

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Upper Peninsula Power Company

Project No. 10855-000

NOTICE OF AVAILABILITY OF ENVIRONMENTAL ASSESSMENT

(September 17, 2009)

In accordance with the National Environmental Policy Act of 1969 and the Federal Energy Regulatory Commission's regulations, 18 CFR Part 380, Commission staff have prepared an environmental assessment (EA) regarding Upper Peninsula Power Company's request to replace the penstock at the McClure development of the Dead River Hydroelectric Project (FERC No. 10855) located on the Dead River in Marquette County, Michigan.

The EA contains the Commission staff's analysis of the potential environmental effects of the proposed replacement of the McClure Penstock and concludes that the proposed penstock replacement, with appropriate environmental protective measures, would not constitute a major federal action that would significantly affect the quality of the human environment.

Copies of the EA are available for review in the Public Reference Room 2-A of the Commission's offices at 888 First Street, NE, Washington, DC 20426. The EA may also be viewed on the Commission's Internet website (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. Additional information about the project is available from the Commission's Office of External Affairs, at (202) 502-6088, or on the Commission's website using the eLibrary link. For assistance with eLibrary, contact FERCOnlineSupport@ferc.gov or toll-free at (866) 208-3676; for TTY contact (202) 502-8659.

Kimberly D. Bose,
Secretary.

ENVIRONMENTAL ASSESSMENT

**REPLACING THE DEAD RIVER PROJECT'S
PENSTOCK AT THE MCCLURE DEVELOPMENT**

Dead River Hydroelectric Project—FERC Project No. 10855
Michigan



Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Administration and Compliance
888 First Street, NE
Washington, DC 20426

September 2009

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ACRONYMS AND ABBREVIATIONS

cfs	cubic feet per second
Commission or FERC	Federal Energy Regulatory Commission
CWA	Clean Water Act
D2SI	Division of Dam Safety and Inspections
dB	decibel
EA	environmental assessment
EPA	Environmental Protection Agency
ESCP	Erosion and Sedimentation Control Plan
°F	degrees Fahrenheit
FPA	Federal Power Act
ft ²	square feet
FWS	U.S. Fish and Wildlife Service
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
NGVD	National Geodetic Vertical Datum
SHPO	State Historic Preservation Officer
UPPCO or licensee	Upper Peninsula Power Company
WQC	Water Quality Certificate

ENVIRONMENTAL ASSESSMENT
Federal Energy Regulatory Commission
Office of Energy Projects
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Washington, DC

Dead River Hydroelectric Project
FERC Project No. 10855-MI

1.0 APPLICATION

Application Type: Proposal to replace the penstock at the McClure development

Date Filed: March 11, 2009. Supplemented June 6, 2009, and August 11, 2009

Applicant's Name: Upper Peninsula Power Company

Water body: Dead River

County and State: Marquette County, Michigan

Federal Lands: The project does not occupy any federal lands

2.0 PURPOSE OF ACTION AND NEED FOR POWER

On March 11, 2009, Upper Peninsula Power Company (UPPCO or licensee) filed an application to replace the penstock at the McClure development of the Dead River Hydroelectric Project. The Dead River Hydroelectric Project is located on the Dead River, in the Upper Peninsula of Michigan (*see* Figure 1). On November 28, 2007, a rupture of the McClure penstock occurred, resulting in the release of water and causing erosion of sediment and rock. At the time of the rupture, all flow into the penstock was discontinued. The McClure development has been out of production since the time of the rupture. In order to bring the McClure development back into production, in accordance with the license issued for the project, the licensee proposes to replace the penstock in its entirety. Construction would begin upon Commission approval of the proposal and completion is expected by the late fall of 2010.

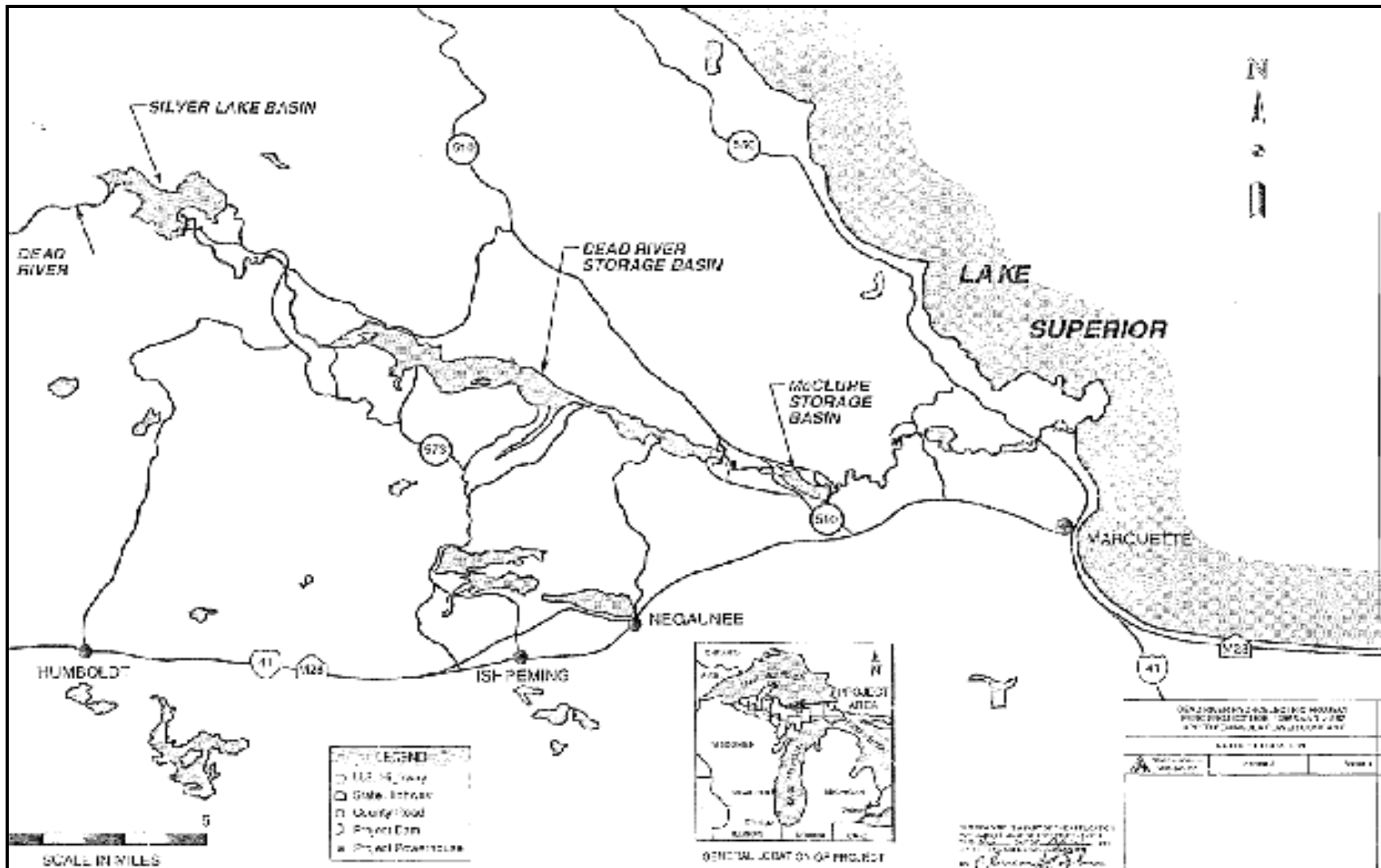


Figure 1: General layout of Dead River Project and vicinity (Source: Exhibit G-1, filed May 2, 1994)

The Commission, under authority of the Federal Power Act (FPA), licenses and oversees the operation of non-federal hydropower projects in the United States. As part of its oversight capacity, the Commission implements a Dam Safety Program, through its Division of Dam Safety and Inspections (D2SI), to ensure that Commission-licensed projects comply with Federal Dam Safety Standards and are designed, constructed, and operated safely. Under 18 CFR Part 12, the D2SI or the Regional Engineer has the authority to, among other things, require a licensee to take action to repair or modify project works for the purpose of achieving or protecting the safety, stability and integrity of project works. The current project is proposed to be completed under the 18 CFR Part 12 Regulations.

In the environmental assessment (EA) prepared by Commission staff for the licensing of the Dead River Project (FERC 2002) Commission staff concluded that the electrical power produced by the Dead River Project contributes to a diversified generation mix, and helps meet a need for power in the project area. The proposed replacement of the McClure Penstock would restore the full hydropower generation capability of the Dead River Project.

3.0 PROJECT DESCRIPTION

On October 4, 2002, the Commission issued an original license to UPPCO for the operation of the Dead River Project.¹ Project works consist of three separate developments: the Silver Lake development, the Dead River (also called Hoist) development, and the McClure development. The Silver Lake storage reservoir is the uppermost development and does not have any power-generating facilities. The lower reservoirs, Hoist and McClure, have generating facilities.

The McClure development (*see* Figure 2) consists of the following facilities: (1) the McClure dam consisting of: (a) an 114-foot-long, 46.5-foot-long right (west) non-overflow concrete abutment; (b) a 66.5-foot-long, 37-foot-high concrete non-overflow section; (c) a 360-foot-long, 22-foot-high left (east) earth embankment; and (d) a 200-foot-long, 51.4-foot-high concrete spillway; (2) a 95.9-acre reservoir with a normal water surface elevation of 1,196.4 feet National Geodetic Vertical Datum (NGVD); (3) a 99-foot-long, 10-foot-wide, and 28-foot-high intake structure; (4) a 13,302-foot-long, 7-foot-diameter steel, wood, and concrete penstock; (5) a 40-foot-high, 30-foot-diameter concrete surge tank; (6) a powerhouse containing two generating units with a total installed capacity of 10 megawatts; (7) a tailrace; (8) a 33-kilovolt substation; and (9) appurtenant facilities.

¹ See Order Issuing New License, 101 FERC ¶ 62, 013 (issued October 4, 2002).

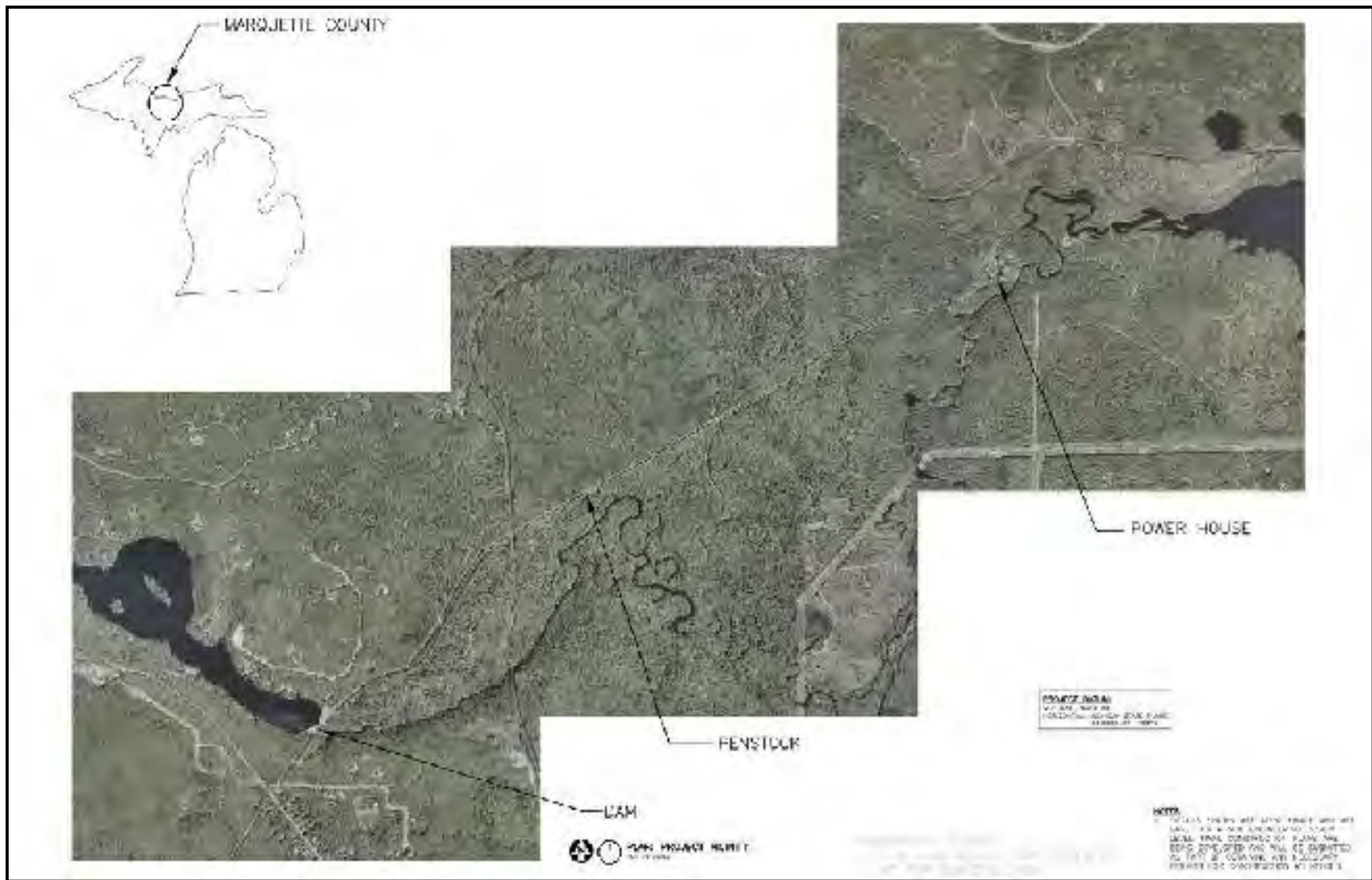


Figure 2: General Layout of McClure Development (UPPCO 2009a, modified by staff)

The McClure reservoir is located above river mile 11.3 where the dam impounds water about 4 miles back up the Dead River. A 13,302-foot-long 7-foot-diameter penstock leading from the McClure dam to the McClure powerhouse provides approximately 424 vertical feet of head to the McClure power generating station. Sections of the penstock are partly buried and partly visible above ground, or fully supported upon various engineered structures. Portions of the existing penstock have been in use since 1919.

4.0 PROPOSED ACTION AND ALTERNATIVES

4.1 Proposed Action

UPPCO proposes to replace all 13,302 feet of the McClure penstock from the intake at the McClure dam to the McClure powerhouse. The replacement of the penstock would include:

- Constructing a new 84-inch-diameter spiral welded steel pipe installed in a direct bury manner alongside the existing penstock for the length of most of the existing wood-stave concrete section;
- Refurbishing the existing concrete conduit through the intake section of the dam and the existing reinforced concrete surge tank;
- Removing the existing 84-inch-diameter riveted steel penstock and certain segments of the wood-stave concrete composite section and replacing them with 84-inch-diameter spiral weld steel pipe using direct bury construction in the same alignment and profile as the existing riveted steel pipe;
- Removing and replacing the existing bifurcation and bifurcation pipes with new steel pipe;
- Replacing the intake valve and powerhouse valves with modern valve designs which will provide less head loss, better sealing capabilities, and remote operation capabilities; and
- Installing and maintaining flow monitoring equipment in both the upstream and downstream ends of the penstock system in order to detect differences in flows which could indicate a penstock failure. The flow monitoring system would include an alarm to notify operators if a significant flow difference is detected.

The replacement of the McClure penstock would require a substantial amount of construction including the use of heavy equipment and movement of large amounts of materials and debris. Ancillary activities that would be undertaken in order to accomplish the penstock replacement include:

- Construction of approximately 2,200 feet of new access roads along the penstock alignment which will be gravel surface and 20 feet wide. This will require tree clearing on 3.0 acres of land;
- Improvement and widening of approximately 15,260 feet of existing access roads which will be gravel surface and 20 or 24 feet wide (depending on location). This will require tree clearing on 7.5 acres of land;
- Excavation of soil, rock, and other materials;
- Clearing and grubbing of areas for staging of construction equipment, materials, and parking; and
- Clearing of areas for relocation of the power line.

The penstock replacement and associated construction activities have the potential to impact environmental resources. The greatest potential impact is from sedimentation and erosion due to the large amount of ground disturbance associated with the project (environmental impacts are discussed in detail in Section 6.0 below). Environmental protection measures proposed by the licensee to minimize the impact of these activities include: implementing the erosion and sedimentation control plan (ESCP) developed for the penstock replacement activities which includes the installation of temporary erosion control measures; avoiding sensitive areas such as streams and wetlands to the extent possible; conducting the construction in phases to minimize the amount and duration of exposed soil; restoring the site following completion of the project including implementation of the revegetation plan; and complying with all applicable permits for the project.

The proposed action would increase the hydraulic capacity of the McClure development from 320 cubic feet per second (cfs) to 390 cfs due to increased efficiency, which would match the hydraulic capacity of the upstream Hoist development. The proposed action would not increase the installed capacity of the project. No other changes to project operations are proposed. Once the McClure Penstock is replaced, the McClure development will be operated in accordance with the license for the project. The licensee proposes to start construction upon Commission approval of the proposed project and construction is expected to be completed by late fall 2010.

4.2 Alternatives Considered but Eliminated from Further Analysis

In its proposal, the licensee examined several pipe material options for replacing the penstock. The choice of material for the new penstock would have no effect on the environmental impact of the penstock replacement project. Therefore, alternative penstock material options were eliminated from further consideration. No other reasonable alternatives were identified by consulted entities or Commission staff.

4.3 No-Action Alternative

Under the No-Action alternative, the proposed penstock replacement at the McClure development would not be authorized and the development would remain out of production. While the No-Action Alternative would result in no adverse environmental impacts that would be associated with the replacement of the penstock, it would essentially decommission the McClure development and decrease the generation capacity of the Dead River Project. The loss of capacity could result in the use of an alternative energy supply, possibly fossil fuels, to meet regional energy demand. In addition, if the penstock was not replaced, and the McClure development was not returned to production as required by the current license, the license for the Dead River Project would need to be modified accordingly. The disposition of the dam, reservoir, recreational opportunities, and other project features associated with the McClure development under that scenario is unknown at this time; therefore, long-term impacts of not replacing the penstock are not discussed in this EA.

5.0 CONSULTATION AND COMPLIANCE

On March 12, 2009, UPPCO requested, under 18 CFR Part 12, authorization to replace the McClure penstock. Given the extensive construction activities associated with the proposal, the Commission initiated review of the proposed action under the National Environmental Policy Act. This section details the processes used to consult with the resource agencies regarding the proposed action and compliance with statutory requirements.

5.1 Pre-Filing

UPPCO consulted with resource agencies and interested parties prior to filing their proposal with the Commission. UPPCO initiated pre-filing consultation by conducting a pre-application meeting with the Michigan Department of Environmental Quality (MDEQ) Land and Water Management Division in September, 2008. During this meeting the licensee and MDEQ staff walked the route of the penstock to identify and review individual streams and wetlands along the corridor and discuss various options for the replacement of the penstock. The licensee continued consultation through 2008 by contacting resource agencies, potentially affected property owners, tribes, and other potentially interested parties either in writing or via telephone to discuss the project, solicit comments, and identify those parties interested in reviewing the draft environmental review document (a full list of entities that were contacted can be found in the licensee's application).

On January 7, 2009, UPPCO provided copies of the draft environmental report to the following entities: MDEQ; Michigan Department of Natural Resources (MDNR); U.S. Fish and Wildlife Service (FWS); State Historic Preservation Officer (SHPO); Marquette Board of Light and Power, Keweenaw Bay Indian Community, Michigan

Hydro Relicensing Coalition, and the McClure Basin Association. UPPCO received comments from MDEQ, MDNR, and SHPO. None of the entities objected to the proposed project. In consultation with the agencies, the licensee made minor modifications to the application prior to filing a final application with the Commission. There were no unresolved issues raised by the entities during consultation regarding the proposed replacement of the McClure penstock.

5.2 Statutory and Regulatory Requirements

The proposed penstock replacement at the Dead River Project is subject to numerous requirements under the FPA and other applicable statutes described below.

5.2.1 Water Quality Certification/Section 404 Permit

The federal Clean Water Act (CWA) gives authority to each state to issue a 401 Water Quality Certification Permit (WQC) for any project that needs a federal 404 Permit. Additionally, an applicant is required to obtain a WQC for any activity that may result in a discharge into navigable waters. The WQC is verification by the state that the project will not violate water quality standards.

In Michigan, the MDEQ is also responsible for administering the Section 404 permitting process of the CWA, and has regulatory authority over the onsite wetlands, due to their size (greater than 5 acres) and proximity (direct nexus) to a water body. As such, a permit must be obtained from MDEQ prior to conducting most filling, dredging, and/or draining activities, or maintaining a use of a regulated wetland. Section 404 requires that anyone interested in depositing or discharging dredged or fill material into waters of the United States, including wetlands, receive authorization for such activities.

As part of this combined WQC permitting process, MDEQ may require specific conditions to ensure that water quality is protected. If permitting is required by the MDEQ, the licensee is required to provide the Commission with a copy of the MDEQ permit for the proposed work, or a letter from MDEQ stating that permitting is not required.

The licensee consulted with the MDEQ prior to filing its environmental report with the Commission. By email dated May 18, 2009, the licensee notified the MDEQ that they were not proposing an amendment to the WQC for the penstock replacement project. In an email response the same day, the MDEQ indicated that their review of the proposed penstock replacement project concluded that there was no need to modify or amend the WQC issued for the Dead River Project. In its supplemental information, filed August 7, 2009, the licensee stated that the MDEQ Section 404 permit for wetlands and stream crossings, and the Marquette County Soil Erosion and Sedimentation control permit had both been approved.

5.2.2 Threatened and Endangered Species

Section 7(a) (2) of the Endangered Species Act of 1973² requires federal agencies to ensure their actions are not likely to jeopardize the continued existence of federally listed threatened or endangered species, or result in the destruction or adverse modification of their designated critical habitat.

The licensee provided information gathered from a field reconnaissance, as detailed in their environmental report included in their application. The report states that no unique areas or populations of rare, threatened or endangered species were observed to occur in the area that will be affected by the proposed work. The FWS did not provide comments. In a letter dated July 22, 2008, MDNR Wildlife Division concurred that there are no known occurrences of federal or state listed endangered, threatened, or otherwise significant species, natural plant communities, or natural features at the penstock replacement project site.

5.2.3 National Historic Preservation Act

Under section 106 of the National Historic Preservation Act,³ and its implementing regulations⁴ federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register of Historic Places (defined as historic properties) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking.

The Michigan SHPO filed a May 1, 2009 letter of determination with a finding that the project will have no adverse effect on the McClure Hydroelectric Plant, which appears to meet the criteria for listing in the National Register of Historic Places. The SHPO requests to be notified if the scope of work changes in any way, or if artifacts or bones are discovered.

In March 2004, a Historic Properties Management Plan (HPMP) was approved by the Commission.⁵ The plan was a requirement of license article 413 and contains protocol for both known and unknown/undiscovered cultural artifacts.

² 16 U.S.C. § 1536(a)

³ 16 U.S.C. § 470 (2006)

⁴ 36 C.F.R. Part 800 (2008)

⁵ See Order Approving Historic Properties Management Plan, 110 ¶ 62,194 (issued March 12, 2004).

6.0 ENVIRONMENTAL ANALYSIS⁶

6.1 General Description of Locale

The Dead River Project is located in rural Marquette County within the Upper Peninsula of Michigan, about 30 miles west of Marquette (population 22,000). The Dead River Project's Silver Lake development is the furthest-upstream of the project's three developments. There are no hydroelectric generation facilities at the Silver Lake development. Water is released from the development to enhance hydroelectric operation at the two developments downstream, the Hoist development (also known as the Dead River development), and the McClure development. The Marquette Hydroelectric Project (FERC Project No. 2589) is located downstream of these developments, and includes the Forestville reservoir and Tourist Park reservoir. After it passes through the Marquette Project, the Dead River flows into Lake Superior near Marquette. Approximately 20 of the 35 miles of the main-stem river are occupied by the five impoundments.

The Dead River is the largest tributary to Lake Superior in Marquette County. The river flows in a southeasterly direction from its headwaters in the bog forests of western Marquette County. Leaving these bogs as a small stream, it traverses remote forests, swiftly passing over steep terrain before entering Silver Lake storage reservoir.

The climate in this region is characterized by long, cold winters with heavy snowfall and cool, short summers. The climate is influenced by the northern latitude and by Lake Superior, which contributes to the heavy snowfall and moderates extreme temperatures. Average annual precipitation is between 30 and 40 inches, with snowfall ranging from 50 to more than 200 inches in the drainage area. Snow cover begins in mid-November and lasts through late-April, for an average duration of 140 days. The growing season is 100 days long. Minimum and maximum temperatures for July are 55 and 80 degrees Fahrenheit (°F), respectively; while those for January are 5°F and 25°F.

⁶ Unless otherwise noted, information is taken from: the final environmental assessment for project license, issued by the Commission July 2, 2002 (FERC 2002); the environmental assessment for the rebuild of Silver Lake, issued by the Commission on June 3, 2004 (FERC 2004); and the applicant-prepared environmental assessment that was included in the licensee's March 11, 2009, filing (UPPCO 2009a).

6.2 Geology and Soils

Affected Environment

The Dead River and Marquette Projects lie in the Great Lakes Basin, a geologic feature of glacial origin covering much of the Michigan Upper Peninsula, and several surrounding states and provinces. Surficial geology in the project area includes large areas of Precambrian relict-igneous bedrock (schist and gneiss) and metamorphic bedrock (slate and chert). Other areas, particularly valley bottoms and wetlands, are dominated by Tertiary glacial/alluvial deposits (sands, gravels, and boulders). The topography and soils of the area have been derived from material deposited through continental glaciation. Topography is dominated by large glacial outwash plains and low, rolling hills or ridges with numerous, scattered wet depressions. The area's soil characteristics are closely associated with these different land forms and bedrock types. Soils are relatively young, very complex, and intermingled. Drainage patterns are immature.

Environmental Effects

Proposed Action

The proposed penstock replacement would require a significant amount of ground disturbance and would increase the potential for erosion and sediment laden runoff until adequate vegetation is restored. Ground disturbing activities associated with the proposal include: clearing and grubbing for parking, construction, borrow pits, and lay down areas; excavation of existing portions of the penstock for removal; excavation alongside portions of the penstock for laying of new penstock; excavation of the surge tank for repair; widening existing access roads; installing new access roads; and clearing for the relocation of the power line.

In order to control erosion and sedimentation during construction UPPCO has prepared an erosion and sedimentation control plan (ESCP) which includes the use of sediment traps, silt socks, silt fencing, hay bales, and other barrier and capture control methods to contain sediment. Sedimentation and erosion related to construction activities are expected to be temporary and the penstock replacement project is scheduled to be completed within one construction season. UPPCO states that the erosion and sedimentation control systems will be maintained in good order during construction. Under the proposed action, there will be some minor alteration of topography from excavation and other disturbance. To the extent possible, disturbed areas will be restored to their prior condition. In order to achieve this, UPPCO prepared a revegetation plan which includes measures to grade, contour, and reseed disturbed areas following construction.

In order to verify the proper implementation of the ESCP and revegetation plan, UPPCO proposes to conduct inspections at least weekly, as well as within 24 hours after every rainfall equal to or greater than 0.5 inches. Inspections would continue after construction to ensure site restoration. In addition, UPPCO proposes to contract an environmental monitor to oversee environmental aspects of the penstock replacement project (UPPCO 2009b). The environmental monitor and the general construction contractor would share responsibility for implementing and monitoring the ESCP and revegetation plan.

Proper implementation of the licensee's proposed ESCP and revegetation plan is likely to minimize impacts to geology and soils during the penstock replacement activities. Most impacts are expected to be short term and minor in nature. In addition, the licensee's use of an environmental monitor is expected to ensure that the ESCP and revegetation plans are implemented properly and that any unexpected negative impacts to environmental resources are detected and corrected in a timely manner.

No-Action Alternative

Under the No-Action Alternative the McClure penstock would not be replaced and the development would remain out of productivity. There would be no environmental affect on geology and soils associated with the penstock replacement.

6.3 Water Resources

6.3.1 Water Quantity

Affected Environment

The McClure development is the most downstream development of the Dead River Project. The McClure dam impounds the Dead River about 11.3 river miles upstream from Lake Superior. The McClure dam creates the McClure reservoir, which is approximately 1.5 miles long, has a surface area of 95.9 acres, and a storage capacity of approximately 1,870 acre-feet. The maximum depth of the basin is approximately 53 feet near the dam, and the average depth is 20 feet. Flow into McClure reservoir is regulated by power generating operations at the Hoist powerhouse and releases from Silver Lake. Flow from the Hoist reservoir spills into the McClure reservoir from the Hoist dam. Flow travels from the discharge at Hoist along a 0.4 mile section of the Dead River into the McClure reservoir. The McClure dam retains the McClure reservoir and provides the inlet to the McClure penstock, which feeds the powerhouse. Approximately 6.1 river miles of the original Dead River channel below the McClure dam is bypassed by the penstock of the McClure development.

Article 402 of the project license requires UPPCO to maintain the McClure reservoir between the elevations of 1,194.8 and 1,196.4 feet NGVD, and limit

fluctuation in the reservoir water level to less than 1.0 foot on any day. Article 404 requires UPPCO to maintain a continuous minimum flow downstream of the McClure powerhouse of 80 cfs, when sufficient flow is available. In addition, UPPCO must provide a minimum instream flow of 20 cfs to the bypassed natural river channel using a deep water draw. Since the time of the penstock rupture, all flow through the McClure development has been through the natural channel of the Dead River. Because no flow has been passing through the penstock since the time of the rupture, the water level in the McClure tailrace has been lower than under normal operating conditions which require a minimum flow of 80 cfs to be released from the powerhouse.

Environmental Effects

Proposed Action

The proposed penstock replacement project would not alter licensed operating conditions at the Dead River Project. The efficiencies gained from replacement of the penstock would increase the hydraulic capacity of the McClure development from 320 to 390 cfs. This increase in hydraulic capacity would result from less leakage along the penstock route and installation of new bifurcation pipes entering the McClure powerhouse. The increase in hydraulic capacity is not expected to significantly alter operational conditions. Following the replacement of the penstock, operation of the McClure development would resume and flows would be utilized for power generation while meeting license required reservoir elevations and minimum flow discharges. The resumed operation of the powerhouse would restore the license required flow releases in the McClure tailrace reach.

No-Action Alternative

Under the No-Action Alternative, the McClure penstock would not be replaced and, during the short-term, all flow through the McClure development would continue to be discharged into the bypassed reach of the Dead River.

6.3.2 Water Quality

Affected Environment

Waters in the Dead River watershed, including Silver Lake, Hoist, and McClure storage reservoirs, have good chemical and biological quality (FERC 2008). The river water meets Michigan state water quality standards for total dissolved solids (TDS), pH, microorganisms, nutrients, taste and odor-producing substances, and physical properties appropriate for state-designated uses. The Dead River is not used as a public drinking water source. There are no significant consumptive uses of project waters or discharge of wastewater into the project watershed. No National Pollutant Discharge Elimination System permits exist or Publicly Owned Treatment Works for discharge into project

waters. In its environmental report on the proposed action, the licensee identified nine streams in the vicinity of the McClure penstock. Table 1 includes information regarding the physical and biological attributes of each stream.

Stream 1 is the tailrace of the McClure powerhouse which enters the Dead River approximately 1,200 feet downstream of the powerhouse. Stream 2 is identified as a segment of the Dead River, downstream of the Dead River falls, which is more than 150 feet from the penstock. Stream 3 is a small tributary which enters the Dead River in the Stream 2 segment, and is identified as a high quality nursery stream for brook trout in the licensee's environmental report. Stream 4 is a small, high quality perennial stream which originates in forested wetland seeps and flows beneath the penstock.

Stream 5 is a small perennial stream which originates approximately 100 feet south of the penstock and flows away from the penstock. Stream 6 is a small perennial stream which originates in wetlands southwest of the project and flows northeast and passes below the existing access road and penstock. Stream 7 is a small intermittent stream that originates in wetland seeps northwest of the project and flows under the penstock and access road before discharging into Stream 6. Stream 8 is a small perennial stream that originates in wetland seeps approximately 125 feet north of the Penstock and flows away from the penstock. Stream 9 is a small intermittent stream which originates on the south side of, and near, the penstock and then flows southeast toward the Dead River.

Environmental Effects

Proposed Action

The proposed penstock replacement project and related construction activities have the potential to affect water quality by increasing erosion and sedimentation in or near water bodies in the project area. The proposed action does not include any construction activity in the McClure reservoir or immediate channel of the Dead River. However, the close proximity of the proposed ground disturbing activities to the river and several of its tributaries increases the risk of adverse impacts to water quality in the Dead River.

Table 1: Stream Characterization (KME 2008, as cited in UPPCO 2009a)

STREAM NAME	PIPELINE CROSSING	AVERAGE VELOCITY	AVERAGE WIDTH (ft)	AVERAGE DEPTH (ft)	DOMINANT SUBSTRATE	FLOW STATUS	FISH	ASSOCIATED WETLAND	BIOLOGICAL INTEGRITY SCORE	HABITAT INTEGRITY	POTENTIAL HABITAT VALUE
# 1	No	medium	8	1.00	gravel, cobble, boulder	perennial	yes	N/A	N/A*	fair	good
# 2	No	medium-high	35	2.30	bedrock, boulder, cobble	perennial	brook trout	Wetland V	N/A*	excellent	high
# 3	Yes	low medium	3	0.10	bedrock, cobble, gravel	perennial	brook trout	Wetland A	>18 (excellent)	excellent	high
# 4	Yes	low	1.5	0.25	gravel, sand, organic	perennial	no	Wetland B	>18 (excellent)	excellent	high
# 5	No	low	1	0.05	sand, organic	perennial	no	Wetland D	N/A*	excellent	moderate
# 6	Yes	low	1	0.08	sand, cobble, organic	perennial	no	Wetlands F, E	3? (fair)	somewhat degraded	moderate
# 7	Yes	N/A*	1	0.05	sand, organic	intermittent	no	Wetland G	N/A*	good	moderate
# 8	No	low	1	0.05	sand, organic	perennial	no	Wetland I	N/A*	excellent	moderate
# 9	Yes	N/A*	1	N/A	bedrock, boulder, cobble	intermittent	no	N/A	N/A*	good	moderate

* Not applicable because the stream was seasonally dry (no flow) during timeframe of investigation.

The tailrace of the McClure penstock (Stream 1) is in close proximity to a proposed lay down and staging area. In order to decrease the potential for negative impacts to water quality, UPPCO proposes to implement run-off control measures and to use caution with construction equipment to avoid damage to the riparian banks and vegetation. The segment of the Dead River below the falls, identified as Stream 2, is more than 150 feet from the penstock and therefore, is not expected to be directly impacted from construction activities. However, if the tributaries that directly feed or are upstream of Stream 2 are impacted, the water quality of Stream 2 could be indirectly impacted as well. In order to minimize or avoid impacts to Stream 3, UPPCO states that there will be no access road built across the stream or surrounding wetlands and the existing concrete penstock support system will be reused. In addition, UPPCO states that no construction equipment will be used in the stream channel, and erosion control methods described in the ESCP will be implemented to minimize potential impacts of construction activities to the stream.

Stream 4 flows under the penstock and will be impacted during construction activities. UPPCO anticipates that approximately 768 square feet (ft²) of the wetland associated with this stream will be permanently impacted. UPPCO proposes to install a culvert at the crossing and to use appropriate measures identified in the ESCP to minimize water quality impacts. Stream 5 is located approximately 100 feet away from the proposed construction activities. Therefore, no negative impacts to the water quality of Stream 5 are expected.

Stream 6 flows across the penstock route and adjacent access road. Construction activities will result in permanent impacts to approximately 1081 ft² of the two wetlands associated with the stream. The existing culvert will need to be extended to accommodate the access road. UPPCO proposes to impact as little wetland and stream area as possible and implement the ESCP during construction in order to protect the remaining wetlands and stream. Stream 7 is an intermittent stream which flows only in early spring. The stream flows across the penstock route and adjacent access road before discharging into Stream 6. UPPCO estimates that 50 linear feet of the stream may be impacted by construction activities. Erosion will be minimal if construction activities do not occur during the period when this stream is flowing. Measures included in the ESCP will be implemented to protect water quality.

Stream 8 originates approximately 125 feet from the penstock and flows away from the penstock route. UPPCO states that this stream and its associated wetland will not be impacted from construction activities. Stream 9 is a small intermittent stream that originates near the penstock. UPPCO states that the wetland on the opposite side of the access road from the stream is the likely source of hydrology for Stream 9. This wetland is expected to be permanently impacted during construction. Therefore, following construction, Stream 9 may be completely dry for a larger portion of the year than prior to construction.

Erosion and sedimentation related to the proposed construction activities are expected to be minor and temporary. Because the construction activities will not be conducted in the main river channel, and impacts to tributaries are expected to be minimal and short-term, the proposed action is not expected to have an impact on temperature or dissolved oxygen concentrations. Careful implementation of the ESCP and revegetation plan should minimize impacts to water quality.

No-Action Alternative

Under the No-Action Alternative, the McClure penstock would not be replaced and there would be no construction related impacts to water quality. In the short-term, the tailrace of the McClure development would remain dewatered and all flow through the project would be discharged to the bypassed reach.

6.4 Fisheries

Affected Environment

The Dead River Project extends over a 30-mile reach of the Dead River from the headwaters of Silver Lake to the McClure powerhouse tailrace. The project reservoirs cover about 17 miles of this river reach. The remaining 13 miles of flowing river between the impoundments comprise four distinct river reaches: (1) the 5.4-mile stream reach between Silver Lake and Hoist Reservoir, (2) a 1,000-foot bypassed reach below Hoist Dam; (3) a 0.4-mile river reach between Hoist powerhouse and McClure reservoir, and (4) a 6.1-mile bypassed reach between McClure dam and the McClure powerhouse tailrace. The state of Michigan classifies the Dead River as a coldwater trout stream from its headwaters above Silver Lake Storage Reservoir to the Forestville Road Bridge, located downstream from the McClure powerhouse tailrace (MDNR, 2007 as cited in FERC 2008). However, the MDEQ currently manages the three project reservoirs as warmwater fisheries while pursuing experimental programs related to coldwater fisheries (UPPCO 2009a).

Normandeau Associates (NAI) completed a detailed assessment of the Dead River fisheries after the rupture of Silver Lake, in July 2004 (NAI, 2006 as cited in FERC 2008). In the report, most of the habitat in the Dead River was rated as “good”, except just downstream of Silver Lake Storage Reservoir and at the mouth of the Dead River, which were generally rated “poor”. The habitat rated the highest occurred in the McClure bypass channel (NAI, 2006 as cited in FERC 2008). The bypass channel represents a significant portion of habitat in the river. The report stated that upper reaches of the Dead River were dominated by small trout while the lower reaches and the McClure bypass channel were dominated by warmwater fishes.

During a field study in 2004, a small number of mussels were found during a survey of McClure reservoir and one specimen was found in the McClure bypassed

reach (UPPCO 2009a). There are no known aquatic threatened or endangered species in the project area.

Environmental Effects

Proposed Action

The greatest potential threat to aquatic biota during the penstock replacement project is from erosion and sedimentation as a result of construction activities. The release of eroded sediments into streams has the potential to disturb fishes and other aquatic biota, cover habitat, and decrease visibility in the water column. Potential impacts to water quality were discussed in section 6.3.2 which identified erosion and sedimentation as the primary impacts from the proposed action. The proposed action will not involve any construction activity in the main channel of the Dead River. Other sensitive areas will be avoided where possible, or impacts will be minimized through the use of proper erosion and sedimentation control methods.

Since the time of the penstock rupture, all flow has been discharged into the natural river channel, resulting in higher flows in the bypassed reach than under normal operating conditions which require a minimum of 20 cfs to be discharged in the bypassed reach. The increase in flows in the bypassed reach has likely increased the wetted area of the channel, thereby increasing the quantity of habitat available for aquatic biota compared to original licensed conditions. Returning the penstock to operation could result in a decrease in water level in the bypassed reach when water is diverted back into the penstock. The amount of available habitat would return to conditions as contemplated in the licensing process.

A rapid drop in the elevation of the bypassed reach during start up of operations, caused by diverting water away from the bypassed reach and into the penstock, could result in the stranding of fish or other aquatic biota. As the river elevation decreases, fish and aquatic biota inhabiting the shallow edge areas of the river may be trapped in pools too small to support them, or may be stranded out of the water completely, resulting in the death of these organisms. This potential impact could be avoided or minimized by a controlled rampdown of the discharge in the bypassed reach as flow is redirected into the penstock for operations. Discharge in the bypassed reach could be decreased at such a rate so as to allow fishes and other aquatic biota sufficient time to seek refuge in deeper water as the elevation in the river decreases. In addition, stranded organisms could be rescued and returned to the stream channel during the rampdown. The licensee should be required to determine the potential for negative impacts related to the rampdown of the bypassed reach during start up of operations and develop a plan to minimize these impacts.

No-Action Alternative

Under the No-Action Alternative, the penstock would not be replaced and there would be no increased risk of adverse impacts to aquatic biota. In the short-term all flow passing through the development would be discharged into the bypassed channel, mimicking natural flow conditions.

6.5 Wetlands

Affected Environment

During licensing of the project, Commission staff estimated that the Dead River Project has over 1,400 acres of wetlands directly associated with the project reservoirs and the project reach (FERC 2002). The steep slopes that border the McClure reservoir support mostly hardwood forest dominated by red oak and only small areas of emergent wetland vegetation. The McClure bypassed reach included 160 acres of palustrine wetlands.

The licensee conducted a habitat/land use survey as part of its application to replace the McClure penstock (UPPCO 2009a). The survey, in part, identifies riparian and non-riparian wetlands in the vicinity of the penstock. The riparian wetlands total approximately 2.52 acres and are associated with 8 small streams near or along the penstock route (discussed in section 6.3.2). The vegetation community metrics for these wetlands indicate that they are high quality wetlands. The non-riparian wetlands identified in the survey total 1.29 acres and are associated with the open right-of-way area of the penstock route. The licensee indicates that the majority of the non-riparian wetlands are not associated with any stream but were likely formed due to penstock leakage over time. The vegetation community metrics for these wetlands indicate that they are low quality wetlands. Maps and photos documenting these wetlands are included in the licensee's application to replace the McClure penstock.

Environmental Effects

Proposed Action

The construction activities associated with the replacement of the McClure penstock will likely impact small areas of wetlands in the project area. In order to minimize impacts to wetlands the licensee proposes the following measures: use existing access roads where possible; locate access road crossings at narrow points of wetlands; reuse existing concrete and steel pipe supports at current stream crossings; avoid wetlands associated with Stream 3 by not constructing an access road at the crossing; incorporate buffers around wetlands where possible; direct stormwater runoff to temporary sediment basins, rock filter dikes, and through vegetated buffer areas prior to discharging into wetlands; and phase construction to minimize exposed soil.

The license states that impacts to wetlands will be minimized to the extent possible; however, impacts cannot be completely avoided. The licensee estimates that 10,150 ft² (approximately 0.23 acres) of wetlands will be permanently impacted during construction. The impact areas are along the penstock route and are primarily associated with the construction of the access road. The impacts are expected to be permanent because the road will be maintained for future access needs. The licensee does not propose any mitigation because the area of impact is minor.

The licensee's environmental measures, as proposed, should minimize negative impacts to wetlands. Several small wetland parcels, totaling 0.23 acres, will be permanently impacted. This impact is small in comparison to the scale of the project and the remaining wetlands in the vicinity of the penstock and therefore, no mitigation is recommended.

No-Action Alternative

Under the No-Action Alternative the McClure penstock would not be replaced and the development would remain out of production. Therefore, there would be no construction related impacts to wetlands.

6.6 Terrestrial Resources

Affected Environment

Mixed northern hardwood forests occupy most of the greater project area uplands. These forests are second-growth forests resulting from early 20th century logging. The upland and wetland habitats of the Dead River Hydroelectric Project and surrounding areas are utilized by an estimated 250 wildlife species (UPPCO 1994). In addition, a 1992 survey conducted by the licensee states that the area of the Dead River Hydroelectric Project included habitat sites for the state-listed big leaf sandwort (*Arenaria macrophylla*) and the Cisco herring (*Coregonus artedii*).

Big-Leaf Sandwort

The vegetation around the Dead River Hydroelectric Project was surveyed during the summer of 1992 for the presence of threatened and endangered plant species and plant species of special concern. UPPCO states that, at the time of the 1992 survey, the MDNR concluded that the big-leaf sandwort was recorded at the project in the vicinity of the Hoist Powerhouse, which is outside of the penstock replacement area.

Cisco Herring

The Cisco herring is a state threatened species and historically known to inhabit waters of the Dead River Drainage Basin. The fish is a salmon-like species that

migrates from deeper fresh waters to spawn. The Michigan Natural Features Inventory indicated the last confirmation of the Cisco Smelt (herring) in Marquette County was in 1988.

Under the current license conditions, the following provisions are required that relate to the management of terrestrial resources for the entire Dead River Hydroelectric Project:

- wildlife management plan.⁷
- shoreline and bank erosion control plan.⁸
- annual cleanups of McClure Bypassed Reach Trail
- natural organic debris maintenance plan.⁹
- bald eagle protection plan as part of wildlife management plan.
- nuisance plant control plan.¹⁰
- comprehensive land management plan.¹¹

Within the McClure penstock project area, the right-of-way is routinely maintained and cleared of vegetation. The McClure penstock corridor is 400 feet wide. UPPCO conducted environmental field studies in the summer of 2008 within the 400 ft corridor and a 100 ft corridor where the penstock crosses the railroad tracks, and 1,400 feet along an existing access road. The results of the study identified the following distinct habitat/land use units along with nine small streams:

- Garden Park Area

⁷ See Order Modifying and Approving Wildlife Management Plan, 110 FERC ¶ 62,151 (issued February 17, 2005).

⁸ See Order Approving Shoreline and Bank Erosion Control Plan, 115 FERC ¶ 62,069 (issued April 13, 2006).

⁹ See Order Modifying and Approving Organic Debris Plan, 107 FERC ¶ 62,097 (issued May 4, 2004).

¹⁰ See Order Modifying and Approving Nuisance Plant Control Plan, 111 FERC ¶ 62,076 (issued May 17, 2005).

¹¹ See Order Modifying and Approving Land Use Plan, 107 FERC ¶ 62,224 (issued June 10, 2004).

- Lower Right-of-Way Open Area
- Mature Conifer/Broad-leaved Deciduous
- Riparian Wetlands
- Non-Riparian Wetlands
- Middle/Upper Right-of-Way Open Area
- Maturing Broad-leaved Deciduous
- Young Broad-leaved Deciduous
- Selective Timber Harvest Area

Details about wetlands within the penstock replacement project can be found in section 6.5. Details about threatened and endangered species can be found in section 6.7.

Environmental Effects

Proposed Action

Additional disturbance of vegetative or forested areas due to clearing and grubbing for access roads and construction staging activities would occur. Existing shrub and trees that are currently providing wildlife habitat would be eliminated. Habitat loss would be temporary until construction is complete and the area is reseeded and enough time passes to allow for restoration. The total amount of terrestrial disturbance is estimated to be approximately 34.6 acres. Approximately 3.0 acres of trees will be cleared for new access roads and 7.5 acres of trees will be cleared for existing roads. The access road will be maintained throughout the life of the license, while other disturbed areas will be revegetated according to the revegetation plan.

In addition to loss of habitat, construction noise and human activity would cause additional disturbance to wildlife species, causing some of the less tolerant local wildlife species to relocate away from construction activities. It is expected that mammals and birds would avoid the areas of construction. However, this is expected to be a short-term impact.

By clearing and grubbing these areas, the licensee is essentially removing certain types of wildlife habitat. Special attention needs to be taken to restore this habitat back to its original state as closely as possible. UPPCO has included a revegetation plan in Appendix B of the environmental report included with its application to replace the

penstock (UPPCO 2009a). Reseeding with an approved seed mixture is the best approach, so as not to introduce invasive or exotic species into the area. The revegetation plan includes a list of native plant species to be used by landscape contractors. In regards to monitoring, the licensee proposes that all areas disturbed as part of the construction will be monitored for revegetation success annually beginning after one full growing season until 70% coverage is obtained for seeding.

Disturbances to wildlife related to the increased noise and human activities are expected to be short-term and minor. Wildlife common to the area are expected to be accustomed to frequent human disturbances at the project and would experience few incremental impacts during construction. Loss of habitat and localized disturbances due to new access roads are expected to have a long-term, minor effect. Existing forest management practices would remain in effect, and the forests immediately surrounding the McClure Penstock would continue to be conserved and managed according to UPPCO's land management plan for the project area. The vegetation management practices impacting terrestrial resources for maintaining right-of-way areas related to the McClure penstock will continue after construction is completed. In addition, UPPCO will select an independent environmental monitor that will be responsible for documenting, reporting, and monitoring requirements found in the general permits during construction and restoration of the penstock replacement project (UPPCO 2009b). Given the measures proposed by the licensee, such as the existing land management plan and proposed revegetation plan, and that the current penstock site is a disturbed/maintained area, staff concludes that no significant impacts are expected to affect wildlife habitat or terrestrial resources in these areas.

No-Action Alternative

Under the No-Action Alternative, the McClure penstock would not be rebuilt. No short-term impacts to terrestrial resources would occur, as there would be no construction related activities.

6.7 Endangered, Threatened, and Special Concern Species

Affected Environment

Focusing on the area of the penstock replacement project, the environmental report provided by UPPCO states that a recent Michigan Natural Features Inventory review concluded that no federally or state listed threatened and endangered species have been documented. Meander surveys were conducted by the licensee throughout the project during mid-summer 2008. Plant and animal species were identified and documented and an inventory of habitat types was completed.

When considering the Dead River Project, outside of the 400 ft penstock corridor, there are species to address. The U.S. Department of the Interior identified three federally listed endangered or threatened bird and animal species that may occur in the greater Dead River Project area. They are the peregrine falcon (*Falco peregrines*), Kirtland's warbler (*Dendroica kirtlandii*), and the gray wolf (*Canis lupus*). The bald eagle was removed from the Federal list but remains a protected species under the Eagle Protection Act of 1940.

Peregrine Falcon

The peregrine falcon nests almost exclusively on cliffs. UPPCO states that no suitable nesting habitat is present in the project area.

Kirtland's Warbler

In 2009, six singing male Kirtland's warblers were recorded in Marquette County. The warblers nest on the ground and typically select nesting sites in stands of jack pine between 4 and 20 years old. Although there were no warblers sighted within the proposed penstock project boundary during the licensee's survey, suitable habitat is present within one mile of the Hoist reservoir, which is more than two miles from McClure Dam.

Gray Wolf

Gray wolves are known to occur within the area of the Dead River Hydroelectric Project. Gray wolf tracks and scat were observed during 2006 and 2007 surveys. It is likely that the area is used by gray wolves for feeding and cover. However, no gray wolf dens are known to exist within close proximity to the area of the penstock. After March 12, 2007, gray wolves in the Western Great Lakes Distinct Population Segment, which includes the project area, were removed from federal protection. However, the animal is considered a Michigan threatened species.

Bald Eagle

The bald eagle has been delisted, effective August 8, 2007, but continues to be protected by other statutes. Bald eagles were observed within the Dead River Project area during field surveys conducted in May 1992 and November 2007. It is likely that Silver Lake is used for feeding, on occasion, by adult eagles. However, the only nest in the area, unoccupied in 2005 and 2006, is located on a peninsula on the northern shorelines of Silver Lake. Low densities of suitable nest sites and the density of human habitation along Dead River create a low-quality area for nesting. No concentration of eagles is known to occur within or close to the McClure penstock and no active nesting sites were observed near or within the 400-foot corridor of the penstock right-of-way (UPPCO 2009a).

Environmental Effects

Proposed Action

Construction activities under the proposed action are mostly limited to the penstock and access roads, where the species under discussion are unlikely to be present. Noise from construction activities could potentially disturb animals, but effects would be temporary. Existing management practices for bald eagle would remain in effect during construction, including UPPCO's Bald Eagle Protection and Management Plan, which follows guidelines provided in the Northern States Bald Eagle Recovery Plan.

Additionally, under the licensee's Wildlife Management Plan, approved under license article 411, if any threatened or endangered species are identified within the project boundaries, the licensee shall implement specified practices in consultation with the MDNR and FWS.

Based on our review of the licensee's proposed action, our review of the life history and range of the identified species, and results of recent threatened and endangered species inventories, staff determined that the penstock replacement will have no effect on any federally-listed endangered or threatened species.

No-Action Alternative

Under the No-Action Alternative, the McClure penstock would not be rebuilt and the McClure development would remain nonoperational. Therefore, there would be no effect to peregrine falcons, Kirtland's warbler, gray wolves, or bald eagles as a result of the No-Action Alternative.

6.8 Recreation and Land Use

Affected Environment

The Dead River Project is located in the central region of Michigan's Upper Peninsula on the Dead River in Marquette County, Michigan. There is an abundance of natural outdoor recreational resources around the Dead River Project. These resources include lakes, streams, waterfalls, and forests. Nearly one quarter of the land in Marquette County is publicly owned (national forests, state forests, state parks, state boating/fishing sites). Traditional spring, summer, and fall recreational opportunities include fishing, hunting, boating, canoeing, and camping. Off-road vehicles frequently use the project area during these seasons. Snowmobiling, cross-country skiing, and ice-fishing are traditional winter activities.

Currently, the licensee manages its formal recreation facilities at the project through its Recreation Plan, as approved by the Commission under article 414 of the project license.¹² Informal recreational public access is allowed on all licensee-owned lands at the project (approximately 80 acres), except for small areas near the dams, powerhouses, and substations that are restricted for reasons of public safety and security.

The McClure development has one public recreation facility which consists of a hard-surfaced ramp for launching boats from trailers, a parking lot with capacity for four vehicles, and a handicapped accessible vault toilet. Access to the site is provided by U.S. Highway 41 and County Roads 502 and 510. These access roads are available year-round, although they are not plowed in the winter. The McClure powerhouse tailrace parking area includes a handicapped-accessible vault toilet. In addition, an undeveloped, popular recreation trail leads from the McClure powerhouse upstream to the waterfalls in the lower segment of the McClure bypassed reach. UPPCO owns only a small portion of land along the McClure Dam and Powerhouse, and retains easements along the Penstock right-of-way. Along the penstock route, a number of recreational uses were confirmed during a survey conducted by the licensee; uses include hiking, bird watching, ATV use, hunting, and other activities.

The proposed penstock replacement project is located in a remote area surrounded by state and private land. The densely wooded area is used for seasonal recreation activity and selected logging in certain areas. UPPCO also states that there are a few primary and secondary (vacation) residences in the greater Dead River Project area along the Hoist and McClure reservoirs.

Environmental Effects

Proposed Action

Under the proposed action, public access to the sections of the penstock corridor and parking lot at the McClure Powerhouse would be interrupted. The effects on recreational activities such as hiking, hunting, ATV usage, bird/wildlife watching, would be temporary and short term. There would be no effect on the existing recreation sites at the Dead River Project, except perhaps a temporary lack of parking due to construction traffic and parking near the powerhouse. During a Commission staff visit to the project site on August 17, 2009, the licensee stated that the public access trail from the powerhouse parking lot to the Dead River Falls would be kept open to the extent possible during construction activities. Expansion of the access road leading

¹² See Order Amending Recreation Plan, 115 FERC ¶ 62,240 (issued May 31, 2006).

from the powerhouse parking lot, which is planned for the fall of 2009, will likely result in complete closure of the trail. Other phases of construction may require temporary access restrictions for public safety reasons. The licensee plans to minimize the duration and frequency of these closures, to the extent possible, and post signs to notify visitors. Based on the short-term nature of the effects and the remote location of the proposed action, staff concludes that there would be no long-term effect on recreational or land use at the penstock location.

No-Action Alternative

Under the No-Action Alternative the McClure penstock would not be replaced and the development would remain out of production. Therefore, there would be no construction related impacts to recreation.

6.9 Aesthetic Resources, Air Quality, and Noise

6.9.1 Aesthetic Resources

Affected Environment

Aesthetic resources in the Dead River Project area include lakes, streams, waterfalls, and forests. Nearly one quarter of the land in Marquette County, where the Project is located, is publicly owned (national forests, state forests, state parks, state boating/fishing sites). The penstock corridor is a remote area and not a high public use site. The area in the vicinity of the penstock route is heavily wooded and rural with some logging activities in the surrounding area. A majority of the existing penstock is buried underground. The penstock and adjacent powerline rights-of-way are maintained with a variety of vegetation management techniques. Hiking along the right-of-way is permitted in the penstock corridor. Two areas with high quality aesthetic value in the immediate vicinity of the proposed action are Dead River Gorge and Dead River Falls. The Dead River Falls are a chain of five small falls with a height of only a few feet, and are viewed from the top of a gorge.

The licensees utilize vegetation management practices for the maintenance and protection of project facilities and aesthetic management principles are practiced whenever feasible. In areas of high public use adjacent to project facilities, reservoirs, rivers, and highways, aesthetic management techniques are used. Such techniques may include, but are not limited to, the reduction of slash visibility, selective timber removal, and vegetative management where appropriate.

Environmental Effects

Proposed Action

Restoration of the penstock will help to avoid potential for increased erosion and sedimentation deposition. During construction the impacts on the public not being able to access the trails in the penstock corridor to view wildlife or nature would be negligible and short-term. The proposed penstock would also be mostly buried underground, with the exception of the two river crossings. Upon completion of construction the penstock right-of-way would be revegetated to further minimize aesthetic impacts. Upon completion, the proposed penstock replacement are would have the same aesthetic character that currently exists at the site, and staff concludes that the proposed action would have no additional long-term effects on the aesthetic resources.

No-Action Alternative

The No-Action Alternative would be to not restore the penstock. This action could result in potential future erosion along the reservoir or bypassed reach due to the lack of a functioning penstock in the long-term. The No-Action Alternative would have no construction activity impacts on aesthetic resources.

6.9.2 Air Quality

Affected Environment

The U.S. Environmental Protection Agency (EPA) and the MDEQ, regulate air quality in the proposed construction area. EPA has established national ambient air quality standards (NAAQS) for criteria pollutants that include carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), lead (Pb), ozone (O₃), particulate matter less than 10 microns (μ) in diameter (PM₁₀), and fine particulate matter less than 2.5 μ in diameter (PM_{2.5}). To identify an area by its air quality, EPA designates all geographic areas as attainment, non-attainment, or unclassifiable. When air quality in an area meets all standards, the area is considered to be in attainment. If the concentration of a criteria pollutant in an area is found to exceed the regulated or threshold level of the NAAQS, the area is called non-attainment for that particular pollutant. A designation of unclassifiable is made when there is currently insufficient data for determining attainment or non-attainment.

The Dead River Project is located in Marquette County, Michigan. Marquette County is located in the Upper Peninsula District, which is designated as an attainment area for all of the criteria air pollutants (MDEQ 2006 as cited in FERC 2008).

Environmental Effects

Proposed Action

Construction activity under the proposed action is expected to result in potential air emissions including particulate matter and exhaust from the operation of heavy equipment. The site where the penstock is located is remote and emissions will not be observed beyond the immediate areas of construction activity. Some burning of cleared and grubbed vegetation may be conducted after obtaining appropriate permits but natural means of disposal of vegetative materials (such as mulching or brush piling) will be used to the extent possible. Particulate matter from blasting could impact air quality. UPPCO proposes a blasting plan that will include measures to control dust and contain shot rock. Particulate matter from an increase in truck traffic may also impact air quality. The licensee proposes to control dust by water spraying the roads to and from the construction site.

In the long term, restoring the hydroelectric generating capacity of the powerhouse, with the rebuilt penstock, results in the avoidance of using fossil fuels to generate electricity to the area previously served by the use of a hydroelectric power source. The avoidance of using additional fossil fuels in the region could be viewed as a positive impact on air quality. Impacts to air quality resulting from construction of the replacement of the penstock will be short term and temporary, air quality levels should resume to preexisting ones after the construction activity ceases. Measures proposed by the licensee will minimize impacts to air quality. Given the measures proposed by the licensee to minimize particulate matter and the short-term effects of construction related activities, including an increase in traffic, staff concludes that overall, there are long-term effects on air quality.

No-Action Alternative

Under the No-Action Alternative, the McClure penstock would not be rebuilt and the development would remain nonoperational. There would be no short term impacts on air quality due to construction activity.

6.9.3 Noise

Affected Environment

In 1974, the EPA identified indoor and outdoor noise levels to protect public health and welfare against hearing loss, annoyance, and activity interference. A 24-hour

exposure level of 70 decibels¹³ (dB) was identified as the limit of environmental noise. Those levels are not regulatory requirements but a representative level of environmental noise required to protect the public health and welfare with an adequate margin of safety (EPA 2007 as cited in FERC 2008).

Existing noise at the proposed construction site consists of normal operations of the dam and penstock, and water turbulence. Occasional noise may be generated by logging activity in the general project area.

Environmental Effects

Proposed Action

Construction work will likely occur during both daytime and evening hours. In addition to the construction work itself, there will be increased traffic noise from trucks, tree and shrub removal techniques, and blasting. There is potential for the public annoyance and recreation interference, however these are temporary disturbances. After the penstock construction project is completed, there will be no new or additional noise impacts other than the pre-existing noise impacts from normal operations of the dam and penstock, and water turbulence.

In order to minimize noise impacts, UPPCO states that blasting operations will be limited to no more than 3 blasts per day. The density of the surrounding wooded area should help to minimize construction noise from carrying to places more frequented by the public. UPPCO has proposed to implement a noise suppression plan, to incorporate available noise control technologies and/or strategies. Possible noise control techniques may include alternative equipment selection, scheduling to limit noise producing activities, and installation of noise control devices to block or absorb noise.

Noise impacts resulting from the penstock replacement project are anticipated to be short-term and negligible, as long as mitigation techniques outlined in the proposed noise suppression plan are implemented, staff concludes that there are no long-term effects on noise levels.

¹³ The magnitude of noise is described by its sound pressure. Due to the range of sound pressure, a logarithmic scale is used to relate sound pressures to some common reference level, the decibel. Therefore, a sound pressure level is equivalent to a certain number of decibels.

No-Action Alternative

Under the No-Action Alternative, the penstock would not be replaced and there would be no new noise impacts from construction activity. There would be no short-term or long-term environmental effects to noise levels in the area.

6.10 Cultural and Historic Resources

Affected Environment

Archaeological surveying and historic property investigations were conducted in 1992 as part of the Dead River Hydroelectric Project relicensing process. In March 2004, a Historic Properties Management Plan (HPMP) was approved by the Commission. Additional archaeological fieldwork was conducted in 2005 in the parking lot area for the project and an adjacent garden to the parking lot. Artifacts and cultural resources have been identified in areas of the Dead River Hydroelectric Project. The parking area near the powerhouse will be used for construction staging purposes. UPPCO also states that the substation and garden area may be affected by the proposed construction activities.

In May 2008, UPPCO hired AVD Archaeological Services, Inc. to perform a Phase I archaeological survey along the McClure penstock route. The field investigation consisted of shovel testing at selected locations for evidence of potential archaeological significance. The survey results found no archaeological sites present within the penstock corridor.

Environmental Effects

Proposed Action

The replacement of the penstock is not expected to impact known areas containing cultural or archaeological resources. However, construction activities could impact previously unknown areas. UPPCO states that they will manage the construction site according to the HPMP, which includes procedures for unanticipated discoveries. The Michigan SHPO filed a May 1, 2009, letter of determination with a finding that the project will have no adverse effect on the McClure Hydroelectric Plant, and states it appears to meet the criteria for listing in the National Register of Historic Places. The SHPO requests to be notified if the scope of work changes in any way, or if artifacts or bones are discovered. The approved HPMP includes protocol that requires the licensee to contact the SHPO in the event of a discovery of previously unknown artifacts and implement HPMP protection measures. Therefore the proposed action would have no adverse effects on cultural resources.

No-Action Alternative

Under the No-Action Alternative the penstock would not be replaced. Implementation of the HPMP would be the same under the No-Action Alternative and the proposed penstock replacement project.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The replacement of the Dead River Project's McClure penstock, under Part 12 of the Commission's regulations, would allow the development to be returned to operation and help ensure long-term safety and stability of operations at the site. The proposed construction activities would occur only in the immediate area of the McClure penstock. No changes in the operation of the development from those required by the Dead River Project license are proposed.

Impacts to natural resources as a result of construction activities are expected to be minimal and temporary in nature. The licensee's implementation of approved plans under the current license, reuse of existing structures, avoidance of sensitive areas, and implementation of the ESCP, revegetation, blasting, and noise plans, is likely to minimize impacts to water quality, aquatic biota, and terrestrial resources. After replacement of the McClure penstock, water quality in the McClure reservoir and bypassed reach are expected to be the same as under licensed operating conditions. Following construction, disturbed areas will be revegetated in accordance with the revegetation plan or left to revegetate naturally. Minor impacts to public recreation access will be necessary for safety reasons but, after construction completion, access will be restored to meet license requirements.

Based on the information and analyses presented in this EA, the proposed action would be preferable to the No-Action Alternative. The proposed action should be approved with the following additional environmental recommendations:

- Prior to resuming operation of the McClure development, the licensee should consult with the MDNR and FWS to determine if it is necessary to implement a controlled rate of rampdown in the bypassed reach as flow is diverted into the penstock in order to avoid the stranding of fish and/or other aquatic biota.
- After construction is completed, the licensee should file with the Commission progress reports regarding implementation of the revegetation plan including photographic documentation of revegetated areas.

8.0 FINDING OF NO SIGNIFICANT IMPACT

On the basis of our independent assessment of UPPCO's application to replace the McClure Penstock, the proposed action, with UPPCO's proposed environmental measures, would not constitute a major federal action significantly affecting the quality of the human environment.

9.0 REFERENCES

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