

UNITED STATES OF AMERICA 79 FERC ¶62,009  
FEDERAL ENERGY REGULATORY COMMISSION

City of Crystal Falls

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Project No. 11402-013

ORDER APPROVING WATER QUALITY MONITORING PLAN  
(Issued April 10, 1997)

City of Crystal Falls (licensee) filed for Commission approval, on November 19, 1996, and supplemented on November 20, 1996, a water quality monitoring plan. This plan is required by article 404 of the license for the Crystal Falls Project, issued on October 18, 1995. <sup>1/</sup> The project is located on the Paint River in Iron County, Michigan.

Article 404 requires the licensee to consult with Michigan Department of Natural Resources (MDNR) and the U.S. Fish and Wildlife Service (FWS) and develop a plan to monitor dissolved oxygen concentrations (DO) and water temperature levels at the project. <sup>1/</sup>

LICENSEE'S PROPOSED PLAN

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<sup>1/</sup> 73 FERC ¶ 62,036. See also Order on Rehearing, issued on May 17, 1996 (75 FERC ¶ 61,174).

<sup>2/</sup> State standards require a DO of at least 5 milligrams/liter (mg/l) and the waters downstream shall not receive a heat load that would warm the receiving water at the edge of the mixing zone by more than 5° F above natural water temperatures. Further, the Paint River shall not receive a heat load that would warm the receiving water at the edge of the mixing zone to temperatures greater than monthly maximums.

The licensee plans to monitor DO for two years in conjunction with implementation of the licensee's barrier net study. <sup>1/</sup> Specifically, the licensee proposes to continuously monitor water temperature and DO at mid-depth approximately 500 feet downstream of the dam and approximately 500 feet upstream of the impoundment (water temperature only) from June through September. One-meter increment profiles of water temperature and DO will be taken once a week from June through September and twice during the month of February for water temperature and DO.

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<sup>3/</sup> This plan was approved in the Order Modifying and Approving Plan for the Installation and Monitoring of a Barrier Net, issued on May 10, 1996 (75 FERC ¶ 62,102).

The licensee plans to use Hydrolab DataSonde III probes for the water quality monitoring. Water temperature and DO will be recorded hourly during the monitoring period. The licensee plans to calibrate the continuous monitoring probes every two weeks during the monitoring period and the profile probes prior to each sample, according to manufacturer's instructions.

The licensee plans to download DO and water temperature data weekly. At this time, the data will be reviewed to determine if a deviation from state standards has occurred. If a deviation in DO or water temperature occurs, the licensee plans to inform the agencies immediately and determine what, if any, mitigative measures are necessary. If additional measures are implemented, the licensee plans to download data daily to more closely monitor changes in water quality in response to the measures implemented. In the event of DO falling below state standards, the licensee plans to increase spillage. If water temperature standards are exceeded, the licensee plans to immediately contact the agencies to determine what, if any, measures can be taken.

The licensee plans to submit a report to the agencies and to the Commission each year of the two-year monitoring period. This report would include DO and water temperature daily averages, minimum and maximums, and DO and water temperature profile data. The report would also provide comparisons between upstream and downstream water temperature. If at no time within the two-year monitoring period the water quality standards have been exceeded, the licensee will consider the project to have no adverse effect on water quality and will discontinue the monitoring.

#### AGENCY COMMENTS

The MDNR commented on the proposed plan in a letter dated April 1, 1996. The FWS did not provide comments on the proposed plan.

The MDNR recommends the monitoring period extend from May-October for at least three years. After three years, the licensee may request to change the frequency of monitoring. The MDNR also recommends that water temperature be monitored continuously given that violations could occur in any season. Monitoring locations should be selected in consultation with MDNR.

The MDNR requests that all monitoring equipment be validated with an independent measurement system such as a National Bureau of Standards thermometer for temperature and a Winkler analysis for DO at the end of each unattended monitoring period. Further, 70 percent of the DO data should be verified as accurate to within 1 milligram/liter (mg/l) of the true DO value. Weekly service visits should be scheduled for quality assurance. Further, the MDNR suggests a real-time evaluation of the data to provide for immediate detection of a deviation from state standards.

Regarding reports, the MDNR requests that DO values be compared hourly to the state DO standard and delta temperature values be compared instantaneously. Plausible explanations for any deviations should be provided in the reports, along with a description of the effectiveness of any measures implemented to improve water quality. The MDNR also requests quarterly transmittals of raw data along with information pertaining to the calibration of equipment during that quarter.

Other comments by MDNR were incorporated into the licensee's proposed plan.

#### DISCUSSION

The licensee's proposed water quality monitoring plan includes those requirements stipulated in article 404 of the license. Implementation of the proposed plan should enable the licensee to monitor the effects of project operation on water temperatures and DO. Calibration of the monitoring equipment according to manufacturer's recommendations, as proposed by the licensee, should be adequate to ensure accurate data are collected. To the extent practicable, the licensee should choose monitoring locations in coordination with the MDNR and FWS.

Article 404 of the license states the purpose of the plan is to ensure that water quality below the project, as measured immediately downstream of the project tailrace, maintain the Michigan standards for DO and water temperature. Further, article 404 requires the licensee develop operating procedures to address when deviations from state standards occur.

Monitoring from June-September, as proposed by the licensee, encompasses the period when warmer temperatures are expected, thus affecting low DO. Therefore, deviations from state standards should be detected upon implementation of the licensee's proposed plan. However, monitoring for only two years, as proposed by the licensee, will not meet the purpose of the plan. Article 404 requires monitoring to ensure state water quality standards are met. The licensee cannot meet this goal if monitoring is discontinued.

Commission staff acknowledges that water quality data collected prior to licensing indicate project operations do not result in violations of the state water quality standards. <sup>1/</sup> If after implementation of monitoring, the data still indicates that project operations do not adversely affect water quality in the project area, the licensee may file a request to modify the water quality monitoring plan, as recommended by the MDNR. Any recommendations to amend the water quality monitoring plan should be filed for Commission approval, as discussed below.

Providing annual reports to the agencies and immediately contacting the FWS and MDNR upon detection of any deviation from the state standards, as proposed, should provide the agencies with the results of the monitoring in a timely manner. These reports should include, to the extent possible, explanations for any deviations and the effectiveness of any measures implemented to improve water quality, as recommended by MDNR. Quarterly reports of water quality data, as requested by MDNR, are not necessary. The licensee did not provide a schedule for submitting these reports to the agencies or to the Commission. The licensee should provide annual report(s) to these agencies by December 15 of each year of monitoring.

It is only necessary to provide the annual report to the Commission for the first three years of monitoring. Our review of the annual report for a three year period will allow us to evaluate water quality during project operations. The annual report to the Commission should be filed by February 15 of the year following monitoring. The filing should include agency comments, the licensee's response to agency comments, and any recommendations, for Commission approval, for modifying or discontinuing water quality monitoring. Each agency should be given 30 days to comment. If there are no changes to the water quality monitoring plan, the licensee should continue to provide the annual reports to the consulted agencies as identified in the licensee's proposed plan. So that the Commission can monitor compliance with article 404, the licensee should notify the Commission of any deviation from the state standards for DO and water temperature.

The MDNR recommends the licensee analyze data in real time to immediately determine if a problem in water quality exists. The licensee proposes to retrieve data biweekly. Given that the available data indicates no existing water quality problems, as discussed above, the licensee's schedule appears adequate. Further, when the licensee does detect a problem, the licensee plans to retrieve data daily, after contacting the agencies to determine what measures should be implemented in efforts to improve water quality. Therefore, the licensee can timely note any improvements in water quality resulting from any measures implemented.

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<sup>4/</sup> See the Environmental Assessment for Application for License for the Crystal Falls Project, issued on October 18, 1995 (73 FERC ¶ 62,036).

The licensee proposes to consult with the FWS and MDNR to determine what measures are appropriate in efforts to improve water quality. The licensee specifies that the most likely measure to improve DO is to increase spill. This should be adequate. However, if additional measures are necessary, or if the parties disagree on which measures are appropriate, the Commission should determine which, if any, additional measures are necessary to improve water quality.

The licensee's water quality monitoring plan, with the modifications discussed, should be adequate to monitor the requirements of article 404 and should be approved.

The Director orders:

(A) The licensee's water quality monitoring plan, filed with the Commission on November 19, 1996, and supplemented on November 20, 1996, as modified in paragraph (B), is approved.

(B) The licensee shall monitor dissolved oxygen concentrations and water temperature at the project for the remainder of the license term. The licensee shall file annual reports with the Commission for the first three years of monitoring. These reports shall be filed by February 15 of the year following monitoring and shall include agency comments, the licensee's response to agency comments, and any recommendations, for Commission approval, on modifying the water quality monitoring plan.

(C) If DO or water temperature, as measured by the approved monitoring system, falls below that required by article 404, the licensee shall file a report with the Commission within 30 days of the date the data becomes available indicating an incident has occurred. The report should, to the extent possible, identify the cause, severity, and duration of the incident, and any observed or reported adverse environmental impacts resulting from the incident. The report should also include: (1) operational data necessary to determine compliance with article 404; (2) a description of any corrective measures implemented at the time of occurrence and the measures implemented or proposed to ensure that similar incidents do not recur; and (3) comments or correspondence, if any, received from the resource agencies regarding the incident. Based on the report and the Commission's evaluation of the incident, the Commission shall reserve the right to require modifications to project facilities and operations to ensure future compliance.

(D) Unless otherwise directed in this order, the licensee shall file an original and seven copies of any filing required by this order with:

The Secretary  
Federal Energy Regulatory Commission  
Mail Code: DLC, HL-11.2  
888 First Street, NE  
Washington, DC 20426

In addition, the licensee shall serve copies of these filings on any entity specified in this order to be consulted on matters related to these filings. Proof of service on these entities shall accompany the filings with the Commission.

(E) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to CFR § 385.713.

Kevin P. Madden  
Acting Director  
Office of Hydropower Licensing