



United States Department of the Interior



FISH AND WILDLIFE SERVICE

300 Westgate Center Drive
Hadley, MA 01035-9589

October 6, 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 the Safe Harbor Hydroelectric Project (FERC #1025)

A seasonal inspection of the fish passage facilities at the Safe Harbor Hydroelectric Project (Project) was performed at 9:00 am on Wednesday, 05/07/2014. The Project is owned and operated by the Safe Harbor Water Power Corporation. The Service's review team was led by Sheila Eyler from the US Fish and Wildlife Service. Consultants to the owner 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 present.

This site review included the catwalk located in front of the power house, and a tour through the fishway. The operators performed a lift cycle while we were on site. On the day of the inspection two entrance gates were open: gate-A (farthest away from the power house building) attracts fish into the fishway by discharging water into the downstream direction, parallel to the river flow; and gate-C (closest to the power house building) attracts fish by discharging water perpendicular to the river flow, into the backside of the catwalk. The power house units discharge flow through a series of draft tubes that pushes the boil and turbulence away from the power house building, into the area downstream from the catwalk. Safe Harbor Water Power Corporation typically operates their fishway from the beginning of March until the end of May. River flow was close to 54,000 cubic feet per second on the day of the inspection.

Significant items are highlighted below:

Entrance gates:

- Horizontal steel bars are still present at the openings of entrance gates A and C. USFWS Fish Passage Engineers have previously requested these bars to be removed in order ensure safe passage to all migratory fish entering the lift. The location of the bars causes them to protrude into the flow path of the fish. The Service preference is that fish not be exposed to protrusions, sharp edges, and other objects in the flow path that could cause injury. As noted by the Project managers, removing these bars would compromise the structural stability of the gates. Able to



identify a large number of other fish passage facilities with gates that don't have horizontal bars in the flow path of the fish, the Service once again requests that the licensee removes or relocates these bars above and outside of the water column. Figure 1 in the Appendix shows the steel bar at gate C.

Fishway hydraulics:

- It is evident that the licensee has addressed and rectified the negative hydraulics at the diffuser upstream from gates B and C that were observed during the inspection of the prior year (2013). There used to be a portion of the flow coming up through this diffuser that flowed toward gate A rather than gates B and C, resulting in velocities within the water column with opposing directionality (i.e. upstream and downstream). This opposing directionality is no longer present.

In general, the existing fish passage facilities appear sound and functional.

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

Appendix



Figure 1: Gate C steel bar crossing through the water column, right at the path that fish would use to move into the fishway