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GOVERNOR

STATE OF MICHIGAN  
DEPARTMENT OF NATURAL RESOURCES  
LANSING



KEITH CREAGH  
DIRECTOR

February 26, 2015

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

RE: COMMENTS BY THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES ON THE WATER QUALITY REPORT (FILED JANUARY 29, 2015) AND REQUEST FOR LICENSE AMENDMENT (FILED JANUARY 30, 2015) FOR THE SECORD (FERC NO. 10809), SMALLWOOD (FERC NO. 10810), EDENVILLE (10808) AND SANFORD (FERC NO. 2785) HYDROELECTRIC PROJECTS ON THE TITTABAWASSEE RIVER, MICHIGAN

Dear Ms. Bowes,

The Michigan Department of Natural Resources (Department) has reviewed the 2014 Water Quality Monitoring Report (report) filed by Boyce Hydro Power LLC (Boyce) for their Secord, Smallwood, Edenville and Sanford Projects on January 29, 2015. On the following day, Boyce filed a request to amend the water quality monitoring requirements under their approved Water Quality Monitoring Plan (plan). We will be providing comments on both. By copy of this letter we are providing our comments to the licensee.

In the report, Boyce indicates that they have collected water quality data for 5 of the past 14 years since the plan was approved. Therefore there were 9 years of data that were not collected and they were not in compliance with the requirements of their licenses during those years. Additionally they indicated that 3 of the 5 years they did have data, that the data was suspect due to sampler locations and equipment issues. Because of that, there is in essence only two years of acceptable data for the entire time since the licenses were issued. Based on the licensee's interpretation of the data from the 2013 and 2014 sampling seasons, they have requested that they be allowed to modify their sampling schedule from annually to every five years and not be required to connect their sampling equipment to their SCADA system for alarms when dissolved oxygen (DO) levels drop below the water quality standards required under Articles 402 (Secord, Smallwood and Edenville) and 407 (Sanford). Boyce bases their request on their perception that there are extenuating circumstances causing the problems and it is beyond their control to take any measure to alleviate the situation.

The reports for 2013 and 2014 are certainly more compressive than the previous reports. The reports indicated that data was collected hourly for both DO (June 1 to September 30) and temperature (all year long) per the requirements of the plan. This

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data was purported to be included in the appendix each year, however, the data in the appendices were only for the warm weather periods and only included data for every four hours and not hourly. We have requested this data from the licensee.

In the findings section for each project, Boyce elaborates on a number of conditions they believe contribute to low DO levels at depth in the impoundments and their presumption that it is beyond their control and there is little they can do to improve DO in these systems. The water quality requirements in articles 402 (Secord, Smallwood and Edenville) and 407 (Sanford) do not require Boyce to mitigate for low DO in the impoundments, only to do so for the tailraces below the project. Most of the DO profiles taken upstream of the dams show typical DO profiles for eutrophic water bodies in the summer in Michigan. Most lakes in Michigan will stratify in the summer and the volume of the lake below the thermocline will become anoxic. This can happen in reservoirs as well. The DO levels in the upper water column remained above the standard and the bulk of the water in the withdrawal zone for the projects clearly contained adequate DO to maintain levels in the tailraces as long as water was passing through the projects.

In reviewing the data provided, it is clear that the low DO levels in the tailraces are associated with operations at the projects. We plotted a fifteen day period (July 1-15, 2014, Figure 1) using the four hour interval data provided and it is obvious that when the upstream peaking units with no minimum flow are shutdown, the DO levels in the tailraces plummet and when the units are in operation, the DO levels return to levels approaching or exceeding the 5 ppm standard. This is especially obvious at the Smallwood Project where DO spikes were recorded each day when the units were on and dropped rapidly when the units were shut down and remained low over the weekends when the units were left off. Based on the data provided for Smallwood the project was out of compliance 86% of the time for the period of July 1 to July 15, 2015. These same trends were observed at Secord and Edenville, but the minimums were not as low as Smallwood and they were in compliance more of the time (36% at Secord and 71% at Edenville). Sanford was quite stable with minimal variation over the fifteen day period and there were no apparent violations of DO levels during this period based on the limited data provided.

During the 2013 sampling Boyce conducted a test spill at the Secord Project and with various spill amounts as high as 450 cfs and as low as 15 cfs. The spill elevated DO levels from below 3 ppm to above 5ppm (Figure 4.1.1 in the 2013 report, attached as Appendix 1) which returned to below 3 ppm once flow was shut off. This was during July, one of the months during both years where DO levels were the lowest observed near the project. The concept of maintaining flow to protect DO levels is further supported by the observation that DO levels below Sanford rarely fell below the required minimum and when it did, the maximum observed deviation was only 0.41 ppm below 5.0 ppm required minimum. As required by its license, Sanford has a minimum flow

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requirement which provides continuous flows through the dam both during operation and non-operational periods.

Article 402 (Secord, Smallwood and Edenville) and Article 407 (Sanford) requires that “The licensee must [emphasis added] implement all reasonable and prudent measures to ensure that the following water quality standards are met whenever the inflows to the projects are greater than or equal to the 95-percent-exceedence inflow:”. It is clear that Boyce can mitigate for low DO in the tailraces at these projects by reviewing both the data for the Sanford Project which maintains a minimum flow and the test spill conducted at the Secord Project for the 2013 report. The Department believes that spilling during periods when the units at the various projects are offline is a reasonable method to meet the requirements of Articles 402 (Secord, Smallwood and Edenville) and 407 (Sanford) for these projects.

As for Boyce’s request to amend the frequency of monitoring, the Department normally requires a minimum of a three year test period before making any judgment on a project’s ability to meet the minimum water quality standards before agreeing to any change to monitoring schedules. The Department believes only the last two years data are adequate to fulfil part of that requirement. If the project cannot meet the standards after the three year test period, then a more comprehensive evaluation needs to be conducted to justify such a change in monitoring. However, given the consistency between the two years of data and extent of the water quality violations of the standards specified in the licenses, the Department most likely would not be amenable to altering the annual monitoring schedule to the proposed five year schedule.

Therefore, the Department respectfully requests that the Commission:

1. Direct Boyce to connect their DO and temperature data collection devices to their SCADA system and make sure that alarms are set to call out operators to make adjustments at the projects in order to protect water quality in the tailraces at these projects prior to the beginning of the 2015 water quality monitoring season for DO.
2. Require Boyce to follow the provisions in license articles 402 (Secord, Smallwood and Edenville) and 407 (Sanford) to implement reasonable and prudent measures to maintain DO levels in the tailraces of these projects as specified in the Water Quality Monitoring Plan:

“If the DO monitoring system indicates a measurement of less than 5 mg/l the SCADA system will alarm the operating personnel. The operating personnel will respond to the project within 2 hours to take action to alleviate the water quality condition.

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The appropriate action to alleviate a low dissolved oxygen condition will be a release of water over the spillway which would aerate the water

downstream of the Smallwood Project [for example, each project is listed in the individual licenses]. The aeration spill would continue until the conditions that caused the low dissolved oxygen readings have subsided.”

3. Direct Boyce to continue to monitor water quality at these projects and provide summary reports and data to the Commission and agencies annually.
4. Direct Boyce to evaluate mitigation measures for protection or enhancement of DO levels in the tailraces at the projects as required by the approved Water Quality Monitoring Plan if spilling does not adequately alleviate all water quality violations of the license articles.
5. Deny Boyce’s request to amend the water quality monitoring schedule from annually to every five years and continue the current Commission approved annual water quality monitoring schedule for protection of aquatic resources downstream of the projects.

The Department appreciates the opportunity to comment on the water quality monitoring report and Boyce’s request to amend their licenses for the above mentioned projects. If you have any questions or need clarification, please feel free to contact me at:

MICHIGAN DEPARTMENT OF NATURAL RESOURCES  
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MIO MI 48647

Sincerely,

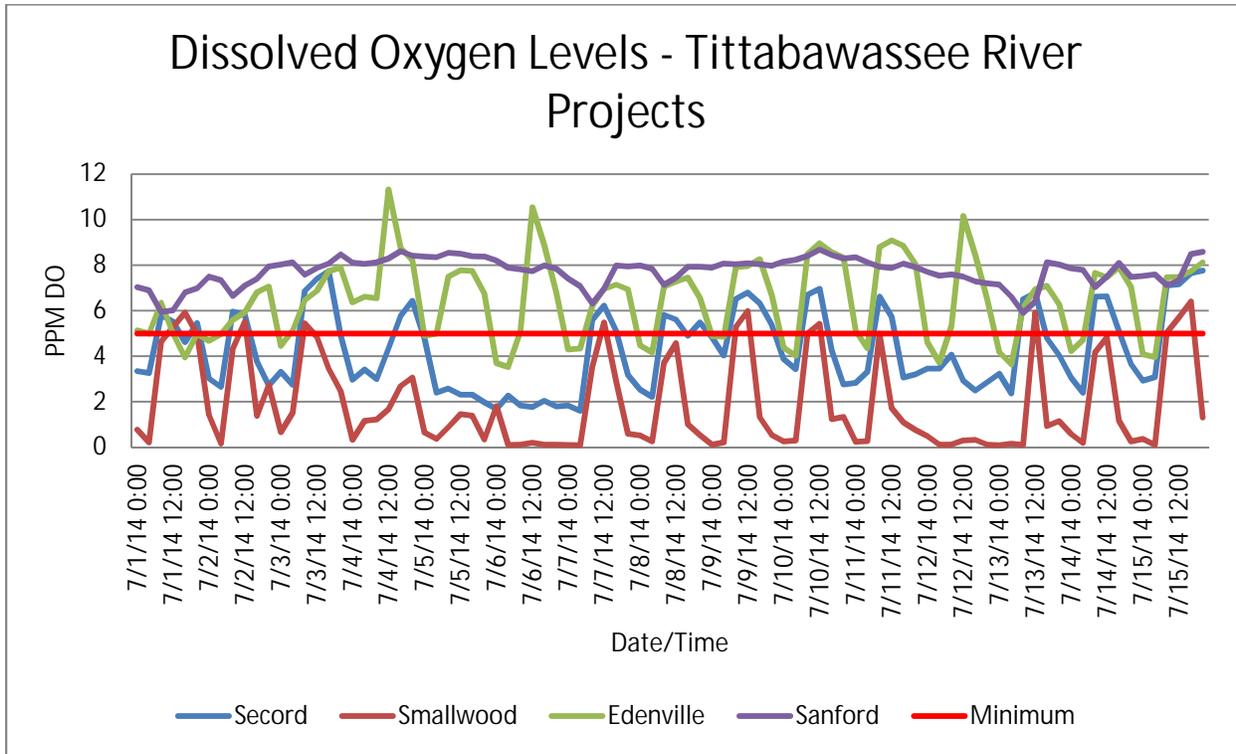


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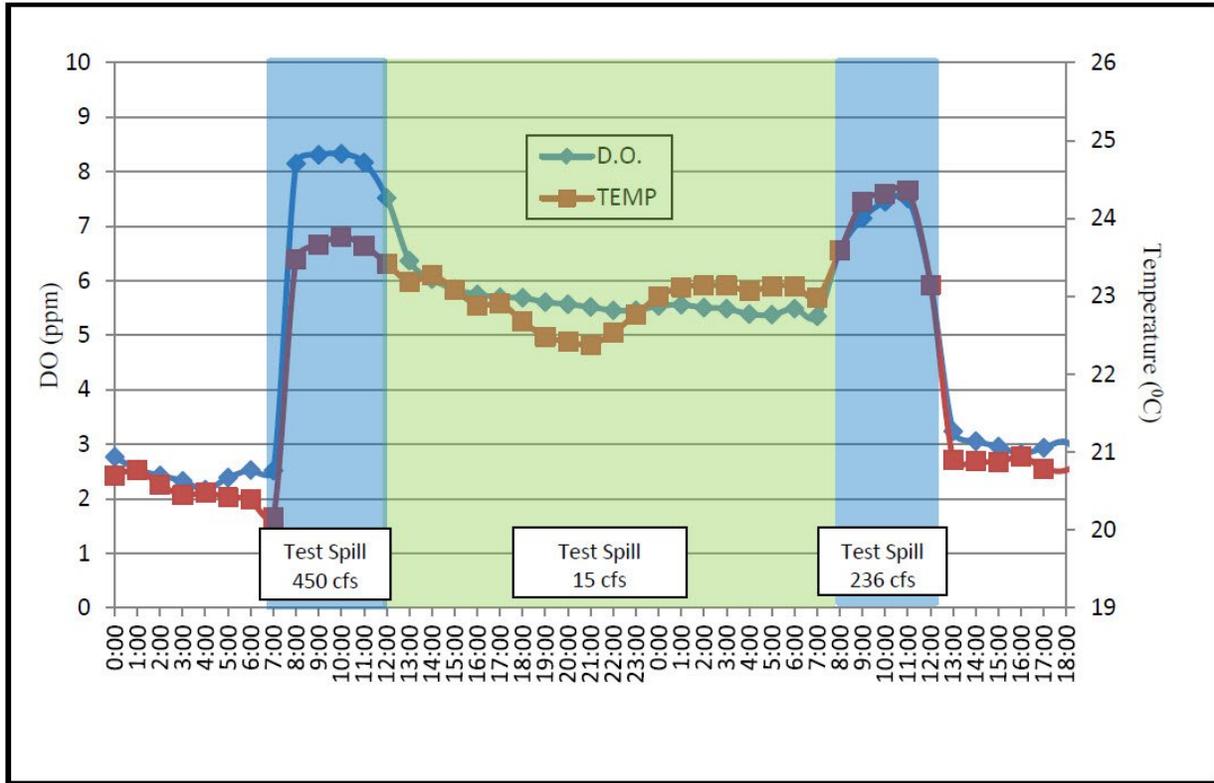
Figure 1: Dissolved oxygen levels in project tailraces for the period of July 1 to July 15, 2015.



# Appendix 1

Chart provided in Boyce Hydro LLC's 2013 Water Quality Monitoring report filed with the Commission February 20, 2014.

**Temperature and DO Data from July Test-Spill at Secord Project Impoundment**



**Figure 4.1.1.**

Document Content(s)

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