

Brookfield

Brookfield Renewable
BIF III Holtwood LLC
Holtwood Station
482 Old Holtwood Road
Holtwood, PA 17532

VIA EMAIL

December 22, 2022

Sheila Eyler US Fish and Wildlife Service Mid-Atlantic Fish and Wildlife Conservation Office 177 Admiral Cochrane Drive Annapolis, MD 21401	Scott Williamson PA Dept. of Environmental Protection Waterways & Wetlands Program 909 Elmerton Avenue Harrisburg, PA 17110-8200
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RE: BIF III HOLTWOOD LLC – 2022 FISH PASSAGE REPORT

Dear PADEP and USFWS:

Pursuant to Articles 47 and 53 of its License, the Prescription for Fishways, and Conditions VI.A.2 and III.B.1 of the Water Quality Certificate (WQC) for the Holtwood Hydroelectric Station, BIF III Holtwood LLC (Brookfield), licensee of the Project, hereby submits the 2022 Holtwood Fishways Operations Report.

Should any additional information be required, please contact me by phone at 717-284-6218, by e-mail at Adam.Slowik@brookfieldrenewable.com, or by mail at Brookfield Renewable, 482 Old Holtwood Rd., Holtwood, PA 17532.

Sincerely,



Adam C. Slowik
Compliance Specialist

Enclosure – Holtwood 2022 Fishways Operations Report

cc: Cale Benard (Brookfield)
Dustin Droege (Brookfield)
Steven Giffin (Brookfield)
Katie Lester (Brookfield)
Walter Migliori (Brookfield)
Bob Nikolaus (Brookfield)
Jon Rhoads (Brookfield)
Holtwood FPTAC Resource Agencies

Holtwood 2022 Fishways Operations Report

History:

The Holtwood Project was built in 1910 and is located at River Mile 24 on the Susquehanna River. It is the second upstream hydroelectric facility on the river, with Conowingo Dam being located below and Safe Harbor Dam and York Haven Dam being located above.

In 1993, the Susquehanna River Fish Passage Settlement Agreement was signed, requiring the licensee of the Holtwood Project to provide migratory fish passage at their facility. The licensee began construction in 1995 and the fishway was placed into operation in April of 1997. The Holtwood fish lift has operated each spring since 1997, as well as fall of 2014, 2015, 2017, 2018 and 2019. 2022 marks the 26th year of operation.

Fishway Design:

The Holtwood fish lift design incorporates numerous criteria established by the USFWS and state resource agencies. Physical design parameters for the fishway are given in the 1998 Fishway Report (Normandeau Associates, Inc. 1998. Summary of the operation at the Holtwood Fish Passage Facility in 1997. Report prepared for PPL, Inc., Allentown, PA.) The fishway is designed to pass a population of 2.7 million American Shad and 10 million River Herring.

There are 2 lifts on the fishway, tailrace and spillway (see figure in Normandeau Associates, Inc. 1998). The tailrace lift has two entrances (gates A and B) and the spillway lift has one entrance (gate C). Each lift contains a mechanically operated crowder, picket screen(s), hopper, and hopper trough gate. Fish captured in the lifts are sluiced into one trough, which then leads into Lake Aldred. Attraction flows to the two fish lifts at Holtwood Dam are supplied via an attraction water piping system leading to five separate flow diffusers, with the flow distribution controlled by eight motor operated valves (MOVs). Generally, flows are introduced upstream of crowder in each lift and upstream of the three entrance gates. Entrance gates at the three lift entrances control the depth of flow within the lift channels. Fish that enter the tailrace and/or spillway entrances are attracted by water flow into the mechanically operated crowder chambers. Once inside, fish are crowded into the hoppers, lifted, and then sluiced into the trough. Fish swim upstream through the trough, past a counting window, and into the forebay through a 14 ft wide fish lift exit gate.

For more information on the design and operation of the lift, please reference the Fishways Operations Plan. This plan includes operating protocols and guidelines that are flexible and utilize experience gained during previous years of fish lift operation.

Regulatory Dates:

Resident spring fish passage season at the Holtwood fish lift is from April 1 through June 30. Migratory fish passage season timing is based on the passage of fish at the Conowingo Dam, located downstream. Resident fall fish passage season is from September 1 to October 15.

2022 Fish Passage:

PADEP and US Fish and Wildlife Service (USFWS) submitted written requests to Brookfield on March 17, 2022 asking that the Holtwood fish lift not be operated in 2022 based on the recommendation from multiple resource agencies due to the potential spread of invasive species. USFWS also noted that the Tier II radio telemetry study would then be deferred. By letter dated March 28, 2022, Brookfield submitted a request to FERC to suspend fish passage and the Tier II radio telemetry study for the 2022 fish passage season at the Holtwood fish lifts based on the agencies request. On April 4, 2022, FERC filed a Public Notice regarding the Application for Temporary Variance of Fish Passage Requirements.

Upstream Shad Passage – Tier II Radio Telemetry:

2022 could have been year 3 of the study but it was deferred due to the request to suspend of fish passage.

Maintenance/Upgrades:

- Electrical and I&C calibration pre-season maintenance completed.
- Gate 11 trash screen was repaired.
- Divers are currently working on the following:
 - Full underwater inspection of all three entrance gates.
 - Investigating B entrance gate
 - Re-installation of the remainder of gate guide cross bars.
 - Investigate the cause of the spillway attraction flow upwelling in the crowder area.

Fishways Operating Plan:

At the request of resource agencies, Brookfield updated the Holtwood Fishways Operating Plan (FOP) and after extensive agency consultation, filed it with FERC on February 19, 2021. Once the operating matrix is updated, the FOP will be updated as well.

Invasive Species:

In 2020, PADEP recommended that Brookfield evaluate the ability and/or mechanisms to manage invasive species in preparation for the 2022 fish passage season. A site visit to Conowingo Dam was conducted to see how the East Fish Lift (EFL), the West Fish Lift (WFL), and trap and transport operate at Conowingo. The Holtwood fish lift is engineered differently than the Conowingo EFL, WFL, and is designed as a true passage facility with no current method or means of sorting. With no safe or viable scope to guide invasive removal or regulatory requirement, Brookfield has not pursued this topic further.

During a call with resource agencies on September 20, 2022, PADEP recommended that Brookfield continue to evaluate ways to manage invasive species in preparation for when traditional fish passage season resumes.

CFD Model Update:

Brookfield contracted with Gomez & Sullivan to complete a CFD model of the Holtwood fish lift, develop a new operating matrix, and field test for verification in 2021. Brookfield will submit the report to agencies. Once the operating matrix is updated, the Fishways Operating Plan will be updated. Brookfield considers this an operational change, therefore pursuant to approved study plan, Tier II radio telemetry data prior to the next operating season will not be included in our catch average moving forward.