

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.

June 8, 2016

Lee W. Mueller, Co-Member Manager  
Boyce Hydro Power, LLC  
10120 W. Flamingo Road, Suite 4192  
Las Vegas, NV 89147

Subject: 2016 Water Quality Testing and SCADA Schedule

Dear Mr. Mueller:

This letter is regarding your recent filings regarding water quality monitoring at the Sanford, Edenville, Secord, and Smallwood projects. On May 2, 2016, you provided details about the methods used in 2015 to improve water quality in response to questions raised by the Michigan Department of Natural Resources (Michigan DNR) on March 30, 2016. On May 18, 2016, you provided details for proposed methods to be used in the 2016 water quality monitoring season, which occurs from June 1 through September 30. As described further below, we are requesting that you file follow-up information regarding the installation of your SCADA systems and your 2016 monitoring season.

## **Background**

Water quality monitoring is required pursuant to the Order Modifying and Approving Water Quality Monitoring Plans,<sup>1</sup> Article 407 of the amended Sanford Project license (FERC No. 2785),<sup>2</sup> and Article 402 of the Edenville (FERC No. 10808),<sup>3</sup> Secord (FERC No. 10809)<sup>4</sup> and Smallwood (FERC No. 10810)<sup>5</sup> project licenses. All of the projects are located on the Tittabawassee River in Michigan. The objective of the monitoring is to identify when project operations result in water quality deficiencies, determine when to implement corrective measures, and verify whether those corrective measures are effective. Under your water quality monitoring plan, you annually monitor water temperature and dissolved oxygen (DO) concentrations in the tailrace below each project. Both parameters are to be recorded on an hourly basis, with a year-round monitoring period for water temperature and a June 1 through September 30 monitoring period for DO concentrations. The license of each project states that the standard for DO concentrations is an instantaneous minimum of 5.0 milligrams per liter (mg/L), and also provides monthly average maximum water temperatures for the Tittabawassee River.

If low DO concentrations occur below any of the projects, your water quality monitoring plan requires that you measure DO just upstream of the influence of the project reservoir to determine the cause of the low DO concentration, and that you release water over the spillway to increase the aeration of the downstream waters until the low DO situation is alleviated. In order to ensure operations staff is aware of potential water quality deviations, in a letter dated June 3, 2015, we established a schedule for you to initiate connection of the water quality monitoring equipment to each project's SCADA systems, requiring that you secure a SCADA connection the Smallwood project no later than August 31, 2015, and that the remaining three projects must be connected prior to the start of the June 1, 2016 monitoring season. In a letter filed on September 30, 2015, you reported that you established the SCADA connection at the Smallwood Project. In order to ensure the timely SCADA connection for the Sanford, Edenville, and Secord

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<sup>1</sup> 87 FERC ¶ 62,365 (issued June 29, 1999).

<sup>2</sup> Order on Rehearing and Amending License Order (61 FERC ¶ 61,066), issued October 16, 1998.

<sup>3</sup> Order Issuing Original License (85 FERC ¶ 61,063), issued October 16, 1998.

<sup>4</sup> Order Issuing Minor License (85 FERC ¶ 61,064), issued October 16, 1998.

<sup>5</sup> Order Issuing Minor License (85 FERC ¶ 61,065), issued October 16, 1998.

projects, Commission staff requested that you file a report by May 1, 2016 indicating the status of the task.

In your March 14, 2016 filing of your 2015 water quality monitoring report, you proposed to continue the spill testing program during 2016, with less time spent developing baseline data now that you are aware of when deficiencies start to develop and when additional spill is needed (i.e., when the turbines are off). You stated that in the beginning of the summer 2016 monitoring period, you would monitor DO concentrations within a few hours of turbine shut down, and when the DO concentration starts to drop below 5 mg/L, you would be ready and implement discharges as appropriate for all times when the turbines are off. You also provided details of a new approach to improving water quality that was being developed with your consultant, which involved conducting a study to determine whether a siphon system could be an option to provide cooler waters from deeper parts of the reservoir into the tailrace. Water siphoned from the reservoir would be splashed into the downstream pool to provide cooler water containing high DO concentrations.

Michigan DNR provided comments on March 30, 2016, requesting additional information about the proposal, since previous water quality reports which provided impoundment profiles have shown that DO concentrations at depth are low and siphoning may not resolve low DO concentrations in the tailrace. The letter further requested information about the pump employed in the tailrace of the Smallwood Project to supplement DO concentrations. In a letter dated April 12, 2016, Commission staff requested that you provide any available information about the corrective actions to improve DO concentrations by May 15, 2016.

### **2016 Status Update**

Your May 2, 2016 filing provides a response to Michigan DNR's questions about the tailrace pump at the Smallwood Project. You state that the pump was not a good installation, as the discharge pipe had a significant leak and the suction pipe was not completely air tight. Therefore, you are not able to determine an accurate discharge calculation of the pipe. You state that the trial using the pump was used later in the monitoring season in 2015, and was not really necessary to maintain DO concentrations (DO concentrations at the Smallwood project improved late in August, and remained above criteria through most of September). You conclude by stating that you are working with your consultant to develop a better plan for addressing low DO concentrations.

Your May 18, 2016 filing states that you have elected to install an air supply system at the Edenville, Smallwood, and Secord projects. These systems would

introduce air at the outlet of the turbine draft tubes at the three projects through an air supply line fastened to the top of the downstream end of the draft tube slab, and extended across the full width of the slab. You state that you would mount an air blower in the three powerhouses, with piping extended down to the air supply line mounted on the draft tube slab. You state that you would operate the air supply system at all times unless data shows that it is not needed when turbines are running. With the turbine shut down, you believe the discharge by leakage through the closed wicket gates would be approximately 5 cubic feet per second (cfs) or more (you plan to measure the flow from the turbines in a shutdown condition in order to confirm the estimate). You anticipate that with air infused into the leakage flow, it would be enough to raise the DO concentrations appreciably. You propose to experiment with different volumes of introduced air to determine what successfully improves DO concentrations. You state that if the air supply system is not a successful water quality improvement method, you would begin converting to an over-the-dam siphon system and would test various volumes of water discharged to the tailrace.

The filing also includes an implementation schedule, which states that by late May 2016 you would initiate temperature and DO profiling in the reservoir and have the air supply system ready for testing. By June 1 you would install DO and temperature monitoring sensors in the tailraces (as required by the water quality monitoring plan), and by June 30 you would connect the DO monitors and alarms to the SCADA system.

Michigan DNR responded to your 2016 water quality testing proposal and implementation schedule on May 19, 2016. Michigan DNR states that the proposal does not specify where water quality sensors would be installed relative to the air supply systems, and how flows in the tailrace pools would ensure water quality is maintained throughout the tailrace area with leakage flows. Michigan DNR also points out that the implementation schedule for the SCADA connection misses the deadlines established by Commission staff in the letter issued June 3, 2015, to have the connect secured prior to the June 1, 2016 monitoring season.

### **Discussion and Conclusion**

You had significant advance notice to complete the SCADA connection at the Edenville, Secord, and Sanford projects. We appreciate your proactive approach to install and activate the air supply system at the Edenville, Smallwood, and Secord projects in order to improve water quality, however, the goal of having the SCADA connection established prior to the monitoring season was so that you would have time to test the system and ensure the system alerts you to low DO concentrations or high temperatures so that you may take the necessary corrective actions. It is unclear why you

took steps to install the air supply system components prior to ensuring that the water quality monitoring sensors are connected to the SCADA system.

We ask that you inform the Commission how you plan to ensure water quality at the projects is meeting criteria prior to completing the SCADA connection, such as whether you are downloading data from the sensors on a frequent basis, and if so, how frequently. Please also provide your response to Michigan DNR's comments that your proposal does not specify where water quality sensors would be installed relative to the air supply systems, and how flows in the tailrace pools would ensure water quality is maintained throughout the tailrace area with leakage flows. Please provide the requested information within **15 days** of the date of this letter. Further, once the SCADA connection has been secured at the Edenville, Secord, and Smallwood projects, please file a report by **July 5, 2016** indicating that the water quality monitoring equipment at the three projects have been successfully connected to the respective SCADA systems, including a sample printout from the SCADA system showing water quality data.

The Commission strongly encourages electronic filing. Please file the requested information using the Commission's eFiling system at <http://www.ferc.gov/docs-filing/efiling.asp>. For assistance, please contact FERC Online Support at [FERCOnlineSupport@ferc.gov](mailto:FERCOnlineSupport@ferc.gov), (866) 208-3676 (toll free), or (202) 502-8659 (TTY). In lieu of electronic filing, please send a paper copy to: Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Washington, D.C. 20426. The first page of any filing should include docket numbers P-2785-015, P-10808-005, P-10809-004, and P-10810-006.

If you have any questions regarding this matter, please contact me at (202) 502-6833 or [holly.frank@ferc.gov](mailto:holly.frank@ferc.gov).

Sincerely,

Holly Frank  
Aquatic Resources Branch  
Division of Hydropower Administration  
and Compliance

Project Nos. 2785-015 et al.

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