

79 FERC ¶ 62,217

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Upper Peninsula Power Company) Project No. 10856-002

ORDER ISSUING ORIGINAL LICENSE
(Minor Constructed Project)

JUN 26 1997

INTRODUCTION

On April 30, 1993, Upper Peninsula Power Company (UPPCo or licensee) filed an application under Part I of the Federal Power Act (FPA) for an original license to continue to operate and maintain the existing unlicensed 0.9-megawatt (MW) Au Train Hydroelectric Project No. 10856, located on the Au Train River, in Alger County, Michigan.¹

BACKGROUND

The Commission issued a Public Notice on March 3, 1994, indicating that the application for an original license was ready for environmental analysis. Two fish and wildlife agencies provided comments and recommended terms and conditions pursuant to Section 10(j) of the FPA: U.S. Department of the Interior (Interior) on April 29, 1994; and Michigan Department of Natural Resources (Michigan DNR) on May 3, 1994. The U.S. Forest Service

^{1/} On April 6, 1987, the Acting Director, Office of Hydropower Licensing, issued a determination that the Au Train River was a navigable river within the meaning of Section 3(8) of the FPA, and therefore the Au Train Project was required to be licensed. See 39 FERC ¶ 62,014. On October 5, 1990, the Commission issued an Order Granting Appeal of the earlier finding. In the Order Granting Appeal, the Commission concluded that the evidence in the proceeding did not support a determination that the river at the project site is part of a waterway used or usable for the transportation of persons or property in interstate commerce. Accordingly, the Commission ruled that the Au Train Project is not required to be licensed pursuant to Section 23(b)(1) of the FPA. Therefore, UPPCo has voluntarily submitted an application for license for the Au Train Project.

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(Forest Service) also filed recommendations in its letter dated April 28, 1994.²

In addition, the Commission issued a Scoping Document on July 26, 1994. The Forest Service and Michigan DNR filed scoping comments by letters dated August 25, 1994, and September 6, 1994, respectively. UPPCo also filed comments in response to scoping, dated August 31, 1994.

The Forest Service filed a motion to intervene in the proceeding on October 25, 1993. On October 27, 1993, Interior filed a motion to intervene. On November 1, 1993, Michigan DNR filed a motion to intervene. None of these agencies opposed licensing of the project.

Commission staff issued a draft environmental assessment (EA) for this project on May 24, 1996. Comments on the draft EA have been addressed in the final EA, which is attached to this license.

Staff, pursuant to Part 12 of the Commission's regulations and Engineering Guidelines, evaluated the Au Train Project for the purpose of issuing an original license. Based on this evaluation, I conclude that the dam and other project works will be safe and adequate provided the project is operated and maintained in accordance with the Commission's regulations.

I have fully considered the motions and comments received from interested agencies and individuals in determining whether, and under what conditions, to issue this license.

PROJECT DESCRIPTION

The existing project consists of: (1) a 1,500-foot-long dam with a spillway section topped with two-foot-high wooden flashboards; (2) a 2,516-foot-long steel pipeline connecting the reservoir intake to the surge tank; (3) a 3,700-foot-long bypassed reach; (4) a reservoir with a surface area of 1,557 acres at normal pool elevation; (5) a powerhouse containing two turbine generators with a total installed capacity of 1,120 kilowatts (kW); (6) a substation; (7) a 2.3-kilovolt (kV), 2,500-foot-long overhead transmission line; (8) an earth-filled dike at the south end of the basin (referred to as the south levee) that is designed as a non-overflow structure; and (9) appurtenant facilities. A more detailed project description is contained in the ordering paragraph (B)(2).

2/ The Forest Service is not a fish or wildlife agency; therefore, its comments were considered under Section 10(a) rather than Section 10(j) of the FPA.

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Historically, the project was operated on an "as needed basis", resulting in wide fluctuations in powerhouse discharges. Since 1988 when UPPCo purchased the project, it has been operated in a modified run-of-river³ mode, with a winter draw-down and late summer/early fall draw-downs as necessary to maintain a continuous minimum discharge of 50 cubic feet per second (cfs) from the powerhouse. UPPCo proposes to continue this operation with slight modifications to allow for a more gradual winter draw-down and gradual summer drafting of the basin. The proposed mode of operation would have the effect of shifting higher stream flows from early spring to summer, and from late fall to winter.

WATER QUALITY CERTIFICATION

Section 401(a)(1) of the Clean Water Act (CWA),⁴ requires an applicant for a federal license or permit for any activity which may result in a discharge into navigable waters of the United States to provide to the licensing or permitting agency a certification from the state in which the discharge originates that such discharge will comply with certain sections of the CWA. The Commission may not issue a license for a hydroelectric project unless the state certifying agency has either issued water quality certification for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year.⁵ Section 401(d) of the CWA⁶ provides that state certifications shall set forth conditions necessary to ensure that licensees comply with specific portions of the CWA and with appropriate requirements of state law.

On January 27, 1993, UPPCo applied to the Michigan DNR for Section 401 Water Quality Certification required by the CWA. Because the Michigan DNR neither granted nor denied the applicant's certification request within one year of receiving the application, the 401 certification is deemed waived for the project.

3/ In run-of-river mode, outflows from the reservoir approximate the sum of inflows to the reservoir.

4/ 33 U.S.C. § 1341.

5/ Section 401(a)(1) requires an applicant for a federal license or permit to conduct any activity which may result in any discharge into navigable waters to obtain from the state in which the discharge originates certification that any such discharges will comply with applicable water quality standards.

6/ 33 U.S.C § 1341(d).

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COASTAL ZONE MANAGEMENT

Under Section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), the Commission cannot issue a license for a hydroelectric power project within or affecting a state's coastal zone unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA Program (which has been approved by the Secretary of Commerce), or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification.

On September 25, 1995, Michigan DNR's Land and Water Management Division responded to Commission staff's request for a determination of the status of the Au Train Project with respect to the state's CZMA program. In its response, Michigan DNR stated that its letter provides "written documentation to formally state that the Au Train Hydropower project is not within the coastal boundary and is not under the jurisdiction of the Coastal Zone Management Act."⁷

SECTION 18 FISHWAY PRESCRIPTION

Section 18 of the FPA authorizes the Secretary of the Interior or the Secretary of Commerce to prescribe fishways at Commission-licensed projects.⁸

Interior, by letter dated April 29, 1994, requested the Commission to reserve the Secretary of the Interior's authority to prescribe the construction, operation, and maintenance of fishways for the Au Train Project pursuant to Section 18 of the FPA.

The Commission recognizes that future fish passage needs cannot always be determined at the time of project licensing. The Commission's practice has been to include a license article

^{7/} Michigan DNR, in its comments on the draft EA, stated that the Michigan DNR representative that signed the letter was not authorized to make such a determination, and therefore the inquiry and response was null and void. I disagree, and consider the letter to be a valid determination because it was made by the proper division that had authority over the coastal zone management program at that time.

^{8/} Section 18 of the FPA states: "The Commission shall require the construction, maintenance, and operation by a licensee at its own expense of... such fishways as may be prescribed by the Secretary of Commerce or the Secretary of the Interior as appropriate."

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that reserves the Secretary of the Interior's authority to prescribe facilities for fish passage.⁹ Therefore, consistent with Commission practice, Article 403 of this license reserves authority to the Commission to require the licensee to construct, operate, and maintain such fishways as may be prescribed by the Secretary of the Interior pursuant to Section 18 of the FPA.

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES

Section 10(j) of the FPA requires the Commission, when issuing a license, to include license conditions based on recommendations of federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act, to "adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat)" affected by the project.

Both Michigan DNR and Interior filed fish and wildlife recommendations pursuant to Section 10(j) of the FPA.¹⁰ The license contains conditions consistent with the following 14 recommendations submitted by Michigan DNR and Interior:

- (1) do not operate in peaking mode (Article 401);
- (2) provide minimum 50-cfs flow from the powerhouse year-round (Article 401);
- (3) consult with agencies in advance of scheduled draw-downs (Article 401);
- (4) develop and implement an operation and compliance plan (Article 402);
- (5) install and operate a U.S. Geological Survey (USGS) gage below the powerhouse (Article 402);
- (6) fund continued operation of the down-stream USGS gage (Article 402);

9/ The Commission has specifically sanctioned the reservation of fishway prescription authority at relicensing. See Wisconsin Public Service Corporation, 62 FERC ¶ 61,095 (1993); affirmed, Wisconsin Public Service Corporation v. FERC, 32 F.3d 1165 (1994).

10/ Several (11) recommendations were found to be outside the scope of Section 10(j); these were considered under Section 10(a)(1), pursuant to the Commission's public interest considerations.

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- (7) use automatic sensors to continuously record headwater elevations, and maintain daily record of operations (Article 402);
- (8) develop and implement a wildlife management plan (Article 406);
- (9) provide various wildlife and waterfowl habitat enhancements (Article 406)
- (10) operate the project consistent with the "Northern States Bald Eagle Recovery Plan" and the "Bald Eagle Winter Management Guidelines" (Article 405);
- (11) adhere to the "Recovery Plan for the Eastern Timber Wolf" guidelines if new roads are constructed on UPPCo lands adjacent to the project in the future (Article 406);
- (12) develop and implement a plan to monitor and control purple loosestrife and Eurasian watermilfoil on project waters (Article 404);
- (13) develop and implement measures to annually survey the project shoreline for erosion (Article 407); and
- (14) include standard fish and wildlife reopener article in any license issued (Article 11, Form L-12).

If the Commission finds that any fish and wildlife agency recommendation may be inconsistent with the purposes and requirements of Part I of the FPA or other applicable law, Section 10(j)(2) requires the Commission and the agencies to attempt to resolve the potential inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agencies. If the Commission then does not adopt a recommendation, it must explain how the recommendation is inconsistent with applicable law and how the conditions selected by the Commission adequately and equitably protect, mitigate damages to, and enhance fish and wildlife.

In the draft EA, staff determined that the following 13 agency recommendations were potentially inconsistent with Section 10(j) of the FPA or other applicable law:

- (1) maintain agency-specified monthly target reservoir elevations; notify agencies within seven days of falling below target elevation to absolute minimum elevation;

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- (2) maintain a minimum reservoir elevation in March and April of 776.5 feet;¹¹
- (3) provide a stable daily flow from the powerhouse, such that the flow does not differ from the previous day's flow by more than 20 percent;
- (4) provide agency-specified continuous powerhouse target discharge rates and notify agencies within seven days of falling below target to absolute minimum discharge;
- (5) in the event of emergency or planned shutdowns, pass inflow instantaneously, or within a few minutes, through the turbines or over the spillway;
- (6) install a bypass system to ensure minimum flows below the powerhouse in the event of emergency or planned shutdowns;
- (7) maintain state water quality standards for dissolved oxygen and temperature;
- (8) develop and implement a water quality monitoring program;
- (9) develop and implement a down-stream fish exclusion plan and effectiveness study and design, install, and maintain a barrier net during ice-out periods in the interim;
- (10) develop and implement a plan to increase the amount of woody debris and control bank erosion in the river below the powerhouse in order to improve trout habitat;
- (11) include all UPPCo-owned lands within a project boundary, retain within boundary, and notify agencies before modifying or restricting public access;
- (12) develop and implement a comprehensive land management plan for all UPPCo-owned lands; and
- (13) finalize the Bald Eagle Management Plan with additional provisions.

In response to these preliminary determinations, Michigan DNR filed a comment letter with the Commission dated August 8, 1996. Interior filed a comment letter with the Commission dated July 1, 1996. On December 11, 1996, representatives from UPPCo,

^{11/} All elevations in this order are referenced to local datum, which is 1.27 feet below mean sea level datum.

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Michigan DNR, and Interior's Fish and Wildlife Service (FWS) met with Commission staff to attempt to resolve the aforementioned inconsistencies.

In addition to discussing the above 13 measures found to be potentially inconsistent with Section 10(j), two issues that staff had found to be consistent with Section 10(j) in the draft EA were discussed and modified: (1) purple loosestrife control; and (2) wildlife and waterfowl structures.

A. Attempted Resolution of Section 10(j) Inconsistencies

With respect to the issues that were found to be potentially inconsistent with Section 10(j), the following conclusions were reached either in the draft EA or discussed and resolved at the Section 10(j) meeting.

1-4. Target and minimum elevations in the impoundment, stable daily flow from powerhouse within 20 percent, and target and minimum powerhouse discharges

Michigan DNR recommended that UPPCo maintain target reservoir elevations and target powerhouse discharges and, when targets could not be maintained, maintain minimum elevations and minimum powerhouse discharges. Recommended target elevations ranged from 780.0 feet (full pool) in summer to 775.0 feet (five feet below full pool) in April. Recommended target discharges ranged from 70 to 100 cfs.¹² Michigan DNR further recommended that UPPCo provide a stable daily flow such that the flow does not differ from the previous day's flow by more than 20 percent.

Interior recommended that the project be operated as proposed by UPPCo with the exception of no more than a 3.5-foot draw-down in March and April (UPPCo's proposed operation would permit up to an 11-foot draw-down in March and April). Interior also recommended that UPPCo maintain an absolute year-round minimum elevation of 772.0 feet (UPPCo proposed a minimum elevation of 772.0 feet in the summer and 769.0 feet in the winter). Interior also concurred with UPPCo's recommended minimum discharge of 50 cfs below the powerhouse.

In the draft EA, staff recommended UPPCo's proposed reservoir operating scenario (modified run-of-river mode with a winter draw-down and late summer/early fall draw-downs, as necessary, to maintain a continuous minimum discharge from the powerhouse), with the exception of maintaining a year-round minimum reservoir water elevation of 772.0 feet. Staff further

^{12/} Michigan DNR's full recommendation can be found in Section V.C.2 of the EA.

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recommended a minimum powerhouse discharge of 50 cfs. Staff did not recommend any restrictions on daily changes in powerhouse discharges because it would be physically impossible due to equipment limitations at the project (switching from one-turbine generation to two-turbine generation would exceed 20 percent change).

Staff's reasons for supporting UPPCo's proposed operation, with reservoir elevation modifications, are summarized below.

- A continuous powerhouse discharge of 50 cfs would significantly enhance conditions for aquatic resources in the river down-stream, while maintaining reasonable water levels in the reservoir to protect reservoir resources.
- No evidence was presented that historical reservoir draw-downs have adversely affected environmental resources in the reservoir.
- The proposed operation would result in an earlier reservoir refill in the spring, and reduce the average water level increase in April (from eight feet historically, to two feet), which would enhance conditions for spring waterfowl breeding.
- An absolute minimum elevation of 772.0 feet would protect bald eagle habitat by preventing recreationists' access to the bald eagle nesting island, while providing a constant flow to the river down-stream to protect important fisheries habitat.
- Higher reservoir water levels and higher powerhouse discharges cannot both be achieved, given the frequent low inflow to the basin.

In comments on the draft EA, Michigan DNR stated that its recommendation should be interpreted to give precedence to minimum flows rather than minimum reservoir levels. Michigan DNR acknowledges that its target reservoir elevations and powerhouse discharges will not be achievable at all times, but recommends that UPPCo consult with the agencies whenever this occurs to determine how the project should be operated, based on the circumstances at the time. Michigan DNR maintains that a flexible approach to operating the system would best protect the resources in the project area.

At the Section 10(j) meeting, Michigan DNR stated that its flexible operating plan would be more protective of project resources because each individual problem and its environmental

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effect could be considered on a case-by-case basis. Staff expressed concern in recommending an operating plan that would be largely undefined because it would lead to frequent ad hoc consultation. Michigan DNR stated that UPPCo, having purchased the project recently, does not have experience with the project to determine whether its proposed operating plan is achievable. Staff stated that UPPCo's modeling of operations demonstrated that the proposed water levels and discharges can be met. However, to address Michigan DNR's concern over the ability of UPPCo to operate the project as proposed, staff proposed adding a consultation meeting after three years of operation to assess the project's ability to achieve the recommended operating plan. The agencies agreed to staff's recommended operating scenario, as stated in the draft EA, with the addition of the three-year review/consultation meeting.

I concur with staff that UPPCo's proposed operating plan, with staff modifications, will provide substantial enhancement of down-stream resources and adequately protect reservoir resources. Article 401 requires UPPCo to maintain a continuous powerhouse discharge of 50 cfs and a minimum water level in the reservoir of 772.0 feet at all times. Article 402 requires UPPCo to meet with Michigan DNR, the Forest Service, and FWS three years after license issuance to review operating data.

5-6. Pass inflow instantaneously and install a bypass system

Michigan DNR recommended that UPPCo install a bypass system to ensure that a minimum flow of 50 cfs be maintained at all times below the powerhouse in the event of an emergency or planned project shutdown. Interior recommended that UPPCo pass inflow through the project either through the turbines or over the spillway instantaneously or within a few minutes in the event of an emergency or planned turbine shutdown.

In the draft EA, staff concluded that a flow of 20 cfs below the powerhouse would adequately protect small fish and incubating eggs in the event of a project shutdown. Given that accretion and dam leakage adds 5 to 12 cfs to the stream in that reach, staff recommended that UPPCo install a bypass structure capable of discharging 10 cfs (siphon system) in order to ensure adequate flow when the project went off-line. Staff noted that when the reservoir level was above the spillway crest (778.0 feet), flow could be released by removing flashboards, and thus the bypass system would not be needed.

Staff also recommended in the draft EA that UPPCo develop procedures to ensure that the 10-cfs siphon would be operable in winter when the reservoir surface is frozen.

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At the Section 10(j) meeting, Michigan DNR stated that staff's recommended flow of 10 cfs from a bypass structure combined with leakage and accretion would be acceptable for up to 24 hours, but for plant outages longer than 24 hours, 50 cfs would be necessary at the powerhouse to protect down-stream resources. Michigan DNR stated that a bypass system capable of delivering 35 cfs, combined with leakage and accretion, would provide flow close to 50 cfs below the powerhouse.

UPPCo noted that icing conditions are not a concern because it maintains a bubbler system to prevent ice load on the dam, but that it would realistically take four hours before a siphon could be started to provide 10 cfs flow. UPPCo also described the circumstances that could cause a temporary plant outage. Because of UPPCo's substantial inter-ties and redundancy in its power system, the chances of an outage exceeding four hours are very low.

In the final EA, staff continues to recommend that UPPCo install a siphon system to provide a 10-cfs flow release. Staff concludes that the substantial additional costs of sizing the siphon system to provide a flow of 35-cfs outweigh the additional benefit to environmental resources that the additional 25-cfs flow would provide, given the infrequent and limited period of time that use of the system would be necessary.

I concur with staff that requiring a siphon system to provide 10 cfs to ensure flows during periods of emergency shut-down when the reservoir elevation is below 778.0 feet provides sufficient flow for fishery resources down-stream of the powerhouse to adequately and equitably protect the resource. The substantial cost of installation of a system to provide a 35-cfs release is not justified based on staff's analysis of the habitat-discharge data. This analysis shows that 20 cfs would provide adequate resource protection, particularly considering the short duration and infrequent nature of the anticipated incidents.

I, therefore, concur with staff's determination in the final EA and find that Michigan DNR's recommendation is inconsistent with the Commission's balancing responsibilities under Sections 10(a) and 4(e) of the FPA. Article 402 requires that UPPCo install a bypass flow siphon to provide a flow of 10 cfs within four hours of a powerhouse outage when the reservoir elevation is below 778.0 feet.

7. Water quality standards for DO and temperature

Michigan DNR recommended that state water quality standards be included in the license and that the tailwater area meet state

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standards for dissolved oxygen (DO) and temperature ¹³ for a coldwater fishery when the river flow is greater than or equal to the 95 percent exceedance flow.

Michigan's water quality standards state that rivers naturally capable of supporting coldwater fish must meet coldwater temperature requirements (Michigan Administrative Code, 1986). The Au Train River down-stream of the reservoir is a state-designated coldwater trout stream (Michigan DNR Director's Order No. DFI-101.91). The reservoir, however, is designated as a warmwater fishery. Temperature data show that releases from the Au Train Project meet warmwater standards, but frequently do not meet coldwater standards.

In the draft EA, staff noted that temperature data collected at two locations on the river show that neither location meets coldwater standards at all times from June through August. Temperature data collected in the basin in July 1991 also show that basin water temperature exceeds coldwater standards over the entire water column. Because of the diffuse nature of the inflow to the reservoir (three tributaries and groundwater inflow), the effect that the basin has on changing water quality characteristics is unknown. However, because impoundments are naturally warmed by solar radiation, we expect that the basin does warm the water somewhat. UPPCo's DO monitoring data showed that the average DO concentration in the reservoir near the dam was below the 5.0 mg/l warmwater standard near the reservoir bottom and below the 7.0 mg/l coldwater standard throughout the water column.

At the Section 10(j) meeting, Michigan DNR stated that, although temperature deviations at the project could not be corrected without removing the project, DO concentrations could be increased by aerating the discharges.

Staff analyzed Michigan DNR's suggestion that low DO concentrations could be improved by adding aeration to the powerhouse discharges. In the final EA, staff stated that it found two possible methods to increase DO in the discharges from the Au Train Project: draft tube aeration and tailwater weir aeration. The annual cost of implementing either of these measures would be approximately \$20,000 (this cost includes the annualized capital cost combined with annual lost power and annual operations and maintenance costs). Staff concluded that variances from DO coldwater standards do not cause significant adverse effects on the fisheries down-stream because the

^{13/} Michigan's coldwater temperature standards are specified in their Recommended Terms and Conditions Letter, dated May 3, 1994.

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variances are small (DO is consistently greater than 5.0 mg/l) and the variances do not occur during the critical spring and fall spawning periods. In addition, the ability of the downstream reach to fully support coldwater species is limited also by water temperatures, which exceed coldwater temperature standards in the summer and cannot be mitigated (discussed below). Accordingly, staff maintained that the significant annual cost of providing aeration would not be worth the benefit of slightly higher DO concentrations.

Existing water quality in the Au Train River is sufficient to support warmwater fishery resources, although temperature deviations from Michigan's coldwater standards during summer months may limit the opportunity for coldwater fisheries. However, the river supports a diverse population of both cold and warmwater species, including brown and brook trout, coho and chinook salmon, walleye, and steelhead. Staff concluded that there is no evidence that the periods that the river does not meet coldwater standards in the summer adversely impacts aquatic resources.

Including state water quality standards that cannot be reasonably met due to conditions beyond the licensee's control would cause the licensee to frequently be out of compliance. Further, including standards in the license would do nothing to enhance or protect resources. The licensee is proposing no new activities, nor am I requiring any actions that would adversely affect water temperatures or DO in the reservoir or down-stream of the dam. Because water temperatures and DO in the reservoir do not currently meet coldwater standards, it is unreasonable to expect discharges from the powerhouse to meet coldwater standards.

I concur with staff's determination in the final EA and find that Michigan DNR's recommendation is inconsistent with the provisions of Sections 10(a) and 4(e) of the FPA. I am not requiring UPPCo to prepare a temperature and DO mitigation plan or operating procedures to mitigate conditions that deviate from state standards, nor am I including state water quality standards in the license.

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8. Water quality monitoring

Michigan DNR recommended that UPPCo implement a comprehensive water quality monitoring program to determine compliance with water quality standards and to measure the project's effect on water quality.¹⁴

In the draft EA, staff concluded that water quality monitoring was not warranted for the following reasons: (1) water quality in the reservoir and the river down-stream of the project is generally good based on continuous monitoring conducted by UPPCo in 1991; (2) UPPCo proposes no new activities that would adversely affect water temperatures in the basin or below the dam; (3) water quality monitoring up-stream of the project is infeasible because of the multiple inflow sources to the reservoir (including groundwater); and (4) based on the small size of the watershed and the minimal potential for development due to the amount of federal- and state-owned lands, there is no reason to expect that conditions will substantially change in the future. Staff further concluded that water quality monitoring would neither mitigate existing water quality conditions nor substantially improve understanding of the project's water quality impacts.

At the Section 10(j) meeting, Michigan DNR proposed a scaled-down monitoring program compared to what it had originally recommended, consisting of:

- tailwater DO monitoring from May 15 to October 15;
- temperature monitoring in the tailwater and all three tributaries;
- a sediment/fish contaminant study every time the reservoir is drawn down below 772.0 feet; and
- a periodic limnological analysis, roughly every five to seven years.

Michigan DNR recommended this monitoring for three years, at which time Michigan DNR would evaluate the adequacy of the data and determine the overall frequency for the remainder of the license term. Michigan DNR stated that the 1991 monitoring data collected by UPPCo was inadequate for an assessment of conditions at the project because it only represented conditions during one year.

¹⁴/ Michigan DNR's recommended program is detailed in Section V.C.2.f under Environmental Impacts and Recommendations in the EA.

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Staff concluded that the data UPPCo collected in 1991 adequately characterized the water quality in the reservoir and river down-stream of the project. UPPCo's 1991 monitoring demonstrated that water quality is generally good in the project area and that operation of the Au Train Project does not significantly affect water quality in the Au Train River. Although deviations from coldwater temperature and DO standards occur in the summer, the Au Train Project is a small headwater basin with minimal development. Based on this, staff found no evidence that water quality conditions would substantially change in the future. Further, UPPCo proposes no new activities that would adversely affect water temperatures in the basin or below the dam.

Staff estimated that the annualized cost of Michigan DNR's revised recommended monitoring program would be \$18,900. Given the high cost in comparison to the project's annual power value, combined with the fact that the project does not have a significant effect on water quality, I agree with staff that the benefits of a water quality monitoring program are limited and do not justify the cost of continued monitoring.

I concur with staff that this recommendation is inconsistent with the Commission's balancing responsibilities under Sections 10(a) and 4(e) of the FPA, and have not included water quality monitoring as a condition in the license.

9. Fish exclusion plan and barrier net

Michigan DNR recommended that UPPCo develop a fish passage/protection plan and, in the interim, install a barrier net. Michigan DNR stated that an exclusion device was necessary because: (1) entrainment of warmwater reservoir fish to the river down-stream of the project causes competition for coldwater fish; and (2) there is no warmwater habitat down-stream of the project to allow fish from the basin to complete their lifecycle; therefore, fish are lost from the basin recreational fishery.

In the draft EA, staff did not recommend requiring installation of down-stream fish passage/protection at the project, concluding that fish resources both up- and down-stream of the project exhibited characteristics of healthy and vigorous populations, and project operation was not adversely affecting the fish populations or the quality of the recreational fishery. Staff concluded, based on UPPCo's entrainment study, that operations are not significantly affecting fish species in the reservoir. The majority of entrained fish are juvenile or rough fish that Michigan DNR manually removes from the basin because they are undesirable.

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Staff also disagreed in the draft EA that competition for resources between entrained warmwater reservoir fish and resident coldwater species occurs down-stream, and concluded that competition for resources was unlikely for the following reasons: (1) suitable habitat for both coldwater and warmwater species in the Au Train River is abundant; (2) perch and northern pike are not riverine fish and will move down-stream to Au Train Lake; and (3) white sucker will not compete with coldwater species because of differences in habitat preferences. Providing a fish exclusion device in the basin would not preclude warmwater species from accessing the reach via up-stream movement from Au Train Lake, as well as Lake Superior.

In its comment letter on the draft EA, Michigan DNR objected to statements in the draft EA regarding: (1) the quality of the fishery; (2) competition factors between warm and coldwater fish; and (3) costs for fish protection devices. These are detailed in the following paragraphs.

Michigan DNR states that the reservoir fishery has significant size structure problems and is not healthy. Staff does acknowledge in the final EA that the northern pike population in Au Train reservoir is large for the size of the water body and the individual fish are stunted. The yellow perch population contains many larger individuals, which indicates that the abundant northern pike probably prey heavily on juvenile yellow perch. However, staff concludes in the final EA that the project has been operating since the early 1900s, and the basin still maintains a substantial population of the primary gamefish, yellow perch.

Michigan DNR states that the major competition between cold and warmwater fish is for space, and that this will be an energetic drain on coldwater fish. Staff acknowledges that it is possible for transient warmwater fish to compete with coldwater fish; however, staff concludes that this would not be significant given the short amount of time that the transient fish would reside in the river. Staff disagrees that there would be an energetic drain because of the short time that warmwater fish stay in the coldwater segment on their way to the warmwater habitat of Au Train Lake. Michigan DNR further contends that there are overlaps in temperature and habitat preference between white suckers and some salmonid species and life stages. Staff asserts that habitat differences are defined by numerous criteria other than temperature. Differences in physical habitat preferences, as well as feeding behavior, make meaningful competition between white suckers and salmonids in a riverine environment highly unlikely. Staff concludes that some warmwater species would be found occasionally in the river reach below the powerhouse with or without fish exclusion devices at the Au Train Dam. The fact that most of these fish are transitory supports

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staff's conclusion that there is little opportunity for significant adverse interaction between the residing coldwater species and short-term occurring warmwater species.

Finally, Michigan DNR disagrees with cost estimates to provide a fish exclusion device. Commission staff's estimate of \$137,000 was based on a general guideline of \$1,000 per cfs of plant capacity for a standard screen system for small fish, such as those entrained at this project. For most projects the Commission staff typically uses a rough cost estimate of \$1,500 per cfs. The estimate includes installation of a permanent fish exclusion structure, effectiveness studies on that structure, and installation of an interim barrier net. Staff concluded that this estimate is reasonable.

In the final EA, staff continues to recommend that no fish protection/exclusion devices be required at the project. I concur with staff's conclusions, and am not requiring the licensee to implement a fish protection plan or install a barrier net. Michigan DNR's recommendation is inconsistent with the comprehensive planning standard of Sections 10(a) and 4(e) of the FPA, and is, therefore, not adopted.

10. Woody debris and erosion control

Michigan DNR recommended that UPPCo develop and implement a plan to improve trout habitat in the Au Train River below the powerhouse by increasing the amount of large woody debris and controlling bank erosion.

In the draft EA, staff concluded that the river below the powerhouse possessed excellent trout habitat with its high gradient, rocky substrate, and pool and riffle habitat, and contained ample woody debris. Staff concluded that to pass woody debris from the dam to the river below the powerhouse would require manually removing it from the reservoir and transporting it to the river down-stream of the powerhouse. Staff did not recommend that debris be transported over the dam because: (1) the dam has no sluice gates; and (2) there is limited flow in the bypassed reach capable of transporting woody debris from the dam through the bypassed reach. Given the significant cost associated with staff's recommended method of woody debris transport (\$8,000 annually) and the limited benefits that would be achieved, staff concluded that no enhancement was warranted.

In comments on the draft EA, Michigan DNR objected to both staff's method and cost for woody debris transport. Interior also commented on the draft EA, stating that UPPCo should prepare a plan to pass large, woody debris from the reservoir to below the powerhouse. (Interior did not address woody debris transport in its original Section 10(j) terms and conditions.)

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At the Section 10(j) meeting, Michigan DNR stated that the project has disrupted the flow of woody debris in the system. Further, UPPCo is required to handle and remove woody debris in the reservoir under customary operation and maintenance procedures. Michigan DNR stated that it would prefer that UPPCo pass woody debris over the dam rather than remove it from the system. Michigan DNR further stated that any cost associated with this measure should be considered part of UPPCo's normal operation and maintenance.

Large woody debris in rivers provides important resting, feeding, and spawning cover for fish, as well as colonization substrates for invertebrate food sources. Large woody debris also modifies localized hydraulic patterns and tends to create pools, which is important habitat for many species of fish. However, staff has concerns with passing woody debris directly over the Au Train dam due to the height of the dam, and the presence of various structures and impediments directly downstream of the dam (including the road, the railroad bridge, the vertical drop of the Upper Au Train Falls, and the foot bridge to the powerhouse). In the final EA, staff recommends that UPPCo consult with the resource agencies to develop procedures for a mutually-acceptable method of reintroducing the majority of woody debris back to the riverine system. Staff also agrees that there is no additional cost associated with this measure, and removed it from its economic analysis in the final EA.

At the Section 10(j) meeting, Michigan DNR also clarified what it intended in its recommendation that UPPCo improve trout habitat by controlling bank erosion. MDNR suggested that large woody debris could be worked into any future erosion repair in such a way that it would provide bank stability and also extend into the river to provide trout habitat. In the final EA, staff agrees that this is a reasonable enhancement and that UPPCo's erosion plan include language stating that if project-induced erosion sites are identified in the future, UPPCo, in consultation with the agencies, incorporate woody debris/trout habitat structures into the erosion repair if it is reasonable under the site-specific circumstances of the mitigation measure.

I concur with staff's recommendations on both these items. I am requiring that provisions for woody debris transport be included in the operation and compliance plan (Article 402). I am also including in Article 407, annual erosion surveys of the project shoreline (both the reservoir and down-stream, on UPPCo-owned lands). If project-induced erosion is identified, the article stipulates that the licensee consult with the resource agencies to incorporate reasonable and appropriate trout habitat enhancement structures into the repair.

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11-12. Include and retain all UPPCo-owned lands within project boundary and manage lands in accordance with a comprehensive land management plan (CLMP).

The agencies recommended that UPPCo include and retain all UPPCo-owned lands within a project boundary to preserve and protect important fish and wildlife habitat; and manage those lands in accordance with a CLMP.

In the draft EA, staff did not adopt these recommendations beyond the recommendation to require a buffer zone along the reservoir shoreline and down-stream of the powerhouse on UPPCo-owned lands. Reservoir-dependent species, as well as fish and wildlife habitat, would be adequately protected by a shoreline buffer zone. Staff recommended that shoreline buffer zone policies be included within the recommended wildlife management plan, rather than requiring a separate plan. Further, Commission regulations do not require that a project boundary be established for a minor project, and stipulate that a minor license may include either: (1) no project boundary; or (2) only a limited amount of land for the dam and major project features.

At the Section 10(j) meeting, after discussion of the proposed shoreline buffer and a project boundary, staff agreed to recommend that UPPCo prepare a separate CLMP to address land management and shoreline protection policies, rather than include these policies in the wildlife management plan. Staff, however, maintained its recommendation regarding a project boundary, as stated in the draft EA.

At the Section 10(j) meeting, Michigan DNR requested that the shoreline buffer not be fixed at 200 feet, but allow flexibility in the width of the buffer to account for topography of lands surrounding the impoundment. Staff agreed to modify its recommendation from a 200-foot buffer on UPPCo-owned lands, to a variable shoreline buffer on UPPCo-owned lands. It was agreed that the width of the buffer would vary depending on shoreline resources, but on average, the buffer width would be about 200 feet.

I agree with staff's findings in the final EA. I conclude that establishing a project boundary to encompass all surrounding UPPCo-owned lands is not necessary, and that establishing instead a buffer zone managed in conformance with a CLMP would adequately protect lands adjacent to the project.

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I am requiring, in Article 407, that UPPCo prepare a CLMP, which shall include provisions for establishment of a variable shoreline buffer (developed in consultation with the resource agencies). The CLMP shall also include policies for management of lands within this "no timber management" zone. The CLMP shall also include details on UPPCo's existing lease policies for lands it owns abutting the reservoir.

13. Bald Eagle Management Plan

In its terms and conditions letter, Michigan DNR recommended that UPPCo incorporate 17 provisions and Interior recommended that UPPCo incorporate 9 provisions into its Bald Eagle Management Plan.¹⁵

In the draft EA, staff recommended that UPPCo's Bald Eagle Management Plan be modified to incorporate all of Interior's provisions and all but the following Michigan DNR provisions: (1) develop public information materials or signage and (2) all UPPCo-owned lands adjacent to the impoundment be included in a project boundary. (This issue is discussed in item 11-12, above.)

At the Section 10(j) meeting, Michigan DNR clarified that it was not recommending a large-scale public information program, but signage that would identify and explain bald eagle management areas. After discussion, staff agreed that in the final EA it would recommend that UPPCo be responsible for maintaining current signage at the project that is now maintained by the Forest Service.

No agreement was reached on the project boundary issue. (See item 11-12, above for detailed discussion.)

Staff and agencies also discussed Michigan DNR's recommendation that UPPCo's participation in removal of non-game fish (which serve as a forage base for the bald eagle) from the reservoir would require that the Commission reinitiate consultation with the FWS. This was not identified as an inconsistency in the draft EA, but discussed and clarified at the Section 10(j) meeting. Staff stated that in the final EA it would recommend that the Commission retain authority to approve the licensee's participation in fish removal from the reservoir, which is consistent with language of other recently issued license orders. The agencies were in agreement regarding this issue.

^{15/} Interior's and Michigan DNR's specific provisions are detailed in their recommended terms and conditions letters dated April 29, 1994, and May 3, 1994, respectively.

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I concur with staff's findings on these specific issues as they relate to bald eagle management. I am requiring in Article 405 that UPPCo finalize its bald eagle plan to incorporate additional measures as recommended by Interior and Michigan DNR. I recommend that the plan be finalized in consultation with the resource agencies.

Following are the two additional issues that were clarified at the Section 10(j) meeting:

1. Purple Loosestrife Recommendation

In the draft EA, staff recommended that UPPCo cooperate with Michigan DNR and Interior to monitor and control/eliminate purple loosestrife and/or Eurasian watermilfoil if the agencies deem it necessary and there is a biologically safe and effective method of removal available. In comments on the draft EA, Michigan DNR requested clarification of the word "cooperate" as it pertains to control of purple loosestrife.

The final EA includes discussion that clarifies that the intent of the term "cooperate" is that UPPCo would be responsible for monitoring and control measures of the nuisance plants as long as the measures can be reasonably achieved. The Commission would retain authority to approve the measures that UPPCo would perform in controlling and/or eradicating purple loosestrife at the project.

Article 404 requires that UPPCo develop a plan to monitor and control purple loosestrife and Eurasian watermilfoil.

2. Wildlife and Waterfowl Structures

In the draft EA, staff recommended that UPPCo install wildlife structures recommended by Michigan DNR. At the Section 10(j) meeting, the need for all of these structures was questioned given that UPPCo would provide a shoreline buffer zone to protect habitat for wildlife. Michigan DNR agreed to withdraw its recommendations for wood duck boxes and mallard nesting habitat, purple martin nesting colonies, bat nesting houses, eastern bluebird nesting locations, and kestrel and owl nesting locations.

Article 406 requires UPPCo to prepare a wildlife management plan that includes plans for constructing an osprey platform, which is the only wildlife structure that Michigan DNR did not withdraw from its recommendation.

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B. Issues Subject to Section 10(a)(1) of the FPA

The following Michigan DNR and Interior recommendations are outside the scope of Section 10(j) of the FPA, in that they involve studies that could have been performed prior to licensing, or do not otherwise qualify as specific measures to protect, mitigate damages to, or enhance fish and wildlife:¹⁶

(1) identify mitigation for emergency draw-downs and obtain Michigan DNR permits and notify agencies of draw-downs or refills greater than one foot; (2) develop and implement an operation effectiveness plan; (3) pay liquidated damages to the state for each violation of water quality standards; (4) telemeter the USGS gage down-stream of the powerhouse and a reservoir level gage; (5) install a staff gage on the up-stream wall of the dam visible to the public; (6) maintain a record of operation on a 30-minute basis; (7) install an automatic tailwater sensor to continuously record elevations; (8) fund, conduct, and complete a fishery damage assessment and make appropriate payments, or pay restitution value, for lost fishery resources; (9) construct specific recreation facility enhancements; (10) fund maintenance and enhancement of the existing waterfowl refuge on UPPCo's lands; and (11) 10 years after license issuance, perform a project retirement study and establish a retirement fund. These recommendations were considered under Section 10(a)(1) of the FPA.

The following are my conclusions with respect to the issues considered under Section 10(a)(1):

(1) I am not requiring that UPPCo identify mitigation for emergency violations of reservoir levels or that maintenance draw-downs greater than one foot require a Michigan DNR permit because it would conflict with the Commission's authority with respect to nonfederal water power projects under the FPA. However, as staff and the agencies agreed at the Section 10(j) meeting, Article 402 requires UPPCo, among other things, to file a reservoir draw-down plan, which must include agency notification procedures for draw-downs.

(2) I am not requiring an operation effectiveness plan as proposed by Michigan DNR; however, Article 402 includes requirements that UPPCo submit an annual summary of operations to the Commission and provide copies to the

^{16/} See 18 C.F.R. 4.30(b)(9)(ii) (1995), and Regulations Governing Submittal of Proposed Hydropower License Conditions and other Matters, 56 Fed. Reg. 23,108 (May 20, 1991), III FERC Statutes and Regulations 30,921 (May 8, 1991) (Order No. 533) at pp. 31, 108-10.

agencies. It also requires a three-year meeting with the resource agencies to review operating data.

(3) I am not requiring that language be placed into the license stating that violations of water quality standards shall require payment of liquidated damages for each event, because the Commission has no authority pursuant to the FPA to adjudicate claims for, or require payment of, damages. It is beyond the Commission's jurisdiction to enforce compliance with state-mandated requirements or statutes. This does not preclude the state from enforcing its requirements outside of the Commission's licensing process.

(4) I am not requiring UPPCo to telemeter the USGS gage down-stream of the powerhouse and install a telemetered gage on the reservoir. Consistent with agreement reached at the Section 10(j) meeting, operating data requirements are included in Article 402.

(5) I am requiring that the licensee install a staff gage on the up-stream wall of the dam. This is included in Article 402.

(6) I am requiring, as part of the operation and compliance plan (Article 402), that UPPCo record headwater level, spillway level, and generation data at 60-minute intervals. This is consistent with resolution reached at the Section 10(j) meeting.

(7) I am not requiring that a tailwater sensor be installed because other gaging requirements will provide adequate information for operation monitoring. This is consistent with Interior's withdrawal of the recommendation, as agreed to at the Section 10(j) meeting.

(8) I am not requiring that UPPCo conduct a fisheries damage assessment to determine compensation for unavoidable fish loss; as the Commission does not include measures related to damages in project licenses.¹⁷

(9) Article 409 requires UPPCo to file a recreation plan detailing implementation of the following recreation improvements:

- development of a formal barrier-free recreation viewing area at Upper Au Train Falls overlook that includes removing vegetation that obstructs views, installation

17/ See Mead Corporation, Publishing Paper Division, 72 FERC ¶ 61,027 (1995).

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of a crushed rock surface for seven parking spaces (two handicapped accessible), a handrail, directional signage to the area, and interpretive signage;

- plant vegetation to screen the gravel pit located west of the Upper Au Train Falls viewing site; and
- maintenance of the informal access site on the east side of the reservoir.
- partial funding to the Michigan DNR for operation and maintenance of the existing Forest Lake State Forest Campground, located on the west side of the reservoir.

(10) I am requiring that the wildlife management plan (Article 406) include provisions for UPPCo to cooperate with Michigan DNR on maintenance and removal of brush in the portion of the wildlife refuge that is within the buffer zone.

(11) I am not requiring that UPPCo develop a plan for dam removal/project retirement, or establish a trust fund to retire the project (see detailed discussion in section VIII of the final EA). The Au Train Project is physically sound, and with the conditions required in this license order, the project would have no significant adverse environmental impacts. There is no evidence in the record indicating that the life of the project may end within the license term, nor is there any evidence that, if decommissioning were warranted in the future, the licensee lacks the financial resources to perform that function, nor any other project-specific facts or contentions in the record to support a requirement that the licensee establish decommissioning funds for the project.

OTHER COMMENTS AND RECOMMENDATIONS

The Forest Service, an intervenor in the Au Train Project licensing proceeding, filed recommended terms and conditions for the Au Train Project. The Forest Service's interest in the project is to protect and enhance the natural resources of the Hiawatha National Forest, which is located just outside of UPPCo's land ownership on the east side of the basin and downstream.

The Forest Service requested conditions requiring UPPCo to: (1) maintain target and minimum elevations in the reservoir; (2) maintain a continuous minimum discharge of 50 cfs from the powerhouse; (3) notify agencies in advance of proposed draw-downs or refills of more than one foot; (4) modify project operations

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temporarily if required by operating emergencies; (5) install a bypass system to ensure that minimum powerhouse discharges are maintained at all times; (6) develop a management strategy to control purple loosestrife and Eurasian watermilfoil; (7) implement recreation enhancements; (8) establish a project boundary that includes all UPPCo-owned lands adjacent to the reservoir, and apply FWS measures for protection and enhancement of the bald eagle and gray wolf within this boundary; (9) maintain a 200-foot logging exclusion zone along the basin, shoreline and a 600-foot logging exclusion zone down-stream of the dam along the river; (10) consult annually with resource agencies regarding project operations; (11) develop a plan to monitor wetlands resources; (12) conduct additional surveys to identify changes in status and/or location of endangered, threatened, and/or sensitive plants; (13) provide partial funding of the Forest Service annual bald eagle monitoring effort; (14) protect bald eagle habitat on lands east of the basin; (15) implement a programmatic agreement (PA) for protection of cultural resources; (16) develop a recreation plan that includes annual consultation with resource agencies; and (17) follow Hiawatha National Forest Plan standards and guidelines for logging activities on UPPCo-owned lands.

The first eight recommendations correspond either to Michigan DNR or Interior fish and wildlife recommendations, and are discussed in the previous sections of this order. The following conclusions were reached with respect to the remaining nine Forest Service recommendations considered under Section 10(a)(1):

(1) I am not stipulating a 200-foot reservoir shoreline buffer or 600-foot buffer down-stream of the powerhouse; however, I am requiring a variable shoreline buffer be established on licensee-owned lands. This is required as part of the CLMP for the project (Article 407). This is discussed in item 11-12 in the Attempted Resolution of Section 10(j) Inconsistencies section, above.

(2) I am not requiring annual consultation with the resource agencies regarding operations. However, I am requiring, as part of the operation and compliance plan (Article 402), that UPPCo conduct a three-year agency consultation/review meeting to evaluate operating data submitted on an annual basis to the resource agencies. This is discussed in item 1-4 in the Attempted Resolution of Section 10(j) Inconsistencies section, above.

(3) I am not requiring the licensee to develop a plan to monitor wetland resources because the proposed change in operation will result in higher and more stable water levels within the basin compared to historical operations. As a

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result, wetland acreage within the basin will either remain unchanged or be enhanced. Further, more stable water levels are expected to enhance species composition of basin wetland communities.

(4) I am not requiring the licensee to conduct additional surveys for endangered, threatened, or sensitive plant species because previous surveys conducted by UPPCo found no threatened or endangered plant species. Additional surveys are unnecessary.

(5) I am requiring the licensee to share in reasonable costs for bald eagle surveys conducted by the Forest Service on lands in the project vicinity. This is a reasonable enhancement given the important bald eagle nesting habitat within the project area. This requirement is included in Article 405.

(6) I am not requiring UPPCo, as a condition of license issuance, to protect bald eagle habitat on lands east of the Au Train basin. These lands are outside of Commission jurisdiction, and unrelated to project operation. I am including, in the bald eagle management plan (Article 405), provision that habitat be protected within the buffer zone of the project shoreline.

(7) I am not requiring that a PA be implemented at the project because there are no known cultural resource sites. Article 408, however, requires UPPCo to consult with the Michigan SHPO prior to initiating any construction activities to protect potential cultural resources that may be discovered during excavation or other construction activities.

(8) I am requiring the licensee to develop a recreation plan for the project that details specific improvements and the schedule for implementation (Article 409). However, I am not requiring agency consultation or reporting beyond what is required by the Commission's Form 80 filings (which requires monitoring and consultation every six years). Specific facility enhancements are detailed in Article 409 and in item 10 in the Issues Subject to Section 10(a)(1) of the FPA section, above.

(9) I am requiring that the licensee consult with the Forest Service when it develops its CLMP, but I am not requiring UPPCo to follow Hiawatha National Forest Plan standards and guidelines for logging activities on UPPCo-owned lands. I am requiring that UPPCo create a "no-timber-management" buffer zone around the reservoir, which will be managed in conformance with the CLMP. I conclude that this

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would adequately protect lands adjacent to the project.
This is included in Article 407.

COMPREHENSIVE PLANS

Section 10(a)(2)(A) of the FPA,¹⁸ requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving waterways affected by the project. Under Section 10(a)(2)(A) of the FPA, federal and state agencies filed a total of 55 comprehensive plans for Michigan and 9 plans of regional or national importance. Of these, staff identified seven plans relevant to the project.¹⁹ Other management plans consulted in addition to those on the Commission's list of comprehensive plans include the Michigan Department of Natural Resources *Escanaba River State Forest Comprehensive Management Plan (1990)*. The project fully complies with these comprehensive plans.

COMPREHENSIVE DEVELOPMENT

Sections 4(e) and 10(a)(1) of the FPA,²⁰ require the Commission, in acting on applications for license, to give equal consideration to the power and development purposes and to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

In determining whether a proposed project will be best adapted to a comprehensive plan for developing a waterway for beneficial public purposes, pursuant to Section 10(a)(1) of the

18/ 16 U.S.C. § 803.

19/ Forest Service, 1986, *Hiawatha National Forest Land and Resource Management Plan and amendments*; Michigan DNR, Fisheries Division, 1978, *Au Train Basin Fisheries Management Plan*; Michigan DNR, Fisheries Division, 1994, *Fisheries Division Strategic Plan*; Michigan DNR, Recreation Division, 1991, *1991-1996 Michigan Recreation Plan*; FWS, undated, *Fisheries USA*; FWS, 1990, *North American Waterfowl Management Plan*; National Park Service, 1982, *The Nationwide Rivers Inventory*.

20/ 16 U.S.C. §§ 797(e) and 803(a)(1).

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FPA, the Commission considers a number of public interest factors, including the economic benefits of project power.

Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in Mead Corporation, Publishing Paper Division,²¹ the Commission employs an analysis that uses current costs to compare the costs of the project and likely alternative power, with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the Commission's economic analysis is to provide a general estimate of the potential power benefits and the costs of a project, and reasonable alternatives to project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

Based on current economic conditions, without future escalation or inflation, the Au Train Project, if licensed as UPPCo proposes, would provide an installed capacity of 1,120 kW and produce an average of 5.895 gigawatt-hours (GWh) of energy, at an annual cost of about \$183,700 (31.5 mills/kWh) more than currently available alternative power. If licensed in accordance with the conditions adopted herein, the project would have the same capacity and produce the same amount of energy at an annual cost of \$209,000 (35.9 mills/kWh) more than currently available alternative power.

The final EA analyzes the effects associated with the issuance of an original license for the Au Train Project. The final EA recommends a variety of measures to protect and enhance the environmental resources, which I adopt, as discussed herein. Many of the measures were recommended and supported by resource agencies and other commentors.

Based on my review and evaluation of the project as proposed by the licensee, and with the additional enhancement measures I am adopting, I conclude that operating the project in the manner required by the license will protect and enhance fish and wildlife resources, water quality, recreational resources, and cultural resources. The electricity generated from renewable water power resources will be beneficial because it will continue to offset the use of fossil-fueled, steam-electric generating plants, thereby conserving nonrenewable resources and reducing atmospheric pollution. I, therefore, find that the Au Train Project, with the required environmental enhancement measures, is best adapted to a comprehensive plan for the use, conservation, and development of the water for beneficial public purposes.

21/ 72 FERC ¶ 61,027 (1995).

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The required enhancement measures are summarized below:

- (1) Operate the project with a minimum powerhouse discharge of 50 cfs, maintaining an absolute minimum elevation of 772.0 feet above local datum (Article 401).
- (2) Maintain a minimum continuous powerhouse discharge of 50 cfs (Article 401).
- (3) Install a 10-cfs bypass system to maintain down-stream flows during emergency interruption of water flows (Article 402).
- (4) Prepare an operation and compliance plan that includes the following:
 - provide funds for the continued operation of the USGS gage (No. 04044724) down-stream of the powerhouse;
 - install a level sensor on the basin;
 - install a staff gage on the up-stream face of the dam;
 - maintain a daily record of operations on an hourly basis, including turbine operations, headwater and tailwater elevations, and flow releases through the powerhouse and estimated flows over the spillway;
 - prepare draw-down procedures; and
 - consult with the agencies to develop mutually-acceptable procedures to pass the majority of woody debris from the reservoir down-stream (Article 402).
- (5) Consult with the resource agencies in advance of scheduled reservoir draw-downs below 772.0 feet (Article 401).
- (6) Perform an annual erosion survey and report findings to the Commission every three years (Article 407).
- (7) Prepare a wildlife management plan (Article 406).
- (8) Install an osprey platform (Article 406).
- (9) Develop a monitoring plan for purple loosestrife and Eurasian watermilfoil and cooperate with the Michigan DNR to eradicate purple loosestrife and Eurasian watermilfoil if necessary, and if an effective eradication method is developed (Article 404).
- (10) Finalize the bald eagle protection plan, to include the following:

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- incorporate additional agency recommended measures, except as detailed in this order;
- incorporate by reference the "Northern States Bald Eagle Recovery Plan" and the "Bald Eagle Winter Management Guidelines";
- protect bald eagle habitat within the shoreline buffer zone;
- include a procedure to share in reasonable costs for bald eagle surveys conducted by the Forest Service;
- make provisions to allow the licensee to participate in agency rough fish removal programs, with approval of the Commission; and
- maintain existing bald eagle signage at the project (Article 405).

(11) Implement the following recreation enhancements:

- construct a barrier-free viewing area and provide directional signage to Upper Au Train Falls;
- install interpretive signage at Upper Au Train Falls to provide the public information about facilities and natural resources at the site;
- plant trees to screen gravel pit/storage area near Upper Au Train Falls to enhance the appearance of the viewing area;
- operate and maintain the recreation site on the east side of the basin; and
- provide partial funding to the Michigan DNR for operation and maintenance at the Forest Lake State Forest Campground (Article 409).

(12) Establish a shoreline buffer zone at the project in consultation with the agencies (Article 407).

(13) Prepare a comprehensive land management plan (Article 407).

(14) Consult with Michigan State Historic Preservation Officer (SHPO) prior to beginning construction activities to protect any cultural resources that may be discovered in the future at the project (Article 408).

(15) Reserve Interior's authority to prescribe fish passage in the future (Article 403).

LICENSE TERM

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The Commission's general policy is to establish 30-year terms for projects with little or no redevelopment, new construction, new capacity, or environmental mitigative and enhancement measures; 40-year terms for projects with a moderate amount of proposed redevelopment, new construction, new capacity or mitigative and enhancement measures; and 50-year terms for projects with proposed extensive redevelopment, new construction, new capacity, or mitigative and enhancement measures.²² At the Section 10(j) meeting, UPPCo requested a license term of 40 or 50 years. Michigan DNR concurred that a 40-year license was appropriate for this project. Based on these recommendations, and our assessment of the extent of environmental enhancements that would accrue with licensing, I conclude that this original license for the Au Train Project No. 10856 will have a term of 40 years.

SUMMARY OF FINDINGS

The final EA for this project contains background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license.

I conclude that the Au Train Project does not conflict with any planned or authorized development, and is best adapted to the comprehensive development of the Au Train River for beneficial public use.

The Director orders:

(A) This license is issued to the Upper Peninsula Power Company, for a period of 40 years, effective the first day of the month in which this order is issued, to operate and maintain the Au Train Hydroelectric Project. This license is subject to the terms and conditions of the FPA, which are incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interest in those lands, shown by Exhibit G, filed April 21, 1993:

22/ City of Danville, Virginia, Project No. 10896, 58 FERC 61,318 (1992).

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<u>Exhibit</u>	<u>FERC No. 10856-</u>	<u>Showing</u>
G (Sheet 1)	1	Project location
G (Sheet 2)	2	Storage reservoir and facilities

(2) The project works consisting of: (1) an existing dam 38 feet high and 1,500 feet long with a 100-foot-long concrete overflow spillway section topped with ten 10-foot-wide by two-foot-high wooden flashboards; (2) an existing reservoir with a storage capacity of 12,342 acre-feet and a surface area of approximately 1,557 acres at elevation 780 feet local datum; (3) an existing 2,516-foot-long, 5-foot, 6-inch-diameter, penstock with stoplogs, trashrack, and butterfly valve connecting to a 10-foot-diameter exposed steel surge tank connected to the penstock up-stream of the powerhouse; (4) an existing powerhouse containing two turbine-generator horizontal Francis-type turbines having a total of 1,600 horsepower, a capacity of 1,120 kVa, a hydraulic capacity range of 50 to 136.5 cfs, an average net head of 124 feet, and a power factor of 80 percent; (5) an existing 2,300-volt, 2,500-foot-long transmission line; and (6) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F shown below:

Exhibit A: The following sections of Exhibit A filed April 21, 1993:

The dam, spillway, south levee, intake structure, pipeline, powerhouse, generating equipment, and appurtenant equipment as described on pages 1-1 through 1-6.

Exhibit F: The following sections of Exhibit F filed April 21, 1993:

<u>Exhibit</u>	<u>FERC No. 10856-</u>	<u>Showing</u>
F (Sheet 1)	3	Powerhouse
F (Sheet 2)	4	Diversion dam, Intake structure, and spillway
F (Sheet 3)	5	South Levee

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project; all portable property that may be employed in connection with the project; and all riparian or other rights that are

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necessary or appropriate in the operation or maintenance of the project.

(C) The exhibits A, F, and G described above are approved and made part of the license.

(D) The following sections of the FPA are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(e), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the Act that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

(E) This license is subject to the articles set forth in form L-12 (October 1975), entitled "Terms and Conditions of License for Constructed Minor Project Affecting the Interests of Interstate or Foreign Commerce", and the following additional articles:

Article 201. The licensee shall pay the United States the following annual charges, effective as of the first day of the month which this license is issued:

For the purpose of reimbursing the United States for the Commission's administrative costs, pursuant to Part I of the FPA, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 900 kilowatts (kW). Under regulations currently in effect, projects with authorized capacity of less than or equal to 1,500 kW are not assessed an annual charge.

Article 401. The licensee shall operate the project in a modified run-of-river mode, with a steady draw-down of the reservoir in the winter and reservoir draw-downs as necessary at other times of the year to provide a continuous minimum powerhouse discharge of 50 cubic feet per second (cfs) for the protection and enhancement of fish and wildlife resources in the Au Train River. The licensee shall not operate the Au Train Project for the purposes of power system load following on a daily basis. At no time shall the licensee release less than 50 cfs from the powerhouse, except as provided for in the operation and compliance plan developed under Article 402.

The licensee shall maintain an absolute minimum water surface elevation in the reservoir of 772.0 feet local datum

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(773.7 feet above mean sea level) for the protection of aquatic resources in the reservoir. At no time shall the licensee lower the water surface in the reservoir below 772.0 feet local datum, except as provided for in the operation and compliance plan developed under Article 402.

Minimum powerhouse discharge or minimum reservoir water surface elevations may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement among the licensee, Michigan Department of Natural Resources (Michigan DNR) and U.S. Fish and Wildlife Service (FWS). If the flow is so modified, the licensee shall notify the Commission, Michigan DNR and FWS as soon as possible, but no later than 7 days after each such incident. Specific agency notification procedures shall be developed as part of the operation and compliance plan (Article 402).

Article 402. Within one year of license issuance, the licensee shall file with the Commission, for approval, an operation and compliance plan including draw-down management procedures, emergency operating procedures, and measures to document compliance with project operation (Article 401).

The plan at a minimum shall include these measures:

- (1) procedures for re-establishing flow following power outages and other emergencies when the reservoir level is greater than 778.0 feet;
- (2) installation of a siphon system over the dam capable of supplying 10 cfs in order to maintain adequate flows downstream following power outages and other emergencies when the reservoir level is less than 778.0 feet;
- (3) installation of a staff gage on the upstream face of the project dam showing the minimum allowable reservoir elevation;
- (4) funding for operation of the existing U.S. Geological Survey (USGS) streamflow gage (No. 04044724) on the river downstream of the project powerhouse;
- (5) collection and recording of basin level data with the existing remote-monitored basin level sensor and making the data available to the agencies upon request;
- (6) installation of automatic sensors to continuously read headwater elevations and maintenance of hourly record of levels in the project reservoir;

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- (7) a draw-down plan that outlines notification procedures for emergency and planned draw-downs;
- (8) establishment of procedures for passing the majority of woody debris from the reservoir to the river down-stream;
- (9) preparation of annual reports to the Commission containing a summary of daily operations, including turbine operations, headwater and tailwater elevations, and flow releases through the powerhouse and estimated flows over the spillway; and
- (10) plans for a consultation and review meeting with the agencies three years after license issuance to review operating data.

The licensee shall prepare the plan after consultation with Michigan Department of Natural Resources (DNR) and U.S. Fish and Wildlife Service (FWS). 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 licensee shall update the plan once every five years, following Commission approval of the original plan, in consultation with Michigan DNR and FWS, and file the updated plans with the Commission for approval.

The Commission reserves the right to require changes to the original plan or plan updates, including termination of the annual operations reports upon the request of the licensee and in consultation with the agencies. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 403. Authority is reserved by the Commission to require the licensee to construct, operate, and maintain, or to provide for the construction, operation, and maintenance of such fishways as may be prescribed by the Secretary of the Interior under Section 18 of the Federal Power Act.

Article 404. Within 180 days of license issuance, the licensee shall develop a plan to monitor purple loosestrife (*Lythrum salicaria*) and Eurasian watermilfoil (*Myriophyllum spicatum*) in project waters. The plan shall include, but is not

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limited to: (a) the method of monitoring, (b) the frequency of monitoring, (c) a provision to cooperate in the control/elimination of these vegetative species if deemed necessary by the agencies when an effective eradication method is developed, and (d) documentation of transmission of monitoring data to Michigan Department of Natural Resources (Michigan DNR) and U.S. Fish and Wildlife Service (FWS).

The plan shall be prepared in consultation with Michigan DNR and FWS and shall include documentation of consultation, copies of the agencies' 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 were accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to 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. Upon Commission approval, the licensee shall implement the plan including any changes required by the Commission.

Article 405. Within one year of license issuance, the licensee shall file with the Commission, for approval, a plan to protect the bald eagle (*Haliaeetus leucocephalus*) at the project.

The plan shall incorporate state and federal management guidelines, which includes operating the project in a manner consistent with the "Northern States Bald Eagle Recovery Plan" and the "Bald Eagle Winter Management Guidelines". The plan shall also include a schedule for implementing the plan. The plan shall be submitted to the Commission, for approval, as part of the wildlife management plan required by Article 406.

The plan shall incorporate additional measures as recommended by Michigan Department of Natural Resources (Michigan DNR) and U.S. Fish and Wildlife Service (FWS) in their recommended terms and conditions letters, dated May 3, 1994 and April 29, 1994, respectively, with the following exceptions:

- (1) the bald eagle management plan shall protect existing and potential bald eagle habitat within the buffer zone of the project shoreline required under Article 407;
- (2) the licensee shall not be responsible for public information distribution and sign posting but shall maintain existing U.S. Forest Service (Forest Service) signage at the project related to bald eagle management;

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(3) the licensee share in reasonable costs for Forest Service bald eagle surveys; and

(4) should the Michigan DNR request a rough fish removal program which requires the licensee's cooperation, the licensee shall file, upon completion of consultation with the FWS and Michigan DNR, for Commission approval any plans to remove rough fish on reservoirs or stream sections within the project, including any proposed changes in project operation.

The licensee shall prepare the plan in consultation with Michigan DNR, Forest Service, and FWS. 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 and recommendations 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. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 406. Within one year of license issuance, the licensee shall file with the Commission, for approval, a wildlife management plan to protect and enhance wildlife within the project buffer zone required under Article 407.

The plan shall include, but not be limited to, the following:

- (1) protection of environmentally sensitive areas on project lands;
- (2) wildlife plantings in the project rights-of-way;
- (3) inclusion of a threatened and endangered species element that details general land use management for the gray wolf, as well as provision for the protection and enhancement of habitat for any other federal- or state-designated threatened, endangered or sensitive species on project lands;
- (4) provides for annual consultation with Michigan Department of Natural Resources (Michigan DNR) and U.S. Fish and Wildlife Service (FWS) on the status of wildlife

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populations in the project area and the measures to be performed to protect and enhance wildlife populations;

(5) cooperation with Michigan DNR on fisheries studies by allowing Michigan DNR access and desirable flow rates, provided they are not in conflict with other license conditions;

(6) provisions for one osprey nesting platform on the north end of the reservoir;

(7) provisions to cooperate in removing brush in the shoreline buffer area of the wildlife refuge; and

(8) adherence to the "Recovery Plan for the Eastern Timber Wolf" guidelines if new roads are constructed on licensee-owned lands adjacent to the project in the future.

The licensee shall prepare the plan in consultation with Michigan DNR and FWS. 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 and recommendations 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. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 407. Within one year of the issuance date of this license, the licensee shall file with the Commission, for approval, a comprehensive land management plan (CLMP) for a buffer zone around the reservoir and down-stream of the dam on licensee-owned lands.

The intent of the plan is to define the location of, and establish policies for, management of the buffer zone. The plan shall include, at a minimum:

(1) maps delineating a buffer zone on licensee-owned lands around the reservoir and down-stream of the dam; the buffer zone shall be determined in consultation with the agencies, but shall have an average width of 200 feet;

(2) policies for land management within the shoreline buffer zone, including provision that no timber harvesting

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can occur in this buffer (certain activities would be permitted for safety and resource protection purposes);

(3) policies regarding leasing of lands, including details of existing leases;

(4) provision for annual inspections and three-year reporting of project-induced erosion that is not attributable to natural phenomenon such as wind driven wave action against a shore, run-off from steep terrain during storms, and loss of vegetation due to fire and other natural causes, or as part of major land-disturbing activities. If specific areas of active, project-induced shoreline erosion are identified, the licensee shall submit a plan to the Commission that includes methods and a schedule to repair the site. In addition, the licensee shall consult with the resource agencies to determine whether reasonable and appropriate trout habitat structures can be incorporated into the repair.

The plan shall be prepared in consultation with the Michigan Department of Natural Resources, the U.S. Fish and Wildlife Service, and the U.S. Forest Service. 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. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

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Article 408. Before the commencement of any construction or development of any project works or other facilities at the project, the licensee shall consult and cooperate with the Michigan State Historic Preservation Officer (SHPO) to determine the need for, and extent of, any archaeological or historic resource surveys and any mitigating measures that may be necessary. The licensee shall provide funds in a reasonable amount for such activity. If any previously unrecorded archaeological or historic sites are discovered during the course of construction, construction activity in the vicinity shall be halted, a qualified archaeologist shall be consulted to determine the significance of the sites, and the licensee shall consult with the SHPO to develop a mitigation plan for the protection of significant archaeological or historic resources. If the licensee and the SHPO cannot agree on the amount of money to be expended on archaeological or historic work related to the project, the Commission reserves the right to require the licensee to conduct, at the licensee's own expense, any such work found necessary.

Article 409. Within one year of license issuance, the licensee shall file with the Commission, for approval, a recreation plan. The recreation plan shall provide for implementing the specific recreation facilities and improvements described below:

- (1) development of a formal recreation viewing area at the Upper Au Train Falls overlook, including removal of vegetation that obstructs views, installation of a crushed rock surface for seven parking spaces (two handicapped accessible), and installation of a handrail;
- (2) installation of additional directional signage to the Upper Au Train Falls viewing area;
- (3) installation of interpretive signage (accessible to persons with disabilities) detailing the site layout, explaining the hydroelectric project (specifically the penstock, which would be within their view), and directing viewers to Lower Au Train Falls;
- (4) planting trees to screen the gravel pit and storage area at the Upper Au Train Falls recreation site;
- (5) operation and maintenance of the primitive access site located on the east side of the basin;
- (6) a schedule for implementing the recreation enhancements contained in this article; and

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(7) partial funding support by the Licensee of operation and maintenance conducted by the Michigan Department of Natural Resources (Michigan DNR) at the existing Forest Lake State Forest Campground, located on the west side of the reservoir; the annual contribution will be \$5,000 in 1996 dollars, which shall be adjusted annually for the previous years' Consumer Price Index for the life of the license.

The plan shall be prepared in consultation with Michigan DNR and U.S. Fish and Wildlife Service (FWS). 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 for recreational facilities shall begin until the licensee is notified that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 410. (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

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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 water 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 watercraft 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 reservoir 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

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(69-kilovolt or less); and (8) water intake or pumping facilities that do not extract more than 1 million gallons per day from a project reservoir.

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.

(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 watercraft 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 Exhibit R or 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 5 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 Hydropower Licensing, 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 or K 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:

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(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 exhibit R or approved report on recreational resources of an exhibit E; or, if the project does not have an approved exhibit R or 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; (ii) the grantee shall take all reasonable precautions to insure 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; and (iii) the grantee shall not unduly restrict public access to project waters.

(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 or K 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, reservoir, 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 or K drawings would be filed for approval for other purposes.

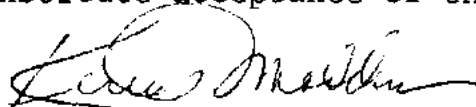
(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

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(E) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(F) This order is issued under authority delegated to the Director and constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of its issuance of this order, pursuant to 18 C.F.R. Section 385.713. The filing of a request for rehearing does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.



Kevin P. Madden
Acting Director
Office of Hydropower Licensing

**FINAL
ENVIRONMENTAL ASSESSMENT
FOR HYDROPOWER LICENSE**

**Au Train Hydroelectric Project
FERC Project No. 10856-002-Michigan**

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

June 1997

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SUMMARY

The Upper Peninsula Power Company (UPPCo) filed an application for an original license for an unlicensed minor project at an existing dam. The project is located in the Upper Peninsula of Michigan on the Au Train River in Alger County. The project has a rated capacity of 0.9 megawatt and produces about 5.9 gigawatt-hours (GWh) of energy annually. UPPCo is not proposing to add capacity or make any major modifications to the project. The Au Train Project does not occupy any federally-owned lands.

This environmental assessment (EA) analyzes the effects of issuing a minor license for UPPCo's continued operation of the Au Train Project. The environmental and economic effects of three alternatives are evaluated: (1) licensing the project as proposed by UPPCo; (2) licensing the project as proposed with additional enhancement measures recommended by Federal Energy Regulatory Commission (Commission) staff; and (3) taking no action on the project. The no-action alternative would consist of the project operating without a federal license, with no change to the environmental setting or project operation.

In the comprehensive development section of this EA (Section VII), we study both the environmental resource benefits and the power and economic benefits of the project. Based on that analysis, we recommend that a license for the project include the following measures:

UPPCo-Proposed Environmental Measures:

- Maintain a 200-foot buffer zone adjacent to the reservoir and river down-stream of the powerhouse on UPPCo-owned lands to minimize soil erosion and maintain aesthetic quality and wildlife resources
- Maintain a minimum continuous powerhouse discharge of 50 cfs to enhance fisheries resources in the Au Train River
- Maintain a minimum winter water elevation of 769.0 feet above local datum and a minimum summer water elevation of 772.0 feet above local datum to protect reservoir resources
- Install and fund operation of a U.S. Geological Survey (USGS) gage on the Au Train River down-stream of the powerhouse to document compliance with continuous powerhouse discharge
- Install a level sensor on Au Train basin to document compliance with basin water level restrictions

- Develop and implement a bald eagle management plan to protect and preserve critical habitat
- Construct a barrier-free viewing area and provide directional signage to Upper Au Train Falls to enhance recreational resources at the project

Additional Staff-Recommended Environmental Measures:

- Perform an annual erosion survey and report findings to the Commission every three years to minimize effects of future erosion on basin resources
- Maintain a year-round minimum reservoir elevation of 772.0 feet above local datum (773.7 feet above mean sea level) to protect bald eagle habitat from predators and recreationists
- Install a 10-cfs bypass system to maintain down-stream flows during emergency interruption of water flows to protect fisheries habitat down-stream
- Install a staff gage on the up-stream face of the dam to allow public observance of water level compliance
- Prepare a reservoir draw-down plan, to be incorporated into the operation and compliance plan, including a requirement for consultation with the Michigan Department of Natural Resources (MDNR) and the U.S. Fish and Wildlife Service (FWS) in advance of scheduled reservoir draw-downs below 772.0 feet to protect fish and wildlife resources
- Prepare an operation and compliance plan, including annual reports to the Commission and a three-year consultation/review meeting with the MDNR and the FWS, to document compliance with license conditions
- Consult with the MDNR and FWS on mutually-acceptable procedures to pass the majority of woody debris to the Au Train River down-stream of the powerhouse
- Prepare a wildlife management plan, including provisions to install an osprey platform, cooperate in brushing activities in the wildlife refuge, and participate in annual consultation with resource agencies
- Develop and adopt a plan to monitor purple loosestrife and Eurasian watermilfoil

- Install interpretive signage at Upper Au Train Falls to provide the public information about facilities and natural resources at the site
- Plant trees to screen gravel pit/storage area at Upper Au Train Falls to improve aesthetics
- Amend the fixed, 200-foot-wide shoreline buffer requirement to a variable shoreline buffer, with a target width of 200 feet
- Consult with the Michigan State Historic Preservation Officer prior to beginning construction activities to protect any cultural resources that may be discovered in the future
- Develop a recreation plan, including the recreation site on the east side of the reservoir, partial funding to the MDNR for operation and maintenance of the Forest Lake State Forest Campground, and our other recommended recreation enhancements
- Prepare a comprehensive land management plan (CLMP) to address buffer zone management and leasing policies

Overall, these enhancement and protection measures would improve fish and wildlife, recreational, and cultural resources at the Au Train Project and in the Au Train River. In addition, the electricity generated from the project would be beneficial because it would continue to reduce the use of fossil-fueled, electric generating plants, conserve nonrenewable energy resources, and reduce atmospheric pollution.

Pursuant to Section 10(j) of the FPA, we made a preliminary determination that some of the recommendations of the Department of Interior (DOI) and some of the recommendations of the MDNR may be inconsistent with the purpose and requirements of the FPA and applicable law. Section 10(j) of the FPA requires the Commission to include license conditions, based on the recommendations of the federal and state fish and wildlife agencies, for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife resources.

Because implementing all the agency recommendations taken together would have substantial adverse effects on project purposes, including economics, we looked closely at each individual recommendation to determine whether benefits to the environment would be worth the cost of implementing the measure. For the reasons discussed in Section VIII of this EA, we determined the following recommendations may be inconsistent with Sections 4(e) or 10(a) of the FPA and did not recommend adopting them: (a) install a bypass system to ensure that minimum flows

can be maintained at all times below the powerhouse; (b) maintain state water quality standards for DO and temperature; (c) develop and implement water quality monitoring; (d) develop a fish exclusion plan; (e) include all UPPCo-owned lands in a project boundary; (f) develop and implement a comprehensive land management plan for all UPPCo-owned lands; and (g) finalize the bald eagle management plan to include all UPPCo-owned lands.

Based on our independent environmental analysis, issuance of a license order approving the proposed action, with our additional environmental recommendations, is not a major federal action significantly affecting the quality of the human environment.

FINAL ENVIRONMENTAL ASSESSMENT**FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF HYDROPOWER LICENSING
DIVISION OF LICENSING AND COMPLIANCE****Au Train Hydroelectric Project
FERC Project No. 10856-002-Michigan****I. APPLICATION**

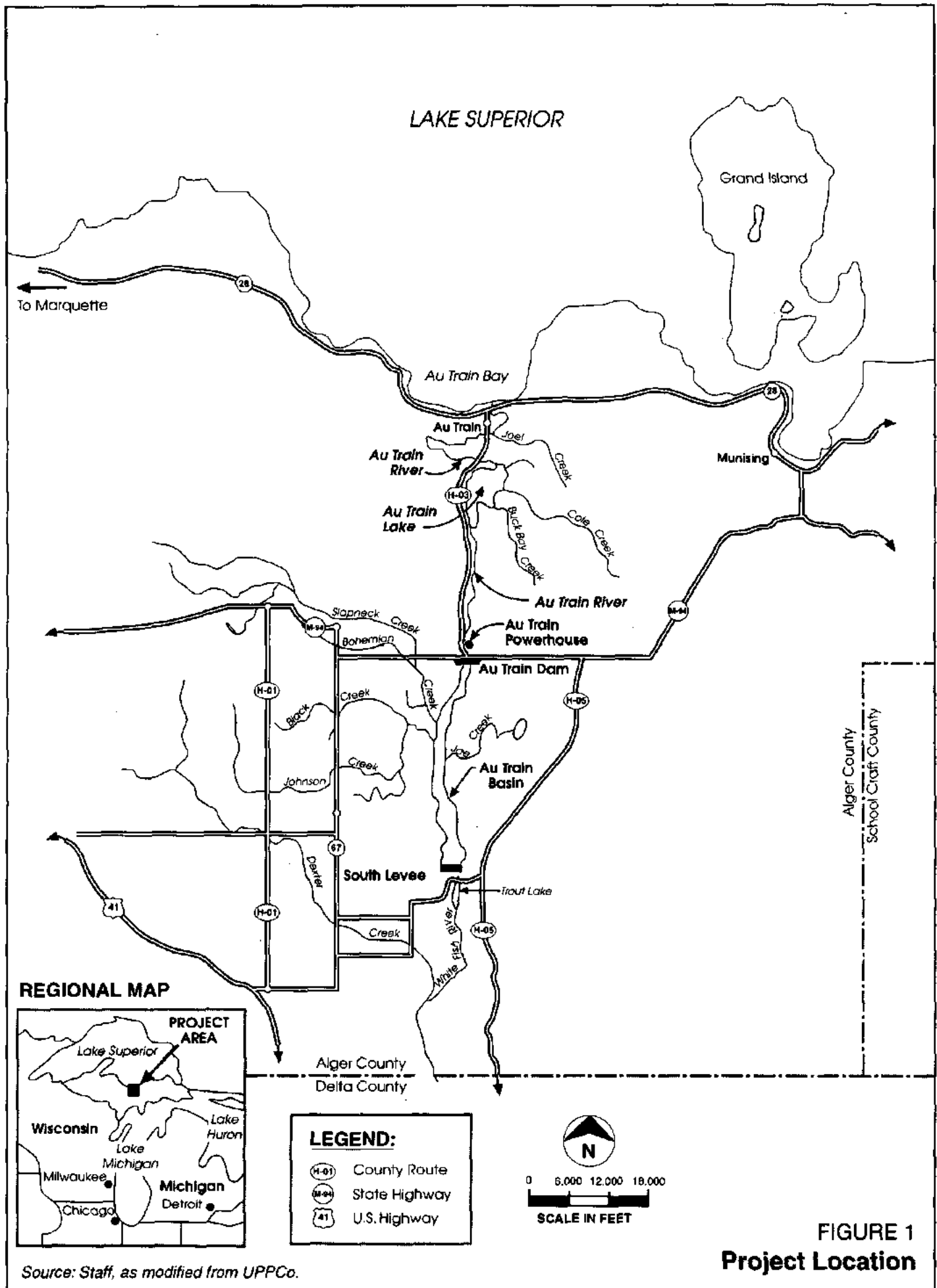
On April 30, 1993, the Upper Peninsula Power Company (UPPCo) filed an application for an original license for an unlicensed minor project at an existing dam. On November 9, 1993, and May 18, 1994, UPPCo supplemented its application by providing additional information. The project site is located on the Au Train River in Alger County on the Upper Peninsula of Michigan (Figure 1).

The project has a rated capacity of 0.9 megawatt (MW) and produces about 5.9 gigawatt-hours (GWh) of energy annually. UPPCo is not proposing to add capacity or make any major modifications to the project. The Au Train Project does not occupy any federally-owned lands.

II. PURPOSE AND NEED FOR ACTION**A. Purpose of Action**

This environmental assessment (EA) documents our analysis of the environmental impacts of issuing a minor license for the continued operation of the project, and alternatives to the proposed project. We make recommendations to the Federal Energy Regulatory Commission (the Commission) on whether to issue a license, and if so, recommend terms and conditions to become a part of any license issued. The Federal Power Act (FPA) provides the Commission with the authority to license nonfederal water power projects on navigable waterways and federal lands.

In deciding whether to issue any license, the Commission must determine that the project adopted 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, the Commission must give equal consideration to energy conservation; the protection, mitigation of damage to, and enhancement of fish and wildlife (including related spawning grounds and habitat); the protection of recreation opportunities; and the preservation of other aspects of environmental quality.



Source: Staff, as modified from UPPCo.

B. Need for Power

The Au Train Project was initially constructed by Cleveland-Cliffs Iron Company to serve the electric power needs of the Munising Paper Company. It was put in service in 1910. Electric service to the paper company was discontinued in 1917, and the plant was modified to supply power to the Cleveland-Cliffs Iron Company's mining operations. The project has operated continuously in its current configuration since 1931.

Cliffs Electrical Service Company, a subsidiary of Cleveland-Cliffs Iron Company, owned and operated the project until it was purchased by UPPCo in 1988. Since the date of purchase, UPPCo has relied upon the project for the production of electric energy for use by residents and industries in UPPCo's service area. Since 1988, UPPCo has operated the project in a modified run-of-river mode, with a winter draw-down and a late summer/early fall draw-down to provide a continuous powerhouse discharge.

To assess the need for power, we reviewed UPPCo's use of the project power to date and in the future, together with that of the operating region in which the project is located.

The Au Train Project is located in the Mid-America Interconnected Network (MAIN) Region of the North American Electric Reliability Council (NERC). NERC annually forecasts electrical supply and demand in the nation and the region for a 10-year period. NERC's most recent report (*Electric Supply and Demand 1995-2004, Summary of Electric Utility Supply and Demand Projections*, June 1995) on annual supply and demand projections indicates that for the period 1995-2004, loads in the MAIN region will keep pace with planned capacity additions, resulting in unchanged reserve margins. These margins, though relatively stable, will remain below 20 percent throughout the forecast period.

The rated capacity of the Au Train Project, at a power factor of 0.8, is 0.896 MW. The Au Train Project has historically generated an annual average of 5.9 GWh of power. In addition, the project displaces nonrenewable fossil-fired generation and contributes to diversification of the generation mix in the MAIN area.

We conclude that present and future use of the project's power, its low cost, its displacement of nonrenewable fossil-fired generation and contribution to a diversified generation mix support a finding that the power from the Au Train Project will help meet a need for power in the MAIN area in the short- and long-term.

III. PROPOSED ACTION AND ALTERNATIVES

A. Applicant's Proposal

1. Project Description

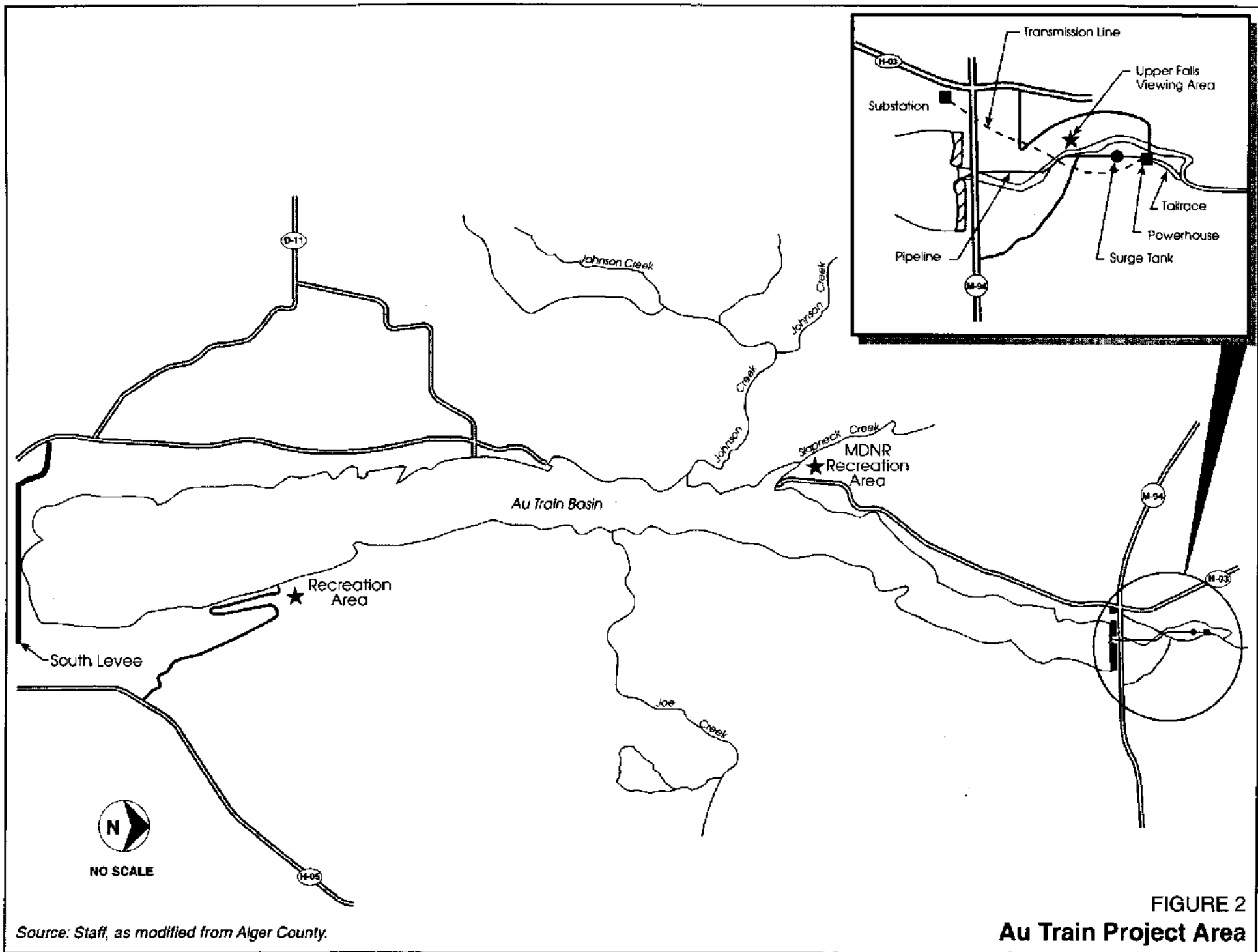
The Au Train Project is located in the central portion of Michigan's Upper Peninsula about 7 miles south of the town of Au Train, Michigan, and about 15 miles southwest of Munising, Michigan. The Au Train River flows in a northerly direction from the dam to Au Train Lake about 6 river miles down-stream. The powerhouse discharge bypasses 0.7-mile of the Au Train River. The bypassed reach contains two waterfalls; only dam leakage and groundwater seeps provide flow to this reach. Au Train Lake, which is not a part of the Au Train Project, is a natural lake providing a variety of recreational opportunities for the resort community along the lake shore. From the outlet at the north end of Au Train Lake, the Au Train River meanders about 8.5 miles north to Lake Superior.

The Au Train Project includes the Au Train dam, its impoundment (known as Au Train basin), and accompanying penstock, powerhouse, discharge point, and down-stream bypassed reach (Figure 2).

Specifically, the project consists of the following:

- A 1,500-foot-long earth embankment diversion dam having a maximum height of 38 feet at an average crest elevation of 788.7 feet above local datum¹;
- A 100-foot-long concrete overflow spillway section with a maximum height of 29 feet, located in the center of the earth embankment having a crest elevation of 778.0 feet above local datum, topped with ten 10-foot-wide by 2-foot-high wooden flashboards;
- An earth-filled dike located at the south end of the project basin (referred to as the south levee) that is designed as a non-overflow structure about 4,500 feet long and a maximum height of 15 feet, having an average crest elevation of 788.4 feet above local datum;
- A basin having a surface area of 1,557 acres at elevation 780.0 feet above local datum, a gross storage capacity of about 12,342 acre-feet, and a usable storage capacity of 12,180 acre-feet (to a draw-down of 764.0 feet above local datum);

¹ Local datum = mean sea level (msl) - 1.27 feet. All elevations in this document are referenced to local datum.



Source: Staff, as modified from Alger County.

FIGURE 2
Au Train Project Area

- A 5.5-foot-diameter, 2,516-foot-long steel pipeline with stoplogs, trashrack, and butterfly valve connecting to a 10-foot-diameter exposed steel surge tank connected to the penstock up-stream of the powerhouse;
- A 37.5-foot-long by 32-foot-wide by 22-foot-high powerhouse located on the east bank of the river, equipped with two horizontal Francis-type turbines having a total of 1,600 horsepower, a capacity of 1,120 kVa, hydraulic capacity range of about 50-136.5 cubic feet per second (cfs), average net head of 124 feet, and a power factor of 80 percent;
- A 500-foot-long unlined tailrace channel having a normal tailwater elevation of 648.19 feet above local datum;
- A 3-phase, 2.3-kilovolt (kV), 2,500-foot-long overhead transmission line; and
- Appurtenant facilities.

UPPCo proposes no major construction. UPPCo proposes to operate the project in a modified run-of-river mode (non-peaking), providing a constant powerhouse discharge with a late winter draw-down and gradual summer drafting of the basin. The proposed mode of operation would have the effect of shifting higher stream flows from early spring to summer, and from late fall to winter.

2. UPPCo-Proposed Environmental Measures

UPPCo proposes the following measures to enhance environmental resources:

- Maintain a 200-foot buffer zone adjacent to the reservoir and river down-stream of the powerhouse on UPPCo-owned lands
- Maintain a minimum continuous powerhouse discharge of 50 cfs
- Maintain a minimum winter reservoir elevation of 769.0 feet above local datum and a minimum summer reservoir elevation of 772.0 feet above local datum
- Install and fund operation of a USGS gage on the Au Train River down-stream of the powerhouse
- Install a level sensor on Au Train basin

- Develop and implement a bald eagle management plan
- Construct a barrier-free viewing area and provide directional signage to Upper Au Train Falls

B. Staff-Recommended Enhancement Measures

An alternative to licensing the project as proposed is to license the project with additional measures for resource protection and enhancement. In addition to UPPCo's environmental measures, we recommend the following measures:

- Perform an annual erosion survey and report findings to the Commission every three years to minimize effects of future erosion on basin resources
- Maintain a year-round minimum reservoir elevation of 772.0 feet above local datum (773.7 feet above mean sea level) to protect bald eagle habitat from predators and recreationists
- Install a 10-cfs bypass system to maintain down-stream flows during emergency interruption of water flows to protect fisheries habitat down-stream
- Install a staff gage on the up-stream face of the dam to allow public observance of water level compliance
- Prepare a reservoir draw-down plan, to be incorporated into the operation and compliance plan, including a requirement for consultation with the Michigan Department of Natural Resources (MDNR) and the U.S. Fish and Wildlife Service (FWS) in advance of scheduled reservoir draw-downs below 772.0 feet to protect fish and wildlife resources
- Prepare an operation and compliance plan, including annual reports to the Commission and a three year consultation/review meeting with the MDNR and the FWS, to document compliance with license conditions
- Prepare a reservoir draw-down plan, to be incorporated into the operation and compliance plan
- Consult with MDNR and FWS to develop mutually-acceptable procedures to pass the majority of woody debris to the Au Train River down-stream of the powerhouse
- Prepare a wildlife management plan, including provisions to install an osprey platform, cooperate in

brushing activities in the state wildlife refuge located at the upper end of the reservoir, and participate in annual consultation with resource agencies

- Develop and adopt a plan to monitor purple loosestrife and Eurasian watermilfoil
- Install interpretive signage at Upper Au Train Falls to provide the public information about facilities and natural resources at the site
- Plant trees to screen gravel pit/storage area at Upper Au Train Falls to improve aesthetics
- Amend the fixed, 200-foot-wide shoreline buffer requirement to instead recommend a variable shoreline buffer with a target width of 200 feet
- Consult with Michigan State Historic Preservation Officer (SHPO) prior to beginning construction activities to protect any cultural resources that may be discovered in the future
- Develop a recreation plan, including the recreation site on the east side of the reservoir, partial funding to the MDNR for operation and maintenance of the Forest Lake State Forest Campground, and our other recommended recreation enhancements
- Prepare a comprehensive land management plan (CLMP) to address buffer zone management and leasing policies

Our reasons for adopting these recommendations are explained in the individual resource sections of Section V-Environmental Analysis. In addition, agency-recommended enhancement measures that we do not concur with, and the reasons that we do not recommend them, are also discussed in Section V as well as Section VIII.

C. No-Action Alternative

If the no-action alternative is selected, the project would not be issued a license, but would continue to operate as it does now, and no new environmental protection, mitigation, or enhancement measures would be required to be implemented. We use this alternative to establish baseline environmental conditions for comparison with other alternatives.

D. Alternatives Considered but Eliminated from Detailed Study

In a letter dated September 6, 1994, the MDNR requested consideration of alternatives for federal takeover and project removal if it is determined that the project cannot meet the costs of the necessary environmental mitigation. We do not consider federal takeover, pursuant to Section 14 of the FPA, to be a reasonable alternative. Federal takeover and operation of a project is applicable to a licensed project. Since the Au Train Project is not yet licensed, federal takeover is not applicable.

Further, in its recommended terms and conditions MDNR recommended that, 10 years after licensing, UPPCo develop a plan to study the costs of permanent non-power operation or project removal in anticipation of the end of the license term or project retirement. MDNR also recommends that UPPCo establish a trust fund for project retirement at the completion of the studies. However, MDNR does not advocate dam removal/retirement at this time.

Project retirement could be accomplished in one of two ways: (1) project retirement with dam removal, and (2) project retirement without dam removal. Either method would involve denial of the license application, and would require UPPCo to secure a source of replacement power. The project would provide natural flows down-stream of the project and would allow for environmental and recreation enhancement measures. No participant has suggested that project retirement with dam removal would be appropriate at this time, and we have found no basis for recommending it.

Retaining the dam and disabling or removing equipment used to generate power is the second project retirement alternative. Project works would remain in place and could be developed as a historic site or for educational or other purposes. This would require us to identify another government agency willing and able to assume regulatory control and supervision of the remaining facilities. No agency or other participant has advocated project retirement with equipment removal at this time, nor have we found any basis for recommending it. Therefore, we eliminated project retirement from detailed study because it is unreasonable in light of the circumstances of this case.

As discussed in Section VIII of this EA, the Commission in its December 14, 1994 Policy Statement on project retirement (RM93-23-000), declined to impose a generic retirement requirement and instead decided to address the issue on a case-by-case basis. We conclude that, under the circumstances of this case, development of a plan for dam removal and establishment of a pre-retirement trust fund for the project is not warranted.

IV. CONSULTATION AND COMPLIANCE

A. Agency Consultation

The Commission issued public notice on March 3, 1994, that the project was ready for environmental analysis. The comment deadline specified in our notice was 60 days from the date of the notice (May 2, 1994). The following entities provided comments and recommended license terms and conditions. All comments become a part of the record and are considered during our analysis of the project.

<u>Commenting Entity</u>	<u>Date of Letter</u>
U.S. Forest Service, Hiawatha National Forest (USFS)	April 28, 1994
Department of Interior	April 29, 1994
Michigan Department of Natural Resources	May 3, 1994

UPPCo prepared responses to the MDNR and USFS comments, and filed them with the Commission on July 6 and 7, 1994, respectively.

B. Interventions

The USFS filed a timely motion to intervene in the proceeding on October 25, 1993. On October 27, 1993, the Department of Interior (DOI) filed a motion to intervene. On November 1, 1993, MDNR filed a motion to intervene. UPPCo did not file answers in opposition to the motions to intervene. The Commission granted intervenor status to the USFS, MDNR, and DOI. No other agency, organization, or individual filed a motion to intervene.

C. Comments on the Draft Environmental Assessment

The following respondents commented on the draft EA:

<u>Commenting Agencies</u>	<u>Date of Letter</u>
Department of Interior, Fish and Wildlife Service	7/1/96
Michigan Department of Natural Resources	8/8/96
Stone & Webster Michigan (for UPPCo)	7/5/96

D. Section 18 Fishway Prescription

DOI reserves authority to prescribe the construction, operation, and maintenance of fishways at the Au Train Project pursuant to Section 18 of the FPA.

E. Water Quality Certification

Under Section 401 of the Clean Water Act (33 U.S.C. Section 1341), license applicants must obtain either: (1) state certification that any discharge from the project would comply with applicable provisions of the Clean Water Act; or (2) a waiver of certification by the appropriate state agency. The Commission requires that applicants apply for such certification or waiver before they file their application with the Commission.

On January 27, 1993, UPPCo applied to MDNR for a Section 401(a)(1) water quality certification in a cover letter accompanying the draft license application.

Because MDNR did not deny or grant certification by 1 year after the date of the request, the agency is deemed to have waived certification for this project pursuant to the Commission's regulations at 18 CFR Section 4.38(f)(7)(ii).

F. Coastal Zone Management Act

Michigan has a federally-approved coastal zone management program administered by the Land and Water Management Division of MDNR. The area of jurisdiction for the Michigan coastal zone management program generally extends 1,000 feet up-stream of the ordinary high-water mark where a river discharges into a lake. The Au Train Project is clearly not within the 1,000-foot Michigan coastal zone management area. The Au Train Project is located about 17 miles up-stream of Lake Superior. A natural lake (Au Train Lake) is located 6 miles down-stream of the Au Train Project and 8.5 miles up-stream of Lake Superior. Au Train Lake reduced the historical impact that peaking discharges from the Au Train Project may have had on Lake Superior resources by attenuating peak flows and any rapid flow increases or decreases that occur when turbines come on- or off-line. Our recommended mode of operation, modified run-of-river with a continuous minimum powerhouse discharge, would enhance coastal resources by providing a continuous, relatively stable flow regime, which represents a significant enhancement over the historical peaking operation. In a letter to Commission staff, the Land and Water Management Division of MDNR formally stated that the Au Train Project is not within the coastal boundary and is not under the jurisdiction of the Coastal Zone Management Act (MDNR, 1995).

G. Scoping

We considered the various environmental issues raised during the license application process, and issued a Scoping Document on July 26, 1994. The Scoping Document described potentially significant environmental issues we felt should be analyzed in detail in this EA, as well as issues that should not be analyzed

because they are immaterial to the licensing decision. We received letters from UPPCo, the USFS, and MDNR in response to the Scoping Document. Comments from these entities have been considered in this EA.

The Commission's staff and representatives from the agencies and UPPCo toured the Au Train Project site on October 17, 1995.

V. ENVIRONMENTAL ANALYSIS

A. General Description of the Locale

1. Au Train Basin

The project is located on the Au Train River in Alger County, Michigan. The Au Train Project impounds the up-stream limit of the Au Train River including its original source, Mud Lake. Three tributaries, Joe Creek, Johnson Creek, and Slapneck Creek, flow into Au Train Basin. The reservoir has over 15 miles of shoreline, a total drainage area of 80.5 square miles, and is about 6.5 miles long and 0.25 to 0.5 mile wide. The project is located approximately 17 river miles up-stream of the river's mouth at Lake Superior. The southern end of the Au Train basin is impounded by an earth-filled dike, which creates the divide between the Lake Superior and Lake Michigan drainages.

The climate of the region is characterized by cold winters and moderate summers. Average minimum and maximum temperatures for July are 55°F and 80°F, respectively, and for January are 5°F and 25°F, respectively. Average annual precipitation ranges from 30 to 40 inches, and average annual snowfall varies from 54 to 240 inches. Snow cover occurs for an average of 140 days normally from mid-November through late April.

Principal industries in the region are timber and mineral based, and include commercial forestry, timber harvesting, and extraction of minerals (iron-ore). Tourism is also a key industry in the region.

2. Existing and Proposed Hydropower Development

No other existing or proposed hydroelectric projects are located in the project area or vicinity.

B. Scope of Cumulative Impact Analysis

In our Scoping Document, we identified fisheries and water quality as potentially being affected cumulatively due to fluctuating reservoir surface elevations and draw-downs. Comments received on the Scoping Document agreed with this

assessment. Therefore, for fisheries and water resources, our analysis extends beyond site specifics and encompasses the mainstem Au Train River.

C. Environmental Resources

1. Geological Resources

Affected Environment: The topography of the area is dominated by large glacial outwash plains and low rolling hills or ridges with numerous scattered wet depressions (UPPCo, 1993a). The project area is underlain by sandstone and limestone bedrock. The soils are relatively young, very complex, and intermingled.

In the bypassed reach and in the 0.9-mile-segment downstream of the powerhouse, shoreline bank conditions are very stable and non-erodible. Further downstream for 1.1 miles, stream banks are highly erodible; however, banks along most of this reach are protected from erosion by vegetation.

Through the license application process, UPPCo documented three areas experiencing erosion. The first location is along a roadway leading to the informal boat launch along the east shoreline of the reservoir. The second area that experiences some erosion is the unprotected banks of the river, more than one mile downstream of the powerhouse (UPPCo, 1993b).

The third location where erosion was identified was along the powerhouse access road, in which minor slumping was identified. UPPCo reconstructed the road and repaired the embankment in 1992 (UPPCo, 1993b). Further improvements in 1994, including widening the road and installing drainage improvements, have reduced the potential for erosion and sedimentation in that area.

Environmental Impacts and Recommendations: MDNR recommends that UPPCo develop and implement a plan, in consultation with the resource agencies, to inventory, control, and repair present and future erosional sites on the reservoir and below the project, in the project influence zone, within 36 months of license issuance. MDNR states that present and past operations have caused erosion at the project.

UPPCo disagrees that an erosion plan is needed, stating that there are no significant areas of shoreline erosion within the basin, nor have erosion effects of historic peaking or current operations been identified (UPPCo, 1994b).

While erosion (shoreline or otherwise) can be caused by project-related activities, it can also be caused by natural phenomena such as wind-driven wave action against the shore, run-

off from steep terrain during storms, and loss of vegetation due to fire and other natural causes. During the site visit to the project, staff observed no project-induced shoreline erosion. Further, UPPCo's proposal to operate the project in a modified run-of-river with a winter draw-down and continuous discharge of 50 cfs from the powerhouse should minimize potential down-stream erosion. UPPCo's proposed winter draw-down allows it to capture spring flood flows, thereby reducing the potential for flood-flow related erosion down-stream. Managing impoundment level fluctuations, draw-downs, and refills should minimize the impact of project operation on potential future streambank erosion.

However, because UPPCo has documented several areas of erosion in the past, we conclude that future periodic inspections for erosion are warranted. We recommend that UPPCo inspect the reservoir shoreline and the Au Train River down-stream of the project on UPPCo-owned lands annually for erosion and report its findings to the Commission every 3 years to ensure that erosion that develops in the future does not adversely affect project resources. If specific areas of active shoreline erosion are identified, we recommend that UPPCo include methods and a schedule to repair the site in a report to the Commission.

Unavoidable Adverse Impacts: There may be some minor, short-term increases in erosion and sedimentation associated with the construction of recreation facilities. However, this is not expected to appreciably affect water quality in the reservoir or tailrace. Other minor, natural erosion would continue along the banks of the Au Train River.

2. Water Resources

Affected Environment:

a. Water quantity

The Au Train basin is located in the middle region of Michigan's Upper Peninsula in a relatively small, low-relief watershed that drains to Lake Superior (Figure 1). The contributing watershed has an area of 80.5 square miles. Local springs and three tributary streams (Joe Creek, Johnson Creek, and Slapneck Creek) contribute flow to the Au Train basin.

The Au Train basin is approximately 6.5 miles long and varies from 0.25 to 0.5 mile wide. At full pool (elevation 780 feet above local datum), the basin has an average depth of 8 feet, maximum depth of 28 feet, a surface area of 1,557 acres, and a volume of approximately 12,342 acre-feet. The active storage capacity above the current minimum draw-down elevation of 764 feet above local datum is approximately 12,180 acre-feet (UPPCo, 1993a).

The Au Train River originates just below the dam and flows 17 miles north through Au Train Lake to its discharge into Lake Superior. Water from the Au Train basin is discharged to the Au Train River about 0.7 mile down-stream of the dam. The bypassed reach of the Au Train River, between the dam and the powerhouse, has no direct flow discharges. However, dam leakage and accretion account for a 5- to 12-cfs flow in this reach. UPPCo's primary flow considerations in the Au Train River down-stream of the basin discharge are protection of the stream fishery (primarily trout and steelhead) and maintenance of the Au Train Lake water level.

UPPCo calculated basin inflow data for the period 1980 to 1990 based on turbine performance characteristics, daily power production, and reservoir elevations (Table 1).

Table 1. Estimated inflows, 1980-1990 (Source: UPPCo, 1993).

Month	Estimated Percent Exceedance Flows (cfs)				
	10%	30%	50%	70%	90%
Jan	90	64	56	48	36
Feb	82	57	45	35	28
Mar	220	80	50	35	25
Apr	600	350	240	170	120
May	225	125	90	65	40
Jun	150	70	60	35	20
Jul	70	45	35	30	25
Aug	57	37	28	23	16
Sep	100	47	36	30	21
Oct	130	70	60	40	30
Nov	210	115	85	55	40
Dec	138	95	70	50	37

The 1980 to 1990 period includes dry, average, and wet periods and thus is representative of the natural hydrologic regime. The calculated flows reveal a typical seasonal pattern for an upper Midwest stream—with an inflow pattern of low winter flows, a spring snowmelt peak, decreasing flows during the summer, and a fall peak associated with rainstorms (Figure 3). UPPCo estimates that from 1980 to 1990, average monthly inflows ranged from 35 to 310 cfs, with a mean annual basin inflow of 91 cfs.

Figure 4 presents the calculated mean annual inflow duration curve for the Au Train basin, based on 1980 to 1990 data.

The minimum powerhouse discharge is 50 cfs (1 unit at 60 percent gate) and the maximum powerhouse capacity is 136.5 cfs (2 units at full gate). UPPCo states that under normal conditions, all flow is discharged through the powerhouse (UPPCo, 1993a). Spill events occur when inflow exceeds 136 cfs and the basin is

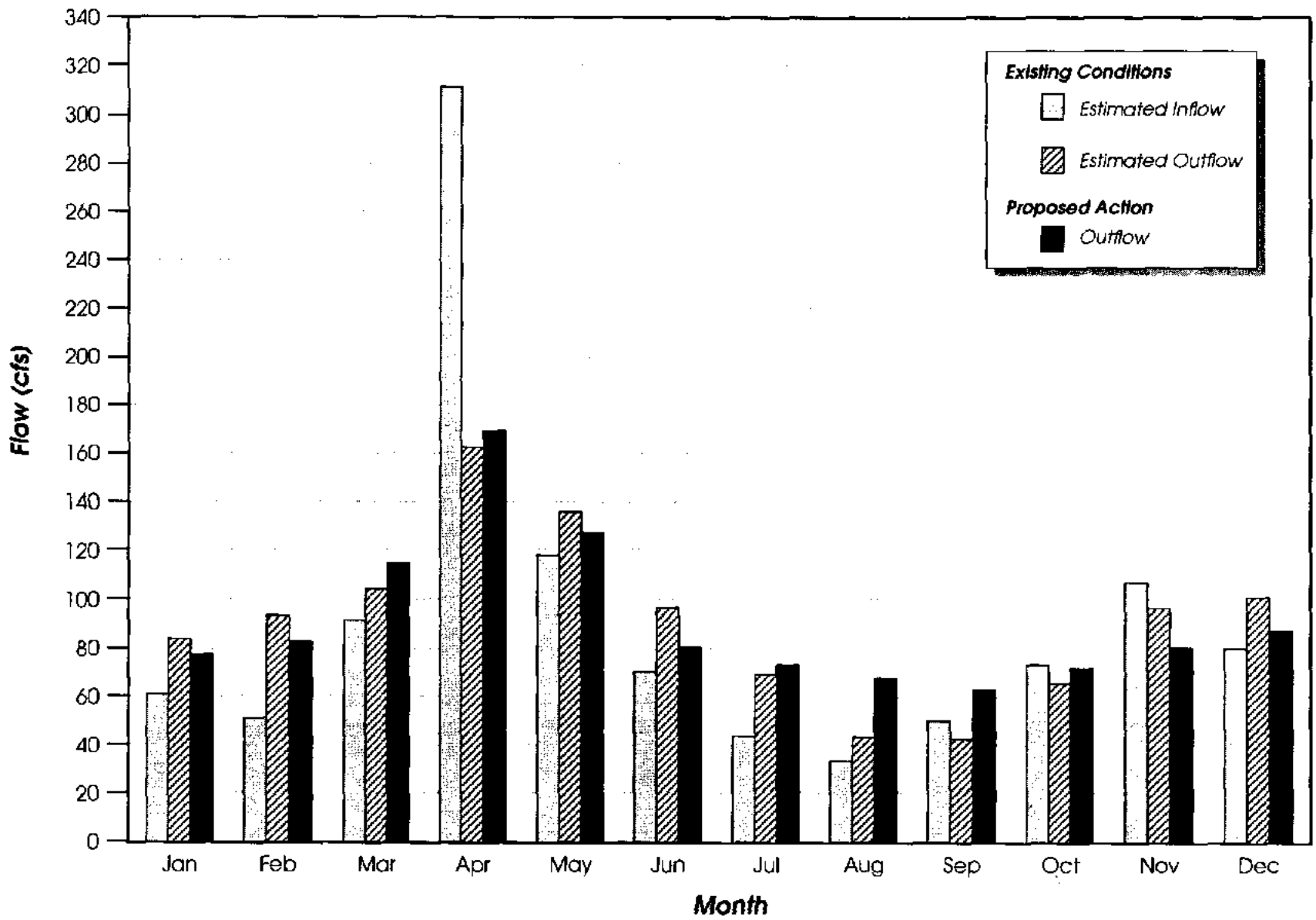


FIGURE 3
Au Train Basin
Estimated Monthly Flows

Source: Staff, as modified from UPPCo.

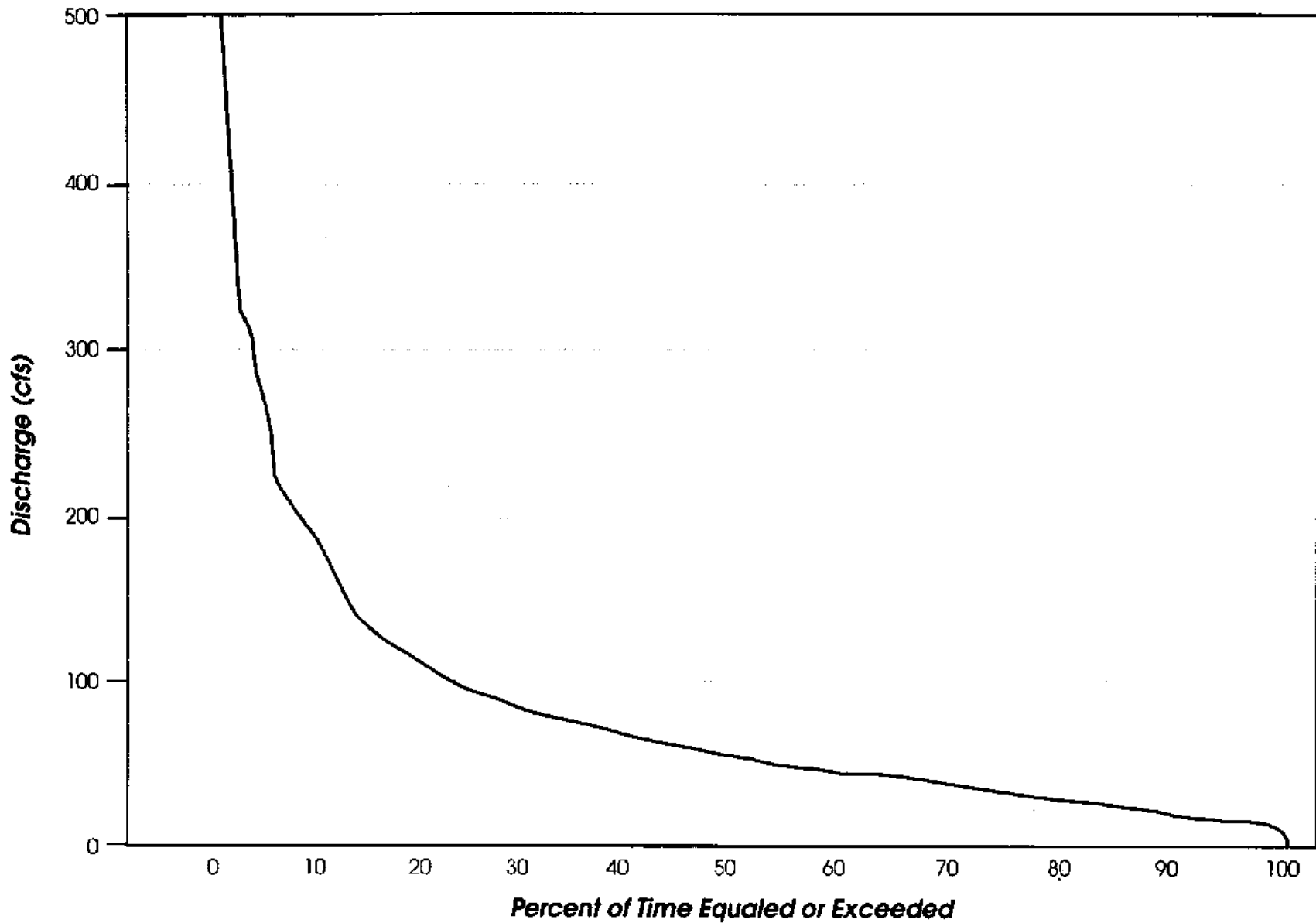


FIGURE 4
Au Train Basin
Inflow Duration Curve

Source: Staff, as modified from UPPCo.

full (primarily springtime). Based on UPPCo estimates, approximately 20 spills at an average rate of 104 cfs occurred per year under historical operations.

b. Water Quality

The Au Train basin is designated a warmwater fishery. Michigan's monthly maximum temperature standards for a warmwater fishery range from 38°F in January to 83°F in July. The minimum dissolved oxygen (DO) standard for warmwater fisheries is 5.0 mg/l (Michigan Administrative Code, 1986).

Water temperature data collected by UPPCo at one station near the Au Train dam from April 1991 to January 1992 indicate that the basin meets warmwater temperature standards. The highest basin water temperature sampled in July 1991 was 79°F. Temperature and DO monitoring data in the basin showed that the Au Train basin is weakly stratified. Dissolved oxygen concentration in the basin was above 6.0 mg/l over most of the water column, but below the 5.0 mg/l standard between 4 to 5 meters (13 to 16 feet) depth during the July 1991 sampling. The minimum reliable DO value reported by UPPCo was 3.0 mg/l at the reservoir bottom. Quarterly data that UPPCo collected in 1991-92 show that DO in the basin is generally above 7.0 mg/l in fall, winter, and spring.

The Au Train River, from the Au Train dam to just up-stream of Au Train Lake, is a state-designated trout (coldwater) stream. Michigan's monthly maximum temperature standards for coldwater streams vary from 38°F in January to 68°F in June through August.

The Michigan DO standard for coldwater trout streams is 7.0 mg/l (Michigan Administrative Code, 1986). In addition, Michigan coldwater standards preclude the release of heated discharges that would warm a stream more than a monthly average of 2°F over water temperatures up-stream of the discharge.

UPPCo's 1991 water quality data for the Au Train River at two locations down-stream of the dam show that river temperatures exceeded maximum coldwater temperature standards in June, July, and August. The highest daily average temperature during continuous monitoring in the summer of 1991 was 75°F in July; the average of all daily maximum temperatures in July 1991 was 71°F. Similarly, measured DO in the river fell below the minimum coldwater DO standard. The lowest daily minimum DO measured in the summer of 1991 was 5.25 mg/l. Over half of the daily minimum DO values and 27 percent of the daily average DO values from June through September 1991 were below 7.0 mg/l. UPPCo's temperature and DO data indicate that management of the river for a coldwater fishery may be marginal in the river immediately down-stream of the powerhouse.

River and basin heavy metal water quality data collected by UPPCo in 1991-92 were within background levels for Upper Peninsula lakes, according to MDNR. Samples from both the basin and the river met Michigan water quality standards and were at levels appropriate for its designated use for conventional parameters during the 1991-92 sampling period (UPPCo, 1993a).

Environmental Impacts and Recommendations:

a. Basin water levels

Since UPPCo purchased the Au Train Project in 1988, it has been operated in a modified run-of-river mode with a winter draw-down and late summer/early fall draw-downs as necessary to maintain a continuous minimum discharge from the powerhouse. UPPCo proposes to continue this type of operation with slight modifications to allow for a more gradual winter draw-down, less allowable draw-down year-round, and higher basin water levels in spring and early summer. UPPCo modeled its proposed operations based on hydrologic conditions for the 1980-1990 period. The modeling results show that, under average hydrologic conditions, the basin would fill to elevation 780 feet by May 1 and then gradually be drawn down to elevation 776 feet by October 1. After a slight refill of about 1 foot by the end of December, UPPCo would draw down the reservoir to about 773 feet by the end of March (Figure 5). UPPCo's model predicted that in the driest year of the 1980-1990 period, the basin would be drawn down to an elevation of 771 feet at the end of March and refill to 776 feet by May 1 (Table 2). UPPCo proposes an absolute minimum elevation of 769.0 feet in winter and 772.0 feet in summer, with consultation occurring with the resource agencies when the basin is drafted below 774.0 feet and hydrologic conditions make it likely to reach 772.0 feet.

MDNR recommends that UPPCo maintain target and minimum elevations in the reservoir, as shown in Table 2. The target elevations vary by month, ranging from 780.0 feet for May-July (no allowable draw-down) to 775.0 feet in March and April (5-foot draw-down). Minimum elevations range from 779.0 feet for May-July to 774.0 feet for March and April (Table 2). MDNR further recommends that UPPCo notify the MDNR, USFS, and FWS within 7 days of when the reservoir water level falls below, or is anticipated to fall below, the target elevation. At the agencies' request, UPPCo also must provide an opportunity for a consultation meeting to review the need for falling below the target elevations and consider alternative operating scenarios to protect and enhance the Au Train basin. MDNR further recommends that at no time should the impoundment elevations fall below the minimum recommended levels (Table 2). In comments on the draft EA, MDNR clarified its position by stating that it would give primary consideration to down-stream flows rather than reservoir elevations if a conflict arose.

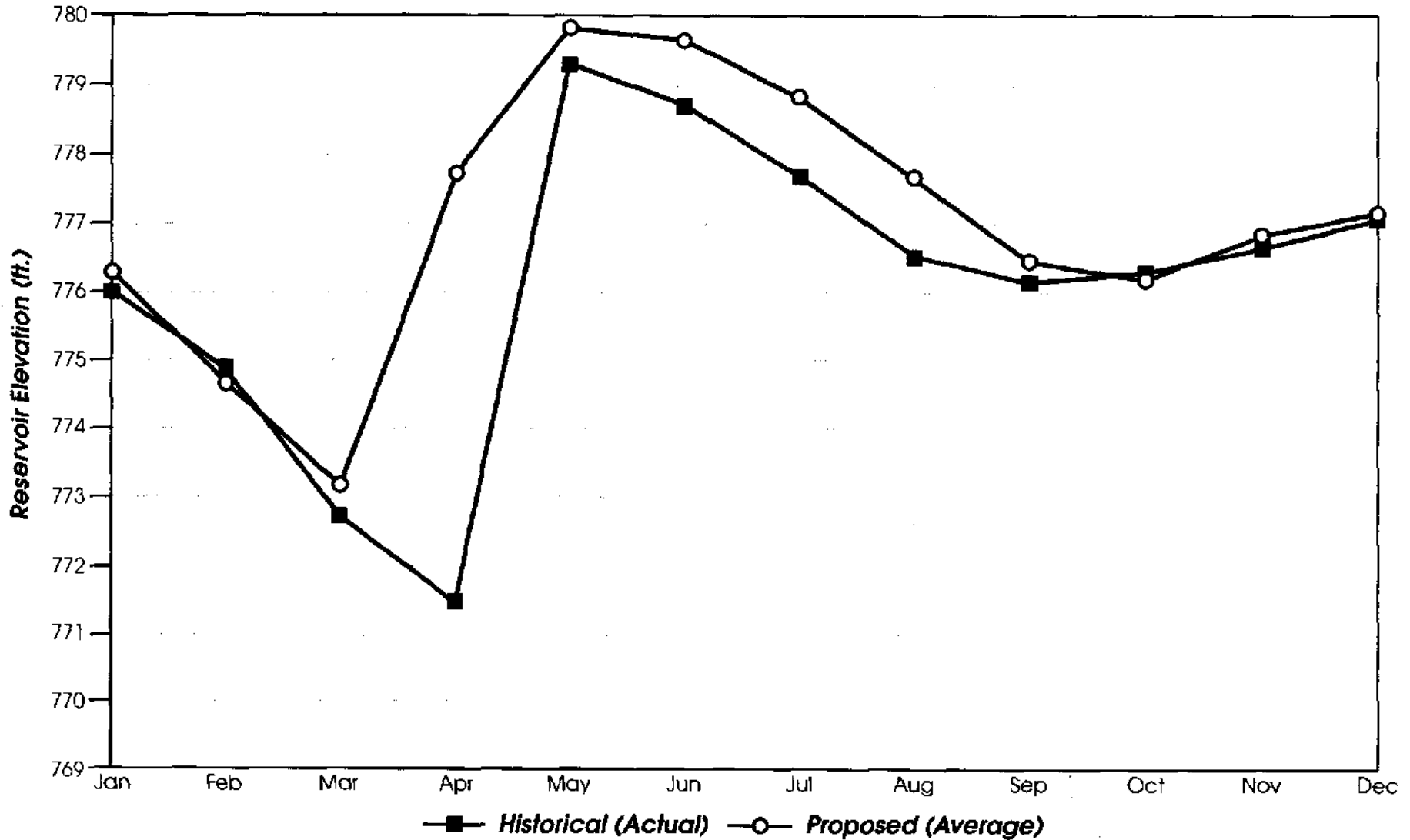


FIGURE 5
Au Train Basin
Average Monthly Reservoir Elevations

Source: Staff, as modified from UPPCo.

USFS recommends that UPPCo maintain target and minimum elevations shown in Table 2 to protect the resources of the Au Train reservoir. USFS' recommended target and minimum elevations are the same as MDNR's recommended levels. USFS states that the minimum levels are the minimum necessary to protect and enhance the reservoir fishery. According to the USFS, the minimum level would also protect the eagle nest tree island from access by recreational vehicles and predators.

DOI recommends that UPPCo operate the project as UPPCo proposes, with the additional constraint of no winter draw-down. DOI recommends that UPPCo maintain basin water elevations during March and April at 776.5 feet. DOI states that a winter draw-down and the associated rising water levels in the spring would adversely affect nesting waterfowl if water levels are not stable by April 1. Further, DOI states that the unnaturally high river flows associated with the winter draw-down could adversely affect riverine habitat. DOI also recommends that UPPCo not lower the basin water level below 772.0 feet at any time to prevent access by recreational vehicles and predators to the bald eagle nest tree island.

The Au Train Project area offers important nesting and foraging areas for the bald eagle. The area has supported nesting eagles since the 1940s. Maintaining a minimum elevation of 772.0 feet would protect the bald eagle nest tree island from recreation vehicles and predators. Based on our review of UPPCo's modeling, we conclude that UPPCo could maintain an absolute minimum water level of 772.0 feet year-round and still provide a continuous minimum powerhouse discharge of 50 cfs.

Under UPPCo's modeling of its proposed operating plan, the lowest basin water level in March and April would be 771.0 feet. This low water level is associated with the winter draw-down, which is conducted to maximize capture of spring runoff. Limiting draw-down to an elevation of 772.0 feet would not affect maintenance of the continuous minimum powerhouse discharge, but it would reduce UPPCo's generation and increase the frequency of spills slightly in some years. We conclude that protecting important bald eagle habitat can be effectively achieved with minimum loss of power and minor increase in spill frequency. Therefore, we recommend that UPPCo maintain an absolute minimum water level of 772.0 feet year-round, rather than a minimum winter elevation of 769.0 feet.

We recognize DOI's concern for nesting waterfowl during UPPCo's proposed reservoir refill (hence, DOI's recommendation for higher reservoir levels in March and April). However, there is no evidence that the winter draw-down adversely affects nesting waterfowl in early spring. According to DOI, the Au Train basin produces at least 200 young ducks and geese annually (DOI, 1994). However, UPPCo recorded no waterfowl nests

or broods during field studies from late April to September 1991. UPPCo states that this may be because the Au Train basin lies outside of the major flyways for geese and dabbling ducks (UPPCo, 1993a). However, MDNR states that the flyways are directly adjacent to or over the project and that a small distance (5 to 10 miles) from a flyway is not significant (MDNR, 1996).

Table 2. Recommended and proposed basin elevations (sources: MDNR, 1994; USFS, 1994; DOI, 1994; UPPCo, 1993a).

Month	MDNR and USFS		DOI	UPPCo Proposal	
	Target Elevation	Minimum Elevation		Lowest Modeled ¹	Absolute Minimum ²
January	777.0	776.0	772.0	774.1	769.0
February	776.5	775.5	772.0	773.0	769.0
March	775.0	774.0	776.5	771.0	769.0
April	775.0	774.0	776.5	771.3	769.0
May	780.0	779.0	772.0	776.2	772.0
June	780.0	779.0	772.0	775.4	772.0
July	780.0	779.0	772.0	774.9	772.0
August	778.5	778.0	772.0	775.5	772.0
September	777.0	776.0	772.0	774.4	772.0
October	776.5	776.0	772.0	774.4	772.0
November	776.5	776.0	772.0	775.0	772.0
December	777.5	777.0	772.0	775.0	772.0

¹UPPCo modeled its proposed conditions on 1980-1990 hydrologic conditions. These are the lowest monthly elevations predicted by the model and represent the lowest elevation that would be expected if future conditions are similar to conditions during 1980-1990.

²UPPCo proposed an absolute minimum elevation of 769 feet for winter and 772.0 for summer, without specifying the definition of winter or summer. We assumed, based on UPPCo's proposed operating scenario, that January-April would define winter.

The Au Train basin has historically been drawn down in winter with no apparent adverse effect on waterfowl populations or on riverine habitat down-stream. Historically, the basin water level rose an average of 8 feet during the April refill. UPPCo's proposed operation would result in an earlier refill so that water levels would rise an average of only 2 feet during the month of April, as shown in Figure 5. Waterfowl breeding, if it does occur in the basin, would be enhanced under UPPCo's proposed operations compared to historical conditions. Therefore, although we agree that a high and stable water elevation would be optimal for waterfowl breeding, we conclude that UPPCo's proposed operation provides a significant enhancement over historical conditions by providing higher and more stable water levels.

Therefore, we do not concur that DOI's recommended higher water level in March and April is necessary to protect waterfowl and other aquatic resources in the reservoir.

MDNR and USFS state that their proposed winter draw-down levels would protect overwintering fish and other wildlife. MDNR and USFS note that at an elevation of 771.0 feet, the mean depth in the basin is only 2.2 feet and with average ice thickness of 2 feet in the winter, leaving very little water under the ice to protect fish habitat. MDNR and USFS recommend an absolute minimum water level of 774.0 feet in the winter, which would provide a mean water depth of 4.6 feet.

Although the mean depth in the basin at elevation 772.0 is 2.8 feet, the maximum depth at the basin's deepest point would be 20 feet. We conclude that the basin fish that overwinter probably seek the deepest portion of the basin and survive even though the mean depth in the reservoir appears very small. There has been no record of winter fish kills occurring at the basin even with historical draw-downs much greater than UPPCo proposes. It is possible, however, that some characteristics of the fish population such as species mix and fish growth are affected by the winter draw-down. The agencies present no evidence that the current winter draw-down has negatively affected fish or wildlife resources in the basin.

MDNR and USFS state that their recommended summer water levels would protect fish recruitment, bald eagle foraging areas, recreational use, and waterfowl nesting habitat. UPPCo's proposed operating regime follows the general agency recommendation for decreased winter draw-down over historic conditions. UPPCo's proposed controlled summer basin draw-down normally would begin in late July or August, and thus would not negatively affect fish spawning and rearing, which occur in the late spring and early to mid-summer. Some centrarchid spawning also may occur as late as July. However, UPPCo's proposed draw-down rate of approximately one foot per month during this period should be sufficient to protect any nests built by late-spawning fish. UPPCo's proposed summer draw-down would also not affect waterfowl nesting, which occurs in the late spring. The summer draw-down would reduce the area of aquatic vegetation in the basin. However, the need for vegetated areas as nursery sites for young-of-year fish diminishes throughout the summer.

Based on our analysis, we recommend that UPPCo operate the Au Train Project as it proposes (modified run-of-river with a winter draw-down), with the exception of maintaining an absolute minimum elevation of 772.0 feet year-round. We do not recommend the agency-proposed minimum water levels and thus do not concur with the need for consultation when the basin water level reaches the MDNR and USFS recommended target elevations.

We recommend that UPPCo conduct a steady draw-down of the reservoir in the winter and draw the reservoir down at other times of the year only to provide a continuous minimum powerhouse discharge, as recommended in the following section. We further recommend that UPPCo not use the allowable draw-down for peaking purposes.

Our recommended operating plan represents an enhancement over historical conditions, in that the reservoir would be held an average of one foot higher, bald eagle habitat would be protected, and down-stream aquatic and recreational resources would benefit from a continuous reliable flow in the Au Train River.

b. Minimum Flows

USFS and DOI recommend that UPPCo maintain a continuous minimum discharge of 50 cfs from the Au Train powerhouse. MDNR recommends that UPPCo attempt to maintain target discharges that vary by month, ranging from 50 to 100 cfs; and maintain at all times minimum discharges that also vary by month, ranging from 50 to 70 cfs (see Table 3). MDNR states that its recommended minimum flows are designed to optimize habitat for as many species and life stages of fish as possible in the Au Train River. MDNR also recommends that UPPCo not operate the project in a peaking mode and provide a stable daily flow such that the flow does not differ from the previous day's flow by more than 20 percent, except in emergency conditions. MDNR further recommends that anytime UPPCo releases or anticipates releasing flows less than the target minimum flow, UPPCo notify MDNR, USFS, and FWS within 7 days prior to an anticipated occurrence and, if the agencies request, provide an opportunity for a consultation meeting to review the need for releasing flows less than the target minimum flow and consider alternative operating scenarios to protect and enhance the Au Train River. MDNR recommends that UPPCo file the results of any such meetings with the Commission within 7 days of the meeting.

UPPCo proposes to provide a continuous powerhouse discharge of 50 cfs or more (up to the maximum capacity of 136 cfs). UPPCo proposes to give priority to maintaining a 50-cfs minimum powerhouse discharge over minimum basin water levels.

Although there is no existing or proposed continuous discharge to the bypassed reach of the Au Train River (between the dam and powerhouse), we do not foresee any impacts on fish in the bypassed reach due to proposed operations. Because of its high gradient, the bypassed reach has numerous fish migration barriers and extremely limited potential for fish rearing. Dam leakage provides a constant flow of 5 to 12 cfs in the bypassed reach, which maintains a wetted environment for any aquatic life that reside there.

Table 3. Recommended and proposed minimum flows through the powerhouse (sources: USFS, 1994; DOI, 1994; MDNR, 1994; UPPCo, 1993a).

Month	USFS, DOI Recommendation (cfs)	MDNR Recommendation		UPPCo Proposal (cfs)
		Target Discharge (cfs)	Minimum Discharge (cfs)	
January	50	70	50	50
February	50	70	50	50
March	50	70	50	50
April	50	70	50	50
May	50	70	50	50
June	50	70	50	50
July	50	50	50	50
August	50	50	50	50
September	50	50	50	50
October	50	100	70	50
November	50	70	50	50
December	50	100	70	50

Flows can be released through the powerhouse at a rate of approximately 50 to 69 cfs (one turbine) or at 100 to 136 cfs (two turbines). The actual flow that is discharged would depend on the water level in the reservoir and the turbine setting. Therefore, consistent minimum flows of 70 cfs, as MDNR recommended, are not possible with existing equipment. With UPPCo's limited ability to regulate flows between one and two turbine operation, continuous minimum flows must be either 50 or 100 cfs. Based on our review of the habitat-discharge relationships that UPPCo developed in its instream flow study, we conclude that a 50-cfs minimum discharge, supplemented with leakage and accretion, would significantly enhance rearing conditions for the various salmonid species that inhabit the Au Train River compared to historic operation where powerhouse discharge was occasionally terminated.

The agencies provided no evidence that holding the reservoir higher in the summer and fall would allow UPPCo to maintain a continuous flow through the powerhouse of at least 50 cfs. Our review of UPPCo's modeling suggests that MDNR and USFS' recommendations for higher basin levels and higher minimum powerhouse discharges are infeasible. For example, the MDNR and USFS recommendation for a target elevation of 780.0 feet for May-July would permit no allowable draw-down. UPPCo's estimated

inflow data show that in July average inflow is only 44 cfs; all three months (May-July) have occurrences of daily average flows less than 50 cfs. Therefore, some draw-down would be necessary to maintain either UPPCo's or the agencies' recommended continuous minimum flow through the powerhouse. We conclude that MDNR's recommended minimum flows are not operationally possible or compatible with our recommended minimum basin levels. Therefore, we conclude that a continuous minimum flow of 50 cfs is reasonable, feasible, and protective of the down-stream resources. Because we do not concur with MDNR's recommended minimum target discharges, we also do not concur with the need for consultation for discharges below those targets.

MDNR's recommendation that powerhouse discharge cannot change more than 20 percent on a day-to-day basis is inconsistent with its water level and minimum flow recommendations. Daily inflow variances commonly exceed 20 percent. Switching from one turbine generation to two turbine generation would also exceed a 20-percent change. In its justification for this recommendation, MDNR states that compliance with a strict run-of-river operation is critical to protect down-stream resources. MDNR has not recommended a strict run-of-river operation, but rather a modified run-of-river operation based on allowable water levels and minimum powerhouse discharges. The 20-percent limit recommendation is in direct conflict with all proposed and recommended operating plans for this project. Therefore, we do not concur with this recommendation.

MDNR, USFS, and DOI's recommendations for maintaining absolute minimum elevations and providing continuous minimum flows are in conflict. UPPCo proposes to give priority to maintaining minimum flows below the powerhouse and allowing draw-downs as necessary to maintain them. It is clear from a review of UPPCo's operations modeling that both sets of recommendations cannot be achieved at all times. In comments on the draft EA, MDNR clarified its position by stating that it would give primary consideration to down-stream flows rather than reservoir elevations if a conflict arose.

Historically, the emphasis of Au Train Project operation from both UPPCo's and agencies' perspectives has been on augmenting down-stream flows. We agree that this should continue to be the priority at the project. Salmonid fish populations in the Au Train River would be more responsive to changes in streamflow than the reservoir fisheries would be to changes in reservoir elevation. Based on current diversity and abundance, other wildlife and vegetation resources have not suffered adverse effects due to the historical reservoir fluctuations. We, therefore, recommend that UPPCo operate the Au Train Project with a continuous minimum powerhouse discharge of 50 cfs. We do not agree that consultation is necessary when the basin level reaches

774.0 feet because this is within the recommended draw-down that we concluded has no significant impacts on reservoir resources.

c. Draw-downs

MDNR recommends that UPPCo notify MDNR at the earliest possible opportunity, but no later than 24 hours following any proposed or already-enacted emergency flowage draw-down performed to prevent dam failure and/or imminent risk to public health and safety. MDNR further recommends that UPPCo consult with MDNR in determining the amount, if any, of resource damage and the appropriate response measures. After the emergency has passed, MDNR recommends that UPPCo consult with MDNR on the proposed remedial measures, mitigation, and appropriate methodology and timing of the flowage level restoration. MDNR further recommends that, within 30 days of the emergency, UPPCo consult with MDNR and submit a report to MDNR describing the emergency, the action taken, remedial measures proposed, mitigation proposed, and measures proposed to prevent any reoccurrence. DOI recommends that UPPCo notify MDNR and FWS of emergencies that affect water levels and flow releases.

For proposed reservoir draw-downs and refills of more than 1 foot for dam maintenance, MDNR recommends that UPPCo obtain the necessary MDNR permits and USFS recommends that UPPCo be required to notify the agencies in advance of the event. MDNR and USFS further state that project operations may be temporarily modified, if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between UPPCo and MDNR. If this occurs, MDNR recommends that UPPCo notify the Commission as soon as possible, but no later than 10 days after each such incident. DOI recommends that UPPCo consult with MDNR and FWS in advance of scheduled reservoir draw-downs for maintenance or fish and wildlife management.

We recognize that in some instances, it may not be possible for a licensee to notify the agencies prior to a reservoir draw-down. However, we recommend that when possible, UPPCo notify the MDNR within 24 hours of any proposed or already enacted emergency draw-down. We disagree with MDNR that UPPCo should prepare a separate written report to MDNR describing the draw-down, proposed remedial measures, and proposed preventative measures for each emergency draw-down. However, we recommend that UPPCo prepare a draw-down plan, in consultation with MDNR and FWS, that addresses notification of agencies for emergency and planned draw-downs that would lower the water level in the reservoir below our recommended minimum level. This plan would be incorporated into the operation and compliance plan (see Section V.C.2.g below).

We do not concur with the MDNR and USFS recommendation that UPPCo notify the agencies of all proposed draw-downs for

maintenance that exceed 1 foot, or be required to obtain state permits. Our recommended reservoir operation allows up to an 8-foot draw-down. Requiring consultation for draw-downs within the permitted operational rules (for which we have concluded would produce no significant adverse effects) is inappropriate. In comments on the draft EA, MDNR modified its recommendation to state that permits should be obtained for all draw-downs that are more than one foot beyond the specified monthly minimum elevations (see Table 2). We do agree with the need for consultation with the agencies for draw-downs that exceed the allowable minimum elevation, and have recommended that UPPCo prepare a draw-down plan to address such situations. However, we disagree with MDNR's recommendations that UPPCo identify mitigation for emergency violations of reservoir fluctuation and obtain permits for draw-downs greater than one foot because these recommendations preempt the Commission's authority with respect to nonfederal water power projects under the FPA.

We concur with the agencies that the license should allow UPPCo to temporarily modify recommended minimum elevations if required by operating emergencies beyond UPPCo's control and for short periods upon mutual agreement between UPPCo, MDNR, and FWS. If this occurs, UPPCo should notify the Commission as soon as possible, but no later than 10 days after each such incident.

We concur with DOI's recommendations that UPPCo notify agencies during emergencies and consult with agencies on draw-downs as these occurrences may affect fish and wildlife habitat in the basin and down-stream. We recommend that UPPCo prepare a draw-down plan in consultation with MDNR and FWS to address notification and operating procedures in the event of an emergency or planned draw-down beyond the level authorized in the license.

d. Bypass system

MDNR and USFS recommend that UPPCo install a penstock bypass system to ensure that minimum powerhouse discharges are maintained at all times. MDNR recommends that UPPCo install this system within 18 months of license issuance. DOI recommends that UPPCo pass river inflow through the project instantaneously or within a few minutes of a partial or total emergency or planned turbine shutdown. DOI recommends that UPPCo provide this continuous flow either over the spillway or through the turbines.

We conclude that some mechanism to provide a reliable flow to the Au Train River at all times is warranted to protect the fishery resources in the river. As discussed in detail in Section V.C.3.-Fisheries Resources, we recommend that UPPCo install a siphon system over the dam capable of supplying 10 cfs.

e. Operation and minimum flow effectiveness analysis

MDNR recommends that UPPCo develop and implement an operation effectiveness plan within 36 months of license issuance. The plan would include:

- (1) rainfall and snowpack monitoring system
- (2) inflow monitoring system
- (3) funding of approximately \$9,600 annually to MDNR for fish population estimates in basin and tailwater
- (4) annual operations analysis and improvement options
- (5) annual consultation with resource agencies on operations, and
- (6) annual report to the Commission on Items 1-5.

USFS also recommends that UPPCo consult annually with resource agencies regarding project operations, including measures needed to ensure the adequate protection and utilization of the area affected by the project.

UPPCo believes that Items 1, 2, 4, 5, and 6 are unnecessary at this stage in the licensing process. UPPCo states that it has fully modeled and evaluated its proposed operating scheme and believes that further evaluation and revision of operations, including MDNR's recommended hydrologic monitoring, would be unnecessary and economically burdensome. Regarding Item 3, UPPCo states that it will continue to cooperate with MDNR on the fish surveys, but that the open-ended and ill-defined studies outlined in Item 3 represent research that UPPCo should not be required to fund.

Although we agree with MDNR that the hydrologic data specified in Items 1 and 2 are lacking in the watershed, rainfall, snowpack, and inflow monitoring to predict inflow would be very difficult because of the diffuse nature of inflow sources to the basin and the inherent uncertainty in this type of prediction. UPPCo's back-calculated inflows based on basin water levels and power production would be more reliable than estimated inflows based on diffuse local drainage and creek inflow to the basin. Further, our recommended operating plan focuses on maintaining minimum flows and reservoir elevations. Calculating approximate inflows would not significantly improve operations or be useful in measuring compliance at the Au Train Project. Therefore, we do not concur that Items 1 and 2 are warranted.

MDNR's recommendation for funding for annual fisheries studies (Item 3) is addressed in Section V.C.3.-Fisheries Resources.

We agree that an annual summary of operations (Items 4 and 6) is necessary and recommend this in Section V.C.2.g. This would allow Commission review of operating data to assure that UPPCo is complying with its license conditions. The annual operating report should also be provided to the agencies. We recommend that any license issued for this project also reserve the Commission's authority to terminate our recommended annual reports upon request of UPPCo and in consultation with the agencies.

We do not concur that annual consultation with the agencies on operation of the Au Train Project (Item 5) is appropriate. We conclude that UPPCo's modeling demonstrates that our recommended operating plan can be achieved. However, a consultation meeting after three years of operating according to the license conditions could be helpful in addressing agencies' concerns regarding UPPCo's ability to meet license operating conditions. Therefore, we recommend that UPPCo hold a consultation/review meeting with MDNR and FWS three years after issuance of the license to review operating data. If, in the interim, the agencies have concerns regarding operations, we recommend that they notify the Commission. The Commission will determine whether changes in operations are warranted.

f. Water Quality

The MDNR recommends that UPPCo maintain the state water quality standards for dissolved oxygen and temperature when the river flow is greater than or equal to the 95 percent exceedance flow. This includes maintaining DO concentrations in the tailwater of at least 7.0 mg/l at all times, not warming the Au Train River below the powerhouse greater than a monthly average of 2°F above the temperature as measured up-stream of the impoundment, and maintaining a monthly average temperature downstream of the project no greater than monthly coldwater temperature standards (68°F for June through August). The MDNR also states that violations of water quality standards shall require payment of liquidated damages for each event.

The MDNR further recommends that UPPCo develop and implement a water quality monitoring program that includes:

1. Continuous monitoring of DO and temperature above the Au Train basin and below the Au Train powerhouse with sensor locations and sampling frequency to be determined in consultation with MDNR

2. Preparing operating procedures for MDNR review and concurrence, to mitigate conditions that deviate from the above water quality limits
3. Preparing a plan detailing mitigative measures to correct the known water quality problems at this project for MDNR review and concurrence
4. Preparing a water/sediment/fish monitoring plan

MDNR also recommends that UPPCo develop the schedule for liquidated damage payments in consultation with the MDNR and submit it to the Commission within 12 months of license issuance.

UPPCo states that the water quality criteria are neither reasonable nor necessary to adequately protect the Au Train River's aquatic resources and further notes that the local MDNR office has found that the brown trout population in the river is improving under the continuous powerhouse operation mode that UPPCo began in 1992 (UPPCo, 1994b).

The Au Train River down-stream of the basin is a state-designated trout stream. The basin itself is designated a warmwater fishery. Temperature data collected at two locations in the river show that neither location meets coldwater standards from June through August. Temperature data collected in the basin in July 1991 also show that basin water temperature exceeds coldwater standards over the entire water column. Because there is no one up-stream source, we do not know if the basin warms the water significantly. Because impoundments are naturally warmed by solar radiation (due to reduced velocities of water, increased surface area, and reduced shading by shoreline vegetation), we expect that the Au Train basin does warm the water somewhat. However, we consider this temperature effect of the impoundment part of the existing condition associated with the project. DO data collected in July 1991 showed that DO was below the 5.0 mg/l warmwater standard near the reservoir bottom and below 7.0 mg/l throughout the water column.

The Au Train River between the powerhouse and Au Train Lake supports a diverse range of fish species, including brook and brown trout, coho and chinook salmon, walleye, white sucker, and steelhead. We find no evidence that the short periods that the river does not meet coldwater standards in the summer adversely impacts aquatic resources. DO is maintained well above 5.0 mg/l, so fish kills are not a concern. However, existing summer water temperatures and DO concentrations provide only marginal habitat in the Au Train River for coldwater trout.

We investigated possible methods to increase DO in the discharges from the Au Train Project and concluded that two methods could be technically feasible for the Au Train Project:

draft tube aeration and tailwater weir aeration. Either method could be expected to raise the DO to the coldwater standard of 7.0 mg/l, although the actual results would vary depending on how close the DO concentration was to saturation. Each method would reduce energy by about 2 to 4 percent due to either greater turbulence in the draft tube or higher tailwater elevation. The annualized cost of installing either of these measures would be approximately \$20,000, which would include the capital cost, annual lost energy, and annual operation and maintenance, based on staff's estimates.

UPPCo proposes no new activities that would adversely affect water temperatures or DO in the basin or below the dam. Because water temperature and DO in the basin do not meet coldwater standards, it is clear that discharges from the dam will frequently not meet coldwater standards. DO in the discharge cannot be improved without installing a costly aeration system. We conclude that variances from DO coldwater standards do not cause significant adverse effects on the fisheries down-stream because the variances are small (DO is consistently greater than 5.0 mg/l) and the variances do not occur during the critical spring and fall spawning periods. Regarding temperature exceedances, MDNR acknowledges that the only solution to temperature problems would be removal of the project. This is neither practical nor feasible, nor has any party advocated it at this time. We conclude that there are no practical or economically feasible methods to ensure that releases from the Au Train Project meet Michigan coldwater standards for DO and temperature.

Water quality monitoring up-stream of the Au Train Project is infeasible because of the multiple inflow sources to the basin. Further, monitoring of the basin itself and the river down-stream of the project in 1991 showed no significant water quality problems in the project waters. Because of the very small watershed with its minimal development, there is no evidence that conditions would substantially change in the future. Based on these findings, we conclude that no further water quality monitoring is warranted because it would neither mitigate existing water quality conditions nor substantially improve understanding of the project's water quality impacts.

We do not agree that Michigan's water quality standards or requiring liquidated damages for violations of standards should be included in the license. Current water quality is sufficient to support warmwater fishery resources, although temperature deviations from Michigan's coldwater standards during summer months may limit the opportunity for coldwater fish in the river. As MDNR notes in its recommended terms and conditions, deviations from coldwater standards in the river cannot be mitigated.

g. Compliance gaging

MDNR recommends that UPPCo develop (in consultation with MDNR, FWS, USGS, and the USFS) and implement a gaging and compliance plan with the following elements within 12 months of license issuance to demonstrate compliance with run-of-river operation:

- Install, telemeter, operate, and maintain a USGS gage below the Au Train Project to measure both bypassed channel and powerhouse flows
- Install, operate, and maintain a USGS gage with telemetry on Au Train basin
- Install a staff gage on the up-stream wall of the dam clearly visible to the public labeled with the target and minimum impoundment elevations
- Maintain a record of operation every 30 minutes and provide data to resource agencies upon request

DOI recommends that UPPCo develop a plan, in consultation with the MDNR and FWS, that includes the following compliance measures²:

- Install a staff gage on the up-stream wall of the dam (or other appropriate location that is clearly visible to the public) that indicates minimum and maximum allowable water levels, with the exact location identified with concurrence from MDNR and FWS
- Employ automatic sensors for continuous readings of headwater and tailwater levels
- Maintain a daily record of project operation (including turbine operations, headwater and tailwater elevations, and flow releases through the powerhouse and spillway) and provide data to agencies upon request
- Fund continued operation of the down-stream USGS gage for the term of the license

We agree that UPPCo should provide sufficient means to demonstrate compliance with its license conditions and recommend that it prepare an operation and compliance plan. We concur with MDNR and DOI's recommendation for the down-stream USGS gage. UPPCo already has installed a stream gage on the Au Train River

² DOI also had two recommendations related to agency notification and consultation. These were addressed in Subsection c--Draw-downs.

down-stream of the Au Train tailrace in cooperation with USGS (USGS Station No. 04044724). The gage records river stage every 30 minutes. There is no telemetry currently installed at the gage. Although telemetry at the down-stream USGS gage would be convenient for agencies to obtain quick access to flow data, it is not necessary for compliance. We recommend that UPPCo provide this data to the agencies upon request.

UPPCo has installed a level sensor in Au Train Basin. We conclude that this is consistent with MDNR's recommendation for a USGS gage in the basin. We recommend that UPPCo continue to collect and record basin level data with its remote basin level sensor and make the data available to the agencies upon request. As with the down-stream USGS gage, telemetry at the basin level sensor would be convenient for the agencies, but is unnecessary for compliance monitoring. Therefore, we do not recommend telemetry be added to the basin level sensor. A tailwater level sensor, as recommended by DOI, which would allow a direct estimate of flow through the turbine, is unnecessary for compliance because flows through the turbine can be calculated with reasonable accuracy from power production data or from the USGS flow minus leakage through the dam. Therefore, we conclude that a tailwater level sensor is not warranted.

We agree with the agencies that UPPCo should install a staff gage on the up-stream wall of the dam and mark it with the minimum allowable water level (772.0 feet above local datum). This would provide UPPCo staff and any visitors with the ability to verify basin water surface elevations when at the project site.

We do not concur with MDNR's recommendation for maintaining a record of operations every 30 minutes, rather than hourly records. Our calculations show that, assuming a basin inflow rate of 300 cfs and outflow of 50 cfs, the basin elevation would rise about 0.01 foot in one hour. Therefore, we conclude that hourly water level data in the basin is adequate to monitor basin conditions. We concur with DOI's recommendations that UPPCo maintain a daily record of operations, including turbine operations, headwater and tailwater elevations, and flow releases through the powerhouse and estimated flows over the spillway. We recommend that UPPCo summarize this data in an annual report to the Commission and make the report and data available to the MDNR and FWS upon request.

Unavoidable Adverse Impacts: Operation of the Au Train Project in a modified run-of-river mode with a winter draw-down would continue to cause basin level fluctuations of up to several feet in summer and up to 8 feet in winter. Aquatic resources in

the basin have apparently adapted to this mode of operation and show no significant impairment. Water quality in the Au Train River down-stream of the powerhouse would continue to fail to meet coldwater standards in the summer, although the river continues to support a healthy and diverse fish population.

3. Fisheries Resources

Affected Environment:

a. Au Train Basin

Abundant and varied fisheries habitat in the basin supports a diverse fish population. Aquatic vegetation is common throughout the Au Train Basin except in the deep mid-channel area (UPPCo, 1993a). At full pool, 687 acres (out of 1,557 acres) of aquatic vegetation and submerged wetland vegetation are available to fish and other aquatic wildlife. Submerged stumps, standing snags, logs, and other woody debris occupy extensive areas of the impoundment. The substrate composition of the Au Train Basin consists primarily of silt and organic debris that has accumulated over time. Isolated areas of sand, gravel bars, shoreline rock, and small boulder clusters represent less than 20 percent of the total substrate area. This diversity of vegetation, substrate types, and cover provides high quality habitat for the fish community.

The water temperature of the basin ranges from near freezing in the winter to 79°C in July (UPPCo, 1993a). Temperature stratification is weak because of the shallow depth of the basin. The thermal regime is on the cool end of the warmwater fisheries spectrum based on MDNR standard definitions. Although cool enough to support a coldwater fishery (such as trout) most of the year, temperatures are too high in the summer to maintain quality cold-water habitat. MDNR manages the basin as a warm-water fishery primarily for northern pike, yellow perch, and walleye.

The abundance of shallow aquatic vegetation and woody debris provides excellent spawning habitat through the early spring for northern pike and yellow perch. As such, these two species, as well as brown bullhead and white sucker, dominate the fish community (UPPCo, 1993a).

The northern pike population is large for the size of the water body and, consequently, the individual fish are stunted. The yellow perch population contains many larger individuals, which indicates that the abundant northern pike probably prey heavily on juvenile yellow perch. The yellow perch population provides good angling opportunities for fish exceeding 8 inches in length.

MDNR has sought to improve the sport fishery in Au Train Basin by removing size restrictions on northern pike, stocking walleye, and manually removing brown bullhead and white sucker. In spite of these efforts, the overabundance of the highly predacious northern pike remains a principal influence on the fish community in the basin.

b. Bypassed Reach

The dam and powerhouse bypass a 0.7-mile section of the original river channel. About 5 to 12 cfs of flow are provided to this section of the river from dam seepage and groundwater seeps. A series of falls, located a short distance up-stream of the powerhouse in the bypassed reach, are natural barriers to fish migration. The lower portion of the bypassed reach provides coldwater habitat that may be an important rearing area for juvenile salmonids. The bypassed reach has limited potential for fish rearing due to its high gradient and natural migration barriers.

c. Down-Stream of Powerhouse

The Au Train River, from the powerhouse to just up-stream of Au Train Lake, is a state-designated trout stream (although water does not always meet coldwater temperature and DO standards in the summer--see Section V.C.2-Water Resources). MDNR historically (1930-1980) managed this segment of the Au Train River for brook trout; however, this fishery began declining in the 1970s probably because of several events, including the introduction of coho salmon and chinook salmon. Currently, MDNR manages the river for trout and salmon. The primary resident species include brook and brown trout. Other resident species include white sucker and logperch. Migratory fish that reside in Lake Superior and spawn in the Au Train River include coho, pink and chinook salmon, steelhead trout, longnose sucker, and white sucker. Walleye reside in Au Train Lake but also use the river for spawning. Other riverine species in the river include mottled sculpin, slimy sculpin, johnny darters, central mud minnow, blacknose dace, and bluntnose minnows. Also, non-riverine species such as black bullhead, rock bass, golden shiners, and northern pike, all likely originating from Au Train Basin, may be occasionally found below the powerhouse.

The upper one-mile segment of the river below the powerhouse provides the most diverse and highest quality fish habitat in the reach, including excellent salmonid spawning and rearing habitat (UPPCo, 1993a). This segment has an average gradient of 18 feet per mile and is dominated by rocky substrate with riffle-run-pool sequences. It provides important spawning and early rearing habitat for steelhead trout, coho, pink and chinook salmon, brown and brook trout, and walleye. Peak spawning periods are April

and May (steelhead trout and walleye) and October (brown and brook trout, and coho and chinook salmon).

Down-stream of this one-mile segment, the stream gradient lessens to approximately five-feet-per-mile and habitat shifts toward sand-dominated pools and runs. Adult salmonids and walleye use this lower segment primarily for passage and staging before moving up-stream to spawn. According to MDNR, a number of species have been documented in this reach, including rainbow trout, white suckers, yellow perch, black bullhead, burbot, golden shiners, central mudminnows, mottled sculpin, logperch, bluntnose minnows, and johnny darters. MDNR believes that at least some of these species are either from Au Train reservoir or Au Train Lake (MDNR, 1996).

Water quality in the river meets coldwater standards during these critical spring and fall spawning periods (see Section V.C.2-Water Resources). Chinook typically leave the river before summer when temperatures warm up; other species appear to handle the occasional exceedances of coldwater standards because the river continues to support a diverse coldwater fishery, although accurate population estimates for the current management species are not available.

Environmental Impacts and Recommendations:

a. Fish Exclusion

MDNR recommends that UPPCo develop and begin implementation of a down-stream fish exclusion plan within 12 months of license issuance that includes contracting with a consultant, evaluating potential exclusion devices to prevent fish escapement from the Au Train Basin, conducting computer hydraulic modeling of the devices, designing and installing a device, and developing operation and maintenance procedures for the device. MDNR recommends that all items in the plan be completed within three years of license issuance. Until such a device is implemented, MDNR recommends that UPPCo design, install, and maintain a barrier net from April 15 or ice-out, whichever is later, until October 15. The barrier net should be installed within 12 months of license issuance. MDNR further recommends that all installed protection devices have an effectiveness study designed and conducted by the UPPCo in consultation with, and with approval of, the resource agencies.

MDNR states that an exclusion device is necessary because: (1) entrainment of warmwater reservoir fish to the river down-stream of the project causes competition for coldwater fish; and (2) there is no warmwater habitat down-stream of the project to allow fish from the basin to complete their lifecycle; therefore, fish are lost from the basin recreational fishery. MDNR believes that excluding the warmwater fish in the reservoir

from down-stream would increase the productivity of salmonids down-stream.

UPPCo states that a fish exclusion plan is not needed because entrainment does not adversely influence the reservoir or riverine fish community balance or fishery quality. UPPCo further states that its proposed operation combined with suitable management strategies would continue to maintain and enhance the existing coldwater fish community and help to restore the quality trout fishery down-stream of the project.

We considered the potential for fish entrainment based on the fish entrainment and mortality study that UPPCo conducted. We then considered fish exclusion devices, including a barrier net.

UPPCo conducted a limited fish entrainment and mortality study at the project in 1991 in consultation with MDNR, whose primary concern was the potential effects of the project on quality-sized perch in the reservoir. The objective of the study was to estimate the potential loss of large yellow perch (greater than 6 inches) through turbine entrainment from the reservoir (UPPCo, 1993a).

A total of 708 fish were captured during the entrainment sampling, representing fifteen species (Table 4).

Table 4. Species composition from entrainment sampling at the Au Train powerhouse, 1991 (Source: UPPCo, 1993a).

Common Name	Scientific Name	Total Catch	Percent of Total
Yellow perch	<i>Perca falvescens</i>	317	44.8
White sucker	<i>Catostomus commersoni</i>	271	38.3
Trout perch	<i>Percopsis omiscomaycus</i>	31	4.4
Brown bullhead	<i>Ameiurus nebulosus</i>	24	3.4
Logperch	<i>Percina caprodes</i>	21	3.0
Rock bass	<i>Ambloplites rupestris</i>	17	2.4
Pumpkinseed	<i>Lepomis gibbosus</i>	7	1.0
Golden shiner	<i>Notemigonus crysoleucas</i>	7	1.0
Northern pike	<i>Esox lucius</i>	5	0.7
Bluegill	<i>Lepomis macrochirus</i>	3	0.4
Common shiner	<i>Notropis cornutus</i>	1	0.1
Fathead minnow	<i>Pimephales promelas</i>	1	0.1
Largemouth bass	<i>Micropterus salmoides</i>	1	0.1
Northern redbelly dace	<i>Chrosmus eos</i>	1	0.1
Walleye	<i>Stizostedion vitreum</i>	1	0.1
Total		708	100.0

The majority of the fish captured were yellow perch (45 percent) and white suckers (38 percent). Gamefish, excluding yellow

perch, comprised only about 4 percent of the total. No perch over 6 inches were captured; in fact, over 77 percent of the perch captured were less than 2 inches in length. Average turbine mortality was estimated at 6.7 percent.

The results of the study show that large yellow perch are not entrained at the project, either because of their inherent behavior or because the one-inch bar racks exclude that size perch. For most fish species, one-inch bar racks can only exclude those individuals larger than about 6 inches.

Though UPPCo's study showed some entrainment and mortality for other fish species, we conclude that there is enough evidence to indicate that project operation is not significantly affecting either the basin fishery or the down-stream fishery. The project has been operating since the early 1900s, and the basin still maintains a substantial population of the primary gamefish, yellow perch.

According to MDNR, there is no habitat down-stream of the basin in which warmwater reservoir fish could reside in great numbers. However, the deeper, slow-flowing water in the 3.3-mile segment of the Au Train River just up-stream of Au Train Lake and the lake itself provide suitable habitat for warmwater species. Suitable habitat for both coldwater and warmwater species in the Au Train River is abundant. Perch are not riverine fish and will move into Au Train Lake; white sucker will not compete with coldwater species because of inherent differences in their habitat preferences. Therefore, competition for resources between entrained reservoir fish and resident coldwater species is doubtful. Further, warmwater species from Lake Superior and Au Train Lake can migrate up-stream to the Au Train River; therefore, providing a fish exclusion device in the basin would not preclude warmwater species from accessing the reach. Based on our analysis, we conclude that project operation is not significantly affecting the fishery resource of the Au Train River.

We do not recommend that UPPCo be required to install a fish exclusion device, nor do we recommend that a barrier-net be installed at the project. The existing trash racks at the project provide a one-inch opening and a low approach velocity, which preclude larger fish from being entrained and/or impinged on the racks. We find no evidence that entrainment mortality is adversely affecting the fish community within the basin or down-stream in the river.

b. Fishery damage assessment (FDA) study

MDNR recommends that UPPCo fund, conduct, and complete an FDA, in consultation with the resource agencies, or pay MDNR restitution value for the lost fishery resources within 24 months

of license issuance. MDNR reasons that an FDA is warranted because fish are being killed through entrainment at the Au Train Project. MDNR states that although UPPCo conducted an entrainment study at the project, the study was designed to determine the need for exclusion devices to prevent down-stream movement of reservoir fish, and that this study does not provide sufficient data to determine total entrainment and mortality from turbine passage. MDNR opposes use of this data to determine total project entrainment and mortality, and recommends that if its fish exclusion recommendation is rejected, that the Commission require a properly designed entrainment and turbine mortality study be conducted to determine resource damage from turbine passage at the project.

UPPCo opposes MDNR's recommendation for an FDA and for payment of restitution values for lost fish, stating that-if compensation is required for fish lost through entrainment mortality-it should be at published replacement values.

We do not concur with MDNR's recommendation that UPPCo conduct an FDA, which would include a new comprehensive entrainment study. It is the Commission's policy not to conduct damage assessments because the Commission has no authority pursuant to the FPA to adjudicate claims for, or require payment of, damages. We also do not agree with MDNR's recommendation for a new entrainment study to support an FDA because we do not agree with the need for an FDA.

We originally considered the option of requiring UPPCo to contribute to a compensatory mitigation fund based on the replacement value of the fish lost due to turbine entrainment mortality. This mitigation option has been used at other licensed hydropower projects in the midwest where fish protection measures, such as screening, were found to be infeasible or where the costs far exceeded the benefits of installing such devices. However, at this project, entrainment mortality is not having a significant effect on fish resources. The majority of the entrained fish are small perch less than 2-inches long and juvenile white sucker, a species considered an undesirable rough fish that MDNR has manually removed from the reservoir in the past. Because entrainment is not adversely affecting the basin fishery, we do not recommend that UPPCo provide compensatory mitigation for entrained fish at the Au Train Project.

c. Bypass system

MDNR and USFS recommend that UPPCo install a penstock bypass system to ensure that minimum powerhouse discharges are maintained at all times. MDNR recommends installing a siphon system at the dam to provide a minimum flow continuation of 50 cfs. MDNR recommends that UPPCo install this system within 18 months of license issuance. DOI recommends that UPPCo pass river

inflow through the project instantaneously or within a few minutes of a partial or total emergency or planned turbine shutdown. DOI recommends that UPPCo provide this continuous flow either over the spillway or through the turbines. The agencies state that any interruption of flow in the Au Train River below the powerhouse could seriously impact aquatic life in the river.

UPPCo states that an emergency bypass system is an unnecessary expense because total project shutdown is unlikely given that all equipment is in good condition and the project has inherent redundancy with two turbines. Further, UPPCo maintains that a bypass system capable of carrying the full minimum flow is excessive since this would be an emergency flow only. UPPCo states that if any bypass flow is required, a more appropriate flow would be 10 cfs.

In the eight years since UPPCo took over ownership of the project, the plant has had to shut down only three times, once because of a leak in the old wooden stave pipeline, and twice because of scheduled construction activities associated with replacing the wooden pipe with the steel pipe. Therefore, the need for this emergency flow would be very infrequent.

Presently, if the turbines were to shutdown (either under planned or unplanned events) and the reservoir level was below 778.0 feet (below the spillway crest), river flow would be curtailed. In such an event, the interruption of flow to the Au Train River would temporarily and abruptly reduce aquatic habitat. If flow interruption were to last more than a few hours-particularly during spawning periods-it could kill incubating eggs and small fish.

Salmon spawning occurs in fall, and eggs develop over winter, hatching in late spring (between March and May). Therefore, loss of water during that critical period-depending on length of time that no water would be provided-would cause desiccation of incubating eggs. Salmon spawn in the one-mile reach immediately down-stream of the powerhouse, where flow accretion from dam leakage and groundwater seeps is minimal. Because the upper one-mile reach of the river is such an important spawning area for salmon, we agree that some flow should be provided continuously to the river during emergencies to ensure that down-stream aquatic resources are protected.

We analyzed appropriate flows that would protect the fisheries resource if flow were to be curtailed due to power outage or emergency situations. Under project shutdown, the river channel is not completely de-watered. Approximately 5 to 12 cfs enters the river between the dam and powerhouse from dam seepage and springs. Accretion down-stream of the powerhouse adds another 10 to 15 cfs to the river by the time it reaches Au Train Lake. Based on our review of cross sectional and

habitat data for the uppermost segment of the Au Train River (where most of the suitable spawning and rearing habitat occurs), a flow of about 20 cfs corresponds closely with the optimal wetted perimeter. This suggests that temporary flow reductions of less than 20 cfs could have an adverse impact on small fish and incubating eggs.

Under some power outage and emergency situations, water could not be passed through the powerhouse. However, providing 20 cfs could be accomplished by augmenting the flows already present in the bypassed reach with an additional 10 cfs released from the dam. Flow released from the dam would reach the critical spawning habitat just below the powerhouse within 30 minutes. Releasing more than 10 cfs is not warranted because this emergency flow would probably be needed only once in about 10 years, based on past experience at the project. Therefore, we do not concur that providing 50 cfs during emergencies is essential to protecting the fisheries resources in the river.

UPPCo provided cost estimates for three systems to discharge 10 cfs into the Au Train River. These included an auxiliary pipe through the dam (\$56,500), a pump system (\$38,500), and a siphon system (\$13,450). UPPCo's cost for a siphon system is substantially less than MDNR's siphon system cost (\$53,000) because UPPCo's system would be designed to convey only 10 cfs rather than 50 cfs. The siphon system is clearly the most cost-effective alternative. We conclude that UPPCo should install a siphon system to protect aquatic resources in the river during power outages or emergency circumstances. Because UPPCo maintains a bubbler system in the reservoir near the dam to prevent ice loading on the dam, siphon operation should be possible year round. We realize that use of the siphon could take several hours. Therefore, we recommend that UPPCo be required to restore flow to the river using a 10-cfs siphon within four hours of an emergency or planned discontinuation of flow through the powerhouse. We further recommend that if the water level in the reservoir is greater than 778 feet (spillway crest elevation), that UPPCo begin spilling water through the stoplogs rather than using the siphon system. We recommend that, as part of its operating plan to be developed in consultation with the resource agencies, UPPCo develop specific procedures for operating our recommended 10-cfs siphon system.

d. Management of large woody debris

MDNR recommends that UPPCo develop and implement a plan to improve trout habitat in the Au Train River below the powerhouse by increasing the amount of large woody debris and controlling bank erosion, within 36 months of license issuance and in consultation with the agencies.

UPPCo states that the Au Train River down-stream of the powerhouse is rich in woody debris and that the pre-project source of woody debris was down-stream of the current basin location. Therefore, the project has not altered the delivery rate of woody debris to the river.

Large woody debris in rivers provides important resting, feeding, and spawning cover for fish, as well as colonization substrates for invertebrate food sources. Large woody debris also modifies localized hydraulic patterns and tends to create pools, which is important habitat for many species of fish.

We inspected the Au Train River on a site visit and found that the reach immediately below the powerhouse had excellent trout habitat with its high gradient, rocky substrate, and pool and riffle segments. Because the Au Train basin is a headwater system, there is relatively little woody debris that enters the reservoir. Nevertheless, the reservoir does disrupt the transport of woody debris to the Au Train River. The river down-stream of the dam could, therefore, benefit from the re-introduction of natural-occurring woody debris. However, because we have some concerns regarding the practicality of passing large woody debris over the dam given the dam height, the infrequent bypass flows, and the various impediments to free transport in the river (several bridge crossings and two waterfalls), we recommend that UPPCo consult with the resource agencies on a mutually-acceptable method of passing the majority of woody debris down-stream of the powerhouse.

Bank erosion in the Au Train River below the powerhouse would be addressed in the erosion monitoring we recommend in Section V.C.1. MDNR has suggested that large woody debris could be worked into the erosion repair in such a way that it provides bank stability and also extends into the river to provide trout habitat. We recommend that if UPPCo identifies project-induced erosion in the future, that UPPCo also incorporate reasonable and appropriate trout habitat enhancement structures into the repair in consultation with the agencies.

e. Future fisheries studies

MDNR recommends (as part of its Operation and Minimum Flow Effectiveness Plan) that UPPCo provide funding to MDNR to conduct annual population estimates of selected fish species in the reservoir and tailwater areas in order to determine the effectiveness of recommendations in protecting aquatic resources at the project.

Our review of existing fish population data indicates that both the river and the basin support a good, healthy fishery. Further, UPPCo's proposed operating changes would enhance conditions for fish and other aquatic resources in the basin and

the river. Although the Au Train River water temperatures make management as a coldwater trout stream marginal, UPPCo's proposed operations would not significantly affect, adversely or beneficially, these conditions nor could UPPCo feasibly mitigate the river temperature limitations. MDNR acknowledges that temperature deviations cannot be mitigated without removal of the dam. Based on our analysis, we conclude that UPPCo should not be required to fund MDNR's annual studies. We do, however, recommend that UPPCo cooperate with the MDNR during these and similar fisheries studies on UPPCo lands by allowing access and desirable flow rates, provided the requests do not conflict with license conditions.

f. Fish and wildlife reopener

MDNR recommends that the license include the Commission's standard fish and wildlife reopener article to ensure that there is a mechanism to resolve fish and wildlife issues that may arise in the future.

We agree that in the life of any original license issued for this project, unforeseen events may dictate need for changes in equipment or operation of the project in order to prevent major impacts on fish and wildlife resources in the project area. We recommend the use of the standard fish and wildlife reopener article for the Au Train Project. That license reopener can be used to require changes to projects upon Commission motion or as recommended by DOI or MDNR after notice and opportunity for hearing. Any entity may petition the Commission at any time during the license for relief if it determines that additional environmental protection measures are necessary for the project.

Unavoidable Adverse Impacts: Unavoidable fish losses resulting from entrainment mortality would occur with continued project operation. The Au Train River down-stream of the powerhouse would not fully support its coldwater designation in summer months. These impacts, however, would not significantly affect fish populations and recreational fisheries in project waters.

4. Vegetation Resources

Affected Environment: Northern hardwood communities dominate the forested areas surrounding the Au Train Basin and areas along the Au Train River down-stream of the basin. American beech, sugar maple, yellow birch, and basswood, as well as conifers such as white pine and hemlock, are typically present within these stands. Some individuals of eastern hemlock and white pine have grown to a height above the surrounding tree canopy. Sapling and shrub species within the understory consist of balsam fir, northern white cedar, and dogwood. Other lower

understory species include raspberry, red elderberry, bracken fern, gooseberry, and lady fern. Common forbs³ within these communities include wild sarsaparilla, meadow rue, trillium, and violet.

Other upland areas around Au Train Basin consist of various forest cover types including planted areas of red pine. Species found within forest communities near UPPCo lands, including within the Hiawatha National Forest, include red pine, jack pine, quaking aspen, and oak (UPPCo, 1993a).

In the southernmost areas of the Au Train Basin, cover types vary from forested hardwood stands to brushy areas and row crops. Portions of the southern one-quarter of the Au Train Basin are managed as part of the Au Train Basin Waterfowl Project. These areas include approximately 300 acres of previous agricultural land that has been planted with waterfowl food crops.

Plant communities along the bypassed reach, powerhouse tailrace, and mainstem down-stream of the tailrace consist of similar northern hardwood forests, as well as more lowland forest types. Sugar maple and northern white cedar dominate the overstory in these areas. Ferns and forbs are diverse in the more lowland forest areas.

Approximately 687 acres of wetlands occur within the basin at full pool (UPPCo, 1993b). Wetlands of the project area consist of palustrine⁴ systems of emergent⁵, scrub-shrub⁶, and forested vegetation. Wetlands are found primarily in the lakebed and shoreline of Au Train basin, its tributaries, and the Au Train River down-stream of the powerhouse. Stands of cattail are found along the basin margin, and several small islands within the basin support willows and a variety of sedges. Submerged aquatic vegetation also occurs within the basin, particularly in the southern end.

Vegetation surveys of the project area in 1991 did not identify any federal or state threatened or endangered plant species. Two state species of special concern, club moss (*Lycopodium selago*) and a willow (*Salix pellita*), were found in

³ forbs: herbs other than grasses.

⁴ palustrine: all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens.

⁵ emergent: erect, rooted, persistent, or nonpersistent herbaceous vegetation.

⁶ scrub-shrub: woody vegetation less than 19 feet tall, including deciduous and evergreen shrubs or stunted trees.

the vicinity of the Au Train River down-stream of the powerhouse (UPPCo, 1993a).

Environmental Impacts and Recommendations: USFS recommends that UPPCo develop a plan to monitor wetlands resources impacted by the Au Train Project. The plan should include provisions for permanent plots both within the reservoir and along the river to identify changes in both ecosystems. USFS further recommends that UPPCo also monitor the wetland species adjacent to the project area, utilizing permanent plots or transects in order to detect short-term/long-term changes and to prevent potentially undesirable changes from occurring. USFS recommends that UPPCo develop survey and monitoring efforts in consultation with the resource agencies.

We recognize that changes in basin water levels, which can alternately inundate and/or desiccate⁷ wetland areas, can adversely affect wetland vegetation. However, the proposed changes in operation are generally expected to result in higher and more stable water levels within the basin compared to historical operations. As a result, we expect wetland acreage within the basin to remain unchanged or to potentially be enhanced. More stable water levels may also enhance species composition of basin wetland communities. Therefore, we do not concur with the need to monitor wetlands in the project area.

MDNR recommends that UPPCo, in consultation with the resource agencies, develop and implement a plan to monitor and control/eliminate, when deemed appropriate by the agencies, purple loosestrife (*Lythrum salicaria*) and Eurasian milfoil (*Myriophyllum spicatum*) within the project area within 36 months of license issuance. USFS recommends that UPPCo develop, in consultation with the resource agencies, a management strategy to control noxious species (including purple loosestrife and Eurasian water milfoil) before they become established in the reservoir and/or along the river.

Purple loosestrife and Eurasian water milfoil were introduced from Europe. Often, they grow profusely, at the expense of the native wetland vegetation, reducing wildlife habitat value of wetlands. At this time, these two species are not known to occur in the project area. Measures available to control purple loosestrife and Eurasian water milfoil are limited. However, recognizing the need for protection of the wetlands in the Au Train flowage from purple loosestrife and Eurasian water milfoil invasion, we recommend that UPPCo, in consultation with MDNR, develop a monitoring plan, to be submitted to the Commission for approval, and upon approval, be implemented. It would include but not be limited to: (a) a

⁷ desiccate: to dry out.

description of the monitoring methods; (b) a monitoring schedule; and (c) a schedule for providing the monitoring results to the MDNR. Furthermore, if at any time MDNR deems it necessary to control/eliminate purple loosestrife and/or Eurasian milfoil (i.e., either plant becomes established in the flowage), and there is a biologically safe method of removal available, UPPCo should cooperate with the MDNR to control/eliminate either or both plants. If and when the plants are discovered, the Commission would make a determination on the limits of UPPCo's liability.

USFS recommends that UPPCo conduct additional surveys to identify changes in status and/or location of endangered, threatened, and/or sensitive plants. If any listed species are located, USFS recommends that they be managed in accordance with standards and guidelines established by the USFS, FWS, and MDNR. UPPCo conducted surveys for sensitive species in 1991 and found no threatened or endangered plant species and only two state species of special concern in the project area. Therefore, we do not concur that additional surveys are necessary.

Unavoidable Adverse Impacts: None.

5. Wildlife Resources

Affected Environment: As many as 275 species of vertebrate animals inhabit the Hiawatha National Forest in the project region (UPPCo, 1993a). Site-specific biological surveys of the Au Train Project area conducted by UPPCo in 1991 identified 66 species, including 11 species of mammals, 6 species of reptiles, and 49 species of birds (UPPCo, 1993a).

Larger mammals in the project area include white-tailed deer, black bear, and moose, although moose are currently at low densities throughout the Upper Peninsula. Several predators also known to inhabit the region include red fox, coyote, and weasel. Small furbearers are also present including eastern cottontail, snowshoe hare, muskrat, and beaver.

Abundant and diverse avian⁸ species are known to inhabit the area including several species of upland game birds, raptors, shorebirds, waterfowl, and songbirds. Eight raptorial⁹ species were observed during biological surveys conducted in 1991, including the red-tailed hawk, red-shouldered hawk, peregrine falcon, and bald eagle. Waterfowl observed in and around the basin include wood ducks, green-winged teal, mallard, American black duck, common merganser, and Canadian goose.

⁸ avian: of, relating to, or derived from birds.

⁹ raptorial: of, relating to, or being a bird of prey.

A limited number of reptiles and amphibians were noted during the 1991 biological surveys, but several are known to inhabit the general area. Observed species of reptiles and amphibians include American toad, green frog, and garter snake.

Fourteen threatened and endangered (three federally-listed and 11 state-listed) species and eight special concern species potentially occur in the project vicinity (Table 5). UPPCo's biological surveys conducted in 1991 identified six threatened and/or endangered species in the vicinity of the project (highlighted in bold in Table 5).

Table 5. Threatened and endangered species potentially occurring in the project vicinity (Source: UPPCo, 1993a).

Species	Federal Status	Michigan Status
Blanchard's cricket frog (<i>Acris crepitans</i>)		SC
Boreal chorus frog (<i>Pseudacris triseriata</i>)		SC
Wood turtle (<i>Clemmys insculpta</i>)		SC
Cooper's hawk (<i>Accipiter cooperii</i>)		SC
Shorted-eared owl (<i>Asio flammeus</i>)		E
Red-shouldered hawk (<i>Buteo lineatus</i>)		T
Northern harrier (<i>Circus cyaneus</i>)		SC
Yellow-throated warbler (<i>Dendroica dominica</i>)		T
Merlin (<i>Falco columbarius</i>)		T
Peregrine falcon (<i>Falco peregrinus</i>)	E	E
Common loon (<i>Gavia immer</i>)		T
Bald eagle (<i>Haliaeetus leucocephalus</i>)	T	T
Osprey (<i>Pandion haliaetus</i>)		T
Double-crested cormorant (<i>Phalacrocrax auritus</i>)		SC
Caspian tern (<i>Sterna caspia</i>)		T
Common tern (<i>Sterna hirundo</i>)		T
Moose (<i>Alces alces</i>)		SC
Gray wolf (<i>Canis lupus</i>)	E	E
Mountain lion (<i>Felis concolor</i>)		E
Lynx (<i>Felis lynx</i>)		E
Fisher (<i>Martes pennanti</i>)		SC
Pine marten (<i>Martes americana</i>)		T

E=Endangered; T=Threatened; SC=Special Concern

Note: Species listed in boldface have been observed in the project area.

Threatened and endangered species, including the bald eagle and peregrine falcon, have been documented in the project area. Peregrine falcons occur as transients to the project site, and are not likely to breed in the area because of the lack of suitable habitat. Bald eagles are known to breed on an island

within the basin. At least one pair of bald eagles have nested at the basin since as early as 1944. Regular monitoring of eagles at the project has occurred since 1977. Eight different nest sites have been previously identified to occur near or adjacent to the basin. These sites have all occurred within one mile of the basin or on an island in the basin. Winter surveys of the project area documented use by a limited number of individuals (UPPCo, 1993a).

As part of bald eagle management in the Hiawatha National Forest, USFS closes areas adjacent to eagle foraging areas and perching, roosting, and nesting sites, by posting signs that designate the area as sensitive wildlife habitat and locking gates on access roads in early March each year. These protection policies are implemented for the existing bald eagle nesting site on the Au Train Basin. The public, including UPPCo staff, is not permitted to enter the closed area (the south portion of the basin) between March 1 and June 30, except in the case of project emergency or required inspections.

Uplands in the southern one-quarter of the Au Train Basin are managed by MDNR as a wildlife refuge. The wildlife refuge, a 2,000-acre area, is part of the larger "Au Train Basin Waterfowl Project", a 21,000-acre area owned by federal, state, and private entities. MDNR has an agreement with UPPCo for use of 997 acres in the southern portion of the basin for the wildlife refuge. About 300 acres of agricultural lands within the refuge have been cleared and planted with food for waterfowl. The long-range objective is to support a fall population of 10,000 geese and 10,000 to 15,000 ducks. Sandhill cranes also stop over on their migration south. Refuge boundaries are posted between September 15 and November 10 each fall to prohibit public access for hunting, fishing, or other activities in order to provide undisturbed use by migrating waterfowl.

Environmental Impacts and Recommendations:

a. Wildlife management plan

MDNR originally recommended that UPPCo develop and implement a wildlife management plan, within 36 months of license issuance, that: (1) protects and enhances wildlife habitat on project lands; (2) provides for the protection of environmentally sensitive areas on project lands; (3) provides waterfowl enhancements, including 64 wood duck boxes and the creation of additional mallard nesting habitat using either nesting structures or a waterfowl nesting island and funding for the maintenance and enhancement of the wildlife refuge on licensee's lands; (4) provides for one osprey nesting platform on the north end of the reservoir; (5) provides for two new purple martin nesting colonies on the reservoir; (6) provides for three bat

nesting houses on the reservoir; (7) provides for additional eastern bluebird nesting locations on project lands and rights-of-way at 100-yard intervals until the occupancy rate of the nest boxes falls below 30 percent; (8) provides for additional kestrel and owl nesting locations on project lands and rights-of-way; (9) provides for wildlife planting in the project rights-of-way; (10) provides for the protection and enhancement of habitat for a federal or state listed threatened, endangered, or sensitive species on project lands; and (11) provides for annual consultation with the resource agencies on the status of wildlife populations in the project area and the measures to be performed to protect and enhance wildlife populations. MDNR subsequently withdrew the majority of its recommendations for wildlife structures, maintaining its recommendations for an osprey platform.

DOI recommends the UPPCo develop a comprehensive resource management plan that includes provisions to protect environmentally sensitive areas and to provide for wildlife management compatible with forest harvest practices, existing recreational use, and future recreational development.

UPPCo proposes no wildlife management plan, but intends to continue with land management practices such as restrictions on commercial logging within established buffer zones. UPPCo proposes a 200-foot, no-timber-management shoreline buffer zone to be incorporated into the bald eagle plan (see Section V.C.9-Land Use).

Construction of artificial nest structures can be useful in areas where natural nesting sites are limited. MDNR states that agricultural development and timber harvest practices have reduced suitable breeding habitat for waterfowl. Although there is no evidence that project operations have negatively affected waterfowl populations near the project, the winter draw-down that our recommended plan allows (see Section V.C.2) could potentially affect wetlands and other natural breeding areas on the basin periphery. Therefore, we concur that installation of additional nesting structures would enhance wildlife habitat in the project area. We recommend that UPPCo prepare a wildlife management plan that includes items 1, 2, 4, 9, 10 and 11 listed above (see Table 14).

With regard to MDNR's recommendation to provide funds to maintain and enhance the wildlife refuge, we conclude that UPPCo's donation of 997 acres of UPPCo-owned lands for use as the wildlife refuge represents a significant contribution that enhances wildlife opportunities in the project area. MDNR does not specify the enhancement measures it would like funded, nor the level of funding it is requesting. We conclude that MDNR has provided insufficient evidence of the need, purpose, or level of

funding requested. Therefore, we do not recommend that UPPCo provide this funding.

UPPCo owns 2,568 acres of land in the vicinity of the project that provide habitat for a wide variety of wildlife species. UPPCo's proposed shoreline buffer would enhance natural nesting opportunities and provide protection for wildlife species. We agree that a wildlife management plan that formally documents practices within the buffer zone would enhance opportunities for existing and future wildlife within the project area. We recommend that UPPCo prepare a wildlife management plan, which includes procedures for protecting habitat within the shoreline buffer zone both around the reservoir and along the down-stream river banks, provisions for an osprey nesting platform (see Table 14 for reference to MDNR's withdrawal of its recommendations for other wildlife structures), and provisions for annual consultation with the resource agencies. The wildlife plan should also include provisions for the protection and enhancement of threatened and endangered species habitat within the buffer zone.

b. Threatened and endangered species protection

DOI recommends that UPPCo, in finalizing its bald eagle management plan, incorporate and update specific protection measures to be consistent with DOI's updated policies. DOI recommends nine provisions; it also recommends that the project operation be consistent with the "Northern States Bald Eagle Recovery Plan" and the "Bald Eagle Winter Management Guidelines". DOI states that if its recommendations are adopted, further consultation under Section 7 of the Endangered Species Act (ESA) would not be required. DOI further recommends that UPPCo adhere to the "Recovery Plan for the Eastern Timber Wolf" guidelines if new roads are to be constructed on UPPCo lands adjacent to the project in the future.

MDNR recommends 17 provisions be incorporated in UPPCo's final bald eagle management plan. MDNR also recommends that UPPCo identify existing, new, or previously unknown nesting, roosting and perch sites on UPPCo-owned lands.

USFS recommends that UPPCo: (1) provide partial funding of the USFS annual bald eagle monitoring effort, and (2) protect bald eagle habitat on lands east of the basin. USFS did not provide a dollar value for its recommended monitoring funding. USFS also recommends that FWS' measures for the protection and enhancement of the bald eagle and gray wolf be applied within a project boundary, which it recommends include all UPPCo-owned lands adjacent to the reservoir.

We recommend that UPPCo's bald eagle plan be finalized in consultation with the MDNR, FWS, and USFS. We recommend that

UPPCo, in finalizing its bald eagle plan, incorporate all of DOI's additional provisions and the majority of MDNR's provisions (with the exceptions noted below). We also recommend that UPPCo's plan incorporate and reference the "Northern States Bald Eagle Recovery Plan" and the "Bald Eagle Winter Management Guidelines," as recommended by DOI. These measures would ensure that bald eagles are fully protected, as required under the ESA.

We do not recommend that all of MDNR's additional bald eagle provisions be incorporated into the final bald eagle plan. We do not agree that public information distribution and sign posting is needed beyond current levels implemented by other agencies. USFS currently posts signs prohibiting access to critical species habitat during critical periods.

We do not agree with MDNR and USFS that all UPPCo-owned lands be incorporated into the bald eagle management plan. We conclude that the provisions in UPPCo's current bald eagle plan, plus the additional measures recommended by DOI and MDNR regarding activities within the primary, secondary, and tertiary zones, would adequately protect bald eagle habitat in the project area.

We concur with MDNR's recommendation that UPPCo, in consultation with the resource agencies, identify areas of highest potential use for nesting by eagles in the future. If the current nest location fails, areas of highest potential use within the shoreline buffer zone should be incorporated into the bald eagle management plan for protection. The final plan should also incorporate UPPCo's no-cut policy along the reservoir shoreline and down-stream of the powerhouse (as recommended in Section V.C.9-Land Use).

We do not agree with MDNR's recommendation regarding removal of non-game species from the reservoir. MDNR recommends that UPPCo inform the Commission of any and all plans to assist in the removal of fish at the project. MDNR further recommends that the direct participation of UPPCo in fish removal projects should require that the Commission (or their designee) re-initiate consultation with the FWS prior to UPPCo participating in the project. DOI recommends that UPPCo not participate in, encourage, or support the removal of non-game fish species, except for sport fishing purposes, to protect the forage base of the bald eagle. DOI recommends that the Commission or its designee should re-initiate consultation pursuant to Section 7 of the ESA prior to implementation of any fish removal plan. We recommend that the Commission retain authority to approve the licensee's participation in fish removal from the reservoir and that the licensee should consult with the FWS and MDNR on any plans for fish removal. If the licensee's consultation fails to resolve all issues associated with the fish removal plans, the Commission would then initiate consultation with the FWS on the

issues. We recommend that any license issued for this project include a provision that, should UPPCo be requested to participate in a rough fish removal program by the resource agencies, UPPCo notify the Commission of the plans to remove rough fish, including any proposed changes in project operation, and provide evidence of consultation with the FWS and MDNR. The Commission would reserve the right to change the plan.

In the draft EA, we did not agree with USFS' recommendation that UPPCo provide partial funding for USFS bald eagle monitoring. MDNR did not explain what type of monitoring it recommended or what level of funding would be required. Further, the provisions recommended by DOI and MDNR for inclusion in the final bald eagle management plan, which we also recommend, require periodic monitoring of nest activity. At the Section 10(j) meeting, UPPCo stated that it would be willing to provide cost-shared funding for bald eagle surveys. We concur that this is an appropriate and well-defined enhancement activity that meets the intent of MDNR's recommendation for bald eagle monitoring. Therefore, we now recommend that UPPCo share in reasonable costs for bald eagle surveys conducted by USFS.

Although no new roads are planned as part of project operations, we recommend that UPPCo adhere to the "Recovery Plan for the Eastern Timberwolf" guidelines if any new roads are proposed as part of project operations or enhancement measures in the future. Under the Commissions's standard land use article, which is included in every license, the agencies would be consulted and can comment on future actions on a case-by-case basis. In addition, we recommend that UPPCo add a threatened and endangered species Section to the recommended wildlife management plan (see subsection a.--Wildlife Management Plan, above) and to the recommended comprehensive land management plan (see Section V.C.9), which would address measures to protect gray wolf habitat.

We conclude that with the wildlife management plan and wildlife protection measures we are recommending, project operations would have no effect on federally-listed threatened and endangered species.

Unavoidable Adverse Impacts: None.

6. Aesthetic Resources

Affected Environment: The region's natural landscape character is defined by rolling hills, water features, and extensive forest cover (UPPCo, 1993a). The visual character of the project area is consistent with most of the Upper Peninsula; it offers a pleasing setting although the scenic features are not unusual for the region.

The Au Train Basin area has very little development (there are a total of 12 cottages along the shoreline), giving the shoreline the appearance of wilderness. Project facilities blend well with the surrounding landscape. Nearly all of the basin shoreline is forested. Scenic views from the water are of an undeveloped, natural shoreline. The dominant visual characteristic of the basin is the land/water relationship. Views of the basin are limited to the two public recreation areas and occasional viewing areas from local service roads within the state and national forests. Views from the public recreation facilities are scenic, unobstructed, and aesthetically pleasing.

The dam is visible from State Highway M-94, which runs parallel to it. View duration is limited to the time it takes to pass the facilities; therefore, viewer sensitivity is considered to be low to moderate (UPPCo, 1993a).

Upper and Lower Au Train Falls, which are prominent visual features in the area, are located within the bypassed reach (Figure 2). The falls are a stairstep cascade over limestone and sandstone formations that drop approximately 100 feet over a distance of 2,200 feet (UPPCo, 1993a). Upper Au Train Falls is characterized as a steady thin flow of water dropping over bedrock. Further down-stream, in the vicinity of Lower Au Train Falls, the river is broader and flatter, and the drop is gradual. The shores of the bypassed reach near both falls are vegetated, adding complexity to the landscape. Scenic waterfalls are common in the Upper Peninsula. About 200 falls are located in the Upper Peninsula, with 20 of them located in Alger County, most of which are near the project. Other nearby falls include Wagner Falls, Laughing Whitefish Falls, and Whitefish Falls. The Upper and Lower Au Train Falls are the most significant scenic feature at the project; however, they are not considered unique or distinctive regional aesthetic resources (UPPCo, 1993a).

Geologic features in the bypassed reach are rugged. However, the aesthetic character of Upper Au Train Falls is affected by the penstock above the falls. The penstock has been located there since the early 1900s (although the original material has been replaced since then); it is considered part of the baseline condition. A flow of about 5 to 12 cfs flows through the bypassed reach from the dam flashboards and toe drains and groundwater seeps. Upper Au Train Falls is visible from the powerhouse access road. An informal viewing area provides parking for about five cars, with additional overflow parking just west of the viewing area. A gravel pit operation that UPPCo also uses to store old equipment is located west of the viewing area. The gravel pit does not impede the view of the falls; however, it detracts from the undisturbed character of the entrance to the falls area and overall natural quality of the area.

Lower Au Train Falls is accessible only by foot because the powerhouse access road is gated and vehicular access is limited to UPPCo personnel for hydroelectric facility maintenance. Visitors may park at the powerhouse access road gate and walk down the access road which leads to a bridge at the base of Au Train Falls. The bridge is the main viewpoint for Lower Au Train Falls. The powerhouse is located just east of the bridge; it is constructed of brick, is well maintained, and blends well with the surrounding environment.

The river down-stream of the powerhouse meanders; its banks are forested and undeveloped. Flows from the dam have not altered the character of this visual resource and do not degrade the undisturbed aesthetic quality of the river.

Environmental Impacts and Recommendations: The basin adds to the scenic diversity of the landscape by providing a water body in a forested setting. The project as proposed would maintain the visual qualities of the area during most months of the year. The proposed 50-cfs minimum flow down-stream of the powerhouse would sustain the visual appearance of the river.

The resource agencies and UPPCo conclude that existing flow conditions (ranging from 5 to 12 cfs) are adequate to maintain the aesthetic character and value of Au Train Falls, and therefore, no minimum flow is proposed within the bypassed reach. We reviewed the project video of typical flows and views within the bypassed reach, and agree that existing flow levels provide adequate flows to protect the aesthetic character of both the Upper and Lower Au Train Falls.

UPPCo's proposal to add a barrier-free aesthetic viewing area in the vicinity of Upper Au Train Falls would improve public access to that area. This is considered a benefit to recreationists by providing enhanced access to a view of the falls. As discussed in the (Section V.C.8-Recreation Resources), we have recommended that UPPCo provide interpretive signs at the site explaining the presence of the penstock (its history, purpose, and how it diverts water). We also recommend that UPPCo plant additional trees to screen the gravel pit/storage area from the viewing site. With these improvements, the viewing site would be adequately enhanced.

Unavoidable Adverse Impacts: None.

7. Cultural Resources

Affected Environment: Archaeological investigations in the vicinity of the project recorded 24 historical sites dating from the 1890s through the 1920s, including several logging camps, a log dam, a mill, a cabin, and a home or camp. These sites have

been determined to be historically insignificant or have not been evaluated. The potential for discovery of additional late nineteenth and early twentieth century sites related to early Euro-American settlement and resource extraction is high.

A 1991 Phase I cultural resources inventory of the project focused on the immediate vicinity of the hydroelectric facility (dam, penstock, and powerhouse), the access roads, and the public access areas on the shores of Au Train Basin. No prehistoric or historical cultural materials were encountered in the archaeological field work phase of the inventory. The likelihood that significant historical or archaeological resources exist within the project area is low to medium, depending on specific location.

In the basin area, no fossil beaches, sources of lithic materials, canoeable streams, or prime mammal or fish habitat are present, although conditions may have been more suitable to prehistoric use prior to the creation of Au Train Basin.

The project powerhouse is over 75 years old, and its exterior has changed little. None of the structures associated with the project are of architectural importance, and a considerable portion of the project has been replaced, rebuilt, or installed since 1910. The 1991 cultural resources study concluded that the project does not merit inclusion on the National Register of Historic Places (NRHP) as a whole, but that the powerhouse may be eligible for listing because it is an uncommon surviving representative of turn-of-the-century hydroelectric technology and because it is the first hydroelectric plant erected by the Cleveland-Cliffs Iron Company. The Michigan SHPO subsequently determined that the powerhouse does not meet the criteria for listing in the NRHP (Michigan SHPO, 1992).

Environmental Impacts and Recommendations: The Michigan SHPO indicated in its February 21, 1992, letter that licensing the Au Train Project would not affect any known sites eligible for listing in the NRHP.

The USFS recommends that UPPCo develop and implement a programmatic agreement (PA) addressing the treatment of cultural resources at all of UPPCo's projects to ensure that any cultural resources that exist or may be discovered in the future at this and other UPPCo projects will be treated properly. Because the Michigan SHPO has found no potential cultural resource sites at the Au Train Project, we do not consider that a PA is necessary at this time. However, we do recommend that UPPCo consult with Michigan SHPO prior to initiating any construction activities to protect potential cultural resources that may be discovered during excavation or other construction activities. Implementing

this measure would allow for the adequate management and protection of cultural resources in the project area.

Unavoidable Adverse Impacts: None.

8. Recreation Resources

Affected Environment:

a. Regional and Project Area Recreation Resources

Many recreation opportunities are available within Alger County. Developed facilities include four national park campgrounds, six national park picnic areas, five national forest campgrounds, two national forest picnic areas, two state forest campgrounds, two state parks, four township or city parks, and ten hiking trails. In addition, approximately 125 miles of the Michigan snowmobile trail system traverse Alger County. The region provides a variety of recreational opportunities such as fishing, boating, canoeing, hiking, camping, and sightseeing (UPPCo, 1993a).

The Hiawatha National Forest and Escanaba River State Forest are both located in the immediate vicinity of the Au Train Basin, and provide many opportunities for dispersed recreation.

Au Train Lake, located 6 miles down-stream of the basin, is moderately developed with year-round and seasonal residences and two resorts. The USFS maintains a campground and picnic area, a boat launch, and a swimming area at the lake. The Au Train River between Au Train Lake and Lake Superior is a popular canoeing river.

The basin is located in a relatively remote area offering an abundance of recreation opportunities in an undeveloped setting. The USFS maintains no recreation facilities on the basin; MDNR maintains the primary recreation facility there. There are two formal recreation sites at the basin, and one informal viewing area down-stream of the dam. These facilities provide opportunities for fishing, camping, canoeing, boating, and sightseeing. The first formal recreation area, MDNR's Forest Lake State Forest Campground, is located on the west side of the basin. It provides the primary access to the basin. The facility consists of 23 campsites, a picnic area with three picnic tables, six sanitary facilities (two of which are barrier-free), trash receptacles, a boat ramp, carry-in small boat access, shoreline fishing access, and a 25-car/trailer parking lot. UPPCo leases this land to MDNR for a nominal fee (in the past for \$1; more recently there has been no fee). The site was developed with land and water conservation funds from the National Park Service (UPPCo, 1993b).

The second formal recreation area is a primitive access site on the east side of the basin on lands owned by UPPCo. Small boat carry-in access and dispersed camping opportunities are provided at this location. There are approximately 10 unimproved campsites along the shore of the basin in the vicinity of the access site, and a parking area serves 10 cars or 5 car/trailer units (UPPCo, 1993a).

The powerhouse road and parking area provide access to the bypassed reach of the river as well as to the tailrace area downstream of the powerhouse. Upper Au Train Falls is visible from an overlook on the access road. A pull-off area provides informal parking for about 5 cars. About 250 feet north, UPPCo provides a 10-car parking area at the powerhouse access gate. The powerhouse road is accessible only by foot, so recreationists park at the gate and walk about 500 feet down the road to view Lower Au Train Falls or to fish in the tailrace area. Well-established footpaths to the powerhouse and tailrace area provide access to this area by recreationists. Because of the steep terrain, the Lower Au Train Falls area is difficult to access by individuals with disabilities.

In addition, UPPCo forest lands surrounding the project offer land-based recreation opportunities. Public access is allowed on UPPCo lands and waters except for small areas near the dam, powerhouse, and substation that are restricted for public safety reasons. The wildlife refuge on the basin is open to the public except from September 15 to October 10 of each year, at which time the area provides opportunities for migratory birds to rest and feed.

b. Recreation Use in the Region and Project Area

Recreation use on the Hiawatha National Forest is increasing; this trend is expected to continue in the future (MDNR, 1991). However, overall, the amount of developed sites within the forest far exceeds demand (USFS, 1986). The potential supply for roaded natural recreation opportunities (the type of recreation provided in the vicinity of the basin) is five times greater than demand. Although demand is projected to increase, the recreation supply is projected to be three times greater than demand (USFS, 1986).

Recreation use of the state forest campgrounds and parks have remained steady from 1980 to 1990; activities such as fishing, hunting, boating, and off-road vehicle use have shown modest increases (MDNR, 1991). MDNR does not plan to develop additional recreation facilities in Alger County, but intends to focus on improvements to existing recreation sites. Camping at the Forest Lake State Forest Campground from 1985 to 1991 is shown in Table 6. Use of this recreation area is considered moderate relative to site capacity (UPPCo, 1993a).

Recreation demand at the project is characterized as light to moderate. Use is light in the spring and fall and moderate in summer and winter, with peak use occurring in July and August. In 1991, 2,000 recreationists visited the area: 70 percent to the bypassed reach down-stream of the dam; and 30 percent to the basin (UPPCo, 1993a). During that period, most recreationists visited the project for sightseeing activities (Table 7). Lower Au Train Falls is a more popular viewing area than Upper Au Train Falls. UPPCo's public survey of recreationists revealed that 77 percent of the visitors to the basin are state residents (UPPCo, 1993a).

Table 6. Camping use at the Forest Lake State Forest Camp-ground (Source: UPPCo, 1993).

Year	Total Days
1985	294
1986	1,139
1987	1,325
1988	435
1989	642
1990	630
1991	833

Table 7. Recreation use at the project area in 1991 (Source: UPPCo, 1993).

Recreation Activity	Visitors*
Sightseeing	60%
Fishing	50%
Camping	34%
Hiking	26%
Swimming	20%

*Does not total 100% because more than one activity per visit was reported

Ice fishing and snowmobiling occur in the winter in the vicinity of the basin. In 1992, UPPCo recorded 33 ice-fishing huts in January, 13 ice-fishing huts in March, and snowmobile tracks.

There is no designated put-in location or canoe access point along the segment of river between the powerhouse and Au Train Lake. Further, because the project was historically operated in a peaking mode, flows in this segment varied. Therefore, canoeing down-stream of the powerhouse to Au Train Lake is reported to be almost nonexistent, with only two to three canoeists sighted each year.

Environmental Impacts and Recommendations: UPPCo proposes to develop a formal recreation viewing area at Upper Au Train Falls overlook, which would involve removing vegetation that obstructs views, installing a crushed rock surface for seven parking spaces (two handicapped accessible), and installing a handrail. UPPCo also proposes to install additional directional signage to the Upper Au Train Falls viewing area. Implementing UPPCo's recreation enhancements would be a benefit to recreationists desiring to view the upper falls. MDNR concurs with these enhancements at the falls.

MDNR also recommends other recreation enhancements, as follows:

- On the basin, construct, operate, and maintain a barrier-free shoreline fishing/viewing pier, seven parking spaces (two designated handicapped), a barrier-free vault toilet, hardened paths, and signage
- At the Forest Lake State Forest Campground, upgrade the boat ramp to barrier-free standards (skid pier, two handicapped parking spaces, and a hardened path)
- In the tailwater area (in view of Lower Au Train Falls), construct, operate, and maintain a barrier-free fishing and aesthetic viewing platform, seven parking spaces (two designated handicapped), an accessible vault toilet, hardened paths, and signage

MDNR and USFS recommend that UPPCo provide funding for operation and maintenance of the Forest Lake State Forest Campground.

The USFS clarified in its recommendations that the primitive access site located on the east side of the basin has never been under USFS management (as was stated by UPPCo). Accordingly, USFS indicates that operation and maintenance of that recreation site is the responsibility of UPPCo. The USFS also recommends that UPPCo provide barrier-free access to the tailwater, including two handicapped-accessible parking spaces at the end of the road near the powerhouse and a graveled path and fishing access boardwalk along the tailrace.

The USFS further recommends that UPPCo develop a recreation plan and consult annually with resource agencies on project operations. The USFS has long-term plans to develop a Lake Superior-to-Lake Michigan canoe trail, and this would be a likely component of future consultations.

We concur with UPPCo's proposal to enhance the existing informal viewing area at Upper Au Train Falls. This area is a popular public recreation resource in the area, and providing upgraded facilities would enhance recreationists' viewing opportunities. We also recommend that UPPCo improve the aesthetic value of the view by: (1) planting trees to partially screen the gravel pit located west of the site; and (2) installing interpretive signage. The signage could detail the site layout, explain the hydroelectric project (specifically the penstock, which would be within their view), and direct viewers to Lower Au Train Falls. We recommend that the site be made accessible to persons with disabilities.

We concur with the USFS recommendation that the primitive access site located on the east side of the basin is the responsibility of UPPCo, and recommend that UPPCo operate and maintain the facility.

We disagree with MDNR's recommendation to provide a new shoreline fishing/viewing pier on the basin because existing use and demand do not warrant it. We conclude that the existing facilities are adequate for present use.

We also disagree with USFS' and MDNR's recommendation to provide a tailwater recreation facility down-stream of the powerhouse within view of the Lower Au Train Falls because there is insufficient room to provide vehicular access, parking, or development of the site. The powerhouse site is located at the base of a steep, wooded hillside and is constrained by both topography and the river. There is no room for expansion or development of additional area beyond what exists. Excluding the area needed to ensure adequate access for operation and maintenance of the project facilities, there would only be room at the site to provide one parking space. However, the access road to the powerhouse is a single lane and is steep, which would create potential safety hazards, as well as maneuvering problems. For instance, there would be no room to turn around once a vehicle began the descent to the site. Also, if there were cars down at the site already, there would be no room to turn around in order to drive back out of the site (UPPCo, 1993b). For these reasons, we conclude that it is not appropriate to provide vehicular access to this site. The site is accessible by foot and adequate parking at the powerhouse gate is available. There are also ample shoreline fishing opportunities at the powerhouse site. Therefore, we conclude that additional enhancements at the site are unnecessary.

We disagree with MDNR's recommendation to upgrade the existing boat launch at the Forest Lake State Forest Campground. Because the basin is shallow, most boaters visit the basin to fish or view wildlife. The existing boat launch, although not barrier-free, is adequate for the type and size of boats that use the reservoir, and the amount of boating use that it receives.

We agree that UPPCo should provide some level of support for the Forest Lake State Forest Campground, because it is the primary recreation site on the reservoir. However, we disagree that UPPCo should provide \$20,000 annually for its operation and maintenance. UPPCo currently contributes to this facility by leasing the property to MDNR at low or no cost. This land has an assessed value of over \$15,000 and would probably have a much higher value on the open market (Alger County, 1997). This represents a tangible benefit that UPPCo provides to MDNR. In addition, MDNR collects user fees for this site of approximately \$5,000 per year, based on the average number of user-days (Table

6) and the current fee of \$6 per day. Although we do not agree that UPPCo should fund \$20,000 annually, we conclude that a level of support up to \$5,000 would be a reasonable and appropriate enhancement, considering UPPCo's donation of the land and MDNR's fee collection. In the lease agreement with UPPCo, MDNR agreed to manage and maintain the campground. In addition, MDNR used National Park Service grant funds to construct the campground. When MDNR accepted the funds, it agreed to manage the facility (UPPCo, 1994b). We conclude that providing \$5,000 annually for the operation and maintenance of the campground, in addition to the contribution UPPCo makes to recreation at this site by providing a no or low cost lease, is a significant and appropriate enhancement.

We also disagree with USFS that annual consultation with the resource agencies is warranted. Our recommended operating plan would be beneficial for recreation resources and would not result in any appreciable issues that would require annual consultation.

We concur with the USFS recommendation that UPPCo prepare a recreation plan in consultation with MDNR and USFS. The plan should include a schedule for implementing UPPCo's proposed and our recommended recreation enhancements within 12 months of license issuance. Monitoring should be consistent with FERC Form 80 filings (which requires monitoring and consultation every six years).

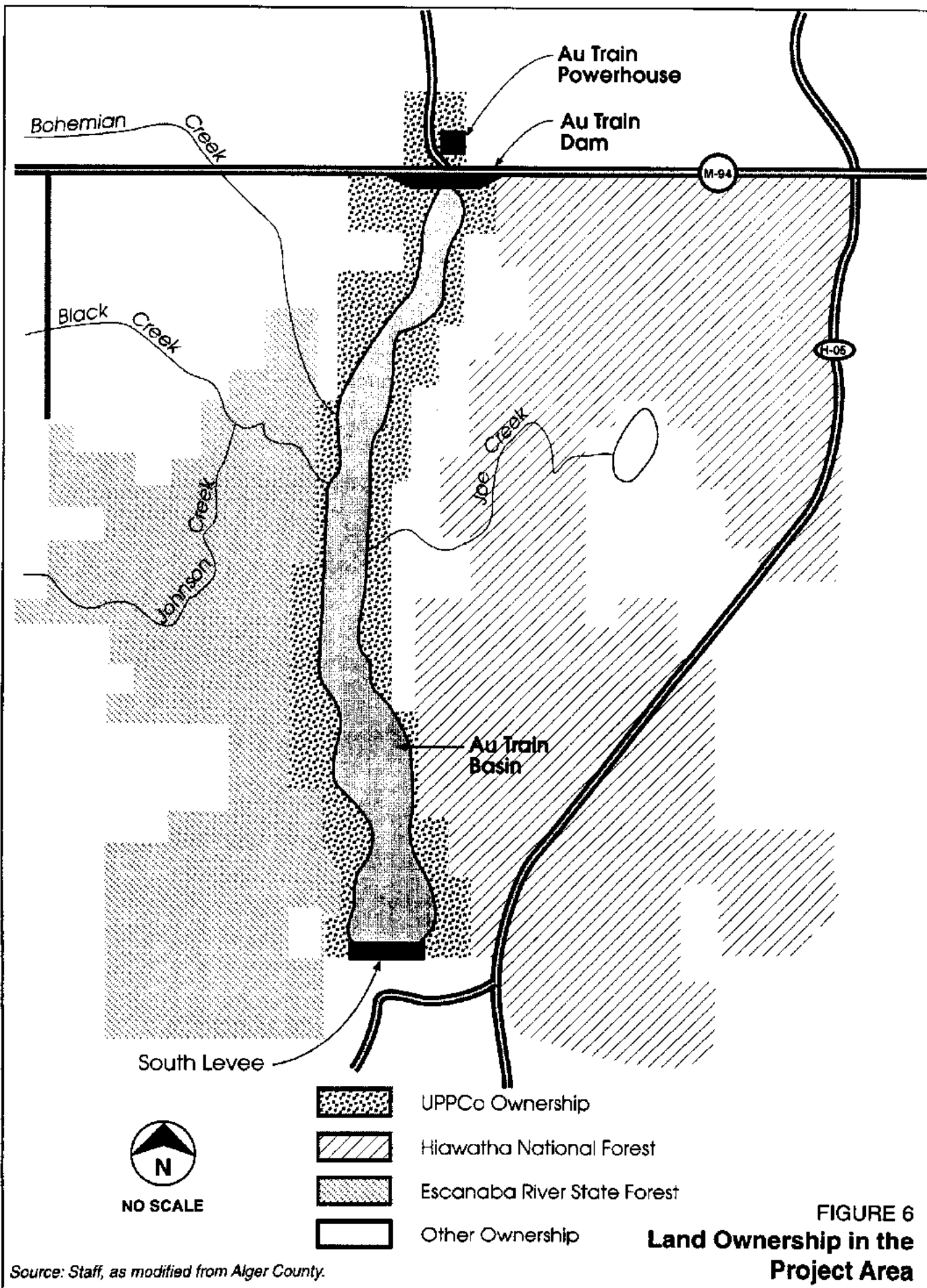
Unavoidable Adverse Impacts: None.

9. Land Use Resources

Affected Environment: About 85 percent of Alger County is wooded; and the predominant land use is commercial forestry. Other county land uses are as follows: about 3 percent of the land is in agricultural use, 1 percent is developed into urban uses, 2 percent is water (lakes, river, and reservoirs), 5 percent of the land is wetlands, and the remaining 4 percent is open or barren land (UPPCo, 1993a).

The town of Au Train is the nearest community to the project. Located 7 miles down-stream of the dam, residences are scattered along the shore of Au Train Lake. The city of Munising, located on Lake Superior (1990 population of 2,783), is about 15 miles northeast of the project.

Most of UPPCo's lands are bordered on the west by the Escanaba River State Forest (ERSF) and on the east by Hiawatha National Forest (Figure 6). In addition to state and federal forest lands, UPPCo lands adjoin private property, the majority of which are owned by Benson Forests.



Source: Staff, as modified from Alger County.

FIGURE 6
Land Ownership in the
Project Area

ERSF is a 460,000-acre state forest located in portions of Marquette, Alger, Delta, and Menominee counties. The ERSF is managed by MDNR to optimize timber, fish, and wildlife resources and to enhance opportunities for the enjoyment of outdoor recreation, aesthetic experiences, and related amenities. Management emphasis of ERSF lands in the vicinity of the basin is for: (1) expansion of agriculture to benefit migrating geese as part of the Au Train Waterfowl Project, and (2) old growth forest management (MDNR, 1991).

The Hiawatha National Forest is managed by the USFS to provide for multiple use and sustained yield of forest products and services, particularly by coordinating the use of the following resources: outdoor recreation, timber, wildlife, fish, and wilderness. Forest lands within the vicinity of the basin are managed for: (1) conifer management for sawlog production, (2) conifer stands of the same age for certain wildlife species, (3) dispersed and developed recreation, (4) enhanced vegetative composition for certain wildlife species, and (6) uneven-aged management of hardwoods for quality sawlogs (USFS, 1986).

Lands adjacent to the basin are owned by UPPCo (2,568 acres) and managed for timber production, wildlife management, and dispersed recreation. The area in which the project is located is rural and wooded.

Land in the project area is zoned for "timber production" by Alger County. Permitted uses of lands within this zoning district include growing/harvesting timber, recreation, and seasonal dwellings (UPPCo, 1993a).

UPPCo leases various parcels adjacent to the basin, as described briefly below:

- UPPCo has a no-cost use agreement with MDNR for a wildlife refuge (the Au Train Basin Waterfowl Project) located at the south end of the project.
- UPPCo leases a dozen small parcels for residential use.
- UPPCo leases lands to MDNR for the Forest Lake State Forest Campground.

UPPCo's land management policy excludes commercial logging within 200 feet of project waters at the basin or Au Train River. Exceptions to this practice may occur when USFS or MDNR recommend selective logging because of forest fire, tree disease, or an emergency situation.

The Au Train River is not a designated National Wild and Scenic River or a National Wild and Scenic River study river. The Au Train River is also not listed on the Nationwide Rivers

Inventory, nor is it part of the Michigan Natural Rivers System (UPPCo, 1993a).

Environmental Impacts and Recommendations: UPPCo proposes to maintain a 200-foot buffer along the reservoir shoreline and down-stream of the powerhouse on lands that it owns in which commercial logging would be prohibited. No timber management would occur within the buffer zone; however, certain activities would be permitted for safety and resource protection purposes. UPPCo does not propose any other land use measures as part of licensing the project.

MDNR recommends that: (1) UPPCo establish a boundary at this project and include all UPPCo lands adjacent to the project reservoir within it, (2) UPPCo develop a comprehensive land management plan (CLMP) in consultation with agencies for maintenance of those lands, and (3) any proposal to withdraw lands from the project boundary to restrict public access be reviewed by agencies before final approval by the Commission.

DOI recommends that UPPCo include within the project boundary the 2,568 acres it presently owns in the project vicinity and that any proposal to withdraw lands be reviewed by the FWS and MDNR prior to final Commission approval. DOI further recommends that UPPCo develop and implement a comprehensive resource management plan that includes provisions to protect environmentally sensitive areas and to provide for wildlife management.

USFS recommends that UPPCo establish a project boundary that includes all UPPCo-owned lands adjacent to the reservoir. USFS further recommends that UPPCo's logging activities on its lands generally follow Hiawatha National Forest Plan standards and guidelines. USFS also recommends that UPPCo maintain a 200-foot exclusion zone (where logging would be excluded) along the basin shoreline, and that down-stream of the dam, UPPCo maintain a 600-foot exclusion zone along both sides of the river to discourage establishment of vegetation attractive to the beaver, as well as to protect cold-water seeps.

We conclude that it is not necessary that all UPPCo-owned lands be included in a project boundary if any minor license is issued because these lands are not necessary for operation of the project. We do agree that a shoreline buffer is valuable for protection of the shoreline and environmental resources. We recommend that UPPCo establish a shoreline buffer along the reservoir shoreline and along the river down-stream of the dam within UPPCo-owned lands. We recommend that the shoreline buffer be targeted at 200 feet wide, but that it vary as necessary according to topography or species habitat needs. We recommend that the buffer area be determined in consultation with the

resource agencies. We do not agree with USFS's recommendation that a 600-foot buffer is necessary along the Au Train River down-stream of the dam. We conclude that a buffer with an average width of 200 feet would provide adequate protection of vegetation. A no-cut buffer zone would protect the shoreline, as well as provide vegetation to support future nesting sites for the bald eagle and other wildlife species. We recommend that UPPCo consult with the agencies to establish the boundary and width of the buffer zone, with an average width of 200 feet. We recommend that no timber management be permitted in the buffer zone; however, certain activities should be allowed for safety and resource protection purposes. For instance, removal of trees for non-commercial purposes, such as creating a clearing at the Upper Au Train viewing area, would be permitted.

We recommend that UPPCo develop a CLMP that details specific buffer zone management guidelines, defines the buffer zone, and addresses leasing policies for lands within the buffer zone. We also recommend that UPPCo modify its bald eagle management plan to incorporate buffer zone management policies.

UPPCo states that management of its lands is consistent with forest practices and objectives defined for both the Hiawatha National Forest and ERSF, and its land management practices provide long-term benefits to wildlife habitats and populations (UPPCo, 1993a). The only uplands that would be affected by licensing the project are the shoreline buffer and lands where the project facilities are located. Commercial forest practices would be excluded in the buffer zone. We have recommended that UPPCo incorporate buffer management provisions within the CLMP.

Unavoidable Adverse Impacts: Construction of UPPCo's proposed aesthetic viewing site would require clearing a small area of the shoreline in the bypassed reach down-stream of the dam. However, our buffer zone recommendation permits UPPCo to establish policies to permit cutting of trees in areas in the vicinity of existing or proposed recreation facilities or development; therefore, impacts to the buffer zone are not considered significant.

10. Socioeconomic Considerations

Affected Environment: The City of Munising, with a 1990 population of 2,783, is the largest community near the project. Alger County, Michigan, had a 1990 population of 8,972, which is a 2.7 percent decrease from 1980. The six-county area, which includes Alger County, experienced a 3 percent decline in population during the 1980s (Table 8).

Table 9. Michigan demographic characteristics
(Source: MDNR, 1991).

Population	Central Region*	State of Michigan
1980	182,390	9,295,044
1990	177,692	9,262,044
Percent change	-3.0%	-0.4%

*Central region includes Marquette, Dickenson, Menominee, Alger, Delta, and Schoolcraft counties.

Per capita income in Alger County was \$9,669 in 1989, compared to \$14,154 statewide (CUPPAD Regional Commission, 1993). Manufacturing, forestry products, and tourism are important sources of employment. Important tourist attractions in the area include Lake Superior, Pictured Rocks National Lakeshore, and other outdoor recreation sites.

Environmental Impacts and Recommendations: Neither UPPCo nor the agencies propose specific measures related to general socioeconomics. UPPCo proposes no substantial construction or expansion of existing facilities, nor do we recommend any development that would have a significant socioeconomic effect on the area. Operation of the Au Train Project would continue to provide benefits to the local and regional economy. Providing a stable reservoir level may lead to increased visitation by recreationists.

Unavoidable Adverse Impacts: None.

11. Air Quality

Affected Environment: Air quality in the project area is generally good. Contributions to air pollution in the project area are primarily from distant pollutant sources such as pulp and paper mills, metal foundries, and chemical plants.

The U.S. Environmental Protection Agency (EPA) has established national ambient air quality standards for six common air pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter less than 10 microns in diameter (PM₁₀), and lead. Table 9 presents the national ambient air quality standards. Michigan does not have state ambient air quality standards that supersede the national standards. The project area currently meets all national ambient air quality standards.

Environmental Impacts and Recommendations: The project currently generates about 5.9 GWh of energy annually. This amount of hydropower generation, when contrasted with the generation of an equal amount of energy by fossil-fueled facilities, avoids the unnecessary emission of a moderate

quantity of atmospheric pollutants. Our recommended operation modifications (see Section V.C.2-Water Resources) would result in a decrease of 64 MWh of energy generated annually. An increase in generation from fossil fuel plants (e.g., coal or oil, which are irreplaceable fossil fuels) would likely replace lost hydropower generation. This would result in an increase in air emissions. However, the increased air emissions would be minor and have no effect, because the project area currently meets all national ambient air quality standards.

Unavoidable Adverse Impacts: Proposed operating modifications would reduce power production, which would lead to the need to replace the lost hydropower generation with fossil fuel generation. This would result in a minor increase in air emissions.

Table 9. National ambient air quality standards (Source: CARB, 1994).

Pollutant	Averaging Time	Primary Standard	Secondary Standard
Ozone	1 Hour	0.12 ppm	0.12 ppm
Carbon Monoxide	8 Hour	9 ppm	--
	1 Hour	35 ppm	--
Nitrogen Dioxide	Annual Average	0.053 ppm	0.053 ppm
Sulfur Dioxide	Annual Average	80 $\mu\text{g}/\text{m}^3$	--
	24 Hour	365 $\mu\text{g}/\text{m}^3$	--
	3 Hour	--	1,300 $\mu\text{g}/\text{m}^3$
(PM ₁₀)	Annual Arithmetic	50 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$
	Mean 24 Hour	150 $\mu\text{g}/\text{m}^3$	150 $\mu\text{g}/\text{m}^3$
Lead	Calendar Quarter	1.5 $\mu\text{g}/\text{m}^3$	1.5 $\mu\text{g}/\text{m}^3$

Notes:

- National standards, other than ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard are equal to or less than one.
- Primary standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.
- Secondary standards are the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

VI. DEVELOPMENTAL ANALYSIS

In this section, we analyze the project's use of the river's water resources to generate hydropower by estimating the economic benefits of the proposed project. We also address the economic effects of various measures considered in the EA for the protection, mitigation, or enhancement of area resources.

We base our independent economic studies on current electric power conditions. We do not consider future inflation or escalation of prices.¹⁰

¹⁰ See Mead Corporation, Publishing Paper Division, 72 FERC Para. 61, 027 (July 13, 1995).

We base our estimate of the cost of alternative capacity and energy on the applicant's avoided cost. We used UPPCo's estimate of the cost of alternative power in the region of 25 mills/kWh for on-peak usage and 17.4 mills/kWh for off-peak usage.

We base our economic analysis of the alternatives on the data shown in Table 10. Based on these assumptions, we estimate that the annual cost of the existing project to produce about 5.895 GWh of energy annually would be about \$157,200 (26.7 mills/kWh) more than the currently available alternative.

Table 10. Staff's assumptions for economic analyses of the Au Train Hydroelectric Project (Source: Staff)

Assumption	Value	Source
O&M Costs (1996 dollars)	\$123,800	UPPCo
Discount Rate	10%	Staff
Book Value and construction cost (penstock replacement)	\$752,700	UPPCo
Application preparation cost	\$905,000	UPPCo

A. Proposed Project

In this section, we present the applicant's proposal which consists of continued operation of the Au Train Hydroelectric Project with its proposed environmental measures. Table 11 summarizes the costs and current net annual benefits of the applicant's proposal.

The current net annual benefits for the applicant's alternative would be about -\$183,700 or about -31.5 mills/kWh.

Table 11. Summary of costs and current net annual benefits of the applicant's proposed project-1996 \$ (Source: Staff).

Enhancement Measure	Capital Cost	Annual Cost	Annual Net Benefit
Existing project	--	--	-\$157,200
Operate modified run-of-river	--	\$8,500	-\$8,500
Down-stream USGS gage and basin level sensor	\$30,000	\$11,000	-\$15,300
Recreation improvements (viewing area at Upper Au Train Falls)	\$10,000	\$1,300	-\$2,700
Total:	\$40,000	\$20,800	-\$183,700

B. Staff's Alternative¹¹

In this section, we present the additional costs and current net annual benefits of the staff's recommended alternative, which consists of the applicant's proposed project with staff modifications. Table 12 presents the summary of these costs and the current net annual benefits.

The current net annual benefits for the staff's alternative would be about -\$209,000 or about -35.9 mills/kWh.

Table 12. Summary of costs and current net annual benefits of the staff's alternative--1996 \$ (Source: Staff).

Enhancement Measure	Capital Cost	Annual Cost	Annual Net Benefit
UPPCo's proposed project	\$40,000	\$20,800	-\$183,700
Erosion control	\$5,000	\$1,000	-\$1,700
Operation and compliance plan	\$10,000	\$2,000	-\$3,400
Bypass	\$15,000	\$1,000	-\$3,100
Staff gage	\$1,000	--	-\$100
Staff recreation enhancements (maintain east side access site)	\$10,000	\$1,300	-\$2,700
O&M assistance at Forest Lake State Forest Campground	--	\$5,000	-\$5,000
Recreation plan	\$5,000	--	-\$700
Wildlife plan	\$10,000	\$2,500	-\$3,900
Finalize bald eagle plan	\$2,000	\$1,000	-\$1,300
Purple loosestrife monitoring	\$5,000	\$1,000	-\$1,700
CLMP for buffer zone	\$5,000	\$1,000	-\$1,700
Total:	\$108,000	\$28,100	-\$209,000

C. No-action Alternative

Under the no-action alternative, the project would continue to operate under the current mode of operation, and no new environmental protection, mitigation, or enhancement measures would be implemented.

The annual cost of the existing project, including carry charges on net investment and application preparation costs, is about \$358,600 (60.8 mills/kWh) for the existing generation of about 5.895 GWh of energy annually. We estimate that the cost of

¹¹ This alternative reflects the staff's final proposed alternative after reviewing 10(j) recommendations as discussed in Section VII.

alternative power is about 34.2 mills/kWh. Therefore, the existing project would produce power at an annual cost of about \$157,200 (26.7 mills/kWh) more than the currently available alternative.

D. Economic Comparison of the Alternatives

Table 13 presents a summary of the current net annual benefits for the various alternatives.

Under the Commission's policy regarding evaluating the economics of a project, as articulated in Mead, supra, a proposed project is economically beneficial so long as its projected cost is less than the current cost of alternative energy to any utility in the region that can be served by the project. To determine whether the project proposed is economically beneficial, we compared the cost of energy from the proposed project to the alternative source of energy.

Table 13. Comparison of economic analyses for the Au Train Hydroelectric Project alternatives (Source: Staff)

	Alternatives		
	UPPCo's	Staff's	No-Action
Dependable capacity (MW)	0.9	0.9	0.9
Annual generation (GWh)	5.8	5.8	5.9
Annual cost of alternative power (thousand \$)	\$193	\$193	\$202
(mills/kWh)	33.1	33.1	34.2
Annual project cost (thousand \$)	\$377	\$402	\$359
(mills/kWh)	64.6	69.0	60.8
Current net annual economic benefits (thousand \$)	-\$184	-\$209	-\$157
(mills/kWh)	-31.5	-35.9	-26.6

Our evaluation of the economics of the proposal and staff's alternative shows that both appear to cost more than currently available alternative power.

E. Pollution Abatement

The Au Train Hydroelectric Project annually generates about 5.9 GWh of electricity on average. This amount of hydropower generation, when contrasted with the generation of an equal amount of energy by fossil-fueled facilities, avoids the unnecessary emission of a moderate quantity of atmospheric pollutants. Assuming that the 5.9 GWh of hydropower generation would be replaced by an equal amount of coal-fired generation, generating electric power equivalent to that produced by the

Au Train Hydroelectric Project would require combustion of about 2,500 tons of pulverized bituminous coal annually.

Without pollution control and assuming the sulfur content of the coal to be about 1.0 percent the following approximate quantities of atmospheric pollutants would be produced annually:

Oxides of sulfur	48 tons
Oxides of nitrogen	22 tons
Carbon monoxide	1.1 ton
Carbon dioxide	5,695 tons

Removing the oxides of sulfur and nitrogen from the flue gas produced by the combustion of fossil fuels increases the cost of generating electricity. State-of-the-art pollution technology is capable of removing about 95 percent of the oxides of sulfur and 60 percent of the oxides of nitrogen from the uncontrolled flue gases. Estimates of these control costs are about \$500 per ton for oxides of sulfur and \$385 per ton for oxides of nitrogen removed. The cost of removing 95 percent of the 48 tons of oxides of sulfur would be about \$23,000. The cost of removing 60 percent of the 22 tons of oxides of nitrogen would be about \$5,000.

VII. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located. When the Commission reviews a hydropower project, the recreation, fish and wildlife and other nondevelopmental values of the waterway are considered equally with its electric energy and other developmental values. In deciding whether or not and under what conditions to issue a hydropower license, the Commission must weigh various economic and environmental trade-offs.

We considered the applicant's proposed project, agency recommendations, our recommended protection, mitigation, or enhancement measures, and the no-action alternative under Sections 4(e) and 10(a) of the FPA. From our independent analysis of the environmental and economic effects of the alternatives, we selected the applicant's proposed project with our additional recommended measures (staff's alternative) as the preferred alternative.

This alternative consists of:

- operating the project in a modified run-of-river mode with winter draw-down

- maintaining a year-round minimum water elevation of 772.0 feet above local datum (773.7 feet above mean sea level) to protect bald eagle habitat from predators and recreationists
- maintaining a minimum continuous powerhouse discharge of 50 cfs to enhance fisheries resources in Au Train River
- installing a 10-cfs bypass system to maintain down-stream flows during emergency interruption of water flows to protect fisheries habitat down-stream
- installing and funding operation of a USGS gage on the Au Train River down-stream of the powerhouse to document compliance with continuous powerhouse discharge
- installing a level sensor on Au Train basin to document compliance with basin water level restrictions
- installing a staff gage on the up-stream face of the dam to allow public observance of water level compliance
- preparing a draw-down plan, to be incorporated into the operation and compliance plan, including a requirement for consultation with MDNR and FWS in advance of scheduled reservoir draw-downs below 772.0 feet, to protect fish and wildlife resources
- preparing an operation and compliance plan, including annual reports to the Commission and a three-year consultation/review meeting with the MDNR, FWS, and USFS, to document compliance with license conditions
- performing annual erosion surveys and report findings to the Commission every three years to minimize the effects of future erosion on basin resources
- consulting with MDNR and FWS to develop mutually-acceptable procedures to pass the majority of woody debris to the Au Train River down-stream of the powerhouse to improve fisheries habitat
- maintaining a buffer with a target width of 200 feet adjacent to the reservoir and river down-stream of the powerhouse on UPPCo-owned lands to minimize soil erosion and maintain aesthetic quality
- developing a wildlife management plan, including provisions to install an osprey platform, cooperate

with MDNR on brushing in the wildlife refuge, and consult annually with the resource agencies

- developing and implementing a bald eagle management plan to protect and preserve critical habitat
- developing and adopting a plan to monitor purple loosestrife and Eurasian milfoil
- constructing a barrier-free viewing area and providing directional signage to Upper Au Train Falls to enhance recreational resources at the project
- installing interpretive signage at Upper Au Train Falls to provide the public information about facilities and natural resources at the site
- planting trees to screen gravel pit/storage area at Upper Au Train Falls to improve aesthetics
- consulting with Michigan State Historic Preservation Officer (SHPO) prior to beginning construction activities to protect any cultural resources that may be discovered in the future
- developing a recreation plan, including our recommended recreation enhancements (the recreation site on the east side of the basin and partial funding for O&M at the Forest Lake State Forest Campground)
- preparing a CLMP to address buffer zone management and leasing policies

Implementation of these measures would improve water quality, fisheries, wildlife, and recreation resources; increase access to the river in the project area; and provide for the best use of the waterway. The costs of some of these measures would, however, reduce the net benefits of the project.

VIII. RECOMMENDATIONS OF FISH AND WILDLIFE AGENCIES

Under the provisions of the FPA, each hydroelectric license issued by the Commission must include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife and their habitat affected by the project.

Section 10(j) of the FPA states that whenever the Commission believes any fish and wildlife agency recommendation may be inconsistent with the purposes and requirements of the FPA or other applicable law, the Commission and the agency shall attempt

to resolve any such inconsistency, giving due weight to recommendations, expertise, and statutory responsibilities of the agency.

Pursuant to Section 10(j) of the FPA, we made a preliminary determination that certain of the recommendations of the federal and state fish and wildlife agencies may be inconsistent with the purposes and requirements of Part 1 of the FPA or other applicable laws. Recommendations or parts of recommendations that were considered inconsistent with Section 10(j) conflict with the comprehensive planning and public interest standards of Section 4(e) and 10(a) of the FPA.

In the draft EA, issued May 24, 1996, we preliminarily determined that 27 of the 38 recommendations made by fish and wildlife agencies were within the scope of Section 10(j) of the FPA. Of the 27 recommendations, we adopted 14 fully. We identified 13 resource agency recommendations that we determined may be inconsistent. On December 11, 1996, we met with representatives from the MDNR and FWS in Marquette, Michigan to discuss agency recommendations that we did not recommend adopting in the draft EA. We discussed recommendations considered within Section 10(j), as well as those outside Section 10(j). At the Section 10(j) meeting we reached resolution on six of the 13 inconsistencies. The seven remaining inconsistencies are as follows:

- Install a bypass system to ensure minimum flows downstream of the powerhouse
- Maintain state water quality standards for DO and temperature
- Develop and implement water quality monitoring
- Develop and implement a down-stream fish exclusion plan and effectiveness study and install an interim fish barrier net during ice-out periods
- Include and retain all UPpCo-owned lands within a project boundary
- Develop and implement a CLMP for all UPpCo-owned lands
- Finalize the bald eagle management plan with additional provisions; include all UPpCo-owned lands in bald eagle management plan

For the Au Train Project, MDNR and DOI have had the opportunity to make comments and recommendations. Both agencies have provided recommendations, and all recommendations are evaluated and discussed in their specific resource sections of

this EA. We present our preliminary conclusions concerning the merits of these recommendations there. In Table 14, we summarize MDNR's and DOI's recommendations, show the annual cost of environmental measures, show if they are within the scope of 10(j), and whether they are adopted under staff's alternative.

Table 14. Summary of all fish and wildlife resource agency recommendations under FPA Sections 10(j) and 10(a).

No.	Agency	Agency Recommendation	Within Scope of 10(j)	Annual Cost of Environmental Measure	Adopted
1	MDNR	Maintain monthly target reservoir elevations; notify agencies within 7 days of falling below target elevation to absolute minimum elevation	Yes	High	No; historical draw-downs have not caused adverse effects; some draw-down is needed to maintain continuous discharge; resolved at the Section 10(j) meeting; MDNR agreed to our recommendation with the addition of a 3-year review meeting
2	DOI	Maintain minimum reservoir elevation of 772.0 feet May through February, and 776.5 feet in March and April	Yes	High	Partial; recommend minimum elevation of 772.0 feet year round; resolved at the Section 10(j) meeting; DOI agreed to our recommendation with the addition of a 3-year review meeting
3	MDNR	Do not operate in peaking mode	Yes	High	Yes
4	MDNR	Provide stable daily flow from powerhouse without more than 20 percent fluctuation from previous day's flow	Yes	High	No; cannot be achieved with modified run-of-river operation; resolved at Section 10(j) meeting; MDNR agreed with our recommendation with the addition of a 3-year review meeting
5	MDNR	Provide continuous powerhouse target discharge; notify agencies within 7 days of falling below target to absolute minimum discharge	Yes	Low	Partial; recommend continuous powerhouse discharge of 50 cfs year-round; resolved at Section 10(j) meeting; MDNR agreed with our recommendation with the addition of a 3-year review meeting
6	DOI	Provide minimum 50-cfs flow from the powerhouse year-round	Yes	Low	Yes

Table 14. Summary of all fish and wildlife resource agency recommendations under FPA Sections 10(j) and 10(a).

No.	Agency	Agency Recommendation	Within Scope of 10(j)	Annual Cost of Environmental Measure	Adopted
7	MDNR DOI	Identify mitigation for emergency draw-downs; obtain MDNR permits and notify agencies draw-downs or refills greater than one foot	No ^a	Low	No; the Commission will determine need for mitigation; UPPCo must seek Commission approval for scheduled draw-downs; at the Section 10(j) meeting MDNR and staff agreed that we would recommend a draw-down plan
8	DOI	Consult with agencies in advance of scheduled draw-down	Yes	Low	Yes
9	DOI	In the event of emergency or planned shutdowns, pass inflow instantaneously, or within a few minutes, through the turbines or over the spillway	Yes	\$6,100	Partial; provide mechanism to provide 10 cfs flow in case of power shutdown or emergency
10	MDNR	Install a bypass system to ensure minimum flows down-stream of the powerhouse	Yes	\$6,100	Partial; provide mechanism to provide 10 cfs flow in case of power shutdown or emergency
11	MDNR	Develop and implement an operation effectiveness plan	No ^b	\$51,600	Partial; provide annual consultation and reporting
12	MDNR	Maintain state water quality standards for dissolved oxygen and temperature	Yes	High	No; down-stream cannot meet coldwater DO or temperature standards
13	MDNR	Develop and implement a water quality monitoring program	Yes	\$25,900	No; project operation not affecting water quality
14	MDNR	Pay liquidated damages to state for each violation of water quality standards	No ^a	High	No; Commission will determine need for mitigation
15	MDNR DOI	Develop and implement an operation and compliance plan	Yes	Low	Yes
16	MDNR	Install and operate a USGS gage below the powerhouse and on basin	Yes	\$15,300	Yes
17	DOI	Fund continued operation of the down-stream USGS gage	Yes	\$13,600	Yes

Table 14. Summary of all fish and wildlife resource agency recommendations under FPA Sections 10(j) and 10(a).

No.	Agency	Agency Recommendation	Within Scope of 10(j)	Annual Cost of Environmental Measure	Adopted
18	MDNR	Telemeter USGS gage down-stream and on basin	No*	\$3,400	No; not needed for compliance; at the Section 10(j) meeting, MDNR agreed to accept UPPCo operating data upon request in lieu of telemetry
19	MDNR DOI	Install staff gage on the up-stream wall of the dam for public viewing	No*	\$100	Yes
20	MDNR	Maintain a record of operation on a 30-minute basis	No*	\$12,100	Partial; recommend hourly records be recorded; MDNR stated in comments on the draft EA that it would accept hourly data
21	DOI	Use automatic sensors to continuously read headwater elevations, and maintain daily record of operations	Yes	\$1,700	Yes
22	DOI	Install an automatic tailwater sensor to continuously record elevations	No*	\$1,700	No; tailwater sensor not needed for compliance; at the Section 10(j) meeting, DOI withdrew this recommendation
23	MDNR	Develop and implement a down-stream fish exclusion plan and effectiveness study; design, install, and maintain a barrier net during ice-out periods in interim	Yes	\$137,400	No; fish are not adversely affected
24	MDNR	Fund, conduct, and complete a fishery damage assessment and make appropriate payments, or pay restitution value for lost fishery resources	No*	\$58,000	No; Commission has no authority pursuant to the FPA to adjudicate claims for, or require payment of, damages
25	MDNR	Develop and implement a plan to increase the amount of woody debris and control bank erosion in the river down-stream of the powerhouse in order to improve trout habitat	Yes	\$8,000	Partial; habitat is abundant down-stream; erosion would be addressed in erosion surveys; resolved at the Section 10(j) meeting; we recommend that UPPCo consult with MDNR and FWS to develop procedures to pass woody debris

Table 14. Summary of all fish and wildlife resource agency recommendations under FPA Sections 10(j) and 10(a).

No.	Agency	Agency Recommendation	Within Scope of 10(j)	Annual Cost of Environmental Measure	Adopted
26	MDNR	Specific recreation facility enhancements, including funding for Forest Lake State Forest Campground O&M	No ^a	\$39,200	Partial; recommend some facility enhancement and partial funding for O&M at Forest Lake State Forest Campground
27	MDNR DOI	Include all UPPCo-owned lands within project boundary, retain all licensee-owned lands within the project boundary; notify agencies before modifying project boundary or restricting public access	Yes	High	No; additional lands beyond the variable buffer are not needed for operation
28	MDNR DOI	Develop and implement CLMP for all UPPCo-owned lands	Yes	\$2,400	Partial; recommend a CLMP for the buffer zone; management of lands beyond the buffer is not needed for operation or enhancement measures
29	MDNR DOI	Develop and implement a wildlife management plan	Yes	\$2,400	Yes
30	MDNR DOI	Provide the following wildlife and waterfowl structures: <ul style="list-style-type: none"> • 64 wood duck boxes and mallard nesting habitat • 1 osprey nesting platform • 2 purple martin nesting colonies • 3 bat nesting houses • eastern bluebird houses • kestrel and owl nesting locations 	Yes	\$2,100	Yes; at the Section 10(j) meeting, MDNR agreed to withdraw its recommendations for wood duck boxes, mallard nesting habitat, purple martin nesting colonies, bat nesting houses, eastern bluebird nesting, and kestrel and owl nesting; we now only recommend the osprey platform, consistent with MDNR's revised recommendation
31	MDNR	Fund maintenance and enhancement of the existing waterfowl refuge on UPPCo's lands	No ^a	Low	No; no justification provided for need or use of funds, UPPCo provides 997 acres which are protected; at the Section 10(j) meeting, staff and MDNR agreed that we would recommend that UPPCo cooperate with maintenance and assist in removing brush at the portion of the refuge within the buffer zone

Table 14. Summary of all fish and wildlife resource agency recommendations under FPA Sections 10(j) and 10(a).

No.	Agency	Agency Recommendation	Within Scope of 10(j)	Annual Cost of Environmental Measure	Adopted
32	MDNR DOI	Finalize the Bald Eagle Management Plan with additional provisions	Yes	\$1,300	Partial; recommend final plan include most provisions; at the Section 10(j) meeting, we agreed to recommend that UPPCo maintain existing bald eagle signage; staff and MDNR did not resolve the need to include all UPPCo-owned lands in bald eagle management plan
33	DOI	Operate project consistent with the "Northern States Bald Eagle Recovery Plan" and the "Bald Eagle Winter Management Guidelines"	Yes	Low	Yes
34	DOI	Adhere to the "Recovery Plan for the Eastern Timber Wolf" guidelines if new roads are constructed on UPPCo lands adjacent to the project in the future	Yes	Low	Yes
35	MDNR	Develop and implement a plan to monitor and control purple loose-stripe and Eurasian milfoil on project waters	Yes	\$1,700	Yes
36	MDNR	Develop and implement a plan to inventory, control, and repair present and future erosion	Yes	\$1,700	Yes
37	MDNR	10 years after license issuance, perform project retirement study and establish retirement fund	No*	\$41,200	No; UPPCo has sufficient resources to retire project if warranted in future
38	MDNR DOI	Include standard fish and wildlife reopener	Yes	Low	Yes

*Not a specific measure to protect fish and wildlife

**Studies could have been requested and completed during pre-licensing consultation

As noted above, conditions based on fish and wildlife recommendations submitted pursuant to Section 10(j) must be included in the license unless the Commission determines that the recommendations are inconsistent with the purposes and requirements of the FPA or other applicable law. If the Commission does not adopt a recommendation submitted pursuant to Section 10(j), it must explain, pursuant to Section 10(j)(2), how the recommendation is inconsistent with applicable law and how the conditions selected by the Commission adequately and

equitably protect, mitigate damages to, and enhance fish and wildlife. In doing so, we first determine whether the recommendation is supported by substantial evidence in the record, that is, whether there is evidence in the record adequate to support a conclusion. If not, the recommendation is inconsistent with the requirement of Section 313(b) of the FPA that Commission orders be supported by substantial evidence.¹² Next, we determine whether a substantiated recommendation is inconsistent with the FPA or other applicable determinations under the equal consideration/comprehensive development standards of FPA Sections 4(e) and 10(a)(1), in that the recommendation conflicts unduly with another project purpose or value (including the project's economic benefits).¹³ In short, we determine whether the recommendation would have a significant, negative impact on a valuable project purpose or beneficial use.

Because implementing all the agency recommendations taken together would have substantial adverse effects on project purposes, including economics as shown in Table 14, we looked at each individual recommendation to determine whether benefits to the environment would be worth the cost of implementing the measure. For the reasons discussed in the following paragraphs, we determined the following recommendations to be inconsistent with Sections 4(e) or 10(a) of the FPA and either partially adopted or did not adopt them.

We do not recommend that UPPCo maintain specific target and absolute minimum water surface elevations, as recommended by MDNR, DOI, and USFS. The agencies provide insufficient evidence, pursuant to Section 313(b) of the FPA, that the historical draw-downs have adversely affected basin resources. Higher basin water levels would preclude UPPCo from providing a continuous powerhouse discharge to enhance riverine fish and wildlife resources. Since providing higher basin water levels would significantly reduce the probability of continuous flows discharged down-stream from the powerhouse, and thus potentially damage the riverine fishery, we conclude that MDNR's recommendation is inconsistent with the comprehensive planning standard of Section 10(a) of the FPA. We also conclude that our recommendation would adequately and equitably enhance fish resources, consistent with Section 10(j) of the FPA. Our recommended operating plan represents an enhancement over historical conditions, in that the reservoir would be held an average of one foot higher, bald eagle habitat would be protected, and down-stream aquatic and recreational resources would benefit from a continuous reliable flow in the Au Train River. At the Section 10(j) meeting, MDNR and DOI agreed to our

¹² See IV FERC Statutes and Regulations, supra, ¶ 30,921 at p. 30, 157.

¹³ See Mead Corporation, Publishing Paper Division, 72 ¶ 61,027 (1995)

recommended operating levels as stated in the draft EA, with the addition of a three-year review/consultation meeting to evaluate operating data. Although MDNR expressed concern over operations if ownership of the project was transferred, we conclude that it is premature at this point to discuss that possibility. If and when the license is transferred, a separate Commission action would take place. MDNR could express its opinion at that time.

MDNR's recommendation that no daily discharge deviate from the previous day's discharge more than 20 percent is inconsistent with its recommendation for a continuous powerhouse discharge to protect down-stream fisheries resources. MDNR presented insufficient evidence, pursuant to Section 313(b) of the FPA that the 20-percent limitation is feasible, given UPPCo's current equipment, or that the limitation is necessary to protect down-stream resources. Because the recommendation is infeasible and incompatible with other MDNR 10(j) recommendations, we do not concur with this recommendation. Our recommendation for a continuous powerhouse discharge of 50 cfs would protect down-stream fisheries resources. At the Section 10(j) meeting, MDNR and DOI agreed to our recommendation for no specific limitation on daily discharge changes as stated in the draft EA, with the addition of a three-year review/consultation meeting to evaluate operating data.

We partially adopted MDNR's recommendation for a continuous powerhouse discharge ranging from 70 to 100 cfs. Flows can be released through the powerhouse at a rate of approximately 50 to 69 cfs (one turbine) or at 100 to 136 cfs (two turbines). Therefore, consistent minimum flows of 70 cfs, as MDNR recommends, are not possible with existing equipment. With UPPCo's limited ability to regulate flows between one and two turbine operation, continuous minimum flows must be either 50 or 100 cfs. A continuous flow of 100 cfs would cause unnecessary basin draw-downs with little gain in down-stream habitat improvement. Therefore, we conclude that MDNR's recommendation is neither in the public interest nor consistent with the Commission's balancing responsibilities, pursuant to Sections 10(a) and 4(e) of the FPA. Based on our review of the habitat-discharge relationships that UPPCo developed in its instream flow study, we conclude that a 50-cfs minimum discharge, supplemented with leakage and accretion, would significantly enhance rearing conditions for the various salmonid species that inhabit the Au Train River, compared to historic operation where powerhouse discharge was occasionally terminated. At the Section 10(j) meeting, MDNR and DOI agreed to our recommended powerhouse discharges as stated in the draft EA, with the addition of a three-year review/consultation meeting to evaluate operating data.

We partially adopted DOI's recommendation to pass inflow instantaneously and MDNR's recommendation to install a bypass

system to ensure minimum flows down-stream of the powerhouse in the event of an emergency or planned project shutdown. We determined that providing the full minimum powerhouse discharge of 50 cfs to the Au Train River in an emergency would impose a significant cost on the project. Based on our analysis of habitat-discharge curves for the river and our knowledge of flow leakage through the dam and accretion to the river, we determined that providing a bypass structure capable of discharging 10 cfs in an emergency would adequately protect down-stream fisheries resources. At the Section 10(j) meeting, MDNR stated that it could accept a 10-cfs siphon discharge for up to 24 hours, but if a project shutdown lasted longer than that, it maintains its recommendation that UPPCo provide 50 cfs at the powerhouse. MDNR stated that this could be provided by a 35-cfs siphon, allowing for up to 15 cfs accretion and dam leakage. We conclude that the expense required to design and install a siphon capable of discharging 35 cfs far outweighs the benefit that would be realized by increasing the emergency flow from 10 to 35 cfs. We conclude that 10 cfs from the siphon and 10 cfs from accretion and leakage would adequately protect aquatic resources in the unlikely event of a project shutdown. Therefore, we conclude that the DOI and MDNR recommendations are inconsistent with the Commission's balancing responsibilities under Sections 10(a) and 4(e) of the FPA.

The MDNR's request to include water quality standards in the license is subject to balancing considerations under Section 10(j), the public interest standards of Section 4(e), and the comprehensive planning standards of Section 10(a) of the FPA. As noted previously, Michigan did not respond to UPPCo's request for water quality certification within 1 year, so we deem certification to be waived for FPA licensing purposes. Current water quality is sufficient to support warmwater fishery resources, although temperature deviations from Michigan's coldwater standards during summer months may limit the opportunity for coldwater fisheries in the river. The river supports a diverse population of both coldwater and warmwater species, including brown and brook trout, coho and chinook salmon, walleye, and steelhead trout. As MDNR notes in its 10(j) terms and conditions, the deviations from coldwater temperature standards in the river cannot be mitigated. Therefore, including water quality standards in the license or requiring liquidated damages for violations of standards is not in the public interest or consistent with the Commission's balancing responsibilities, pursuant to Sections 10(a) and 4(e) of the FPA.

We do not concur with MDNR's recommendation that UPPCo conduct water quality monitoring. UPPCo's 1991 monitoring demonstrated that water quality is generally very good in the project area and that operation of the Au Train Project does not significantly affect water quality in the Au Train River. The significant cost associated with conducting periodic monitoring

(\$25,900 annualized cost) is not commensurate with the limited benefit that could be realized by obtaining more data. Water quality deviations from coldwater standards down-stream cannot be mitigated by the project. Therefore, we conclude that this recommendation is inconsistent with our balancing responsibilities under Section 10(a) of the FPA. At the Section 10(j) meeting, MDNR offered an alternative monitoring plan that was less extensive than its original recommendation. The alternative consisted of tailwater DO monitoring from May 15 to October 15, year-round temperature monitoring in the tailwater and all three tributaries, a sediment/fish contaminant study every time the reservoir is drawn down below 772 feet, and a periodic limnological analysis roughly every 5 to 7 years. MDNR recommends that UPPCo conduct this monitoring for three years, at which time MDNR would evaluate the adequacy of the data and determine the overall frequency of monitoring for the remainder of the license term. We estimated that the cost of this scaled down monitoring would be \$18,900. Although the cost of the monitoring equipment is not great, there is a substantial data management effort that would still be necessary. We concluded that UPPCo's 1991 monitoring data adequately characterizes water quality in the project area and little insight would be gained from additional monitoring. Given that the cost of the monitoring would outweigh the limited benefits, we conclude that this recommendation is inconsistent with our balancing responsibilities under Sections 10(a) and 4(e) of the FPA.

We did not adopt MDNR's recommendation for a fish exclusion plan, because results of an entrainment study demonstrated that operations are not significantly affecting target fish species in the reservoir. The majority of entrained fish are juvenile or rough fish that MDNR manually removed from the basin in the past because they are undesirable (see Section V.C.3-Fisheries Resources). We conclude that competition for resources between entrained warmwater reservoir fish and resident coldwater species is unlikely. Suitable habitat for both coldwater and warmwater species in the Au Train River is abundant. Perch and northern pike are not riverine fish and will move into Au Train Lake; white sucker will not compete with coldwater species because of inherent differences in their habitat preferences. Further, warmwater species from Lake Superior and Au Train Lake can migrate up-stream to the Au Train River; therefore, providing a fish exclusion device in the basin would not preclude warmwater species from gaining access to the reach. Based on our analysis, we conclude that project operations do not significantly affect the fishery resources of the Au Train River. We conclude that, given the results of the entrainment study, the benefits of a fish exclusion plan and interim barrier net are not justified by the significant effect that they would have on project economics (\$137,400 annual cost). Therefore, we conclude that MDNR's recommendation is inconsistent with the comprehensive planning

standard of Section 10(a) of the FPA, including the equal consideration provision of Section 4(e) of the FPA.

In the draft EA, we did not recommend that UPPCo develop a plan to increase the amount of woody debris in the Au Train River down-stream of the powerhouse. MDNR provided no evidence that woody debris is lacking in that reach of river. To the contrary, we found the river to have excellent shelter and habitat for fish during staff's site visit to the project. The significant annual cost (\$8,000) that would be associated with providing woody debris periodically is not commensurate with the minimal benefits that would be realized by additional woody debris in a river that has sufficient cover and habitat. Therefore, we find this recommendation inconsistent with our balancing responsibilities under Sections 4(e) and 10(a) of the FPA. At the Section 10(j) meeting, MDNR clarified its recommendation regarding woody debris, recommending that UPPCo incorporate woody debris into any erosion mitigation and that UPPCo pass woody debris over the dam as part of normal operation and maintenance. FWS also expressed concern at the Section 10(j) meeting that UPPCo pass the majority of woody debris to the river down-stream of the powerhouse. We agreed at the meeting that woody debris transport could be considered part of normal operation and maintenance. Subsequent to the Section 10(j) meeting, UPPCo and MDNR filed letters with the Commission further discussing the specific difficulties and need for woody debris transport at the project (UPPCo, 1997 and MDNR, 1997). While we agree that the Au Train Project has unique characteristics that could make passing woody debris down-stream difficult, or cause safety concerns, we conclude that a low- or no-cost method of transporting manageable-sized pieces of woody debris could be developed, in consultation with the agencies. Therefore, we recommend that UPPCo consult with the resource agencies on a mutually-acceptable method of transporting the majority of woody debris that enters the Au Train reservoir to the river down-stream of the powerhouse. We also recommend that if UPPCo identifies project-induced erosion in the down-stream reach in the future, that it incorporate reasonable and appropriate trout habitat enhancement structures (such as large woody debris used to protect the bank and extend into the river to provide trout habitat) into the repair in consultation with the resource agencies.

We do not agree with the MDNR and DOI recommendation that all UPPCo-owned lands be included within the project boundary, and that UPPCo notify the agencies before modifying the project boundary during the term of the license. As a minor license, no project boundary is required. There is no evidence that these lands are necessary for operation of the project. UPPCo's proposed shoreline buffer would protect resources along the basin shoreline and down-stream of the powerhouse. Therefore, we conclude that this recommendation is inconsistent with the

Commission's balancing responsibilities under Sections 4(e) and 10(a) of the FPA.

We do not agree with the need for a CLMP for all UPPCo-owned lands because all of UPPCo's lands are not necessary for operation of the project, nor do they provide an enhancement measure associated with project operation. We recommend that UPPCo develop a CLMP that would address land use issues and procedures within the buffer zone. The CLMP would define the buffer zone boundary, include specific management guidelines, and address leasing policies for lands within the buffer zone. We conclude that our recommendation adequately protects the resources that are affected by project operation and, therefore, that MDNR's recommendation is inconsistent with the comprehensive development standard of Section 10(a) of the FPA.

We do not agree that all of MDNR's additional bald eagle provisions should be incorporated into UPPCo's final bald eagle plan. We do not agree that public information distribution and sign posting is needed beyond current levels implemented by other agencies. USFS currently posts signs restricting access to critical habitat. We conclude that requiring additional signage is unnecessary and requiring UPPCo to prepare public information/education materials would not enhance habitat opportunities for the bald eagle above what is currently provided. Including all UPPCo-owned lands in a project boundary to ensure that they are included in the bald eagle management plan is excessive. We conclude that the provisions in UPPCo's current bald eagle plan, plus the additional measures recommended by DOI and MDNR regarding activities within the primary, secondary, and tertiary zones, would adequately protect bald eagle habitat in the project area. We recommend that UPPCo finalize its bald eagle plan, incorporating the "Northern States Bald Eagle Recovery Plan" and the "Bald Eagle Winter Management Guidelines," as recommended by DOI. These measures would ensure that bald eagles are fully protected, as required under the ESA. We conclude that MDNR's additional provisions are inconsistent with the Commission's balancing responsibilities under Sections 4(e) and 10(a) of the FPA. At the Section 10(j) meeting, staff and MDNR discussed MDNR's recommendation regarding additional signage. MDNR suggested, and we concurred, that an appropriate level of effort would be for UPPCo to be responsible for maintaining current signage at the project.

Recommendations Outside of Scope of Section 10(j)

We determined that 11 of the 38 recommendations of the federal and state fish and wildlife agencies are outside of the scope of Section 10(j) because they are not specific measures to protect fish and wildlife. These recommendations are, therefore, considered under the public interest standards of Section 10(a) of the FPA. In the draft EA, we determined that four of these

recommendations have merit, and, therefore, adopted or partially adopted them. The remaining seven recommendations would not be in the public interest. At the Section 10(j) meeting, we resolved four of the seven inconsistencies, and did not adopt three for the following reasons:

- MDNR's recommendations that UPPCo identify mitigation for emergency violations of impoundment fluctuations, and that maintenance draw-downs greater than 1 foot require an MDNR permit, because our recommended allowable draw-down is 8 feet. Draw-downs within the permitted operating band should not require special notification. At the Section 10(j) meeting, MDNR stated that it would accept a recommendation for a license article requiring a draw-down plan that UPPCo would develop with the agencies. We recommend this in Section V.C.2.g.
- MDNR's recommendation that UPPCo pay liquidated damages for all violations of water quality standards in the Au Train River because the project does not significantly contribute to, nor can it mitigate for, deviations from coldwater temperature standards. Further, the Commission has no authority pursuant to the FPA to adjudicate claims for, or require payment of, damages (see Section V.C.2-Water Resources).
- MDNR's recommendation to add telemetry to the down-stream USGS gage and the level sensor in the basin because this measure would not be useful for project operations or necessary to demonstrate compliance. The limited benefit is not commensurate with the significant annual cost of this measure (\$3,400). At the Section 10(j) meeting, MDNR agreed that telemetry would not be necessary if staff recommended that UPPCo provide operating data to MDNR upon request. We had already recommended this in Section V.C.2.g.
- DOI's recommendation to install an automatic tailwater sensor to continuously record tailwater elevations because compliance with the minimum flow would be measured by the down-stream USGS gage and verified with turbine operations. An additional gage in the tailwater, which would have an annual cost of \$1,700, would be redundant. At the Section 10(j) meeting, DOI withdrew this recommendation.
- MDNR's recommendation to conduct an FDA to determine compensation for unavoidable fish losses because results on an entrainment study demonstrated that operation of the turbines does not significantly affect fisheries in the basin or the river. Fish species are

diverse and abundant. We conclude that entrainment and turbine mortality is not having a major impact on fishery resources. Further, the Commission has no authority pursuant to the FPA to adjudicate claims for, or require payment of, damages (see Section V.C.3.b.)

- MDNR's recommendation that UPPCo fund maintenance and enhancement of the existing waterfowl refuge on UPPCo's lands. MDNR did not provide information on specific enhancement measures it would like funded and the amount of funding requested or the need for enhancements at the refuge. We concluded that UPPCo's donation of the nearly 1,000 acres for use in the creation of the wildlife refuge was, and is, a significant ongoing contribution to the wildlife refuge and further funding requirements is unnecessary. At the Section 10(j) meeting, MDNR and staff agreed that staff would recommend that UPPCo participate in clearing brush within the buffer zone of the wildlife refuge. We recommend that this be included in the wildlife management plan.
- MDNR's recommendation to study and develop a plan for project removal during the license period, and establish a trust fund for project retirement.

With respect to the last recommendation concerning development of a plan for dam removal and establishment of a trust fund for project retirement, we consider the issue separately from other nondevelopmental issues.

MDNR recommended that UPPCo develop, 10 years after license issuance, a plan to study the costs for: (1) permanent nonpower operation, (2) partial project removal, or (3) complete project removal. A subsequent study would address establishment of a retirement trust fund. The purpose of this recommendation is to address future project retirement and the consequences to fisheries habitat of these facilities when they have exceeded their economic life and are sold, transferred to other owners, or otherwise fall into disrepair.

The Commission's position is set forth in the December 14, 1994, Policy Statement.¹⁴ With respect to retirement with or without dam removal, it retains jurisdiction of hydropower projects until a comprehensive resolution with respect to retirement of the project at the end of the license term or, in the event of a license denial, resolution is arranged with the licensee, the state, and other pertinent parties. The Commission recognizes the need for responsible state agencies to be partners

¹⁴ FERC Statutes and Regulations 31,011 (1994).

in any arrangement that is worked out at the time when federal licensing ends.

The Commission also notes that once the Commission's jurisdiction has concluded, the preemption that earlier displaced any state laws would be at an end. The state would then be at liberty to impose its own licensing or other regulatory regime free from any restrictions imposed earlier by the FPA.

Through the retirement process the Commission's objective is to resolve, on a case-by-case basis, and to the satisfaction of the successor agency, matters pertaining to retirement at the end of the license term and to accomplish a mutually acceptable resolution of the issues. Therefore, we have not adopted MDNR's recommendation at this time, because it would be addressed at the end of the term of the license.

With respect to establishing a trust fund for project retirement, the Commission stated that it will not generically impose retirement funding requirements on a licensee. However, the licensee is ultimately responsible for meeting a reasonable level of retirement costs when the project is retired. The licensee should plan accordingly and the Commission will not accept the lack of adequate preparation as justification for not retiring a project. Provision for midcourse funding may become appropriate. The Commission encourages affected parties to develop creative solutions to pre-retirement funding in such situations.

In certain situations, where supported by the record, the Commission may impose license conditions to ensure that funds are available to do the job when the time for retirement arrives. The Commission reserves authority to determine on a case-by-case basis whether or not to impose funding requirements at the time of licensing. The Commission needs reasons to require a retirement trust fund beyond a general belief in having such a fund. The policy states:

There may be particular facts on the record in individual cases, however, that will justify license conditions requiring the establishment of retirement cost trust funds in order to assure the availability of funding when decommissioning occurs. The Commission would consider, for example, whether there are factors suggesting that the life of the project may end within the next 30 years, and would also look at the financial viability of the licensee for indications that it would be unable to meet likely levels of expenditures without some form of advance planning.

There are no data to suggest that the Au Train Hydroelectric Project is in poor physical condition. Further, as discussed in Mead Paper, 72 FERC 61,027 (1995) and Duke Power, 72 FERC 61,030

(1995), a finding that a project currently appears to have negative annual benefits does not preclude issuance of a license and whether the project should continue operation is a business decision for the licensee to make. Therefore, we have not adopted MDNR's recommendation for UPPCo to study dam removal or establish a trust fund.

IX. COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. Pursuant to Section 10(a)(2)(A), federal and state agencies filed 55 plans that address various resources in Michigan and 9 plans of regional or national importance. Of these, we identified seven plans relevant to the project¹⁵. Other management plans consulted in addition to those on the Commission's list of comprehensive plans include the Michigan Department of Natural Resources 1990 *Escanaba River State Forest Comprehensive Management Plan*. The proposed project, with our enhancement measures, is consistent with these comprehensive plans.

X. FINDING OF NO SIGNIFICANT IMPACT

Implementing the protection and enhancement measures described in this EA would ensure that the environmental effects of continued project operation would be insignificant.

Based on our independent analysis, issuance of a license for this project with our environmental recommendations would not constitute a major federal action significantly affecting the quality of the human environment.

We conclude that no resources would experience significant adverse effects under the proposed action or any of the action alternatives considered in this EA.

¹⁵ U.S. Forest Service, 1986, *Hiawatha National Forest Land and Resource Management Plan and amendments*; Michigan Department of Natural Resources, Fisheries Division, 1978, *Au Train Basin Fisheries Management Plan*; Michigan Department of Natural Resources, Recreation Division, 1991, *1991-1996 Michigan Recreation Plan*; U.S. Fish and Wildlife Service, undated, *Fisheries USA*; U.S. Fish and Wildlife Service, 1990, *North American Waterfowl Management Plan*; National Park Service, 1982, *The Nationwide Rivers Inventory*; and Michigan Department of Natural Resources, Fisheries Division, 1994, *Fisheries Division Strategic Plan*.

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XII. LIST OF PREPARERS

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CH2M HILL Staff

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Christine Washburn, Aesthetic Resources, Recreation Resources, and Land Use Resources (M.U.P. Urban Planning; 10 years experience).

Appendix A
Responses to Comments on the
Draft Environmental Assessment

**Appendix A
Responses to Comments
on the Draft Environmental Assessment**

The Notice of Availability of the draft EA was published in the Federal Register on May 31, 1996. The draft EA was mailed to federal, state, and local agencies and individuals for comments on May 24, 1996.

All timely letters of comment that address specific analyses in the draft EA were reviewed by Commission staff. Suggestions for correcting text or data and requests for further discussion of a subject have been considered. Those editorial changes and suggestions that were practicable, reasonable, and that improved the quality of the EA were incorporated herein.

Constructive criticism presenting a major environmental point of view or one in opposition to staff, when persuasively supported, is treated by making revisions in appropriate parts of the final EA. When the major point of view is not persuasive, reasons are given why we did not change our point of view. With some exceptions, as appropriate, attachments to comment letters have not been reproduced in this final EA because they don't provide specific commentary on the draft EA.

The sections or pages of the final EA that have been modified as a result of comments received are identified in our responses to the right of the letters of comments. Other responses are self-explanatory.

A vertical line drawn to the right of the comment letter text indicates to which comments our response applies. Our responses are numbered sequentially. The comments are numbered as well.

The respondents are as follows:	<u>Page</u>
Department of Interior, U.S. Fish and Wildlife Service	A-2
Michigan Department of Natural Resources	A-5
Stone & Webster Michigan, Inc.	A-40



WEAPPLY REFER TO

United States Department of the Interior

FISH AND WILDLIFE SERVICE
East Lansing Field Office (ES)
2651 Coolidge Road
East Lansing, Michigan 48823

ORIGINAL

July 1, 1996

Honorable Lois D. Cashell
Secretary
Federal Energy Regulatory Commission
688 First Street, N.E.
Washington, D.C. 20426

Dear Ms. Cashell:

The Fish and Wildlife Service (Service) has reviewed the May 24, 1996, Draft Environmental Assessment for an original license for the Au Train Hydroelectric Project (FERC No. 10836) located near the town of Au Train, Michigan. The Service provides the following comments for your consideration.

Fish and Wildlife Coordination Act Comments

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (46 Stat. 401, as amended; 16 U.S.C. 641 et. seq.) and are consistent with the Service Mitigation Policy (46 FR 7645). They are also consistent with the intent of the National Environmental Policy Act of 1969 (Act P.L. 92-190; 83 Stat. 852-856).

GENERAL COMMENTS

The Service generally supports the recommendations of the Federal Energy Regulatory Commission (Commission) staff contained in the Draft Environmental Assessment. Commission staff has endorsed the majority of the Service's 10(j) recommendations to be incorporated into a license, while others have been rejected or deferred for future discussion. Outstanding concerns of the Service which warrant further discussion include: winter drawdown, project operation and reservoir elevations, providing water to the bypass reach, sluiting of woody debris, and finalizing a bald eagle management plan.

SPECIFIC COMMENTS

Winter Drawdown

The Service recommends there be no winter drawdown to ensure a more thorough protection of the fish and wildlife resources affected by widely fluctuating water levels. The applicant shall maintain an elevation of 776.5 during the months of March and April to stabilize the reservoir shoreline. Maintaining a constant elevation within the reservoir will more closely reflect high water flows during spring run-off downstream of the project, reduce erosion for both riverine and reservoir shorelines, and maintain stable nesting habitat for waterfowl and wading birds.

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Letter from Department of the Interior, U.S. Fish and Wildlife Service dated July 1, 1996

- FWS-1. No response is necessary.
- FWS-2. No response is necessary.
- FWS-3. See response to comments FWS-4 through FWS-13 for response to individual concerns.
- FWS-4. We considered this recommendation in the draft EA and did not recommend it because of the lack of evidence that the historical winter draw-downs have adversely affected reservoir resources. In its April 29, 1994, letter to the Commission containing its Section 10(j) terms and conditions, FWS stated that the Au Train reservoir supports a variety of wetland types, which provide valuable habitat for numerous migratory birds. FWS further stated that the Au Train River basin produces 200 young ducks and geese annually. We received no evidence or statements from agencies or the public that the habitat provided by the Au Train reservoir is less than adequate, or that the winter draw-down has adversely affected wildlife population in the area. We acknowledge that a higher, more stable water level throughout the year would be optimal; however, we must consider all uses of the project resources and make a balanced recommendation. Following discussion at the Section 10(j) meeting, MDNR and FWS agreed to our recommended operation as stated in the draft EA, with the addition of a review/consultation meeting between UPFCO and the agencies after three years of operating according to our recommended operating plan.

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FERC-DOCKETS

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Letter from Department of the Interior, U.S. Fish and Wildlife Service dated July 1, 1996

Page 21 of the DEA states that "The Au Train basin has historically been drawn down with no apparent effect on waterfowl populations or on riverine habitat downstream." Factual, documented, or anecdotal information to support this statement is lacking from the DEA. UPPCO's current proposal is to raise the water level two feet during April, which would potentially inundate waterfowl nests. The DEA asserts the two foot increase in water level in April would be "an enhancement" from the historical increase of eight feet. A fluctuation decrease of six feet in April is an improvement, but unacceptable to the Service as a stabilized shoreline for reduced erosion and potential waterfowl nesting sites. UPPCO's operation at the Au Train Hydroelectric Project does not depend on winter drawdowns.

Project Operation

Normal project operation shall be instantaneous run-of-the-river mode with an minimum reservoir elevation of 772 feet and provide a continuous minimum flow to the powerhouse of 50 cfs. The license should require the applicant to consult the resource agencies in the event that instantaneous run-of-the-river operation does not provide sufficient inflow to maintain the minimum reservoir elevation.

Bypass Reach

The Service recommends the Commission provide a continuous, minimum flow to the bypass reach. The bypass reach is approximately 0.7 mile river section between the dam and the confluence of the original river channel and the tailrace of the powerhouse which does not receive water from the project except for a small amount due to dam leakage. A resident, coldwater fishery could be established in this high gradient area and for aesthetic purposes, water should be provided for the two waterfalls found within this reach. The DEA does not appropriately recognize this reach as suitable fishery habitat, but in the section under "Management of Large Woody Debris", recognize the river below the powerhouse as excellent trout habitat because of the "high gradient, rocky substrate, and pool and riffle segments." Similar habitat exists in the bypass reach which is being dismissed as quality fisheries habitat.

Sluicing of Woody Debris

The Service recommends the applicant be required to develop a plan to pass large, woody debris from the reservoir to below the powerhouse. This material provides additional cover and habitat for fish and wildlife. Depriving a stream of naturally occurring woody debris decreases cover for fish, decreases a natural source for nutrients, decreases microhabitat and a medium for the Aufwuchs, reduces a source of detritus, and increases erosion potential.

Federally Threatened and Endangered Species

The Department has previously recommended that nine specific conditions be included in any license issued for the Au Train Project. If the Commission includes these specific conditions in any license issued, the Service would likely concur that the licensing of the Au Train Hydroelectric Project is not likely to adversely affect the bald eagle. This would preclude the need for further action for the bald eagle on this project as required by the

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- FWS-5. We concur with this recommendation, with the exception of the term "instantaneous" run-of-river. The operation as recommended by FWS and by us in the draft EA requires a continuous powerhouse discharge of at least 50 cfs, regardless of inflow. If inflow is less than 50 cfs, UPPCO would release a constant flow of at least 50 cfs. This could not be considered "instantaneous" run-of-river. At the Section 10(j) meeting, FWS and MDNR agreed with our recommended operating plan as stated in the draft EA, with the addition of a three-year review/consultation meeting to review the effects of our recommended operation.
- 5
- FWS-6. At the Section 10(j) meeting, we discussed the limitations of the bypassed reach for becoming a self-sustaining coldwater fishery due to the minimal suitable habitat with FWS. At the meeting, FWS withdrew its recommendation for a continuous minimum flow to the bypassed reach.
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- FWS-7. At the Section 10(j) meeting, we agreed to recommend a flexible approach to woody debris transport. See Section V.C.3.d of the final EA.
- FWS-8. We recommended that the final bald eagle management plan include all of FWS' recommended conditions. See Section V.C.5.b of the final EA.
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Letter from Department of the Interior, U.S. Fish and Wildlife Service dated July 1, 1996

Endangered Species Act. Should the project be modified, new information become available, that indicates listed or proposed species may be affected, or the Commission not adopt the Service's conditions, Endangered Species Act consultation with the Service should be reinitiated.

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The Service would also like to reserve input and approval along with the MDNR into any forthcoming "Final Bald Eagle Management Plan" document by the applicant.

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The Service recommends that the applicant follow guidelines in the "Recovery Plans for the Eastern Gray Wolf" if new roads are to be constructed on project lands in the future. The applicant shall consult with the Service if new road construction is proposed.

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Section 18 Comments

We note on page 10, Section C, that the Commission intends to reserve the authority of the Secretary of the Interior to prescribe fishways, and have no further comments to offer at this time.

11

SUMMARY COMMENTS

Further discussion is needed to resolve outstanding issues such as the overall project operation and winter drawdown, bypass reach flows, woody debris, and endangered species. A conference call or meeting may be necessary to reach accord with these issues.

12

Sincerely,



Charles H. Woolley
Field Supervisor

cc: MDNR, Baraga, MI (Attn: Bill Deaphouse)
MDNR, Fisheries Division, Lansing, MI (Attn: Gary Whalen)

- FWS-9. We recommend that FWS be included in the consultation related to finalizing the bald eagle management plan (see Section V.C.5.b of the final EA).
- FWS-10. We concurred with this recommendation in Section V.C.5.b of the EA.
- FWS-11. No response is necessary.
- FWS-12. The Section 10(j) meeting was held December 11, 1996, in Marquette, Michigan.

NATURAL RESOURCES
COMMISSION
JERRY C. BARTMAN
KEITH J. CHARTERS
LARRY DEVLIN
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STATE OF MICHIGAN



JOHN ENGLER, Governor
DEPARTMENT OF NATURAL RESOURCES
STEVENS T. WALSON BUILDING, PO BOX 30028 LANSING MI 48206-7528
K. L. COOL, Director

REPLY TO:
FISHERIES DIVISION
PO BOX 30446
LANSING MI 48206-7546

Letter from Michigan Department of Natural Resources dated August 8, 1996

- MDNR-1. No response required.
- MDNR-2. The Section 10(j) meeting was held December 11, 1996, in Marquette, Michigan.
- MDNR-3. No response required.

August 8, 1996

Ms. Lois Cashell
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: AuTrain Project (FERC No. 10856)
Draft Environmental Assessment Comments

Dear Ms. Cashell,

The Departments of Natural Resources and Environmental Quality (Departments) have completed their analysis of the Draft Environmental Assessment (DEA) for the AuTrain Project dated May 24, 1996. Our detailed comments are attached.

We request that a Section 10(j) meeting be held in Michigan to attempt resolve the differences between the Staff's recommendations and the Departments' recommendations. There are a number of outstanding issues which are identified in the attached document along with the Departments' proposals to resolve these issues. There are also a number of areas which need clarification that should be addressed at the Section 10(j) meeting and are also identified in the attached document.

We wish to express our appreciation to the Commission for the granting of the time extensions to the Departments on this submission. This allowed our staff sufficient time to complete our analysis of your decision document. If you have any questions on this matter, please feel free to contact me.

Sincerely,

James G. Truchan
MI DNR FERC Program Manager
FISHERIES DIVISION
(517) 373-1280

cc: Mr. Charles Wooley, USFWS
Mr. James Schramm, MFERC
Mr. Clarence Fisher, UPPCo

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FEDERAL ENERGY REGULATORY COMMISSION

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Michigan Departments of Natural Resources and Environmental Quality
 Draft Environmental Assessment Comments
 AuTrain Project (FERC No. 10856)
 August 8, 1996

Letter from Michigan Department of Natural Resources dated
 August 8, 1996

1) Page 3, Paragraphs 3 and 4 - It is unclear how it is in the public interest to license a project which the DEA admits loses \$157,000 annually. Additionally, it is unclear how UPPCo can tell their ratepayers that this much more expensive power is in their best interest. We request that the Commission provide us the legal justification for licensing this project given the compelling public interest for this project is questionable.

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Paragraph 4 states that the projections for future power needs support the long-term need for the power the project produces. There are a number of other options that could easily replace the power from this project. The revised DEA should examine the following alternatives before making such a blanket statement: a) conservation measures; b) closed cycle pump storage; c) wind; and d) solar power. All of these issues should be discussed as alternatives to this project. Does the line loss from this remote project exceed the amount of power from the AuTrain Project? Overall, the DEA does not provide any real evidence as required by Section 313 that the insignificant generation from this project makes any real difference to the energy needs of the State of Michigan. Again, the compelling public interest for this project is questionable. We request that the Commission provide answers to these comments to the Department as soon as possible and that the revised DEA address these comments.

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Paragraph 4 also states that "The average annual load for UPPCo is projected to grow, while capacity is not expected to grow." What is this based upon? Did the Commission consider the loss of a number of UPPCo's largest customers in this analysis? There is no substantial evidence for this statement which should be deleted or justified in the revised DEA.

6

2) Page 8, Section D - This section states that the federal takeover of this project under Section 14 of the Federal Power Act (FPA) is not applicable to unlicensed projects. This project is clearly under federal jurisdiction which indicates that the federal government has full responsibility for the project. This must include taking over the project if necessary. We disagree with your explanation which does not follow logically or legally. We request that your legal staff re-examine and address this point in the revised DEA and that our objection to this position be noted in the revised DEA.

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This section states that two retirement alternatives were examined but were eliminated from detailed study because neither are reasonable in the circumstances of this case as they would involve denial of the license. No substantial evidence was supplied in this paragraph to support this decision as required by Section 313 of the Commission's rules. At minimum, the dam removal option with the removal of the dam structure and with the perpetual maintenance of the dam structure (operated as a fixed crest, run-of-river recreational lake) should be examined in the revised DEA as the present analysis with its lack of supporting evidence is clearly in violation of the Commission's rules. We refer to the recent Thunder Bay Power EIS for the proper method of analysis of this issue.

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3) Page 8, Paragraph 2 - This paragraph states, that under the circumstances of this case, the development of a plan for dam removal and establishment of a pre-retirement trust fund for the project is not warranted. There is no supporting evidence for this position provided in the DEA as required by Section 313 of the Commission's rules. It is clearly in the public interest to ensure that the project is properly dealt with at the end of its economic life and the time to

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MDNR-4. In addition to providing a reliable source of renewable energy, the project provides recreation opportunities by creating a reservoir and allowing access by the public. The business decision of whether to operate a project under the conditions of the license rests entirely with the project operator.

MDNR-5. The "need for power" analysis included in this EA fully considered all reasonable, economical alternative load-reduction and conservation measures. Conservation efforts of utilities are included in the MAIN projections of future energy needs that is included in Section I.B of the EA. Regarding the use of alternative energy sources, the marketplace cannot support currently uneconomical methods of energy production such as wind or solar energy and there are no existing closed cycle pumped storage projects in the region. Construction of a new project to offset the energy produced by this project is unrealistic. Transmission line losses typically represent a small portion of the energy produced by a project.

MDNR-6. The reference used for that statement was the Mid-America Interconnected Network, Inc. (MAIN), Regional Reliability Council Coordinated Bulk Power Supply Program, April 1, 1994, as was noted in that same paragraph and included in the reference list in the draft EA. We have revised Section II.B of the final EA to incorporate the latest MAIN projection data, which would include the most current available data on capacity and demand.

MDNR-7. This section considers alternatives to the proposed action, an application for original license. Thus, a federal takeover is not applicable.

MDNR-8. As noted in Section II.D of the EA, we considered two project retirement alternatives, but eliminated them from detailed analysis because they are not reasonable in the circumstances of this case. We would have included a detailed retirement alternative if: (1) the resource agencies, intervenors, or individuals made a reasonably supported recommendation to consider project retirement on environmental or other grounds; or (2) if there was evidence in the record that project retirement may be less costly than relicensing. There was no compelling reason offered by any agency, intervenor, or group in favor of dam

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retirement, and the project provides public benefit. Further, we have no evidence that project retirement would be less costly than relicensing. Therefore, project retirement was not a reasonable alternative to address in the EA.

MDNR-9. See response to comment MDNR-4.

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plan retirement is while it is operating, not when it is no longer capable of supporting itself. How is it in the public interest to do otherwise? This should be clearly discussed in the revised DEA. The Departments' request that the supporting evidence for this position be provided to us prior to the Section 10(j) meeting and that this issue be discussed in the Section 10(j) meeting.

- 4) Page 10, Water Quality Certification - While the Departments did not respond in a timely manner to the Section 401(a) Certification request, this "waiver" does not waive the requirement that the project meet state water quality standards promulgated under the Clean Water Act (PL 92-500). By "waiving" the Departments rights under Section 401, a certifying agency, at most, waives its right to prohibit issuance of a FERC license or to place conditions in a certification. It does not waive the obligation of the licensee to comply (and FERC to require compliance) with water quality standards and the protection of designated uses that are set out in the Michigan Administration Code R. 323.1041 et seq. This should be clearly stated in the revised DEA.
- 5) Page 10, Coastal Zone Management Act - This section states that through a personnel communication with Ms. Lynda Sanchez, this project was determined to be outside of the Michigan Coastal Zone Management Project jurisdiction. This section is completely in error. First, Ms. Lynda Sanchez is not authorized to make such a determination for the Department of Environmental Quality. Only Ms. Cathy Cunningham of the Department of Environmental Quality is authorized to make such determinations. This makes the inquiry null and void, and the Departments' request that you re-apply immediately to Ms. Cunningham as soon as possible. Second, the Michigan Coast Zone Management Program also examines all impacts that could impact upon coastal zone processes, regardless of where in the watershed they occur. While all projects within 1000 feet upstream of the high water mark are clearly within the Coastal Zone Management Program, so are all other projects that impact coastal zone processes regardless of where they are located in the watershed. Clearly, the AuTrain Project has significant and direct impacts on the Great Lakes and requires a determination of consistency. This matter must be addressed immediately as the AuTrain Project currently does not have a valid determination under the Coastal Zone Management Act.
- 6) Page 11, AuTrain Basin, Paragraph 3 - This paragraph overlooks the importance of tourism to region and this should be added as a principle industry. This should be corrected in the revised DEA.
- 7) Page 12, Environmental Impacts, Paragraph 3 - It is unclear whether the Commission intends for the licensee to periodically survey the river below the project for continuing streambank erosion along with the impoundment shoreline. This appears to be the intent but it is not specifically stated. The Departments' request clarification of this issue during the Section 10(j) meeting.
- 8) Page 17, Paragraph 2 - This paragraph overlooks one other water quality standard that applies to this reach of river, the delta temperature standard. On cold water streams, such as this stream, upstream and downstream temperatures can not be altered by more than 2 F.

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- MDNR-10. The statement in Section IV.D of the EA that the water quality certificate is waived is correct as stated. That Section of the EA is not addressing MDNR's Section 10(j) recommendations. MDNR's Section 10(j) recommendations regarding water quality issues are evaluated independently in Section V.C.2 of the EA.
- MDNR-11. We received a letter from the Michigan DNR, Land and Water Management Division, dated September 25, 1995. The letter (signed by Lynda Sanchez of the Michigan Coastal Program, Land and Water Management Division) was written to "formally state that the Au Train Hydropower Project is not within the coastal boundary and is not under the jurisdiction of the Coastal Zone Management Act." We consider the letter a valid determination because it was made by the proper division that had authority over the coastal zone management program at that time. Further, we conclude in Section IV.F of the final EA that the Au Train Project, if licensed with our recommended measures, would enhance coastal resources.
- MDNR-12. We revised Section V.A.1 of the EA to address this comment.
- MDNR-13. Our recommendation is for UPPCo to survey the shoreline and the river banks below the dam only within UPPCo-owned lands. We clarified Section V.C.1 of the final EA.
- MDNR-14. See the revised text in Section V.C.2 of the EA.

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Upstream refers to above the project's impoundment and downstream refers to discharge area at the powerhouse. This should be added to the revised DEA.

- 9) Page 17, Paragraph 3 - This paragraph clearly shows that the project currently violates state water quality standards and this should be stated in the revised DEA.

While delta temperature data was not collected, it is clear that this project has a significant negative impact on stream temperatures by raising temperatures in excess of the water quality standard. All of the inflow streams are brook trout streams and are very cold. It is likely that these temperatures would have remained cold if the project did not exist. This should be noted in the revised DEA.

- 10) Page 18, Paragraph 2 - The DEA implies that our recommendation on target elevations are the primary consideration at this project. This is incorrect as downstream flows are the primary consideration. We designed our recommendation to ensure downstream flows and to provide maximum reservoir elevation. These recommendations would also allow reservoir elevations to fluctuate to accommodate our recommended flows. Given the uncertainty of inflows into this project, we provided for consultation periods when our target elevation will be violated which provides for a flexible response to such conditions. The response would either be to change the target elevation or to change the minimum flow. This paragraph should be changed in the revised DEA to reflect the above comments. This subject should also be discussed in the Section 10(j) meeting to ensure clarity for all parties.

- 11) Page 18, Paragraph 4 - The DEA in this paragraph states that "Based upon our review of UPPCo's modeling, we conclude that UPPCo could maintain an absolute minimum water level of 772.0 feet year-round and still provide a continuous minimum powerhouse discharge of 50 cfs." No details of this analysis were provided in this document. The Departments request that a full copy of the Commission's analyses of UPPCo's modeling be provided to us prior to the Section 10(j) meeting.

- 12) Page 20, Paragraph 1 - While the minimum elevation recommended by the Commission does protect against physical harassment of bald eagles on AuTrain Impoundment, it does not protect and enhance the bald eagles' forage base.

The Departments request a copy of Commission's analysis of the applicant's model as discussed in this paragraph.

- 13) Page 21, Paragraph 1 - This paragraph indicates that the reason for the lack of waterfowl nesting on AuTrain impoundment is because it is outside of the major flyways. This rationale is without any supporting evidence. The application in Figures 3-2 through 3-4 shows the flyways either directly adjacent to the project or going right over the project. In addition, these flyway maps are not exact and the small amount of distance (5-10 miles) that the project is outside of these flyways is not significant. This comment should be removed from the revised DEA as it is not supported by data.

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MDNR-15. The text in the draft EA that you refer to clearly states that water temperature and dissolved oxygen concentrations at the project do not meet state water quality standards. No revisions are necessary. Your opinion regarding delta temperature data is noted. However, because there are multiple sources, and no water quality data on the various inflow sources, some of which cannot be monitored (e.g., groundwater flow), we do not know if the impoundment warms the water more than the state's delta temperature standard, nor do we have any basis to determine this. In Section V.C.2.f of the final EA, we acknowledge that impoundments naturally warm water due to solar radiation and we expect that the Au Train impoundment does warm the water somewhat.

MDNR-16. The text in Section V.C.2.a of the EA only addresses water levels. Minimum powerhouse discharges are covered in subsection b. MDNR's original Section 10(j) recommendation regarding reservoir operation stated that "at no time shall the impoundment elevations fall below the minimum recommended levels." Your clarification that MDNR's primary consideration is down-stream flows was added to Sections V.C.2.a and V.C.2.b of the final EA.

MDNR-17. This conclusion did not require an in-depth analysis. UPPCo's proposed operating plan included an absolute minimum elevation of 769.0 feet in the winter and 772.0 feet in the summer. It is clear that UPPCo could achieve an absolute minimum water level of 772.0 feet in the summer while providing a continuous minimum powerhouse discharge of 50 cfs. In the winter, UPPCo operates the Au Train reservoir in a draw-down mode, releasing significantly more than 50 cfs to draw the reservoir down to its target level. UPPCo can maintain our recommended higher water level in the winter by decreasing the length or rate of the draw-down. Figure 3 of the EA demonstrates that our recommended target elevation can be achieved while maintaining a continuous minimum powerhouse discharge of 50 cfs.

MDNR-18. We recommended the absolute minimum elevation of 772.0 feet in response to FWS' recommendation to protect the bald eagle nesting island. Bald eagles have resided in the project area for many years despite the winter reservoir draw-down. We concluded that our recommended water levels would enhance conditions for bald eagles and other fish and wildlife resources by limiting the winter draw-

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down and providing higher water levels in the spring (see Section V.C.2.a of the EA). The observations presented in this paragraph were made based on our review of the model as presented in UPPCo's license application. MDNR also has a copy of these modeling results that were included as part of UPPCo's license application.

MDNR-19. The paragraph clearly attributes this statement to UPPCo. It is not presented as our opinion. We have added your disagreement with this theory to Section V.C.2.a of the final EA.

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14) Page 21, Paragraph 2 - This paragraph states that historic drawdowns in the AuTrain Basin have had no apparent effect on waterfowl populations or on riverine habitat downstream. What is this conclusion based upon? Does the Commission have data on waterfowl populations and downstream riverine habitat under conditions when the impoundment was not drawdown to support this claim? This conclusion should either be deleted from the revised DEA or support with evidence.

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Rising water levels clearly impair both waterfowl and shorebirds by disrupting nesting habitat during a critical period. While we agree that the proposed action will have less impact than the historic operation (2 feet of rising water vs. 8 feet of rising water), it will still not meet the enhancement that the Departments' recommendation would have provided and this is not discussed in this paragraph. This should be corrected in the revised DEA and an accurate comparison of the wildfowl enhancements of each of the three recommended scenarios should be provided.

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15) Page 21, Paragraph 3 - There are significant problems in the AuTrain Lake fishery that are in part attributable to the large winter drawdown. These include the following: a) a large bullhead population which is common where there are winter dissolved oxygen problems. It is also common where there is a lack of suitable prey items for other predators as in this case; b) a very small population of large yellow perch showing overwinter survival problems; and c) a large population of small northern pike indicating a lack of suitable larger prey species. These comments should be clearly noted in the revised DEA and are documentation of winter drawdown problems.

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The Commission concludes in this paragraph that fish that overwinter in the basin probably seek the deepest portion of the basin and survive even though the mean depth in the reservoir appears very small. To confirm such a claim radiotelemetry or intensive tagging studies would be necessary and no such studies were conducted at this project. What evidence is this conclusion based upon? The Commission provides no supporting evidence for this statement as required by Section 313 of the Commission's regulations. This statement should either be supported by data or deleted from the revised DEA.

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This paragraph also states "There has been no record of winter fish kills occurring at the basin even with the historical draw-downs much greater than UPPCo proposal." No data is provided supporting this claim. Fish kills have not been recorded because it is very difficult to find stranded fish under 2-3 feet of ice and 2-4 feet of normal snowpack. It is simply not possible to detect fish kills under these conditions. This statement should not be used as a verification of the UPPCo proposal as it has not been possible to determine if fish kills occur. It should be deleted from the revised DEA.

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16) Page 21, Paragraph 4 - This paragraph fails to provide a direct comparison of the Departments' recommendation to UPPCo's and this should be done in the revised DEA. The Departments' recommend that this comparison be developed and provided to the us prior to the Section 10(j) meeting. This paragraph only attempts to justify UPPCo's proposal.

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Letter from Michigan Department of Natural Resources dated August 8, 1996

MDNR-20. Section V.C.5 of the EA documents the diverse and abundant waterfowl population in the project area, which exists despite the annual winter draw-down. PWS is one source that provided information regarding abundant waterfowl populations. No agency or group has provided information to the contrary.

MDNR-21. Section V.C.2.a of the final EA was revised to reflect this comment.

MDNR-22. We found no evidence suggesting that the existing characteristics of the fish population in Au Train reservoir can be attributed to the historical winter draw-downs. However, we acknowledge the possibility of some influence and added this to Section V.C.2.a of the final EA.

MDNR-23. The statement was made based on the fact that the reservoir has an average depth of 8 feet but a maximum depth of 28 feet and that, despite the annual draw-down, there is an abundant fishery in the basin. Both of these facts suggest that our theory that fish overwinter in the deepest portion of the reservoir is a valid assumption. We made this assumption in response to MDNR and USFS' statements that drawing the reservoir down to a level that has an average depth of 2 feet would leave "essentially no water under the ice." There is a substantial amount of water (2,391 acre-feet) at the maximum proposed draw-down of 8 feet, which supports our statement that there is habitat for overwintering fish in the deepest portion of the reservoir. We agree that it would require intensive studies to demonstrate conclusively that fish seek the deepest part of the basin during the winter. However, we believe our explanation is reasonable given the lack of evidence of significant winter fish kill.

MDNR-24. We agree that it would be difficult to document all fish kills that occur under ice. However, major winter fish kills would also show up in the next season's fishery and we found no evidence of this in the record.

MDNR-25. We acknowledge that higher water levels would enhance reservoir resources and added this to Section V.C.2.a of the final EA. However, as noted in Section V.C.2.b of the final EA, MDNR's recommended water levels cannot be met without sacrificing down-stream discharges, which MDNR agrees should be the priority.

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This paragraph fails to state that UPPCo's controlled drawdown in July and August could impact late spawning centrarchids. It is common in the Upper Peninsula to have centrarchid spawning in July because of the colder weather common in this region. This should be added to the revised DEA.

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The DEA also concludes in this section that the summer drawdown would impact aquatic vegetation but this would not impact young of year fish as there is abundant physical habitat other than aquatic vegetation. Where is the supporting evidence for this conclusion? Does the Commission have data on year class strengths with and without the drawdown? We are unaware of any such data. This conclusion should be supported by data or should be deleted from the revised DEA.

27

- 17) Page 22, Paragraph 2 - This paragraph concludes that Commission recommends that UPPCo operate the project as it proposes with a minimum elevation of 772.0 feet. It goes not to reject the agency proposals on this issue and rejects the recommended consultation stage. What is this rejection based upon? No evidence was presented that the Departments' recommendation is inconsistent with the Federal Power Act and no independent analysis of UPPCo's recommendations was provided in the DEA. In addition, the DEA did not closely examine the Departments' recommendation to see if it provides more resource enhancements as no comparisons were provided between UPPCo's and the Departments' proposal. We strongly disagree with the Commission's recommendation on this issue and request Section 10(j) consultation on this issue.

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The rejection of our flexible operation recommendation with consultation requirements to commence at impoundment decision points is very puzzling. Given the lack of data on the watershed and on UPPCo's inexperience with the operation of this project, it is prudent to provide for flexibility. No Commission recommendations to ensure proper operation given this uncertainty are provided in the DEA. We request Section 10(j) consultation on this issue and an explanation from the Commission on how their recommendation adequately addresses this issue.

The lack of deference shown by the Commission regarding the Departments' recommendations on AuTrain Basin operation is inconsistent with stated Commission policy. We refer you to the June 20, 1995 memo from Susan Tomak (General Counsel) and Fred Springer (Director OHA) to the Commission that specifically states on Page 4, Section C that "...an agency is not required to support its recommendation with the weight of the evidence. In other words, the fact that the record shows more support for an alternative to the agency's recommendation is not grounds to reject the recommendation as not supported by substantial evidence. Only if the recommendation appears unsupported by the record can it be rejected. This could occur either if the agency provides no support whatsoever for its recommendation or if the total record in the case so strongly undercuts the evidence provided by the agency that it cannot be considered to be substantial." There is nothing in the record that shows our recommendations have not met these tests so it is clear our recommendations are founded in substantial evidence.

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MDNR-26. Section V.C.2.a of the final EA was revised.

MDNR-27. Section V.C.2.a of the final EA was revised.

MDNR-28. UPPCo provided operations modeling, which demonstrates that its recommended operating plan can be achieved for a wide range of hydrologic conditions. We do not advocate an operating plan that would require frequent ad hoc consultation with agencies to determine how the project should be operated. We have recommended an operating plan that can be achieved. At the Section 10(j) meeting, MDNR agreed with our recommended operating plan with the addition of a three-year consultation/review meeting to assess project operations. See response to comment MDNR-36.

MDNR-29. Your opinions are noted. Commission policy and policy memos are internal matters for consideration between Commission staff and attorneys. Commission policies are established in its orders.

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The next paragraph of this letter on Page 5 states that staff should impose this standard sparingly because it is not difficult for the agencies to meet. This final paragraph of this section states "If a recommendation is rejected because it is not supported by substantial evidence, we must summarize what the agency proposing the condition stated in support of the condition and explain, in such detail as is necessary, why the agency's evidence is not adequate to support its conclusion. If an agency provides no support for a recommendation, we should state that." There is nothing in this document explaining how we were shown deference on this recommendation or why our recommendation was rejected.

The next section of this letter under the third bullet, the Commission provides the following example:

"An agency provides a study that supports a flow recommendation. Staff reviews one or more additional studies, which staff concludes are more reliable and support a different level of flows. The recommendation could not be rejected, because, even though the weight of evidence may support staff's position, the agency has provided substantial evidence for its recommendation."

The Departments' recommendation on the AuTrain Basin was clearly supporting by substantial evidence and must be accepted under the Commission Section 10(j) policy. The revised DEA should reflect the above comments.

- 18) Page 22, Paragraph 3 - We do concur with the Commission's proposal to provide for slow drawdowns during any drawdown periods. We also concur with the Commission proposal to not allow UPPCo to use the allowable drawdown for peaking purposes.
- 19) Page 22, Paragraph 4 - We agree that the Commission's proposal does provide an enhancement over historical conditions which provide no environmental protection. However, the Commission did not properly analyze the Departments' recommendation, did not compare our recommendation, and did not provide the appropriate deference to our agency as required under Section 10(j). We request Section 10(j) consultation on this issue.
- 20) Page 22, Minimum Flows, Paragraph 1 - The Departments' recommendation should be interpreted to give precedence to the minimum flows versus the AuTrain Basin elevation. The consultation requirement is driven by reservoir elevation not minimum flow. If it appears that the target minimum flow will cause the impoundment elevation to drop below target elevations then a decision will need to be made by all parties. This recommendation allows for higher minimum flows in wet years when sufficient flows are available to meet both the target minimum flows and reservoir elevations. In dry years, the recommendation provides for a flexible response to these conditions. The revised DEA should be clarified on how our recommendation will be applied.
- 21) Page 23, Paragraph 2 - This paragraph states that the Departments' minimum flow of 70 cfs is not possible because of the operating range of the turbines. The Departments' hereby modify our 70 cfs target discharge to 69 cfs to ensure that our recommendations are within the operating range of the turbines. This paragraph should be corrected in the revised DEA.

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- MDNR-30. No response necessary.
- MDNR-31. This issue was discussed and resolved at the Section 10(j) meeting, where MDNR agreed with our recommended operating plan with the addition of a three-year consultation/review meeting to assess project operations.
- MDNR-32. We added your clarification to Sections V.C.2.a and V.C.2.b of the final EA. See also response to comment MDNR-16.
- MDNR-33. A single turbine at the Au Train Project can discharge between 50 and 69 cfs. The amount of flow it can discharge within that range is dependent on both wicket gate opening and the water level in the reservoir at the time. Therefore, a continuous flow of 69 cfs is also not possible at all times. Our conclusion in the EA remains unchanged and, as noted in response to comments MDNR-28 and MDNR-31, we resolved this issue with MDNR at the Section 10(j) meeting.

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While we agree that the 50 cfs minimum flow does provide some protection for riverine fish species but it does not provide the same protection that our recommended flows provide. Again, our target flows are designed to allow for higher flows when these flows are available in the system. When the water is not available in the system, we will during the recommended consultation agree to 50 cfs as the discharge from the project. Given the lack of real impacts on the project operation of this flexible system and the lack of data on this system, we do not see any evidence of how of recommendation is inconsistent with the Federal Power Act. We are requesting a more flexible operating regime overtime that allows all parties input into the operation of this project.

The lack of deference shown by the Commission regarding the Departments' recommended minimum flows is inconsistent with stated Commission policy. We refer you to the June 20, 1995 memo from Susan Tomaky (General Counsel) and Fred Springer (Director_OHA) to the Commission that specifically states on Page 4, Section C that "...an agency is not required to support its recommendation with the weight of the evidence. In other words, the fact that the record shows more support for an alternative to the agency's recommendation is not grounds to reject the recommendation as not supported by substantial evidence. Only if the recommendation appears unsupported by the record can it be rejected. This could occur either if the agency provides no support whatsoever for its recommendation or if the total record in the case so strongly undercuts the evidence provided by the agency that is cannot be considered to be substantial.". There is nothing in the record that shows our recommendations have not meet these tests so it is clear our recommendations are founded in substantial evidence.

The next paragraph of this letter on Page 5 states that staff should impose this standard sparingly because it is not difficult for the agencies to meet. This final paragraph of this section states "If a recommendation is rejected because it is not supported by substantial evidence, we must summarize what the agency proposing the condition stated in support of the condition and explain, in such detail as is necessary, why the agency's evidence is not adequate to support its conclusion. If an agency provides no support for a recommendation, we should state that.". There is nothing in this document explaining how we were shown deference on this recommendation or why our recommendation was rejected.

The next section of this letter under the third bullet, the Commission provides the following example:

"An agency provides a study that supports a flow recommendation. Staff reviews one or more additional studies, which staff concludes are more reliable and support a different level of flows. The recommendation could not be rejected, because, even though the weight of evidence may support staff's position, the agency has provided substantial evidence for its recommendation."

The Departments' recommendation on minimum flows from the AuTrain Project was clearly supporting by substantial evidence and must be accepted under the Commission Section 10(j) policy. The revised DEA should make all of the above corrections.

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MDNR-34. See response to comments MDNR-28 and MDNR-33. This issue was resolved at the Section 10(j) meeting.

MDNR-35. See response to comment MDNR-29.

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- 22) Page 24, Paragraph 1 - This paragraph states that the Departments' operation recommendation are infeasible. This is incorrect. The example used states that during the May-June period our recommendation does not allow for any drawdown. This is not correct as it does allow for 1 foot of drawdown with consultation. In addition, if additional drawdowns are found to be necessary then the standard Commission language which allows for operational conditions other than the specified limits with agreement of the resource agencies clearly allows for additional drawdowns. This conclusion must be corrected in the revised DEA and should be discussed in the Section 10(j) meeting.

This paragraph also states that May-June inflows are only 44 cfs using UPPCo's estimated data. It should be noted that these estimated are not based upon actual data but are best guesses of inflows. Actual inflows are unknown and to use such data as gospel is inappropriate scientifically. The Commission must recognize the uncertainty with this system and adopt a more flexible operation scenario. Additionally, the uncertainty of these inflow data must be clearly stated in the revised DEA. This must be discussed during the Section 10(j) meeting.

We strongly disagree with the Commission's recommendations in this paragraph and request Section 10(j) consultation on this issue.

- 23) Page 24, Paragraph 2 - The Departments' recommendation to slowly change flows is designed to prevent rapid flow changes which directly impact aquatic resources and cause unnecessary bank erosion. It is also designed to prevent the licensee from operating this project as a peaking project. The Commission states that our recommendation is inconsistent with our water level and minimum flow recommendations. How exactly are they inconsistent given the above comments on the DEA? We do not have any evidence that such changes can not be accommodated. First, this is a storage driven project that will provide managed flows so nearly all inflows can be accommodated in the reservoir. Thus, rapid daily changes should not be required in response to climatic conditions except under unusual conditions. These unusual conditions are accounted for in the standard Commission language on these circumstances. Thus, the Commission's argument on inflow variances of greater than 20 percent is not relevant and is addressed by our recommendation. Second, the project can accommodate most flow changes between units by backing down one unit when adding the other unit. There is one dead zone which can be accommodated through an operation plan to cover these circumstances. We are willing to allow the project to operate in the following ranges: a) one unit between 50-69 cfs; and b) two units between 100-136 cfs. Thus in one day, we are willing to allow a change in operation from 69 to 100 cfs, when this is necessary. During other managed flow periods, the 20% rule should be followed. This should address the Commission's concerns on our proposal which should be accepted under the Commission's Section 10(j) guidance as stated above. We request Section 10(j) consultation on this issue and the revised DEA should reflect these comments.

- 24) Page 24, Paragraph 3 - Our above comments should address the Commission concerns in this paragraph. We request that the revised DEA reflect these comments.

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MDNR-36. We cannot recommend an operating scenario when we do not know the ultimate elevations and discharges. Leaving this to frequent ad hoc consultation would not fulfill our responsibility to adequately analyze the impacts of our recommended operating plan. See response to comment MDNR-28.

MDNR-37. We used the 44 cfs figure as an example to illustrate a potential limitation of MDNR's recommendation. It is not reported as an accurate or precise inflow value.

MDNR-38. We recognize MDNR's concerns with rapidly changing flows. This issue was resolved at the Section 10(j) meeting, as discussed in Section VIII of the final EA. See response to comment MDNR-33.

MDNR-39. Section V.C.2.b of the final EA was revised.

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- 25) Page 25, Paragraph 1 - This paragraph is inconsistent with the above paragraphs as it does provide for consultation on project operation upon reaching a reservoir elevation of 774.0 feet. While we welcome this consultation, the DEA spends alot of effort opposing our recommendation on this issue. This needs to be changed in the revised DEA.

We do agree that downstream releases will have priority over reservoir levels and agree that operating consultation should be conducted. We disagree with the Commission's recommendations providing just a continuous mindless minimum flow and also disagree with the target elevation of 774.0 feet before any consultation is to be conducted on operations. We request Section 10(j) consultation on this issue.

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- 26) Page 25, Agency Notification, Paragraph 2 - It appears that the interpretation of our drawdown recommendation is incorrect. Department of Environmental Quality permits should be obtained for all drawdowns that are more than 1 foot beyond the specified monthly minimum elevations. This should be changed in the revised DEA.

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- 27) Page 25, Agency Notification, Paragraph 3 - This paragraph states that the Commission rejected our recommendation for a report describing the emergency drawdown, remedial measures, necessary mitigation and preventative measures. No rationale was provided why our recommendation was rejected. Since these drawdowns have significant impacts on natural resources and that the Commission espouses the benefits of these reservoirs, it seems only appropriate that the Commission would want to restore the benefits of these reservoirs as soon as possible. It is also sensible that the Commission would want to avoid unnecessary drawdowns whenever possible to protect the benefits of these project facilities and the preventative measure section would take care of this concern. In addition, these decisions cause direct damages to resources that are owned by the State of Michigan who must be compensated for when its property is damaged and the mitigation section of such reports would take care of this concern. We also recommend that Department of Environmental Quality (DEQ) permits be obtained for all emergency drawdowns which incorporates most of the above needs and acts as an individual drawdown and refill plan for such instances. This recommendation would also allow the Commission to comply with Section 404 of the Clean Water Act as DEQ has delegated authority for Section 404. This issue should be addressed during the Section 10(j) meeting and the revised DEA should incorporate these comments.

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- 26) Page 25, Agency Notification, Paragraph 4 - The Commission's concerns with our recommendation should be covered by our Comment 26. Comment 25 also applies as individual drawdown and refill plans should be developed for all maintenance drawdowns to prevent unnecessary resource damage, mitigate unavoidable impacts and to comply with the Clean Water Act. We recommend that the revised DEA be corrected and that this issue be addressed in the Section 10(j) meeting.

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- 27) Page 26, Paragraphs 2 and 3 - We concur with the reservoir modification and the reservoir drawdown notification language in these paragraphs. The Departments' recommend that DEQ permits be obtained for all drawdowns which will act as individual drawdown plans.

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MDNR-40. While we do agree that some consultation with the agencies at times may be necessary and desirable, we conclude that the frequency of consultation that MDNR's plan would require would be excessive and not necessary to protect the resource. Further, we cannot adequately evaluate the impacts on environmental resources of an operating plan that would frequently be modified through consultation with the resource agencies. As noted in response to comments MDNR-28 and MDNR-31, we resolved this issue with MDNR at the Section 10(j) meeting. See also response to comment MDNR-36.

MDNR-41. Your original Section 10(j) recommendation was represented accurately in the draft EA. We have noted your modification to that recommendation in Section V.C.2.c of the final EA. See response to comment MDNR-16.

MDNR-42. Our recommendation does address reservoir draw-downs that could affect environmental resources. However, we recommend that the Commission retain the authority to allow draw-downs and determine the need for mitigation. This issue was resolved at the Section 10(j) meeting with our recommendation for a draw-down plan.

MDNR-43. See response to comments MDNR-41 and MDNR-42.

MDNR-44. See response to comments MDNR-42 and MDNR-43.

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- 28) Page 26, Bypass System, Paragraph 2 - We concur with the Commission's proposal to provide for a bypass mechanism to ensure minimum flows are provided. We do not concur with the Commission's recommendation that only 10 cfs be provided. We will address this later in our comments and request Section 10(j) consultation on this issue.
- 29) Page 27, Paragraph 3 - This paragraph states that our recommendations concerning a rainfall and snowpack monitoring system along with an inflow monitoring system would not significantly improve operations or useful in measuring compliance. Additionally, the Commission states that UPPCo's best guesses based upon reservoir water levels and power production is more reliable than inflow data at this project. No evidence is provided to support these conclusions and we request that such evidence be sent to us prior to the Section 10(j) meeting. The revised DEA must have these conclusions supported by evidence or they should be deleted.

Knowledge of potential inflows is critical to operating this storage driven and strictly managed river. We cannot understand how one can plan annual and even monthly operation without any knowledge of inflows, especially in a river system which is poorly understood from a hydrologic perspective. This is would be like a factory operating without knowing how many parts would be delivered to it for assembly. These data would provide key information to allow us to determine if target reservoir elevations will be maintained, how much storage will be needed to maintain minimum discharges, and would reduce consultation needs on operation by having real-time data on in-basin storage. Similar systems are employed by other Commission licensees and are used for planning annual, monthly and daily storage operation. Both the Wisconsin Valley Improvement Company and Wisconsin Electric Power Company use snowpack and rainfall systems in their management of storage facilities in Michigan. We have recommended an inexpensive proactive approach that allows for active planning whereas the Commission's proposal is reactive. We request Section 10(j) consultation on this issue and the revised DEA should be corrected given these comments.

It is also clear that we have not been given proper deference under Section 10(j) which should be followed in this instance as stated above.

- 30) Page 27, Paragraph 5 - We are pleased that the Commission accepted our recommendation for an annual operations report. We strongly disagree with the Commission's rejection of our recommendation for an annual consultation meeting on project operations. This meeting would allow for the solving of project problems on a local level and would save the Commission time and effort. There is no reason why we can not solve operation problems and should only have to resort to Commission arbitration when we are deadlocked on an issue. We take strong exception to the comment that implies that only the Commission is capable of resolving operation problems. We request that this language be changed in the revised DEA, our recommendation be accepted for local problem solving, and that this issue be discussed in the Section 10(j) meeting.
- 31) Page 28, Paragraph 4 - Our analysis of temperature indicates that this project likely violates the delta temperature standard as stated in above. The delta temperature is enforced even when ambient inflow temperatures have exceeded maximum standards. In cases where the

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- MDNR-45. See response to comments MDNR-81 through MDNR-85.
- MDNR-46. We maintain our conclusion that inflow can be back-calculated with reasonable accuracy using reservoir level data and powerhouse discharges. Further, obtaining an accurate measurement of inflows would be infeasible at this project due to the substantial groundwater inflow and the multiple surface water inflows. More importantly, we conclude that having an estimate of anticipated inflows would not substantially improve operations on such a small project.
- MDNR-47. MDNR would have opportunity to comment on operations in our recommended three-year consultation/review meeting (see Section V.C.2.a of the final EA.) See also response to comment MDNR-28.
- MDNR-48. We know of no water temperature data on inflow sources to the project. Further, because there are multiple inflow sources (including groundwater inflow), there is no reasonable means to determine if the impoundment warms the water more than the state's delta temperature standard and we have no basis to determine this. See response to comment MDNR-15.

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maximum standard is exceeded by inflow water, we would not enforce the maximum temperature standard in the project discharge but do enforce the delta temperature standard. This prevents additional degradation of water quality and ensures compliance with anti-degradation sections of the state's water quality code. Whether or not this is an existing condition is not material as the project must comply with all federal laws including the Clean Water Act. The revised DEA should incorporate these changes and our state temperature standards must be incorporated as license conditions. This issue should be discussed in the Section 10(j) meeting.

The statement that acknowledges that the project increases temperatures in excess of state standards then states that this a pre-existing condition associated with the project which makes it a non-issue is wholly unacceptable to the Departments. It is clear that the project violates State of Michigan numerical standards and anti-degradation standards which must be mitigated for in some way.

- 32) Page 29, Paragraph 2 - The species composition noted in this paragraph clearly shows why this river reach is classified as coldwater. The State of Michigan standards are based upon biological criteria not just numerical criteria and the existence of trout in these waters is what the classification is based upon. This should be stated in this paragraph of the revised DEA.

This paragraph goes on to state that no evidence of impacts was found from the violations of the coldwater temperature standard which implies that the standards are not needed. First, data was not collected to allow for a determination if there is an impact so this statement has no basis in fact. Second, this is not material to the project's compliance with state water quality standards and this implication should be deleted from the revised DEA.

The paragraph goes on to show that the project clearly violates the dissolve oxygen standard for coldwater streams and uses the lack of fish kills as evidence of the lack of impacts. This evidence is inappropriate as impairment to coldwater rivers occurs, in violation of the protection of designated uses of which coldwater fish are one, well before 5 mg/l. This is why our standard is 7 mg/l for coldwater rivers. The incorrect statement should be corrected in the revised DEA.

Finally, the paragraph states that UPPCo's proposal will enhance water quality conditions in the river by decreasing the basin detention time when compared to historic operation. No evidence is provided to support this conclusion. Given the large retention of both operation modes, it is unlikely one could detect any difference in water quality impacts between these operations. This statement should either be supported by data or deleted in the revised DEA. This still does not address nor excuse the continuing impairment of this river system by not maintaining state water quality standards at this project.

- 33) Page 29, Paragraph 3 - This paragraph states that it is unreasonable to have the project meet coldwater standards in downstream reaches and uses as the rationale that since AuTrain Basin violates coldwater standards that nothing should be done. This is wholly unacceptable. While we understand that temperature standards may be violated by this project that does not

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MDNR-49. Opinion noted. No response is necessary.

MDNR-50. The statements in the draft EA were not intended to imply that standards are unnecessary, nor to comment on the rationale used to designate the Au Train river as a coldwater stream. We acknowledge that there are no specific data designed to determine the effects that violations of coldwater standards may have on coldwater species and have revised Section V.C.2.f of the final EA to acknowledge this. However, the statement in the EA that the species composition suggests a healthy fishery is an accurate reflection of the data we have.

MDNR-51. The statement you reference characterizes the magnitude of violations of the dissolved oxygen standard. The effects that exceedances of coldwater standards have on coldwater species in the Au Train River is fully discussed in Section V.C.3--Fisheries Resources.

MDNR-52. We agree that the improvement would be relatively small and difficult to predict and have deleted the statement in the final EA.

MDNR-53. Our statement in the EA simply addresses existing water quality at the project. It is not an endorsement of violations of water quality standards.

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relinquish their responsibilities for such impacts. It is not unreasonable to apply these standards at this project and there must be efforts made to comply with the Clean Water Act.

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The paragraph does on to state that DO cannot not be improved without a costly aeration system and implies that this absolves them of any responsibility for maintaining state quality standards for dissolved oxygen. First, there is no supporting evidence on the cost of any method to improve dissolved oxygen concentrations. This statement must be supported by evidence or deleted from the revised DEA. We request the Commission's technical and cost analysis that supports this conclusion, if any exists, be provided to us prior to the Section 10(j) meeting. Second, this statement is wholly unacceptable as DO can be corrected at this site. As stated in our terms and conditions letter, the maintenance of dissolved oxygen at standards could significantly reduce the project's temperature impacts. This standard clearly can be obtained using either direct aeration or a re-aeration weir. Therefore, the AuTrain Project can meet the coldwater dissolved oxygen standard and must be required to in order to comply with the Clean Water Act. We request Section 10(j) consultation on this issue.

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We have above and our terms and conditions letter discussed how the state's standards would be enforced at this project and expect that the standards would be incorporated into any license issued for the project. A plan to deal with mitigative measures is critical at this project and has been incorporated into a number of other licenses issued in Michigan. The rationale provided in this case, which is that meeting coldwater standards is not practical, is without by supporting evidence, violates federal law and does not provide proper deference to the our agencies as required under Section 10(j) as implemented by the June 20, 1995 memo referenced above. This issue must be addressed in the Section 10(j) consultation meeting.

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It should also be stated in this section of the revised DEA that the waiver of a Section 401(a) Certification does not waive the obligation of the license to comply (and FERC to require compliance) with water quality limits such as temperature and dissolved oxygen that are set out in the Michigan Code. It is unlawful for FERC to knowingly allow the licensee to violate these standards set forth in Michigan Code.

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34) Page 29, Paragraph 4 - This paragraph states that both temperature and dissolved oxygen monitoring are not warranted because neither mitigate adverse impacts or substantially improve understanding of the project's water quality standards. The paragraph goes on to state the monitoring is infeasible because of the multiple inflow sources. We strongly disagree with both statements which are not based in fact as required by Commission rules (Section 313). First, it is clear that the project impacts both temperature and dissolved oxygen in the river and these impacts violate state water quality standards. Therefore, knowledge of these events in real-time is necessary to allow for mitigative measures to be taken and to prevent continued degradation of this system. Second, we will insist that the standards be included at this project and are prepared to appeal any license that does not contain the state water quality standards. Third, there is no technical reason why all or a selected group of inflows could not be monitored and no rationale on how this is infeasible was provided in the DEA.

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The Departments' recommendation concerning water quality monitoring at this project which clearly violates water quality standards is the minimum that is acceptable and the

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MDNR-54. Section V.C.2.f was revised in the final EA to reflect a more detailed discussion of potential aeration methods.

MDNR-55. Your opinion is noted. We do not recommend incorporating standards into the license for reasons outlined in Section V.C.2.f of the EA.

MDNR-56. It is beyond the Commission's jurisdiction to enforce compliance with state-mandated requirements or statutes. This limited jurisdiction does not preclude the state from enforcing its requirements outside of the Commission's licensing process.

MDNR-57. We agree that temperature and DO down-stream of the project do not meet coldwater standards. However, we do not agree that water quality at the project is in a continuous state of degradation. The project has been operated in its present configuration since 1931. The fishery, both in the reservoir and in the river down-stream, is healthy. Therefore, we conclude that deviations from Michigan coldwater standards do not significantly impact resources at the project. See response to comments MDNR-55 and MDNR-56 regarding our recommendation on water quality standards.

MDNR-58. When an agency's recommendation is so costly that it would have a significant negative impact on project economics, we must conduct balancing, pursuant to Sections 10(a)(1) and 4(e) of the FPA to determine whether the recommendation is critical to protecting the resource. We estimated that MDNR's recommended water quality monitoring plan would cost over \$25,900 per year, which would substantially affect project economics. MDNR's revised recommendation presented at the Section 10(j) meeting for a scaled-down water quality monitoring plan would cost \$18,900 per year. As noted in Section V.C.2.f of the final EA, we concluded that the limited benefit that would be achieved by obtaining more water quality data does not justify its substantial annual cost.

Commission's proposal on this issue is wholly unacceptable. Again, the Commission must defer under Section 10(j) of the Federal Power Act to the resource agencies in this area as we have provided substantial evidence for our recommendation which does protect fish and wildlife resources. We request Section 10(j) consultation on this matter.

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- 35) Page 29, Paragraph 4 - The Commission has provided no rationale why the state water quality standards should not be incorporated into this license as is necessary to comply with the Clean Water Act as stated above. On this issue, we request Section 10(j) consultation.

While the Commission can not adjudicate claims for or require payment of damages, we request that language stating that the state can file such claims in state court be included in the Order Issuing License. This would resolve this issue which should be discussed in the Section 10(j) meeting.

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- 36) Page 30, Paragraph 4 - The Departments are pleased that the Commission has recommended the continued project funding for the downstream USGS gage. We do believe that telemetry of this USGS gage is necessary for determining compliance of this project with operating requirements and disagree with the Commission's recommendation on this issue. The telemetry of the downstream USGS gaging station will: a) provide for a rapid assessment of run-of-river compliance by all parties; b) allow for a rapid determination of whether the project is peaking; c) allow for a rapid analysis of public concerns about project operation; and d) provide a real-time backup data source for periods when the project's equipment is not functional. For these reasons, we must insist that the project provide for telemetry at this gaging or acceptable alternative such as the provision of USGS data by the licensee within one working day of any resource agency request. This should be discussed at the Section 10(j) meeting.

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- 37) Page 31, Paragraph 2 - The Departments concur that the licensee's installed level sensor on the impoundment will be sufficient as long as it has a calibration program conducted under the supervision of USGS and will provide data on a hourly basis. This should be part of any compliance plan for this project. We believe that telemetry of this gage is necessary for determining the compliance of this project with operating requirements and disagree with the Commission's recommendation on this issue. The telemetry of the impoundment gage will: a) provide for a rapid assessment of reservoir compliance by all parties; b) allow for a rapid determination of whether the project is peaking; c) allow for a rapid analysis of public concerns about project operation; and d) provide a real-time backup data source for periods when the project's other equipment is not functional. For these reasons, we must insist that the project provide for telemetry at this gaging or acceptable alternative such as the provision of the data by the licensee within one working day of any resource agency request. This should be discussed at the Section 10(j) meeting.

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We also drop our tailwater sensor recommendation with the full project funding of the downstream USGS gage.

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MDNR-59. Both the need for water quality standards and payment of damages were discussed at the Section 10(j) meeting. MDNR requested that the license order for the Au Train Project include a statement that the state can file claims in state court, similar to language included in the preamble of the Consumers Power license order. We reviewed the Consumers Power license order and determined that it is not relevant to the Au Train Project in that the Consumers Power Company projects were part of a settlement agreement and also had a lawful Section 401 water quality certification that requested such a statement be added to the license order. We conclude that no specific language regarding the State's ability to file claims in state court is necessary for any license issued for this project. We clearly outline our rationale for not recommending that water quality standards be included in any license issue for this project in Section V.C.2.f of the EA.

MDNR-60. At the Section 10(j) meeting, MDNR agreed to withdraw its recommendation for telemetry for the down-stream USGS gage with the provision that UPPCo provide operating data to the agency upon request. We recommend this in Section V.C.2.g of the EA.

MDNR-61. At the Section 10(j) meeting, MDNR agreed to withdraw its recommendation for telemetry on the reservoir level sensor with the provision that UPPCo provide operating data to the agency upon request. We recommend this in Section V.C.2.g of the EA.

MDNR-62. The reference to the tailwater sensor in the draft EA incorrectly stated that MDNR recommended this measure when in fact, DOI recommended this measure. DOI withdrew this recommendation at the Section 10(j) meeting.

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- 38) Page 31, Paragraph 3 - The Departments are willing to accept the Commission's recommendation for hourly compliance data instead of the recording of compliance data every 30 minutes.] 63
- 39) Page 31, Unavoidable Adverse Impacts - The Departments do not agree with the conclusions in this section as stated above except for the conclusion that the project will violate state water quality standards for temperature and dissolved oxygen.] 64
- 40) Page 32, Paragraph 4 - This paragraph states that northern pike tend to overpopulate. This is a gross generalization as they do not overpopulate when there is sufficient forage and deep water. This statement should be corrected in the revised DEA.] 65
- 41) Page 33, Downstream of the Powerhouse, Paragraph 1 - The Department currently mainly manages the river for salmonids. Walleye are the target species in AuTrain Lake and use the river for spawning. This paragraph should be corrected in the revised DEA.] 66
- The reasons for the decline of the brook trout fishery in the river are not known. To specifically place all of the blame on chinook and coho salmon is incorrect and should be corrected in the revised DEA.] 67
- This revised DEA in this paragraph should also include trout perch, pink salmon, longnose suckers and white suckers as some of the Lake Superior fish that use this river for spawning purposes.
- Other riverine species in the river include mottled sculpin, slimy sculpin, johnny darters, central mudminnows, blacknose dace and bluntnose minnows. Additionally, a fisheries survey conducted on 9/12/89 found a three other species that are likely from AuTrain Basin including black bullhead, rock bass and golden shiners. Other earlier surveys found northern pike who probably also originated from AuTrain Basin. These comments should be added to this paragraph in the revised DEA.] 68
- This paragraph should also note the 9/12/89 MDNR survey indicates that there is a sand bedload problem. This should noted in the revised DEA and is additional supporting evidence indicating the potential need for future bank erosion control in the river below the powerhouse.
- 42) Page 33, Downstream of the Powerhouse, Paragraph 2 - This reach also has important spawning habitat for pink salmon, brown trout and brook trout. This should be corrected in the revised DEA.] 69
- 43) Page 33, Downstream of the Powerhouse, Paragraph 3 - A number of species have been documented in this reach including: rainbow trout, white suckers, yellow perch, black bullhead, burbot, golden shiners, central mudminnows, mottled sculpin, logperch, blacknose minnows and johnny darters. At least some of these species are either from AuTrain Basin or AuTrain Lake. This should be added to the revised DEA.] 70

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- MDNR-63. MDNR's acceptance of hourly data was noted in Table 14 of the final EA.
- MDNR-64. Opinion noted. No response is necessary.
- MDNR-65. Section V.C.3, Affected Environment, subsection a, was revised in the final EA.
- MDNR-66. Your comment was incorporated into Section V.C.3, Affected Environment, subsection c, of the final EA.
- MDNR-67. The referenced statement in the EA does not attribute declining brook trout population solely on the introduction of salmonids. We only note that it could be a contributing cause. Section V.C.3, Affected Environment, subsection c, of the final EA was clarified on this point.
- MDNR-68. We incorporated most of these recommended changes into Section V.C.3, Affected Environment, subsection c, of the final EA. We did not add a discussion of your comments regarding a sand bedload problem in this reach of the river because there is no nexus to the Au Train Project.
- MDNR-69. We revised Section V.C.3, Affected Environment, subsection c, of the final EA to reflect this comment.
- MDNR-70. These recommended changes were made to Section V.C.3, Affected Environment, subsection c, of the final EA.

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44) Page 33 Paragraph 4 - This paragraph states that the project clearly violates water quality standards. It also states that in spite of these violations salmonids continue to exist in this reach and supports a "healthy fishery". What is a healthy fishery? This term should be defined or deleted from the revised DEA.

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45) Page 34, Paragraph 4 - The Departments pointed out in our May 3, 1994 submittal that the entrainment and turbine mortality study was one of very limited scope whose data should not be used to determine entrainment and turbine mortality rates. This should be clearly noted in the revised DEA.

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46) Page 35, Paragraph 2 - The 1 inch trash rack stops very few fish as shown on the attached table. This data should be incorporated into this paragraph in the revised DEA.

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47) Page 35, Paragraph 3 - In this paragraph, the Commission uses the study data to conclude that there are no impacts from entrainment and turbine mortality. We had expressly told the Commission not to use the data for this purpose as it was not designed to do this. There is no evidence to support the conclusion that project operation is not significantly affecting the basin fishery. To verify this conclusion, one must have data on the population dynamics of all of the fish in the basin with project operating and without the project operating. Such data does not exist and this statement should be supported by data or deleted from the revised DEA.

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While the project does support large populations of some gamefish, the revised DEA should state that the fishery has significant size structure problems.

48) Page 35, Paragraph 4 - We disagree that there is suitable habitat for warmwater fish in the downstream river reaches. We do agree that there is habitat in AuTrain Lake for these species.

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We do expect that there will be impacts from these warmwater fish as they move through as use habitat occupied by salmonid. The major competition between cold and warmwater fish will be for space. We expect that this will be an energetic drain on the coldwater fish, particularly during time periods when the project is violating water quality standards. This should be noted in the revised DEA.

The statement that white suckers will not compete with coldwater species because of habitat differences is not correct. There are overlaps in temperature preference and habitat preference between white suckers and some of the salmonid species and life stages. This should corrected or deleted from the revised DEA.

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We agree that some species do move up into the AuTrain River to spawn but in general these fish spawn and the adults quickly move out. Thus, the competition will occur during periods when conditions are not stressful on the riverine salmonids. This should be noted in the revised DEA.

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MDNR-71. We revised Section V.C.3, Affected Environment, subsection c, of the final EA to address this comment.

MDNR-72. The objective of the study is clearly stated in the EA. However, we noted that the entrainment study was a "limited" study in Section V.C.3.a of the final EA.

MDNR-73. Section V.C.3.a of the final EA was revised.

MDNR-74. The data provided by the limited entrainment study was only part of the evidence that we used to reach our conclusion. Although it is important to note that the project is not entraining catchable-size perch (which was the objective of the study), we also took into consideration the fact that a substantial population of large yellow perch continues to thrive in the Au Train reservoir, even with considerable entrainment of young-of-year perch. Entrainment of other game fish in the basin such as bass, walleye, and northern pike appears to be minimal based on UPPCo's entrainment study. We do not fully agree with your statement regarding size structure. Although we acknowledge that the perch in Au Train reservoir are large and northern pikes are smaller than typically found, we do not consider this a major problem.

MDNR-75. Although it is possible for a transient warmwater fish to compete with coldwater fish, we conclude that this is not significant given the short amount of time that the transient fish would reside in the river.

MDNR-76. Habitat differences are defined by numerous criteria other than temperature. Differences in physical habitat preferences, as well as feeding behavior, make meaningful competition between white suckers and salmonids in a riverine environment highly unlikely.

MDNR-77. The point of our statement is that some warmwater species would be found occasionally in the river reach below the powerhouse with or without fish exclusion devices at the Au Train Project. The fact that most of these fish are transitory only supports our conclusion that there is little opportunity for significant adverse interaction between the residing coldwater species and short-term occurring warmwater species.

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- 49) Page 36, Paragraph 2 - The conclusions reached in the paragraph are without supporting evidence as required by Commission rules. The existing trash racks do not preclude reservoir fish from moving downstream as demonstrated above. There is no supporting evidence that entrainment and turbine mortality is not adversely affecting the fish community. These conclusions should be removed or supported by data in the revised DEA.

The rationale that there must be an population impact before there will be mitigation is in direct contradiction to Commission policy. The Commission's position is clear on this issue as eloquently stated by the Order Denying Requests for Rehearing on the Ohio Power Company License (FERC #2578) issued April 27, 1995. The Commission said in part:

"Ohio Power's argument appears to be that an effect on fish population as a whole is necessary before any mitigation may be required, and that no such effect has been demonstrated here. However, there are many other environmental variables that influence fish populations, particularly in a large system like the Ohio River. Consequently, it should be very difficult, if not impossible, to isolate the effects of turbine mortality on fish populations in the vicinity of the Racine Project. Clearly, there is the potential for an effect on a fish population when a large number of its individuals are removed. These effects can range from the dramatic, such as a reduction in numbers sufficient to affect the long-term viability of the population, to the subtle, such as changes in the average size of fish or their growth rates. Mitigation can be required even if it cannot be proven that project operation threatens the long-term viability of the entire population."

Therefore, any conclusion other than providing fish protection or mitigation contradicts stated Commission policy on this issue. Therefore, the Commission must require fish protection or compensatory mitigation.

We were also not provided deference on this issue under Section 10(j) as required by the Commission's June 20, 1995 guidance memo. Our recommendations are clearly supported with data and must be accepted by the Commission. In addition, our recommendations prevent the illegal taking of state property and protect a designated use (fish) of our waterways, thus complying with the Clean Water Act. We request Section 10(j) consultation on this issue.

There is also no discussion of fish protection in this section. No evidence is provided on the costs or feasibility of providing fish protection at this site. This should be fully discussed in the revised DEA and the Section 10(j) meeting. This project has some unique characteristics that make it suitable for installing fish protection as it has low approach velocities.

- 50) Page 37, Paragraph 1 - This paragraph states that no compensation will be provided for the state's property because there are no significant impacts on the fishery. No evidence supporting this conclusion is found in the DEA which demonstrates, as the study was designed to do, that entrainment does occur. The rationale that there must be an population impact before there will be mitigation is in direct contradiction to Commission policy as discussed in Comment . The Commission's position is clear on this issue as eloquently stated by the Order Denying Requests for Rehearing on the Ohio Power Company License (FERC

MDNR-78. The Commission is not mandated by the Ohio Power Order or any other Commission policy to require a licensee to install fish protection or, alternatively, provide compensatory mitigation. We concluded that entrainment does not have a significant adverse effect on fishery resources at the project. Further, we recommend a number of environmental enhancements that would benefit fisheries, including a continuous powerhouse discharge, an emergency bypass structure, higher and more stable water levels in the reservoir, and downstream conveyance of woody debris.

MDNR-79. We rejected the recommendation for fish protection measures for the following reasons:

- a. the project already has a 1-inch trash rack which provides protection for catchable-sized fish (primarily yellow perch);
- b. the high cost of fish protection measures would clearly outweigh the benefits of such measures;
- c. we recommend a number of environmental enhancement measures (see response to comment MDNR-78) that would benefit fisheries resources at a much greater benefit-to-cost margin; and
- d. there is no evidence that fish entrainment is significantly affecting the fishery in Au Train reservoir or river down-stream.

MDNR-80. See response to comments MDNR-78 and MDNR-79. Section V.C.3.b was revised to reflect your comment regarding rough fish removal.

#2570) issued April 27, 1995 as stated in Comment 49. Therefore, any conclusion other than providing fish protection or mitigation contradicts stated Commission policy on this issue and wholly inconsistent with all other FERC licenses issued in the State of Michigan. Therefore, the Commission must require fish protection or compensatory mitigation.

This paragraph states that compensatory mitigation is provided at project where fish protection were found to be infeasible or cost prohibitive. Neither finding was made at this project nor was fish protection analyzed in the DEA. As stated above, this project has characteristics that make it suitable for fish protection.

The DEA in this paragraph notes that most of the entrained fish were small yellow perch and white suckers. It goes on to state that we routinely remove white suckers from the basin. While this was the practice in the past, this is no longer conducted. The revised DEA should be corrected on this point.

51) Page 37, Bypass System, Paragraph 3 - This paragraph states that the plant was only shut down three times over the last eight years. This number of shutdowns is capable of significantly disrupting downstream fish populations. However, the applicant numbers do not show plant trips and outages which occur much more frequently than 3 times over 8 years. The applicant's numbers are only for planned unit shutdowns and overlook shutdowns for other purpose. The Commission should request this information from the applicant and make sure that the shutdown frequency is correct in the revised DEA.

52) Page 38, Paragraph 1 - This analysis of de-watering impacts should not just concentrate on salmon impacts. It should include impacts on all species that reside downstream of the powerhouse. It is critical that habitat be maintained for all life stages in order for the project to comply with the Clean Water Act. This should be corrected in the revised DEA.

53) Page 38, Paragraph 2 - This paragraph states that there are 5-12 cfs in the bypassed river channel and accretion of 10-15 cfs in downstream river reaches. Where did these data come from? Where is the supporting evidence for this statement? At what point is the accretion measured at? The 10-15 cfs in downstream reaches, while important, is not as critical as in the area close to the powerhouse. We request that these data be provided to us prior to the Section 10(j) meeting.

Our recommended flows for river downstream of the powerhouse were based upon IFIM dataset for all species and life stages, and provided the best compromise for all. This substantial evidence was the basis for our recommendation which meets the Section 10(j) guidance on deference as stated in June 20, 1996. The Commission's analysis only examines the impacts on just one group of fish and is wholly inappropriate to the protection of the aquatic community. All groups must be protected to prevent impairment of the designated uses of this system.

54) Page 38, Paragraph 3 - The Departments do not agree that 20 cfs of which 10 cfs is to be provided from the dam is sufficient to protect this reach during plant shutdown periods. This recommendation does not provide the minimum flow at all times as required by our

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MDNR-81. The frequency of plant shutdowns was discussed at the Section 10(j) meeting and UPPCo reported that unplanned outages are quite rare at this project, as stated accurately in the EA.

MDNR-82. We note in several places within Section V.C.3.c of the EA that flow continuation is needed to ensure protection of "aquatic habitat" and "aquatic resources." The discussion of salmonid impacts was presented because salmonids are the primary management species for this river reach.

MDNR-83. The estimate of accretion flow was provided by UPPCo and includes the seepage from the dam, spring water in the bypassed reach, as well as spring water entering the left bank of the river near the confluence of the bypass and tailrace. The estimate was made by UPPCo during pre-application studies.

MDNR-84. Based on our analysis of the data, we concluded that a 20-cfs flow down-stream of the powerhouse would adequately protect aquatic resources for a short time in an emergency project shutdown.

MDNR-85. We agree that 20 cfs would not provide optimal habitat conditions. However, for the conditions under which this emergency flow system would be used (infrequently and for short duration), we conclude that 20 cfs would be sufficient to prevent fish kills and damage to eggs. Furthermore, as discussed at the Section 10(j) meeting, it would be technically difficult and very costly to design a siphon system that can convey the 50 cfs that MDNR recommended. The substantial cost would not justify the minimal habitat benefit that would be gained by increasing the emergency flow from 20 to 50 cfs. Regarding our statement in the EA about frequency of emergency flows, the three times in eight years that the plant discharge was discontinued were all related to the old wood stave pipeline (first its failure and then its replacement). Given that the woodstave pipeline has been replaced with a steel pipeline, we concluded that the frequency of emergency plant outages would be much less, and estimated it at once every 10 years. At the Section 10(j) meeting, UPPCo confirmed that plant outages are very rare, occurring less than one percent of the time and typically lasting less than two hours.

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recommendation and places aquatic resources in unnecessary jeopardy. The Departments recommendation is very specific and clearly meets the Commission's evidence standard. The minimum flows should be provided at all times and we request Section 10(j) consultation on this issue.

This paragraph goes on to justify this emergency minimum flow by stating that it would be needed once every ten years based upon past experience. This is incorrect and inconsistent with previous DEA statements as the plant has been intentionally shut down 3 times in the last 8 years. We believe that this is an underestimate that does not include plant trips. Thus, this argument is without any substantiating data as required by the Commission's rules (Section 313) and should be deleted from the revised DEA.

55) Page 38, Paragraph 4 - The Departments agree with the staff recommendation that a siphon based emergency flow system should be installed at the dam. We also agree with the development of an operation plan to ensure flows at all times. We recommend that this system provide a minimum flow of 50 cfs, not 10 cfs as recommended by the Commission, and request Section 10(j) consultation on this issue.

56) Page 39, Management of Large Woody Debris - One of the clear impacts of dams is the disruption of the transport of sediment and woody debris. Historically, this stream system transported woody debris through the damsite and was in fact used to transport logs during the lumbering era of the late 1800s. To state that this project has no impact on this critical stream process is completely without any supporting evidence. We recommend that the applicant be required to pass all woody debris from the dam downstream to restore this important stream process. This measure is cost neutral as this material has to be removed at some point anyway and disposed of, and will provide direct benefits to fish habitat in downstream river reaches. According to the June 20, 1995 guidance memo on agency recommendations such revenue neutral measures are to be granted whether or not staff agrees with their utility. In addition, the denial of this measure would be inconsistent with all recent FERC licenses issued along with proposed Commission actions in the Menominee River and Thunder Bay River DEISs. We request that this measure be reinstated in the revised DEIS and request Section 10(j) consultation on this issue.

We will discuss trout habitat improvement in conjunction with the DEA discussion on bank erosion.

57) Page 39, Future Fisheries Studies, Paragraph 2 - This paragraph states that the existing fish populations are very good fisheries. What is the Commission definition of a very good fishery? The AuTrain Basin has significant fishery problems as discussed above and is not considered to be a "very good" fishery given the small size of the northern pike and the large bullhead population.

This paragraph also states that the AuTrain River water temperatures are marginal for trout management. This is incorrect as stated. All of the AuTrain River tributaries above the AuTrain Basin have brook trout, a temperature intolerant species. The water from these tributaries is warmed by the Basin, a direct project impact. Thus, the AuTrain Project causes

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MDNR-86. See response to comment MDNR-85.

MDNR-87. This issue was discussed and resolved at the Section 10(j) meeting. See Section V.C.3.d of the final EA for our recommendation.

MDNR-88. See response to comment MDNR-123.

MDNR-89. We have reviewed numerous characterizations of the Au Train Basin fishery in documents that were filed in this licensing process over the past five years. Many references characterize the Au Train reservoir fishery as "good." We interpret "good" as meaning a healthy fishery. The references to the Au Train Basin being a "good" fishery have not been refuted until now. We added the word healthy to our characterization in Section V.C.3.e of the final EA.

MDNR-90. The statement in the EA is correct. The Au Train River originates at the Au Train dam. Water temperature down-stream of the dam is marginal for trout. These statements are all based on factual data. We have clarified our statement regarding the impact of the project on water temperatures down-stream.

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water temperatures which are marginal for trout and are in violation of state water quality standards. This should be corrected in the revised DEA.

As whole, the recommendations for this project will significantly change the environment in the AuTrain River system. It is important to know from a public interest perspective whether these recommendations did as they were designed to do. The Commission has a duty to the public to account for their recommendations and show the positive benefits of their implementation, as do the Departments. In addition, it is critical that all parties learn the effects of their management choices and allow for the modification of these measures as necessary using an adaptive management strategy. Logically it makes no sense to invest many thousands of dollars into determining impacts then spend no money to determine if the correct choices were made. One must complete the job started by the FERC licensing of this project. Since the applicant's project is impacting the environment, it should be their responsibility to fund such studies. The Commission provides no supporting evidence on why our recommendation should be rejected, thus it should be accepted. According to the June 20, 1995 guidance memo on agency recommendations such low cost measures are to be granted whether or not staff agrees with their utility. We request that this low cost item be reinstated into the revised DEA and request Section 10(j) consultation on this matter.

58) Page 40, Unavoidable Adverse Impacts - The Departments do not agree with the conclusions in this section as stated above except for the conclusion that the project will violate state water quality standards for temperature and dissolved oxygen and impair designated uses.

59) Page 42, Paragraph 3 - Our interpretation of cooperation by the licensee is that they are the responsible party for the removal and/or control of the exotic plants. The resource agencies are responsible for providing technical guidance on how and when to remove such plants. This interpretation was verified at the Section 10(j) meeting for the Menominee River DEIS. We request clarification on this point at the Section 10(j) meeting.

60) Page 46, Paragraph 2 - The Departments generally support the Commission's recommendations on wildlife management. However, the fate of some of our recommendations is unclear. Is the Commission going to accept our enhancement measures for purple martins, osprey, bluebirds, kestrels, and owls? This is not directly addressed in the DEIS and we request clarification on this matter in the Section 10(j) meeting. In addition, there is no mention of a threatened/endangered/sensitive species section in the recommended Wildlife Management Plan. There is also no discussion of the gray wolf management in the DEA. Will the licensee be required to provide for the management of T/E/S species on their lands as recommended by the Departments? This is not directly addressed in the DEIS and we request clarification on this matter in the Section 10(j) meeting.

61) Page 47, Paragraph 2 - This paragraph rejects the Departments' recommendation that all UPPCo-owned lands be incorporated into the bald eagle management plan. Bald eagles frequently nest in areas beyond the recommended 200 foot buffer zone and these nests are dependent upon the project. The benefit of bald eagle habitat provided by the project could be jeopardized by the improper management of these adjacent lands. We request that to

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MDNR-91. We conclude that our recommendations would have beneficial impacts on fisheries by providing more stable flows down-stream and higher and more consistent reservoir water levels. We relied on agencies' recommendations of what measures would enhance fisheries and have recommended those measures where they were consistent with applicable laws (i.e., the public interest and balancing standards of the FPA). If, through its routine fisheries studies, MDNR discovers that any of our recommendations have adverse effects on fisheries in the basin or down-stream as compared to historical operations, MDNR can submit that data to the Commission for evaluation.

MDNR-92. Opinion noted. No response is necessary.

MDNR-93. UPPCo should monitor project waters for purple loosestrife and Eurasian watermilfoil and should cooperate with the Michigan DNR, including providing funding, in controlling these nuisance plants at the project, should it become necessary and safe and effective measures become available. If and when these plants are discovered, the Commission would make a determination on the limits of the licensee's liability. The Commission would retain the authority to approve measures that the licensee would perform in controlling and/or eradicating purple loosestrife and Eurasian watermilfoil at the project.

MDNR-94. At the Section 10(j) meeting, MDNR withdrew its recommendation for all wildlife structures except an osprey nesting platform. Any license issued for this project would require a threatened and endangered species section in a wildlife management plan. As a federally-listed endangered species, the gray wolf would be addressed in that section. The gray wolf has not been observed in the project area, although we listed it in table 5 of the EA as potentially occurring in the project area.

MDNR-95. The provisions recommended by DOI and MDNR to be included in the Bald Eagle Management Plan would adequately protect existing and future nest sites from activities that would potentially adversely affect bald eagle activities. In addition, we are recommending a flexible buffer zone, which would include wetlands, to protect important wildlife habitat. See also responses to comments MDNR-112, MDNR-113, MDNR-136, and SW-18.

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- protect this species that all UPPCo lands adjacent to the project be incorporated into the bald eagle plan and request Section 10(j) consultation on this issue.
- 62) Page 47, Paragraph 4 - This paragraph rejects the USFS recommendation for the provision or project funding for bald eagle monitoring efforts. Given the importance of these data for the management of this impoundment, the direct impacts of the project on this species and the very low cost of this monitoring, the Commission must give the agencies deference under the June 20, 1995 memo. To ensure that this monitoring continues on project lands, we recommend that the Commission require reimbursement of up to \$300 annually (adjusted for CPI) for resource agency flight time over project lands. We request Section 10(j) consultation on this matter.
- 63) Page 47, Paragraph 5 - We recommend that the licensee also incorporate the management guidelines from the Draft Michigan Gray Wolf Plan, issued in June 1996, into the wildlife management plan. We will provide copies of this plan to the Commission under separate cover. This is not directly addressed in the DEIS and we request clarification on this matter in the Section 10(j) meeting.
- 64) Page 48, Paragraph 4 - It is unclear to us why these falls are not considered unique or distinctive regional resources. What is the criteria used for this analysis? This should be provided to the Departments and included in the revised DEIS.
- 65) Page 49, Environmental Impacts - The penstock significantly detracts from the aesthetic qualities of these falls and this should be addressed in the revised DEIS. We recommend that the penstock be screened or hidden in some way to enhance the aesthetic quality.
- 66) Page 49, Environmental Impacts, Paragraph 3 - We recommend that the gravel pit area be cleaned up and completely re-vegetated, and the old equipment disposed of. There is no reason to allow the continued use of this unauthorized dumpsite. This eyesore can be cleaned up for very little money and this will greatly enhance the overall natural quality of this project. This should be addressed in the revised DEA and discussed in the Section 10(j) meeting.
- 67) Page 51, Regional and Project Area Recreation Resources - How is the description of regional recreational opportunities relevant to the discuss of access to the AuTrain Project? The regional facilities are not a replacement for those at this project and do not provide compliance with Americans with Disabilities Act for this project. This discussion should be deleted from the revised DEA.
- 68) Page 52, Paragraph 3 - This paragraph fails to note that the road to the powerhouse is very steep and provides no access to those with disabilities. This should be added to this paragraph in the revised DEA.
- 69) Page 53, Paragraph 2 - The reason that most recreationists are state residents is that the project and it's facilities are difficult to find because of the lack of adequate signage. The signage at this project is a particular problem that needs to be addressed in the revised DEA

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- MDNR-96. Because the USFS is not a Section 10(j) agency, its recommendation for monitoring funds is not a Section 10(j) recommendation. Therefore, your discussion related to Section 10(j) procedures is not pertinent. However, at the Section 10(j) meeting, UPPCo agrees to cost-share funding for bald eagle surveys. We have agreed to recommend that UPPCo share in reasonable costs for eagle surveys in Section V.C.5.b of the final EA.
- MDNR-97. In Section V.C.5.a of the EA, we recommended that UPPCo prepare a wildlife management plan in consultation with the agencies. The wildlife management plan would include provisions to protect threatened and endangered species habitat, including the gray wolf. We clarified this recommendation in Section V.C.5.a of the final EA. MDNR has not submitted its Draft Michigan Gray Wolf Plan to the Commission, so we cannot determine if our recommendation would be consistent with MDNR's plan. However, we have recommended that UPPCo prepare its wildlife management plan in consultation with the agencies, which would give MDNR an opportunity to submit its recommendations on gray wolf habitat management. See response to comment MDNR-94.
- MDNR-98. We stated that the Au Train Falls were not considered unique because of the prevalence of waterfalls throughout the Upper Peninsula. In Alger County, in which the Au Train Project is located, there are 20 scenic waterfalls. Because of the prevalence of scenic waterfalls in the region, we concluded that the Au Train Falls are not a rare or unusual feature to the area.
- MDNR-99. In Section V.C.6 of the draft EA, we acknowledge that the location of the penstock in the vicinity of the falls detracts from the scenic quality of the area. However, the penstock is located on a steep rock outcrop so it is not possible to screen or hide the penstock by planting vegetation. In the EA, we recommended that UPPCo install interpretive signage at the viewing area that would include an explanation of the penstock (its history, purpose, and how it diverts water for hydroelectric purposes).
- MDNR-100. As discussed at the Section 10(j) meeting, the Commission has no authority over the gravel pit/storage area because it does not affect project operations. We maintain our recommendation that

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UPPCo plant trees and vegetation in order to screen
the storage area from the Upper Au Train Falls
viewing area.

MDNR-101. The purpose of the regional description is to
provide an overview of the area and to establish the
context in which the Au Train Project is located.
We conclude that this is important to the overall
discussion of recreation resources and did not
delete it in the final EA.

MDNR-102. Section V.C.8 in the final EA was revised.

MDNR-103. We do not agree that there is inadequate directional
signage for visitors to the area. Signage on Route
H-03 directs visitors to the Au Train Falls, and to
the MDNR recreation site. In the draft EA, we
concurred with UPPCo's proposal to provide
additional directional signage to the Upper Au Train
Falls viewing area in conjunction with other
improvements to this site.

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and should be discussed at the Section 10(j) meeting. This should be noted in the revised DEA.

- 70) Page 53, Paragraph 4 - Canoeing downstream of the project is nonexistent because of the lack of access. The current access with a long steep trail does not provide adequate access for this activity. In addition, no one uses this reach of river for canoeing because in the past it was frequently dewatered, there is no directional signage and the public is discouraged by the applicant from using this area. So it is not a real surprise that people do not use this area given that background. This should be stated in the revised DEA.
- 71) Page 54, Paragraph 1 - The Departments recommended that the accessible vault toilet for lower falls viewing be part of the tailwater fishing access adjacent to the powerhouse. The barrier-free fishing platform is part of the tailwater access not part of the lower falls viewing area. This should be corrected in the revised DEA.
- 72) Page 55, Recreation Recommendations, General Comment - The Commission's recreational recommendations in this section do not comply with ADA standards in Title III or conform with similar standards in the Michigan SCORP.

The Purpose of ADA in Section 36.101 states:

"The purpose of this part is to implement title III of the Americans with Disabilities Act of 1990 (42 U.S.C. 12181) which prohibits discrimination on the basis of disability by public accommodation and requires places of public accommodation and commercial facilities to be designed, constructed, and altered in compliance with the accessibility standards established by this part."

Section 36.201 of ADA states:

"(a) Prohibition of discrimination. No individual shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages or accommodations of any place of public accommodation by any private entity who owns, leases (or lease to) or operates a place of public accommodation."

Clearly, the lack of sufficient recreation access in the Commission's proposals for the physically impaired directly violates this provision of ADA. It also directly conflicts with Commission policy that prohibit discrimination against any member of the public in the utilization of these project facilities. The Departments' terms and conditions letter spell out exactly what is necessary in accommodations at these projects. These recreational facilities should be provided at this project in the revised DEIS and request that this issue be discussed at the Section 10(j) meeting.

- 73) Page 55, Paragraph 1 - This paragraph states that the Commission rejects the Departments' recommendation for a shoreline fishing/viewing pier because existing use and demand do not warrant it. There is no supporting evidence for this conclusion as required by Section 313 of

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- MDNR-104. We modified Section V.C.8 of the final EA to state that there is no put-in or access point for canoeists between the powerhouse and Au Train Lake. We also noted that historical operation provided unreliable flows, which may have further discouraged canoeists.
- MDNR-105. We corrected this in Section V.C.8.a of the final EA.
- MDNR-106. The Commission does not have the authority to enforce or participate in the enforcement of ADA standards; however, we recommend and encourage the applicant to provide reasonable barrier-free access. We maintain our original conclusion that there are sufficient barrier-free opportunities at the project. The MDNR campground provides barrier-free toilets and accessible camp site facilities. Further, we recommend in the EA that the proposed aesthetic viewing area at Upper Au Train Falls be barrier-free (the viewing deck, interpretive signage, and parking area).
- MDNR-107. See response comment MDNR-106. We conclude that sufficient barrier-free facilities and opportunities would be provided at the project.

the Commission's rules. No data was collected for the application that would allow one to project the need for an accessible fishing platform. Currently, no shoreline fishing facilities exist at this project so no data is available to support the conclusion that existing facilities are adequate for present use. Since those that are disabled cannot presently use the project for shoreline fishing, how can the Commission say that the current facilities are adequate? We request that this issue be discussed at the Section 10(j) meeting.

107

- 74) Page 55, Paragraph 2 - We strongly disagree with the Commission's evaluation of our recommendation for a tailwater access site as it is not supported by evidence and violates federal and state law. The Commission states that there is insufficient room for development of the site. This is incorrect as there is room for parking adjacent to the powerhouse. We also do not agree that the access road is too steep to allow for vehicular access. The fishing platform would be easy to develop at this site and would provide an excellent opportunity for potamodromous fish which is not available in many locations that are accessible to those with disabilities. There are no provisions for access for those that are physically challenged and this is in violation of federal law and Commission rules, particularly at a site where it is physically possible to accommodate such uses. This decision is also inconsistent with nearly all other Commission license orders in the State of Michigan including license orders for the Tower and Kleber, City of Crystal Falls, Consumers Power Company, Mead Paper Company, Moores Park and Constantine Projects. We request that this issue be discussed at the Section 10(j) meeting.

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If the Commission is concerned about the size of the parking area at the powerhouse, the Departments are willing to modify the conceptual design to accommodate fewer vehicles.

- 75) Page 55, Paragraph 3 - We strongly disagree with the Commission's evaluation of our recommendation for upgrading the boat launch facility to accessible standards as it is not supported by evidence and violates federal and state law. The Commission rationale that the current launch is adequate for the type and size of boats that use the reservoir has nothing to do with making this facility accessible to all. Our recommendations for the boat launch was for the applicant to provide funding for a skid pier, an accessible toilet, additional designated parking and a hardened path. We also requested that the licensee pay the maintenance cost to ensure that this facility maintained for the life of the license. These low cost measures bring this facility up to ADA standards and ensure access for all. By not providing access for those that are physically challenged, the staff is in violation of federal law and Commission rules, particularly at a site where it is physically possible to accommodate such uses. This decision is also inconsistent with nearly all other Commission license orders in the State of Michigan including license orders for the Tower and Kleber, City of Crystal Falls, Consumers Power Company, Mead Paper Company, Moores Park and Constantine Projects. We request Section 10(j) consultation on this matter.

109

- 76) Page 55, Paragraph 4 - We strongly disagree with the Commission's decision to not accept our recommendation to have the project provide funding to maintain the existing MDNR Forest Lake Campground. The Commission's conclusion that UPPCo makes a sufficient contribution to recreation by just providing a site with a low cost lease is inconsistent with nearly all other licenses issued recently by the Commission in the State of Michigan. The

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MDNR-108. We modified the discussion in Section V.C.8, of the final EA to provide further explanation of the physical constraints of the site and rationale for why it is not possible to provide vehicular access for recreationists, anglers, or visitors to this site. However, the other two formal recreation sites (Upper Au Train Falls and the Forest Lake State Forest Campground) would contain barrier-free facilities. Therefore, we conclude that sufficient barrier-free access is provided at the project.

MDNR-109. See response to comment MDNR-106. We conclude that sufficient barrier-free facilities would be provided at the project with our additional recommendations.

MDNR-110. We have reconsidered this issue and revised our recommendation in Section V.C.8 of the final EA. We recommend that UPPCo provide up to \$5,000 per year for operation and maintenance of the Forest Lake State Forest Campground.

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MDNR developed this site at taxpayer expense while the project was operated by another party thus UPPCo did not make a contribution as they had to honor previous obligations. UPPCo has not provided for any recreation at this site as all other licensees are obligated to do as the cost of using a public resource for profit. The revised DEA should examine the possibility that the MDNR will terminate the lease and revert this access site to the applicant as it is their responsible to provide for recreational access to their project. These responsibilities should not be dumped upon the public. We request Section 10(j) consultation on this matter.

77) Page 55, Paragraph 5 - It is unclear how the Commission's operational plan will provide for a continued dialog on recreation at this project. Given the above comments and additional recreational access needs, it seems prudent to have annual meetings to discuss recreational access. We request Section 10(j) consultation on this matter.

78) Page 59, Paragraph 1 - This paragraph concludes that including all UPPCo owned lands is not necessary for the project operation nor do they provide an enhancement measure associated with project operation. This conclusion is not supported by any evidence as required by Commission rules. The proper management of all UPPCo lands is critical to ensuring the benefits prescribed to this project are maintained for the life of the license. The additional lands are necessary to: a) protect water quality in the reservoir; b) protect the reservoir and downstream river reaches from unnecessary soil erosion from poor land management and timber practices; c) protect the aesthetics of the project from development; d) protect bald eagle nesting habitat; and e) protect threatened/endangered/sensitive species that use the project area and surrounding uplands. According to the June 20, 1995 guidance memo on agency recommendations such revenue neutral measures are to be granted whether or not staff agrees with their utility. In addition, the denial of this measure would be inconsistent with all recent FERC licenses issued at projects with substantial land ownership by the licensee along with proposed Commission actions in the Menominee River DEISs. Given this rationale, we request that the Commission reconsider their decision and that all lands be included in the project boundaries. These lands should be managed using a comprehensive land management plan. We request Section 10(j) consultation on this issue.

79) Page 59, Paragraph 2 - The Departments supports the proposed 200 foot shoreline buffer zone recommendation by the Commission. We do not agree with the rejection of the 600 foot buffer zone in downstream reaches below the dam. The topography of the river valley below the dam is very steep and timber harvest activities could directly impact the benefits prescribed by the Commission for the minimum flows from the powerhouse. The 600 foot buffer zone would encompass nearly all of the steep valley areas. The timber harvest impacts in this steep and wet valley include additional soil erosion and the compaction of wet soils in the valley sides which will disrupt ground water inputs into the river. The lands in the area below the powerhouse should not be disturbed to protect the benefits of the project at a very low cost. According to the June 20, 1995 guidance memo on agency recommendations such revenue neutral measures are to be granted whether or not staff agrees with their utility. Given this rationale, we request that the Commission reconsider their decision and that a 600 foot buffer zone be include on all lands below the project dam. We request Section 10(j) consultation on this issue.

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MDNR-111. We have clarified in Section V.C.8 of the final EA that consultation would occur as part of the Form 80 review, which occurs every six years. We do not recommend or see need for any additional consultation beyond what is required as part of the Form 80 review. Form 80 filings (Licensed Hydropower Development Recreation Report) include estimates of public use occurring and describe utilization rates for the user facilities. Further, the Commission's Chicago Regional Office conducts periodic safety inspections of projects, which include recreational and environmental reviews. We encourage the MDNR to participate in these standard Commission administrative activities to help monitor future recreation use at the project.

MDNR-112. Commission regulations stipulate that minor licenses may include either: (1) no project boundary; or (2) only a limited amount of land for the dam and minor project features. We maintain our original recommendation that it is not appropriate that all UPPCo-owned lands be included within a project boundary and managed as part of the license. We recommend that UPPCo establish a shoreline buffer and manage those lands in accordance with a comprehensive land management plan. This would adequately protect environmental resources at the project. In addition, we recommend a wildlife management plan and a bald eagle management plan, which would protect habitat for wildlife and threatened and endangered species within the buffer zone.

MDNR-113. At the Section 10(j) meeting, we agreed to modify the final EA to recommend that a variable shoreline buffer be provided on UPPCo-owned lands. The variable buffer would allow for flexibility in determining the specific buffer width, depending on topography or special resources along the shoreline. This would be developed by UPPCo in consultation with the resource agencies and be incorporated in a comprehensive land management plan. We modified Section V.C.9 of the final EA.

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80) Page 60, Socioeconomic Considerations, Environmental Impacts - We do not agree that the inclusion of the proper target and minimum flows, reservoir elevations and recreation facilities will not have an impact on the socioeconomics of this area. We would expect that additional tourist revenue will be brought into this area and this should be noted in the revised DEA.

114

81) Page 61, Paragraph 1 - The revised DEA should state that the change in operations will cause an undetectable change in air emissions. We do not see how one would be able to detect this insignificant change.

115

82) Page 62, Paragraph 2 - Did the Commission do an independent analysis of the applicants data? We do not see any analysis of the applicant's rate information in the DEA. Please provide the analysis to the Departments as soon as possible.

116

83) Page 62, Paragraph 4 - How is it in the public interest for the Commission to license a project that loses in excess of \$150,000 per year when there is replacement power available at a much cheaper rate? This should be included in the revised DEA and the rationale for this decision prior to the Section 10(j) meeting.

117

The Departments also request that all of the economic analysis for this project including the assumptions used and all spreadsheets be provided to us prior to the Section 10(j) meeting. We also request that a itemized list of all environmental costs and the assumptions for those environmental costs be provided to us prior to the Section 10(j) meeting.

118

The economics of this project show why dam retirement provisions must be included in any license for this project.

119

84) Page 65, Pollution Abatement, Paragraph 2 - The assumption that this power would be replaced by coal-fired power is not correct in Michigan as it could be replaced by hydropower from other sites, gas turbine combustion, co-generation or nuclear power. All of these sources have much lower emissions than do coal-fired plants. These sources should be included in the revised DEA and the range of pollution costs provided.

120

85) Page 65, Comprehensive Development and Recommended Alternative - We have already provided our comments on most of the issues above and will not repeat them here.

121

86) Page 69, Preparing an Erosion Control Plan - The coverage of this plan should include downstream reaches down to the USFS 2276 bridge crossing as the project has caused erosional impacts down to that point. We also recommend that all downstream erosion control work wait 3 years to see if and how much the change in operations allows downstream eroding banks to repair themselves. It makes no sense to spend money repairing banks that rehabilitating themselves.

122

We stated above that we would discuss habitat improvement measures in conjunction with erosion control. We are willing to amend our recommendation on fish habitat improvement

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MDNR-114. We added your comment to Section V.C.10 of the final EA.

MDNR-115. The text in Section V.C.11 of the draft EA stated that the change in air emissions would be minor and have no effect on overall air quality in the region. This appears consistent with your comment. Therefore, we have not revised the EA.

MDNR-116. We determined that UPPCo's estimate of the cost of alternative power in the region was reasonable and did not conduct an in-depth analysis of UPPCo's data.

MDNR-117. See response to MDNR-4.

MDNR-118. Costs for individual enhancement measures are included in Section VI and Table 14 of the EA. Costs used in our economic analysis came from UPPCo (in its application), the resource agencies, or were developed by us. The assumptions are generally detailed in the individual resource sections of Section V of the final EA.

MDNR-119. Opinion noted. No response is necessary.

MDNR-120. Fossil-fueled power accounts for 71 percent of energy generated in the Wisconsin-Upper Michigan power subregion of MAIN (NERC, 1993). The reality of the marketplace is such that any amount of hydropower lost would more than likely be made up with fossil-fueled power.

MDNR-121. No response is necessary.

MDNR-122. Our recommendation is for annual surveys of the project shoreline on UPPCo-owned lands. We do not recommend that UPPCo survey or implement any measures outside its property limits. We conclude in the final EA that the project, if licensed with our recommended enhancements, would improve downstream conditions by providing a more stable flow, as compared with the historical peaking operation. See also response to comment MDNR-13.

MDNR-123. Although we have not recommended bank erosion improvement measures at this time, if the Commission determines in the future that UPPCo should repair any erosion sites, we recommend that UPPCo incorporate any reasonable and appropriate trout habitat enhancement structures into the erosion

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repair. MDNR suggested at the Section 10(j) meeting
that large woody debris could be used to protect the
shoreline and extend into the river to provide trout
habitat.

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to have fish habitat improvement be incorporated into all bank erosion measures. This allows for the control of bank erosion problems using methods that will directly improve fish habitat at reduced costs. We are willing to accept the Commission's proposal on this issue with these provisions.

- 87) Page 73. Drawdown Recommendations - In most recent FERC licenses (to include Brule, and Consumers Power Company Projects) issued in the State of Michigan along with other licensing proceedings (to include Menominee River and Thunder Bay River DEIS recommendations), a drawdown plan was included to prevent environmental impacts from maintenance and emergency drawdowns. This is one acceptable and consistent way to implement the Departments' recommendations on drawdowns which would be acceptable at this project. It should be noted that the MDEQ has delegated authority for administration of Section 404 of the Clean Water Act and must be contacted on each drawdown along with the MDNR.

It is critical that the drawdowns for normal expected maintenance be planned well in advance to minimize impacts to aquatic resources. We recommend that additional detail be provided in this license on this matter. The following detail should be included in the license and is similar to language being used in the implementation of the Brule Project license article:

Maintenance Drawdowns

The Departments recommend that Public Act 346 permits be applied for all planned maintenance drawdowns greater than the agreed upon operational band as this permit is needed to comply with Section 404. This measure allows for the necessary coordination between our Departments and the licensees along with any mitigative measures. It also allow for the customization of mitigative measures for each drawdown. The permit will act as an individual drawdown plan and should be filed with the Commission at minimum 45 days before the drawdown is to occur.

If Public Act 346 is changed to not require permits for such operations, then the licensees should consult with the Departments on drawdown and refill rates and necessary mitigation at least 120 days before such drawdowns are to commence which are greater than the agreed upon operational band. The company should then submit the individual drawdown plan with the necessary drawdown and refill rates and mitigation to the Commission for approval along with the Departments recommendations at minimum 60 days before the drawdown is to occur.

The Departments prefer that all planned drawdowns be conducted during August and September. We recommend that the maximum drawdown rate should be 0.2 feet per hour but this rate will be customized for each drawdown as necessary. Additionally, we recommend a minimum flow of 75% of inflow during refill periods but this value will be customized for each drawdown as necessary. Both of these values are excellent starting points for either agency consultation or permit application.

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MDNR-124. We revised Section V.C.2.c of the final EA to recommend a draw-down plan.

MDNR-125. Our recommendation in Section V.C.2.c of the final EA includes notification of the Commission and agencies in the event of a planned or emergency draw down. We recommend that this be included in any license issued for this project, which would be consistent with other recent license orders issued. We cannot recommend that the licensee be required to obtain state permits or identify mitigation, as it conflicts with the Commission's authority to administer the license, as discussed in Section V.C.2.c of the final EA. The Commission, not the state agency, is the entity responsible for a licensee's compliance with a project license, which includes determination of mitigation measures. However, we did revise Section V.C.2.c of the final EA to recommend that UPPCo prepare a draw-down plan in consultation with the resource agencies.

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Fish Stranding - The Departments recommend that each drawdown should be surveyed for stranded fish, and all stranded fish returned to the main river channel. All stranding locations should be noted on a map using GIS coordinates for future drawdowns.

Emergency Drawdowns

Consultation with the Departments should be conducted within 1 working day of all emergency drawdown orders and this consultation will provide information on the timing and extent of such drawdowns.

Within 7 days, the Departments recommend that Public Act 346 permits be applied for all emergency drawdowns greater than the agreed upon operational band. This measure allows for the necessary coordination between our Departments and the licensees along with any mitigative measures. It also allows for the customization of all mitigative measures for each emergency drawdown. The permit will act as the emergency drawdown plan for each instance and should be filed with the Commission at minimum 7 days before the drawdown is to occur, when possible, or within 30 days of the notification of emergency drawdowns when early notification is not possible.

If Public Act 346 is changed to not require permits for such operations, then WEPCo should consult with the Departments on emergency drawdown and refill rates and necessary mitigation within 7 days of such drawdowns are to commence which are greater than the agreed upon operational band. The licensees should then submit the individual emergency drawdown plans with the necessary drawdown and refill rates and mitigation to the Commission for approval along with the Departments recommendations 7 days before the drawdown is to occur, when possible, or within 30 days of the notification of emergency drawdowns when early notification is not possible.

The fish stranding, drawdown and minimum flow recommendations as stated above are also applicable to emergency drawdowns.

This issue should be discussed at the Section 10(j) meeting.

88) Page 76, Paragraph 3 and Page 77, Paragraph 3 - As stated above, we believe the Commission has misunderstood our recommendations on minimum flows and reservoir elevations. The Departments have slightly modified our recommendation to ensure that it is within the operating constraints of the project. It is our contention that our recommendations are consistent with the Commission's, provide a more flexible response to basin conditions, and have no additional cost to the project. We request that this issue be discussed at the Section 10(j) meeting.

89) Page 77, Paragraph 2 - The Departments clarified and modified our condition on project ramping in the above DEA comments. We have addressed the Commission's concerns as detailed in the DEA and request this issue be discussed at the Section 10(j) meeting.

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MDNR-126. See response to comments MDNR-16 and MDNR-32.

MDNR-127. See response to comment MDNR-38.

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90) Page 77, Paragraph 4 - We strongly disagree with the Commission on the amount of flow that should be provided during emergency periods as stated above in our comments. This paragraph indicates that there is a significant cost on the project of our recommendation. The cost for our measure should be discussed in detail and compared to the Commission's alternative in the revised DEA.

128

91) Page 78, Paragraph 3 - The Departments strongly oppose the recommendation to exclude the applicable water quality standards and necessary monitoring from this license. This action is inconsistent with other recent Commission license actions (including Brule, Prickett, Consumers Power Company and others) in Michigan and does not ensure compliance with the Clean Water Act.

129

92) Page 78, Paragraph 4 - We strongly oppose the Commission's recommendation not to provide fish protection or compensation and have provided additional information for the Staff's consideration on this issue. This measure would protect coldwater and warmwater fish (designated uses of the AuTrain River as stated in Michigan Code) which ensures compliance with the Clean Water Act, would be consistent with all other licenses issued in Michigan, and provides deference to the Departments as required under Section 10(j) as implemented by the June 20, 1995 memo, referred to above. This issue should be discussed during the Section 10(j) meeting.

130

This paragraph also states that our recommended fish protection measures would cost \$137,400 annually, yet there is no discussion of this anywhere else in the DEA. Where do these data come from? There is no supporting evidence for this analysis anywhere in the DEA. This estimate is highly inflated as barrier nets would likely cost about \$25,000 to install initially and \$5,000 to maintain annually. Other alternatives such as other trash rack designs would also not cost \$137,000 annually. Please provide your analysis to us prior to the Section 10(j) meeting.

131

93) Page 79, Paragraph 1 - We strongly oppose the Commission's recommendation not to provide for woody debris transport or addition fish habitat and have provided additional information for the Staff's consideration on this issue. This measure would protect coldwater and warmwater fish (designated uses of the AuTrain River as stated in Michigan Code) which ensures compliance with the Clean Water Act, would be consistent with all other licenses issued in Michigan, and provides deference to the Departments as required under Section 10(j) as implemented by the June 20, 1995 memo, referred to above. This issue should be discussed during the Section 10(j) meeting.

132

This paragraph states that you found the river to have excellent shelter and habitat for fish during the staff's visit to the project. What criteria is this assessment based upon? This criteria should be provided in the revised DEA or this speculative assessment should be deleted.

133

This paragraph also states that the cost for providing woody debris is estimated to be \$8,000 annually. Where do these data come from? There is no supporting evidence for this analysis anywhere in the DEA. Please provide your analysis to us prior to the Section 10(j) meeting.

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MDNR-128. We discuss our justification for not recommending this measure, including the costs associated with various alternatives, in Section V.C.3.c of the EA. This issue was also discussed, but not resolved, at the Section 10(j) meeting.

MDNR-129. The Commission has consistently not recommended that water quality standards be incorporated into a license if the standards cannot be reasonably met.

MDNR-130. See response to comments MDNR-74 through MDNR-79.

MDNR-131. The estimate of \$137,000 was based on a general guideline of \$1,000 per cfs of plant capacity for a standard screen system for small fish, such as those entrained at this project. For most projects we typically use a rough cost estimate of \$1,500 per cfs (Preliminary Assessment of Fish Entrapment at Hydroelectric Projects, A Report on Studies and Protective Measures, Paper No. FPR-10, Federal Energy Regulatory Commission, June 1995). The estimate included installation of a permanent fish exclusion structure, effectiveness studies on that structure, and installation of an interim barrier net. We conclude that this estimate was reasonable. Further, we maintain that installing any fish protection devices would not be the best use of funds appropriately devoted to environmental enhancements at this project, as discussed in response to comments MDNR-78 and MDNR-79.

MDNR-132. See response to comment FWS-7.

MDNR-133. The statement that the reach of river below the powerhouse contains excellent shelter and habitat for fish is based on the professional opinion of our fisheries biologist and further supported by the river description in the license application. The EA clearly states that this is our assessment.

MDNR-134. Based on discussions at the Section 10(j) meeting, we revised Section V.C.3.d of the final EA regarding our recommendation for woody debris transport. We have removed the cost for this item (agreeing that our modified recommendation could be considered normal operation and maintenance) in Section VI of the final EA.

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Is this \$8000 per year charge for woody debris transport? This cost should not be included in this table as this is an existing O&M cost to the licensee. The licensee currently has to remove and dispose of this material which is likely to be equivalent to the cost of woody debris transport. This issue was recently discussed at the Section 10(j) meeting for the Menominee River DEIS and the Commission Staff agreed in that proceeding that this cost should not be included as an environmental enhancement cost because it is an existing condition. This frees this amount of money for additional environmental enhancements. This should be corrected in the revised DEA.

135

94) Page 79, Paragraphs 3 and 4 - We strongly oppose the Commission's recommendation not to include all of UPFCo's lands in the project boundary or to provide a comprehensive land management plan for these management. We have provided additional information for the Staff's consideration on this issue. This measure would protect coldwater and warmwater fish (designated uses of the AuTrain River as stated in Michigan Code) which ensures compliance with the Clean Water Act, would be consistent with all other licenses issued in Michigan, and provides deference to the Departments as required under Section 10(j) as implemented by the June 20, 1995 memo, referred to above. This issue should be discussed during the Section 10(j) meeting.

136

95) Page 80, Bullet 1 - We strongly oppose the removal of our impoundment drawdown conditions from consideration under Section 10(j). These measures are clearly designed to protect fish and wildlife resources from project impacts.

137

We strongly oppose the Commission's recommendation not to provide for all reservoir drawdown situations and have provided additional information for the Staff's consideration on this issue. This measure would protect coldwater and warmwater fish (designated uses of the AuTrain River as stated in Michigan Code) which ensures compliance with the Clean Water Act, would be consistent with all other licenses issued in Michigan, and provides deference to the Departments as required under Section 10(j) as implemented by the June 20, 1995 memo, referred to above. This issue should be discussed during the Section 10(j) meeting.

138

96) Page 80, Bullet 2 - We agree that the Commission does not have the authority to adjudicate damage claims. We request that language that states that the State of Michigan can seek relief for such damages in state court be provided in the Order Issuing License.

139

We do not agree that the project be excused from complying with state water quality standards because it can not mitigate deviations from coldwater temperature standards. This statement is clearly in violation of the Clean Water Act and should be deleted from the revised DEA. In addition, this paragraph states that the project does not significantly contribute to water quality impacts. This is in direct contradiction to the evidence in this case and to all of the other analysis in the DEA. This conclusion should be deleted from the revised DEA.

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MDNR-135. As described in response to comment MDNR-134, we no longer include a cost of \$8,000 for our modified recommendation on woody debris transport. However, we do not have a specified sum of enhancement dollars with which to make our recommendations. Each enhancement is evaluated individually on its merit and subject to balancing. Therefore, the \$8,000 that we originally recommended for woody debris transport is not available money for use in other MDNR recommendations.

MDNR-136. As previously discussed in response to comment MDNR-112, we conclude that UPFCo's proposed buffer would adequately protect resources in the project area. See responses to comments MDNR-95 and MDNR-113.

MDNR-137. Requiring the applicant to file permits and identify mitigation are not specific measures to protect fish and wildlife, and thus were not considered under Section 10(j). We note, however, that this issue was resolved at the Section 10(j) meeting, as described in Section VIII of the final EA.

MDNR-138. This issue was resolved at the Section 10(j) meeting. We recommended that UPFCo prepare a draw-down plan in Section V.C.2.c of the final EA.

MDNR-139. See response to comment MDNR-59.

MDNR-140. Section VIII of the final EA was revised to remove the statement.

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97) Page 80, Bullet 3 - We strongly oppose the removal of this compliance condition from consideration under Section 10(j). These measures are clearly designed to protect fish and wildlife resources from project impacts by ensuring compliance with the operating conditions.

141

We oppose the Commission's recommendation not to provide for immediate access to operations data and have provided additional information for the Staff's consideration on this issue. This measure would protect coldwater and warmwater fish (designated uses of the AuTrain River as stated in Michigan Code) which ensures compliance with the Clean Water Act, would be consistent with all other licenses issued in Michigan, and provides deference to the Departments as required under Section 10(j) as implemented by the June 20, 1995 memo, referred to above. This issue should be discussed during the Section 10(j) meeting.

142

98) Page 81, Bullet 1 - We strongly oppose the removal of this measure that is important to developing fish protection measures from consideration under Section 10(j). These measures are clearly designed to protect fish and wildlife resources from project impacts.

143

99) Page 81, Bullet 2 - We strongly oppose the removal of this measure that protects wildlife habitat by providing for it's long-term existence from consideration under Section 10(j). These measures are clearly designed to protect fish and wildlife resources at this project.

144

100) Pages 81, Paragraph 2, Project Retirement - We strongly oppose the removal of this measure that is important to protecting fish and wildlife habitat from consideration under Section 10(j). These measures are clearly designed to protect fish and wildlife resources from the retirement of this project at the end of it's economic life.

145

101) Page 82, Paragraphs 1 and 2 - The State of Michigan is currently dealing with the dumping of such federal responsibilities onto the state. The Centreville Project had it's exemption revoked and the state requested that the Commission ensure that the project could not generate by filling the power canal and removing the diversion dam. We were told that the Commission could not do this and this dam is the state's problem as the Commission responsibility ends upon revocation. Thus, we are stuck with a federal problem that should have been dealt with by the Commission. We are very wary of this process given our very bad experiences with it to date and the lack of Commission responsibility for their dams. Waiting until federal licensing ends is unacceptable to the Departments given our experience with this process and does nothing to ensure that a financially responsible party will be available to deal with the dam at that time.

146

102) Page 83, Paragraph 1 - We strongly oppose the Commission's decision to not provide for retirement funding at this project which is clearly economically troubled as stated in this document. What happens if the licensee refuses the license? What is the Commission's role at that time and who is responsible for the dam? We request answers to these questions at the Section 10(j) meeting.

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MDNR-141. As the EA states, telemetry is not necessary to judge compliance, but merely a convenience. The Commission and agencies can obtain operations data directly from UPPCo to determine compliance. Because telemetry is not a specific measure to protect fish and wildlife, it was not considered under Section 10(j).

MDNR-142. UPPCo has offered to provide agencies operations data when requested. The addition of telemetry is simply a convenience for the agencies and not a necessity to judge project compliance. This issue was discussed and resolved at the Section 10(j) meeting as noted in Section VIII of the final EA.

MDNR-143. A study to determine compensation to MDNR is not a specific measure to protect fish and wildlife.

MDNR-144. MDNR's recommendation did not provide information on specific enhancement measures it wanted funded, the amount of funding requested, or the need for enhancements at the refuge. Therefore, we could not consider it a specific measure to protect fish and wildlife.

MDNR-145. Opinion noted. Commission policy is clear that a study of dam removal and establishment of a trust fund are not specific measures to protect fish and wildlife.

MDNR-146. Opinion noted. No response is necessary.

MDNR-147. Because the Au Train Project is currently unlicensed and UPPCo applied for a Commission license voluntarily, the Commission's involvement would end if UPPCo refused the license.

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103) Page 83, Comprehensive Plans - The MDNR - Fisheries Division Strategic Plan should also have been included in the comprehensive plan analysis. This should be corrected in the revised DEA.

With the Departments' recommendations, as modified in this letter, the proposed project is consistent with the applicable comprehensive plans.

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MDNR-148. This comprehensive plan was added to Section IX of the final EA.

MDNR-149. No response is necessary.

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REGULATORY COMMISSION
96 JUL - 8 PM 11:23

Letter from Stone & Webster Michigan, Inc. dated July 5, 1996

- SW-1. No response is necessary.
- SW-2. Opinion noted. No response is necessary.
- SW-3. No response is necessary.

Ms. Lois Cashell
Secretary
Federal Energy Regulatory Commission
888 First Street N.E.
Room 1-A
Washington, DC 20426

July 5, 1996

J.O. No. 18372

SWMICH/FERC/151

COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT
AU TRAIN HYDROELECTRIC PROJECT
FERC PROJECT NO. 10858 - 002
UPPER PENINSULA POWER COMPANY

On May 24, 1996, the Federal Energy Regulatory Commission (FERC) provided notice of the availability of the Draft Environmental Assessment (DEA) for the Au Train Hydroelectric Project. The following comments on the DEA are being submitted on behalf of UPPCO, the owner of the project.

UPPCO does not agree with some of the analyses and conclusions in the DEA and is opposed to several of the FERC's recommendations. However, UPPCO recognizes the FERC's mandate to balance competing demands in the public interest, and UPPCO generally believes the FERC has done a fair and reasonable job of balancing resources in the DEA.

We appreciate the opportunity to provide these comments. If you have any questions, please call me at (303) 741-7404 or Max Curtia of UPPCO at (906) 487-5064.

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Sincerely,

Craig Harris
Craig Harris
Project Manager

Enclosure

9607250052

FERC-DOCKETED

JUL 8 1996
M/C

STONE & WEBSTER MICHIGAN, INC.

Comments of Upper Peninsula Power Company
on the
Draft Environmental Assessment
for Licensing of the
Au Train Hydroelectric Project
FERC No. 10856

Letter from Stone & Webster Michigan, Inc. dated July 5, 1996

General Comments

UPPCO does not agree with some of the analyses and conclusions in the DEA and is opposed to several of the FERC's recommendations. However, UPPCO recognizes the FERC's mandate to balance competing demands in the public interest, and UPPCO generally believes the FERC has done a fair and reasonable job of balancing resources in the DEA.

The U.S. Fish & Wildlife Service (FWS, DOI) apparently filed Section 10(j) recommendations by letter of April 29, 1994. Regulations under 18 CFR 4.34 require that any such filing be served on all persons listed in the Service List. Neither UPPCO nor any of its consultants were furnished a copy of this letter and UPPCO was wholly unaware of that filing by FWS. UPPCO has, therefore, been denied the opportunity to respond to the recommendations and is unable to adequately evaluate and comment on the FERC's decision to adopt some of those recommendations. UPPCO, therefore, requests that the FERC provide a copy of the FWS 10(j) filing to UPPCO and grant a 90 day extension of time (in accordance with FERC regulations, 45 days to respond to the Section 10(j) recommendations and 45 days to complete comments on the DEA) for UPPCO to evaluate and respond to the recommendations and the FERC's determinations regarding those recommendations.

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In this DEA, and in other FERC proceedings, several agency recommendations that staff evaluates are not supported by the record of evidence and should clearly fail the substantial evidence standard. Some of these measures are subsequently recommended for adoption in the license if the costs are expected to be low. In today's changing marketplace of the utility industry, the addition of any unnecessary cost to a project is particularly onerous. These costs have a direct effect on the ability of a utility to compete in the marketplace, and the accumulation of low cost measures may have significant economic consequences. These costs may reduce shareholder earnings and the attractiveness of a utility's stock for investment.

UPPCO disagrees with adopting such measures because the costs associated with these measures, even though relatively small, are none the less tangible additional

- SW-4. Opinion noted. No response is necessary.
- SW-5. We provided UPPCO's consultant a copy of the FWS letter of April 29, 1994, and noted that the letter lists UPPCO as a recipient of a copy of the letter. It was agreed that no time extension would be necessary.
- SW-6. We have reviewed the costs for plans and further defined our recommendations, as necessary. However, consultation with the agencies is a critical component of the plans to ensure that the plans adequately protect environmental resources. We note that at the Section 10(j) meeting, MDNR also stated that it would consider a 40-year license term appropriate for this project. The license term will be clearly defined in the license order.

costs that would produce no corresponding benefit. Such real costs, however small, should not be borne by a licensee when there is no corresponding real benefit. All of these costs, individually and cumulatively, are real and incurred by the licensee. The simple fact that a measure may have a low cost does not justify the measure and certainly does not change the fact that the measure will not result in a necessary or tangible resource benefit.

The adoption of unjustified low cost measures often includes items that are open ended and poorly defined, such as resource management plans. Costs for these items may be small but are difficult to estimate because it is unknown what the plan will contain until it is developed, and they may or may not require additional measures or actions in the future. As a result, these items are subject to potentially high costs precisely because they are open-ended, poorly defined, and it is difficult to determine their cost. This is the case for the bald eagle and wildlife management plans, among others, in this DEA. Simply remanding these issues to agency consultation only increases the costs. In these cases, the Commission should include a maximum dollar limitation for the plan and its activities to ensure that the implementation of these plans is efficient and consistent with the level of effort envisioned in staff's analysis.

Given the current economic status of this project and considering that any license issued by the Commission will likely increase the project's economic losses, UPPCO requests that the Commission issue a 40 or 50 year license.

Erosion Inspection and Reporting (pp. 12, 66, 67, and 76)

UPPCO disagrees that an erosion inspection and reporting program is warranted. There are no existing project-related erosional sites, no history of frequent or recurring erosional problems, and no proposed changes to the project that would increase the likelihood of erosional problems developing in the future. In fact, the proposed operations would reduce the potential for erosional problems.

The entire basis for the FERC's recommendation is contained within a single statement that "... UPPCO has documented several areas of erosion in the past..." (pg. 12, last paragraph). UPPCO has presented a great deal of information including water quality data, geologic and soils information including bed and bank conditions, and photographic evidence that all indicate a lack of erosion and potential erosion. With the singular exception of a small roadbank slump, which was corrected, the only erosion ever noted at the project is exceedingly minor and related to natural erosion that is either unaffected or reduced by project operations. The DEA generally recognizes this yet recommends an erosion program. This recommendation does not meet the substantial evidence standard.

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SW-7. We have revised our recommendation on erosion in Section V.C-1 of the final EA to require annual inspection and 3-year reports to the Commission. UPPCO would not be required to prepare a "plan." We maintain that annual erosion inspection would protect resources from future potential problems without placing a large burden on the licensee.

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UPPCO has corrected the only substantive erosion at the project and would continue to correct erosion problems in the future, should they develop, as part of the normal O&M for the project. Requiring a formal inspection program and reporting is unnecessary and adds undue cost.

UPPCO recognizes the need to prepare erosion control plans for construction/ground disturbing activities and does not object to the recommendation to develop erosion control plans for any such future activities.

Operations Report (pp. 27, 31, 66, and 67)

The DEA recommends that UPPCO provide an annual report to Commission documenting its compliance with the operational aspects of the project license. UPPCO recognizes that the Commission's standard L-series articles contain authority for the Commission to require any such data and reports as may be required (e.g., Form L-9, Article 6). Licensees are typically required to maintain operational records for compliance purposes, but they are not usually required to file specific annual reports to the Commission without cause. UPPCO does not have a record of non-compliance on any of its licensed projects and objects to the premise that it should be required to prove its compliance without cause. The Commission intends to issue a license for this project, and UPPCO will be legally required to operate within the terms and conditions of that license, if accepted. The requirement to annually submit and summarize hourly data for the entire year on various project operations is burdensome and unnecessary. The requirement to arbitrarily provide comprehensive annual reports results in unnecessary costs and should be eliminated in favor of the Commission's standard authority to require such reports if and when they are determined to be necessary.

On page 31, the DEA recommends that UPPCO provide USGS gage flow data to the agencies upon request. It should be noted that UPPCO has no control over the timing or schedule of the USGS in reducing, compiling, and publishing the gage data. UPPCO would provide this data to the agencies upon request subject to the availability of the data from USGS. The agencies may also request the data directly from USGS to reduce time delays.

Wildlife Management Plan (pp. v, 45, 46, 67, 69, 70, 75 (Table 14, Items 30, 31))

The DEA's analysis does not demonstrate a need for a wildlife management plan. The development of a wildlife management plan, including the measures recommended by MDNR, is inappropriate and unwarranted. UPPCO's policies and proposals, including commercial logging prohibitions on lands within 200 feet of

- SW-8. We maintain our recommendation for annual reports in light of the agencies' concerns regarding operations.
- SW-9. The issue was discussed and resolved at the Section 10(j) meeting. We recommend that UPPCO provide operations data upon request to the agencies (see revised Section V.C.2.g of the final EA).
- SW-10. Although we agree that our recommended operations would enhance habitat for fish and wildlife in the project area, we maintain our recommendation for a wildlife management plan to document UPPCO's measures to protect habitat within the buffer zone.

the reservoir, reduced water-level fluctuations, closure of the waterfowl refuge during fall waterfowl migration, and closure of the bald eagle nesting area, among others, already protect or enhance all existing wildlife habitats and sensitive areas at the project. Another plan incorporating these measures would be superfluous and is unnecessary, and UPPCO requests that the requirement be removed from the final EA.

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The Environmental Analysis section of the DEA recommends that the wildlife management plan include construction and maintenance of waterfowl habitat structures, which it defines as including purple martin nesting "colonies," eastern bluebird houses, an osprey platform, wood duck nest boxes, bat nesting houses, mallard nesting "habitat" (unspecified), and kestrel and owl "locations," as well as habitat improvements in the project rights-of-way. This recommendation is confusing in that most of these species are not waterfowl, and some are not even fowl. Other than in Table 14 (Section 10(j) table), all other references in the DEA are to waterfowl nesting structures. Furthermore, the sole (and speculative) reason given for the DEA recommending installation of nesting structures is that the winter drawdown "could potentially affect wetlands and other natural breeding areas on the basin periphery," a clear reference to waterfowl.

The MDNR did not provide evidence for and the DEA does not demonstrate a need for these wildlife structures and habitat improvements at the project. Furthermore, no nexus has been demonstrated between project-related impacts and any potential need for these structures. In fact, the DEA points out that there is no evidence that project operations have negatively affected waterfowl populations near the project and that wetland habitats should benefit from the proposed operations.

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UPPCO's July 5, 1994, response to MDNR Recommended License Condition 10 demonstrated that MDNR's recommendations are not related to project operation or any known need in the project area. We reiterate part of that discussion below.

- The DEA recommends that UPPCO provide nesting structures for wood ducks and mallards, purple martins, bats, eastern bluebirds, kestrels, and owls. If these species were declining locally and the operation of the project were causing or significantly contributing to the decline, if their populations were limited by nesting habitat availability, and if these structures were likely to be used and provide significant benefits, then UPPCO would be willing to cooperate with MDNR to provide these structures. Although these species' populations have declined nationally, there is no evidence that they have declined locally, that the project has contributed to any local declines that might have occurred, or that nesting habitat availability limits local populations.

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SW-11. At the Section 10(j) meeting, MDNR withdrew its recommendations for many of these wildlife and waterfowl structures, as described in Table 14 of the final EA.

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- Because Au Train Basin is surrounded by mature second-growth forest that will continue maturing under proposed logging restrictions, nest site availability would not limit local cavity-nesting wood duck, purple martin, bat, bluebird, kestrel, or owl populations over the license term. If nesting habitat does not limit these species, then providing additional nests would not increase their populations, and these structures would provide no benefit to justify them.
- Nesting structures for mallards are similarly unwarranted. Suitable breeding habitat for mallards already exists at Au Train Basin: at full pool, palustrine wetlands with emergent vegetation cover 128 acres, littoral lacustrine aquatic bed wetlands cover 559 acres, and undisturbed upland nesting habitat surrounds the reservoir. Reduced water-level fluctuations and logging restrictions will protect these habitats throughout the license term. Despite the availability of suitable breeding habitat, waterfowl production at Au Train Basin is very low (UPPCO 1993). All of the evidence suggests that other factors, namely the project's location outside of any major breeding area or flyway and the presence of bald eagles in the middle of available habitat, rather than habitat availability, limit waterfowl production at the project. If nesting habitat does not limit waterfowl production, then additional nesting habitat would not increase production, and mallard nesting structures would provide no benefits to justify their construction.
- The DEA recommends construction of an osprey nesting platform at Au Train Basin. Ospreys are state-listed by MDNR as a threatened species, and have been observed at the project but do not currently nest there. The reservoir fisheries would provide osprey with abundant forage resources, and bald eagles that might compete with ospreys nest at the south end of the basin. The opportunity for ospreys to nest at the project is good due to the mature forest surrounding the project. It is highly unlikely that a nesting platform would induce ospreys to nest at the project if they have not done so to date.
- The DEA also recommends wildlife plantings in the project right-of-way. MDNR does not specify target wildlife species or the types of vegetation for these plantings. Such plantings are usually targeted for deer. Abundant deer fecal material and browse markings indicate that deer forage heavily within the right-of-way, suggesting that there is already ample deer forage there and that plantings would be unnecessary. In addition, UPPCO doubts this recommendation would be warranted by its costs and benefits. With neither

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the demonstration of need nor the provision of the costs and benefits of these plantings, they cannot be justified or endorsed.

MDNR submits identical Section 10(j) recommendations for all hydrolicensing proceedings in Michigan. There is no evidence to substantiate the need for these generic requests. As the DEA notes on page 76 with regard to the Commission adopting fish and wildlife recommendations submitted by the agencies, "... we first determine whether the recommendation is supported by substantial evidence in the record, that is, whether there is evidence in the record adequate to support a conclusion. If not, the recommendation is inconsistent with the requirement of Section 313(b) of the Federal Power Act (FPA) that Commission orders be supported by substantial evidence." MDNR's recommendations are not supported by substantial evidence in the record and are, therefore, inconsistent with the FPA. UPPCO requests that the recommendation to provide wildlife nesting structures be removed from the final EA.

There are no legitimate wildlife issues or problems with this project that necessitate annual consultation with the agencies. UPPCO's history of cooperation with the MDNR and the U.S. Forest Service demonstrates the lack of need for scheduled consultation with the resource agencies. As has happened in the past, either the agencies or UPPCO may initiate consultation on an as-needed basis. UPPCO requests that the recommendation for consultation on wildlife management be removed from the final EA. If the wildlife management consultation requirement is retained in the final EA, UPPCO believes that, because there would be no changes in project facilities or operations that could adversely affect wildlife, there is no need to consult as frequently as annually. We suggest that consultation every 5 years would be more than adequate to address changes in resource agencies' policies and priorities and any potential changes in wildlife management needs at the project.

Bald Eagle Plan (pp. 47-70)

UPPCO is unable to fully evaluate and comment on this section because the DOI/FWS letter containing the specific recommendations has not been provided to UPPCO and because the DEA does not define the measures it recommends for adoption. The following comments may be subject to revision after review of the specific recommendations from DOI/FWS.

The DEA recommends adoption of many of MDNR's bald eagle measures. Some of these measures have already been completed. It is unclear to what extent the DEA envisions adopting the measures. For example, the DEA appears (it is not definitive) to recommend adopting MDNR's recommendation that UPPCO

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- SW-12. We provided this letter to UPPCO's consultant prior to the Section 10(j) meeting. UPPCO provided no subsequent comments on the FWS Section 10(j) terms and conditions.
- SW-13. Our recommendation is that UPPCO finalize its bald eagle management plan, with the understanding that it currently incorporates many of the MDNR and FWS provisions in its existing plan. We recommend that UPPCO finalize the plan in consultation with the agencies and come to agreement on the appropriate language to be included in the plan.

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"identify existing, new, or previously unknown nesting, roosting, and perch sites on UPPCO owned lands." Such information was provided in the license application and UPPCO's response to the Additional Information Request (AIR). A full nesting habitat survey including maps identifying potential nesting habitat, ranked by habitat quality, was provided to the Commission (see Volume IV of Exhibit E). Identification and use of perching and roosting sites, in addition to additional nesting information, was provided in UPPCO's response to the AJR. Was this information considered, and, if so, does the DEA intend that UPPCO gather the very same information again? If the DEA intends that UPPCO collect this information again, then why did FERC require this information in the AIR?

Similarly, it is not clear what staff envisioned in recommending that the Northern States Bald Eagle Recovery Plan and the Bald Eagle Winter Management Plan be incorporated and referenced in UPPCO's bald eagle plan. Although the Bald Eagle Winter Management Plan was not specifically included, the Northern States Bald Eagle Recovery Plan was included. What, if anything, else is staff envisioning with respect to the Northern States Bald Eagle Recovery Plan?

Many of MDNR's provisions that the DEA recommends for adoption are similarly ill-defined and include references to all UPPCO lands, undefined restriction or control of human activity, and undefined surveys and protection measures (see UPPCO letter of July 5, 1994, responding to MDNR's recommendations). Adopting such open-ended and ill-defined measures without modification could result in very high costs associated with this plan. It is not clear if staff intends to modify the wording of those MDNR recommendations measures that are adopted.

UPPCO wholly disagrees with the DEA's cost estimate for this plan. The actual cost associated with agency consultation, implementation of surveys and measures, and other aspects of the plan, as presented in the DEA, could easily be an order of magnitude higher than the DEA's estimated cost. If the DEA's estimated cost is truly representative of the measures and level of effort intended by staff, then UPPCO requests that the FERC clarify their recommendations or include a maximum dollar limitation for activities associated with the plan.

The final EA should clearly define and specify what is required in the bald eagle plan and the basis for any determination that the existing plan and information is not adequate. The DEA's analysis does not provide a clear understanding of staff's recommendations or a realistic assessment of cost. UPPCO recognizes the FERC's regulatory responsibilities under the Endangered Species Act, however, this should not be a basis for not fully evaluating the consequences of the FERC's recommendations.

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SW-14. Our cost estimate for this plan reflects our intention that UPPCO would finalize its existing plan to be consistent with the agencies' recommended protection measures. We do not recommend additional surveys or measures that would represent a substantial cost to UPPCO.

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Nuisance Plants (pp. 42 and 70)

In the Environmental Analysis section, the DEA recommends that UPPCO be required to develop and implement a plan to monitor the potential occurrence of purple loosestrife and Eurasian watermilfoil in project waters. In the event that either plant were to become established at Au Train Basin, UPPCO would also be required to cooperate with the agencies in their control/elimination. UPPCO has agreed to monitor project waters to detect the occurrence of these species and to cooperate in efforts to control their spread by providing access to project waters and by project operation accommodations.

The Comprehensive Development and Recommended Alternative section of the DEA introduces similar but different wording requiring UPPCO to consult with the agencies "to develop a plan to control the spread of these species in the project area," and to "cooperate with the agencies to develop control strategies."

The differences between the recommendations are subtle, but they would result in different levels of involvement by UPPCO, including developing resource management strategies and plans that are the area of expertise and more properly the responsibility of the resource agencies. The potential occurrence of these species in Au Train Basin in the future will not be due to project operation, and there is no reason for UPPCO to be involved in research related to their control/eradication. Furthermore, the recommendations given in the Comprehensive Development and Recommended Alternatives section are at least partially inconsistent with those recommended in the Environmental Analysis section and were not addressed in that section. UPPCO requests that the recommendations in the Comprehensive Development and Recommended Alternatives section, including Table 14, Item 36, be revised in the final EA to reflect those specifically analyzed in the Environmental Analysis section.

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Consultation on Reservoir Drawdowns (pp. 25, 26, 66)

It is not entirely clear under what circumstances the DEA expects UPPCO to consult with the agencies on drawdowns. The Environmental Analysis section recommends that UPPCO should notify the agencies during emergencies and consult with the agencies on drawdowns, but it also states that requiring agency consultation for drawdowns within the permitted operational rules (drawdowns no lower than 772 feet) is inappropriate. The staff's recommended alternative, as stated in the Comprehensive Development and Recommended Alternative section, provides for "consulting with the MDNR and the DOI in advance of scheduled reservoir draw-downs to protect fish and wildlife resources."

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- SW-15. See response to comment MDNR-93. The Environmental Analysis section of the EA also recommends that UPPCO cooperate with MDNR to control/eliminate the nuisance plants. The Environmental Analysis and Comprehensive Development sections of the EA are consistent and require no revisions.
- SW-16. We clarified Section V.C.2.c to recommend that UPPCO prepare a draw-down plan that addresses notification and operating procedures in the event of an emergency or planned draw-down beyond the level authorized in the license.

UPPCO requests that the recommendation in this section be revised to clarify that consultation with the resource agencies would only be required for drawdowns outside the permitted operational limits.

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Wildlife Refuge Closures (p. 52)

The wildlife refuge is closed to public access to provide undisturbed use by migrating waterfowl from September 15 to November 10, as correctly stated on pages 44-45. Page 52 incorrectly states September 15 to October 10. It should also be stated in the latter section that the southern end of the reservoir and adjacent areas are also closed from March 1 to June 30 to protect nesting bald eagles.

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Buffer Zone (p. 59)

The DEA recommends that "specific forest practices" be incorporated into UPPCO's "buffer management provisions." There is really only one management provision of the 200-foot buffer zone, and that is to prohibit commercial logging. As indicated in the license application, this is not strictly a no-cut zone in that certain activities are allowed for safety and resource protection purposes. Minor, incidental removal of trees for non-commercial purposes, such as clearing the vista of Upper Au Train Falls in the proposed development of the viewing area or limited removal of trees at an existing homesite, would be consistent with UPPCO's buffer management policy. The remainder of UPPCO's management of the buffer zone is and will continue to be passive in nature, and there are no "specific forest practices" to be incorporated.

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UPPCO appreciates the opportunity to provide these comments for staff's consideration.

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SW-17. Section V.C.8 of the final EA was revised.

SW-18. We have provided additional explanation in Section V.C.9 of the final EA to clarify our recommendation for a no-timber management policy within the buffer zone. As discussed and agreed to at the Section 10(j) meeting, the final EA recommends a variable shoreline buffer on UPPCO-owned lands with a target width of 200 feet (rather than a set 200-foot buffer), which would be developed in consultation with the resource agencies. We acknowledge that there would be no forest timber practices and management of the buffer would be passive, but we continue to recommend that policies for incidental tree removal, as outlined in your comment, be detailed in the comprehensive land management plan and the wildlife management plan.

SW-19. No response is necessary.

Form L-12
(October, 1975)

FEDERAL ENERGY REGULATORY COMMISSION

TERMS AND CONDITIONS OF LICENSE FOR CONSTRUCTED
MINOR PROJECT AFFECTING THE INTERESTS OF
INTERSTATE OR FOREIGN COMMERCE

Article 1. The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. The project area and project works shall be in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

Article 4. The project, including its operation and maintenance and any work incidental to additions or alterations authorized by the Commission, whether or not conducted upon lands

of the United States, shall be subject to the inspection and supervision of the Regional Engineer, Federal Energy Regulatory Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him such information as he may require concerning the operation and maintenance of the project, and any such alterations thereto, and shall notify him of the date upon which work with respect to any alteration will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall submit to said representative a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of any such alterations to the project. Construction of said alterations or any feature thereof shall not be initiated until the program of inspection for the alterations or any feature thereof has been approved by said representative. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights or occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 7. The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

Article 8. The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 9. The operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period

of time, as the Commission may prescribe for the purposes hereinbefore mentioned.

Article 10. On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 11. The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

Article 12. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States

to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 13. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

Article 14. In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon the request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

Article 15. The Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. All clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

Article 16. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may

also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

Article 17. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

Article 18. The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

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