United States Department of the Interior

FISH AND WILDLIFE SERVICE

300 Westgate Center Drive
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September 22, 2014

MEMORANDUM

To: Supervisor, Chesapeake Bay Field Office, Annapolis, MD
Attention: David Sutherland, Fish and Wildlife Biologist

Susquehanna River Coordinator, Maryland Fishery Resources Office, Annapolis, MD
Attention: Sheila Eyler, Fish and Wildlife Biologist

From: Jesus Morales, Hydraulic Engineer, Fish Passage Engineering

Subject: Inspection of fishways at Holtwood Hydroelectric Project (FERC #1881)

A seasonal inspection of the fish passage facilities at the Holtwood Hydroelectric Project (Project) was performed at 2:00 pm on Friday, 05/06/2014. The Project is owned and operated by the PPL Electric Utilities. The Service's review team was led by Sheila Eyler. Consultants from Gomez and Sullivan Engineers, PC, and Normandeau Associates, Inc., and personnel from the Maryland Department of Natural Resources and their consultants from Environmental Resources Management were also present.

This site review included the newly retrofitted upstream passage facilities. From the top floor of the fish lift, the group observed a lift cycle in process for each one of the two hoppers. The first hopper serves the entrance channel that catches fish from the tailrace, and the second hopper serves the channel that catches fish from the spillway side. PPL typically operates their fishway from the beginning of March until the end of May.

Exit channel:

- Fish transfer - The first hopper, which catches fish from the tailrace, sluices fish out of the hopper and into the exit channel through a chute. This chute forces the fish against one of the exit channel sidewalls. To minimize risk of injuries to the fish, the Service suggests that a pipe or curved extension with a smooth bend could be added at the end of the chute to guide the fish safely into the center of the channel.

- Debris issue - Significant debris was observed at the waterway upstream from the exit channel, stacked against the trash rack. The amount of debris material was enough to be considered a potential cause of delay and possible source of injury for migrating fish trying to exit the lift.

Spillway gates:

- Proposed Obermeyer Pneumatically Actuated Gates - The flashboards at the spillway section closest to the fish lift have been destroyed by high river flows. The licensee has committed to

install new Obermeyer Pneumatically Actuated Gates. The original plan was to have them installed before the beginning of the 2015 fish migration season. Because of the unusually high flows during this year in the Susquehanna River, the Licensee inform us that they were incapable of starting the necessary work to have the gates in place by the beginning of spring of next year (2015). The Obermeyer gates are expected to help manage the trash and debris that has been accumulating at and clogging the trash-racks of the exit channel.

Entrance gates:

- Mechanical issues - While on-site, one of the fish lift entrance gates in the side of the tailrace was in-operable because of mechanical difficulties. The Licensee informed us that it was not the first time during the migrating season that the gate had been out of service. The capacity of an entrance gate to properly track the tailwater elevations is crucial to the effective performance of a fishway to attract and guide migratory fish. The Service recommends that the operators run the fish lift prior to the start of the fish migration season to check that all mechanical elements are working properly. It is unfortunate that the pre-run equipment tests and maintenance did not catch those deficiencies such that operation would be continuous.

Tailrace bathymetry:

- High velocity barriers - After extensive stream work in the tailrace to provide target migratory fish with a continuous and accessible low velocity zone of passage all the way into the fishway, the Licensee and its consultants have identified that undesired high velocity areas still remain. The Licensee informed the Service that they intend to go back into the tailrace sometime in the next year, prior to the 2015 migration season, to work on these and confirm that hydraulic conditions within the Project are adequate for the safe and timely passage of all target migratory species.

Thank you for the opportunity to participate in this review. We look forward to supporting your efforts to restore the Susquehanna River ecosystem. For questions please contact Jesus at 413-253-8206.

cc. Curt Orvis, P.E., USFWS