphorus	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**	**Time**	**mg/L**	**LOD**
3 feet below surface	10:35 AM	0.044	.0070*	10:32 AM	0.057	.0070*	10:10 AM	0.062	.0070*
3 feet above bottom	10:36 AM	0.042	.0070*	10:34 AM	0.062	.0070*	10:12 AM	0.059	.0070*

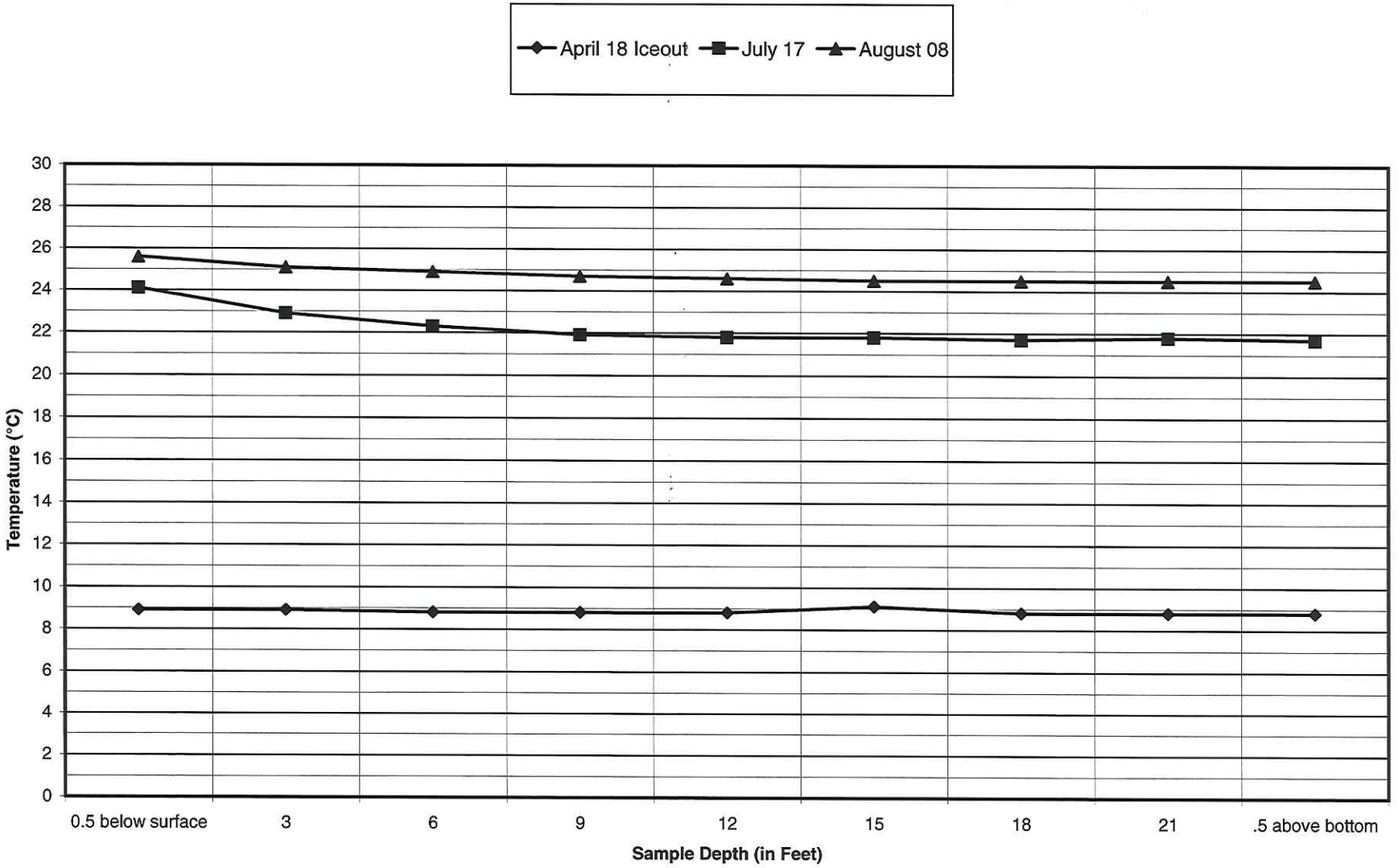
*** Considered Reporting Limits**

2007
Temperature
and
Dissolved Oxygen
Graphs

Lower Impoundment - FERC # 2421
2007 Dissolved Oxygen Samples



Lower Impoundment - FERC # 2421
2007 Temperature Samples



2007
Monthly Temperature
and
Precipitation
Table

2007 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-06	77	19	39.8	-0.7	777	682	1.78	4.1	2.46	72%
November-06	58	2	31.8	3.8	988	1124	1.22	4.0	4.90	25%
December-06	41	-7	23.8	9.8	1267	1587	1.22	10.1	0.94	130%
January-07	35	-12	13.7	5.3	1582	1771	0.20	4.5	1.12	18%
February-07	41	-25	7.9	-6.9	1592	1422	1.49	19.7	0.83	56%
March-07	72	-10	29.4	4.0	1094	1244	2.49	25.5	3.29	76%
April-07	76	5	38.8	-0.2	778	787	2.22	12.7	2.09	106%
May-07	86	31	53.9	2.1	348	421	3.39	0.1	2.95	115%
June-07	85	41	63.0	3.1	100	180	2.67	0.0	4.25	63%
July-07	88	44	67.4	1.9	60	69	1.88	0.0	4.20	45%
August-07	88	44	65.1	1.4	63	106	1.39	0.0	4.22	33%
September-07	88	28	57.4	2.7	254	331	4.38	0.0	4.13	94%

Source: NOAA/Duluth, MN

To calculate HDD or Heating Degree Days--If the departure from normal is a negative number (-) you add this to the total below the HDD column
If the departure from normal is a plus number (+) you subtract this from the total below the HDD column
Calculations for NDD or Normal Degree Days follow the same formula

2007
Flambeau Lower
Project Sampling Comparison Table
2006—2007

2007
Flambeau Lower
Project Sampling Comparison Table
To Previous Year

Year	Month	Secchi Disk Depth (ft)	Chlorophyll a ug/l	Color (True) C.P.U. Units	Total Phosphorus Below Surface mg/l	Total Phosphorus Above Bottom mg/l	Lowest D.O. mg/l	Highest D.O. mg/l	Lowest Water Temp. ° C	Highest Water Temp. ° C
2006	April	3.8	2.4	150	.047	.045	10.0	10.20	9.0	9.6
2007	April	5.0	3.6	100	.044	.042	9.78	10.13	8.8	9.1
2006	July	4.5	5.7	50	.050	.160	5.60	6.16	25.8	26.0
2007	July	4.5	2.7	60	.057	.062	5.81	7.79	21.7	24.1
2006	August	3.0	9.7	70	.055	.051	6.26	7.32	22.6	22.8
2007	August	4.9	5.5	50	.062	.059	5.49	6.45	25.6	24.5

Water Quality Monitoring Plan
Per License Article 406

for the

Lower Hydroelectric Project
FERC # 2421
Flambeau Hydro, LLC

Flambeau River, Price County, Wisconsin

Requirement for Studies

The Federal Energy Regulatory Commission (FERC), has stipulated as a requirement of the Flambeau (Lower) Hydroelectric Project License (Article 406), issued February 5, 1997, that "the licensee shall, after consultation with the Wisconsin Department of Natural Resources (Wisconsin DNR) file with the Commission, for approval, a plan to monitor: (1) water clarity; (2) phosphorus; (3) chlorophyll a; (4) water temperature; and (5) dissolved oxygen in the Lower Project impoundment monthly from June 1 through August 31.

The monitoring plan shall include a schedule for: (2.) implementation of the program; (2) consultation with the Wisconsin DNR concerning the results of the monitoring; and (3) filing the results, agency comments, and licensee's response to agency comments with the Commission.

The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agency, and specific descriptions of how the agency's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agency to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information. The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission."

The Commission's May 4, 1998 "Order on Hearing of Orders Issuing New Licenses and Orders Issuing Subsequent Licenses" modified Article 406, at the request of the Wisconsin Department of Natural Resources, to require sampling at "iceout" in March or April and monthly in July and August.

Purpose of Studies

The purpose of these water quality studies shall be to establish a long-term database of water quality measurements in order to document the tropic state, dissolved oxygen concentration and any stratification of the Flambeau (Lower) Project impoundment at the time and location of sampling events.

Study Sampling Periods

The Wisconsin Department of Natural Resources has requested that annual water quality sampling studies consist of one grab sampling event during Spring "ice-out", one grab sampling event during the month of July, and one grab sampling event during the month of August at one WDNR approved sampling location on the Project impoundment.

Each water quality sampling study shall consist of three (3) sampling events each year. One (1) grab sampling event will be conducted during the Spring "ice-out" of the Flambeau (Upper) Project impoundment. ("Ice-out" shall be defined as the 14-day period following the breakup or melting of impoundment surface ice, resulting in the continuous exposure of 95% or more ice-free impoundment surface area). One (1) grab sampling event will be conducted during the month of July. One (1) grab sampling event will be conducted during the month of August. July and August sampling will be scheduled to provide at least 21 days separation between events.

Water quality sampling studies will be conducted each year following Commission approval of this Plan through the term of the license.

Sampling Design

Monitoring Parameters:

1. Water Clarity
2. Phosphorus
3. Chlorophyll a
4. Water Temperature
5. Dissolved Oxygen Concentration
6. True Color

Sampling Protocol

Prior to initial water quality study implementation, a reconnaissance of the impoundment will be performed to establish one (1) permanent sampling location that is representative of the maximum depth in the impoundment's main channel area and which can be easily located during subsequent sampling events and studies.

Access to the sampling location will be accomplished using a boat. Sampling personnel will carefully approach the established sampling location in order to mitigate any disruption within the water column at the sampling location. Sampling personnel will carefully deploy one or more anchor(s), minimizing any disruption of the water column or bottom sediments, in order to secure the boat over the established sampling location.

Sampling equipment will be cleaned and decontaminated with distilled water and, if appropriate, calibrated prior to sampling. Single-use laboratory sample containers and media will be obtained from the Wisconsin State Certified Laboratory selected to perform sample analysis or a reputable laboratory supply company.

Sampling personnel will complete a pre-printed customized Impoundment Sampling Log form to manually record sampling data and other pertinent information regarding each sampling event. Field sample handling procedures will be consistent with methods outlined in "Standard Methods for the Examination of Water and Wastewater", 20th Edition (1998). [1]

Water clarity per sampling event will be measured visually within one tenth (0.1) foot tolerance by sampling personnel employing a Secchi disk. Sampling personnel will record resulting Secchi disk time and depth data on the Impoundment Sampling Log form.

Two (2) Phosphorus grab samples per sampling event will be collected using a horizontal water sampler. One (1) sample will be collected three (3) feet below the impoundment's surface and one (1) sample will be collected three (3) feet above the impoundment's bottom. Each sample will be transferred to an appropriate sample container, preserved, appropriately labeled, and the container stored on ice in a portable cooler for laboratory analysis.

Sampling personnel will record collection times and sample preservation verification on the Impoundment Sampling Log form.

One (1) Chlorophyll a grab sample per sampling event will be obtained from water collected three (3) feet below the impoundment's surface using a horizontal water sampler. Water clarity will be calculated to determine the proper quantity of collected water to be filtered based on the following Secchi disk depth results:

Secchi Depth (in feet)	Water to filter (in ml)
Less than 1 foot	50
1.00 to 1.50 feet	100
1.50 to 2.25 feet	200
2.25 to 3.25 feet	300
3.25 to 6.00 feet	500
6.00 to 9.75 feet	800
9.75 to 16.50 feet	1000
Greater than 16.5 feet	1500

Collected water will be measured and filtered if required by the selected Wisconsin State Certified Laboratory providing analytical analysis. The sample will be transferred to an appropriate sample container, appropriately labeled, and the container stored on ice in a portable

cooler for laboratory analysis. Sampling personnel will record the collection time and water sample quantity in the appropriate areas on the Impoundment Sampling Log form.

Water temperature will be sampled at three (3) foot vertical intervals from the surface to the bottom of the sample location water column per sampling event. Additionally, one (1) sample will be measured one half (0.5) foot below the impoundment surface and one (1) sample will be measured one half (0.5) foot above the bottom of the impoundment at the sample location. In the event that measured D.O. drops below the State minimum standard of 5.0 mg/l, sampling personnel will determine the water temperature at which 5.0 mg/l occurs. Water temperature sampling will be measured at (1) foot vertical intervals in the water column where measured D.O. falls below 5.0 mg/l. Sampling personnel will record resulting sample data in appropriate areas on the Impoundment Sampling Log form.

Dissolved Oxygen (D.O.) concentration will be sampled at three (3) foot vertical intervals from the surface to the bottom of the sample location water column per sampling event. Additionally, one (1) sample will be measured one half (0.5) foot below the impoundment surface and one (1) sample will be measured one half (0.5) foot above the bottom of the impoundment at the sample location.

In the event that measured D.O. drops below the State minimum standard of 5.0 mg/l, sampling personnel will determine the depth at which 5.0 mg/l occurs. D.O. sampling will be measured at (1) foot vertical intervals in the water column where measured D.O. falls below 5.0 mg/l. Sampling personnel will record resulting sample data in appropriate areas on the Impoundment Sampling Log form.

One (1) True Color grab sample per sampling event will be obtained from water collected three (3) feet below the impoundment's surface using a horizontal water sampler. The sample will be transferred to an appropriate sample container, appropriately labeled, and the container stored on ice in a portable cooler for laboratory analysis. Sampling personnel will record the collection time and water sample quantity on the Impoundment Sampling Log form.

Sampling personnel will deliver and/or ship Phosphorus, Chlorophyll a and True Color samples, observing accepted handling and chain-of-custody methods, to a selected Wisconsin State Certified Laboratory at the conclusion of sampling activities for the sample event.

Lower Impoundment

Sampling Location

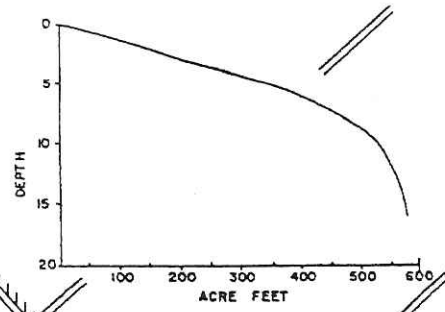
Map

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

LOWER PARK FALLS FLOW LAKE — PRICE COUNTY

SEC. 24,25 T. 40 N. R. 1 E.W.



WATER QUALITY SAMPLE LOCATION

N45° 54.828' W90° 26.822'

50 feet from E. shoreline

Depth =18.5 feet

EQUIPMENT RECORDING SONAR MAPPED AUG MO. 1966 YR.

WATER ELEV. 1467.00

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (PW) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) 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
- Si. Silt
- Gr. Gravel
- R. Rubble
- B. Boulder
- Br. Bedrock
- T. Submergent vegetation
- I. Emergent vegetation
- Floating vegetation
- Stumps & Snags

500' 0' 500' 1000' 1500' 2000' 2500'

SCALE

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by L. Sather, C. Busch, G. Winter Drawn by C. Holt

SPECIES OF FISH

	Abundant	Common	Rare
Muskie			
N. Pike			
Walleye		X	
L.M. Bass		X	
S.M. Bass			
Panfish		X	
Trout			
Rock Sturgeon			X

AREA 70.6 ACRES

UNDER 3FT. 2.5 %

OVER 20FT. 0 %

VOLUME 570.9 ACRE FT.

TOTAL ALK. 36 P.P.M.

SHORELINE 4.2 MILES

MAX. DEPTH 18 FEET

Appendix A

April 18, 2007 Sampling Documents

IMPOUNDMENT SAMPLING LOG

2007 Water Quality Study - Flambeau (Lower) Hydroelectric Project - FERC #2421

Date: 4-18-07

Pre-Sampling Data:

Time: 10:30AM Barometer: 30.10 Air Temp: 9 °C Wind Speed: N 9 MPH

Sky Conditions: CLEAR + SUNNY SKIES

Precipitation within Last 24 Hours: NO

D.O. Meter Calibration: Instrument Model Used: HQ40d

D.O. Membrane Changed in Last 24 Hours? ☐ Yes ☒ No If Yes, Time Changed: N/A

Battery Status: NEW volts

Calibration Time: N/A Method: FACTORY (Air, Winkler Titration, Saturated Water)

Sampling Depth Profile: Measured Depth to Bottom of the Impoundment: 22.2 feet

Secchi Disk Depth: (±0.1 foot): 5.0 feet. Time: 10:30AM

Chlorophyll a (3 feet below surface)

Lab Sample I.D. #: 20070418-2A		
Time	Quantity (ml)	Filtered
10:32AM	1000	NO

True Color (3 feet below surface)

Lab Sample I.D. #: 20070418-2D	
Time	Quantity (ml)
10:33AM	250

D.O. Sample Data

Depth	Time	D.O. (mg/l)	°C
0.5 feet below surface	10:43	10.13	8.9
3 feet	10:45	10.07	8.9
6 feet	10:46	9.9	8.8
9 feet	10:47	9.94	8.8
12 feet	10:48	9.93	8.8
15 feet	10:54	9.85	9.1
18 feet	10:55	9.78	8.8
21 feet	10:56	9.79	8.8
24 feet			
0.5 feet above bottom	10:57	9.86	8.8

Phosphorus

Lab Sample I.D. #: 20070418-2B (3 feet below surface)	
Time	Preserved ?
10:35AM	H_2SO_4

Lab Sample I.D. #: 20070418-2C (3 feet above bottom)	
Time	Preserved ?
10:36AM	H_2SO_4

Comments: SAMPLE LOCATION: N45°54.886'W90 26.822' (±8FT)

Performed By: GARY RAST Gary Rast

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105-330
EPA Laboratory ID No. WI00034

Printed: 04/26/07 Code: S

Client: North American Hydro Holdings Inc
Attn: Gary Rast
116 North State Street
P O Box 167
Neshkoro,WI 54960 0167

NLS Project: 106622
NLS Customer: 93918
Fax: 920 293 8087 Phone: 920 293 4628

Project: Flambeau Projects

20070418 - Upper/1D NLS ID: 437635
Ref. Line 1 COC 93933 20070418 - Upper/1D Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	70	C.P.U.	1	5.0*		04/20/07	EPA 110.2	721026460

20070418 - Lower/2D NLS ID: 437636
Ref. Line 2 COC 93933 20070418 - Lower/2D Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	100	C.P.U.	2	10*		04/20/07	EPA 110.2	721026460

20070418 - Pixley/3D NLS ID: 437637
Ref. Line 3 COC 93933 20070418 - Pixley/3D Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	90	C.P.U.	2	10*		04/20/07	EPA 110.2	721026460

20070418 - Crowley/4D NLS ID: 437638
Ref. Line 4 COC 93933 20070418 - Crowley/4D Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	100	C.P.U.	2	10*		04/20/07	EPA 110.2	721026460

20070418 - Upper/1A NLS ID: 437691
Ref. Line 1 COC 93933 20070418 - Upper/1A Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					04/25/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					04/20/07	NA	721026460

20070418 - Upper/1B NLS ID: 437692
Ref. Line 1 COC 93933 20070418 - Upper/1B Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.022	mg/L	1	0.0070*		04/24/07	EPA 365.2	721026460

20070418 - Lower/2A NLS ID: 437693
Ref. Line 2 COC 93933 20070418 - Lower2/A Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					04/25/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					04/20/07	NA	721026460

20070418 - Lower/2B NLS ID: 437694
Ref. Line 2 COC 93933 20070418 - Lower/2B Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.044	mg/L	1	0.0070*		04/24/07	EPA 365.2	721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105-330
EPA Laboratory ID No. WI00034

NLS Project: 106622
NLS Customer: 93918

Client: North American Hydro Holdings Inc
Attn: Gary Rast
116 North State Street
P O Box 167
Neshkoro,WI 54960 0167

Fax: 920 293 8087 Phone: 920 293 4628

Project: Flambeau Projects

20070418 - Lower/2C NLS ID: 437695
Ref. Line 2 COC 93933 20070418 - Lower/2C Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.042	mg/L	1	0.0070*		04/24/07	EPA 365.2	721026460

20070418 - Pixley/3A NLS ID: 437696
Ref. Line 3 COC 93933 20070418 - Pixley/3A Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					04/25/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					04/20/07	NA	721026460

20070418 - Pixley/3B NLS ID: 437697
Ref. Line 3 COC 93933 20070418 - Pixley/3B Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.036	mg/L	1	0.0070*		04/24/07	EPA 365.2	721026460

20070418 - Pixley/3C NLS ID: 437698
Ref. Line 3 COC 93933 20070418 - Pixley/3C Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.040	mg/L	1	0.0070*		04/24/07	EPA 365.2	721026460

20070418 - Crowley/4A NLS ID: 437699
Ref. Line 4 COC 93933 20070418 - Crowley/4A Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					04/25/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					04/20/07	NA	721026460

20070418 - Crowley/4B NLS ID: 437700
Ref. Line 4 COC 93933 20070418 - Crowley/4B Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.039	mg/L	1	0.0070*		04/24/07	EPA 365.2	721026460

20070418 - Crowley/4C NLS ID: 437701
Ref. Line 4 COC 93933 20070418 - Crowley/4C Matrix: SW
Collected: 04/18/07 00:00 Received: 04/20/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.032	mg/L	1	0.0070*		04/24/07	EPA 365.2	721026460

Values in brackets represent results greater than or equal to the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation". Results greater than or equal to the LOQ are considered to be in the region of "Certain Quantitation". LOD and/or LOQ tagged with an asterisk(*) are considered Reporting Limits. All LOD/LOQs adjusted to reflect dilution.

LOD = Limit of Detection LOQ = Limit of Quantitation ND = Not Detected (< LOD) 1000 ug/L = 1 mg/L
DWB = Dry Weight Basis NA = Not Applicable %DWB = (mg/kg DWB) / 10000
MCL = Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.

Reviewed by: Thomas Krueger

Authorized by:
R. T. Krueger
President

Northern Lake Service, Inc.
Chlorophyll Results

Customer: North American Hydro Holdings Inc
Project: Flambeau Projects

Sample	Description	CC a	Pheo a	TC a	TC b	TC c
437691	20070418 - Upper/1A	4	0.59	4.5	0.37	0.69
437693	20070418 - Lower/2A	3.6	0.53	4	0.29	0.63
437696	20070418 - Pixley/3A	4.7	0.23	5	0.3	0.64
437699	20070418 - Crowley/4A	6.8	0.5	7.3	0.35	0.87

CC a = Corrected Chlorophyll a
Pheo a = Pheophytin a
TC a = Trichromatic Chlorophyll a
TC b = Trichromatic Chlorophyll b
TC c = Trichromatic Chlorophyll c
Units = ug/L for Water, ug/cm^2 for periphyton samplers

*: The complex calculations used to differentiate the various chlorophyll species magnify error at low concentrations and sometimes produce negative values, which are reported as 0.0 on this report.

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298

Tel: (715) 478-2777 • Fax: (715) 478-3060

Wisconsin Lab Cert. No. 721026460

WI DATCP 105-000330

NO. 93933

CLIENT	NORTH AMERICAN HYDRO
ADDRESS	P.O. BOX 167 116 STATE STREET
CITY / STATE / ZIP	NESHKORO / WI / 54960
PROJECT DESCRIPTION / NO.	FLAMBEAU PROJECTS
QUOTATION NO.	
DNR FID #	
DNR LICENSE #	
CONTACT	GARY RAST
PHONE	920-293-2628 EXT 5
PURCHASE ORDER NO.	FLAMBEAU PROJECTS
FAX	920-293-8087

MATRIX:
SW = surface water
WW = waste water
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
SOIL = soil
SED = sediment
PROD = product
SL = sludge
OTHER

ANALYZE PER ORDER OF ANALYSIS

USE BOXES BELOW: Indicate Y or N if GW Sample is field filtered.
Indicate G or C if WW Sample is Grab or Composite.

PARAMETER

ITEM NO.	NLS LAB. NO.	SAMPLE ID	COLLECTION DATE	COLLECTION TIME	MATRIX (See above)	Chloride	Phosphorus	Phosphorus	Total Coliform							COLLECTION REMARKS (i.e. DNR Well ID #)
1.		20070418-UPPER	4-18-07		RIVER WATER	1A		1B	-		1D					
2.		20070418-LOWER	4-18-07		"	2A		2B	2C		2D					
3.		20070418-FLOWAGE	4-18-07		"	3A		3B	3C		3D					
4.		20070418-CROWLEY	4-18-07		"	4A		4B	4C		4D					
5.																
6.																
7.																
8.																
9.																
10.																

ONE SAMPLE PER LINE

COLLECTED BY (signature) Gary Rast	CUSTODY SEAL NO. (IF ANY)	DATE/TIME 8AM-4PM
RELINQUISHED BY (signature) Gary Rast	RECEIVED BY (signature)	DATE/TIME 4/18/07 5:15PM
DISPATCHED BY (signature)	METHOD OF TRANSPORT	DATE/TIME

RECEIVED AT NLS BY (signature)	DATE/TIME	CONDITION	TEMP.
COOLER #	REMARKS & OTHER INFORMATION		
	WDNR FACILITY NUMBER	E-MAIL ADDRESS	

REPORT TO
GARY RAST
NORTH AMERICAN HYDRO
P.O. BOX 167
116 STATE STREET
NESHKORO, WI 54960

INVOICE TO
NORTH AMERICAN HYDRO
PO BOX 167
116 STATE STREET
NESHKORO, WI 54960

PRESERVATIVE:
NP = no preservative
S = sulfuric acid
N = nitric acid
Z = zinc acetate
M = methanol
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

IMPORTANT:

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE COOLER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.
4. PARTIES COLLECTING SAMPLE, LISTED AS **REPORT TO** AND LISTED AS **INVOICE TO** AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.

DUPLICATE COPY

Flambeau Projects Operations Log Data
Water Quality Monitoring Study

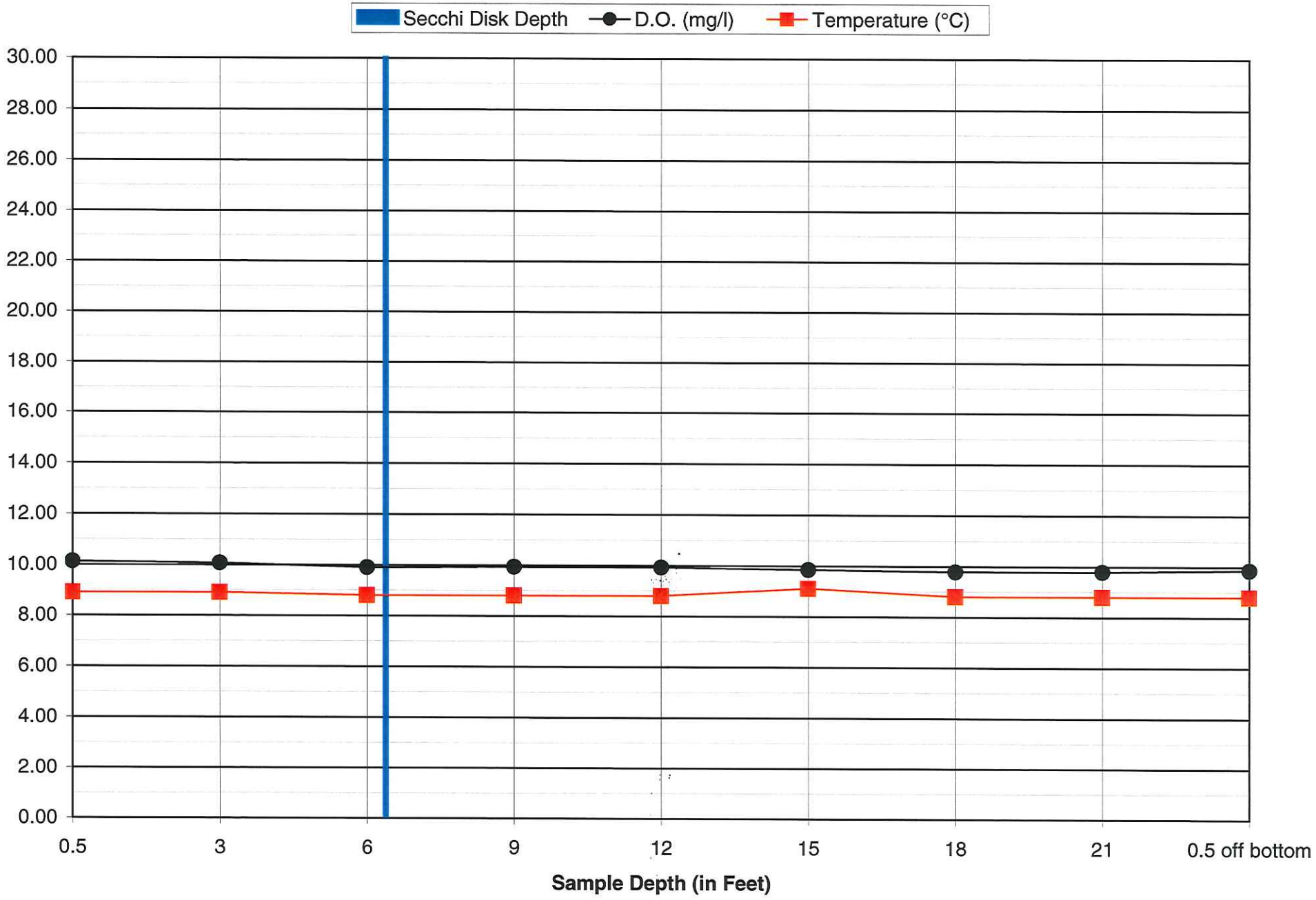
April 18, 2007

Project	Total CFS	Gate CFS	Unit CFS			Unit KW			Impoundment (NGVD)	Tailwater (NGVD)	Head (feet)
			Unit #1	Unit #2	N/A	Unit #1	Unit #2	N/A			
UPPER	486	70	416	0		458	0		1486.78	1467.28	19.5
		Enter 24 Hour Totals For KW Here >				11112	0				
			Unit #2	Unit #3	Unit #4	Unit #2	Unit #3	Unit #4			
LOWER	398	0	0	0	398	0	0	410	1467.1	1448.3	18.8
		Enter 24 Hour Totals For KW Here >				0	0	9800			
			Unit #5	Unit #6	N/A	Unit #5	Unit #6	N/A			
PIXLEY	490	0	490	0		550	0		1448.89	1427.6	21.3
		Enter 24 Hour Totals For KW Here >				13800	0				
			Unit #8	Unit #9	N/A	Unit #8	Unit #9	N/A			
CROWLEY	490	0	0	490		0	510		1427.45	1405.7	21.7
		Enter 24 Hour Totals For KW Here >				0	13200				

Data Entered in These Fields Only!

Spreadsheet Calculated Fields

Lower Impoundment - FERC # 2421
April 18, 2007 Iceout Sampling Event



Appendix B

July 17, 2007 Sampling Documents

IMPOUNDMENT SAMPLING LOG

2007 Water Quality Study - Flambeau (Lower) Hydroelectric Project - FERC #2421

Date: 7/17/07

Pre-Sampling Data:

Time: 10:30AM Barometer: 29.95 Air Temp: 22 °C Wind Speed: 5 5MPH

Sky Conditions: MOSTLY CLOUDY - PERIODS OF SUNSHINE

Precipitation within Last 24 Hours: NO

D.O. Meter Calibration: Instrument Model Used: HACH HQ40d

D.O. Membrane Changed in Last 24 Hours? ☐ Yes ☒ No If Yes, Time Changed: N/A

Battery Status: GOOD volts

Calibration Time: N/A Method: FACTORY (Air, Winkler Titration, Saturated Water)

Sampling Depth Profile: Measured Depth to Bottom of the Impoundment: 22.5 feet

Secchi Disk Depth: (±0.1 foot): 4.5 feet. Time: 10:45AM

Chlorophyll a (3 feet below surface)

Lab Sample I.D. #: 20070717-2A		
Time	Quantity (ml)	Filtered
10:30AM	1000	NO

True Color (3 feet below surface)

Lab Sample I.D. #: 20070717-2D	
Time	Quantity (ml)
10:31AM	250

D.O. Sample Data

Depth	Time	D.O. (mg/l)	°C
0.5 feet below surface	10:46	7.79	24.1
3 feet	10:47	7.06	22.5
6 feet	10:48	6.72	22.3
9 feet	10:55	6.47	21.9
12 feet	10:56	6.25	21.8
15 feet	10:57	6.22	21.8
18 feet	10:58	5.81	21.7
21 feet	11:05	5.75	21.8
24 feet			
0.5 feet above bottom	11:08	6.16	21.7

Phosphorus

Lab Sample I.D. #: 20070717-2B (3 feet below surface)	
Time	Preserved ?
10:32AM	H_2SO_4

Lab Sample I.D. #: 20070717-2C (3 feet above bottom)	
Time	Preserved ?
10:34AM	H_2SO_4

Comments: SAMPLE LOCATION N45°54.826' W90°26.822'

Performed By: Gary Rast GARY RAST

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105-330
EPA Laboratory ID No. WI00034

NLS Project: 109158
NLS Customer: 93918

Client: North American Hydro Holdings Inc
Attn: Gary Rast
116 North State Street
P O Box 167
Neshkoro,WI 54960 0167

Fax: 920 293 8087 Phone: 920 293 4628

Project: Flambeau Projects

20070717-Upper NLS ID: 447357
Ref. Line 1 COC 96303 20070717-Upper Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					07/23/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					07/19/07	NA	721026460

20070717-Lower NLS ID: 447358
Ref. Line 2 COC 96303 20070717-Lower Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					07/23/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					07/19/07	NA	721026460

20070717-Pixley NLS ID: 447359
Ref. Line 3 COC 96303 20070717-Pixley Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					07/23/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					07/19/07	NA	721026460

20070717-Crowley NLS ID: 447360
Ref. Line 4 COC 96303 20070717-Crowley Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					07/23/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					07/19/07	NA	721026460

20070717-Upper 1B NLS ID: 447370
Ref. Line 1 COC 96303 20070717-Upper 1B Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.029	mg/L	1	0.0070*		07/20/07	EPA 365.2	721026460

20070717-Upper 1D NLS ID: 447371
Ref. Line 1 COC 96303 20070717-Upper 1D Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	40	C.P.U.	1	5.0*		07/19/07	EPA 110.2	721026460

20070717-Lower 2B NLS ID: 447372
Ref. Line 2 COC 96303 20070717-Lower 2B Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.057	mg/L	1	0.0070*		07/20/07	EPA 365.2	721026460

20070717-Lower 2C NLS ID: 447373
Ref. Line 2 COC 96303 20070717-Lower 2C Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.062	mg/L	1	0.0070*		07/20/07	EPA 365.2	721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105-330
EPA Laboratory ID No. WI00034

NLS Project: 109158
NLS Customer: 93918

Client: North American Hydro Holdings Inc
Attn: Gary Rast
116 North State Street
P O Box 167
Neshkoro,WI 54960 0167

Fax: 920 293 8087 Phone: 920 293 4628

Project: Flambeau Projects

20070717-Lower 2D NLS ID: 447374
Ref. Line 2 COC 96303 20070717-Lower 2D Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	60	C.P.U.	1	5.0*		07/19/07	EPA 110.2	721026460

20070717-Pixley 3B NLS ID: 447375
Ref. Line 3 COC 96303 20070717-Pixley 3B Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.072	mg/L	1	0.0070*		07/20/07	EPA 365.2	721026460

20070717-Pixley 3C NLS ID: 447376
Ref. Line 3 COC 96303 20070717-Pixley 3C Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.057	mg/L	1	0.0070*		07/20/07	EPA 365.2	721026460

20070717-Pixley 3D NLS ID: 447377
Ref. Line 3 COC 96303 20070717-Pixley 3D Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	70	C.P.U.	2	10*		07/19/07	EPA 110.2	721026460

20070717-Crowley 4B NLS ID: 447378
Ref. Line 4 COC 96303 20070717-Crowley 4B Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.037	mg/L	1	0.0070*		07/20/07	EPA 365.2	721026460

20070717-Crowley 4C NLS ID: 447379
Ref. Line 4 COC 96303 20070717-Crowley 4C Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

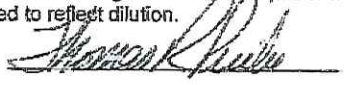
Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.049	mg/L	1	0.0070*		07/20/07	EPA 365.2	721026460

20070717-Crowley 4D NLS ID: 447380
Ref. Line 4 COC 96303 20070717-Crowley 4D Matrix: SW
Collected: 07/17/07 00:00 Received: 07/19/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	70	C.P.U.	2	10*		07/19/07	EPA 110.2	721026460

Values in brackets represent results greater than or equal to the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation". Results greater than or equal to the LOQ are considered to be in the region of "Certain Quantitation". LOD and/or LOQ tagged with an asterisk(*) are considered Reporting Limits. All LOD/LOQs adjusted to reflect dilution.

LOD = Limit of Detection LOQ = Limit of Quantitation ND = Not Detected (< LOD) 1000 ug/L = 1 mg/L
DWB = Dry Weight Basis NA = Not Applicable %DWB = (mg/kg DWB) / 10000
MCL = Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.

Reviewed by: 

Authorized by:
R. T. Krueger
President

Northern Lake Service, Inc.
Chlorophyll Results

Customer: North American Hydro Holdings Inc
Project: 109158
Flambeau Projects

Sample	Description	CC a	Pheo a	TC a	TC b	TC c
447357	20070717-Upper	3.4	0.28	3.7	0.12	0.41
447358	20070717-Lower	2.7	0.25	2.9	0.17	0.34
447359	20070717-Pixley	22	0.0*	22	2.7	1.6
447360	20070717-Crowley	12	2.6	14	2.4	2.2

CC a = Corrected Chlorophyll a
Pheo a = Pheophytin a
TC a = Trichromatic Chlorophyll a
TC b = Trichromatic Chlorophyll b
TC c = Trichromatic Chlorophyll c
Units = ug/L for Water, ug/cm² for periphyton samplers

*: The complex calculations used to differentiate the various chlorophyll species magnify error at low concentrations and sometimes produce negative values, which are reported as 0.0 on this report.

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298

Tel: (715) 478-2777 • Fax: (715) 478-3060

Wisconsin Lab Cert. No. 721026460
WI DATCP 105-000330

CLIENT	NORTH AMERICAN HYDRO HOLDINGS INC
ADDRESS	PO Box 167 116 STATE STREET
CITY / STATE / ZIP	RHINELANDER WI 54501
PROJECT DESCRIPTION / NO.	HAMBEAU PROJECTS
QUOTATION NO.	
DNR FID #	
DNR LICENSE #	
CONTACT	GARY RAST
PHONE	920-293-4628
PURCHASE ORDER NO.	HAMBEAU PROJECTS
FAX	920-293-8057

MATRIX
SW = surface water
WW = waste water
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
SOIL = soil
SED = sediment
PROD = product
SL = sludge
OTHER

USE BOXES BELOW: Indicate Y or N if GW Sample is field filtered.
Indicate G or C if WW Sample is Grab or Composite.

NO. 96303

ITEM NO.	NLS LAB NO.	SAMPLE ID	COLLECTION DATE	COLLECTION TIME	MATRIX (See above)	ANALYZE PER ORDER OF ANALYSIS												COLLECTION REMARKS (i.e. DNR Well ID #)
1.		20070717-UPPER	7/17/07	1115	RINSE WATER	1A		1B		—		1D						
2.		20070717-LOWER	7/17/07	"		2A		2B		2C		2D						
3.		20070717-SINK	7/17/07	"		3A		3B		3C		3D						
4.		20070717-SHOWER	7/17/07	"		4A		4B		4C		4D						
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		

COLLECTED BY (signature)	CUSTODY SEAL NO. (IF ANY)	DATE/TIME 7/17/07 1115
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME 7/17/07 Sioux
DISPATCHED BY (signature)	METHOD OF TRANSPORT	DATE/TIME

REPORT TO
GARY RAST
NORTH AMERICAN HYDRO HOLDINGS INC
PO BOX 167
116 STATE STREET
RHINELANDER, WI 54501

RECEIVED AT NLS BY (signature)	DATE/TIME	CONDITION	TEMP.
COOLER # 24 23	REMARKS & OTHER INFORMATION		
	WDNR FACILITY NUMBER	E-MAIL ADDRESS	

INVOICE TO
NORTH AMERICAN HYDRO HOLDINGS INC
PO BOX 167
116 STATE STREET
RHINELANDER, WI 54501

PRESERVATIVE: NP = no preservative; S = sulfuric acid; N = nitric acid; Z = zinc acetate; M = methanol; OH = sodium hydroxide; HA = hydrochloric & ascorbic acid; H = hydrochloric acid

IMPORTANT:
1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE COOLER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.
4. PARTIES COLLECTING SAMPLE, LISTED AS **REPORT TO** AND LISTED AS **INVOICE TO** AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.

DUPLICATE COPY

Flambeau Projects Operations Log Data
Water Quality Monitoring Study

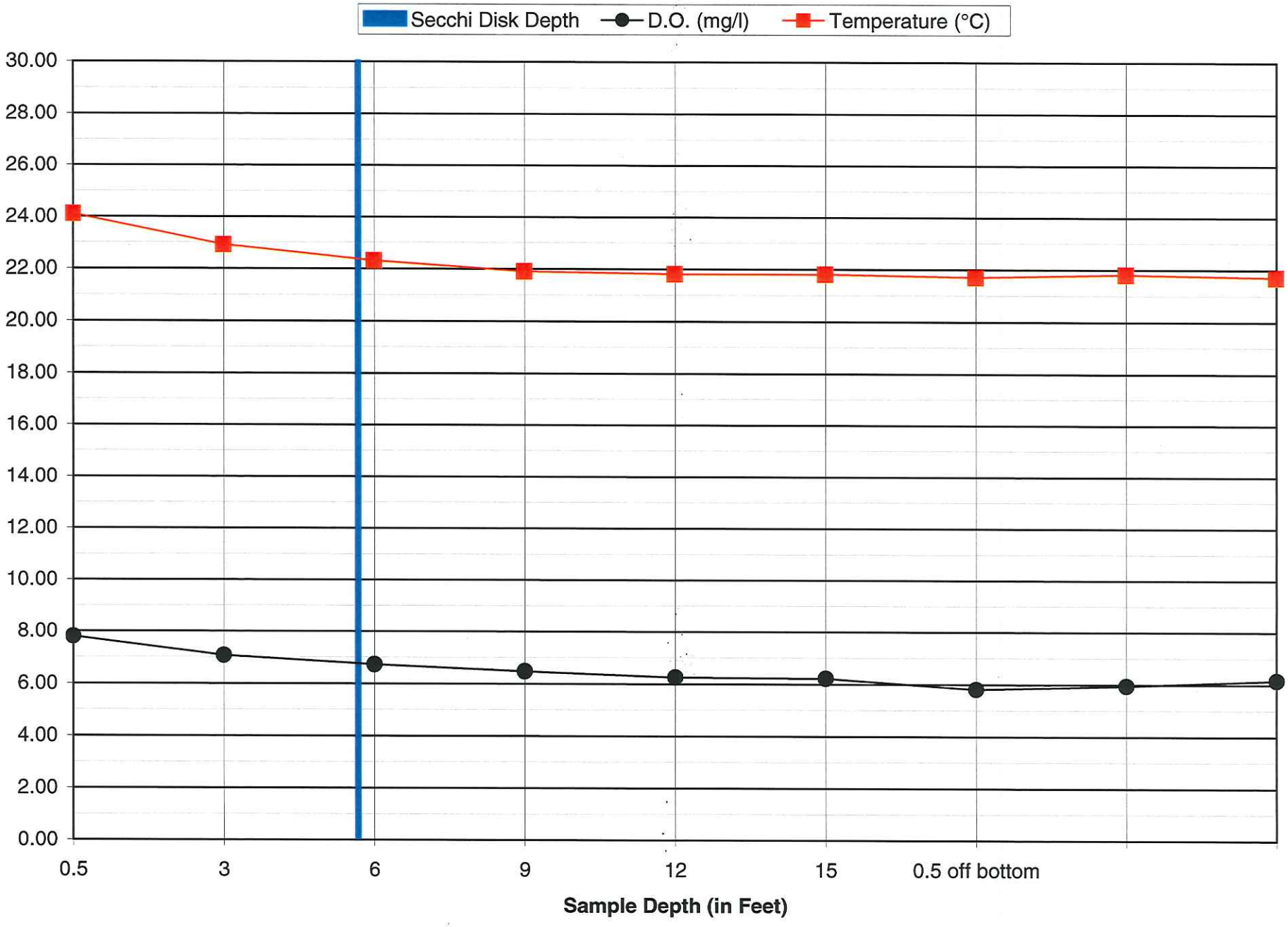
July 17, 2007

Project	Total CFS	Gate CFS	Unit CFS			Unit KW			Impoundment (NGVD)	Tailwater (NGVD)	Head (feet)
			Unit #1	Unit #2	N/A	Unit #1	Unit #2	N/A			
UPPER	291	70	0	221		0	263		1486.43	1467.08	19.35
		Enter 24 Hour Totals For KW Here >				0	5786				
			Unit #2	Unit #3	Unit #4	Unit #2	Unit #3	Unit #4			
LOWER	264	5	0	259	0	0	315	0	1467.2	1448.3	19
		Enter 24 Hour Totals For KW Here >				0	7400	0			
			Unit #5	Unit #6	N/A	Unit #5	Unit #6	N/A			
PIXLEY	290	0	290	0		200	0		1448.69	1427.5	21.2
		Enter 24 Hour Totals For KW Here >				4700	0				
			Unit #8	Unit #9	N/A	Unit #8	Unit #9	N/A			
CROWLEY	260	0	0	260		0	270		1427.2	1405.3	21.9
		Enter 24 Hour Totals For KW Here >				0	5900				

Data Entered in These Fields Only!

Spreadsheet Calculated Fields

Lower Impoundment - FERC # 2421
July 17, 2007 Sampling Event



Appendix C

August 08, 2007 Sampling Documents

IMPOUNDMENT SAMPLING LOG

2007 Water Quality Study - Flambeau (Lower) Hydroelectric Project - FERC #2421

Date: 8/8/07

Pre-Sampling Data:

Time: 10:00AM Barometer: 29.96 Air Temp: 22 °C Wind Speed: SE 5MPH

Sky Conditions: CLEAR & BRIGHT

Precipitation within Last 24 Hours: NONE

D.O. Meter Calibration: Instrument Model Used: HACH HQ40d

D.O. Membrane Changed in Last 24 Hours? ☐ Yes ☒ No If Yes, Time Changed: N/A

Battery Status: NEW volts

Calibration Time: N/A Method: FACTORY (Air, Winkler Titration, Saturated Water)

Sampling Depth Profile: Measured Depth to Bottom of the Impoundment: 22.1 feet

Secchi Disk Depth: (±0.1 foot): 4.9 feet. Time: 10:05AM

Chlorophyll a (3 feet below surface)

Lab Sample I.D. #: 20070808-2A		
Time	Quantity (ml)	Filtered
10:07	1000 mL	No

True Color (3 feet below surface)

Lab Sample I.D. #: 20070808-2D	
Time	Quantity (ml)
10:09	250 mL

D.O. Sample Data

Depth	Time	D.O. (mg/l)	°C
0.5 feet below surface	10:37	6.45	25.6
3 feet	10:38	6.38	25.1
6 feet	10:39	6.26	24.9
9 feet	10.40	6.12	24.7
12 feet	10.41	5.94	24.6
15 feet	10:55	5.90	24.5
18 feet	10:56	5.89	24.5
21 feet	10:57	5.87	24.5
24 feet			
0.5 feet above bottom	11:03	5.49	24.5

Phosphorus

Lab Sample I.D. #: 20070808-2B	
(3 feet below surface)	
Time	Preserved ?
10:10	H_2SO_4

Lab Sample I.D. #: 20070808-2C	
(3 feet above bottom)	
Time	Preserved ?
10:12	H_2SO_4

Comments: SAMPLE LOCATION - N45°54.826' W90°26.822'

Performed By: Gary Rast GARY RAST

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105-330
EPA Laboratory ID No. WI00034

Printed: 08/21/07 Code: S

NLS Project: 109831
NLS Customer: 93918

Client: North American Hydro Holdings Inc
Attn: Gary Rast
116 North State Street
P O Box 167
Neshkoro,WI 54960 0167

Fax: 920 293 8087 Phone: 920 293 4628

Project: Flambeau Projects

20070808-Upper 1A NLS ID: 449718
Ref. Line 1 COC 97616 20070808-Upper 1A Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					08/16/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					08/10/07	NA	721026460

20070808-Upper 1B NLS ID: 449719
Ref. Line 2 COC 97616 20070808-Upper 1B Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.021	mg/L	1	0.0070*		08/10/07	EPA 365.2	721026460

20070808-Upper 1D NLS ID: 449720
Ref. Line 3 COC 97616 20070808-Upper 1D Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	40	C.P.U.	1	5.0*		08/10/07	EPA 110.2	721026460

20070808-Lower 2A NLS ID: 449721
Ref. Line 4 COC 97616 20070808-Lower 2A Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					08/16/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					08/10/07	NA	721026460

20070808-Lower 2B NLS ID: 449722
Ref. Line 5 COC 97616 20070808-Lower 2B Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.062	mg/L	1	0.0070*		08/10/07	EPA 365.2	721026460

20070808-Lower 2C NLS ID: 449723
Ref. Line 6 COC 97616 20070808-Lower 2C Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.059	mg/L	1	0.0070*		08/10/07	EPA 365.2	721026460

20070808-Lower 2D NLS ID: 449724
Ref. Line 7 COC 97616 20070808-Lower 2D Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	50	C.P.U.	1	5.0*		08/10/07	EPA 110.2	721026460

20070808-Pixley 3A NLS ID: 449725
Ref. Line 8 COC 97616 20070808-Pixley 3A Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					08/16/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					08/10/07	NA	721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105-330
EPA Laboratory ID No. WI00034

NLS Project: 109831
NLS Customer: 93918

Client: North American Hydro Holdings Inc
Attn: Gary Rast
116 North State Street
P O Box 167
Neshkoro,WI 54960 0167

Fax: 920 293 8087 Phone: 920 293 4628

Project: Flambeau Projects

20070808-Pixley 3B NLS ID: 449726
Ref. Line 9 COC 97616 20070808-Pixley 3B Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.057	mg/L	1	0.0070*		08/10/07	EPA 365.2	721026460

20070808-Pixley 3C NLS ID: 449727
Ref. Line 10 COC 97616 20070808-Pixley 3C Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.045	mg/L	1	0.0070*		08/10/07	EPA 365.2	721026460

20070808-Pixley 3D NLS ID: 449728
Ref. Line 11 COC 97616 20070808-Pixley 3D Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	60	C.P.U.	1	5.0*		08/10/07	EPA 110.2	721026460

20070808-Crowley 4A NLS ID: 449729
Ref. Line 12 COC 97616 20070808-Crowley 4A Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Chlorophyll, all species	see attached					08/16/07	10200-H	721026460
Lab filtration for Chlorophyll	yes					08/10/07	NA	721026460

20070808-Crowley 4B NLS ID: 449730
Ref. Line 13 COC 97616 20070808-Crowley 4B Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.042	mg/L	1	0.0070*		08/10/07	EPA 365.2	721026460

20070808-Crowley 4C NLS ID: 449731
Ref. Line 14 COC 97616 20070808-Crowley 4C Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Phosphorus, tot. as P	0.068	mg/L	1	0.0070*		08/10/07	EPA 365.2	721026460

20070808-Crowley 4D NLS ID: 449732
Ref. Line 15 COC 97616 20070808-Crowley 4D Matrix: SW
Collected: 08/08/07 00:00 Received: 08/10/07

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Color, APHA (true)	60	C.P.U.	1	5.0*		08/10/07	EPA 110.2	721026460

Values in brackets represent results greater than or equal to the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation". Results greater than or equal to the LOQ are considered to be in the region of "Certain Quantitation". LOD and/or LOQ tagged with an asterisk(*) are considered Reporting Limits. All LOD/LOQs adjusted to reflect dilution.

LOD = Limit of Detection LOQ = Limit of Quantitation ND = Not Detected (< LOD) 1000 ug/L = 1 mg/L
DWB = Dry Weight Basis NA = Not Applicable %DWB = (mg/kg DWB) / 10000
MCL = Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.

Reviewed by:

Authorized by:
R. T. Krueger
President

Northern Lake Service, Inc.
Chlorophyll Results

Customer: North American Hydro Holdings Inc
Project: 109831
Flambeau Projects

Sample	Description	CC a	Pheo a	TC a	TC b	TC c
449718	20070808-Upper 1A	5.2	0.6	5.7	0.31	0.49
449721	20070808-Lower 2A	5.5	0.99	6.3	0.48	0.55
449725	20070808-Pixley 3A	18	2.6	20	1.7	1.5
449729	20070808-Crowley 4A	11	1.2	12	0.68	0.97

CC a = Corrected Chlorophyll a
Pheo a = Pheophytin a
TC a = Trichromatic Chlorophyll a
TC b = Trichromatic Chlorophyll b
TC c = Trichromatic Chlorophyll c
Units = ug/L for Water, ug/cm² for periphyton samplers

*: The complex calculations used to differentiate the various chlorophyll species magnify error at low concentrations and sometimes produce negative values, which are reported as 0.0 on this report.

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721026460
WI DATCP 105-000330

NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services
400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 97616

CLIENT: NORTH AMERICAN HYDRO HOLDINGS INC
ADDRESS: PO BOX 167 116 STATE STREET
CITY: NESHKORO STATE: WI ZIP: 54960
PROJECT DESCRIPTION / NO.: FLAMBEAU PROJECTS
QUOTATION NO.:
DNR FID #:
DNR LICENSE #:
CONTACT: GARY RAST
PHONE: 920-293-4628
PURCHASE ORDER NO.: FLAMBEAU PROJECTS
FAX: 920-293-8087

MATRIX:
SW = surface water
WW = waste water
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
SOIL = soil
SED = sediment
PROD = product
SL = sludge
OTHER

USE BOXES BELOW: Indicate Y or N if GW Sample is field filtered.
Indicate G or C if WW Sample is Grab or Composite.

ANALYZE PER ORDER OF ANALYSIS — PARAMETER

ITEM NO.	NLS LAB NO.	SAMPLE ID	COLLECTION DATE	COLLECTION TIME	MATRIX (See above)		CHLOROPHYLL-A		PHOSPHORUS	PHOSPHORUS	TRUE COLOR					COLLECTION REMARKS (i.e. DNR Well ID #)
1.	449715	20070808-UPPER	8/8/07	VARIOUS AM	RIVER WATER		1A		1B	1C	1D					
2.		20070808-LOWER	8/8/07		"		2A		2B	2C	2D					
3.		20070808-PIXLEY	8/8/07		"		3A		3B	3C	3D					
4.		20070808-CROWLEY	8/8/07	PM	"		4A		4B	4C	4D					
5.		ONE SAMPLE														
6.																
7.																
8.																
9.																
10.	449733															

COLLECTED BY (signature): Gary Rast
CUSTODY SEAL NO. (IF ANY):
DATE/TIME: 08/08/07
RELINQUISHED BY (signature): Gary Rast
RECEIVED BY (signature):
DATE/TIME: 08/08/07 5:00 PM
DISPATCHED BY (signature):
METHOD OF TRANSPORT:
DATE/TIME:

REPORT TO: GARY RAST
NORTH AMERICAN HYDRO HOLDINGS, INC
PO BOX 167
116 STATE STREET
NESHKORO, WI 54960

RECEIVED AT NLS BY (signature): [illegible]
DATE/TIME: [illegible]
CONDITION: [illegible]
TEMP:
COOLER #: [illegible]
REMARKS & OTHER INFORMATION: no bottle for C - per Gary he did not need a
WDNR FACILITY NUMBER:
E-MAIL ADDRESS: no result for that sample Dmw 8/13/07

INVOICE TO:
NORTH AMERICAN HYDRO HOLDINGS, INC
PO BOX 167
116 STATE STREET
NESHKORO, WI 54960

PRESERVATIVE:
NP = no preservative
S = sulfuric acid
N = nitric acid
Z = zinc acetate
M = methanol
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

IMPORTANT
1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE COOLER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.
4. PARTIES COLLECTING SAMPLE, LISTED AS **REPORT TO** AND LISTED AS **INVOICE TO** AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.

DUPLICATE COPY

Flambeau Projects Operations Log Data
Water Quality Monitoring Study

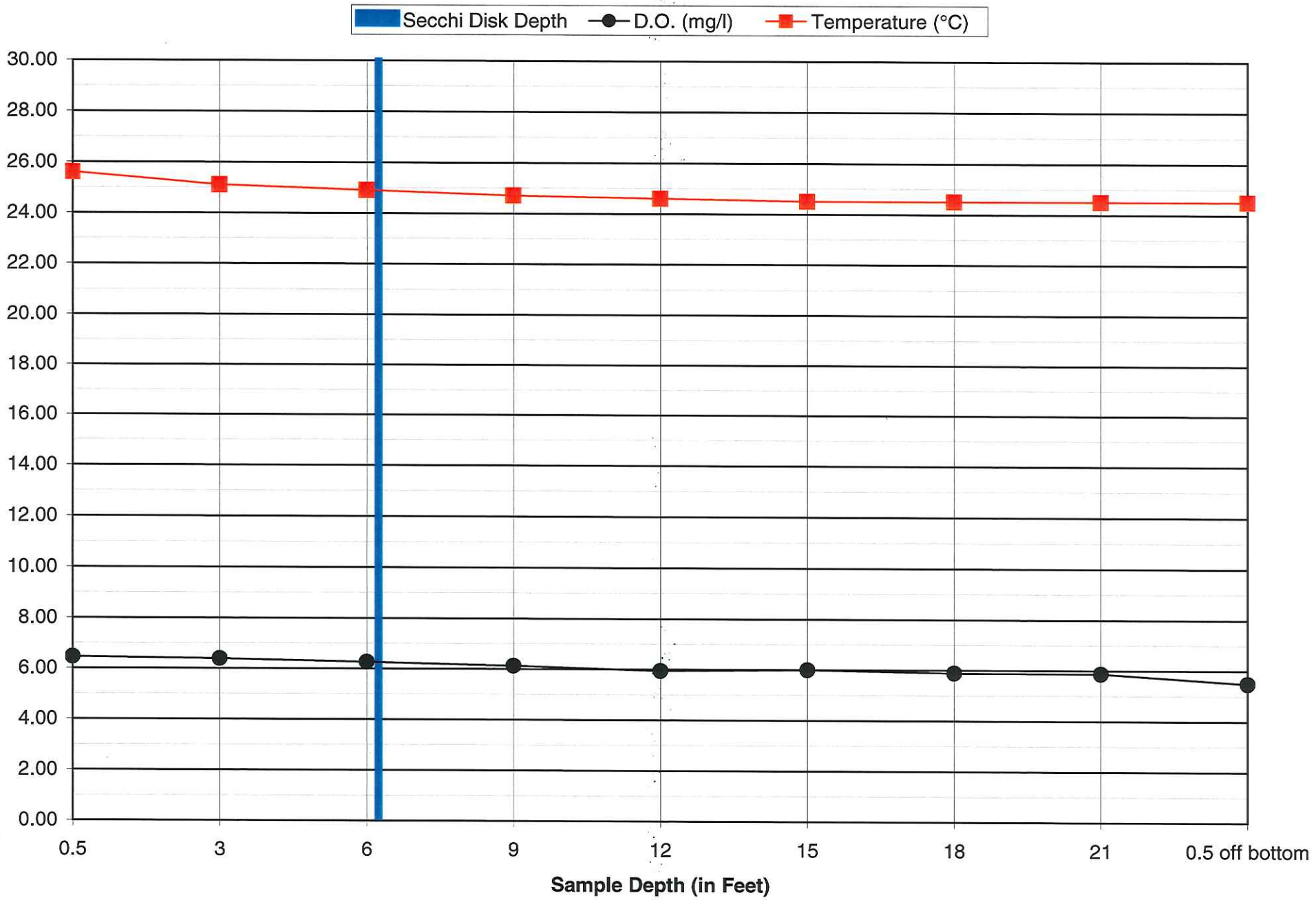
August 8, 2007

Project	Total CFS	Gate CFS	Unit CFS			Unit KW			Impoundment (NGVD)	Tailwater (NGVD)	Head (feet)
			Unit #1	Unit #2	N/A	Unit #1	Unit #2	N/A			
UPPER	340	70	270	0		255	0		1486.63	1466.88	19.75
		Enter 24 Hour Totals For KW Here >				6620	0				
			Unit #2	Unit #3	Unit #4	Unit #2	Unit #3	Unit #4			
LOWER	260	0	0	0	260	0	0	220	1448.3	1467.2	18.9
		Enter 24 Hour Totals For KW Here >				0	0	5200			
			Unit #5	Unit #6	N/A	Unit #5	Unit #6	N/A			
PIXLEY	270	0	0	270		0	600		1448.65	1427.5	21.1
		Enter 24 Hour Totals For KW Here >				0	3900				
			Unit #8	Unit #9	N/A	Unit #8	Unit #9	N/A			
CROWLEY	291	0	0	291		0	280		1427.4	1405.5	21.9
		Enter 24 Hour Totals For KW Here >				0	7600				

Data Entered in These Fields Only

Spreadsheet Calculated Fields

Lower Impoundment - FERC # 2421
August 08, 2007 Sampling Event



Appendix D

Agency Correspondence