



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
LANSING



KEITH CREAGH
DIRECTOR

May 1, 2018

Mr. Lee Mueller, Co-Member Manager
Boyce Hydro Power, LLC
6000 S. M-30
Box 15
Edenville, MI 48620

RE: WATER TEMPERATURES RELATED TO REFILL THE IMPOUNDMENTS FOR THE SECORD (FERC NO. 10809), SMALLWOOD (FERC NO. 10810), EDENVILLE (FERC NO. 10808) AND SANFORD (FERC NO. 2785) PROJECTS ON THE TITTABAWASSEE RIVER, MICHIGAN.

Dear Mr. Mueller,

The Michigan Department of Natural Resources (Department) has received your response for additional data regarding impoundment temperature data as well as the Sanford tail race data. We appreciate this additional information. However, there was no data for the Edenville, Smallwood or Secord tail races. The Commission approved water quality monitoring plan requires that you monitor tailwater temperatures year around. I could find no inference to your comment that the only winter tail race temperature monitoring was to occur at the Sanford Project. If you have a copy of that decision by the Commission, please provide me the reference.

The purpose for seeking the requirement to have the impoundments refilled by the time water temperature reaches 39°F is biological. Primarily for northern pike and yellow perch spawning which occurs at that temperature. These species utilize the shallow margins of the impoundments, which need to be wetted for optimal spawning success. Failure to have the impoundments at normal pool diminishes their success.

You commented on our assertion that we expected water temperatures in the vicinity of the projects to be approaching or exceeding 39°F based on information gathered on other streams throughout mid-Michigan. We agree that there is variability in the temperatures and that was clear in the graph we provided. But the late March period of concern, where almost every other waterbody was at or exceeding 39°F. Your data showed that below Sanford, temperatures exceeded 39°F on three consecutive days. And the Sanford tail race data followed the same trends at the other rivers we had mentioned.

In reference to your comment that continuous temperature monitoring is only necessary below Sanford since it was shown that tail race temperatures were within a degree of the impoundment temperatures. During the period where the tail race temperatures below Sanford indicated over 39°F, your reading for the impoundment was more than 4°F lower. This is a significant contradiction in the temperature readings for the impoundment and tail race. We believe that the tail race temperatures represent an average temperature of the water mass moving through the impoundments. The project's withdrawal zones are the upper 10-20 feet of the water column. It is our opinion that the average of the water

column is a more appropriate representation of the temperature of the impoundment than measurements taken next to the gates, which could be subject to cooling and localized depression in temperatures and not representative of the impoundment as a whole. And the tail race temperatures are available 24/7 regardless of the presence of ice on the impoundment.

Since you did not provide tail race data outside of the period you were monitoring dissolved oxygen for 2017, we cannot go back and look at temperatures last year based on your water quality report. And since we are missing more than 15 years' worth of data from the period no water quality monitoring was occurring or Boyce indicated the data was suspect, we cannot review the historic conditions based on those readings.

It is clear we have a difference of opinion on the proper metric for determining when the impoundments should be refilled. The Commission will need to provide a clarification on the standard:

The Licensee shall complete the refill of the reservoir, thus ending the winter drawdown period, prior to the surface water temperature of the reservoir reaching 39°F. (Article 404 for Edenville, Article 403 for Smallwood, Article 411 for Sanford, and Article 403 for Secord)

A more specific definition for the protocol to determine the "surface water temperature" will need to be established so there is no misunderstanding by either party regarding the compliance requirements related to the spring refill at the projects.

Thank you for providing the additional information. Please include the year around tail race data with your next water quality report so that we may better understand the temperature dynamics in the impoundments. If you have any questions or need clarification, please feel free to contact me.

Sincerely,



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cc Holly Frank, FERC, DC
TJ LoVullo, FERC, DC