ORIGINAL

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December 28, 2006

Magalie Roman Salas
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Subject: FERC Hydroelectric Project No. 11162 - 005
Submittal of Dissolved Oxygen Monitoring Results-License Article 404

Dear Magalie Roman Salas:

On behalf of Wisconsin Power and Light Company and in accordance with the September 11, 2003 Federal Energy Regulatory Commission Order Approving Water Quality Monitoring Plan Under Article 404, we are pleased to provide you with an original and eight copies of the 2006 dissolved oxygen (DO) monitoring results for the Prairie du Sac hydroelectric facility. This letter also serves to inform you that the DO monitoring results have been submitted to the appropriate resources agencies for review and comment. We anticipate discussing the monitoring results and potential DO mitigation measures with the resource agencies on an on-going basis and/or during our annual meeting in 2007 regarding License Article 408 (Aquatic Resources Enhancement Plan). The enclosed report contains analysis of the third and final year of initial DO monitoring and the collective monitoring results for all three years of monitoring. Recommendations for enhancing DO concentrations in the project discharge, as required by plan under Article 404, will be developed in consultation with the resource agencies.

Please contact me if you have questions or require additional information regarding this submittal.

Regards,
Natural Resources Consulting, Inc.

William Poole

William R. Poole
Principal Scientist

Enclosure

Cc. Mildred Godoy-Daniels - Alliant Energy
Patricia Grant - FERC

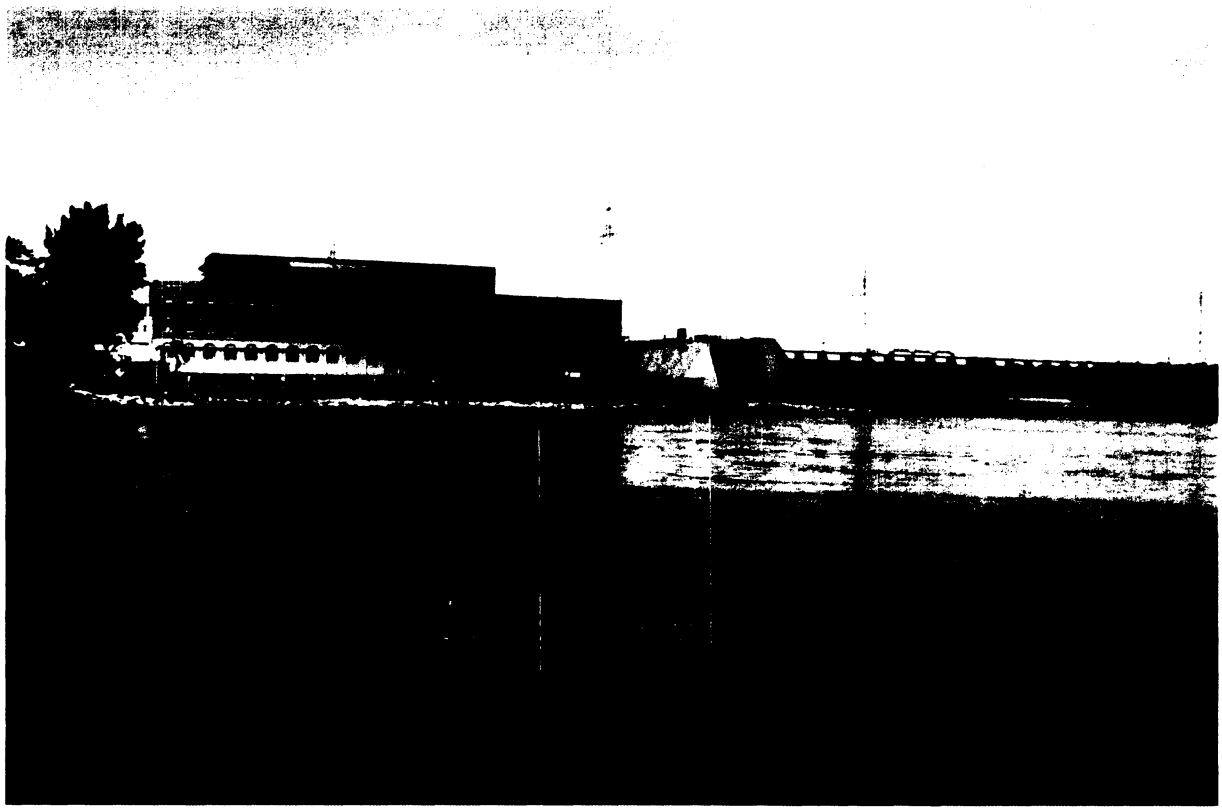
DISSOLVED OXYGEN MONITORING AND ENHANCEMENT PLAN

PRAIRIE DU SAC HYDROELECTRIC PROJECT

FERC Project No. 11162

PRAIRIE DU SAC, WISCONSIN

December 15, 2006



NRC Project # 06-013

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DISSOLVED OXYGEN MONITORING AND ENHANCEMENT PLAN

PRAIRIE DU SAC HYDROELECTRIC PROJECT
FERC Project No. 11162

PRAIRIE DU SAC, WISCONSIN

December 15, 2006

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INTRODUCTION AND OBJECTIVES

Wisconsin Power and Light Company (WP&L) operates the Prairie du Sac (PDS) hydroelectric facility on the Wisconsin River in Prairie du Sac, Columbia and Sauk Counties, Wisconsin. In accordance with Article 404 of the Federal Energy Regulatory Commission (FERC) Order Issuing Original License (June 27, 2002) for the Prairie du Sac Hydroelectric Project, FERC Project No. 11162, WP&L was required to develop and implement a dissolved oxygen monitoring and enhancement plan for this facility. Historic water quality monitoring conducted by WP&L and the Wisconsin Department of Natural Resources (WDNR) indicated that at times dissolved oxygen concentrations may be lower than the 5 mg/L Water Quality Standard as specified under Wisconsin Administrative Code Chapter NR 102. Monitoring has shown that dissolved oxygen concentrations may be as low as 2 to 3 mg/L at the intake and in the tailrace during summer months. WP&L also previously investigated the use of turbine vacuum breakers to raise dissolved oxygen levels in the turbine discharge; however the results were reportedly inconclusive.

On behalf of WP&L, Natural Resources Consulting, Inc. (NRC) developed the dissolved oxygen monitoring and enhancement plan for the PDS facility, which was filed with FERC on March 27, 2003. The *Order Approving Water Quality Monitoring Plan Under Article 404* (Order) was issued by FERC on September 11, 2003. The plan requires WP&L to monitor dissolved oxygen levels at their PDS facility during the summer low flow periods for a three-year period and re-evaluate the potential for vacuum breakers to increase dissolved oxygen levels in the tailrace. In 2004, the vacuum breakers were evaluated and proven to be ineffective at increasing dissolved oxygen levels in the tailrace, and therefore were not evaluated this year.

In 2006, NRC conducted the final year of this water quality investigation at the PDS facility according to the Order. This report summarizes the methods and results of this investigation for the final year. The report also includes a brief summary of the 3-year study.

METHODS

An AquaSonde 2002 dissolved oxygen and temperature data logger was installed just upstream of an operating turbine unit intake and in the tailrace associated with the same unit immediately downstream of the facility from June 21, 2006 to September 15, 2006 to monitor water quality conditions. The upstream logger was deployed midway between the bottom of the intake wall and the lake bottom, which is a depth of approximately 20 feet. The downstream logger was installed at approximately mid-depth in the turbine discharge area of the tailrace. The loggers were programmed to record dissolved oxygen and temperature at 15-minute intervals, and were downloaded and serviced (probe cleaning, recalibration, etc.) once or twice per week.

The data loggers were installed at Turbine Unit 5 from June 21 through September 15, 2006 (Table 1). Logger #171 on the upstream side was removed for repair on July 3 and replaced on August 11. On July 10, the downstream logger #172 was inadvertently dropped to the bottom of the tailrace and was retrieved on July 14. The logger was redeployed on July 18 and remained in place for the remainder of the monitoring period.

Table 1. Summary of Data Logger Deployment

LOCATION	PERIOD	LOGGER #
UNIT 5		
Upstream	6/21 to 7/03; and 8/11 to 9/15	171
Downstream	6/21 to 7/14; and 7/18 to 9/15	172

As discussed, the loggers were recalibrated once or twice per week (Appendix A). These calibration data were used to adjust dissolved oxygen values to account for instrument drift for purposes of evaluating the frequency of dissolved oxygen measurements below the state water quality limit of 5.0 mg/L. For example, if the instrument read 0.5 mg/L higher than the standard during a re-calibration event, all values between this calibration period were adjusted by this amount. While we understand the instrument likely did not begin drifting immediately after it was replaced in the water after calibration, it is not possible to determine when the instrument actually began to drift between download periods. As such, the corrected and uncorrected values provide a likely range of the number of times dissolved oxygen levels were below 5.0 mg/L.

WP&L staff manually measured dissolved oxygen and water temperature with a Yellow Springs Inc. (YSI) Model 55 hand-held instrument in an upstream and downstream location every work day morning during the logger-deployment period. Upstream of the facility, measurements were taken throughout the water column at one-meter increments in front of the intake at Unit 5. The bottom measurement was normally taken around 11 meters (~36 feet). At downstream locations, measurements were taken at Unit 8 (the lock side), Unit 1 (the shore side) and at an operating unit between these areas (Unit 5). The downstream readings were taken at mid-depth, since minimal stratification had been observed during the 2004 monitoring period. The main intent of these manual measurements was to validate dissolved oxygen concentrations recorded by the data loggers.

During a scoping meeting with the regulatory agencies, the WDNR indicated there "needs to be monitoring for the downstream effects of ammonia." NRC's work plan (March 25, 2003) indicated a water sample will be collected from the tailrace area during a low dissolved oxygen period and analyzed for ammonia. While this was not specified as a required task in the Order, a water sample from the tailrace was collected by NRC on August 01, 2006 and sent to an analytical laboratory for ammonia analysis. Water temperature and dissolved oxygen were determined at the time of sample collection with an Aqua 2002 dissolved oxygen and temperature data logger.

RESULTS

Continuous Data Loggers

The relationship between temperature and dissolved oxygen upstream and downstream of the PDS facility from June 21 through September 15, 2006 is presented in Figures 1 and 2, respectively. A summary table of these data is presented in Table 2. During this deployment period, the data loggers were installed at Unit 5 from June 21 through September 15, 2006 (Table 1).

Table 2. Summary of Water Temperature and Dissolved Oxygen June 21 through September 15, 2006.

TEMPERTURE (°C)			
	Minimum	Maximum	Average
Upstream	17.9	26.7	23.1
Downstream	17.4	28.9	24.5
DISSOLVED OXYGEN (mg/L)			
	Minimum	Maximum	Average
Upstream	0.6	11.0	5.5
Downstream (uncorrected)	1.9	14.6	5.4
Downstream (corrected)[1]	0.4	12.1	5.6

[1] Values were corrected using calibration data

Dissolved oxygen levels upstream and downstream of Unit 5 generally followed similar trends during this monitoring period (Figures 1, 2 and 3). Furthermore, the data from upstream and downstream did not show any consistent difference between the two locations.

Breaks in the data are evident from both the upstream and downstream loggers. Inconsistent and erratic readings were observed at the upstream location (Logger #171) during late June. This logger was removed for repair and was replaced in early August, thus there is a gap in upstream readings from July 3 until August 11. The downstream logger (#172) was inadvertently dropped to the bottom of the tailrace on July 10, but continued collecting data until July 14. The logger was retrieved on July 14 and redeployed after calibration on July 18. Thus data was not collected between July 14 and July 18.

Dissolved oxygen concentrations downstream of these units dropped below 5.0 mg/L between 32.5 percent (corrected values) and 40.7 percent (uncorrected values) of the time during this monitoring period.

Manual Monitoring

Field sheets summarizing manual dissolved oxygen and water temperature measurements upstream and downstream of the facility are provided in Appendix B and C, respectively. The main intent of this manual monitoring was to validate dissolved oxygen measurements recorded by the data loggers and characterize the degree of stratification near the intake units.

A comparison of the continuous dissolved oxygen measurements and the corresponding corrected values with the downstream manual readings are presented in Table 3. The values in the table are taken from the continuous logger at the same time as the manual reading. The corrected values were calculated from the calibration log provided in Appendix A. Overall, the continuous and corrected dissolved oxygen measurements compared favorably with the manual measurements. The continuous logger measurements were within 15 percent of the manual readings over 63 percent of the time; and the corrected values were within 15 percent of the manual readings about 60 percent of the time.

Some of the observed variation between the manual and data logger measurements could be explained by different measurement locations within a turbulent discharge bay and differences between the recorded times .

Although the differences between the manual and continuous values were noteworthy at times, the overall trends were very similar. Figure 4 shows the manual and corrected logger readings over the course of the monitoring period. Generally, the values trended together, although the manual readings were slightly higher. The manual readings were below 5.0 mg/L 36.1 percent of the time. The uncorrected logger measurements were below 5.0 mg/L 42.8 percent, compared with the corrected data at 34.6 percent. All of the data was taken from the closest corresponding point in time. It should be noted that the manual readings were generally taken at 8AM and the closest logger reading was used for the comparison. The dissolved oxygen readings were generally lower likely because the readings were taken in the morning, when the values are expected to be lower.

Manual dissolved oxygen measurements were taken in the turbine discharge area at the shore-side of the powerhouse, the lock side, and a location in the approximate middle of the tailrace area. During the monitoring period the middle unit (Unit 5) was always in operation. Typically one or both of the other locations were not running. A comparison of downstream manual dissolved oxygen measurements among units while running and not running are presented in Figure 5. Because of variability in measurement times, precipitation trends, and many other variables, the results of this comparison are somewhat inconclusive. However two general trends could be observed from the data. Overall, the dissolved oxygen readings at the middle unit (Unit 5) trended higher than the shore or lock sides. Since readings at this location were taken only while the turbines were running, it is likely because the unit was in operation. The other general observation is that shore-side readings were generally higher than lock-side, regardless

of whether or not the unit was running. Both trends were only evident earlier in the observation period from mid-June until about late-July.

At the upstream locations, the thermocline often occurred near the depth of the data logger, and slight differences in measurement depths between the manual probe and the data logger likely resulted in varying dissolved oxygen concentrations. Due to this source of variation, a comparison of dissolved oxygen levels between these instruments was not conducted for the upstream area.

The manual upstream data was considered for differences between surface and bottom dissolved oxygen readings. The degree of dissolved oxygen stratification near the intakes varied during the study period, and the differences of these values are presented over time in Figure 6. As shown in the graph, the surface readings were generally higher than the dissolved oxygen values recorded on the bottom. At times the surface readings spiked to greater than 6 mg/L higher than the bottom measurement. During some periods of increased stratification, dissolved oxygen values were below 2 mg/L at the lake bottom.

There was variation in the values, however, as many surface values were similar to or slightly less than bottom readings. The variations are likely due to many factors including precipitation, wind/wave action, and time of the measurements. In addition, the actual depth of the bottom measurement was likely variable due to the effect of strong water currents moving the instrument probe around.

Ammonia sample

Results of the tailrace ammonia sample are presented in Table 4.

Table 4. Results of Tailrace Ammonia Sample, August 1, 2006

Dissolved Oxygen	Water Temperature	Ammonia nitrogen as N
3.4 mg/L	26.77 °C	0.21 mg/l

Ammonia toxicity is related to water temperature and pH. Although pH was not determined at the time of sample collection, the ammonia level observed in the tailrace on this date is below acute and chronic toxicity criteria specified in Wis. Admin Code NR105.06 for pH levels typically encountered in natural surface waters.

CONCLUSIONS

Dissolved oxygen and water temperature was continuously monitored upstream and downstream of an operating turbine unit (Unit 5) at the PDS facility from June 21 through September 15, 2005. Dissolved oxygen concentrations downstream of these units dropped below 5.0 mg/L between 32.5 percent (corrected values) and 40.7 percent (uncorrected values) of the time during this monitoring period.

Manual measurements of dissolved oxygen were also taken downstream of the facility at various locations, primarily to validate data logger measurements. Slight differences in the data were observed between the data logger and manual measurements. The differences in the data are likely due to different measurement locations and times, as well as some equipment failures during the observation period. Although some differences were observed, the data generally trended together. The manual readings were overall slightly higher than the logger values. However both manual and logger dissolved oxygen values were low. The manual dissolved oxygen readings were below 5.0 mg/L 36.1 percent of the time. The uncorrected logger measurements were below 5.0 mg/L 42.8 percent, compared with the corrected data at 34.6 percent.

Manual dissolved oxygen measurements were taken in the turbine discharge area at the shore-side, the approximate middle, and lock side of the tailrace area. Overall, the dissolved oxygen readings at the middle unit trended higher than the shore or lock sides. However since readings at this location were taken only while the turbines were running, it is likely because the unit was in operation. In addition, the shore-side readings were generally higher than lock-side, regardless of whether or not the unit was running. These trends were only evident earlier in the observation period from mid-June until about late-July.

Vertical dissolved oxygen profiles were measured near the intake of the middle turbine unit throughout the monitoring period. The degree of dissolved oxygen stratification near the intakes varied during the study period. The surface readings were generally higher than the dissolved oxygen values recorded on the bottom. At times the surface readings spiked to greater than 6 mg/L higher than the bottom measurement. During some periods of increased stratification, dissolved oxygen values were below 2 mg/L at the lake bottom. There was variation in the values, however, as many surface values were similar to or slightly less than bottom readings. The variations are likely due to many factors including precipitation, wind/wave action, and time of the measurements. In addition, the actual depth of the bottom measurement was likely variable due to the effect of strong water currents moving the instrument probe around. Based on the lower dissolved oxygen values observed in the tailrace relative to upstream data logger readings, it is apparent that a larger proportion of water is being drawn from the lower depths of the headrace where dissolved oxygen levels tend to be lower.

STUDY SUMMARY

On behalf of WP&L, NRC monitored dissolved oxygen levels at their PDS facility during the summer low flow periods from 2004 to 2006. From this evaluation, some general observations can be made. Turbine vacuum breakers were evaluated as a means of introducing dissolved oxygen in tailrace areas in 2004. Vacuum breaker evaluations were conducted at Unit 5 on two occasions and at Unit 8 on nine occasions. Results of these evaluations indicated that the vacuum breakers were ineffective at increasing dissolved oxygen levels in the tailrace, and therefore were not evaluated in subsequent years.

The most significant conclusion of the 3-year monitoring is that dissolved oxygen concentrations in the tailrace drop below the 5 mg/L Water Quality Standard as specified under Wisconsin Administrative Code Chapter NR 102. For all three years, dissolved oxygen readings dropped below 5.0 mg/L for a period of time. In 2004, the concentration of dissolved oxygen fell below the 5.0 mg/L threshold at two downstream locations 24.6 percent and 17.3 percent of the time (16.6 percent using corrected values). During 2005 the dissolved oxygen concentration were below threshold levels between 40.9 percent (corrected values) and 49.6 percent (uncorrected values) of the time; and in 2006 the concentrations were below 5.0 mg/L between 32.5 percent (corrected values) and 40.7 percent (uncorrected values) during the monitoring period.

General observations of annual weather patterns, such as differences in seasonal air temperature and precipitation of reach of the three years, suggest the extent and duration of readings below the 5.0 mgl/L threshold correlate to summer weather conditions.

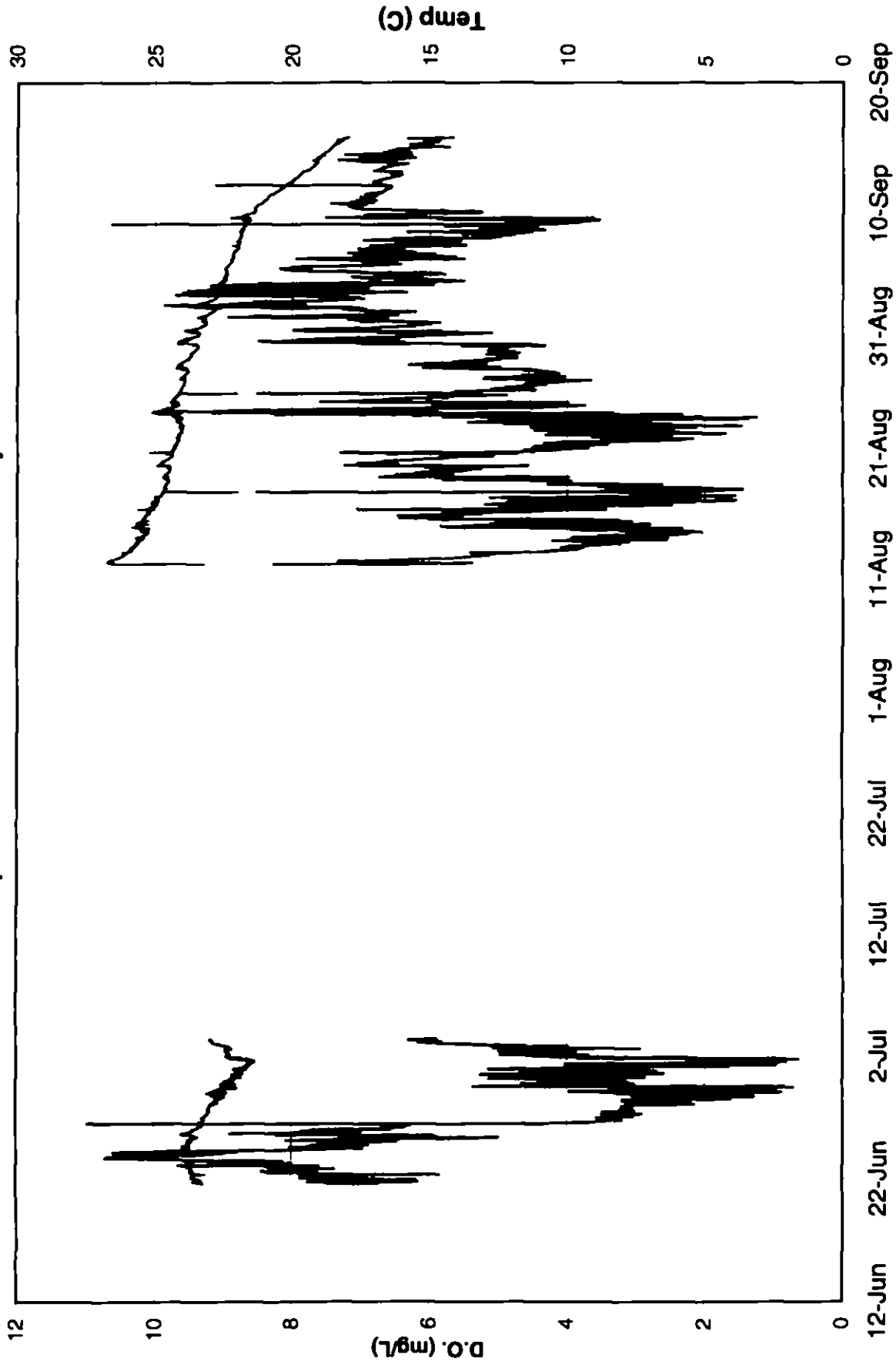


Figure 1. Water Temperature and Dissolved Oxygen Values[1]
Upstream of the Prairie du Sac Facility

[1] Uncorrected dissolved oxygen values

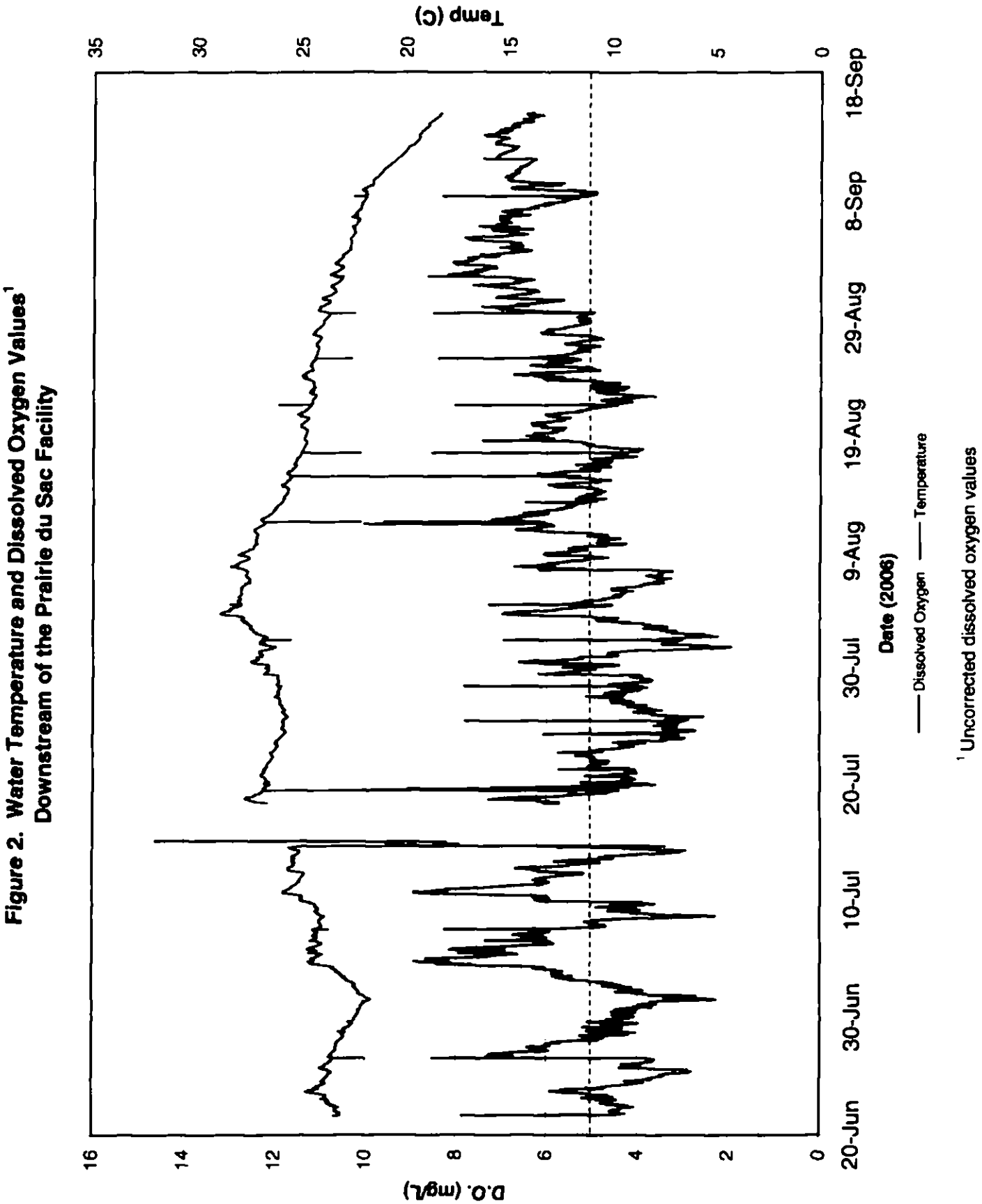
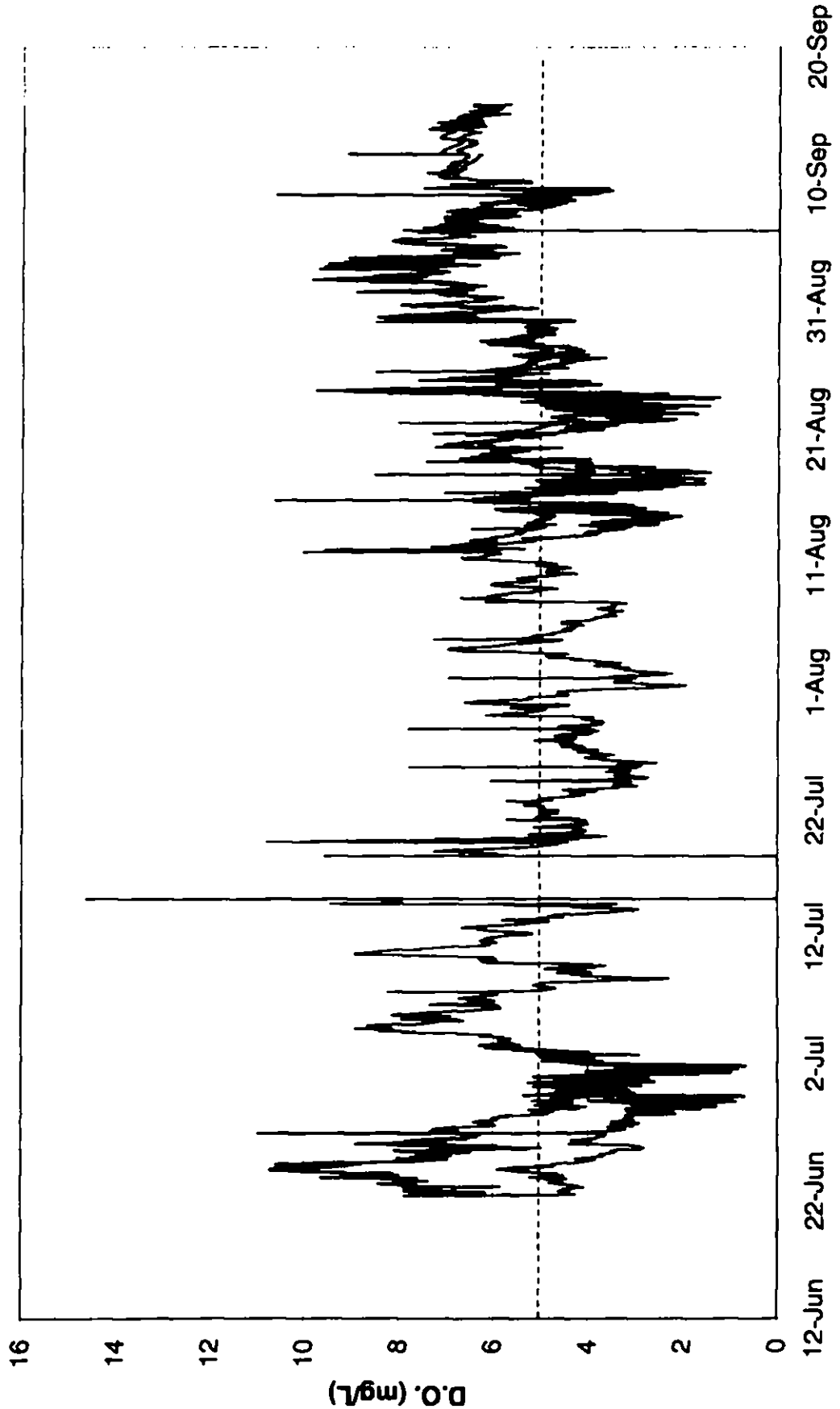


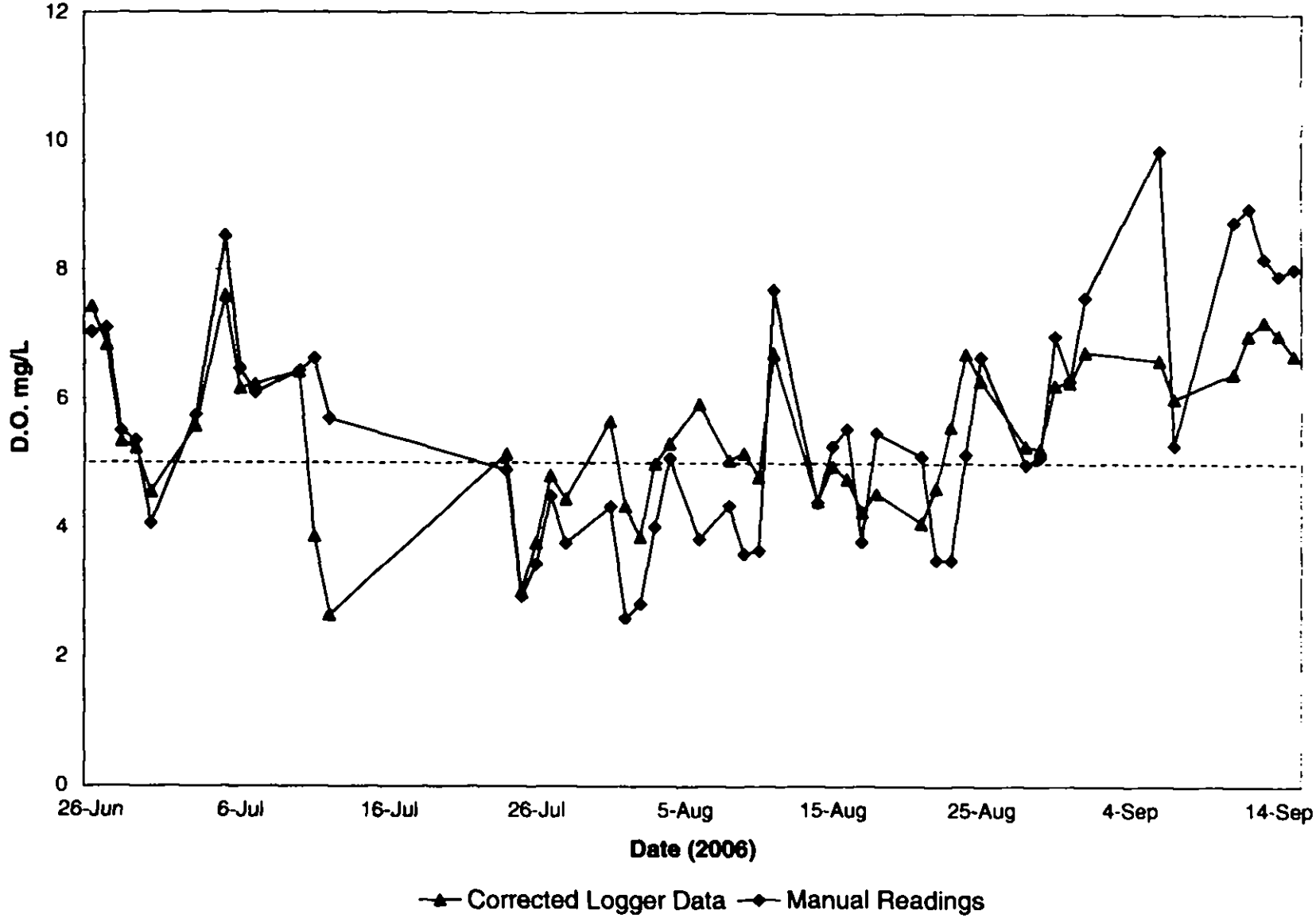
Figure 2. Water Temperature and Dissolved Oxygen Values[1] Downstream of the Prairie du Sac Facility

Figure 3. Comparison of Upstream and Downstream Dissolved Oxygen Values[1]
Praire du Sac Facility



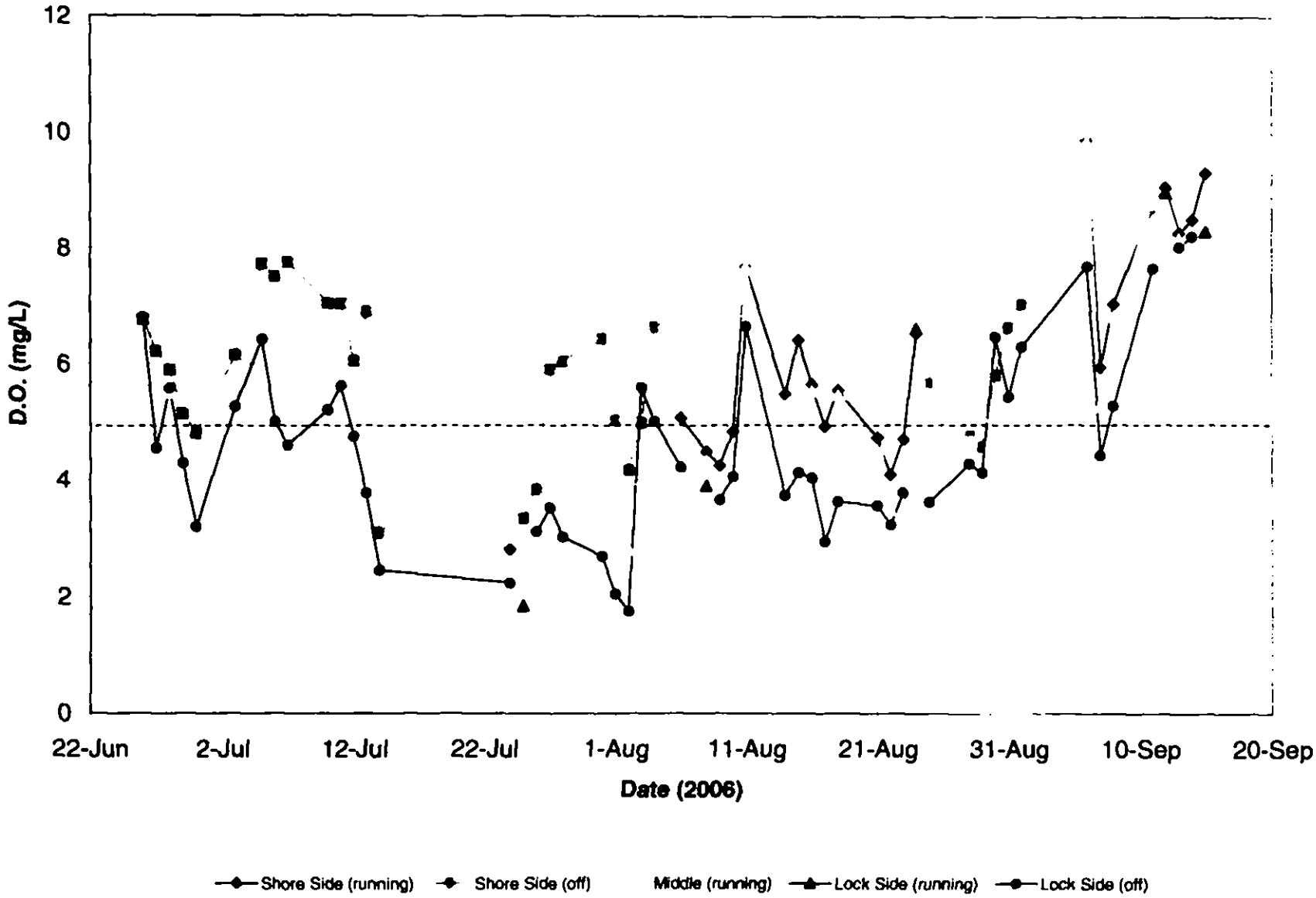
[1] Uncorrected dissolved oxygen values

Figure 4. Dissolved Oxygen Data: Continuous Logger[1] vs Manual Readings Downstream of the Prairie du Sac Facility



[1] Corrected dissolved oxygen values

Figure 5. Comparison of Units Running / Not Running Downstream of the Prairie du Sac Facility



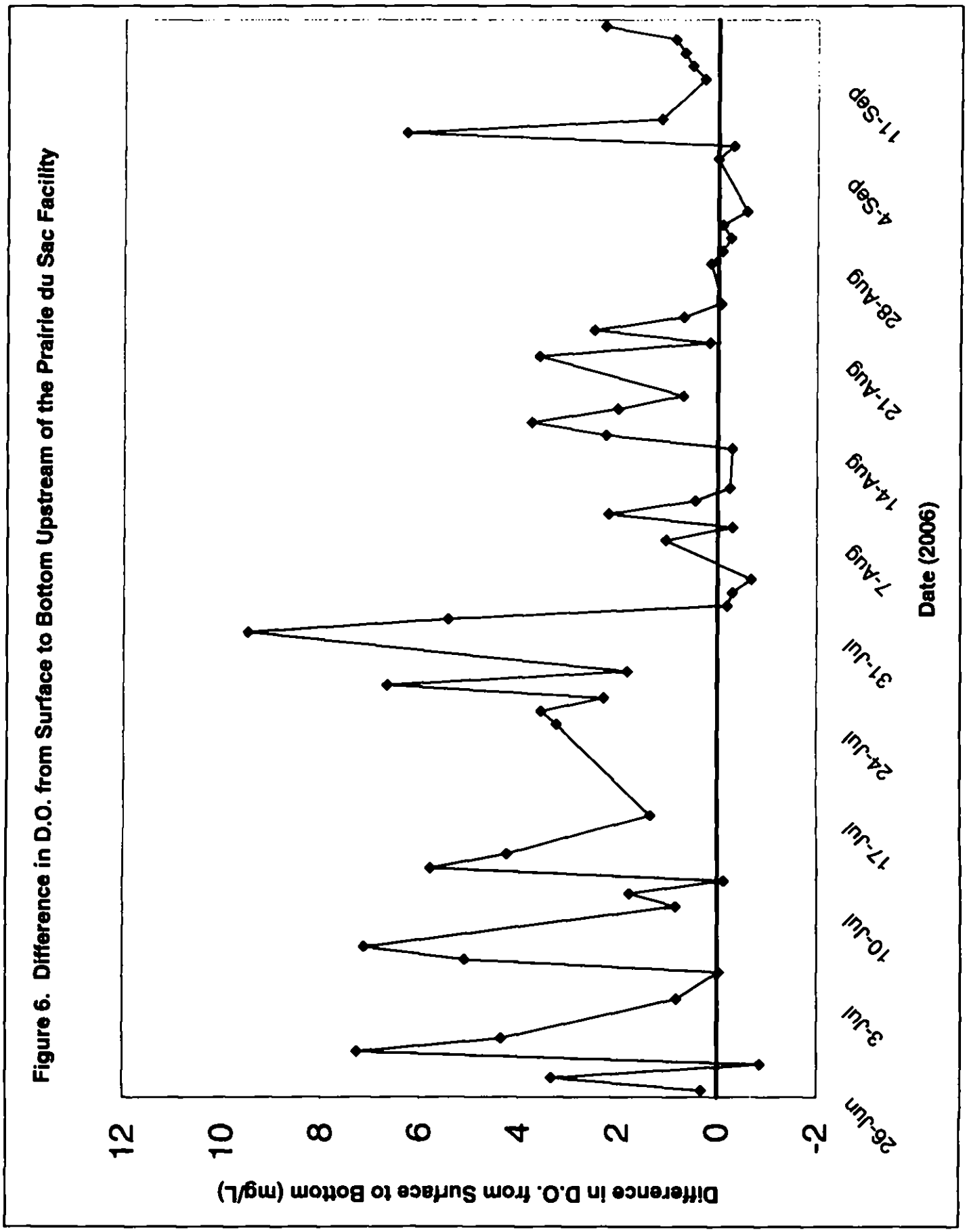


Figure 6. Difference in D.O. from Surface to Bottom Upstream of the Prairie du Sac Facility

Table 3. Comparison of Downstream Continuous Data and Corrected Values with Manual Dissolved Oxygen Measurements.

	Continous Dissolved Oxygen (mg/L)	Corrected	Manual	(continuous - manual) difference	%	(corrected - manual) difference	%
06/26/06	3.66	7.43	7.03	-3.37	-92.1	0.4	5.4
06/27/06	6.31	6.84	7.1	-0.79	-12.5	-0.26	-3.8
06/28/06	4.81	5.34	5.5	-0.69	-14.3	-0.16	-3.0
06/29/06	4.71	5.24	5.36	-0.65	-13.8	-0.12	-2.3
06/30/06	4.47	4.56	4.07	0.4	8.9	0.49	10.7
07/03/06	5.49	5.58	5.75	-0.26	-4.7	-0.17	-3.0
07/05/06	7.31	7.6	8.52	-1.21	-16.6	-0.92	-12.1
07/06/06	5.88	6.17	6.47	-0.59	-10.0	-0.3	-4.9
07/07/06	5.94	6.23	6.1	-0.16	-2.7	0.13	2.1
07/10/06	6.24	6.43	6.44	-0.2	-3.2	-0.01	-0.2
07/11/06	6.45	3.87	6.63	-0.18	-2.8	-2.76	-71.3
07/12/06	5.23	2.65	5.7	-0.47	-9.0	-3.05	-115.1
07/24/06	5.17	5.15	4.9	0.27	5.2	0.25	4.9
07/25/06	2.9	3.01	2.93	-0.03	-1.0	0.08	2.7
07/26/06	3.66	3.77	3.44	0.22	6.0	0.33	8.8
07/27/06	4.71	4.82	4.5	0.21	4.5	0.32	6.6
07/28/06	4.34	4.45	3.76	0.58	13.4	0.69	15.5
07/31/06	4.45	5.66	4.33	0.12	2.7	1.33	23.5
08/01/06	3.13	4.34	2.6	0.53	16.9	1.74	40.1
08/02/06	3.46	3.86	2.82	0.64	18.5	1.04	26.9
08/03/06	4.6	5	4.02	0.58	12.6	0.98	19.6
08/04/06	4.91	5.31	5.08	-0.17	-3.5	0.23	4.3
08/06/06	3.54	5.93	3.83	-0.29	-8.2	2.1	35.4
08/08/06	5.03	5.06	4.35	0.68	13.5	0.71	14.0
08/09/06	5.14	5.17	3.6	1.54	30.0	1.57	30.4
08/10/06	4.77	4.8	3.65	1.12	23.5	1.15	24.0
08/11/06	6.69	6.72	7.7	-1.01	-15.1	-0.98	-14.6
08/14/06	4.97	4.42	4.4	0.57	11.5	0.02	0.5
08/15/06	5.52	4.97	5.28	0.24	4.3	-0.31	-6.2
08/16/06	4.97	4.77	5.55	-0.58	-11.7	-0.78	-16.4
08/17/06	4.46	4.26	3.79	0.67	15.0	0.47	11.0
08/18/06	5.19	4.55	5.49	-0.3	-5.8	-0.94	-20.7
08/21/06	4.72	4.08	5.12	-0.4	-8.5	-1.04	-25.5
08/22/06	3.99	4.63	3.51	0.48	12.0	1.12	24.2
08/23/06	4.94	5.58	3.5	1.44	29.1	2.08	37.3
08/24/06	6.08	6.72	5.15	0.93	15.3	1.57	23.4
08/25/06	5.67	6.31	6.67	-1	-17.6	-0.36	-5.7
08/28/06	5.18	5.29	5	0.18	3.5	0.29	5.5
08/29/06	5.13	5.24	5.12	0.01	0.2	0.12	2.3
08/30/06	6.24	6.23	6.99	-0.75	-12.0	-0.76	-12.2
08/31/06	6.29	6.28	6.31	-0.02	-0.3	-0.03	-0.5
09/01/06	6.76	6.75	7.6	-0.84	-12.4	-0.85	-12.6
09/06/06	6.97	6.62	9.87	-2.9	-41.6	-3.25	-49.1
09/07/06	6.38	6.03	5.3	1.08	16.9	0.73	12.1
09/11/06	6.37	6.42	8.77	-2.4	-37.7	-2.35	-36.6
09/12/06	6.74	7.01	8.98	-2.24	-33.2	-1.97	-28.1
09/13/06	6.95	7.22	8.2	-1.25	-18.0	-0.98	-13.6
09/14/06	6.75	7.02	7.94	-1.19	-17.6	-0.92	-13.1
09/15/06	6.43	6.7	8.04	-1.61	-25.0	-1.34	-20.0

APPENDIX A

DATA LOGGER CALIBRATION LOG

Prairie du Sac Hydroelectric Project
2006 Calibration Log

Date	Time	Logger No.	Temperature °C Before	Temperature °C After	Dissolved Oxygen ppm mg/L Before	Dissolved Oxygen ppm mg/L After	
06-21-06	2:18	171/upstream	22.52	22.64	8.16	8.30	RV
06-21-06	3:25	172/downstr	23.10	23.97	7.63	7.99	
06-26-06	12:50	171/ups	20.81	20.77	18.49	8.7[illegible]	
6-26-06	13:25	172/down	22.04	21.99	4.72	8.5	
6-29-06	1:43	171/Upstrea	22.11	21.68	8.05	8.08 8.56	
6-29-06	2:08	172/down	22.43	22.08	7.88	8.48	
7-03-06	1:23	171/up	22.12	22.10	7.51	8.37	← sent away for recalibrated
7-03-06	1:56	172/down	24.31	24.05	7.64 8.00	8.17	
7-07-06	2:27	172/down	24.54	23.72	7.66	8.21	
7/10/06	2:30	172/down	25.08	24.39	7.92	8.11	← drift on [illegible] removed
7/19/06	12:56	172/down	21.42	[illegible]3	11.15	8.57	
7/21/06	11:22	172/down	23.26	23.18	7.05	8.30	
7/25/06	11:05	172/down	25.80	[illegible]	7.98	7.96	
7/28/06	11:49	172/down	[illegible]	[illegible].17	7.89	7.00	
08/01/06	10:35	172/down	24.75	24.66	6.86	8.08	
08/04/06	11:48	172/down	23.40	23.31	7.88	8.28	
[illegible]	10:51	172/down	21.82	21.72	5.68	8.07	
8/11/06	12:39	171/up	23.07	23.06	8.57	8.32	← back from repair
8/11/06	1:17	172/down	24.45	24.29	8.12	8.15	
8/15/06	10:31	171/up	23.11	[illegible].04	8.18	8.33	Sunn[illegible]
8/15/06	10:54	172/down	24.14	24.07	8.71	8.16	
8/17/06	11:12	171/UP	22.21	22.10	8.18	8.49	
8/19/06	11:49	172/down	22.54	22.47	8.62	8.42	
8/21/06	1:01	171/up	23.39	23.21	8.33	8.22	
[illegible]	1:32	172/down	23.96	23.92	8.80	8.16	
8/25/06	2:11	171/up	22.60	22.57	8.32	8.40	
8/25/06	2:30	172/down	22.66	22.63	7.75	8.39	
8/29/06	11:16	171/up	21.79	21.63	8.62	8.56	
8/29/06	11:34	172/down	22.68	22.56	8.30	8.41	
09/01/06	1:51	171/up	22.56	22.52	8.47	8.42	
09/01/06	2:11	172/down	23.20	23.17	8.38	8.37	
09/05/06	3:05	171/up	22.38	22.35	8.32	8.43	
09/05/06	3:20	172/down	22.61	22.59	8.39	8.40	
09/08/06	9:44	171/up	21.16	21.11	8.60	8.64	
09/08/06	10:12	172/down	22.33	22.30	8.80	8.45	
09/11/06	2:28	171/up	18.72	18.69	9.06	9.07	
09/11/06	2:54	172/down	18.63	18.61	8.59	9.09	
9/15/06	12:42	171/up	19.64	19.62	9.14	8.91	> end [illegible]
09/15/06	12:53	172/down	20.71	20.71	8.44	8.71	

APPENDIX B

FIELD SHEETS OF UPSTREAM MANUAL MEASUREMENTS

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 6/26/06 Time: 1100

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		7.20	23.2
1		7.44	"
2		7.35	"
3		7.40	"
4		7.19	"
5		7.13	"
6		7.06	"
7		7.02	"
8		6.29	23.1
9		6.92	"
10		6.87	"
11		6.88	"
12			
13			
14			
15			

Cloudy / Lt Rain

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 6-27-06 Time: 10:30

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		9.77	23.6
1		9.26	23.8
2		9.70	23.8
3		9.20	23.5
4		8.61	23.3
5		6.97	23.0
6		6.95	23.0
7		6.67	23.0
8		6.80	22.9
9		6.55	23.0
10		6.51	23.0
11	✓	6.44	23.0
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 06-27-06 Time: 0730

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		5.75	22.7
1		5.44	22.7
2		5.24	22.7
3		5.64	22.7
4		5.50	22.8
5		5.58	22.7
6		6.32	22.7
7		5.40	22.6
8		6.29	22.6
9		5.85	22.6
10		5.40	22.7
11		6.60	22.6
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: [illegible] 29-06 Time: 0800

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		9.07	[illegible]
1		8.07	[illegible]
2		9.06	[illegible]
3		1.34	[illegible]
4		8.82	[illegible]
5		8.0	[illegible]
6		8.2	[illegible]
7		6.7	22.6
8		3.16	22.3
9		1.96	22.0
10		1.89	22.0
11		1.42	22.0
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 06-30-06 Time: 0730

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		6.53	22.5
1		5.96	22.5
2		5.21	22.5
3		6.0	22.5
4		6.30	22.5
5		6.90	22.3
6		5.40	22.1
7		2.75	21.7
8		2.60	21.7
9		2.57	21.7
10		2.55	21.7
11		2.58	21.7
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 07-03-06 Time: 0760

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		6.70	22.7
1		6.34	22.8
2		6.80	22.8
3		7.15	22.9
4		7.19	22.9
5		6.59	22.8
6		6.98	22.8
7		7.03	22.8
8		6.62	22.7
9		5.73	22.6
10		5.60	22.6
11		5.88	22.7
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 7-5-06 Time: 07.00

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		9.5	24.3
1		9.67	24.4
2		9.64	24.5
3		9.97	24.4
4		10.17	24.4
5		10.45	24.4
6		10.57	24.4
7		9.89	24.3
8		9.68	24.3
9		9.61	24.3
10		9.80	24.3
11		9.53	24.3
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. <u>Upstream</u> Daily Profile Log

Date: 7-6-06 Time: 09:30

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		11.66	24.8
1		10.75	25.0
2		11.17	25.0
3		12.30	25.0
4		13.19	25.0
5		8.25	24.4
6		7.57	24.1
7		6.41	23.9
8		6.00	23.8
9		6.83	24.0
10		6.79	23.9
11		6.57	23.9
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 7-7-06 Time: 0830

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		13.78	25.0
1		13.91	25.1
2		14.67	25.2
3		15.00	25.1
4		12.86	25.0
5		9.60	24.8
6		7.91	24.5
7		8.45	24.4
8		7.07	24.1
9		6.54	24.0
10		6.27	24.1
11		6.65	24.1
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 1-10-06 Time: 10:00

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		6.55	24.8
1		6.01	24.8
2		6.04	24.8
3		6.37	24.8
4		6.50	24.8
5		6.00	24.7
6		5.75	24.7
7		5.69	24.7
8		5.69	24.7
9		5.71	24.7
10		5.85	24.7
11		5.71	24.7
12			
13			
14			
15			

Cloudy

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 7-11-06 Time: 8:20

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		7.10	25.1
1		6.72	25.2
2		7.06	25.2
3		7.42	25.2
4		7.74	25.3
5		7.65	25.3
6		7.70	25.3
7		7.61	25.2
8		6.80	25.3
9		7.16	25.2
10		6.70	25
11		5.33	25
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. <u>Upstream</u> Daily Profile Log

Date: 7-12-06 Time: 8:30

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		5.09	24.6
1		4.75	24.6
2		4.84	24.7
3		5.06	24.7
4		5.39	24.6
5		5.14	24.6
6		5.14	24.6
7		5.18	24.5
8		5.65	24.6
9		5.24	24.5
10		5.18	24.5
11		5.22	24.5
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 7-13-06 Time: 12:45

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		9.08	26.4
1		9.23	26.9
2		8.90	26.7
3		9.20	26.2
4		11.19	26.8
5		7.11	25.8
6		6.50	25.6
7		4.59	25.0
8		3.48	24.6
9		2.98	24.3
10		3.24	24.4
11		3.29	24.5
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 7-14-06 Time: 8:00

Depth (meters)	Turbine Unit #	Dissolved Oxygen	Temperature
Surface	5	7.38	25.8
1	↓	7.01	26
2		7.09	26
3		7.35	26
4		8.09	24.1
5		7.81	26
6		6.10	25.8
7		5.22	25.6
8		3.88	25.2
9		3.11	25.1
10		3.15	25.1
11	↓	3.14	25
12			
13			
14			
15			

Pt Cloudy
80°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. <u>Upstream</u> Daily Profile Log

Date: 7-17-06 Time: 0830

Depth (meters)	Turbine Unit #	Dissolved Oxygen	Temperature
Surface		1.70	25.3
1		1.58	25.3
2		1.59	25.3
3		1.67	25.3
4		1.97	25.1
5		2.00	25.4
6		1.62	25.3
7		.80	24.9
8		.28	24.6
9		.51	24.3
10		.48	24.4
11		.35	24.4
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

CFS 1010
Sunney
75°

Date: 07-24-06 Time: 0845

Depth (meters)	Turbine Unit #	Dissolved Oxygen	Temperature
Surface		3.61	25.6
1		3.55	25.7
2		3.55	25.8
3		3.45	25.7
4		3.02	25.7
5		2.85	25.6
6		2.94	25.6
7		1.43	25.6
8		0.51	25.4
9		0.47	25.4
10		0.43	25.4
11	↓	0.36	25.4
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

89°
Sunny
7000 CFS

Date: 7-25-06 Time: 1330

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		4.79	25.9
1		4.38	25.9
2		4.90	25.9
3		4.80	25.8
4		4.74	25.9
5		4.23	25.8
6		3.71	25.8
7		2.70	25.7
8		1.38	25.6
9		1.32	25.6
10		1.23	25.6
11		1.23	25.6
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

12 Cloudy Lt rain 72° 1400 CFS

Date: 07-26-06 Time: 0800

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		5.15	25.8
1		5.02	25.8
2		5.01	25.9
3		5.25	25.9
4		5.51	25.9
5		5.48	25.9
6		5.36	25.9
7		1.66	25.6
8		4.01	25.8
9		5.56	25.7
10		4.78	25.7
11		2.86	25.7
12			
13			
14			
15			

57°
Sunny [redacted]
CFS 2900

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 7-27-06 Time: 1240

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		10.45	28.8
1		9.51	28.9
2		10.57	29.0
3		7.07	26.6
4		4.87	26.0
5		6.09	25.9
6		4.59	25.9
7		3.89	25.8
8		3.74	25.7
9		3.78	25.7
10		3.55	25.7
11	↓	3.77	25.8
12			
13			
14			
15			

Foggy
63°
calm
CFS 2700

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 7-26-06 Time: 0730

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		5.60	25.9
1		5.68	26.0
2		5.70	26.0
3		6.21	26.0
4		6.42	26.0
5		6.29	26.0
6		3.43	25.8
7		4.74	26.0
8		3.14	25.9
9		3.81	25.9
10		3.80	25.9
11		3.78	25.9
12			
13			
14			
15			

Sunny
calm
cfs 2220
83°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 1/31/06 Time: 0930

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		9.60	27.9
1		9.80	28.0
2		8.90	"
3		10.10	"
4		10.23	27.8
5		6.01	27.1
6		1.98	26.4
7		.20	25.7
8		.13	25.1
9		13	"
10		.13	25.0
11		.11	25.1
12			
13			
14			
15			

Sunny

sunny
slight breeze
2220 cfs
84°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8/1/06 Time: 0930

Depth (meters)	Turbine Unit #	Dissolved Oxygen	Temperature
Surface	#5	5.63	27.4
1		5.53	27.5
2		5.47	27.5
3		5.94	27.5
4		4.21	27.3
5		3.12	27.1
6		.56	26.2
7		.52	26.2
8		.14	25.3
9		.20	25.1
10		.20	25.0
11		.19	24.9
12			
13			
14			
15			

-changed membrane, (bubble) 1100 2006-08-01. RLDV.

Lt Rain
calm
3200 cfs

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8/2/06 Time: 0745

Depth (meters)	Turbine Unit #	Dissolved Oxygen	Temperature
Surface	# 5 running	5.17	27.7
1		5.17	27.8
2		5.05	27.8
3		5.18	27.8
4		5.55	27.9
5		5.39	27.8
6		4.23	27.8
7		4.87	27.8
8		5.34	27.8
9		5.39	27.8
10		5.39	27.8
11		5.36	27.8
12			
13			
14			
15			

Clear
calm
3200 cfs
70°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-3-06 Time: 0830

Depth (meters)	Turbine Unit #	Dissolved Oxygen	Temperature
Surface	#5 running	4.65	27.7
1		4.12	27.6
2		4.35	27.8
3		4.62	27.8
4		4.85	27.9
5		4.93	27.9
6		4.94	27.9
7		4.95	27.9
8		5.08	27.9
9		5.04	27.9
10		5.00	27.9
11		4.95	27.9
12			
13			
14			
15			

Clear
Calm
2
65°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-4-06 Time: 0730

Depth (meters)	Turbine Unit # #5 running	Dissolved Oxygen	Temperature
Surface		3.24	27.8
1		3.65	28.1
2		3.55	28.2
3		3.66	28.2
4		3.81	28.2
5		4.06	28.2
6		3.88	28.2
7		3.87	28.2
8		3.87	28.2
9		3.88	28.2
10		3.89	28.2
11		3.91	28.2
12			
13			
14			
15			

CLEAR
CALM
75°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-17-06 Time: 1100

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		5.10	27.8
1		5.13	27.8
2		5.02	27.8
3		5.30	27.8
4		5.27	27.7
5		4.77	27.6
6		4.00	27.5
7		4.00	27.5
8		3.92	27.4
9		3.97	27.4
10		4.08	27.5
11		4.06	27.4
12			
13			
14			
15			

PT CLOUDY
CALM
72°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-8-06 Time: 0930

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		4.21	27.2
1		4.08	27.3
2		4.22	27.3
3		4.22	27.3
4		4.37	27.3
5		4.74	27.4
6		4.74	27.3
7		4.73	27.4
8		4.70	27.3
9		4.47	27.3
10		4.59	27.4
11		4.50	27.3
12			
13			
14			
15			

PT. CLDY
@ALL
70°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-9-06 Time: 0930

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		5.80	26.7
1		4.86	27.3
2		5.52	27.3
3		5.30	27.3
4		5.55	27.3
5		5.65	27.3
6		5.54	27.2
7		4.35	27.1
8		4.28	27.1
9		4.30	27.1
10		4.27	27.1
11		3.60	27.0
12			
13			
14			
15			

CLOUDY
CALM
74°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-10-06 Time: 0930

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		4.50	26.8
1		3.96	26.8
2		4.01	26.8
3		4.05	26.8
4		4.16	26.8
5		4.20	26.8
6		4.30	26.8
7		4.25	26.9
8		4.27	26.9
9		4.25	26.9
10		4.17	26.9
11		4.05	26.9
12			
13			
14			
15			

@ CLEAR
CALM
72°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-11-06 Time: 0930

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		7.34	26.5
1		7.05	26.5
2		7.09	26.5
3		7.08	26.5
4		7.19	26.5
5		7.26	26.5
6		7.56	26.5
7		7.32	26.5
8		7.47	26.5
9		7.65	26.5
10		7.60	26.5
11		7.58	26.5
12			
13			
14			
15			

Cloudy
Calm
65°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-14-2006 Time: 08.00

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		5.26	25.4
1		4.88	25.5
2		5.04	25.5
3		5.31	25.6
4		5.44	25.6
5		5.34	25.6
6		5.36	25.6
7		5.14	25.5
8		4.67	25.5
9		5.47	25.5
10		5.58	25.5
11		5.55	25.5
12			
13			
14			
15			

Sunny
60°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-15-06 Time: 8:30

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		6.05	25.3
1		6.14	25.4
2		6.19	25.4
3		6.44	25.4
4		6.09	25.4
5		5.93	25.4
6		5.89	25.4
7		5.12	25.3
8		2.60	25.1
9		3.51	25.1
10		2.87	25.1
11		3.79	25.1
12			
13			
14			
15			

Sunny

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-16-2006 Time: 11:00

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		7.70	26.2
1		8.35	26.3
2		8.40	26.4
3		8.72	26.5
4		7.74	25.3
5		5.25	25.1
6		5.15	25.1
7		4.97	25.1
8		4.91	25.0
9		2.84	25.0
10		3.46	25.0
11		3.94	25.0
12			
13			
14			
15			

[redacted]

PM. Cloudy
62°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-17-06 Time: 7:41

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		4.46	24.5
1		4.26	24.7
2		4.41	24.8
3		4.68	24.8
4		4.66	24.8
5		4.64	24.8
6		3.45	24.8
7		1.99	24.7
8		2.45	24.7
9		2.46	24.7
10	↓	2.43	24.7
11	↓	2.44	24.7
12			
13			
14			
15			

Sunny
65°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. <u>Upstream</u> Daily Profile Log

Date: 8-18-06 Time: 7:50

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		4.36	24.4
1		4.12	24.5
2		4.38	24.5
3		4.88	24.5
4		4.47	24.5
5		4.45	24.5
6		3.96	24.5
7		3.85	24.5
8		3.89	24.5
9		4.10	24.5
10		3.86	24.5
11		3.66	24.5
12			
13			
14			
15			

Clear 66°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-21-06 Time: 9:50 Am

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		6.63	24.5
1		7.15	24.8
2		7.06	24.8
3		7.28	24.8
4		7.76	24.9
5		5.80	24.5
6		3.91	24.3
7		3.94	24.3
8		3.31	24.2
9		3.24	24.2
10		3.27	24.2
11		3.03	24.2
12			
13			
14			
15			

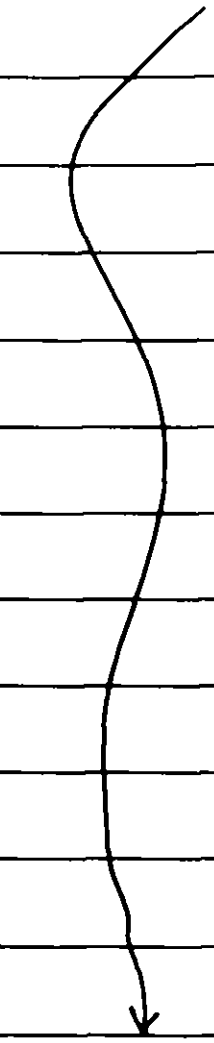
yesterday high 80°
Expected today 78°

3060 cfs

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-22-06 Time: 8:20

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		3.00	23.8
1		2.87	23.9
2		2.88	24.0
3		2.91	24.1
4		2.88	24.1
5		3.14	24.1
6		3.10	24.1
7		3.17	24.1
8		3.46	24.1
9		3.46	24.1
10		3.20	24.0
11		2.83	24.0
12			
13			
14			
15			



Clear 64°

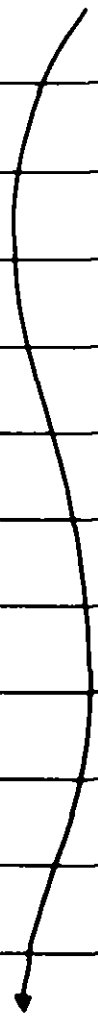
3050 cfs

Expected Today 74°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-23-06 Time: 0830

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		7.16	24.4
1		7.06	24.5
2		7.40	24.5
3		7.80	24.5
4		8.03	24.6
5		7.91	24.6
6		7.87	24.5
7		4.63	24.2
8		3.93	24.2
9		4.68	24.2
10		4.63	24.2
11		4.66	24.2
12			
13			
14			
15			



Cloudy 60°

3090 cfs

yesterday High 83°

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-24-06 Time: 0820

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		7.53	24.3
1		6.83	24.6
2		6.89	24.6
3		7.13	24.7
4		7.39	24.6
5		7.10	24.6
6		6.92	24.6
7		6.50	24.5
8		5.05	24.3
9		6.77	24.6
10		6.80	24.6
11		6.83	24.6
12			
13			
14			
15			

Cloudy 68°

yesterday high 83°

1.78 Precip

4930 cfs

cloudy, Kaiwi west breeze

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 08-25-06 Time: 0810

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature 68°
Surface		5.43	24.1
1		5.31	24.2
2		5.75	24.2
3		5.64	24.2
4		5.67	24.2
5		5.61	24.2
6		5.57	24.2
7		5.46	24.2
8		5.43	24.2
9		5.48	24.2
10		5.50	24.2
11	✓	5.49	24.2
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

68°
cloudy
lt rain

Date: 08-28-06 Time: 12 40

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		5.08	23.7
1		4.96	23.7
2		4.70	23.7
3		5.04	23.7
4		4.90	23.7
5		4.80	23.7
6		4.77	23.7
7		4.77	23.7
8		5.16	23.7
9		5.15	23.7
10		5.10	23.7
11		4.93	23.7
12			
13			
14			
15			

Pt. Cloudy
calm
60°
CFS 4460

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 08-29-06 Time: 0825

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		4.72	23.3
1		4.59	23.4
2		4.47	23.4
3		4.57	23.4
4		4.66	23.4
5		4.64	23.4
6		4.72	23.4
7		4.58	23.4
8		4.78	23.4
9		4.79	23.4
10		4.73	23.4
11		4.80	23.4
12			
13			
14			
15			

EAST WIND

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 8-30-06 Time: 6:42

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		6.44	23 5
1		6.20	23.5
2		6.15	23 5
3		6.30	23 5
4		6.51	23 5
5		6.48	23.6
6		6.49	23.5
7		6.52	23.5
8		6.72	23.5
9		6.71	23.5
10		6.67	23.5
11		6.68	23 5
12			
13			
14			
15			

Sunny
East Breeze
68°
2300 CFS

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 08-31-06 Time: 0950

Depth (meters)	Turbine Unit #	Dissolved Oxygen	Temperature
Surface	5	6.32	23.1
1		6.00	23.1
2		6.00	23.1
3		6.08	23.1
4		6.19	23.1
5		6.41	23.1
6		6.39	23.1
7		6.41	23.1
8		6.29	23.1
9		6.45	23.1
10		6.46	23.1
11		6.40	23.1
12			
13			
14			
15			

Sunny
NE Breeze
70°
4000 CFS

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 09-01-06 Time: 0945

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		6.90	22.8
1		6.55	22.8
2		6.55	22.8
3		6.68	22.8
4		6.88	22.8
5		7.07	22.8
6		6.84	22.8
7		7.16	22.8
8		7.31	22.8
9		7.52	22.8
10		7.47	22.8
11		7.47	22.8
12			
13			
14			
15			

Sunny
62
4660 CFS

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 9/5/06 Time: 9:00

Depth (meters)	Turbine Unit #	Dissolved Oxygen	Temperature
Surface		7.62	22.4
1		7.24	22.6
2		7.20	22.6
3		7.28	22.6
4		7.16	22.2
5		7.15	22.0
6		6.70	21.8
7		6.83	21.7
8		6.68	21.2
9		6.28	21.1
10		7.02	21.0
11		7.17	21.0
12			
13			
14			
15			

Sunny
64

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 9-8-06 Time: 1030

Depth (meters)	Turbine Unit # 1 5	Dissolved Oxygen	Temperature
Surface		8.40	21.2
1		8.37	20.7
2		8.30	[illegible]
3		8.7	[illegible]
4		8.14	[illegible]
5		8.5?	[illegible]
6		8.55	21.9
7		8.63	21.?
8		[illegible]	21.?
9		8.70	21.?
10		8.65	21.9
11		8.70	21.5
12			
13			
14			
15			

Sunny
65°
2760

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 9/[illegible]/06 Time: 1000

Depth (meters)	Turbine Unit # #5 running	Dissolved Oxygen	Temperature
Surface		10.80	22.7
1		10.[illegible]	22.[illegible]
2		[illegible].[illegible]0	22.[illegible]
3		[illegible].05	22.[illegible]
4		11.23	[illegible].[illegible]
5		8.50	22.5
6		7.00	22.[illegible]
7		5.70	[illegible].[illegible]
8		4.62	[illegible].[illegible]
9		4.73	[illegible].[illegible]
10		4.61	21.8
11		4.52	21.[illegible]
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Sunny
76°

Date: 9/6/06 Time: 0950

Depth (meters)	Turbine Unit # Spillway	Dissolved Oxygen	Temperature
Surface		6.19	21.7
1		6.41	21.8
2		6.43	21.8
3		6.53	21.8
4		6.54	21.8
5		6.62	21.7
6		5.49	21.7
7		5.50	21.7
8		5.94	21.7
9		6.10	21.7
10		5.20	21.6
11	✓	5.34	21.7
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

CLOUDY
KF
54

Date: 9-11-06 Time: 11 30

Depth (meters)	Turbine Unit # 5 Running	Dissolved Oxygen	Temperature
Surface		8.63	20.3
1		8.46	20.3
2		7.94	20.3
3		7.86	20.3
4		7.90	20.3
5		8.10	20.3
6		8.46	20.3
7		8.40	20.3
8		8.41	20.3
9		8.35	20.3
10		8.36	20.3
11	↓	8.39	20.3
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 9 12-06 Time:

Depth (meters)	Turbine Unit #	Dissolved Oxygen	Temperature
Surface		8.35	19.7
1		7.78	
2		7.74	
3		7.68	
4		7.76	19.7
5		7.31	
6		3.00	
7		3.12	
8		8.12	
9		8.04	
10		8.00	
11		8.05	
12			
13			
14			
15			

19.7

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Cloudy
54°
4500 CFS

Date: 1-3-06 Time: 0815

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		8.44	19.1
1		7.91	〃
2		7.75	〃
3		7.73	〃
4		7.79	〃
5		7.74	〃
6		8.00	〃
7		7.72	〃
8		7.90	〃
9		7.82	〃
10		7.76	〃
11		7.75	〃
12			
13			
14			
15			

19.1

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 4-14-06 Time: 1000

Depth (meters)	Turbine Unit # 5	Dissolved Oxygen	Temperature
Surface		8.98	
1		7.95	
2		7.96	
3		7.85	
4		7.83	
5		5.01	
6		8.38	
7		1.32	
8		1.36	
9		1.04	
10		0.95	
11		0.90	
12			
13			
14			
15			

Prairie du Sac Hydroelectric Project
2006 DO/Temp. Upstream Daily Profile Log

Date: 9-15-06 Time: 09[illegible]

Depth (meters)	Turbine Unit #	Dissolved Oxygen	Temperature
Surface		10.28	8.[illegible]
1		10.23	[illegible].71
2		9.93	8.[illegible]
3		10.04	[illegible]
4		10.12	11.[illegible]
5		10.23	[illegible]
6		10.45	[illegible]
7		8.40	13.3
8		7.84	[illegible].3
9		7.37	[illegible].2
10		7.28	[illegible].2
11		[illegible]	[illegible].2
12			
13			
14			
15			

APPENDIX C

FIELD SHEETS OF DOWNSTREAM MANUAL MEASUREMENTS

Prairie du Sac Hydroelectric Project
2006 *Downstream* Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 06-26-06			Time: 1100			
	Shore Side Unit # 1		Mid Unit # 5 running		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	23.2	6.76	23.2	7.03	23.1	6.72
Notes	cloudy, light rain					

Date: 06-27-06			Time: 10:30			
	Shore Side Unit # 1		Mid Unit # 5 running		Lock Side Unit # 5	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	22.9	6.22	23.0	7.10	20.3	4.55
Notes	sunney, 21.2c					

Date: 06-28-06			Time: 0730			
	Shore Side Unit # 1		Mid Unit # 5 running		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	22.6	5.90	22.7	5.50	22.6	5.58
Notes	clear, sunney		18.9 c			

cloudy, light rain

Prairie du Sac Hydroelectric Project
2006 Downstream Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 06-29-06			Time: 0800			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	22.4	5.14	22.3	5.36	21.8	4.29
Notes	Sunny Temp 20.6					

Date: 06-30-06			Time: 0800			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	22.6	4.81	22.0	4.07	21.2	3.20
Notes	Sunny, Temp 19.6 C					

Date: 07-03-06			Time: [redacted] 0730			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	22.7	6.15	22.5	5.75	22.5	5.26
Notes	Partly cloudy 19.9 c					

Prairie du Sac Hydroelectric Project
2006 *Downstream* Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 7-5-06 Time: @ 8:00

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	23.9	7.72	23.9	8.52	23.9	6.92

Notes: Sunny 20.9

Date: 7-6-06 Time: 10:00

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Rain Water Temp. (°C)	Mid Unit # 5 Rain D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	24.2	7.50	23.8	6.47	23.5	5.00

Notes: Sunny 22.5

Date: 7-7-06 Time: 0930

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	24.2	7.75	23.9	6.10	23.6	4.60

Notes: Sunny 25.0

Prairie du Sac Hydroelectric Project
2006 *Downstream* Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 7-10-06 Time: 10:30

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	29.8	7.09	29.7	6.94	29.8	5.20

Notes: Cloudy 20.3

Date: 7-11-06 Time: 9:00

Depth (m)	Shore Side Unit # Water Temp. (°C)	Shore Side Unit # D.O. (ppm)	Mid Unit # Water Temp. (°C)	Mid Unit # D.O. (ppm)	Lock Side Unit # Water Temp. (°C)	Lock Side Unit # D.O. (ppm)
Mid-depth	25.2	7.04	25.0	6.63	24.6	5.62

Notes: Rain

Date: 7-12-06 Time: 9:00

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	24.6	6.05	24.5	5.70	24.3	4.75

Notes: Cloudy 23.1

Prairie du Sac Hydroelectric Project
2006 *Downstream* Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 7-13-06			Time:			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	25.4	6.90	25.1	5.70	24.6	3.78
Notes						
Partly Cloudy 25.2						

Date: 7-19-06			Time:			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	24.6	3.11	25	5.19	22.5	2.96
Notes						
Cloudy						

Date: 07-24-06			Time: 0930			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	25.5	2.82	25.5	4.90	25.1	2.24
Notes	75° CFS 1010					
Sunney, Unit 1 running due to work on #2 Bus						

Prairie du Sac Hydroelectric Project
2006 *Downstream* Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 07-25-06 Time: 1715

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	25.6	3.35	25.6	2.93	25.5	1.85

Notes: sunny 89° 4000 CFS
Unit 5 + 8 running

Date: 07-26-06 Time: 0815

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	25.7	3.85	25.5	3.44	25.4	3.12

Notes: cloudy, Lt rain, 1400 CFS, 72°

Date: 07-27-06 Time: 1300

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	26.0	5.91	25.9	4.50	25.7	3.53

Notes: Sunny, 87°, 2900 CFS

Prairie du Sac Hydroelectric Project
2006 Downstream Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 07-28-06 Time: 0815

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	25.8	6.25	25.8	3.26	25.3	3.03

Notes: Foggy, 63°, calm, CFS 2700

Date: 07-31-06 Time: 1000

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	27	6.45	26.6	4.33	26.4	2.70

Notes: Sunny, calm, cfs 2220, 83°
5 running

Date: 8-1-06 Time: 0930

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	27.0	5.04	26.4	2.60	26.2	[illegible] 2.05

Notes: Sunny # 5 running 84°

Prairie du Sac Hydroelectric Project
2006 Downstream Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 7/2/06			Time: 0830			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	27.3	7.18	27.0	2.82	25.8	1.75
Notes	pt Cloudy calm cfs 3200		# 5 running			

Date: 8/3/06			Time: 0830			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	27.5	5.00	27.4	4.02	27.7	5.60
Notes	clear calm cfs 3200		#5 running			

5.60

Date: 8/4/06			Time: 0730			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	28.1	6.65	27c	5.08	28.0	5.02
Notes	Sunny 65° 2900 cfs		# 5 running			

Prairie du Sac Hydroelectric Project
2006 Downstream Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 8-6-06			Time: 1130			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	27.6	5.08	27.5	3.83	27.4	4.23
Notes	CLEAR 75° 6000 CFS		#5 RUNNING #1 RUNNING			

Date: 8-8-06			Time: 1000			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	27.3	4.50	27.3	4.35	27.3	3.92
Notes	PT CLDY 72° 6870 CFS		#5 RUNNING # 1 RUNNING RUNNING			

Date: 8-9-06			Time: 0945			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	27.1	4.26	27.0	3.60	27.0	3.67
Notes	PT CLDY 70° 4130 CFS		#1 & #5 RUNNING			

Prairie du Sac Hydroelectric Project
2006 *Downstream* Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 8-10-06			Time: 0945			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	26.9	4.85	26.8	3.68	26.8	4.05
Notes	Cloudy 75° 4200 cfs		#1 & 5 Running			

Date: 8-11-06			Time: 0945			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	26.5	7.69	26.5	7.70	26.4	6.66
Notes	CLEAR 72° 5500 cfs		#1 & 5 Running			

Date: 8-14-2006			Time: 08:00			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	25.9	5.50	25.9	4.40	25.7	3.75
Notes	Cloudy 65° 2150 cfs		#1 & 5 Running			

Prairie du Sac Hydroelectric Project
2006 *Downstream* Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 8-15-06			Time: 09:30			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	25.4	6.42	25.3	5.28	25.1	4.19
Notes	CFS 3860		Sunny 62°		1+5+6 Running	

Date: 8-16-06			Time: 11:30			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	25.2	5.66	25.1	5.55	25.0	4.05
Notes			Sunny		1-2+5 Running	

Date: 8-17-06			Time: 8:00			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	24.7	4.94	24.8	3.79	24.6	2.96
Notes	CFS 2290		PT Cloudy 62°		1+5 Running	

Prairie du Sac Hydroelectric Project
2006 *Downstream* Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 8-18-06			Time: 8:15			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	24.5	5.56	24.5	5.49	24.2	3.65
Notes			Sunny		1+5 Running	

Date: 8-21-06			Time: 10:30			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	24.3	4.79	24.3	5.12	24.3	3.58
Notes			Sunny 3080 cfs		1+5 Running	

Date: 8-22-06			Time: 0835			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	24.0	4.11	24.1	3.51	23.9	3.25
Notes			Sunny 3050 cfs		1+5 Running	

Prairie du Sac Hydroelectric Project
2006 *Downstream* Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 8-23-06			Time: 0845			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	24.2	4.72	24.1	3.50	24.1	3.80
Notes			Cloudy 3090 cfs		1+5 Running	

Date: 8-24-06			Time: 0840			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	24.5	6.54	24.4	5.15	24.5	6.63
Notes			1.7B Precip cloudy 4930 cfs		1+2+5+8 Running	

Date: 08-25-06			Time: 0830			
	Shore Side Unit #		Mid Unit #		Lock Side Unit #	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	24.2	5.70	24.2	6.67	23.2	3.64
Notes	cloudy, Rain, west Breeze, 68°					

Prairie du Sac Hydroelectric Project
2006 *Downstream* Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 08-28-06			Time: 1300			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	23.7	4.89	23.7	5.00	23.7	4.30
Notes	lt. rain, cloudy 68° 4800 CFS					

Date: 08-29-06			Time: 0940			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	23.4	4.60	23.4	5.12	23.4	4.14
Notes	Pt. Cloudy calm 60° CFS 4460					

Date: 8-30-06			Time: 0655			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	23.5	5.93	23.5	6.99	23.5	6.48
Notes	Cloudy BASTwind					

Prairie du Sac Hydroelectric Project
2006 Downstream Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 08-3-1-06	Time: 1000					
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	23.1	6.65	23.1	6.31	24.4	5.45
Notes	Sunney Fast breeze 68° 2300 CFS					

Date: 09-01-06	Time: 1000					
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	22.9	7.05	22.8	7.60	22.7	6.31
Notes	Sunney NE Breeze 70° 4000 CFS					

Date:	Time:					
	Shore Side Unit #		Mid Unit #		Lock Side Unit #	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth						
Notes						

Prairie du Sac Hydroelectric Project
2006 Downstream Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 9/6/06			Time: 10 40			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	21.9	9.87	22 0	9 .87	22.0	7.70
Notes	Sunny 3100 cfs 65°		#1 & #5 running			

Date: 9/7/06			Time: 10.30			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	21.9	5.96	21.9	5.30	21.8	4.45
Notes	Sunny 2760 cfs 65°		#1 & 5 running			

Date: 9/8/06			Time:			
	Shore Side Unit # 1		Mid Unit # 5		Lock Side Unit # 8	
Depth (m)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)	Water Temp. (°C)	D.O. (ppm)
Mid-depth	21.7	7.05	21.7	6.85	21.7	5.30
Notes	70° Sunny		#1 & 5 running			

Prairie du Sac Hydroelectric Project
2006 Downstream Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 9-11-06 Time: 11 30

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	20.3	8.71	20.3	8.77	20.3	7.66

Notes: CLOUDY RAIN 58° — # 1-3-5 RUNNING 3900 CFS

Date: 9-12-06 Time: 1230

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	19.6	9.06	19.7	8.98	19.7	8.97

Notes: CLOUDY RAIN 57° — # 1-3-5-8 RUNNING 5010 CFS

Date: 9-13-06 Time: 0945

Depth (m)	Shore Side Unit # Water Temp. (°C)	Shore Side Unit # D.O. (ppm)	Mid Unit # Water Temp. (°C)	Mid Unit # D.O. (ppm)	Lock Side Unit # Water Temp. (°C)	Lock Side Unit # D.O. (ppm)
Mid-depth	19.2	8.27	19.1	8.20	19.1	8.03

Notes: CLOUDY 54° — # 1-3-5 RUNNING 4000 CFS

Prairie du Sac Hydroelectric Project
2006 Downstream Daily Dissolved Oxygen / Water Temperature Monitoring

Date: 9-14-06 Time: 1030

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	<18.7	8.50	18.6	7.94	18.7	8.21

Notes: FOG 60° # 1-3-5 RUNNING 5010 CFS

Date: 9-15-06 Time: 2145

Depth (m)	Shore Side Unit # 1 Water Temp. (°C)	Shore Side Unit # 1 D.O. (ppm)	Mid Unit # 5 Water Temp. (°C)	Mid Unit # 5 D.O. (ppm)	Lock Side Unit # 8 Water Temp. (°C)	Lock Side Unit # 8 D.O. (ppm)
Mid-depth	18.3	9.30	18.1	8.04	18.2	8.32

Notes: CLEAR 60°

Date: Time:

Depth (m)	Shore Side Unit # Water Temp. (°C)	Shore Side Unit # D.O. (ppm)	Mid Unit # Water Temp. (°C)	Mid Unit # D.O. (ppm)	Lock Side Unit # Water Temp. (°C)	Lock Side Unit # D.O. (ppm)
Mid-depth						

Notes:

APPENDIX D

ANALYTICAL TEST RESULTS

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

Client: Natural Resources Consulting
Attn: Rachel Veltman

119 South Main Street #D
Cottage Grove,WI 53527 8200

NLS Project: 100227
NLS Customer: 94176
Fax: 608 839 1995 Phone: 608 839 1998

Project: Prairie du Sac Hydro Dam/06-013

Prairie Du Sac Dam-Down Stream NLS ID: 413620
Ref. Line 1 COC 88235 Prairie du Sac Dam-Down Stream Matrix: SW
Collected: 08/01/06 11:24 Received: 08/02/06

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Nitrogen, ammonia as N (unfiltered)	0.21	mg/L	1	0.025	0.075	08/03/06	EPA 350.1	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 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

Reviewed by: Thomas Krueger

Authorized by:
R. T. Krueger
President