



Upper Peninsula Power Company

700 North Adams Street
P.O. Box 19001
Green Bay, WI 54307-9001
www.uppco.com

August 8, 2012

FERC Project No. 2506

Ms. Kimberly D. Bose, Secretary
The Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Dear Secretary Bose:

Notice of a Deviation from Water Quality Standards

Pursuant to Article 415 of the Project License and the Water Quality Monitoring Plan for Escanaba Dam 4, UPPCO is monitoring dissolved oxygen and temperature in the Escanaba River downstream of the Dam #4 powerhouse. As described in the License and the Water Quality Monitoring Plan, UPPCO is monitoring dissolved oxygen on a real-time basis to ensure that stream flows downstream of Dam No. 4, as measured immediately downstream, maintain a DO concentration of 7.0 mg/l when 1) river discharges are greater than or equal to the 95th percent exceedance flow and 2) when the facility is not augmenting flow. Data is collected at one-hour intervals continuously during the months of July and August. Please note that the water quality monitoring equipment has an accuracy of +/- 0.1 mg/l, per the manufacturer. Per the monitoring plan, UPPCO is correcting the dissolved oxygen monitoring data for calibration drift assuming a linear degradation of meter accuracy. Therefore, readings below 6.9 mg/l are potential deviations from the water quality standard. There is no water quality standard for temperature at the project.

Between July 23rd and July 31st there were two hourly readings below the dissolved oxygen water quality standard when the facility was not augmenting flow or providing aeration flow by releasing water through a spillway gate. The low DO readings occurred on July 27th following a 24-hour period of dissolved oxygen corrective action. Pursuant to the Water Quality Monitoring Plan, when DO corrective action is initiated, aeration flow is released through a spillway gate for a period of 24 hours or until the onset of a flow augmentation event. If dissolved oxygen levels are not above the water quality standard within 2 hours of ceasing aeration flow, DO corrective action is resumed.

Please note that on July 25th there is a drop in DO levels recorded between 12:00 and 13:00. The cause of the drop is likely due to an equipment malfunction. The DO monitoring equipment was cleaned and calibrated on the 25th between 11:00 and 12:00 EST. DO levels in the river at the time of

Ms. Kimberly Bose, Secretary

August 8, 2012

Page 2 of 2

calibration were fluctuating between 6.5 and 6.7 mg/l. Shortly after calibration, the monitor lost calibration and dropped to the levels recorded. On July 27th, the monitoring equipment was recalibrated. DO readings with a hand held meter at the time of meter calibration on the 27th indicated DO levels in the river were approximately 6.9 mg/l. Therefore, it is likely that the DO levels between July 25th and July 27th were at or below the water quality standard, but were not as low as the monitoring data indicates. Please note that the facility was either performing flow augmentation or DO corrective action during this time period.

The likely cause of the low dissolved oxygen readings is warm water temperature and low river flow. During this time period, daily average water temperatures ranged between 72°F and 78°F. It is important to note that the reservoir above Escanaba Dam 4 is being maintained approximately 4.67 feet below the license midpoint. In accordance with FERC approval, the reservoir is maintained at a lower elevation as a risk mitigation measure while UPPCO investigates seepage from the reservoir. Due to lower water levels in the reservoir, less cold water is available to mitigate water temperature downstream of the facility. Daily average river flow (as measured at USGS monitoring station 04059000 in Cornell, MI) ranged between 180 cfs and 351 cfs.

Attached please find a summary of temperature and dissolved oxygen monitoring data along with a summary of river flow data from the USGS station in Cornell for the month of July. UPPCO provided notice of the deviations to the Michigan Department of Natural Resources (MDNR), Michigan Department of Environmental Quality (MDEQ), and the U.S. Fish and Wildlife Service (FWS) by e-mail on August 3rd. A copy of the correspondence is attached. Should you have any questions or concerns, please do not hesitate to call Mr. Mark Metcalf at (920) 433-1833.

Sincerely,



Terry P. Jensky

Vice President - Generation Assets
Wisconsin Public Service Corporation

Enc: August 3, 2012 E-mail Notification with Water Quality Monitoring Data

cc:	Mr. Gil Snyder, WPSC - D2	Mr. Robert Meyers, UPPCO - UISC
	Mr. Shawn Puzen, IBS - D2	Mr. Bill Taft - MDEQ
	Ms. Joan Johaneck, WPSC - D2	Mr. Mitch Koetje - MDEQ
	Mr. Dave Giesler, IBS - D2	Mr. Burr Fisher - FWS
	Mr. John Myers, IBS - D2	Mr. Kyle Kruger - MDNR
	Mr. Keith Moyle, UPPCO - UISC	Mr. John Zygaj, FERC - CRO
	Mr. Virgil Schlorke, UPPCO- UISC	

Escanaba River Hydroelectric Project

FERC Project No. 2506

Documentation of Agency Consultation

Metcalf, Mark W

From: Metcalf, Mark W
Sent: Friday, August 03, 2012 1:10 PM
To: 'Kruger, Kyle'; 'Taft, Bill '; 'Koetje, Mitch '; 'Burr Fisher '
Cc: Schlorke, Virgil E; Meyers, Robert J; Puzen, Shawn C
Subject: RE: Water quality monitoring - Escanaba Dam 4
Attachments: Dam 4 Temp Summary 2012.xlsx; Dam 4 DO Summary 2012.xlsx; Cornell flow data July 2012.pdf

Good afternoon,

Pursuant to Article 415 of the Project License and the water quality monitoring plan for Escanaba Dam 4, UPPCO is monitoring dissolved oxygen and temperature in the Escanaba River downstream of the Dam #4 powerhouse. As described in the License and the water quality monitoring plan, UPPCO is monitoring dissolved oxygen on a real-time basis to ensure that stream flows downstream of Dam No. 4, as measured immediately downstream, maintain a DO concentration of 7.0 mg/l when 1) river discharges are greater than or equal to the 95th percent exceedance flow and 2) when the facility is not augmenting flow. Data is collected at one-hour intervals continuously during the months of July and August. Please note that the water quality monitoring equipment has an accuracy of +/- 0.1 mg/l, per the manufacturer. Per the monitoring plan, UPPCO is correcting the dissolved oxygen monitoring data for calibration drift assuming a linear degradation of meter accuracy. Therefore, readings below 6.9 mg/l are potential deviations from the water quality standard. There is no water quality standard for temperature at the project.

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Please note that on July 25th there is a drop in DO levels recorded between 12:00 and 13:00. The cause of the drop is likely due to an equipment malfunction. The DO monitoring equipment was cleaned and calibrated on the 25th between 11:00 and 12:00 EST. DO levels in the river at the time of calibration were fluctuating between 6.5 and 6.7 mg/l. Shortly after calibration, the monitor lost calibration and dropped to the levels recorded. On July 27th, the monitoring equipment was recalibrated. DO readings with a hand held meter at the time of meter calibration on the 27th indicated DO levels in the river were approximately 6.9 mg/l. Therefore, it is likely that the DO levels between July 25th and July 27th were at or below the water quality standard, but were not as low as the monitoring data indicates. Please note that the facility was either performing flow augmentation or DO corrective action during this time period.

The likely cause of the low dissolved oxygen readings is warm water temperature and low river flow. During this time period, daily average water temperatures ranged between 72°F and 78°F. Daily average river flow (as measured at USGS monitoring station 04059000 in Cornell, MI) ranged between 180 CFS and 351 CFS. Attached please find a summary of temperature and dissolved oxygen monitoring data along with a summary of river flow data from the USGS station in Cornell for the month of July. Please feel free to contact me if you have any questions.

Thanks,
Mark

Mark Metcalf

Environmental Consultant - Air & Water | Integrys Business Support, LLC

920-433-1833 (Green Bay)

920-617-6046 (De Pere)

920-606-8432 *cell*

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Providing support for Integrys Energy Group, Integrys Energy Services, Integrys Transportation Fuels, Michigan Gas Utilities, Minnesota Energy Resources, North Shore Gas, Peoples Gas, Upper Peninsula Power Company and Wisconsin Public Service.

Mark Metcalf

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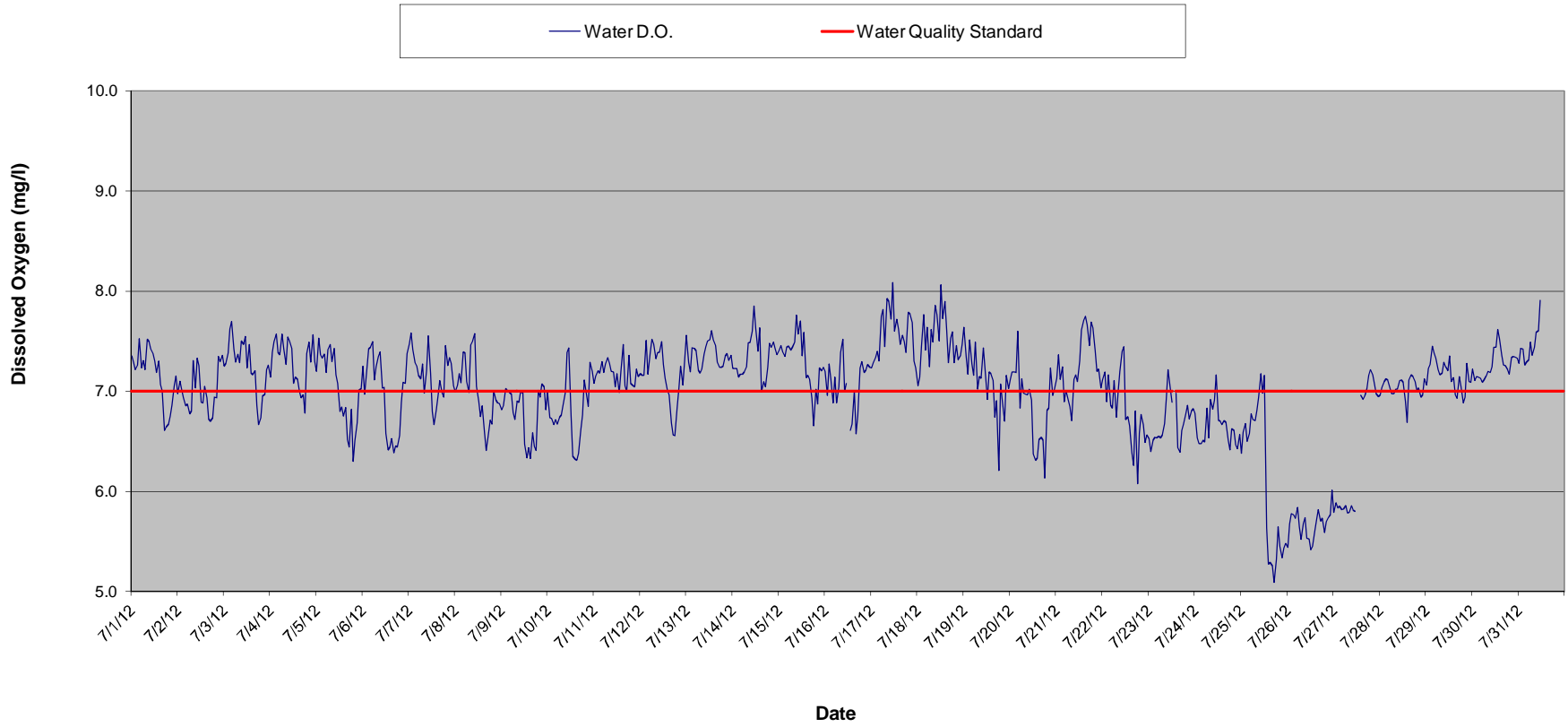
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Escanaba Dam 4 Dissolved Oxygen Summary - July 2012



Escanaba Dam 4 - July 2012 Dissolved Oxygen Monitoring Data

Time HHMMSS	07/01/12	07/02/12	07/03/12	07/04/12	07/05/12	07/06/12	07/07/12	07/08/12	07/09/12	07/10/12	07/11/12	07/12/12	07/13/12	07/14/12	07/15/12	07/16/12
0	7.4	7.0	7.2	7.1	7.2	7.3	7.5	7.0	6.8	7.0	7.1	7.2	7.6	7.2	7.4	7.2
10000	7.3	7.1	7.3	7.4	7.5	7.0	7.6	7.1	6.9	6.7	7.2	7.2	7.3	7.2	7.5	7.0
20000	7.2	7.0	7.4	7.5	7.4	7.2	7.4	7.2	7.0	6.7	7.2	7.2	7.2	7.2	7.4	7.3
30000	7.3	6.9	7.6	7.6	7.3	7.4	7.3	7.1	7.0	6.7	7.2	7.5	7.4	7.1	7.3	7.1
40000	7.5	6.9	7.7	7.4	7.4	7.4	7.3	7.4	7.0	6.7	7.3	7.2	7.4	7.2	7.4	6.9
50000	7.2	6.9	7.4	7.4	7.2	7.5	7.2	7.4	7.0	6.7	7.2	7.4	7.4	7.2	7.4	7.1
60000	7.3	6.8	7.3	7.6	7.4	7.1	7.1	7.1	6.8	6.7	7.3	7.5	7.2	7.2	7.4	6.9
70000	7.2	6.8	7.4	7.4	7.5	7.2	7.3	7.0	6.7	6.8	7.3	7.5	7.2	7.2	7.4	7.0
80000	7.5	7.3	7.3	7.3	7.3	7.3	7.0	7.5	6.9	6.9	7.3	7.3	7.2	7.5	7.5	7.4
90000	7.5	7.0	7.5	7.5	7.4	7.4	7.2	7.5	6.9	7.0	7.2	7.4	7.4	7.5	7.8	7.5
100000	7.4	7.3	7.5	7.5	7.2	7.0	7.6	7.6	7.0	7.4	7.2	7.4	7.4	7.6	7.6	7.0
110000	7.4	7.3	7.5	7.4	7.1	7.0	7.2	7.1	7.0	7.4	7.0	7.5	7.5	7.8	7.7	7.1
120000	7.3	6.9	7.2	7.1	6.8	6.6	6.8	6.9	6.5	6.8	7.2	7.3	7.5	7.6	7.4	6.6
130000	7.2	6.9	7.5	7.1	6.8	6.4	6.7	6.7	6.3	6.3	7.0	7.1	7.6	7.4	7.6	6.6
140000	7.3	7.0	7.2	7.1	6.8	6.4	6.8	6.9	6.4	6.3	7.2	7.0	7.5	7.6	7.1	6.7
150000	7.1	6.9	7.2	7.0	6.8	6.5	6.9	6.6	6.3	6.3	7.5	7.0	7.5	7.0	7.2	7.0
160000	7.0	6.7	7.2	6.9	6.5	6.4	7.1	6.4	6.6	6.4	7.1	6.7	7.3	7.1	7.1	6.6
170000	6.6	6.7	6.9	7.0	6.4	6.5	7.0	6.5	6.4	6.6	7.0	6.6	7.2	7.0	6.9	6.8
180000	6.6	6.7	6.7	6.8	6.8	6.4	6.9	6.7	6.4	6.8	7.4	6.6	7.2	7.2	6.7	7.2
190000	6.7	6.9	6.7	7.4	6.3	6.6	7.5	6.7	7.0	7.1	7.1	6.8	7.3	7.5	7.0	7.3
200000	6.8	6.9	7.0	7.5	6.5	6.9	7.3	7.0	6.9	7.0	7.1	7.0	7.4	7.4	6.9	7.2
210000	6.9	7.3	7.0	7.3	6.7	7.1	7.3	6.9	7.1	6.8	7.0	7.2	7.4	7.5	7.2	7.2
220000	7.1	7.3	7.2	7.6	7.0	7.1	7.3	6.9	7.0	7.3	7.2	7.1	7.3	7.4	7.2	7.3
230000	7.1	7.4	7.3	7.3	7.0	7.4	7.1	6.9	6.8	7.2	7.1	7.3	7.4	7.4	7.2	7.2
Daily Max	7.5	7.4	7.7	7.6	7.5	7.5	7.6	7.6	7.1	7.4	7.5	7.5	7.6	7.8	7.8	7.5
Daily Min	6.6	6.7	6.7	6.8	6.3	6.4	6.7	6.4	6.3	6.3	7.0	6.6	7.2	7.0	6.7	6.6
Average	7.2	7.0	7.3	7.3	7.0	7.0	7.2	7.0	6.8	6.8	7.2	7.2	7.4	7.3	7.3	7.1

License Minimum Dissolved Oxygen: 7.0 mg/l

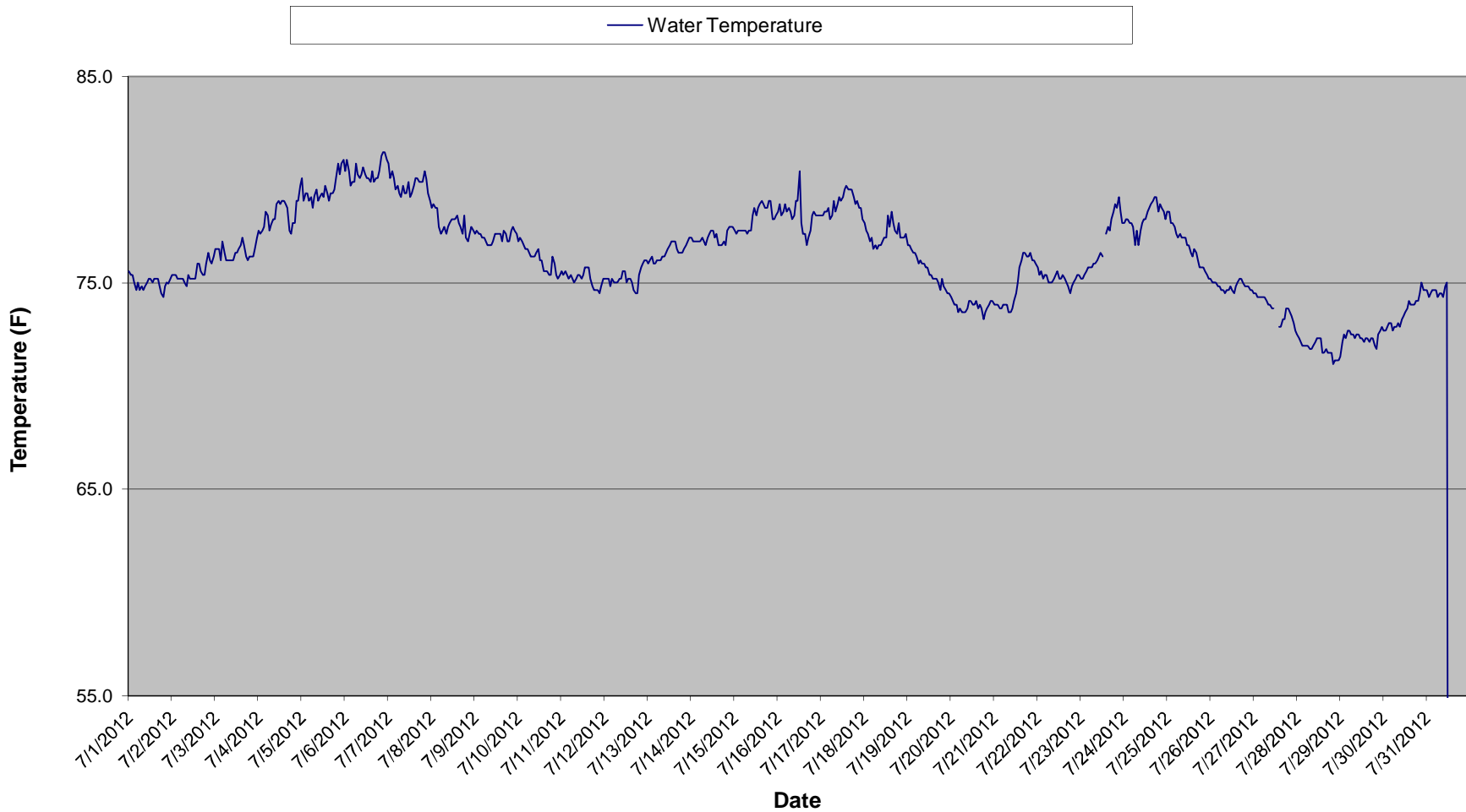
- Augmentation event.
- Extended refill after augmentation.
- Potential Deviations
- DO corrective action occurring. Aeration flow being released through gate.
- Aeration flow being released through gate.
- Missing data due to equipment maintenance.

Escanaba Dam 4 - July 2012 Dissolved Oxygen Monitoring Data

Time HHMMSS	07/17/12	07/18/12	07/19/12	07/20/12	07/21/12	07/22/12	07/23/12	07/24/12	07/25/12	07/26/12	07/27/12	07/28/12	07/29/12	07/30/12	07/31/12
0	7.2	7.1	7.6	7.1	7.1	7.1	6.5	6.8	6.4	5.4	5.8	7.0	7.1	7.2	7.3
10000	7.3	7.1	7.3	7.2	7.4	7.2	6.4	6.5	6.6	5.7	5.9	7.0	7.2	7.1	7.4
20000	7.3	7.4	7.2	7.2	7.1	6.9	6.5	6.5	6.7	5.8	5.8	7.1	7.3	7.1	7.4
30000	7.4	7.8	7.5	7.2	7.2	7.2	6.5	6.5	6.5	5.8	5.8	7.1	7.5	7.1	7.3
40000	7.3	7.4	7.3	7.6	6.9	6.9	6.5	6.5	6.6	5.7	5.8	7.1	7.4	7.1	7.3
50000	7.7	7.6	7.2	6.8	7.0	6.8	6.5	6.5	6.8	5.8	5.8	7.0	7.3	7.1	7.3
60000	7.8	7.2	7.5	7.1	6.9	7.1	6.5	6.8	6.7	5.6	5.9	7.0	7.2	7.1	7.5
70000	7.4	7.6	7.0	7.0	6.8	6.7	6.6	6.5	6.7	5.5	5.8	7.0	7.2	7.2	7.4
80000	7.9	7.5	7.1	7.0	6.7	7.0	6.7	6.9	6.8	5.7	5.8	7.0	7.2	7.2	7.4
90000	7.9	7.9	7.1	7.0	7.1	7.2	6.9	6.8	6.9	5.7	5.9	7.0	7.3	7.2	7.6
100000	7.7	7.8	7.4	7.0	7.2	7.4	7.2	6.9	7.2	5.5	5.8	7.1	7.2	7.2	7.6
110000	8.1	7.5	7.2	6.9	7.1	7.4	7.0	7.2	7.0	5.5	5.8	7.1	7.2	7.4	7.9
120000	7.6	8.1	6.9	6.4	7.3	6.7	6.9	6.7	7.2	5.4		7.1	7.4	7.4	0.0
130000	7.7	7.7	7.2	6.3	7.6	6.7		6.7	5.6	5.4		6.9	7.1	7.6	0.0
140000	7.6	7.9	7.2	6.3	7.7	6.7	7.0	6.7	5.3	5.6	7.0	6.7	7.1	7.5	0.0
150000	7.5	7.6	7.1	6.5	7.7	6.4	6.4	6.7	5.3	5.7	6.9	7.1	7.0	7.4	0.0
160000	7.6	7.3	6.7	6.5	7.7	6.3	6.4	6.7	5.3	5.8	7.0	7.2	6.9	7.3	0.0
170000	7.5	7.5	6.9	6.5	7.5	6.8	6.6	6.5	5.1	5.7	7.0	7.1	7.1	7.3	0.0
180000	7.4	7.6	6.2	6.1	7.7	6.1	6.7	6.4	5.3	5.7	7.2	7.1	7.0	7.2	0.0
190000	7.8	7.3	7.1	6.8	7.6	6.6	6.8	6.6	5.6	5.6	7.2	7.0	6.9	7.2	0.0
200000	7.8	7.5	6.9	6.8	7.4	6.8	6.9	6.6	5.5	5.7	7.2	7.0	6.9	7.3	0.0
210000	7.7	7.3	6.7	7.2	7.2	6.7	6.7	6.5	5.3	5.7	7.1	6.9	7.3	7.3	0.0
220000	7.3	7.4	7.2	7.0	7.2	6.5	6.8	6.4	5.4	5.8	7.0	7.0	7.1	7.3	0.0
230000	7.2	7.5	7.0	7.0	7.0	6.6	6.8	6.6	5.5	6.0	6.9	7.1	7.1	7.3	0.0
Daily Max	8.1	8.1	7.6	7.6	7.7	7.4	7.2	7.2	7.2	6.0	7.2	7.2	7.5	7.6	7.9
Daily Min	7.2	7.1	6.2	6.1	6.7	6.1	6.4	6.4	5.1	5.4	5.8	6.7	6.9	7.1	0.0
Average	7.6	7.5	7.1	6.9	7.3	6.8	6.7	6.6	6.1	5.7	6.4	7.0	7.2	7.3	3.7

- Augmentation event.
- Extended refill after augmentation.
- Potential Deviations
- DO corrective action occurring. Aeration flow being released through gate.
- Aeration flow being released through gate.
- Missing data due to equipment maintenance.
- 2 hour period after 24-hours DO corrective action

Escanaba Dam 4 Water Temperature - July 2012



Escanaba Dam 4 - July 2012 Temperature Monitoring Data

HHMMSS	07/01/12	07/02/12	07/03/12	07/04/12	07/05/12	07/06/12	07/07/12	07/08/12	07/09/12	07/10/12	07/11/12	07/12/12	07/13/12	07/14/12	07/15/12	07/16/12
0	75.6	75.4	76.6	77.5	80.1	80.4	80.8	78.6	77.4	77.0	75.6	75.2	75.9	77.2	77.5	78.4
10000	75.4	75.4	76.6	77.4	79.0	81.0	80.1	78.8	77.5	77.2	75.4	75.2	76.1	77.0	77.4	78.8
20000	75.4	75.4	76.6	77.5	79.3	80.4	80.4	78.6	77.4	77.0	75.6	75.2	76.3	77.0	77.5	78.3
30000	75.0	75.2	76.1	77.7	79.3	79.7	80.1	78.6	77.4	76.8	75.4	74.8	75.9	77.0	77.5	78.4
40000	74.7	75.2	77.0	78.4	79.0	79.9	79.5	77.7	77.2	76.6	75.2	75.2	75.9	77.0	77.5	78.8
50000	75.0	75.2	76.5	78.3	79.2	79.9	79.7	77.4	77.2	76.6	75.4	75.0	76.1	77.0	77.5	78.4
60000	74.7	75.2	76.1	77.5	78.6	80.8	79.3	77.5	77.0	76.5	75.2	75.0	76.1	77.2	77.5	78.6
70000	74.8	75.0	76.1	77.8	79.2	80.2	79.2	77.7	76.8	76.3	75.0	75.0	76.1	77.0	77.4	78.4
80000	74.7	74.8	76.1	78.1	79.5	80.1	79.7	77.4	76.8	76.3	75.2	75.2	76.3	76.8	77.5	78.1
90000	74.8	75.4	76.1	78.1	79.0	80.2	79.3	77.7	76.8	76.3	75.4	75.2	76.3	77.2	77.5	78.3
100000	75.0	75.2	76.1	78.8	79.2	80.6	79.3	77.9	77.0	76.5	75.4	75.6	76.5	77.4	78.3	79.0
110000	75.2	75.2	76.5	79.0	79.3	80.2	79.9	78.1	77.4	76.6	75.2	75.6	76.6	77.5	78.6	79.0
120000	75.2	75.2	76.5	78.8	79.2	80.1	79.2	78.1	77.4	76.1	75.4	75.0	76.8	77.5	78.3	
130000	75.0	75.2	76.6	79.0	79.7	80.1	79.3	78.1	77.4	76.1	75.7	75.2	77.0	77.2	78.6	77.9
140000	75.2	75.9	76.8	79.0	79.3	79.9	79.7	78.3	77.4	75.6	75.7	75.2	77.0	77.4	78.8	77.4
150000	75.2	75.9	77.2	78.8	79.0	80.4	80.1	77.9	77.0	75.6	75.7	75.0	77.0	76.8	79.0	77.4
160000	75.2	75.6	76.8	78.6	79.3	79.9	80.1	77.7	77.5	75.6	75.2	74.7	76.6	76.8	78.8	76.8
170000	74.8	75.4	76.3	77.5	79.3	80.1	79.9	77.4	77.4	75.4	74.8	74.5	76.5	76.8	78.6	77.2
180000	74.5	75.4	76.1	77.4	79.5	80.1	79.9	78.3	77.0	75.4	74.7	74.5	76.5	77.0	78.6	77.5
190000	74.3	75.9	76.3	77.9	80.1	80.4	79.9	77.2	77.0	76.3	74.7	75.4	76.5	76.8	79.0	78.3
200000	74.8	76.5	76.3	77.9	80.8	81.1	80.4	77.0	77.5	75.9	74.7	75.7	76.6	77.5	79.0	78.4
210000	75.0	76.1	76.3	79.0	80.2	81.3	80.0	77.4	77.7	75.4	74.5	75.9	76.8	77.7	78.1	78.3
220000	75.0	75.9	76.6	79.0	80.8	81.3	79.3	77.7	77.5	75.2	74.8	76.1	77.0	77.7	78.1	78.3
230000	75.2	76.3	77.2	79.7	81.0	81.0	79.0	77.5	77.4	75.4	75.2	76.1	77.2	77.7	78.3	78.3
Daily Max	75.6	76.5	77.2	79.7	81.0	81.3	80.8	78.8	77.7	77.2	75.7	76.1	77.2	77.7	79.0	79.0
Daily Min	74.3	74.8	76.1	77.4	78.6	79.7	79.0	77.0	76.8	75.2	74.5	74.5	75.9	76.8	77.4	76.8
Average	75.0	75.5	76.5	78.3	79.5	80.4	79.8	77.9	77.2	76.1	75.2	75.2	76.5	77.2	78.1	78.2

Monthly average temp (F): 75.6

- Augmentation Event
- Extended refill after augmentation.
- DO corrective action occurring. Aeration flow being released through gate.
- Missing data due to equipment maintenance.
- Aeration flow being released through gate.

Escanaba Dam 4 - July 2012 Temperature Monitoring Data

HHMMSS	07/17/12	07/18/12	07/19/12	07/20/12	07/21/12	07/22/12	07/23/12	07/24/12	07/25/12	07/26/12	07/27/12	07/28/12	07/29/12	07/30/12	07/31/12
0	78.3	77.9	76.8	74.3	73.9	75.7	75.2	77.9	78.4	75.2	74.5	72.5	71.4	72.7	74.7
10000	78.3	77.5	76.8	74.1	73.9	75.4	75.2	78.1	78.4	75.0	74.5	72.3	72.1	72.7	74.3
20000	78.4	77.4	76.6	73.9	73.9	75.6	75.4	78.1	77.9	75.0	74.3	72.1	72.5	72.9	74.5
30000	78.4	77.0	76.5	73.9	73.8	75.2	75.6	77.9	77.9	75.0	74.3	72.0	72.3	73.0	74.7
40000	78.6	77.2	76.5	73.6	73.8	75.4	75.7	77.9	77.7	74.8	74.3	72.0	72.7	73.0	74.7
50000	78.1	76.6	76.3	73.8	73.9	75.4	75.7	77.7	77.4	74.8	74.3	72.0	72.7	72.7	74.7
60000	78.3	76.8	75.9	73.6	73.9	75.0	75.7	76.8	77.2	74.7	74.3	72.0	72.5	72.9	74.3
70000	79.0	76.6	76.1	73.6	73.9	75.0	75.9	77.5	77.4	74.7	74.1	71.8	72.5	72.9	74.5
80000	78.4	76.8	75.9	73.6	73.6	75.0	75.9	76.8	77.2	74.5	73.9	71.8	72.3	73.0	74.5
90000	78.8	76.8	75.9	73.8	73.6	75.2	76.1	77.5	77.2	74.7	73.9	72.0	72.5	72.9	74.3
100000	79.2	77.0	75.7	74.1	73.8	75.4	76.3	77.9	77.2	74.7	73.8	72.1	72.5	73.2	74.8
110000	79.0	77.2	75.7	74.1	74.1	75.6	76.5	78.1	76.8	74.8	73.8	72.3	72.3	73.4	75.0
120000	79.2	77.2	75.4	73.9	74.5	75.2	76.3	78.1	76.8	74.7		72.3	72.3	73.6	32.0
130000	79.5	78.3	75.4	73.9	75.0	75.2		78.4	76.5	74.5		72.3	72.1	73.8	32.0
140000	79.7	77.7	75.2	74.1	75.7	75.4	77.4	78.6	76.3	74.8	72.9	71.6	72.3	74.1	32.0
150000	79.5	78.4	75.2	73.8	76.1	75.2	77.7	78.8	76.6	75.0	72.9	71.6	72.3	73.9	32.0
160000	79.5	77.9	75.2	73.9	76.5	75.0	77.5	79.0	76.5	75.2	73.2	71.8	72.1	73.9	32.0
170000	79.5	77.5	75.0	73.8	76.5	74.8	78.1	79.2	76.1	75.2	73.2	71.6	72.3	73.9	32.0
180000	79.2	77.4	74.7	73.2	76.3	74.5	78.4	79.2	75.7	75.0	73.8	71.6	72.3	74.1	32.0
190000	78.8	77.9	75.2	73.6	76.3	74.8	78.8	78.4	75.7	74.8	73.8	71.6	72.0	74.1	32.0
200000	79.0	77.2	74.8	73.8	76.5	75.0	78.6	78.8	75.7	74.8	73.6	71.1	71.8	74.5	32.0
210000	78.6	77.2	74.7	73.9	76.1	75.2	79.2	78.6	75.6	74.8	73.4	71.2	72.5	75.0	32.0
220000	78.6	77.2	74.5	74.1	76.1	75.4	78.4	78.4	75.4	74.7	73.0	71.2	72.7	74.7	32.0
230000	78.1	77.4	74.5	74.1	75.9	75.4	77.9	78.1	75.2	74.7	72.7	71.2	72.9	74.7	32.0
Daily Max	79.7	78.4	76.8	74.3	76.5	75.7	79.2	79.2	78.4	75.2	74.5	72.5	72.9	75.0	75.0
Daily Min	78.1	76.6	74.5	73.2	73.6	74.5	75.2	76.8	75.2	74.5	72.7	71.1	71.4	72.7	32.0
Average	78.8	77.3	75.6	73.9	74.9	75.2	76.9	78.2	76.8	74.8	73.7	71.8	72.3	73.6	53.3

- Augmentation Event
- Extended refill after augmentation.
- DO corrective action occurring. Aeration flow being released through gate.
- Missing data due to equipment maintenance - monitor being replaced.
- Aeration flow being released through gate.
- Missing data due to equipment maintenance.

Escanaba River Flow Data from the USGS monitoring Station in Cornell, MI

Date	Daily Mean Discharge @ Cornell (cfs)	95th percentile exceedance flow (cfs)	90th percentile exceedance flow (cfs)
7/1/2012	179	222	253
7/2/2012	178	206	268
7/3/2012	194	210	280
7/4/2012	194	210	248
7/5/2012	189	214	243
7/6/2012	234	216	250
7/7/2012	234	225	251
7/8/2012	211	206	254
7/9/2012	253	235	257
7/10/2012	236	207	222
7/11/2012	179	209	232
7/12/2012	218	205	220
7/13/2012	168	201	220
7/14/2012	167	194	236
7/15/2012	195	197	212
7/16/2012	190	200	238
7/17/2012	192	180	243
7/18/2012	145	178	206
7/19/2012	187	168	206
7/20/2012	166	175	208
7/21/2012	142	176	200
7/22/2012	188	189	214
7/23/2012	235	188	202
7/24/2012	180	171	201
7/25/2012	217	162	209
7/26/2012	245	173	232
7/27/2012	351	185	215
7/28/2012	297	202	216
7/29/2012	220	180	203
7/30/2012	201	181	198
7/31/2012	195	171	212

Document Content(s)

20120808 ESC FERC WQM Ltr.PDF.....1-12