

FEDERAL ENERGY REGULATORY COMMISSION
Washington, D. C. 20426

OFFICE OF ENERGY PROJECTS

Project No. 2785-015--Michigan
Sanford Project

Project No. 10808-005--Michigan
Edenville Project

Project No. 10809-004--Michigan
Secord Project

Project No. 10810-006--Michigan
Smallwood Project
Boyce Hydro Power, LLC.

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

April 23, 2013

Mr. Frank Christie, P.E.
Boyce Hydro Power, LLC.
6000 S. M-30 (P.O. Box 15)
Edenville, MI 49624

RE: 2012 Water Quality Monitoring Report

Dear Mr. Christie:

This letter acknowledges receipt of your 2012 water quality monitoring report, filed on September 19, 2012, for the Sanford, Edenville, Smallwood, and Secord projects. The report was filed pursuant to the Federal Energy Regulatory Commission's (Commission) Order Modifying and Approving Water Quality Monitoring Plans (1999 Order)¹ and the Commission's environmental inspection follow-up letter issued on October 4, 2010. All of the projects are located on the Tittabawassee River in Michigan.

¹ 87 FERC ¶ 62,365 (issued June 29, 1999).

Monitoring Requirements

The 1999 Order requires you to monitor water temperature and dissolved oxygen (DO) levels below each project at the confluence of the tailrace and the bypassed reach. Water temperature is to be monitored year round, and DO is to be monitored from June 1 through September 30 annually. The license of each project describes the criteria for monthly average temperatures and the DO concentrations for the Tittabawassee River, and states that you must implement all reasonable and prudent measures to ensure that the water quality standards are met whenever inflows to the projects are greater than or equal to the 95 percent exceedence inflow.²

The 1999 Order states that you will record water temperature and DO on an hourly basis. Further, the monitoring devices are to be connected to the project SCADA system, which would alert the projects' operators any time the DO falls below the 5 milligrams per liter (mg/l) criteria. If low DO concentrations are indicated below any of the projects, the 1999 Order states that you will collect data just upstream of the influence of the project reservoir in order to determine the cause of the low DO. Additionally, you are required to release water over the spillway to increase aeration of the downstream waters until the low DO situation is alleviated, and if temperature limits are exceeded, you are required to release cooler bottom water through the turbine or spillway gates until the water temperatures meet the specified requirements. Each of the pertinent license articles state that you are to file monitoring results with the U.S. Fish and Wildlife Service (FWS) and Michigan Department of Natural Resources (MDNR) prior to filing the annual report with the Commission.

2012 Monitoring Results

According to your 2012 report, you deployed continuous temperature, DO, and conductivity monitoring probes downstream of each powerhouse from July 23 through August 15, 2012. You state that you place the probes in water approximately 2.5 to 3 feet deep when 1 or 2 turbines are operating. You state that the temperature recorded at all sites is within the monthly average temperature criteria.

At the Sanford project, which is located furthest downstream, you state that the DO did not fall below the 5 mg/l criteria. You also note that the Sanford project probe was found to be out of the water on several occasions, typically during overnight hours for durations ranging from 4 to 41 hours.

² License Article 407 for the Sanford Project (61 FERC ¶ 61,066), and License Article 402 for the Edenville (85 FERC ¶ 61,063), Secord (85 FERC ¶ 61,064), and Smallwood (85 FERC ¶ 61,065) projects. Orders issued October 16, 1998.

You state that there were two nights when DO levels fell below the criteria at the Edenville project, occurring when the turbines were not operating. Also, at Edenville, you report that you found the probe needed to be frequently recalibrated to ensure accuracy, as the DO and conductivity readings appeared erratic during the first week of recording. For the remainder of the monitoring period, you state that probes at all sites were cleaned and recalibrated three times per week. You state that both the Smallwood and Secord projects had a number of days with minimum DO levels below criteria. With regard to data recorded at Secord, you state that you had to remove the probe from July 27 to July 30 due to very high water below the dam.

In addition to sampling below each project, you performed depth profiles of temperature and DO in Wixom Lake (above the Edenville project) and Sanford Lake in morning hours, prior to turbine start-up. Further, you report that on two occasions you obtained readings at depths of five, ten, fifteen, and twenty feet, in both reservoirs. The depth profile results indicate that temperature and DO criteria were met during sampling. You also sampled free flowing river water from the west branch of the Tittabawassee River, approximately 750 feet upstream of the Secord impoundment. You report that the river samples also met the temperature and DO requirements.

Agency Consultation

You filed your monitoring results with the MDNR and FWS at the same time the report was filed with the Commission. No specific comments have been received from the agencies.

Discussion

You collected water quality monitoring data at the projects previously in 2000 and 2001. In the last water quality report we received from you, filed March 21, 2002 and reporting on data collected in 2001, you proposed several changes for the 2002 water quality monitoring period. Though you stated that you would perform a full season of testing in 2002, you also proposed to take continuous readings for only four weeks (two weeks each in July and August 2002) as most of the low DO readings in 2001 had occurred during the July-August time period. Further, you proposed to sample the river upstream of the Secord project (the furthest upstream project), and to sample the depth profile once a month in the Sanford and Edenville reservoirs during the 2002 season.

You did not report on any water quality monitoring from 2002 through 2011; however, your 2012 water quality monitoring report indicates that you performed it as you proposed in 2002. That is, you followed the four-week monitoring schedule (continuous DO and temperature monitoring occurred between July 23 and August 15, 2012, for a total of 23 days) and performed upstream sampling and depth profiles during the 2012 monitoring. Results of the upstream sampling and depth profiles indicate that

the water quality in those locations were meeting the temperature and DO criteria. We discuss the results of the July-August monitoring in further detail below.

Based on the continuous data provided in the 2012 report, it is evident that the projects are not always meeting the established DO requirements, particularly at the upstream projects. It also appears that the probes are not consistently providing reliable information, as they are occasionally out of the water or lose calibration. Though you state that the Sanford project did not record any below minimum readings, the probe was found to be out of the water for a total of 124 hours, and we note that DO concentration was below 5.0 mg/l for a few hours immediately following deployment.

Further, the continuous temperature data appears to have been collected only during the truncated four week sampling period between July 23 and August 15, 2012. The 1999 Order requires temperature to be recorded year-round on an hourly basis, downstream of each project, so that compliance with monthly criteria may be determined.

Your report does not describe whether any of the corrective actions recommended in the 1999 Order (such as releasing water over the spillway to increase aeration of the downstream waters) were taken, nor does your report discuss the inflow to the projects, so it is unclear whether you implemented all reasonable and prudent measures to ensure water quality standards are met when inflows equal or exceed the 95 percent exceedence inflow, as required by the respective articles.

The 1999 Order states that the monitoring devices are to be connected to the project SCADA system, to alert the projects' operators any time the DO falls below the criteria. In 2002, the MDNR recommended the use of such alarms to allow operators to be proactive in responding to decreasing DO levels and avoiding water quality violations. We are uncertain whether alarms have been installed to help you better monitor and address DO levels, but based on your 2012 data it appears that such alarms are not in place and that additional action needs to be taken to ensure mitigating actions can occur in a timely manner.

In a phone call on February 11, 2013, Commission staff spoke with you regarding the water quality monitoring requirements and schedule. On March 20, 2013, you filed a letter stating that you plan to initiate water quality monitoring at the four projects from June 1 through September 30, 2013, which is the DO monitoring period described in the respective articles and your approved plan.

Conclusion

We find nothing in the record, nor in your current filing, that provides a reason for why water quality monitoring did not occur for ten years. Further, because more than ten years have passed between monitoring events, we do not believe conclusions can be

made about whether water quality deviations are system-wide or affected by project operations. In response to the Commission's 2010 environmental inspection report and follow-up letter, you filed a letter (December 6, 2010) stating that you would undertake water quality monitoring in the summer of 2011. You did not actually perform monitoring until 2012, and you provide no explanation for that one-year delay. For the ten years in which no water quality monitoring was performed, we conclude that you violated the requirements of Article 407 of the Sanford Project and Article 402 of the Edenville, Secord, and Smallwood projects.

It is apparent from your 2012 report that DO either is not being reliably recorded or is not consistently meeting the criteria, and it is unclear whether any corrective measures have occurred as required by the approved plan. DO was below the criteria for all or part of the day for 19 days at the Smallwood project and 9 days at the Secord projects. The probe at the Sanford project was found to be out of the water for a total of 124 hours over the 23-day monitoring period, which means the probe was not collecting water quality data for nearly 23 percent of the monitoring period. The majority of these events occurred during overnight hours, when diel fluctuations in DO concentrations may become evident. Your report indicates that the DO concentration at the Sanford project was below 5.0 mg/l for three hours immediately following deployment. While your report explains that the two nights of low DO levels at the Edenville project may have been related to the fact that turbines were not operating those nights, the low DO events at the Smallwood, Secord, and Sanford projects were not explained in your report, and you do not indicate whether corrective actions approved by the 1999 Order occurred.

Further, in your 2012 report it is unclear whether temperature is being monitored year-round as required by the 1999 Order, as your report contains only temperature for the truncated four week summer sampling period when DO was recorded. The temperature data collected is not summarized to provide daily or monthly averages. Based on the raw data you provided, the monthly average criteria (30°C, as specified in the article requirements) is not violated for the two weeks for which data was collected in July and August, but the incomplete monitoring period does not provide all the data points necessary to calculate an accurate monthly average temperature. While the 1999 Order allows that the monthly average temperature may be exceeded for short periods when natural water temperatures measured upstream of the project exceed the 90th percentile occurrence of water temperatures, it also states that you are to take corrective actions when temperature limits are exceeded. We note that temperatures at Sanford in early August were, for a short time, above the 30°C criteria, but there is no indication whether this was allowable under the above exception or whether corrective actions were taken.

Your 2012 report indicates that the DO and temperature measurements deviate from the specified criteria, and the report lacks both an explanation for the majority of these deviations and a mention of required mitigative actions for the deviations.

Therefore, we conclude that you violated the requirements of Article 407 of the Sanford Project and Article 402 of the Edenville, Secord, and Smallwood projects for failing to conduct the required water quality monitoring for the entire period of June 1 through September 30, 2012. Additionally, for the four weeks you did collect water quality data in 2012 the results were questionable. The data showed violations and indicated no corrective or mitigation measures implemented when you deviated from the standards.

With regard to your proposed 2013 water quality monitoring, please note that the 1999 Order requires you to monitor temperature year round and DO from June 1 through September 30, and that both are to be recorded on an hourly basis. In future reports, please provide a summary of the temperature data at each project in a tabular format (daily averages for each month, and monthly averages). We request that you provide the results of the 2013 water quality monitoring to the MDNR and FWS for a minimum 30 day review period prior to filing your report with the Commission by December 31, 2013. The report you file with the Commission should include documentation that the report was filed with the resource agencies and include agency comments and your response to the agencies' comments, if any.

In order for us to determine your current compliance with the 1999 Order and for you to demonstrate that you are prepared to conduct water quality monitoring in conformance with the requirements of the project licenses during 2013, please provide the following information: (1) the actions you have taken (with dates) to connect monitoring devices to the SCADA system and install alarms; (2) mitigating actions you will perform in response to any DO or water temperature data failing to meet the required criteria; (3) describe the specific steps you have taken or will be taking to ensure a reliable record of water quality data (such as deploying improved instrumentation or providing more frequent maintenance); and (4) indicate if you are currently monitoring water temperature year-round and when you began implementing the requirement. If you are not currently recording water temperature at each project as required, you must immediately begin doing so in accordance with the approved 1999 Order.

Please file your response within 30 days of the date of this letter. You may file your response electronically via the Internet, see the instructions on the Commission's web site (www.ferc.gov) under the "e-filing" link. The Commission encourages electronic filings. In lieu of electronic filing, an original and eight copies of all documents may be mailed to the Secretary at the following address:

The Secretary
Federal Energy Regulatory Commission
Mail Code PJ-12.3
888 First Street, NE
Washington, D.C. 20426

If you are unable to provide the required information, please indicate this in your response and explain why the information is unavailable. We believe this information is necessary to ensure your compliance with the water quality plan. Your failure to show due diligence with implementing your plan as approved and to provide all of the required information will be taken into consideration regarding future Commission action on this matter. Failure to adhere to any plan or schedule approved by the Commission may lead to Commission enforcement actions. This letter provides notice under Section 31(a) of the Federal Power Act.

If you have any questions concerning this matter, please contact Holly Frank at (202) 502-6833.

Sincerely,

Thomas J. LoVullo
Chief, Aquatic Resources Branch
Division of Hydropower Administration
and Compliance

c: Mr. Kyle Kruger
Senior Fisheries Biologist
Michigan Department of Natural Resources
Mio Field Office
191 S Mt Tom Road
Mio, MI 48647

Mr. Burr Fisher
U.S. Fish and Wildlife Service
East Lansing Field Office
2651 Coolidge Road
East Lansing, MI 48823

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