

COVER SHEET

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR
AMENDMENT TO LICENSE
HOLTWOOD HYDROELECTRIC PROJECT
Docket No. P-1881-050

Section 2
Proposed Action and Alternatives
Pages 13 through 28

FEIS

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 NO-ACTION ALTERNATIVE

The no-action alternative is amendment denial. Under the no-action alternative, the new powerhouse would not be constructed, the new turbines would not be installed, the fish passage and recreational improvements would not be implemented, the license term would not be extended to 2030, and relicensing would begin in 2009.

2.1.1 Existing Project Facilities

Dam

The Holtwood dam is an overflow-type structure that consists of a 2,392-foot-long by 55-foot-high, low-hazard, concrete gravity dam with a spillway crest at elevation (El.) 165.0 feet,¹⁰ and a 24-foot-wide pier and fish lift exit channel at its eastern end. The remaining 2,368-foot-long spillway section of the dam is raised to an effective El. of 169.75 feet via the use of wooden flashboards and inflatable rubber dam. The inflatable rubber dam sections include a 40-foot-long by 10-foot-high section on the east side of the dam near the fish lift exit and a 300-foot-long by 4.75-foot-high section installed adjacent to the 10-foot-high segment and separated by an intermediate pier. Two additional 387-foot-long by 4.75-foot-high sections and an additional intermediate pier were installed in 2001. All of these rubber dam sections are used for limited control of project spills. Since 2004, PPL has been installing 200 feet of 6-foot-high flashboards from the York County abutment as a public safety measure. The remaining 1,054 linear feet of dam crest has 4.75-foot-high steel pin-supported wooden flashboards. Currently, rubber dam sections 2 and 3 have failed and are not repairable. Flashboards have been installed in front of these sections to maintain reservoir elevations. This increases the amount of flashboards by another 687 feet. At the western end of the dam, there is a non-functional fish ladder that was constructed in 1914 and abandoned in 1920.

Powerhouse

The Holtwood powerhouse is a manned station that is locally operated by PPL. The powerhouse contains 10 similarly sized vertical Francis turbines with a current licensed capacity of 107.2 MW. PPL has replaced the runners and shafts for 6 of the 10 units (Units 3, 5, 6, 8, 9, and 10) and has rewound the generators on Units 3, 8, and 9, which resulted in an overall increase of 1.24 MW. Upgraded units operate with efficiencies in the range of 87 to 92 percent. The four remaining units are estimated to have efficiencies in the 70 to 75 percent range. The replacement of runners and shafts

¹⁰ All elevations in this EIS are in PPL's Powerhouse datum = North American Vertical Datum (NAVD) 88 + 0.06 feet.

on the remaining units, which is scheduled during the 2009 to 2011 timeframe, is not expected to increase the units' nameplate ratings. The hydraulic capacity of the existing powerhouse is 31,500 cfs, but the units typically operate at a lower rate of release. The minimum operating discharge of each unit ranges from approximately 1,200 cfs to 2,500 cfs.

Historically, station electrical use was provided by two water-driven direct-current exciter units. These units were replaced in 1994 with static excitation systems. New direct-current rectifier units were installed in 2001 to provide the remaining small direct-current electric energy requirements within the plant.

Lake Aldred

Lake Aldred was formed by the construction of Holtwood dam and extends up the Susquehanna River for approximately 8 miles to the base of the upstream Safe Harbor Project. The reservoir is managed to maintain a minimum operating level of El. 167.5 feet from May 15 through September 15 to support reservoir recreational uses and access. The minimum operating level during the balance of the year is El. 163.5 feet, which is based on the hydroelectric station's fire protection water intake requirements. The reservoir's maximum useable storage capacity is 15,224 acre-feet between the top of dam flashboards (El. 169.75 feet) and El. 163.5 feet. This is equivalent to approximately 184,000 cfs-hours of stored water that is enough to support approximately 6 hours of operation of the existing generating station at full capacity.

Project Lands

The total land area within the project boundary is approximately 6,320 acres, including 2,400 acres of lakebed under Lake Aldred, which is almost entirely owned and managed by PPL. PPL owns flooding rights on 4,100 acres within the project boundary. The downstream Conowingo Hydroelectric Generating Station, FERC Project No. 405 (Conowingo Project), owned by the Exelon Corporation, backs up to project area downstream of the dam and powerhouse, and as a result, those areas are also included within the Conowingo Project boundary. PPL has developed and manages recreational access and has been responsible under its existing license for the management of lands and waters within this area included in both projects' boundaries, except for limited adjacent lands owned by the Exelon Corporation, as part of the Conowingo Project.

2.1.2 Existing Project Operation

As noted above, the Holtwood powerhouse is manned and locally operated by PPL. Operations are scheduled on the basis of releases from the upstream Safe Harbor Project in response to available river flow. The project primarily is used to meet the peak power demands within the Pennsylvania-New Jersey-Maryland (PJM) Interconnection, with limitations on peaking generation set by releases from the Safe Harbor Project, runoff from the natural drainage area below Safe Harbor, and available

project storage, as governed by seasonal recreational demands. Project operations are coordinated through the PJM Interconnection with the operation of PPL's other power generating resources and those of other generators within the PJM grid. Project reservoir levels are scheduled seasonally in accordance with the existing operating license and power and non-power operations as discussed below.

In accordance with the existing operating license, the project is generally operated on a daily peaking basis using its limited reservoir storage to collect inflows from the upstream Safe Harbor Project and from the 686-square-mile drainage between the Safe Harbor and Holtwood dams and to release this water during the peak electrical demand periods during the day. Operation at Safe Harbor governs and accounts for approximately 98 percent of inflow to Holtwood whenever river flow above Safe Harbor is less than about 100,000 cfs. As a result of this regulation, the Holtwood Project's peaking operation normally coincides with the Safe Harbor Project's and thus does not significantly change the progress of water down the river.

During low flow periods, the project may operate on a weekly cycle in response to market demands for power, using available storage to capture weekend inflows for use during weekday peak demand periods. During moderate to low flows, inflow to the Holtwood Project from the Safe Harbor Project on weekends may be negligible or non-existent, and the Holtwood Project is limited to capturing the relatively small amount of weekend local runoff to redistribute for weekday peaking. During high water periods, the project operates on a 24-hour basis up to its maximum hydraulic capacity. Based on long-term flow records, the river flow exceeds current station capacity (31,500 cfs) approximately 40 percent of the time. Flows in excess of plant capacity are spilled over the dam.

PPL's generation dispatchers track Susquehanna River flows, meteorological conditions, and power demands on a daily basis. These data are used to establish a generation schedule on a day-ahead basis. The dispatchers schedule overall daily generation as a function of available water and power demands and determine the overall hours of operation of the Holtwood Project.

PPL also operates the existing generating units for ancillary generation services including Area Regulation, condensing, and spinning reserve. Under Area Regulation operations, line loads and power demands drive the generation production of the Holtwood Project within predetermined or scheduled limits, which are set by PPL and PJM based on the capacity of individual generating units to provide this service.

The existing Holtwood units also provide black-start capability within the PJM grid. Black-start capability allows generating units to restart without the need for any external power source. As a result, generating units such as those at the Holtwood Project are critically important with regard to recovery after electrical system outages, and they provide the excitation necessary to restart other larger generating stations connected to the electrical grid.

2.2 APPLICANT'S PROPOSAL

2.2.1 Proposed Project Facilities and Construction Activities

PPL proposes to redevelop the project and reconfigure the fish passage facilities, as shown in figure 2 and described below:

- Develop and implement sediment and erosion control plans for construction activities.
- Excavate approximately 69,126 cubic yards (cy) of rock and 240,313 cy of soil on the land formerly occupied by the coal steam station to expand the forebay to allow more water to pass into the plant at acceptable velocity levels.
- Excavate approximately 293,055 cy of rock and 63,529 cy of soil and construct a new 240-foot-wide by 130-foot-long powerhouse adjacent to the existing powerhouse in the area that was formerly occupied by the coal burning steam electric station and install two new generating units with a total installed capacity of 80.6 MW at best gate.¹¹
- Excavate approximately 802,972 cy of rock and 4,035 cy of soil in the existing tailrace allow water to pass downstream without creating backpressure on the generating units and install cofferdams to direct flow around excavated areas.
- Restrict excavation activities during several months each year to avoid disturbing nesting eagles or shad migration as explained further in this document.
- Remove the existing skimmer wall and approximately 40,000 cy of reservoir silt and then construct a new skimmer wall with a roadway deck above the dam.

¹¹ The proposed project modifications, which include additional capacity of 80.6 MW for the two new generating units, 2.36 MW for the two new small turbine generators in the existing powerhouse bays, and 4.1 MW resulting from the proposed replacement of runners and shafts in Units 1, 2, 4, and 7, would increase the capacity of the project from 108.44 MW to 195.5 MW. The authorized capacity when the project was originally licensed on August 14, 1980, was 107.2 MW. Since that time, the runners on six units were replaced with newer, more efficient designs; the generators on three units were rewound to higher ratings; and the two water-driven exciters were retired. The net result of these modifications increased the capacity of the project from 107.2 MW to 108.44 MW.

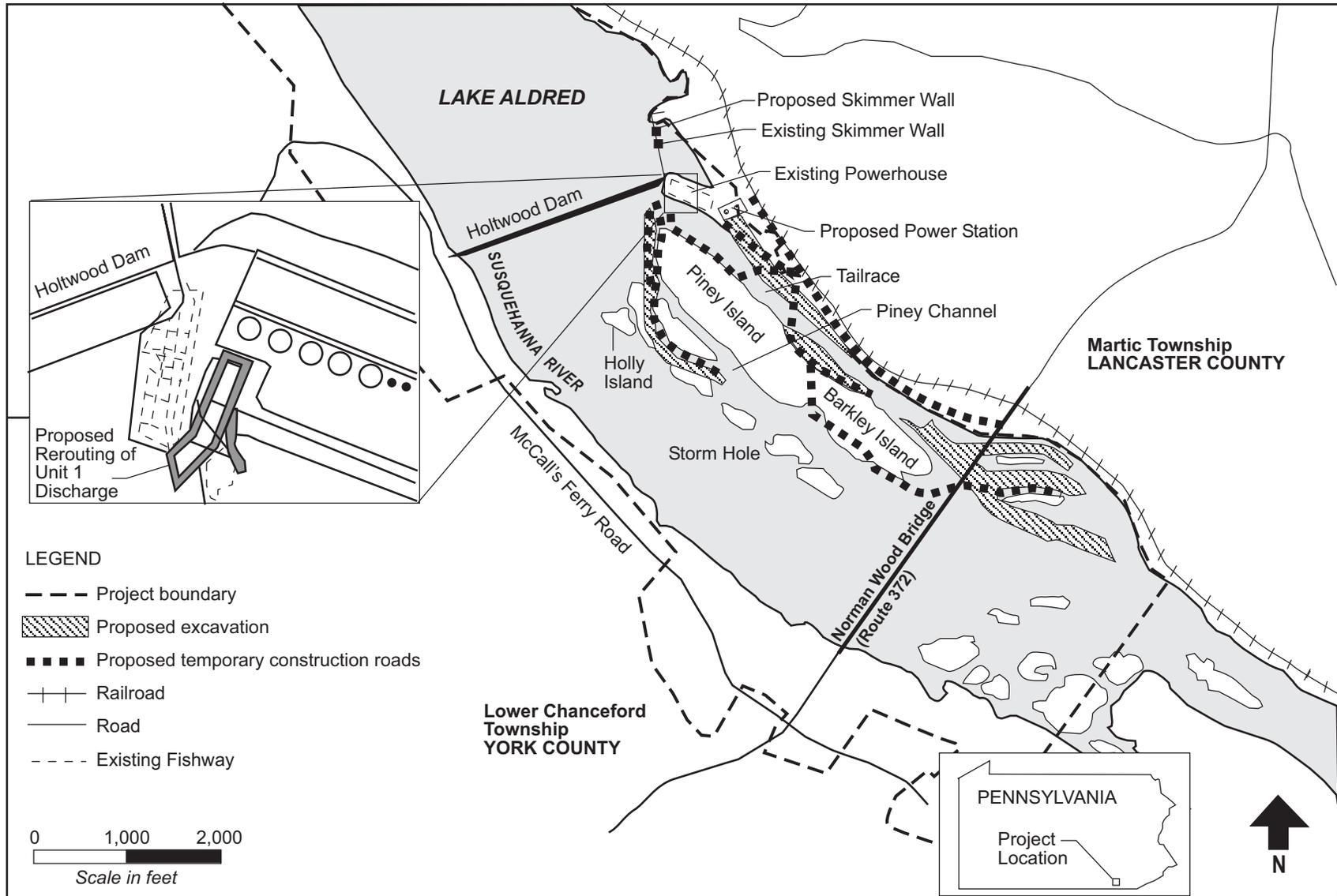


Figure 2. General view of existing and proposed facilities at the Holtwood Project. (Source: PPL, 2007a, as modified by staff)

- Install a new draft tube extension to Unit 1 to reroute the flow from Unit 1 to from the tailrace to the west side of Piney Island in order to enhance the secondary migratory fish passage route in Piney Channel.
- Excavate approximately 70,695 cy of rock from Piney Channel to control channel velocity and to reduce tailwater levels at Unit 1.
- Remove two retired plant exciter units and install two small turbine generator units (combined 2.36 MW) in the existing powerhouse bays.
- Replace the runners and shafts on Units 1, 2, 4 and 7, which would increase the turbine ratings, and thus the overall unit capacities by 4.1 MW.
- Modify the existing fish lift to enhance lift effectiveness, including changes to the attraction water inlet piping, the addition of a valve, redesign and reconstruction of fish lift entrance C, and relocation of the tailrace crowder drive.
- Install passive integrated transponder (PIT) tag readers.
- Design and add eel ramps to the fish lift entrances.
- Provide fishing and boating access at points below the dam and powerhouse and improve the existing boating access points on Lake Aldred, including: (1) a new elevated roadway over the Norfolk-Southern railroad track along the Lancaster County shore for enhanced public access to the project tailrace and river corridor lands; (2) a new public parking area along the Lancaster shore and reconstruction of the tailrace fishing area; (3) enhanced parking along the township road in York County and the construction of improved trail access to the river below the dam; (4) extension of the boat ramp at the York Furnace boat launch to improve the ramps utility on a year-round basis; and (5) improvements to the Pequea Creek boat launch area.
- Implement a settlement agreement¹² for whitewater boating mitigation (whitewater agreement).
- Construct a wetland replacement project along Landis Run in Manheim Township, Lancaster County, to mitigate for wetlands affected by the project construction.
- Field delineate and identify all existing wetlands within the areas of ground-disturbing activities using orange construction fencing prior to the start of

¹² Settlement agreement among PPL, the Greater Baltimore Canoe Club, Starrk Moon, SWW Park Alliance, Conewago Canoe Club, Susquehanna Surf Society, Topher Smith, Chris Iverson, and American Whitewater (Recreational Stakeholders) signed on June 13, 2008, and filed with the Commission on June 19, 2008.

construction activities through the completion of ground-disturbing activities and after site stabilization.

- Construct temporary and permanent access roads designed to avoid effects on existing environmental and archeological resources and provide post-construction access to recreational facilities.

2.2.2 Proposed Operational Modifications

- Implement a daily volumetric minimum flow release equal to the lesser of net daily inflow (daily inflow from the Safe Harbor Project plus intermediate tributaries, less reservoir evaporation) into Lake Aldred, or 98.7 percent of the minimum flow required by the Commission (QFERC¹³) to be released at the downstream Conowingo Project.
- Implement a continuous conservation flow of 200 cfs to the Piney Channel and the tailrace to maintain and protect existing and designated uses and water quality standards in Piney Channel.¹⁴
- Release a continuous minimum flow from the project equal to either (1) 800 cfs, or (2) net inflow to Lake Aldred, whichever is less. This is to become effective upon the latter date of initiation of Unit 1 discharge to Piney Channel or initial operation of the planned exciter replacement units in the existing powerhouse and would be implemented no later than 3 years after the date of the Commission’s final order approving the Holtwood license amendment.
- Continue to use the existing configuration of flashboards to pass water through the existing 10-inch pipe on the dam to maintain the current rate of flow into the bypassed reach.
- When river flows are between 31,000 and 61,500 cfs, supply flows to the bypassed reach of approximately 1,000 cfs once per day for 1 hour, in order to sufficiently wet the roots of the white doll’s daisy plant population during the dry summer months of its growing season.

¹³ “QFERC” is the target minimum release from Conowingo as stated in the Conowingo license. The schedule for QFERC is March 1 to March 31—3,500 cfs; April 1 to April 30—10,000 cfs; May 1 to May 31— 7,500 cfs; June 1 to September 14—5,000 cfs; September 15 to November 30—3,500 cfs; December 1 to February 28/29—3,500 cfs, but intermittent flows and shutdowns are allowed during this period.

¹⁴ Under the COA, the exact flow was to have been determined by the resource agencies in January 2008. In the interim, we use the PPL’s suggested conservation flow of 200 cfs for our analysis.

- Implement drought operations that would release water from storage in Lake Aldred during drought conditions, if approved and as directed by the Susquehanna River Basin Commission (SRBC), to make up or compensate for about 44 acre-feet per day in new consumptive use at PPL Corporation-owned thermal generating stations in the Susquehanna River Basin. A drought condition would occur when flows in the Susquehanna River fall below a level to be determined by SRBC. Each drought condition day, the Holtwood Project would operate on a daily Area Regulation or peaking basis and would release all water entering Lake Aldred from the Safe Harbor Project and intermediate tributaries, less reservoir evaporation, plus up to the equivalent of 44 acre-feet per day of water from storage. From September 16 through December 31, PPL would operate the project to maintain minimum daily reservoir levels not lower than a rule curve that would ensure capability for makeup for the consumptive use on sub-trigger flow days without drawing down below El. 163.5 feet. This rule curve conservatively anticipates a sub-trigger river flow each day and the need to release 44 acre-feet from storage.
- Drawdown Lake Aldred below the existing minimum El. of 167.5 feet as needed during the summer recreational season (May 15 to September 15) during regional drought periods when daily net inflow to Lake Aldred is less than the project's total release obligations.
- Develop an operating plan to extend fish lift operations in the spring for upstream passage of resident (non-migratory) species.
- Provide a River Hotline with information regarding reservoir levels and develop a web site that would provide reservoir level information as measured at the dam, provide expected generation schedules, and note if drought operations are in effect.

2.2.3 Proposed Environmental Measures

- Develop a land and shoreline management plan with respect to project lands to establish long-term management objectives and to ensure the continued preservation of project lands, shoreline buffers, historic and archeological resources, and the protection of sensitive species such as the bald eagle.
- Develop and implement a historic properties management plan to protect historic and archeological resources during project construction and throughout the term of the amended license.
- Implement a long-term cooperative study and monitoring program for migratory fishes, including American eel, to ensure efficient and effective upstream and downstream passage.

- Implement a long-term monitoring program of wetlands and state threatened and endangered plants in the river bed downstream of the dam to examine the effects of reductions in spill frequency on in-river resources and determine if any adjustments to planned flow release rates are warranted to ensure the continued protection of the river area.
- Implement a post-operational environmental evaluation of the bypassed reach, tailrace, and Piney Channel including dissolved oxygen (DO) monitoring to ensure that existing and designated uses are being protected and modify conservation flow releases, if needed based on the study results.
- Implement a minimum 5-year monitoring schedule at the wetland, stream and forested riparian planting mitigation sites.
- Develop and implement a bald eagle protection plan to ensure the continued protection of eagles that nest and forage within the immediate project area.

2.2.4 Construction Schedule

Because the design phase is still in progress, only rough milestone dates for construction have been set. All work is scheduled to be completed in three construction seasons. PPL proposes to develop a final construction schedule following preparation of a plan for sequencing construction activities to avoid impacts to migration of anadromous fish and American eel and certain protected species including the bald eagle. Consistent with the provisions of the COA, PPL provided a draft construction sequence plan to Pennsylvania DEP on March 31, 2008, and filed the draft plan with the Commission on June 19, 2008. In the draft plan, PPL proposes seasonal limitations on construction activities to minimize effects on fish and wildlife.

2.2.5 Project Safety

Portions of the project have been operating for more than 100 years, including 28 years under the existing license. During this time, Commission staff has conducted operational inspections focusing on the continued safety of the structures, identification of unauthorized modifications, efficiency and safety of operations, compliance with the terms of the license, and proper maintenance. In 1996, the project was exempted from filing Emergency Action Plans and Independent Safety Inspection Reports because it was determined that failure of the dam would not endanger public safety downstream of the dam. The licensee continues to periodically inspect the project and the Commission continues to inspect the project in regard to public safety at public recreational facilities on project lands. The most recent dam safety inspection report was issued by the Commission on December 26, 2007. As part of the upcoming relicensing process, the Commission staff would evaluate the continued adequacy of the proposed project facilities under a new license. Special articles would be included in any license issued, as appropriate. Commission staff would continue to inspect the project during the new license term to ensure continued adherence to Commission-approved plans and

specifications, special license articles relating to construction (if any), operation and maintenance, and accepted engineering practices and procedures.

2.2.6 Modifications to Applicant’s Proposal—Mandatory Conditions

The following mandatory conditions have been provided and are evaluated as part of PPL’s proposal.

2.2.6.1 Section 18 Prescription

By letter dated April 16, 2008, Interior filed a preliminary fishway prescription pursuant to section 18 of the FPA, which includes Interior’s reservation of authority to prescribe fishways during the term of the amended license. The preliminary fishway prescription specifies that fishways shall be constructed, operated, and maintained to provide safe, timely and effective passage for American shad, alewife, blueback herring, American eel, and other designated resident riverine fish species at the licensee’s expense. The project already maintains and operates extensive fish passage facilities that were placed into operation in 1997, but the preliminary fishway prescription includes a number of specific prescriptions and measures designed to improve the effectiveness of the existing facilities, related to existing deficiencies and the project modifications associated with the proposed license amendment. These specific provisions are described in table 2.

Table 2. Description of Interior’s preliminary fishway prescription for the Holtwood Project.^a

Prescription	Description
1. Design populations	The specified capacity for the upstream passage facilities at Holtwood is 2.7 million shad and 10 million river herring. The design population for American eel is not known at this time, but Interior supports the licensee’s proposal to install eel ramps and monitor annual passage.
2. Operating flows	Upstream fishways shall be operational during the designated migration periods up to a flow of 100,000 cfs, as measured at the Marietta U.S. Geological Survey (USGS) gage. Downstream fishways shall be operational during the designated migration periods whenever generating units are operated at the project.

Prescription	Description
3. Fishway operating periods	<p>Upstream migration period: Shad and river herring—April 1 through June 15 American eel—March 1 through December 1 whenever river temperature is above 50 degrees Fahrenheit (°F).^b</p> <p>Downstream migration period: Shad adults—April 15 through July 1 Shad juveniles—July 1 through November 15; River herring adults—April 15 through July 1 River herring juveniles—June 15 through October 14 American eel—September 15 to February 15 whenever river temperature is above 50°F.^b</p>
4. Fishway operational procedures during new powerhouse construction.	<p>Requires the licensee to prepare a plan, in consultation with state and federal agencies, on how construction activities will be sequenced to avoid impacts to the migration of anadromous and catadromous species, and continue un-interrupted operation of the fish passage facilities.</p>
5. Inspection and site access	<p>Requires the licensee to allow access to the site for U.S. Fish and Wildlife Service (FWS) personnel or designated representatives, to inspect the fishways to determine compliance with the Fishway Prescription.</p>
6. Consultation with FWS	<p>Requires the licensee to consult with FWS on all functional and final design plans, construction plans, and hydraulic modeling studies related to the fish passage facilities.</p>

Prescription	Description
7. Fishway Operating Plan (FOP)	Requires the licensee to prepare and implement a plan related to all operations and maintenance of each fishway, including daily and seasonal operations, attraction flows, powerhouse unit sequencing and flow split between powerhouses, and fish counting/monitoring programs for anadromous, catadromous, and riverine fishes. By December 31 of each year, the licensee shall prepare an annual operations report, describing any deviations from the FOP and measures taken to correct any deviations, and shall meet with the agencies by January 31 to discuss any needed modifications to the FOP. Any fish passage enhancements or new facilities implemented after the license amendment shall be included in the FOP, and the modified FOP for these facilities shall be submitted to the agencies for approval 60 days prior to their initial operation.
8. Fish passage enhancements associated with license amendment	Requires the licensee to implement the enhancements approved by FWS concurrent with construction of the new hydroelectric generating facilities. This includes fish lift improvements related to modifying the attraction water supply, rebuilding the skimmer wall, reconstruction of fish lift entrance C, and relocation of the tailrace crowder drive; redirection of the Unit 1 discharge through the diversion wall and into Piney Channel; excavations within the project boundary to reduce velocity barriers to fish migration in the tailrace, below the tailrace, and in Piney Channel; placement of eel monitoring ramps and traps in the tailrace in Piney Channel; and implementing a spill control system approved by FWS.

Prescription	Description
9. Upstream American shad passage monitoring	Requires the licensee to implement a monitoring plan for upstream shad passage approved by FWS that would include annual fish counts and PIT tag monitoring. The licensee would monitor the effectiveness of upstream passage, including daily updates to the resource agencies, for a period of 3 years, with an annual monitoring report by December 31 of each year. Following completion of this study, the licensee would consult with the agencies to develop a plan for a radio telemetry study to assess shad behavior below the project and to determine the percentage of shad that enter Holtwood Project waters and then successfully pass through the Holtwood fish passage facilities. This study would continue for a minimum of 4 years, concurrent with fish counts and PIT tag monitoring, to determine the need for any additional or modified fish passage facilities at the project. Daily updates would be provided to the resource agencies, and an annual report would be required on the radio telemetry study by December 31 of each year.
10. Downstream American shad passage monitoring	Requires the licensee to conduct a discrete survival study for shad during downstream passage through the project, once the new powerhouse begins operation. The report on the study would be provided to the agencies within 90 days of completion of the study.

Prescription	Description
11. Upstream American eel passage	<ul style="list-style-type: none"> a. Trigger date for initiation of eel passage measures at the Holtwood Project shall be when eel passage becomes operational at the downstream Conowingo Project, or when eel stocking into Conowingo reservoir begins as part of an agency-approved plan, or when FWS determines that available data indicate that sufficient numbers of eels are available below Holtwood to require passage. b. Within 1 month of the trigger date, the licensee shall meet with the resource agencies to develop a plan and schedule for a siting study for permanent eel fishway(s), with a final plan to be submitted for agency approval within 3 months of the meeting. The siting study shall be implemented on an annual basis until adequate information is available to make a siting decision. c. Once adequate information is available to make a siting decision, the licensee shall meet with the resource agencies to develop a plan and schedule for constructing permanent eel fishways. Within 6 months of that meeting, the licensee shall submit design plans and a schedule for resource agency approval. d. Within 3 months of the approval of the design plans, the licensee shall submit a plan for monitoring the effectiveness of upstream eel passage to the agencies for approval. e. Once the eel passage facilities are operational, the licensee shall implement effectiveness studies via PIT tagging or other approved methods, with an annual report provided to the agencies by December 31 of each year.

Prescription	Description
12. Downstream American eel passage	<p>a. Trigger date for initiation of downstream eel passage measures at Holtwood shall be 3 years after eel passage becomes operational at the amended Holtwood Project, or 3 years after eel stocking into Lake Aldred begins as part of an agency-approved plan, or when FWS determines that available data indicate that sufficient numbers of eels are available upstream of Holtwood to require downstream passage.</p> <p>b. Licensee shall submit a study plan to determine the effectiveness of downstream eel passage at the project to the resource agencies for approval. The licensee shall implement the approved study plan and shall provide a report on the study within 90 days of its completion.</p>

^a Source: letter from M.T. Chezick, Regional Environmental Officer, Interior, to the Commission, filed on April 16, 2008.

^b Interior is also calling for the licensee to conduct studies on the actual timing of upstream and downstream eel passage at the project to further define the migration periods. The initial migration periods listed in the preliminary fishway prescription are based on studies in other tributaries to the Chesapeake Bay.

2.2.6.2 Water Quality Certification Conditions

The COA, included as part of the license amendment application, includes provisions related to the WQC. The COA anticipated that the licensee would file an application for WQC by December 1, 2007, and includes several “meetings and plans” that the licensee must complete as part of the WQC process (table A-1). PPL applied for WQC on January 30, 2008, and on April 15, 2008, Pennsylvania DEP noted a number of deficiencies in the application, and requested additional information, which must be corrected within 60 calendar days of the Pennsylvania DEP letter. PPL filed its response to the Pennsylvania DEP deficiency letter on June 13, 2008; however, PPL has not completed all the meetings and plans summarized in table A-1. The Pennsylvania DEP requested additional information from PPL to complete its application for WQC on August 8, 2008, and filed a copy of its letter to PPL with the Commission. The COA, however, includes proposed conditions for the WQC that the licensee has agreed to (appendix A to the COA; appendix A of this document, table A-2).

2.3 STAFF ALTERNATIVE

The staff alternative includes PPL proposed action and staff-recommended modifications and additional measures including (1) defining the extent of in-water blasting prior to construction activities that involve blasting; (2) operating the project fish lifts for upstream passage of resident species from September 1 to October 15 for 5 years following commencement of amended project operations, (3) including specific provisions for mitigation of construction effects on fish passage efficiency of shad in the plan to maintain uninterrupted fish migration during construction, (4) developing and implementing a recreation monitoring plan; (5) adding provisions to expand the land and shoreline management plan; and (6) requiring the filing of the final plans for sediment and erosion control, excavation, construction sequencing, bald eagle monitoring, and historic property management with the Commission for approval prior to the commencement of construction.

2.4 OTHER ALTERNATIVES

No other reasonable alternatives were identified by commenting entities or Commission staff.

2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

In arriving at the decision to reconfigure the project as proposed, several other general alternatives were initially considered.

2.5.1 Installation of a New Powerhouse on the Western (York County) Side of the River

Installation of a new powerhouse on the western side of the Susquehanna River was suggested at the April 18, 2006, public meeting. PPL reviewed this configuration in an initial feasibility study on the redevelopment and determined that it would not be economically feasible and not practical from an operating standpoint. Locating the new powerhouse on the west side of the river would also significantly affect existing recreational uses and environmental resources in the bypassed reach. For these reasons, we do not consider this alternative in this EIS.

2.5.2 Installation of a Barrier Dam for Migratory Fish Guidance

PPL had considered constructing a barrier dam in the bypassed reach downstream of the dam to assist in guiding anadromous fish to the existing spillway fish lift entrance. This alternative was suggested in earlier resource agency comments. However, a barrier dam would affect state threatened and endangered plant species in the bypassed reach downstream of the dam and raise concern about boating safety in the vicinity of the low head dam. Therefore, we do not consider this alternative in our analysis in this EIS.