

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Mahoning Creek Hydroelectric Company, LLC

Project No. 12555-004-PA

NOTICE OF AVAILABILITY OF SUPPLEMENTAL ENVIRONMENTAL
ASSESSMENT

(October 20, 2010)

In accordance with the National Environmental Policy Act of 1969 and the Federal Energy Regulatory Commission (Commission) regulations, 18 CFR Part 380 (Order No. 486, 52 FR 47879), the Office of Energy Projects has reviewed the application for an original license for the Mahoning Creek Hydroelectric Project, to be located on Mahoning Creek in Armstrong County, Pennsylvania, and has prepared an Environmental Assessment (EA) to supplement the EA issued on March 23, 2010. In this supplemental EA, Commission staff analyze the potential environmental effects of licensing the project and conclude that issuing a license for the project, with appropriate environmental measures, would not constitute a major federal action significantly affecting the quality of the human environment.

A copy of the supplemental EA is on file with the Commission and is available for public inspection. The supplemental EA may also be viewed on the Commission's website at <http://www.ferc.gov> using the "eLibrary" link. Enter the docket number excluding the last three digits in the docket number field to access the document. For assistance, contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll-free at 1-866-208-3676, or for TTY, (202) 502-8659. You may also register online at <http://www.ferc.gov/docs-filing/esubscription.asp> to be notified via email of new filings and issuances related to this or other pending projects. For assistance, contact FERC Online Support.

Any comments should be filed within 30 days from the issuance date of this notice, and should be addressed to the Secretary, Federal Energy Regulatory Commission, 888 First Street, NE, Room 1-A, Washington, DC 20426. Please affix "Mahoning Creek Project No. 12555-004" to all comments. Comments may be filed electronically via Internet in lieu of paper. The Commission strongly encourages electronic filings. See 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's website under the "eFiling" link. For further information, contact Steve Kartalia at (202) 502-6131.

Kimberly D. Bose,
Secretary.

**SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
FOR HYDROPOWER LICENSE**

Mahoning Creek Hydroelectric Project

Project No. 12555-004

Pennsylvania

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
888 First Street, NE
Washington, D.C. 20426

October 2010

TABLE OF CONTENTS

LIST OF FIGURES	iii
LIST OF TABLES.....	iii
EXECUTIVE SUMMARY	iv
1.0 INTRODUCTION	1
1.1 APPLICATION.....	1
1.2 PURPOSE OF ACTION AND NEED FOR POWER.....	2
1.2.1 Purpose of Action	2
1.2.2 Need for Power.....	2
1.3 STATUTORY AND REGULATORY REQUIREMENTS	6
1.3.1 Federal Power Act	7
1.3.2 Clean Water Act	7
1.3.5 National Historic Preservation Act.....	7
1.4 PUBLIC REVIEW AND CONSULTATION.....	8
1.4.4 Comments on Commission Staff’s EA	8
1.4.5 U.S. Army Corps of Engineers – Terms and Conditions	9
2.0 PROPOSED ACTION AND ALTERNATIVES.....	10
2.1.1 Existing Project Facilities.....	10
2.2.4 Modifications to Applicant’s Proposal.....	10
2.3 STAFF ALTERNATIVE	11
2.4 CORPS ALTERNATIVE.....	11
2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS	11
3.0 ENVIRONMENTAL ANALYSIS.....	12
3.3 PROPOSED ACTION AND ACTION ALTERNATIVES	12
3.3.2 Aquatic Resources	12
3.3.5 Recreational Resources	23
4.0 DEVELOPMENTAL ANALYSIS	28
4.2 COMPARISON OF ALTERNATIVES.....	28
4.2.3 Power and Economic Benefits of the Staff-recommended Alternative	29
4.2.4 Power and Economic Benefits of the Corps Alternative.....	30
4.3 COST OF ENVIRONMENTAL MEASURES.....	30
5.0 CONCLUSIONS AND RECOMMENDATIONS.....	32
5.2 COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE	33

Recommended Alternative 33

6.0 LIST OF PREPARERS 41

LIST OF FIGURES

Figure 1. General location of the Mahoning Creek Project (source: license application). 3

Figure 2. Proposed transmission line route (source: license application). 4

Figure 3. Mahoning Creek Project Site Plan (Source: license application, as modified by staff)... 5

Figure 5. Outflow fishing and dam site picnic areas (source: license application)..... 24

LIST OF TABLES

Table 1. Major statutory and regulatory requirements for the project. 6

Table 4. Comments on the EA. 8

Table 6. Summary of annual net benefits of the alternatives for the project. 28

Table 7. Cost of environmental mitigation and protection measures considered in assessing the environmental effects to operate the project..... 30

EXECUTIVE SUMMARY

On July 27, 2009, Mahoning Creek Hydroelectric Company, LLC (Mahoning Hydro) filed an application for an original license for the proposed Mahoning Creek Hydroelectric Project No. 12555-004 (project) with the Federal Energy Regulatory Commission (Commission). The 6.0-megawatt (MW) project would be connected to the U.S. Army Corps of Engineers (Corps) Mahoning dam which is located on Mahoning Creek in Armstrong County, Pennsylvania. The project would occupy about 1.0 acre of federal land managed by the Corps.

On March 23, 2010, Commission staff issued an Environmental Assessment (EA) for the proposed Mahoning Creek Hydroelectric Project. In the EA, Commission staff recommended Mahoning Hydro's licensing proposal with modifications.

On April 22, 2010, the U.S Army Corps of Engineers, Pittsburgh District (Corps) and the Pennsylvania Fish and Boat Commission (Pennsylvania F&BC) filed comments on the EA. On June 17, 2010, Commission staff hosted a teleconference with the Corps to discuss its comments on the EA. Mahoning Hydro and the Pennsylvania F&BC also participated in the teleconference. In response, Commission staff prepared this supplemental EA to provide additional analysis of several issues discussed during the teleconference.

Specifically, this supplemental EA: (1) clarifies the role of the Corps in determining how flow is allocated and used by the proposed project; (2) provides an updated analysis of minimum flow recommendations; (3) addresses comments regarding water quality monitoring and fish protection; (4) addresses comments on recreation facilities, including the fishing pier; (5) updates the status of the programmatic agreement with the SHPO; and (6) revises the economic analysis of the alternatives. This supplemental EA follows the format of the EA issued on March 23, 2010, noting each section has been modified, and deleting sections that were not modified. Staff's EA, therefore, consists of the EA issued March 23, 2010, plus the additions in this supplemental EA.

Alternatives Considered

In comments filed on the EA, both the Corps and the Pennsylvania F&BC recommend that minimum flow releases to the stilling basin be greater than the applicant-proposed 30 cfs flows. The Corps recommends a flow of 50 cfs from July through February and a flow of 150 cfs from March through June. We refer to this flow recommendation as the Corps alternative. Pennsylvania F&BC did not recommend a specific minimum flow for the stilling basin and only indicated that it would need to be greater than the flow proposed by Mahoning Hydro.

After additional analysis and evaluation of the stilling basin issue, Commission staff have concluded that there is no need to require Mahoning Hydro to release a minimum flow to the stilling basin because minimum flow releases would be at the Corps' discretion. The Corps owns and operates the facilities (i.e., ring jet and spillway sluice gates) that control flow releases into the stilling basin and the Corps would determine the allocation of flows at the project site via an operating agreement with Mahoning Hydro.¹ Therefore, releases to the stilling basin and any associated minimum flow would be determined and controlled by the Corps, not Mahoning Hydro. However, in order to determine the potential environmental effects and costs of the flows that the Corps may release to the stilling basin, this supplemental EA analyzes three flow alternatives: 1) Mahoning Hydro's proposed year-round minimum flow release of 30 cfs (proposed action); 2) a 30 cfs minimum flow from April through December, with a 40 cfs minimum flow release from January through March to prevent the flow release structures from freezing (staff alternative); and 3) the Corp's recommended 50/150 cfs minimum flow recommendation (Corps alternative).

Under the proposed action, staff alternative, and Corps alternative, project generation would result in reduced flows to the stilling basin which could affect water quality and habitat. Our analysis suggests that the 30 cfs minimum flow proposed by Mahoning Hydro would have little effect compared to existing Corps operation on water quality conditions in the stilling basin during the summer. However, because it is possible that reduced flow releases to the stilling basin from the proposed project operation could elevate water temperatures or decrease DO, we recommend that as part of the staff alternative, Mahoning Hydro install water quality monitoring equipment in the stilling basin. Monitoring data would be used to identify periods when the Corps could release higher flows to the stilling basin to maintain water quality.

In comments filed on November 3, 2009, the Corps indicated that the valve used to release flows to the stilling basin can freeze at flows below 40 cfs; therefore, in addition, to monitoring water quality in the stilling basin, the staff alternative includes an evaluation of the Corps releasing 40 cfs during the winter to prevent freezing of the release structures.

Under the Corps alternative, minimum flow releases to the stilling would be 50 cfs from July through February and 150 cfs from March through June. A 50 cfs minimum flow would prevent freezing during the winter and the higher summer flows of 150 cfs

¹ See draft license Article 012. As specified in a Memorandum of Understanding between the Federal Energy Regulatory Commission and the Department of the Army regarding Non-federal hydropower development dated July 15, 1983, the Commission will require licensees to enter into a memorandum of agreement with the Corps regarding project operations at Corps facilities.

would likely prevent any adverse effects from the proposed project operation on water quality in the stilling basin.

Habitat conditions in the stilling basin would be very similar under all three flow alternatives because the stilling basin is essentially a confined channel with depth controlled by a weir at the downstream end. Our analysis indicates that channel width and depth would be the same at flows ranging from 30 to 150 cfs. Velocities through the stilling basin would be higher at the higher flows, increasing from approximately 0.033 feet per second (fps) at 30 cfs to 0.167 fps at 150 cfs. However, because the fish community inhabiting the stilling basin is primarily comprised of warm and coolwater habitat generalists such as largemouth and smallmouth bass, we would not expect these differences in velocity to significantly affect the fish community.

Based on our analysis, we recommend the staff alternative, which is licensing the project as proposed by Mahoning Hydro with the staff modifications presented in the EA issued on March 23, 2010, plus two modifications: 1) adding water quality monitoring in the stilling basin; and 2) eliminating the minimum flow requirement because the Corps' discretion to release flows to the stilling basin and the operating agreement between the Corps and Mahoning Hydro, that we are recommending, make it unnecessary.

In section 4.2 of this supplemental EA, we compare the total project cost to the cost of obtaining power from a likely alternative source of power in the region, for each of the alternatives identified above. Our analysis shows that during the first year of operation under the applicant's proposal, the project would produce power at a cost that is \$286,190, or \$14.31/MWh, more than the likely alternative cost of power. Under the staff-recommended alternative, the project would produce power at a cost that is \$294,710, or \$14.80/MWh, more than the likely alternative cost of power (this alternative assumes the Corps would release 30 cfs from April through December and 40 cfs from January through March). Under the Corps alternative (50 cfs from July through February and 150 cfs from March through June), the project would produce power at a cost that is \$400,450 or \$21.74/MWh, more than the likely alternative cost of power. There are no costs associated with the no-action alternative other than Mahoning Hydro's cost to prepare the license application.

On the basis of our independent analysis, we conclude that issuing a license for the project with the staff-recommended environmental measures, would not be a major federal action significantly affecting the quality of the human environment.

We chose the staff alternative as the preferred alternative because: (1) the project would provide a dependable source of electrical energy for the region (19,914 megawatt-hours (MWh) annually); (2) the project could save an equivalent amount of fossil-fueled generation and capacity, which may help conserve non-renewable energy resources and reduce atmospheric pollution, including greenhouse gases; and (3) the recommended environmental measures proposed by Mahoning Hydro, as modified by staff, would

protect and enhance environmental resources affected by the project. The overall benefits of the staff alternative would be worth the cost of the proposed and recommended environmental measures.

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

**Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
Washington, D.C.**

**Mahoning Creek Hydroelectric Project
Project No. 12555-004 – Pennsylvania**

1.0 INTRODUCTION

1.1 APPLICATION

This section is updated to include comments filed on the EA issued March 23, 2010.

On July 27, 2009, Mahoning Creek Hydroelectric Company, LLC (Mahoning Hydro), filed an application for an original license with the Federal Energy Regulatory Commission (Commission) for the proposed Mahoning Creek Hydroelectric Project No. 12555. The 6.0-megawatt (MW) project would be connected to the U.S. Army Corps of Engineers (Corps) Mahoning dam which is located on Mahoning Creek in Armstrong County, Pennsylvania (see figures 1 and 2). The project would occupy about 1.0-acre of federal land managed by the Corps.

On March 23, 2010, the Commission issued an environmental assessment (EA) that analyzed the environmental and economic effects of: (1) continuing to operate the project with no additional mitigation or enhancement measures (no-action alternative); (2) operating the project as proposed by Mahoning Hydro (proposed action); and (3) operating the project as proposed by Mahoning Hydro with additional measures recommended by Commission staff and various resource agencies (staff alternative). In the EA, Commission staff recommended the staff alternative.

On April 22, 2010, the U.S Army Corps of Engineers, Pittsburgh District (Corps) and the Pennsylvania Fish and Boat Commission (Pennsylvania F&BC) filed comments on the EA. On June 17, 2010, Commission staff hosted a teleconference with the Corps to discuss their comments on the EA. Mahoning Creek Hydroelectric Company and the Pennsylvania F&BC also participated in the teleconference. In response, Commission staff prepared this supplemental EA to provide clarification and additional analysis of outstanding issues discussed during the teleconference.

In this supplemental EA, we include comments from the Corps and the Pennsylvania F&BC and we include a Corps alternative that analyzes the specific

seasonal flow recommendations for the stilling basin made by the Corps in comments filed on the EA.

1.2 PURPOSE OF ACTION AND NEED FOR POWER

This section updates the principal issues addressed in the supplemental EA.

1.2.1 Purpose of Action

The Commission must decide whether to issue a license for the project and what conditions should be placed on any license issued. In deciding whether to issue a license for a hydroelectric project, the Commission must determine that the project will be best adapted to a comprehensive plan for improving or developing a waterway. In addition to the power and developmental purposes for which licenses are issued, such as flood control, irrigation, navigation, or water supply, the Commission must give equal consideration to the purposes of: (1) energy conservation; (2) the protection, mitigation of, damage to, and enhancement of fish and wildlife resources (including related spawning grounds and habitat); (3) the protection of recreational opportunities; and (4) the preservation of other aspects of environmental quality.

Issuing a license for the project would allow Mahoning Hydro to construct the project and generate electricity for the term of the license, making electrical power from a renewable resource available for sale to the regional grid. In this supplemental EA, together with the EA issued by the Commission on March 23, 2010, we assess the effects of project construction and operation, including staff-identified modifications to the proposal and additional concerns and information filed by the Corps. The principal issues addressed in this supplemental EA include: (1) existing Corps project operation and the role of the Corps in determining how flow would be used at the project; (2) effects of the proposed and recommended minimum flow releases and provisions in the proposed and recommended water quality monitoring plan; (3) fish protection; (4) recreational access; (5) programmatic agreement; and (6) the power and economic benefits of the action alternatives.

1.2.2 Need for Power

This section updates the EA issued on March 23, 2010, to include average annual generation under the Corps alternative.

The project would generate an average of 19,914 MWh annually under the staff alternative, and 18,420 MWh annually, under the Corps alternative. To assess the need for project power, we reviewed Mahoning Hydro's anticipated future use of project power, together with that of the operating region in which the project would be located. Project power would be used to meet regional electrical demand. The project would be located in the Reliability First Corporation (RFC) region of the North American Electric

Reliability Council (NERC). According to NERC, summer peak demand in the region is expected to increase at an average rate of 1.4 percent per year over the 10-year planning period from 2009-2018 (NERC, 2009). Therefore, project power would help meet base and summer peak demand. In addition, by producing hydroelectricity, the project would displace the need for other power plants, primarily fossil-fueled facilities, thereby avoiding some power plant emissions and creating an environmental benefit. These factors support a finding that the power from the project may help to meet both the short and long-term need for power in the RFC.

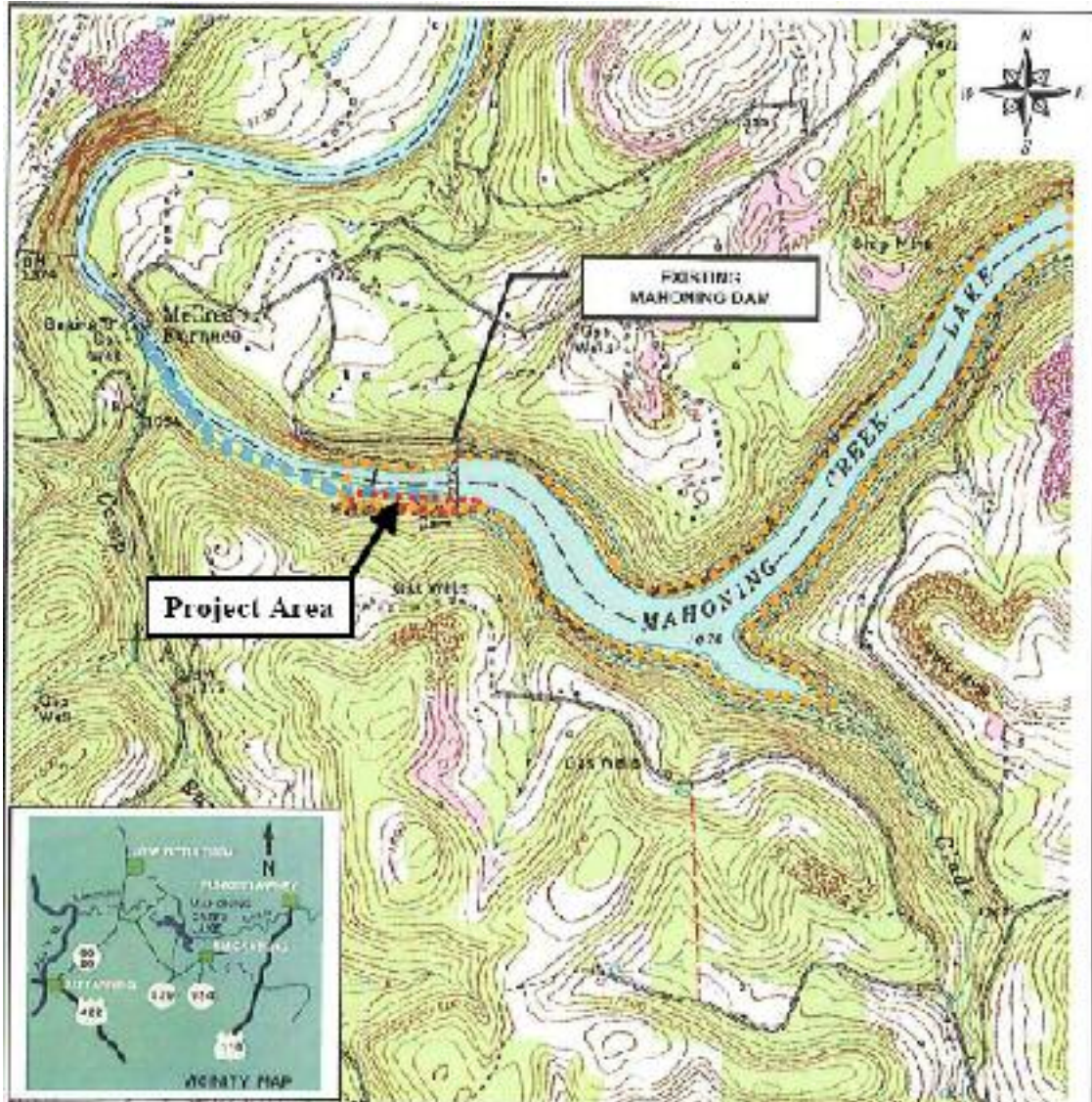


Figure 1. General location of the Mahoning Creek Project (source: license application).



Figure 2. Proposed transmission line route (source: license application).

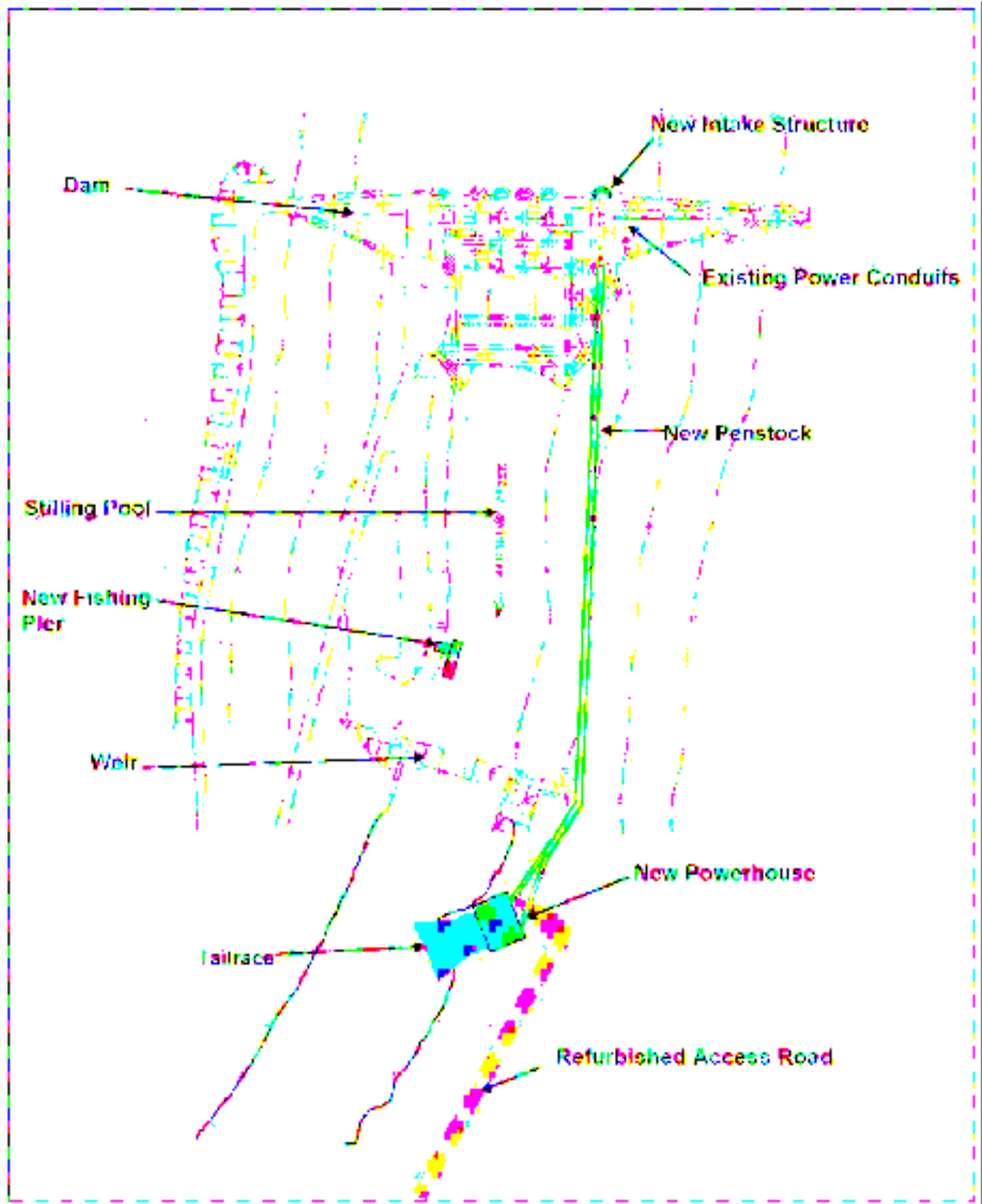


Figure 3. Mahoning Creek Project Site Plan (Source: license application, as modified by staff).

1.3 STATUTORY AND REGULATORY REQUIREMENTS

This section updates the EA issued on March 23, 2010, to describe the current status of statutory and regulatory requirements of the project.

If licensed, the project would be subject to the requirements of the Federal Power Act (FPA) and other applicable statutes. We summarize the major statutory and regulatory requirements in table 1 and describe them below.

Table 1. Major statutory and regulatory requirements for the project.

Requirement	Agency	Status
Section 18 of the FPA – fishway prescriptions	U.S. Department of the Interior (Interior)	No prescriptions were filed.
Section 10(j) of the FPA	Pennsylvania Fish and Boat Commission (Pennsylvania F&BC)	No recommendations were filed.
Section 401 of the Clean Water Act (CWA) – water quality certification (certification)	U.S. Fish and Wildlife Service (FWS) Pennsylvania Department of Environmental Protection (Pennsylvania DEP)	Pennsylvania’s certification is due by November 2, 2010.
Endangered Species Act (ESA)	FWS	A FWS email dated July 20, 2009, filed with the license application (Appendix E), concludes that the project is not likely to adversely affect listed species. In the EA issued March 23, 2010, staff made the same conclusion and by letter to FWS dated March 26, 2010, requested concurrence with this finding. FWS has not responded.
Coastal Zone Management Act (CZMA)	Pennsylvania DEP	As confirmed by email from Pennsylvania DEP, filed March 8, 2010, Armstrong County is located outside of Pennsylvania’s two coastal zones (Lake Erie and Delaware Estuary), and thus the

proposed project does not require a CZMA consistency review.

Section 106 of the National Historic Preservation Act (NHPA)

State Historic Preservation Officer (SHPO)

A draft Programmatic Agreement (PA) was distributed by Commission staff on April 21, 2010, and comments on the PA were filed by the Corps and the Pennsylvania SHPO. A final PA was distributed to the parties on September 15, 2010 (signatures are due by October 31, 2010) that would require Mahoning Hydro to implement an Historic Properties Management Plan.

1.3.1 Federal Power Act

This section updates the EA issued on March 23, 2010, to describe the current status of the water quality certificate and the programmatic agreement.

1.3.2 Clean Water Act

Under section 401 of the CWA, a license applicant must obtain certification from the appropriate state pollution control agency verifying compliance with the CWA. On October 30, 2009, Mahoning Hydro applied to Pennsylvania DEP for certification for the Mahoning Creek Project. Pennsylvania DEP received this request on November 2, 2009. Pennsylvania DEP has not acted on the certification request. In a letter filed August 23, 2010, Pennsylvania DEP identified technical deficiencies in the application for certification and requested that Mahoning Hydro provide the additional information. Mahoning Hydro has not yet filed anything with the Commission to indicate that they have responded to Pennsylvania DEP's letter.

1.3.5 National Historic Preservation Act

Section 106 of the National Historic Preservation Act requires federal agencies to "take into account" how each of its undertakings could affect historic properties. Historic properties are districts, sites, buildings, structures, traditional cultural properties, and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the National Register of Historic Places (National Register).

The Mahoning dam, including the stilling basin, tailrace, and weir, is eligible for listing in the National Register. A nearby foundation is included as a component of this eligible property due to its association with dam construction.

In its 2006 letter, the SHPO notes that the proposed project will have no effect on this property. The SHPO also states that the activity described in the PAD should have no effect on historic archaeological resources, but that if the scope of the project is amended to include additional ground-disturbing activity, the SHPO should be contacted and a Phase I Archaeological Survey may be necessary to locate all potentially significant resources. Finally, the SHPO states that should the applicant become aware that unidentified historic or archaeological properties are located at the project site, or that project activities will have an effect on these properties, the SHPO should be contacted immediately.

Staff distributed a draft Programmatic Agreement (PA) to the Advisory Council on Historic Preservation, the Pennsylvania SHPO, the Corps, Seneca Nation of Indians, Tonawanda Band of Senecas, and Mahoning Hydro on April 21, 2010. The PA would require Mahoning Hydro to implement the proposed HPMP, with minor modifications. The EA issued on March 23, 2010, concluded that the PA and the HPMP would ensure that historic properties within the project boundary are fully identified and would establish procedures for addressing the effects of future ground-disturbing activities on cultural resources at the project.

The Corps and the Pennsylvania SHPO filed comments on the draft PA on May 20, 2010, and July 19, 2010, respectively. A final PA was distributed to the parties for signature on September 15, 2010. Signatures are due by October 31, 2010.

1.4 PUBLIC REVIEW AND CONSULTATION

This section is updated to include comments filed on the EA issued March 23, 2010.

1.4.4 Comments on Commission Staff's EA

Table 4. Comments on the EA.

Commenting Entity	Date Filed
Pennsylvania F&BC	April 22, 2010
Corps	April 22, 2010
FWS	May 10, 2010

Mahoning Hydro filed reply comments on June 2, 2010, and the Corps filed a response on June 11, 2010. In response to the Corps' concerns, Commission staff hosted a teleconference in order to provide Corps staff, and other participants, the opportunity to speak directly to Commission staff about their concerns with the EA.²

1.4.5 U.S. Army Corps of Engineers – Terms and Conditions

This section updates the EA issued on March 23, 2010, to include comments filed by the Corps.

Pursuant to a Memorandum of Understanding (MOU) between the Commission³ and the Department of the Army, licensed hydropower facilities that will be an integral part of or that could affect the structural integrity or operation of a Corps' project are to be designed and constructed in consultation with and subject to the review and approval of the appropriate Corps' District Engineer. Consistent with the MOU, the Commission routinely includes special license articles which do the following:

(1) require the licensee to submit final plans and specifications for cofferdams and deep excavations to the Corps and Commission for review and approval;

(2) require the licensee to enter into a comprehensive agreement with the Corps within 90 days after a license is issued. The agreement must assure that (a) studies and construction activities for the licensed project do not interfere with Corps operations or damage Corps' facilities, and (b) the licensee compensates the Corps for its project-related personnel and construction costs;

(3) authorize the Corps to (a) inspect the construction, operation, and maintenance of any licensed facilities that may affect the structural integrity or operation of the Corps' project, and (b) order the licensee to stop any activity that may endanger the structural integrity or safety of the Corps' project;

(4) require the licensee to submit a regulating plan to the Corps for approval at least 60 days prior to the start of construction, and to enter into an operating

² The teleconference was noticed on June 4, 2010, held on June 17, 2010, and a summary of the teleconference was issued by Commission staff on June 18, 2010.

³ See Memorandum of Understanding between the Commission and the Corp of Engineers regarding Non-federal Hydropower Projects, dated July 15, 1983.

Memorandum of Agreement (MOA) with the Corps describing the detailed operation of the power facilities acceptable to the Corps;

(5) provide that the licensee shall have no claim under the license against the United States arising from any changes made in the structure, operation, or reservoir levels of the Corps' project; and

(6) require the licensee to provide the Commission's Regional Director two copies of all correspondence between the licensee and the Corps and provide that the Commission's Regional Director shall not authorize construction until the Corps provides final written approval of the project.

The Corps submitted comments on the license application, which are discussed throughout Section 3, which has also been updated to address its comments on the EA issued March 23, 2010. Only those resource sections in Section 3 that require updating are included in the supplemental EA.

2.0 PROPOSED ACTION AND ALTERNATIVES

This section updates the EA issued on March 23, 2010, including project facilities and operation under the Corps alternative.

2.1.1 Existing Project Facilities

The existing Mahoning dam, reservoir, and appurtenant facilities were constructed by the Corps beginning in 1939 and became operational in 1941. The dam was designed with two conduits built into the south abutment of the dam for future hydropower development. The Corps facilities consist of: a 162-foot-high, 926-foot-long dam with a 192-foot-long spillway section equipped with five 29-foot-high, 30-foot-long vertical lift gates (i.e., sluice gates), impounding a 5-mile-long, 280-acre reservoir with a normal pool elevation of 1,077 feet mean sea level (msl); and a 192-foot-wide, 950-foot-long stilling basin connected to a 180-foot-long flat crested stilling basin weir.

2.2.4 Modifications to Applicant's Proposal

In a letter filed on November 3, 2009, in response to the ready for environmental analysis notice, the Corps states that during cold periods it releases between 35 to 45 cfs through the ring jet valve to prevent freezing.⁴

⁴ The ring jet valve is connected to a 4-foot-diameter low flow conduit located in the spillway monolith No. 10 used for the purpose of releasing flows into the stilling basin.

In its comments on the EA issued March 23, 2010, the Corps recommended a stilling basin flow of 150 cfs from March through June, 50 cfs flow from July through February, and additional modeling to determine flows that would protect water quality and aquatic habitat within the stilling basin. In addition, the Corps recommended that additional alternatives, including relocation of the powerhouse such that it discharges into the stilling basin rather than downstream be evaluated.

2.3 STAFF ALTERNATIVE

The sections below have been updated to describe the staff and Corps' alternatives and alternatives eliminated from further analysis.

The staff alternative, in addition to Mahoning Hydro's proposed measures, includes: (1) a regulating (or operating) plan including a memorandum of agreement with the Corps; (2) a water quality monitoring plan; (3) a wetland protection plan; (4) a recreation plan that includes installation of the proposed fishing pier; and (5) execution of a programmatic agreement for managing historic properties, which would include implementation of the proposed HPMP and additional consultation and surveys with regards to any ground disturbance in previously undisturbed and unevaluated areas. Proposed and recommended measures are discussed under the appropriate resource sections and summarized in section 5 of the EA.

Draft license articles to implement the staff alternative are attached in Appendix A.

2.4 CORPS ALTERNATIVE

The Corps alternative, in addition to the measures included in the staff alternative, includes increasing the minimum amount of flow to the stilling basin to 150 cfs from March through June, and 50 cfs from July through February. The recommended seasonal flow releases are discussed under the appropriate resource sections and summarized in section 5 of the EA.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

We have not identified any other alternatives to Mahoning Hydro's proposal, although the Corps suggests, in its comments on the EA issued March 23, 2010, an evaluation of an alternative project configuration (placement of the powerhouse such that it would discharge into the stilling basin rather than downstream). During prefilings, Mahoning Hydro evaluated this alternative and concluded it was physically and economically infeasible because there is insufficient space to construct a powerhouse and the associated reduction in static hydraulic head would reduce power capacity and

generation by approximately 11.5 percent. Therefore, the alternative design to construct the powerhouse adjacent to the stilling basin was eliminated from further consideration.

3.0 ENVIRONMENTAL ANALYSIS

3.3 PROPOSED ACTION AND ACTION ALTERNATIVES

The environmental effects discussion is updated from the EA issued March 23, 2010, to address comments and additional measures recommended by the Corps and the Pennsylvania F&BC.

In this section, we discuss the project-specific effects of the alternatives analyzed on environmental resources. For each resource, we first describe the affected environment, which is the existing condition and baseline against which we measure effects. We then discuss and analyze the environmental issues associated with the alternatives.

Only the resources that would be affected, or about which comments have been received, are addressed in detail in this EA. Because constructing the project would not involve large numbers of workers, local infrastructure such as schools, hospitals, lodging, and service businesses would not be significantly affected. Therefore, socioeconomic resources are not assessed in this EA. We present our recommendations in section 5.2, Comprehensive Development and Recommended Alternative.

3.3.2 Aquatic Resources

Affected Environment

Water Quantity

As noted, Mahoning Creek is an approximately 60-mile-long tributary of the Allegheny River in western Pennsylvania, which in turn is a tributary of the Ohio River. Mahoning dam is located 22 miles upstream from the creek's confluence with the Allegheny River and the dam impounds a drainage area of 340 square miles.

For the 27-year period of record (October 1981 through September 2008), the Corps has released monthly mean flows at the dam ranging from 246 cfs in August to 1,076 cfs in March. Monthly maximum releases range from 2,584 cfs in August to 6,844 in April. Monthly minimum flows range from 5 cfs in August to 150 cfs in March. The 7Q10 flow⁵ for the period ending September 30, 2008 is 30 cfs. All flows

⁵ The lowest flow which has occurred on a given stream reach for seven consecutive days over the previous 10-year period of record.

released by the Corps pass through the ring jet in the dam or the spillway sluice gates, into the stilling basin, and then spill over the stilling basin weir.

The Corps operates the Mahoning dam in a mode whereby inflow approximates outflow at most times except during the fall when the impoundment is drawn down 25 feet for flood control purposes. This operation results in a surface area of 280 acres during the summer months, which supports recreational uses, and a surface area of 170 acres during the winter months as part of the Corps' overall management of the Allegheny River basin for flood control. In order to lower the impoundment to the winter elevation, the Corps releases flows greater than project inflow during the fall.

There is currently no specified minimum flow released by the Corps at the dam. In its comments on the application, the Corps states that a minimum flow between 35 and 45 cfs is required during cold periods to prevent freezing of the ring jet.

Water Quality

The EPA's 1996 CWA Section 303(d) list identified six impaired streams in the Mahoning Creek drainage area. Four creeks upstream of the dam and two streams downstream of the dam are listed as impacted by acid mine drainage. Additionally, two other creeks upstream of the impoundment are impaired with metals contamination.

Site-specific water quality data are available from a 1993 study conducted by the Corps to evaluate a previously proposed hydroelectric project at the dam site, and Mahoning Hydro's study from 2007. Both studies documented generally high water quality. In addition, both studies indicate that although the impoundment does exhibit some level of summer stratification, the vertical thermal gradient is less than what would be typically expected in a lake of this depth. The studies concluded that the weak stratification is probably the result of low water retention time.

The extent of stratification is important because if a lake strongly stratifies, it is more likely to develop low DO in the deeper strata, which can affect downstream water quality when that water is released. Low DO also generally causes metals from the sediment to dissolve and enter the deeper water strata. In the case of Mahoning Creek, such metals include iron, manganese, aluminum, copper, and nickel, which are known to exist in the impoundment sediments and are a concern to the EPA and the Corps.

During the 2007 study, a vertical thermal gradient ranging from 4.1 degrees to 4.6 degrees Celsius was observed between the surface water and the bottom of the impoundment. During July, 2007, this resulted in a range of DO from a high of 9.5 mg/l at 10ft. below the surface to a low of .7 mg/l at a depth of 65 ft. In August, the DO ranged from 8.8 mg/l down to 5.9 mg/l, respectively. The July samples were taken during low-flow conditions and the August samples were taken during relatively wet

summer conditions. This suggests that the weak stratification within the impoundment is quite sensitive to hydrologic and meteorological conditions.

During the same sampling period, DO and temperature were monitored at the downstream end of the stilling basin and just below the stilling basin weir. DO was in the range of 8.1 to 9.1 mg/l at the stilling basin sampling location, with levels of 8.5 to 9.4 mg/l at the station below the stilling basin weir, indicating the aerating effect of the weir.

Water Quality Standards

The Pennsylvania DEP classifies Mahoning Creek as a warm water fishery (WWF). Dissolved oxygen (DO) standards for WWF waters include a minimum daily average of 5.0 mg/l and a minimum value of 4.0 mg/l. Maximum water temperature standards are defined by month and range from 40 degrees up to 87 degrees.

Aquatic Habitat

The impoundment is steep-sided, with a forested shoreline, and depths near the dam range up to 75 feet deep. Near-shore habitat includes large woody debris, rock ledges, and sediment types ranging from sand to boulders.

The stilling basin is approximately 950 feet long, 180 feet wide, and consists of fairly uniform pool habitat with an average depth of approximately 5 feet and a maximum depth of 17 feet at the weir. The banks are partially to completely forested, and substrate in the stilling basin covers the range from sand to boulder. The channel in the stilling basin is modified and straight.

Habitat in the Mahoning Creek between the stilling weir and the McCrea Furnace Bridge, approximately 4,000 feet below the dam, contains a mix of riffles, runs and pools. The average width of the stream is approximately 150 feet. Substrate ranges from sand to boulder and instream cover is abundant, including undercut banks, woody debris jams, and pools with depth exceeding 1 meter.

Aquatic Biota

In the summer of 2007, Mahoning Hydro conducted fish surveys in the project area to characterize the aquatic community. A total of 39 fish species, representing 9 families, were collected during the survey. Other studies conducted between 1986 and 2001 by the Corps and the Pennsylvania F&BC have documented a total of 48 species, including all 39 found by Mahoning Hydro in 2007. None of the species are federally listed as either threatened or endangered, nor are they listed as endangered, threatened, or candidate species in Pennsylvania. All species encountered are considered common in the Allegheny River watershed.

Primary sport fish include muskellunge, smallmouth bass, largemouth bass, rock bass, walleye, yellow perch, northern pike, channel catfish, and white crappie. The Pennsylvania F&BC annually stocks the lake with walleye fingerlings and channel catfish and also stocks the stilling basin and the creek below the dam with trout to support a spring put-and-take fishery.

In May, 2010, the Corps conducted an electrofishing survey of the stilling basin which documented 12 species, including yellow perch, rock bass, yellow bullhead, smallmouth bass, brown trout, northern hogsucker, white sucker, carp, river chub, fathead minnow, logperch, and greenside darter.

Mahoning Hydro surveyed Mahoning Creek for mussels in 2007 from the stilling basin weir to 400 feet downstream of the weir. Of particular interest was the possible presence of the federally listed clubshell mussel. The survey documented the presence of two unlisted mussels, the flutedshell and the kidneyshell. No clubshell mussels or suitable habitat was documented.

Mahoning Hydro surveyed Mahoning Creek for macroinvertebrates in 2007 as well. Species documented included two mayfly species, one caddisfly species, and several midge species. The survey report concluded that although the low macroinvertebrate abundance and diversity was surprising, given the generally good water quality and habitat within Mahoning Creek, algal mats and low flow conditions during the survey period may explain the survey results. Macroinvertebrate surveys conducted by the Corps from 1987 and 1998 documented greater numbers of caddisfly taxa than the 2007 survey, although the collection methods and target life stages were different.

Environmental Effects

Water Quantity

Currently the Corps operates the project so that outflows approximate inflows, with the exception that during the fall period, the impoundment is drawn down 25 feet for flood control purposes and to augment streamflow and water quality downstream in the Allegheny River basin. Mahoning Hydro proposes no modifications to this mode of operation. However, because Mahoning Hydro would use the Corp's flow releases for generation at the proposed powerhouse downstream of the stilling basin weir, thereby bypassing the stilling basin weir, Mahoning Hydro proposes to divert water to the powerhouse such that a year-round minimum flow of 30 cfs year may be released by the Corps into the stilling basin to protect aquatic habitat. When total available flows are less than 109 cfs, which is the minimum hydraulic capacity of one turbine unit (79 cfs) plus a minimum flow of 30 cfs, Mahoning Hydro proposes to cease project operation, and all flows could be released by the Corps into the stilling basin. Flows in excess of 905 cfs, which is the maximum hydraulic capacity of the two turbines plus a 30-cfs

minimum flow, would be released through the ring jet in the dam or through the spillway sluice gates

The Corps commented in letters filed November 3, 2009 and April 22, 2010 that it considers the 30 cfs minimum stilling basin flow to be inadequate for operational and environmental reasons. In comments filed on April 22, 2010, the Pennsylvania F&BC stated that it believes a flow of 30 cfs in the stilling basin would result in water quality problems. The Corps recommends a flow of 150 cfs from March through June and a flow of 50 from July through February. The Pennsylvania F&BC does not recommend specific flows but states that it agrees with the Corps that a variable seasonal flow would help protect water aquatic life and water quality.

As indicated in Section 2.3 of this supplemental EA, the amount of flow released to the stilling basin would be at the Corps' discretion because the Corps would control allocation of flows and would maintain ownership and control over the ring jet and the spillway sluice gates. Mahoning Hydro would utilize water allocated by the Corps in accordance with the operating MOA to generate electricity.

Staff Analysis

Operation in Corps' current mode

With the exception of the stilling basin, when the project is operating, Mahoning Creek stream flow volume would remain unchanged compared to existing conditions. Thus existing water quality and the aquatic community should also exhibit similar, if not identical, conditions. For example, Mahoning Creek would continue to experience slightly higher flows in the fall than would naturally occur, due to the Corps' 25-foot drawdown operations. Similarly, during the spring, some flood flows would be captured by the impoundment rather than being released immediately into Mahoning Creek, at least to the extent that storage is available.

Minimum flow in the stilling basin

To protect aquatic habitat in the stilling basin, especially during periods of low flow during the summer, Mahoning Hydro proposes to operate the project such that the Corps may release a year-round minimum flow of 30 cfs through the ring jet or spillway sluice gates into the stilling basin. Mahoning Hydro proposes this flow because it matches the 7Q10 flow for Mahoning Creek.

Prior to issuance of the EA, the Corps stated that the flow releases need to be in the range of 35 to 45 cfs during the winter to prevent freezing of the ring jet (the valve that releases water through the dam). Additionally, the Corps stated that in order to protect aquatic habitat, the minimum flow should be higher than 30 cfs, although the Corps did not provide a specific flow recommendation. Rather, the Corps stated that the

flow should be approximately 10 percent of the “dam’s normal flow” or “drought flow” and should vary seasonally, including a spring spawning season flow (March – June) and another flow for the remainder of the year. No definition of the terms “dam’s normal flow” or “drought flow,” was given, although we assumed in the EA that this would be greater than 30 cfs, given the context of the comments.

In its comments on the EA, the Corps recommended a stilling basin flow of 150 cfs from March through June and 50 cfs from July through February. The depth, wetted width, and substrate characteristics of the stilling basin would not change under the Corps-recommended flows or the 30 cfs minimum flow proposed by Mahoning Hydro because of the uniformly channelized shape of the basin and the presence of the weir at its downstream end. The habitat parameters in the stilling basin that could change from project operations and minimum flows include temperature, DO, and water velocity during certain periods of the year.

According to the flow duration curves, when the project is operating, 62 percent of the time the stilling basin would receive 30 cfs, leaving 38 percent of the time when the stilling basin would receive flows in excess of 30 cfs which could be released either via spillage or through the dam, as the Corps chooses based on its downstream water quality protection objectives.

Although the Corps requested a flow study using the instream flow incremental methodology (IFIM), the IFIM incorporates habitat simulation modeling appropriate for natural stream channels which exhibit more variation in stream channel width and depth, water velocity, and substrate than the stilling basin. A simpler methodology is adequate to characterize habitat conditions in the stilling basin, which has been modified from the natural stream channel to be a rectangular pool with gradually increasing depth from upstream to downstream. We can calculate estimated mean velocities through the stilling basin by dividing the volume of water moving through the stilling basin (in cfs) by an estimated average cross sectional area of the stilling basin. Using this approach, an average depth of 5 feet, and a width of 180 feet, a flow of 30 cfs would result in an average velocity in the stilling basin of .033 feet per second (fps) ($30 / (180 \times 5)$). At a flow of 50 cfs, the mean velocity would be .055 fps. At a flow of 150 cfs, mean velocity would be 0.167 fps. At a flow of 1,000 cfs, such as may occur in the spring or during a storm event, mean velocity would be 1.11 fps. Thus, for the range of minimum flows being considered (30 cfs to 150 cfs), average water velocity would range from 0.033 to 0.167 fps. Given the continuity of channel depth, channel width, and substrate composition, there would be little perceptible change in aquatic habitat over this range of flows.

Within the stilling basin, there would be a range of velocities that would be determined by the increase in depth from upstream to downstream. For example, at the downstream end of the stilling basin, where depth is greatest, water velocities will be lower than the estimated averages calculated above. The shallower upstream portion of

the stilling basin would, conversely, have higher water velocities than we estimated above. Therefore, regardless of what flow the Corps selects to release to the stilling basin, water velocities would vary within the stilling basin and create a range of habitat conditions in an otherwise uniform reach.

Habitat in the stilling basin was found to be suboptimal in the 2007 habitat assessment component of Mahoning Hydro's aquatic resources study. The reasons for the suboptimal score are the stilling basin's channelized shape and uniformity of habitat (i.e., all pool with no riffles or runs). With the hydro project, habitat would continue to be suboptimal, yet adequate for many warmwater and coolwater habitat generalists such as smallmouth and largemouth bass, channel catfish, and various other sunfish, minnow, darter, and sucker species. Additionally, it would continue to be adequate to support the spring put-and-take trout fishery. Project operation would result in flows being more stable during a greater period of the year compared to current conditions. Although these stable, low flow levels may adversely affect habitat for certain species that prefer higher water velocities, such as certain darters, other species that prefer pool habitat, such as bass and sunfish, may benefit from stable, low flows. Habitat downstream of the weir would be unchanged from project operation; therefore, this reach would continue to provide habitat for species preferring the higher velocities found in riffles and runs.

During the winter, project operation would not adversely affect water quality in the stilling basin because there is no lake stratification or deep water oxygen depletion at this time of year. During the summer, releases to the stilling basin would be made through the dam ring jet or spillway sluice gates, in a combination that meets the Corps' downstream water temperature and DO objectives. We address this issue further below under our discussion of Mahoning Hydro's proposed flexible operating procedures for enhancing water quality.

Water Quality

Currently, water is released from the spillway sluice gates or through the deep ring jet in the dam. By using the two release locations in combination, the Corps can mix water as necessary to protect water quality downstream of the dam. With the installation of the hydroelectric project, water that would otherwise be spilled at the dam and spilled again at the stilling basin weir, would be diverted through the penstock and powerhouse before being discharged in the tailrace directly below the stilling basin weir. By bypassing the dam spillway and the stilling basin weir, the water would not be exposed to the aerating effects of those two structures. Additionally, because the depth of the proposed hydro project's water intake structure is intermediate between the deep ring jet locations and the spillway, during the summer when the impoundment may become stratified, the water used for generation may have a lower DO concentration or higher temperature than the water typically released during that time of year. In combination, these two changes may lead to a reduction in DO or increases in

temperature in Mahoning Creek downstream of the stilling basin weir compared to existing conditions. To address these potential effects, Mahoning Hydro proposes to monitor water quality and install an aeration feature in the draft tubes.

Mahoning Hydro proposes to install a water quality monitoring system which would include a set of sensors mounted in the forebay at the level of the penstock opening and another set of sensors approximately 200 feet downstream from the powerhouse. The penstock sensors would record temperature and DO and the downstream sensors would record temperature, DO, and total dissolved gas (TDG). Data would be collected every 5 minutes and reported every 30 minutes via a computer in the powerhouse. The results of the monitoring would be used to determine when Mahoning Hydro would implement various mitigation measures as explained below in the next section on Water Quality Enhancement.

The Corps agrees with the need for a water quality monitoring system and stated before the issuance of the EA that it would require real-time, continuous monitoring at the hydropower outflow, the McCrea Furnace Road Bridge (approximately 4,000 feet downstream of the dam), and in the impoundment at the surface, mid-depth, and bottom. In its comments on the EA, the Corps stated that it began pre-project baseline water quality monitoring in the lake in 2007 and downstream of the dam in 2008. The Corps further stated that, in addition to lake and tailrace monitoring, Mahoning Hydro should also conduct continuous monitoring in the stilling basin.

Mahoning Hydro proposes to install an aeration feature in the draft tubes. Mahoning Hydro proposes to use this aeration capability, combined with a flexible operational mode, to maintain water quality. Mahoning Hydro's 2007 water quality study report discussed several possible mitigation measures, including: mixing turbine discharges with water released through or over the dam; turbine venting; air injection; notching of the stilling basin weir; installation of seasonal flashboards on the weir to increase head and aeration potential; and adding blocks or rocks to the face and base of the weir for aeration enhancement. During the 2007 study report meeting, Mahoning Hydro stated that it would also reduce or curtail generation during periods when water quality monitoring indicated that other operational or structural measures could not adequately protect water quality in Mahoning Creek.

The Corps agrees with the need for an aeration capability and a flexible operational mode. However, the Corps suggested that using natural aeration, as opposed to oxygen injection, may result in gas supersaturation, which could harm aquatic life.

Staff Analysis

Water Quality Monitoring

By monitoring water in the impoundment and below the project tailrace, Mahoning Hydro, the Corps, and other agencies would be able to anticipate and respond to potential water quality problems. For example, if water quality at the penstock intake depths shows reduced DO or elevated temperature, then Mahoning Hydro and the Corps could take action to prevent declines in downstream water quality. The specific actions which could be taken are discussed further in the water quality enhancement discussion below. The stilling basin monitoring recommended by the Corps would further characterize and document any project effects on water quality in the stilling basin and allow for additional management actions to be taken by the Corps, such as increasing flows released to the stilling basin or releasing a different mix of ring jet and spillway sluice gate flows to adjust DO and/or temperature.

Monitoring at Mahoning Hydro's proposed sites would adequately describe the project's effects on water quality. The Corps' recommended McCrea Furnace Bridge monitoring site would record changes in stream water quality between the project tailrace and the bridge, but would not be necessary for determining project effects because any effects of the project would already be detected at Mahoning Hydro's proposed station below the tailrace.

Water Quality Enhancement

Both Mahoning Hydro's 2007 water quality study and the Corps' 1993 study used the Corps' CE-QUAL-R1 model to predict the effects of installing a hydroelectric powerhouse at the Mahoning dam. Both studies concluded that the project would likely increase the temperature slightly in Mahoning Creek and, in the absence of mitigation measures, would probably cause DO to drop below state water quality standards during periods when the lake is stratified and the hypolimnion becomes oxygen depleted. Thus, both the Corps in 1993 and Mahoning Hydro in 2007 concluded that any proposed hydroelectric project at the dam would need to address this issue.

The Corps has stated that Mahoning Hydro's model runs probably underestimate the potential effects on water temperature because Mahoning Hydro did not recalibrate the model but instead relied on the calibration the Corps used in 1993. Mahoning Hydro maintains that because limnological conditions are the same now as in 1993, the model is still useful for predictive purposes.

Given the year to year variation in the timing, duration, and strength of lake stratification patterns, and their sensitivity to hydrologic and meteorological influences, combined with the inherent limitations of the CE-QUAL-R1 model to address this level of limnological complexity, the exact magnitude of DO and temperature mitigation

which would be necessary would vary from year to year and would require an adaptive management approach to address the wide range of potential scenarios. Because Mahoning Hydro is proposing and the Corps is recommending exactly such an approach to addressing water quality issues at the project, additional modeling would not address the variability in year-to-year conditions.

Implementing water quality monitoring and responding to potential water quality problems, as necessary, using one or more of the listed operational or structural mitigation measures would ensure that water quality is protected in Mahoning Creek. For example, under worst case conditions, completely curtailing generation would ensure that the project would have no effect on water quality compared to existing conditions. It is also possible that if turbine aeration or oxygen injection is used during generation, water quality may actually be enhanced at certain times compared to without the project. Using an adaptive management approach to dealing with water quality effects would allow Mahoning Hydro, the Corps, other agencies, and Commission staff to learn through experience which measures are necessary and effective under different scenarios.

Mahoning Hydro has not proposed, nor has the Corps or any other agency recommended, a water quality monitoring plan. However, developing and implementing a plan would prevent confusion or misunderstanding about the licensee's responsibilities during critical water quality periods. Such a plan would typically incorporate not only monitoring and reporting procedures, but also a description of what would trigger mitigation measures such as turbine aeration, mixing of deep and surface water, reduced generation, etc. Revision of the plan as necessary, under an adaptive management approach, would ensure that, over time, best management practices would be developed for a range of hydrologic and meteorological scenarios. Developing, implementing, and revising the plan in consultation with the Corps would be important since certain measures (e.g., mixing deep and surface water) would require coordination and cooperation between Mahoning Hydro and the Corps.

Fish Protection

Currently the only way for fish to move from the impoundment into Mahoning Creek downstream is through the spillway sluice gates. Once the project is constructed, fish would also be vulnerable to turbine entrainment or impingement on the project trashracks.

To protect fish from impingement or entrainment, Mahoning Hydro has designed the dimensions of its intake structure so that water velocities at maximum hydraulic capacity do not exceed 1 foot per second (fps). Additionally, the intake would be screened with trashracks having a maximum clear spacing of 1 inch.

The Corps states that “any loss [of fish] greater than 5 percent can be considered degradation and will require mitigation.” The Corps also notes that the downstream fishery is at least somewhat dependent on fish movement over the dam. The Pennsylvania F&BC states that it believes intake spacing of 3/8 inch coupled with intake velocities of no more than 0.5 fps would be more protective of fish.

Staff Analysis

There are no species documented in the impoundment that require passage around the dam to complete their life history requirements. Most of the fish species documented in the impoundment are not pelagic species, but rather prefer benthic habitats or depth, substrate, and cover habitat that is most abundant near the shoreline. Exceptions to this include gizzard shad and yellow perch, two highly fecund and abundant species whose populations would not likely be adversely affected by some degree of entrainment loss.

During project operation, some fish would be entrained and some of those fish would be injured or killed. However, fish survival through Kaplan turbines operated in the 70 to 95-foot hydraulic head range, as proposed, would probably be in excess of 90 percent, based on results of numerous other turbine survival studies (EPRI 1997; Winchell et al. 2000).

The Corps did not provide an explanation or evidence to support its comment that loss greater than 5 percent is considered degradation and would require mitigation. It is not clear whether the Corps means 5 percent of the entire fish population or just certain species. It is also not clear how that percentage was derived or how the Corps proposes to determine what percentage of fish are being lost.

Our analysis supports the Corps’ comment that the downstream fish community is likely partially dependent on recruitment of fish that move from the lake into Mahoning Creek via spillage. However, fish movement would continue to occur by means of the spillway sluice gates and turbine passage. As discussed above, over 90 percent of the fish that are entrained are expected to survive and would therefore contribute to the downstream fish community.

Mahoning Hydro’s proposed intake velocity and clear spacing specifications are consistent with industry best management practices as well as FWS recommendations and prescriptions at numerous FERC-licensed hydro projects throughout the country. The 3/8-inch spacing and lower intake water velocity cited by Pennsylvania F&BC may be more protective of fish, but it may also result in increased fish impingement or unacceptable levels of debris accumulation on the screens. The effectiveness and feasibility of Pennsylvania F&BC’s suggested intake specifications would depend on the specific design.

3.3.5 Recreational Resources

The environmental effects discussion is updated from the EA issued March 23, 2010, to address comments and additional measures recommended by the Corps and the Pennsylvania F&BC.

Affected Environment

Overview of Recreation Opportunities

The Corps' Mahoning Creek Lake project area covers approximately 2,707 acres of land and 280 acres of water. The lake provides fish and wildlife habitat and recreation opportunities such as picnicking, sightseeing, hiking, camping, boating, and fishing. Sport fishing occurs for pike, walleye, muskellunge, channel catfish, crappie, and bass. Boating on Mahoning Creek Lake is limited to 10-horsepower motors and non-motorized watercraft that can access the lake at two public boat launches. The Corps leases 860 acres of land and water to the Pennsylvania F&BC. This includes two public recreation sites: (1) the 28-acre Milton Loop campground and boat launch, which is subleased to and operated by Armstrong County and located approximately 5 miles upstream from the dam; and (2) the Sportsman's Area boat launch, which is located approximately 2 miles upstream from the dam (see figure 1). Another 1,280 acres of Corps land is leased to the Pennsylvania Game Commission for wildlife management and public hunting. Hunting and trapping for white-tailed deer, black bear, small game, and game birds are permitted on these Pennsylvania Game Commission lands except in posted areas. In addition, the Baker Trail, a 141-mile-long, state-designated hiking trail extending from Allegheny National Forest to the town of Aspinwall, traverses the lake at its headwaters.

Two Corps-operated public recreation sites are located on Mahoning Creek, immediately downstream from the dam and across from the proposed project, as depicted in figure 5. The outflow fishing area provides fishing access to the stilling basin located immediately below the dam. This site includes a playground, restroom facilities, potable water, a picnic shelter and 17 picnic tables, and bank fishing access. As noted by the Corps, there was a fishing pier in this area at one time, but it had been removed in the past. The dam site picnic area is adjacent to the fishing area and provides a picnic area with tables and grills, a playground, potable water, walking trails, an overlook pavilion, and a visitors' center. An additional parking area serves an angler trail that provides shoreline access to the impoundment.

On the southern (river left) side of Mahoning Creek, the Corps owns approximately 400 feet of the left bank downstream of the stilling weir, which is lined by a training wall. There is no formal recreational access to the left bank of the creek, because outside of the limited Corps property the land is privately owned. However, as

the Corps noted in their April 14, 2008, letter, there is a mile-long rugged trail, located mostly on private property, that extends up the left bank from Camp Run and is occasionally used by fishermen. Depending on flow conditions, some fishermen also wade over to the left bank from the right bank downstream of the stilling weir.

A section of Class I-II whitewater is located downstream of the proposed project site on Mahoning Creek. This 12.5-mile section runs from McCrea Furnace (approximately 4,000 feet below the dam) to the Route 66 Bridge.

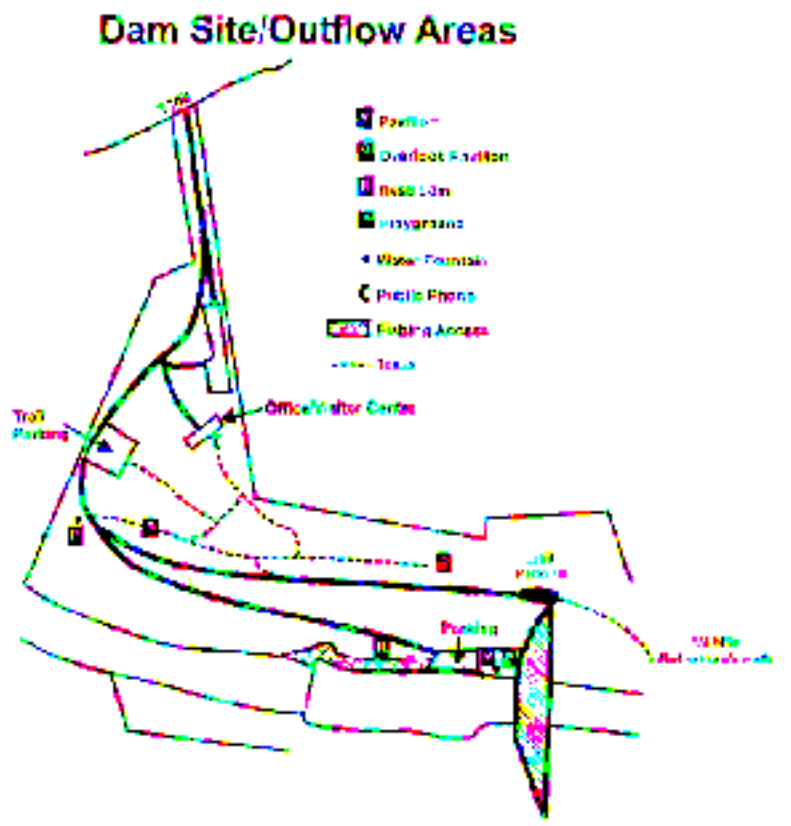


Figure 5. Outflow fishing and dam site picnic areas (source: license application).

Existing Recreation Use

Corps data indicates that approximately 65,000 people visit the Mahoning Creek Lake area, including all four public recreation sites, annually. In 2006, the Corps reported a total of approximately 86,000 trips to the lake. The most popular activities on the lake were angling and boating (48 percent of the visitors). The most popular land-based activity was hunting on Pennsylvania Game Commission land (36 percent).

A 2008 recreational use survey of the study area (filed November 5, 2008), conducted for the license application characterized types and levels of use, obtained user opinions, and investigated any short or long-term effects of the project on recreational use of this site. In the spring, 68 individuals were surveyed, and a summer survey included 73 individuals. The study area extended from 50 feet upstream of the dam to a point 1,200 feet below the dam on the right side of Mahoning Creek, including both the outflow fishing and dam site picnic areas. In total, this area supported approximately 2,600 recreation days⁶ from April 14 through August 31. Angling was reported to be the most popular recreation activity at the site (61 percent of respondents). Angling at the site was more popular in the spring (76 percent) than in the summer (54 percent), due to the spring trout season. The outflow fishing area also supported sightseeing (14 percent), use of the playground (11 percent), and picnicking (8 percent). Average daily use on a spring weekday was 7 people, with weekend use much higher at 38 people. Peak spring use (Memorial Day weekend) was estimated to average 39 people per day. Daily use in the summer was higher than in the spring, with an average of 11 people visiting on the weekdays, 40 people on weekend days, and 42 people on peak weekend days (July 4th weekend).

Fall and winter recreational use at the project were not directly observed. Mahoning Hydro's final study report meeting summary, filed November 26, 2008, responds to a Corps request to extrapolate the spring and summer data for fall and winter estimates. Recreationists were asked during the surveys to estimate the number of days spent at the project during the fall and winter seasons. One hundred repeat visitors provided these estimates. Of the one hundred, only three reported spending any time at the project in the winter. Mahoning Hydro therefore assumes that winter use at the project is minimal. It then extrapolated an estimate of fall use of between 430 to 853 days.

The majority of respondents indicated that the outflow fishing area had sufficient capacity to accommodate existing use, and spot vehicle counts indicated that the demand was well within the design capacities of the two lots. Twenty-eight survey responses concerning respondents' desired improvements were received. Nine responses (32.1 percent) were related to improved access (e.g., steps). An additional seven people requested improved handicap accessibility. Three responses requested a larger or improved playground. Other comments mentioned included: improved maintenance (e.g., brush clearing, painting, and trash removal), water availability at the playground and picnic area, a fishing pier, and a vending machine with soft drinks and bait.

⁶ A recreation day is defined as each visit by a person to the study area for recreational purposes during any portion of a 24-hour period.

Mahoning Hydro's license application summarizes a draft report based on the Corps Pittsburgh District's review of fishing access in the project tailwaters (conducted in 2000). This report supports the installation of a new fishing pier with handicap access off of the north bank in the stilling basin.

Environmental Effects

In a letter filed April 11, 2006, the North Central Pennsylvania Regional Planning and Development Commission commented that the proposed project is consistent with local and area-wide planning initiatives. The Corp's June 24, 2009, letter indicates the Corps' interest in investigating the option of the applicant providing programmatic support to the project's recreational facilities.

Mahoning Hydro proposes to construct and install a fixed-in-place fishing pier in the stilling basin with an access ramp located on the northern shore or the existing outflow fishing area. Mahoning Hydro has begun and will continue to consult with the Corps and Pennsylvania F&BC on this structure. The pier would be accessible to the disabled. Mahoning Hydro proposes to install steps from the pier for improved shoreline access. In addition, Mahoning Hydro proposes to install fish attraction structures in the stilling basin and an interpretive display. Mahoning Hydro does not propose to provide programmatic support to Corps recreation sites and does not propose to include any of the existing or proposed public recreation sites within the project boundary.

In its comments on the application, the Corps noted that it would require significantly more detail before approving the location and construction of a fishing pier. The Corps also noted that the application text proposes a fixed, in-place pier, but that the figure (page 62 of the license application) appears to be the standard drawing for a floating fishing pier. In addition, the Corps notes that it cannot be held responsible for any damages to the pier that may occur as a result of high volume releases from the dam.

State Representative Donna Oberlander and State Senator Don White, in their letters filed November 2 and November 11, 2009, respectively, support the project because of the proposed installation of the accessible fishing pier, as well as other socioeconomic reasons.⁷

In its comments on the EA issued March 23, 2010, the Pennsylvania F&BC stated that the fishing pier and access ramp would be beneficial and that it will offer

⁷ Ms. Oberlander and Mr. White also support the project because it would benefit the community and region as a local source of renewable clean energy that meets Pennsylvania's Tier 1 requirements; it is an opportunity for local construction employment; and it would add to the community tax base.

more specific comments as details become available. In its materials submitted during the June 17, 2010, teleconference (filed June 18, 2010), the Corps staff noted that development of recreational enhancements would be the result of a collaborative effort between the Corps, the Pennsylvania F&BC, Mahoning Hydro, and other interested parties. The Corps describes four potential locations for the proposed fishing area: in the stilling basin as proposed, downstream of the stilling basin, on top of the stilling basin training wall, or near the powerhouse on the opposite shore.

During the teleconference FERC staff asked if the fishing pier could be placed in the stilling basin, as proposed, as long as any new license requires the evaluation of alternative access enhancements if the proposed fishing pier location is deemed unsafe or would cause flood-control issues. Corps staff responded that the fixed pier in the stilling basin remains a viable option. Mahoning Hydro responded that it will continue to work with the Corps and the Pennsylvania F&BC to determine a suitable location and design for the fishing pier, and noted that it may pursue a comprehensive settlement agreement that would include these provisions. Pennsylvania F&BC requested to be included in the recreation component of any such agreement, and Mahoning Hydro agreed to do so.

Staff Analysis

Project construction is unlikely to affect existing Corps recreational access to the reservoir, as the Milton Loop campground and Sportsman's Area boat launch are located 5 and 2 miles upstream from the dam, respectively. Anglers and other recreationists close to the construction site and at the Mahoning Creek recreation sites would be affected by noise and the physical disturbance of land, water, and materials during construction activities. However, the construction activities would take place on the other side of the creek and stilling basin from the existing recreation areas, so access should not be impeded. The effects of construction would therefore be minor and temporary. The downstream whitewater reach would not be affected by project operation, as the water volume released to this location would not be altered from current conditions.

Recreational use surveys at the project show that the existing outflow fishing area and the dam site picnic area attract regional recreation use, supporting 2,600 recreational visits during the spring and summer seasons. Capacity, including parking, at the site appears adequate. Surveys did not indicate a need for a fishing pier, specifically. However, given that the majority (61 percent) of the recreation at the site consists of fishing, and that there were several requests related to improved access (e.g., steps) and improved handicap accessibility, the proposed accessible fishing pier would provide additional opportunities and could potentially attract additional anglers to the site.

The Corps did not provide an explanation for their interest in programmatic support of project recreation sites from Mahoning Hydro. However, it is consistent with Commission policy that recreational access to land or water at a licensed project be considered a project feature and enclosed within the project boundary. Including the proposed new fishing pier in the boundary, as well as the steps down to the shore, would ensure that this recreational access to the stilling basin is maintained during the term of the license.

A recreation plan could include a procedure for consulting with the agencies on the location and design of the recreation facilities, procedures for operating and maintaining the facilities, and any appropriate lighting and signage. The proposed location of the fishing pier in the stilling basin has the advantage of easy access to parking and other amenities. However, if during the development of the plan the interested parties agree to change the location of the new fishing area for safety, structural, or recreational quality-based reasons, Mahoning Hydro could place the fishing area in one of the other locations identified by the Corps.

The proposed fish attraction structures, as well as the proposed interpretive display, would benefit anglers using the pier.

Unavoidable Adverse Effects

Recreation users at the project would experience negative effects (relating to noise and the physical disturbance of land, water, and materials) during project construction; however, the construction will occur on the other side of the creek and stilling basin from the existing recreation areas, so these disturbances would be temporary and minor.

4.0 DEVELOPMENTAL ANALYSIS

4.2 COMPARISON OF ALTERNATIVES

The sections below have been updated to provide information on the cost and benefits of the staff and Corps alternatives.

Table 6 summarizes the annual cost, power benefits, and annual net benefits for the project.

Table 6. Summary of annual net benefits of the alternatives for the project. (Source: Staff)

Parameter	Mahoning's Proposal	Staff Alternative^a	Corps Alternative
------------------	--------------------------------	--------------------------------------	------------------------------

Installed Capacity (MW)	6.0	6.0	6.0
Annual generation (MWh)	20,000	19,914	18,420
Annual cost of alternative power (\$/MWh) value	\$1,415,600 70.78	\$1,409,510 70.78	\$1,303,770 70.78
Annual project cost (\$/MWh)	\$1,701,790 85.09	\$1,704,220 85.58	\$1,704,220 92.52
Difference between the cost of alternative power and project cost (\$/MWh) Annual net benefit	(\$286,190) (14.31) ^b	(\$294,710) (14.80) ^b	(\$400,450) (21.74) ^b

^a Staff are not recommending that a minimum flow be required in any license issued for the project, rather we are recommending that the license require Mahoning Hydro to develop a memorandum of agreement with the Corps that addresses project operations. However, because our analysis suggests that releasing the applicant's proposed 30 cfs minimum flow would adequately protect water quality and habitat in the stilling basin and the additional 40 cfs releases from January to March would be necessary to prevent freezing of the flow release valve, the generation and cost estimates for the staff alternative account for release of these flows.

^b A number in parenthesis denotes that the difference between the cost of alternative power and project cost is negative, thus the total project cost is greater than the cost of alternative power.

4.2.3 Power and Economic Benefits of the Staff-recommended Alternative

In this section, we present the annual cost of the proposed alternative with additional staff-recommended measures (i.e., staff alternative) which includes the Corps' higher stilling basin flow releases during cold periods, plans for water quality monitoring, wetlands, and recreation, and execution of a PA that includes additional consultation and surveys, as needed, in the case of ground disturbance at previously undisturbed sites.

Under the staff-recommended alternative, assuming the Corps would release a 30-cfs minimum stilling basin flow and 40 cfs during the winter to prevent jet ring freezing, the project would generate about 19,914 MWh with an annual power value of

\$1,409,510 or \$70.78/MWh. The average annual cost of producing this power would be about \$1,704,220 or \$85.58/MWh. Overall, the project would produce power at a cost which is \$294,710, or \$14.80/MWh, more than the cost of alternative power.

4.2.4 Power and Economic Benefits of the Corps Alternative

In this section, we present the annual cost of the proposed alternative with additional staff-recommended measures (i.e., staff alternative) and the Corps' higher stilling basin seasonal flow releases.

Under the Corps alternative, the project would generate about 18,420 MWh with an annual power value of \$1,303,770 or \$70.78/MWh. The average annual cost of producing this power would be about \$1,704,220 or \$92.52/MWh. Overall, the project would produce power at a cost which is \$400,450, or \$21.74/MWh more than the cost of alternative power.

4.3 COST OF ENVIRONMENTAL MEASURES

Table 7 gives the cost of each of the environmental measures considered in our analysis. We convert all costs to equal annual (levelized) values over a 30-year period of analysis to give a uniform basis for comparing the benefits of a measure to its cost.

Table 7. Cost of environmental mitigation and protection measures considered in assessing the environmental effects to operate the project. (Source: Staff and Mahoning)

Enhancement/Mitigation Measure	Recommending Entity	Capital Cost	O&M cost	Levelized Annual Cost
Geology and Soils Resources				
Develop and implement an erosion and sedimentation control plan (proposed as a "shoreline stability plan")	Mahoning Hydro, Staff	\$50,000	\$1,000	\$4,440
Aquatic Resources				
Operate the project in a run-of-release mode while preserving a 30 cfs minimum flow into the stilling basin	Mahoning Hydro	\$0	\$0	\$96,260 ^b

Enhancement/Mitigation Measure	Recommending Entity	Capital Cost	O&M cost	Levelized Annual Cost
Release a minimum flow of 40 cfs to the stilling basin from January through March.	Corps ⁸	\$0	\$0	\$6,090 ^c
Release flows to the stilling basin of 150 cfs from March through June and 50 cfs from July through February	Corps	\$0	\$0	\$111,830 ^d
Provide turbine draft tube aeration for enhanced DO	Mahoning Hydro, Staff	\$260,000	\$50,000	\$52,650
Install water quality monitoring system	Mahoning Hydro, Staff	\$55,000	\$5,000	\$7,450
Develop and implement a water quality monitoring plan	Staff	\$5,000	\$0	\$370 ^e
Install appropriately sized intake structure and trashracks with 1-inch spacing for the protection of fish	Mahoning Hydro, Staff	\$175,000	\$25,000	\$29,720
Terrestrial Resources				
Develop and implement a wetland protection plan	Staff	\$5,000	0	\$370
Recreation, Land Use, and Aesthetics				
Provide a downstream fishing pier	Mahoning Hydro, Staff	\$35,000	\$5,000	\$5,940
Develop and implement a recreation plan	Staff	\$5,000	\$2,000 ^f	\$1,690

⁸ The Corps recommends minimum flows of 50 cfs from July through February and 150 cfs from March through June; however, in comments filed on November 3, 2009, the Corps indicated that their flow release structures require flows of 35 to 45 cfs to prevent freezing during the winter. We used 40 cfs to estimate the cost of preventing the release valve from freezing.

Enhancement/Mitigation Measure	Recommending Entity	Capital Cost	O&M cost	Levelized Annual Cost
Design the project to protect aesthetic resources	Mahoning Hydro, Staff	\$25,000	\$5,000	\$5,190
Cultural Resources				
Develop an HPMP	Mahoning Hydro, Staff	\$0	\$0	\$0 ^g
Prepare and implement a PA that requires consultation with the SHPO in the case of ground disturbance at previously undisturbed sites	Staff	\$0	\$0	\$0

- ^a The O&M cost to implement the erosion and sediment control plan is included in Mahoning's proposed shoreline stabilization measures.
- ^b This would be the annual cost of the Corps releasing 30 cfs into the stilling basin year-round resulting in about 1,360 MWh of lost generation. The lost generation of this measure is included in Mahoning's proposal to generate 20,000 MWh.
- ^c This would be the annual cost of the Corps releasing an additional 10 cfs, a total of 40 cfs into the stilling basin during cold periods assuming January 1 through March 31 resulting in about 86 MWh of lost generation.
- ^d This would be the annual cost of the Corps releasing 150 cfs and 50 cfs seasonal flows in the stilling basin resulting in about 1,580 MWh of lost generation.
- ^e The O&M cost to implement the monitoring plan is included in Mahoning Hydro's proposed water quality monitoring system.
- ^f The O&M cost to implement the recreation plan could vary depending on any agreement between Mahoning Hydro and the Corps. The O&M cost for the fishing pier is included in Mahoning Hydro's proposed fishing platform.
- ^g The cost to develop the HPMP is included in the cost to develop the license application.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This section has been updated to show staff's revisions to the recommended alternative.

5.2 COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Recommended Alternative

Erosion and Sedimentation Control Plan

Ground disturbing construction-related activities can lead to stream bank erosion and sedimentation and exposure of soils and streams to hazardous materials. Sediment from construction activities and hazardous material spills can be transported downstream and can adversely affect downstream water sources and recreational areas. Sedimentation can also clog stream channels, cover fish spawning areas, and reduce downstream water quality, and hazardous spills can contaminate stream beds, adversely affect water quality, and kill or displace aquatic organisms.

Mahoning Hydro proposes to prepare a shoreline stability plan to identify issues, limitations, and potential problems associated with riverbank stability and document construction management procedures, such as drainage and shoreline stabilization for construction activities to prevent soil erosion. To avoid potential erosion of streambanks, particularly on the left bank immediately downstream from the excavated tailrace, the proposed plan would include measures for installing armoring. The plan would also include measures (e.g., armoring, hardening, or design considerations) for avoiding erosion and scour of the proposed excavated tailrace.

No recommendations were filed regarding erosion and sediment control measures.

Implementing the measures proposed by Mahoning Hydro to minimize erosion and sedimentation would ensure that any construction related activities do not significantly adversely affect the soil and water resources in the proposed project area.

This plan, which the Commission typically classifies as an erosion and sedimentation control plan, should include best management practices, such as: (1) a project site plan showing the location of cofferdam dams, rip rap, staked hay bales, geotextile silt fence areas, excavated material stockpile area, and a temporary siltation catch basin; (2) designating specific sites for fuel storage and fueling vehicles; (3) disposing of all waste material properly; (4) maintaining on site sanitary facilities; and (5) reseeded disturbed vegetated areas with native plants once construction is complete. Providing such detail would help ensure erosion and sedimentation and hazardous material entering the creek is minimized during proposed project construction and operation.

We recommend that prior to project construction, Mahoning Hydro file an erosion and sedimentation control plan in consultation with the relevant resource agencies for Commission approval, which would be worth the annual cost of \$4,440.

Continue Corps' operational mode

Mahoning Hydro proposes no changes to the Corps' drawdown schedule or flow release schedule. Therefore, there would be no change to Mahoning Creek flow or the impoundment lake levels. The one exception is flow in the stilling basin which is discussed below.

Maintaining the same drawdown schedule and flow release schedule would protect water quality, aquatic biota, and aquatic habitat to same extent they are protected now. Therefore, we recommend this proposed mode of operation. This measure has no annual cost.

Operating Plan and Memorandum of Agreement

Generally, Commission licenses for non-federal projects at Corps dams require the licensee to develop an operating plan and a Memorandum of Agreement (MOA) with Corps.⁹ The operating plan describes the mode of hydropower operation, reservoir flow diversion and regulation requirements for the Corps project during construction, and integration of operation of the hydroelectric facility in the Corps emergency action plan. The MOA describes the detailed operation of the powerhouse acceptable to the Corps and any restrictions needed to protect the primary purposes of the Corps project for navigation, recreation, water quality, and flood control. Therefore, we recommend that any license issued for this project require Mahoning Hydro to develop an operating plan and enter into an operating MOA with the Corps. Because the operating plan and MOA would establish the flows available to Mahoning Hydro for operation of the hydro facility and would need to consider any flow releases by the Corps to the stilling basin, including a minimum flow requirement in any license issued for the project is unnecessary.

Turbine draft tube aeration

Existing field surveys document that during most summers, the hypolimnion in the impoundment experiences low DO and modeling runs predict that project operation could result in low DO in Mahoning Creek in the absence of mitigation measures.

⁹ Memorandum of Understanding between the Federal Energy Regulatory Commission and the Department of the Army regarding Non-federal hydropower development dated July 15, 1983.

Mahoning Hydro proposes to install natural aeration in the draft tubes to mitigate potential low DO during certain times of the year, primarily summer and early fall. The Corps recommends oxygen injection, stating that natural aeration may result in gas supersaturation.

Turbine aeration could be one of several potential measures to address this potential impact. As discussed below, Mahoning Hydro also proposes to monitor water quality and implement a flexible operational mode to ensure that water quality in Mahoning Creek is not adversely affected by the project.

We recommend the proposed draft tube aeration at this time. However, we note that if the proposed water quality monitoring documents that this type of aeration causes gas supersaturation, it may be of limited value in addressing water quality problems, and may need to be replaced by other aeration methods, such as oxygen injection as the Corps recommends. This measure is worth the estimated annual cost of \$52,650.

Water Quality Monitoring System

Mahoning Hydro proposes to install sensors in the impoundment near the penstock openings and in Mahoning Creek downstream of the project tailrace. Data would be recorded every 5 minutes and reported every 30 minutes using a computer system in the powerhouse.

The Corps agrees with the need for a monitoring system but also recommends sensors at the McCrea Furnace Road Bridge (approximately 4,000 feet below the dam) and in the stilling basin.

The Mahoning Hydro proposal, with the addition of a stilling basin sensor, would be adequate to determine project effects on water quality and would allow operational measures to be implemented in time to prevent water quality violations in Mahoning Creek. The additional McCrea Furnace Bridge sampling station recommended by the Corps would not be necessary because any effects of the project would already be detectable at Mahoning Hydro's proposed tailrace monitoring station or the stilling basin sensor. We recommend that the stilling basin sensor be included in the monitoring system because it would help determine if water quality is being adequately maintained or if additional flows or variable mixing of flow release locations should be implemented. The system should be designed in coordination with the Corp as part of the water quality monitoring plan discussed below. We recommend the proposed monitoring system, which has an estimated annual cost of \$7,450.

Water Quality Monitoring Plan

Neither Mahoning Hydro nor any agency, including the Corps, recommended a water quality monitoring plan. However, Mahoning Hydro states that it would

implement a flexible operational mode for the hydro project to maintain water quality in Mahoning Creek. The Corps agrees with the need for the applicant to remain flexible about the operation of its proposed project in order to protect water quality.

Developing a plan to monitor water quality and to implement, as necessary, with mitigation measures would avoid confusion and misunderstandings during critical periods of low DO or elevated temperature. Mahoning Hydro should develop a plan, in coordination with Corps, that describes how water quality would be monitored, what mitigation measures would be implemented, and in what situations measures would be employed. Measures could include, but not necessarily be limited to turbine aeration, oxygen injection, mixing of deep and surface water to protect Mahoning Creek temperature, reducing or curtailing generation, or the installation of a deep water penstock intake. The proposed water quality monitoring system, with the addition of a stilling basin sensor, and along with implementation of an adaptive management approach to protecting water quality (i.e., flexible operational mode), would ensure that water quality in the stilling basin and Mahoning Creek is protected. Therefore, we recommend that Mahoning Hydro develop and implement a water quality monitoring plan, which is worth the estimated annual cost of \$370.

Fish Protection

With the construction and operation of the proposed project, fish would be potentially vulnerable to turbine entrainment and mortality, compared to the existing condition where any fish movement must occur via the spillway sluice gates. To address this issue, Mahoning Hydro proposes to design the penstock intake structure with dimensions that result in an intake velocity of 1 foot per second or less. The proposed trashracks would have a clear spacing of 1 inch.

Although the Corps suggests in its comments that further mitigation for potential fish losses may be warranted, the Corps does not provide a specific recommendation.

Because of the proposed intake design, the characteristics of the impoundment fish community, hydraulic head, and turbine type, the proposed project is unlikely to have a significant adverse effect on the impoundment or Mahoning Creek fish communities. Any fish entrained at the project are likely to be abundant species with high reproductive rates. Survival of entrained fish is likely to exceed 90 percent so that the majority of entrained fish would contribute to the downstream fish community. Further, because Mahoning Hydro's recommended measures are consistent with industry-standard best management practices, we recommend that they be implemented as proposed. The estimated annual cost of fish protection measures is \$29,720.

Wetland Protection Plan

Three small palustrine emergent wetlands are located within the project vicinity, totaling approximately 0.35 acres. Wetlands are relatively scarce within the project vicinity and provide important habitat for wildlife species. The proposed powerhouse is not located within existing wetlands, however the proposed access road refurbishment has the potential to adversely affect Wetlands B and C due to their close proximity to the access road corridor. Clearing and discharge of fill could impact the wetlands, as could interference with the natural drainage that drives the hydrology of these two wetlands. In addition, the road construction and proposed bridge (necessary to cross Camp Run to connect to Camp Run Road on the south end of the McCrea Furnace Bridge) will pass by close to Wetland A.

A wetland protection plan would ensure that these resources are not damaged during project construction. Measures could include appropriate placement or design of structures, equipment, and the access road to avoid or protect wetlands from clearing activities and from the effects of erosion and sedimentation. The plan should also include measures for planting appropriate, native plants in any areas that require revegetation. The benefits would be worth the annual cost of \$370.

Recreation

Two Corps-operated recreation areas are located on the north shore of Mahoning Creek, directly across from the proposed project penstock/powerhouse location. The outflow fishing area provides fishing access to the stilling basin, a playground, accessible restroom facilities, potable water, a picnic shelter and 17 picnic tables, and bank fishing access. The dam site picnic area is adjacent to the fishing area and provides a picnic area with tables and grills, a playground, potable water, walking trails, an overlook pavilion, and a visitors' center. An additional parking area serves an angler trail that leads from the parking area to the shoreline upstream from the dam.

Anglers and other recreationists close to the construction site on the lake and at the Mahoning Creek recreation sites would be affected by noise and the physical disturbance of land, water, and materials during construction activities. However, the construction activities would take place on the other side of the creek and stilling basin from the existing recreation areas, so access should not be impeded. The effects of construction would therefore be minor and temporary.

Recreational use surveys show that the existing outflow fishing area and the dam site picnic area attract regional recreation use, supporting 2,600 recreational visits during the spring and summer seasons. Capacity, including parking, at the site appears adequate.

Mahoning Hydro proposes to construct and install a fixed-in-place fishing pier in the stilling basin with an access ramp located on the northern shore or the existing

outflow fishing area. The pier would be accessible to the disabled. Mahoning Hydro proposes to install steps from the pier down to the shore for improved shoreline access.

In its comments, the Corps noted that it will require significantly more detail before approving the location and construction of a fishing pier. The Corps also noted that the application text proposes a fixed, in-place pier, but that the figure (page 62 of the license application) appears to be the standard drawing for a floating fishing pier. Although no other entity commented on the recreation measures, the record shows that both Corps and Pennsylvania F&BC met with Mahoning Hydro and appear to support the proposed recreation improvements. State Representative Donna Oberlander and State Senator Don White support the project because of the proposed installation of the accessible fishing pier.

Surveys did not indicate a strong need for a fishing pier, specifically. However, given that the majority (61 percent) of the recreation at the site consists of fishing, and that there were several requests related to improved access (e.g., steps) and improved handicap accessibility, the proposed fishing pier would benefit the existing users and could potentially attract additional anglers to the site. The proposed fish attraction structures in the stilling basin, as well as the proposed interpretive display, would benefit anglers using the pier, and could be included in any recreation plan for the project.

Including the proposed new fishing pier, as well as the steps down to the shore, in the project boundary would ensure that these valuable recreational sites are maintained during the course of the license.

Because Mahoning Hydro would need to continue to consult with the Corps and Pennsylvania F&BC with regards to the design and construction of the pier, a recreation plan could include a procedure for consulting with the agencies on the design of the recreation facilities, procedures for operating and maintaining the facilities, and any appropriate lighting and signage. The proposed measures, and the development and implementation of a recreation plan, are worth the annual cost of \$1,690.

Project Aesthetics

The landscape in the project vicinity is moderately rugged, forested terrain with relatively steep, incised beds. Deciduous trees, including maple, oak, and cherry, dominate the vegetation.

The proposed project would consist of a concrete powerhouse, penstock, project works, and a transmission line from the powerhouse west to an existing transmission line. Effects to the river downstream from the dam include temporary and permanent landscape changes caused by the construction and presence of the powerhouse,

construction of the penstock, and construction of the access routes, which would particularly affect recreation users at the outflow fishing and dam site picnic areas.

As proposed, the penstock would be buried from the exit of the dam conduits to a point adjacent to the south weir abutment. A 150-foot section of eroded shoreline just below the south training wall would be filled with rock and soil from excavated project activities, and the disturbed ground will be graded and reseeded. Mahoning Hydro proposes to design the powerhouse to be aesthetically consistent with the surroundings. The concrete powerhouse would be constructed using rock textured forms dyed to provide coloring similar to local rock. The discharge channel will be lined with local rock and rip rap. Trees will be selectively retained in areas where they provide aesthetic screening from the viewers on the north bank weir abutment. In addition, Mahoning Hydro proposes to reseed or landscape around the powerhouse and penstock route.

No agency commented on the proposed measures to enhance the project aesthetics. The Corps noted that it questions whether the 30 cfs minimum flow from the dam will provide a continuous flow in the stilling basin and over the weir.

Constructing the powerhouse as proposed would ensure mitigate effects to visual resources in the project area; costs are included in the cost of project design and construction.

Cultural Resources and the HPMP

The Mahoning dam, as well as a nearby foundation that is associated with dam construction, are eligible for listing in the National Register. In its 2006 letter, the SHPO notes that the proposed project will have no effect on this property. The SHPO also states that the activity described in the PAD should have no effect on historic archaeological resources, but that if the scope of the project is amended to include additional ground-disturbing activity, the SHPO should be contacted and a Phase I Archaeological Survey may be necessary to locate all potentially significant resources. Finally, the SHPO states that should the applicant become aware that unidentified historic or archaeological properties are located at the project site, or that project activities will have an effect on these properties, the SHPO should be contacted immediately. The Corps notes that the proposal would affect the dam, but would not adversely affect the dam.

Mahoning Hydro's proposed HPMP would ensure that appropriate consultation occurs prior to any future activity that may affect the historic features of the project. The HPMP should be revised to clarify that any ground disturbing activity at previously undisturbed sites along road or transmission line rights-of-way should trigger consultation on the potential need for surveys. As described in section 3.3.7, Cultural Resources, staff intend to execute a Programmatic Agreement (PA) with the SHPO. The PA would require Mahoning Hydro to implement the HPMP. This plan would

ensure that historic properties within the project boundary are fully identified and would establish procedures for addressing the effects of future ground-disturbing activities on cultural resources at the project, and is worth the annual cost, which is already included in the cost of preparing the application, though additional costs may vary depending on the extent of future ground-disturbing activity.

A draft PA was distributed by Commission staff on April 21, 2010, and comments on the PA were filed by the Corps and the Pennsylvania SHPO. A final PA was distributed to the parties on September 15, 2010, and signatures are due by October 31, 2010.

Conditions Not Recommended

Release of Minimum Flows to the Stilling Basin

Currently all flows released by the Corps, either through or over dam, flow through the stilling basin and over the stilling basin weir. Mahoning Hydro proposes to operate the project in a run-of-release mode (no modifications to the quantity or timing of the Corps' releases), with a preservation of the Corps' historical minimum flow release of 30 cfs into the stilling basin for the protection of aquatic habitat. The Corps states that the minimum flow should be higher and recommends a stilling basin flow of 150 cfs from March through June, and 50 cfs from July through February. The Corps also states that in the winter the flow through the ring jet needs to be at least 35-45 cfs to prevent freezing.

The habitat in the stilling basin is suboptimal, yet adequate to support a fish community favoring warmwater and coolwater species that prefer pool habitat. It also supports a spring put-and-take trout fishery. These conditions would not change under Mahoning Hydro's proposed minimum flow, which matches the 7Q10 flow for Mahoning Creek. Because of the channel shape of the stilling basin and the presence of the weir at the downstream end of the basin, there would be no change in wetted area, wetted width, or depth. Habitat for species which prefer riffle habitat would continue to be abundant and unaffected downstream of the project tailrace. An analysis of average velocities through the stilling basin at a range of flows from 30 cfs to 150 cfs indicates that there would be less than a 0.2 fps difference between the low and high flows. Therefore, habitat at the higher Corps' recommended flow would be similar to habitat at 30 cfs.

Based on our analysis, we conclude that releasing 30 cfs (40 cfs during the winter to prevent the ring jet from freezing) would provide adequate protection of habitat and aquatic resources in the stilling basin under most conditions at a reasonable cost and without significantly reducing generation. However, because the Corps controls the flow release facilities and allocation of flows to the stilling basin, we are not recommending a specific minimum flow in this supplemental EA. Rather, we

recommend that Mahoning Hydro and the Corps address allocation of and flow releases to the stilling basin as part of the operating plan and MOA that we recommend be included in any license issued for the project (see above).

Charlotte, NC August 2000.

6.0 LIST OF PREPARERS

This section has been updated to show the project coordinator.

Kristen Murphy – Terrestrial Resources, Threatened and Endangered Species, Recreational Resources, Land Use and Aesthetics, Cultural Resources (Environmental Biologist; B.S., Biology)

Steve Kartalia— Project Coordinator, Aquatic Resources (Fisheries Biologist; M.S., Fisheries Biology)

Tom Dean— Need for Power, Geology and Soil Resources, Developmental Analysis (Civil Engineer; B.S., Civil Engineering)

Appendix A. Draft License Articles

This appendix has been updated to add an amortization reserve article and no longer require a minimum flow release in the bypassed reach. We recommend including the following license articles for any license issued for the project:

Draft Article 001. *Administrative Annual Charges.* The licensee shall pay the United States annual charges, effective as the date of commencement of project construction, and as determined in accordance with provisions of the Commission's regulations in effect from time to time, for the purposes of:

(1) reimbursing the United States for the cost of administration of Part I of the Federal Power Act. The authorized installed capacity for that purpose is 6,000 kilowatts; and

(2) recompensing the United States for the utilization of surplus water or water power from a government dam.

Draft Article 002. *Exhibit Drawings.* Within 45 days of the date of issuance this license, the licensee shall file the approved exhibit F drawings in aperture card and electronic file formats.

(a) Three sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" X 7-3/8") aperture cards. Prior to microfilming, the FERC Drawing Number (i.e., P-12555-0001 through P-12555-005) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., F-1, etc.), Drawing Title, and date of this license shall be typed on the upper left corner of each aperture card.

Two of the sets of aperture cards shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections, New York Regional Office.

(b) The licensee shall file two separate sets of exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections, New York Regional Office. Exhibit F drawings must be segregated from other exhibits and identified as (CEII) material under 18 CFR §388.113(c). Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this license, and file extension in the following format [P-12555-0001, F-1, Description, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY - black & white raster file
 FILE TYPE – Tagged Image File Format (TIFF), CCITT Group 4
 RESOLUTION – 300 dpi desired, (200 dpi min)
 DRAWING SIZE FORMAT – 24” X 36” (min), 28” X 40” (max)
 FILE SIZE – less than 1 MB desired

Draft Article 003. Exhibit G Drawings. Within 60 days of the effective date of this license, the licensee shall file, for Commission approval, revised exhibit G drawings enclosing all project features that are necessary for operation and maintenance of the project, including the fishing pier and parking area located near the existing stilling basin. The exhibit G drawings shall be filed electronically pursuant to 18 CFR sections 4.39 and 4.41.

Draft Article 004. *Amortization Reserve.* Pursuant to section 10(d) of the Federal Power Act, after the first 20 years of operation of the project under license, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One-half of the project surplus earnings, if any, accumulated after the first 20 years of operations under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account at the end of each fiscal year. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year after the first 20 years of operation under the license, the amount of that deficiency shall be deducted from the amount of any surplus earnings subsequently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, shall be set aside in the project amortization reserve account. The amounts established in the project amortization reserved account shall be maintained until further order of the Commission.

The annual specified reasonable rate of return shall be the sum of the annual weighted costs of long-term debt, preferred stock, and common equity, as defined below. The annual weighted cost for each component of the reasonable rate of return is the product of its capital ratio and cost rate. The annual capital ratio for each component of the rate of return shall be calculated based on an average of 13 monthly balances of amounts properly includable in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rates for long-term debt and preferred stock shall be their respective weighted average costs for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Draft Article 005. Headwater Benefits. If the licensee's project was directly benefited by the construction work of another licensee, a permittee, or the United States

on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this license. The benefits will be assessed in accordance with Part 11, Subpart B, of the Commission's regulations.

Draft Article 006. *Start of Construction.* The licensee shall commence construction of the project works within two years from the issuance date of the license and shall complete construction of the project within 5 years from the issuance date of the license.

Draft Article 007. *Contract Plans and Specifications.* At least 60 days prior to start of construction, the licensee shall submit one copy of its plans and specifications and supporting design document to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The submittal must also include as part of preconstruction requirements: a Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, and Soil Erosion and Sediment Control Plan. The licensee may not begin construction until the D2SI – New York Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

Draft Article 008. *Facility Design and Construction.* The design and construction of those permanent and temporary facilities, including reservoir impounding cofferdams and deep excavations, that would be an integral part of, or that could affect the structural integrity or operation of the Government project shall be done in consultation with and subject to the review and approval of the Corps' District Engineer. The Corps' review of the cofferdams will be in addition to the licensee's review and approval of the final plans and shall in no way relieve the licensee of responsibility and liability regarding satisfactory performance of the cofferdams. Within 90 days from the issuance date of the license, the licensee shall furnish the Corps and the Commission's Division of Dam Safety and Inspections – New York Regional Engineer, a schedule for submission of design documents and the plans and specifications for the project. If the schedule does not afford sufficient review and approval time, the licensee, upon request of the Corps, shall meet with the Corps and the Commission's staff to revise the schedule accordingly.

Draft Article 009. *Review of Contractor Designs.* The licensee shall review and approve the design of contractor–designed cofferdams and deep excavations, other than those approved according to Draft Article 007, prior to the start of construction and shall ensure that construction of cofferdams and deep excavations is consistent with the

approved design. At least 30 days prior to start of construction of the cofferdam, the licensee shall file with the Commission's New York Regional Engineer; and the Corps, one copy of the approved cofferdam construction drawings and specifications and a copy of the letter(s) of approval.

Draft Article 010. *Agreement with Corps.* The licensee shall within 90 days from the issuance date of the license, enter into an agreement with the Corps to coordinate its plans for access to and site activities on lands and property administered by the Corps so that the authorized purposes, including operation of the Federal facilities, are protected. In general, the agreement shall not be redundant with the Commission's requirements contained in this license, shall identify the facility, and the study and construction activities, as applicable, and terms and conditions under which studies and construction will be conducted. The agreement shall be mainly composed of reasonable arrangements for access to the Corps site to conduct studies and construction activities, such access rights to be conditioned by the Corps as may be necessary to protect the federally authorized project purposes and operations. Should the licensee and the Corps fail to reach an access agreement, the licensee shall refer the matter to the Commission for resolution.

Draft Article 011. *Periodic and Continuous Inspections by the Corps.* The construction, operation and maintenance of the project works that, in the judgment of the Corps may affect the structural integrity or operation of the Corps project shall be subject to periodic or continuous inspections by the Corps. Any construction, operation and maintenance deficiencies or difficulties detected by the Corps inspection shall be immediately reported to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer. Upon review, the D2SI – New York Regional Engineer shall refer the matter to the licensee for appropriate action. In cases when construction, operation or maintenance practices or deficiencies may create a situation posing imminent danger to the structural integrity and safety of the Corps project, the Corps inspector has the authority to stop construction or maintenance while awaiting the resolution of the problem. The licensee shall immediately inform the D2SI – New York Regional Engineer of the circumstances surrounding the cessation of construction, operation, or maintenance activities. The licensee shall not resume construction, operation, or maintenance activities until notified by the D2SI – New York Regional Engineer that the problem or situation has been resolved.

Draft Article 012. *Operating Plan.* The licensee shall at least 60 days prior to start of construction, submit for approval an operating plan, describing (a) the designed mode of hydropower operation, (b) reservoir flow diversion and regulation requirements for operation of the Corps project during construction as established by the Corps, and (c) integration of the operation of the hydroelectric facility into the Corps' emergency action plan. In addition, the licensee, prior to start of power plant operation, shall enter into an operating memorandum of Agreement (MOA) with the Corps describing the

detailed operation of the power facilities acceptable to the Corps. The MOA shall specify any restrictions needed to protect the primary purposes of the Corps project for navigation, recreation, water quality, and flood control. The Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer shall be invited to attend meetings regarding the agreement. The MOA shall be subject to revision by mutual consent of the Corps and licensee as experience is gained by actual project operation. Should the licensee and the Corps fail to reach an agreement, the matter will be referred to the Director, Office of Energy Projects for resolution. Copies of the regulating plan and signed MOA between the Corps and the licensee and any revision thereof shall be furnished to the Director, Office of Energy Projects, and the D2SI – New York Regional Engineer.

Draft Article 013. *No Claim.* The licensee shall have no claim under this license against the United States arising from the effect of any changes made in the operation or reservoir levels of the Corps project.

Draft Article 014. *Corps' Written Approval.* The licensee shall provide the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Office two copies of all correspondence between the licensee and the Corps. The D2SI – New York Regional Engineer shall not authorize construction of any project work until the Corps' written approval of construction plans and specifications, quality control and inspection program, and temporary emergency action plan have been received by the Regional Engineer.

Draft Article 015. *As-Built Drawings.* Within 90 days of completion of all construction activities authorized by this license, the licensee shall file for Commission approval, revised exhibits A, F, and G, as applicable, to describe and show those project facilities as built. A courtesy copy shall be filed with the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer; the Director, D2SI; and the Director, Division of Hydropower Administration and Compliance.

Draft Article 016. *Project Financing Plan.* At least 90 days before starting construction, the licensee shall file for approval, with the Director, Office of Energy Projects, three copies of a project financing plan. The plan must show that the licensee has acquired the funds, or commitment for funds, necessary to construct the project in accordance with this license. The licensee shall not start any project construction or ground-disturbing activities that are inseparably associated with the project, before the project financing plan is approved.

Draft Article 017. *Erosion and Sediment Control Plan.* At least 90 days before the start of any ground-disturbing activities, the licensee shall, prepare and file for Commission approval an erosion and sediment control plan. The plan shall include, but not be limited to:

(1) a description of the measures to be used to stabilize the streambanks and control soil erosion including a site map showing the location of cofferdam dams, training walls, armoring, rip rap, staked hay bales, geo-textile silt fence areas, excavated material stockpile area, and a temporary siltation catch basin;

(2) a description of the measures to be used for storage and disposal of spoil materials and the locations of any spoil disposal areas;

(3) a description of measures proposed for maintaining on site sanitary facilities;

(4) a description of measures proposed for revegetating disturbed areas, including a description of the native plant species used, planting densities and fertilization or other requirements; and

(5) an implementation schedule.

The licensee shall prepare the plan after consultation with the Pennsylvania Department of Environmental Protection, and the U.S. Army Corps of Engineers. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the resource agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. No land-disturbing activities or land-clearing activities shall begin at the project until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Draft Article 018. Run-of-Release Operation. The licensee shall operate the project and only use flows released by the Corps or directed to be released by the Corps within the constraints established by the Corps according to Draft Article 012.

Draft Article 019. Water Quality Monitoring Plan. At least 90 days before starting project construction, the licensee shall, prepare and file for Commission approval a water quality monitoring plan. The plan shall include, but not be limited to:

(1) a schedule for implementing the plan;

(2) methods for measuring and verifying DO and temperature;

- (3) estimated costs for any structural or operational modifications that are needed to implement the plan;
- (4) consultation with the agencies, concerning changes to the plan after the first full year of monitoring implementation;
- (5) real-time reporting of the monitoring data;
- (6) specific measures proposed for mitigation in the event that any water quality parameters are found to be below state standards and project-related; and
- (7) procedures for modifying the plan, as necessary, to incorporate operational or structural mitigative measures which have proven effective for complying with state water quality standards.

The licensee shall prepare the plan after consultation with the Pennsylvania Department of Environmental Protection, and the U.S. Army Corps of Engineers. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the resource agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Project operation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Draft Article 020. Wetland Protection Plan. At least 90 days before the start of any land-disturbing or land-clearing activities, the Licensee shall file with the Commission, for approval, a wetland protection plan for those wetlands located near the project construction activities.

The plan, at a minimum, shall include:

- (1) details of the final design, including measures to avoid and protect the wetlands affected by construction and permanent project structures;
- (2) schedules for establishing these measures and for filing recommendations for alternative wetland mitigation.

The Licensee shall prepare the plan after consultation with the Fish and Wildlife Service (FWS), the U.S. Army Corps of Engineers, and the Pennsylvania Department of Environmental Protection. The Licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the Licensee is notified by the Commission that the plan is approved. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Draft Article 021. Recreation Plan. Within 1 year of the date of issuance this license, the licensee shall prepare and file for Commission approval a Recreation Plan. The plan shall include, but not be limited to:

- (1) as-built drawings for the existing outflow fishing area and dam picnic site;
- (2) design drawings for a new fishing pier, including appropriate signage and lighting, downstream from the dam, or alternate enhancements to angler access;
- (3) an explanation of ownership, operation, and management of all existing and new recreational facilities at the project during the license term;
- (4) documentation of consultation with the U.S. Army Corps of Engineers, and the Pennsylvania Fish and Boat Commission with regards to the location, design, and management of the fishing pier or alternative enhancements; and
- (5) a schedule for implementation of the recreational enhancements.

The Commission reserves the right to require changes to the plan. No land-disturbing activities shall begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Draft Article 022. Programmatic Agreement and Historic Properties Management Plan. The licensee shall implement the Programmatic Agreement Among the Federal Energy Regulatory Commission and the Pennsylvania State Historic Preservation Officer for Managing Historic Properties that may be Affected by Issuing a License to Mahoning Creek Hydroelectric Company for the Construction and Operation

of the Mahoning Creek Hydroelectric Project in Armstrong County, Pennsylvania (FERC No. 12555), executed on [pending], including but not limited to the Historic Properties Management Plan (HPMP) for the project. In the event that the Programmatic Agreement is terminated, the licensee shall continue to implement the provisions of its approved HPMP. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license. If the Programmatic Agreement is terminated, the licensee shall obtain approvals from or make notifications to the Commission and the Pennsylvania State Historic Preservation Offices where the HPMP calls upon the licensee to do so.

Draft Article 023. Use and Occupancy. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction, (2)

consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project impoundment. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed. If no conveyance was made during the prior calendar year, the licensee shall so inform the Commission in writing no later than January 31 of each year.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60

days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an Exhibit E; or, if the project does not have an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for

consideration when revised Exhibit G drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

Document Content(s)

P-12555-004Nofr.DOC.....1-61