73 FERC ¶ 61,346

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Elizabeth Anne Moler, Chair;
Vicky A. Bailey, James J. Hoecker,
William L. Massey, and Donald F. Santa, Jr.

Wisconsin Electric Power Company) Project No. 2486-002

ORDER ISSUING NEW LICENSE

(Issued December 19, 1995)

On December 23, 1991, the Wisconsin Electric Power Company (Wisconsin Electric) 1/ filed an application for a new license pursuant to Section 15 of the Federal Power Act (FPA) 2/ to continue to operate and maintain the 3.6-megawatt (MW) Pine Hydroelectric Project No. 2486, located on the Pine River, in Florence County, Wisconsin, about 12 miles from the Michigan border. 3/ As discussed below, we have concluded that a new license for the project should be issued to Wisconsin Electric.

I. BACKGROUND

Public notice of Wisconsin Electric's new license application was issued. Timely motions to intervene were filed by the U.S. Department of the Interior (Interior), the State of Wisconsin Department of Natural Resources (Wisconsin DNR), and

1/ Wisconsin Electric is a public utility organized under Wisconsin law and engaged in generating and distributing electricity in Wisconsin, Michigan, and northern Illinois.

2/ 16 U.S.C. § 808.

3/ The Commission issued the original license for the project on September 29, 1967, to the Wisconsin Michigan Power Company (Wisconsin Michigan), a subsidiary of Wisconsin Electric. 38 FPC 749. In that order the Commission found that the Pine River, in a reach including the project site, is a navigable waterway of the United States. 38 FPC at 750. Section 23(b)(1) of the FPA, 16 U.S.C. § 817(b)(1), therefore requires the project to be licensed. When Wisconsin Michigan merged with Wisconsin Electric, in 1977, the Commission approved the transfer of the license to Wisconsin Electric. 59 FPC 2145 (1977).

American Whitewater Affiliation, et al. (the Boating Groups). 4/

The Commission granted the Boating Groups' motion to intervene over Wisconsin Electric's opposition. 5/ The remaining motions to intervene were unopposed and therefore granted automatically under Rule 214(c)(1) of the Commission's Rules of Practice and Procedure. 6/

Comments on the new license application were filed by Interior, Wisconsin DNR, the State of Michigan Department of Natural Resources (Michigan DNR), and the Boating Groups. Wisconsin Electric filed a response to these comments. Staff issued a Scoping Document in November 1993, describing the environmental issues to be evaluated, including reasonable alternatives to the project. Wisconsin DNR, the Boating Groups, an individual whitewater boater (Erik Sprenne of Indiana), and Wisconsin Electric filed comments on the Scoping Document. On March 8, 1994, the Commission's staff made available for public comment a Draft Environmental Assessment (Draft EA) of the project. Wisconsin Electric, the U.S. Fish and Wildlife Service (FWS), the U.S. National Park Service (the Park Service), Wisconsin DNR, Michigan DNR, and the Boating Groups filed comments on the Draft EA.

The Commission's staff has prepared a Final Environmental Assessment (EA) that considered all the comments and information submissions and made recommendations to address these concerns. The EA concludes that continued operation of the project, with the staff's recommendations, would result in minor adverse impacts on the environment that would be largely mitigated and offset by project benefits; that issuance of a new license for the project would not constitute a major federal action significantly affecting the quality of the human environment; and that a new license with measures to protect and enhance the

4/ The Boating Groups includes American Whitewater Affiliation; American Rivers, Inc.; Sierra Club John Muir Chapter; Chicago Whitewater Association; University of Wisconsin Hoofers Outing Club; Badger State Boating Society; American Canoe Association; Cascaders Canoe and Kayak Club; Izaak Walton League of America and its Wisconsin Division; Boat Busters Anonymous; Whitewater Specialty's Inc.; and Green Bay Paddlers United.

5/ Notice issued August 27, 1992, by the Commission's Secretary (unpublished).

6/ 18 C.F.R. § 385.214(c)(1) (1995).

environment should be issued for the project. 7/ A copy of the EA is attached to and made a part of this order. Staff also prepared a Safety and Design Assessment (S&DA), which is available in the Commission's public file associated with this project.

The Boating Groups oppose issuance of a new license, contending that the project should be removed to enhance wild river values and whitewater boating opportunities. In the alternative, the Boating Groups request a license requirement for four to six week-end white water releases during the summer. Wisconsin DNR and Interior request that any new license issued for the Pine Project include requirements to mitigate project impacts on environmental resources, including compensatory mitigation for fish mortality and entrainment. Wisconsin DNR also requests that, in light of the Pine River's designation as a state wild river, the license should include a requirement to develop a plan to remove the project at the end of the license term and establish a fund for retirement of the project. We are adopting most of the requested mitigation and enhancement requirements and declining to impose the requested project retirement requirements. We find that the benefits of the project, as licensed, outweigh the environmental enhancements that the Boating Groups assert would occur with removal of the dam.

II. PROJECT DESCRIPTION

The Pine Project, which was constructed between 1920 and 1922, creates an impoundment that inundates a valley containing two 8-foot waterfalls, one 12-foot waterfall, and 0.5 mile of rapids on the Pine River. The project is within a state forest area, 12.7 miles upstream of the river's outlet into the Menominee River, which is the border between Wisconsin and Michigan's Upper Peninsula. In 1965, Wisconsin designated the Pine River as a wild river. 8/ There are no other existing or

7/ The Boating Groups requested preparation of an Environmental Impact Statement (EIS). Section 102(2)(C) of the National Environmental Policy Act, 42 U.S.C. § 4332(C), requires the Commission to issue an EIS for major federal actions significantly affecting the quality of the human environment. As found in the EA for the Pine Project, issuing the new license for the project does not constitute a major federal action.

8/ "[T]he Pine river and its tributary Popple river in Florence and Forest counties are designated as wild rivers and shall receive special management to assure their preservation, (continued...)

proposed hydropower projects in the Pine River Basin. 9/ Wisconsin's management program for the state's wild rivers allows for the continued operation of the Pine Project. 10/

The project consists of: (1) a 628-foot-long impoundment structure, approximately 42 feet high, comprised of (a) a 146-foot-long dam, (b) a 358-foot-long earth dike containing a concrete corewall, (c) a 124-foot-long concrete spillway section with seven taintor gates, and (d) a concrete gravity non-overflow section; (2) a reservoir with a surface area of 180 acres and a total storage volume of 1,540 acre-feet; and (3) a reinforced concrete and brick-and-steel, 50.6-foot-long by 58.4-foot-wide, frame powerhouse containing (a) two vertical shaft Francis turbines with a combined normal hydraulic capacity of 640 cubic feet per second (cfs) rated 3,000 horsepower each, and (b) two 3-phase, 60-cycle, vertical shaft generators rated 1,800 kilowatts (kW) each, providing a total installed capacity of 3,600 kW. The project, when operated, bypasses approximately 0.4 mile (2,100 feet) of the river channel below the dam, which is consequently dewatered most of the time under existing project operations except during periods of high flow. Ordering paragraph (B)(2) contains a more detailed project description. 11/

Wisconsin Electric proposes to change the project's mode of operation from peaking (retaining impoundment inflows for releasing to generate power at high-demand periods) to run-of-river (inflows equaling outflows) and to provide additional environmental enhancements. Wisconsin Electric would operate the project in a run-of-river mode by maintaining a target headwater level of 1191.6 feet National Geodetic Verticle Datum (formerly

8/(...continued)
protection and enhancement of their natural beauty, unique recreational and other inherent values . . ." Wis. Stat. § 30.26 (1994).

9/ See the EA, Section V. A. 2.

10/ "To preserve the free flowing state of wild rivers, no man-made dams or other man-made structures which impound water shall be permitted on such rivers with the exception of those projects, licensed by the Federal Energy Regulatory Commission, in existence prior to November 18, 1965." Wis. Admin. Code § NR 302.04 (March 1979) (Emphasis added).

11/ The project does not include a primary transmission line, because the substation that serves Wisconsin Electric's regional distribution system is located inside the project's powerhouse.

"mean sea level") within a prescribed bandwidth (±0.5 feet, with the goal of operating within ±0.3 feet). Wisconsin Electric proposes no additional capacity. The change to run-of-river operation would reduce annual average generation.

III. APPLICANT'S PLANS AND CAPABILITIES

In accordance with Sections 10 and 15 of the FPA, 12/ we have evaluated Wisconsin Electric's record as a licensee for: (A) consumption efficiency improvement program; (B) compliance history and ability to comply with the new license; (C) safe management, operation, and maintenance of the project; (D) ability to provide efficient and reliable electric service; (E) need for power; (F) transmission services; (G) cost effectiveness of plans; and (H) actions affecting the public.

A. Consumption Improvement Program

Wisconsin Electric promotes energy conservation among its customers through conservation rebates and loans as well as subsidy and no-cost programs for its residential, farm, commercial, and industrial customers. Wisconsin Electric's energy conservation programs have been reviewed by the Public Service Commission of the State of Wisconsin and are in compliance with applicable regulatory requirements.

B. Compliance History and Ability to Comply with the New License

We have reviewed Wisconsin Electric's compliance with the terms and conditions of the existing license. Wisconsin Electric has a satisfactory record of filing submissions in a timely fashion and generally complying with its existing license. Therefore, and in consideration of the requirements of the new license, we conclude that Wisconsin Electric has or can acquire the resources and experience necessary to carry out its plans and comply with all articles, terms, and conditions of a new license and other provisions of Part I of the FPA.

C. Safe Management, Operation, and Maintenance

Under Part 12 of the Commission's regulations, 13/ Wisconsin Electric filed its latest Safety Inspection Report on October 1, 1990. The report included recommendations to improve project safety. Wisconsin Electric completed repair work to address some of the recommendations and continues to perform work

12/ 16 U.S.C. §§ 803 and 808.

13/ 18 C.F.R. Part 12 (1995).

to address the remainder. 14/ Wisconsin Electric has an approved Emergency Action Plan.

Wisconsin Electric has a history of safe operation of the Pine Project. Wisconsin Electric has initiated a formal safety program, installed warning devices and signs to ensure downstream public safety, and also installed various monitoring devices in project structures that are inspected on a scheduled basis. The Pine Project is classified as a low hazard dam. 15/

Based upon our review of Wisconsin Electric's safety reports and information, inspection reports by the Commission's Regional Director, 16/ and independent consultant reports filed pursuant to Subpart D of Part 12 of our regulations, we conclude that Wisconsin Electric's plans to manage, operate, and maintain the Pine Project safely are adequate and that the project is safe for continued use if operated in accordance with sound engineering practices and the requirements of this license.

D. Efficient and Reliable Electric Service

Wisconsin Electric has integrated the Pine Project's operations with the operations of its twelve other hydroelectric projects in the Menominee River Basin. Additionally, Wisconsin Electric attempts to coordinate the operations of these projects with the five other licensed hydroelectric developments in the basin. Wisconsin Electric monitors precipitation and snowpack in the basin so as to forecast river flows. Its forecasting system enables Wisconsin Electric to anticipate high and low flow conditions and to adjust project operations accordingly.

Wisconsin Electric has modernized the project to increase efficiency and reliability by rewinding the project's two generators and rebuilding one of the project's turbines. It installed remotely controlled taintor gates and new hydro control panels to allow remote control of the generating units.

Based on the above considerations and our review of the operation inspection reports by the Regional Director and

14/ For a summary of the repair work, see the "Project Safety" section of the S&DA.

15/ Low hazard potential dams are defined as those located in rural or agricultural areas where failure may damage farm buildings, limited agricultural land, or township and country roads. 33 C.F.R. § 222.8, Appendix D, ¶ 2.1.2 (1995).

16/ See 18 C.F.R. § 12.4.

Wisconsin Electric's past performance and operating plans, we conclude that the project is, and under the new license will continue to be, operated and maintained in an efficient and reliable manner.

E. Need for power

The North American Electric Reliability Council (NERC) annually forecasts the electric supply and demand within the region and the nation. The Pine Project is located within the Mid-America Interconnected Network (MAIN) region of NERC and within the Wisconsin-Upper Michigan area of MAIN. Within this area, system load and peak demand are projected to grow at 2 and 2.3 percent, respectively, during the ten-year period 1993-2002. Planned capacity is projected to grow annually at 1.9 percent, resulting in a decrease in capacity margin from 14.9 percent in 1993 to 13.8 percent in 2002, in an area where the capacity margin is already significantly lower than the nation as a whole.

The Pine Project historically operated in a peaking mode, generating an annual average 18,878 megawatt hours (MWh) of hydroelectric power. Under Wisconsin Electric's proposed run-of-river mode of operation, and including those mitigation measures that reduce power generation, annual output will decrease to 15,984 MWh and dependable capacity will decrease from 4.0 MW to 1.5 MW.

Power generated by the project is delivered to Wisconsin Electric's transmission and distribution system to help meet the needs of customers. Wisconsin Electric produces, transmits, and distributes electric power and energy for sale to more than 852,000 wholesale and retail customers in Wisconsin, Michigan, and northern Illinois. In addition to its own needs, Wisconsin Electric's electric system is also interconnected with those of neighboring utilities. If the Pine Project were retired, Wisconsin Electric would, in the long term, need to replace its capacity and energy by purchases or construction in order to maintain an acceptable reserve margin.

F. Transmission Service

The transmission services from the Pine Project are part of Wisconsin Electric's overall transmission system. Wisconsin Electric proposes no new transmission construction for the project. We find that licensing the project to continue operations would have no significant effect on the existing or planned transmission system.

G. Cost Effectiveness of Plans

Wisconsin Electric plans no major structural or engineering modifications to the project. To protect fish and wildlife, the new license will alter the mode of project operation from peaking to run-of-river. We conclude that, consistent with environmental considerations, the Pine Project will fully develop and use the economical hydropower potential of the site in a cost-effective manner.

H. Actions Affecting the Public

Environmental mitigation measures included in the license will result in beneficial changes to the environmental quality of the project area, particularly to aquatic resources and public recreation.

IV. WATER QUALITY CERTIFICATION

Under Section 401(a)(1) of the Clean Water Act, 17/ the Commission may not issue a license for a hydroelectric project unless the state in which the project discharge originates either issues water quality certification for the project or waives certification. By letter dated May 4, 1990, Wisconsin DNR waived the requirement for certification for the continued operation of the Pine Project. 18/

V. SECTION 18 FISHWAY PRESCRIPTIONS

Section 18 of the FPA 19/ provides that the Commission shall require construction, maintenance, and operation by the licensee of such fishways as the Secretary of Commerce or the Interior, as appropriate, may prescribe. In its comments on the new license application, Interior requests that the licensee be required to install upstream and downstream fishways when deemed appropriate by FWS. We recognize that future fish passage needs cannot always be determined when a license is issued. The Commission's practice has been to include a license article that reserves the Secretary's authority to prescribe facilities for

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17/ 33 U.S.C. § 1341(a)(1).

18/ May 4, 1990 letter from Water Management Supervisor, Wisconsin DNR, to Wisconsin Electric, filed with Wisconsin Electric's application.

19/ 16 U.S.C. § 811.

fish passage. 20/ Article 407 of this license therefore reserves authority to the Commission to require the licensee to construct, operate and maintain such fishways as the Secretary of the Interior may prescribe pursuant to Section 18.

Wisconsin DNR and Michigan DNR each request that, for the future protection of fishery resources, the Commission require the licensee to provide fish passage if and when a state resource agency should so request. 21/ Standard Article 15 of Form L-3, Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States, 22/ will meet Wisconsin DNR's and Michigan DNR's concerns. It reserves the Commission's authority, upon inter alia the recommendation of a state fish and wildlife agency, to require reasonable modification of the licensed project to protect fish and wildlife resources, after notice and opportunity for hearing.

VI. RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES AND SECTION 10(j) PROCESS

Section 10(j)(1) of the FPA requires the Commission to include license conditions, based on recommendations of state and federal fish and wildlife agencies, submitted pursuant to the Fish and Wildlife Coordination Act, 23/ for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife resources. If the Commission believes that any such recommendations may be inconsistent with Part I of the FPA, or other applicable law, Section 10(j)(2) of the FPA requires the Commission to attempt to resolve the inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of the agencies. Failing resolution of the inconsistency, Section 10(j)(2) requires the Commission to publish a finding that adoption of the recommendation is

20/ 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).

21/ See July 8, 1993 letter to the Commission from Wisconsin DNR at p. 11; Wisconsin DNR's April 20, 1994 comments on the Draft EA at p. 5; July 13, 1994 letter to the Commission from Wisconsin DNR at p. 2; July 8, 1993 letter to the Commission from Michigan DNR at 5; and Michigan DNR's July 11, 1994 letter to the Commission at p. 2.

22/ 54 F.P.C. 1791, 1822 (1975).

23/ 16 U.S.C. § 661 et seq.

inconsistent with Part I of the FPA or other applicable law, as well as a finding that the conditions selected by the Commission will adequately protect, mitigate adverse impacts to, and enhance fish and wildlife resources, together with a statement of the basis for these findings.

By letters filed July 8 and 12, 1993, respectively, Interior and Wisconsin DNR submitted 29 recommendations for license requirements, 17 of which (including maintaining run-of-river and minimum flow operations and gaging, installing a barrier net to prevent fish entrainment and mortality, and water quality maintenance and monitoring) are subject to the provisions of FPA Section 10(j)(2). 24/

On July 9, 1993, Michigan DNR filed recommendations assertedly under Section 10(j). However, Michigan DNR is not a Section 10(j) agency for the Pine Project, because it is not the state fish and wildlife agency "in charge of administrative management over fish and wildlife resources of the state in which the proposed hydropower project is located." 25/ The project is located entirely within the State of Wisconsin. Therefore, Wisconsin DNR is the state agency authorized to submit

24/ See the EA at Table 10. Twelve of the agencies' recommendations do not qualify for processing under Section 10(j) because they are not measures specifically designed to protect, mitigate damages to, or enhance, fish and wildlife. See the definition of "fish and wildlife recommendation" in 18 C.F.R. § 4.30(b)(9)(ii). These recommendations were instead considered under Section 10(a)(1) of the FPA, pursuant to which the Commission considers all aspects of the public interest. The recommendations considered under Section 10(a)(1) include: (1) compensation for fish losses due to barrier net ineffectiveness; (2) a project retirement study and fund; (3) a plan for dam removal; (4) implementing land management plans; (5) compliance with state dam safety and floodplain laws and regulations; (6) a long-range recreation plan; (7) surveys for wood turtle, (8) surveys for freshwater mussels; (9) surveys for state concerned species; (10) a basin-wide analysis; (11) a reopener article for fish and wildlife (standard article 15); and (12) reserving fishway prescription authority. These recommendations, except for the recommendations regarding implementing a land management plan, wood turtle and mussel surveys, a reopener article, and a recreation plan, are rejected for the reasons described in the EA, Sections V.B., VI., and VII, and in this order.

25/ See 18 C.F.R. § 4.30(b)(9)(i).

recommendations under Section 10(j). However, all of Michigan DNR's recommendations also have been made by FWS and Wisconsin DNR, the two Section 10(j) agencies.

In letters to the agencies dated March 8, 1994 (which attached the Draft EA), Commission staff made preliminary determinations under Section 10(j) that the following recommendations were inconsistent with the purpose and requirements of Part I of the FPA and other applicable law, and conflicted with the comprehensive and public interest standards of Section 10(a) of the FPA: (1) a provision for a 27-cfs year-round minimum flow release to the bypassed channel; (2) a plan for monetary compensation for unavoidable fish loss due to barrier net ineffectiveness; (3) provision for periodic water quality monitoring; and (4) a ramping plan for gradual recovery of project generating operations following white water recreation releases or project shutdown. Issues related to the minimum flow and run-of-river requirements, which involve Wisconsin Electric's intent to "cycle" the project's turbines (sequentially turning the turbine generators on and off) during low flow periods, and gaging to monitor compliance with flow requirements, were also raised in the Section 10(j) process.

On April 21, 22 and 25, 1994, respectively, Michigan DNR, Wisconsin DNR, and Interior (and FWS) filed comment letters in response to the March 8, 1994 staff letters and Draft EA. Additionally, comments on the Draft EA were filed by the Park Service, the Boating Groups and Wisconsin Electric.

Wisconsin DNR, Michigan DNR, FWS, and Commission staff held a meeting on June 1, 1994, in Green Bay, Wisconsin, to resolve issues arising under Section 10(j) of the FPA. Other participants in attendance included Sierra Club-John Muir Chapter and Wisconsin Electric. Fish and wildlife concerns addressed at the Section 10(j) meeting are summarized below. We are requiring year-round 27-cfs minimum flows, gaging to monitor the minimum flows, a plan to avoid winter cycling, and periodic water quality monitoring. We are not requiring monetary compensation for residual fish losses, and in light of our denial of special whitewater releases we find that a ramping requirement is unnecessary.

Pursuant to Section 10(j)(2), we first determine whether each recommendation is supported by substantial evidence in the record. If not, the recommendation is inconsistent with Section 313(b) of the FPA. Second, we determine whether a substantiated recommendation is inconsistent with the FPA or other applicable law, including with the Commission's determinations under the equal consideration/comprehensive development standards of FPA Sections 4(e) and 10(a)(1) to determine whether the recommendation conflicts unduly with

another project purpose or value, including the project's economic benefits. Third, we discuss how the fish and wildlife conditions that are adopted in this order will "adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat)" affected by the project.

A. Year-Round Flow in the Bypassed Reach

Wisconsin DNR and Interior recommend that a year-round minimum flow of 27 cfs be maintained in the bypassed channel. This minimum flow could be temporarily modified due to operating emergencies or upon agreement between Wisconsin Electric and the state fishery resource agency.

In the Draft EA, the Commission's staff concurred with the general desirability of a 27-cfs minimum flow release to the bypassed channel throughout the year, which would allow benthic macroinvertebrates, forage fish, and small game fish to recolonize the channel, as well as allow fish access to the lower portion of the channel from the mainstem of the Pine River. However, the staff concluded that a winter release to the bypassed channel was not justified due to: (1) the high cost associated with modifying the dam to provide a release flow (originally estimated at $200,000 to install a valved pipe mechanism); and (2) the potential freezing of water released to the channel, which would nullify the intended environmental benefit.

At the 10(j) meeting and in subsequent consultation, the agencies identified other projects where year-round bypass release flows were provided in a more cost-effective manner. 26/ After analyzing comparable projects, Wisconsin Electric concluded that it may be able to provide a year-round bypass flow release at the Pine Project similar to the way bypass release flows are provided at Wisconsin Public Service Corporation's (WPSC's) Grandfather Falls Project No. 1966. To provide a 50-cfs flow to its bypassed reach, WPSC modified the

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26/ Wisconsin DNR, for example, identified the Brule Project No. 2431, the Grandfather Falls Project No. 1966, the Wassau Project No. 1999, and the Wisconsin Rapids Project No. 2256.

project's Taintor gates. 27/ WPSC reported that its cost of installation was $49,500 in 1985 dollars.

The Commission's staff reviewed this information and developed its own independent estimate of the probable cost to provide a year-round flow similar to that at the Grandfather Falls Project. The staff reviewed current equipment costs and concluded that a similar system could be installed at the Pine Project for approximately $100,000 in 1994 dollars.

Based on the rationale in Section V.B.3. of the EA, the Commission adopts the agencies' recommendation to provide a year-round release of 27 cfs in the bypassed channel. The Commission also adopts the Wisconsin Electric's proposal to consult with Wisconsin DNR, Michigan DNR, and FWS on the method for providing the winter flow release. We will require that this be incorporated into Wisconsin Electric's Operations and Compliance Plan pursuant to Article 402, which requires a year-round 27-cfs flow to the bypassed channel, and Article 404, which specifies conditions regarding compliance.

B. Gages

To monitor compliance with the license's 27-cfs minimum flow and run-of-river operations, Wisconsin DNR and Interior recommended requiring Wisconsin Electric to install staff gages on the upstream dam wall and downstream in the spillway channel, 28/ and to reactivate and equip with a telemetry device the discontinued U.S. Geological Service's (USGS) gage 1.9 miles downstream of the project.

In the Draft EA, the Commission's staff preliminarily determined that the agencies' recommendation for staff gages was outside the scope of Section 10(j) because the gages were not requested to provide fish or wildlife protection but, rather, to provide public information. The Commission's staff concluded

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27/ The taintor gates were modified by welding three 6-foot-long, 18-inch-diameter iron pipes containing valves over holes in the gates. The grates upstream of each pipe act as trashracks. Air valves installed upstream of the water valve are used to pressurize the pipe and blow back debris when necessary. The valves are also equipped with infrared heat to prevent freezing in the winter months.

28/ A staff gage as used herein means a fixed vertical rod with unit markings that is placed in a waterbody and used to indicate the surface elevation of the waterbody where it is sited. See, e.g., Clifton Power Corporation, 65 FERC ¶ 63,007 at p. 65,030, n.1 (1993).

that, because public inquiries of reservoir levels were so infrequent, a gage in the reservoir was unnecessary.

We find that, while the gages are not determinative of compliance, they are helpful in monitoring compliance and are not economically burdensome. Their installation (including equipping the USGS gage with telemetry equipment) will cost $14,437 annually. See Table 10 of the EA. We are therefore, as described below, ordering Wisconsin Electric to install them.

1. Staff gage in the bypassed reach. The agencies originally recommended installation of a staff gage in the bypassed reach to measure compliance with the 27-cfs continuous minimum flow. At the 10(j) meeting and in an August 30, 1994 filing, Wisconsin DNR agreed to work with Wisconsin Electric to develop a compliance measure for the bypassed reach, and that, if it was determined that a staff gage was not the most reliable method, Wisconsin DNR would be open to some other mutually agreeable means to demonstrate compliance with the bypass flow.

The Commission concurs with the agencies that Wisconsin Electric must demonstrate compliance with the minimum flow requirement. However, the accuracy of the measurements of a staff gage in the bypassed channel is questionable because the steep grade and irregular channel bottom could skew the gage's flow measurements. Accordingly, the Commission concludes that a staff gage should be installed in the bypassed reach for public viewing, but not necessarily used to conclusively determine Wisconsin Electric's compliance with the 27-cfs minimum flow requirement. The Commission requires that, as part of Wisconsin Electric's consultation with agencies on how to provide a year-round flow to the bypassed reach, Wisconsin Electric shall develop an operating plan that details a method for demonstrating compliance with the 27-cfs minimum flow release (Articles 402 and 404).

2. Staff gage in the reservoir. At the 10(j) meeting, the agencies stated that they believed that their request for a staff gage in the reservoir also qualified as a 10(j) recommendation. Their rationale was that the gage in the reservoir would allow them to quickly check and approximately verify reservoir levels when visiting the project area, rather than formally request information from Wisconsin Electric, to determine whether run-of-river operations were being maintained.

At the 10(j) meeting, Wisconsin Electric agreed to work with the agencies to provide a staff gage in the reservoir. The Commission finds that installing a staff gage visible to the public showing the reservoir operating range will provide both staff and visitors to the project the ability to monitor reservoir water surface elevations. The Commission, therefore,

requires that the operations plan (set forth in Article 403) include provision for establishing a visible staff gage on the dam.

3. USGS Gage. Wisconsin Electric agreed to fund the reactivation of the USGS's gage downstream of the project. Wisconsin Electric opposes the agencies' request to equip the gage with telemetry (transmitting and recording measurements) because compliance will be based on headwater elevation. Although this gage may not be determinative in measuring compliance, it will be useful to the agencies and will be an additional facet of the overall monitoring program. Therefore, we will require Wisconsin Electric to provide telemetry there.

C. Fish Entrainment and Protection

Wisconsin DNR and Interior and Wisconsin Electric agree on an approach for fish protection that involves installing a barrier net below the power canal log boom, and conducting monitoring studies to evaluate the net's effectiveness. 29/ The Commission is requiring Wisconsin Electric, in consultation with Wisconsin DNR and Interior, to file for Commission approval: (1) design drawings and specifications of the barrier net and a schedule for its installation (Article 408); and (2) a plan to monitor the effectiveness of the barrier net (Article 409). The monitoring plan shall include methods for evaluating the barrier net's effectiveness and criteria for determining if its use should be continued indefinitely. If the results of the monitoring indicate that changes in project structures or operations are necessary to protect fish, the Commission may direct Wisconsin Electric to modify such structures or operations or to consider alternative protection measures, including compensatory mitigation for entrained fish.

Wisconsin DNR and Interior recommend that Wisconsin Electric be required to pay Wisconsin compensation for any residual fish losses after the barrier net is installed. 30/ The monies

29/ See Wisconsin Electric's fish mitigation plan for the Pine Project in the attachment to Wisconsin Electric's letter filed March 5, 1993; Wisconsin DNR's letter submitting its comments and recommendations for license terms and conditions, filed July 12, 1993, pp. 9-10; and Interior's letter, filed July 8, 1993, pp. 8-9.

30/ In its letter filed July 12, 1993, recommending terms and conditions for the Pine Project license, Wisconsin DNR explains that, in recommending a license condition for monetary compensation for residual fish losses, it is:

(continued...)

paid would go to a special fund that would be used for fisheries enhancement to the project reach of Pine River. Wisconsin DNR states that the value of the fishery is greater than the cost to produce the fishery, and therefore compensation for fishery losses should be based on restitution values.

As described in Ohio Power Company, 31/ the use of "compensation" -- compensating for an impact by replacing or providing substitute resources or environments -- is an acceptable form of mitigation where the adverse impact is not so significant as to warrant denial or cessation of the activity causing such impact, and where avoidance or reduction of the adverse impact is not technically or economically feasible. 32/ Here, compensatory mitigation for unavoidable

30/(...continued)

> seeking full protection of the resources of the state. *** The [Wisconsin DNR] considers turbine mortality at hydroelectric plants to be a taking of the public property, as fish are defined as property of the State of Wisconsin by State Statute 29.02(1). The Federal Power Act in Sections 21 and 24 essentially requires that the applicant pay damages to property owners when damages occur from project operations.

Section 21 of the FPA (16 U.S.C. § 814) confers on licensees the right to use eminent domain in federal or state court to acquire the property interests needed to construct, operate, and maintain a licensed project. We are not aware of the use of eminent domain proceedings to "acquire" members of a fish or wildlife species. In any event, the Commission is not the forum for proceedings under Section 21. Section 24 of the FPA (16 U.S.C. § 818) deals exclusively with lands of the United States. There are no federal lands within the Pine Project.

31/ 71 FERC ¶ 61,092 (1995).

32/ The Pine Project's impact on fishery resources does not require denying Wisconsin Electric's application for a new license. As discussed in its analysis in Appendix A to the EA, the Commission's staff estimated the fish entrainment and mortality levels at the Pine Project by using data from large entrainment studies at hydropower projects compiled in the Electric Power Research Institute's Fish Entrainment and Turbine Mortality Review and Guidelines (1992). After adjusting for the Pine Project's particular hydropower plant

(continued...)

fishery losses through the funding of replacement or substitute resources or environments may be required if the barrier net proves to be ineffective. But, the FPA does not impose a "no net loss" requirement or require full replacement for lost resources. 33/ Accordingly, we reject Wisconsin DNR's recommendation to require Wisconsin Electric to pay for all residual fish losses while the barrier net is being used to mitigate fish entrainment and mortality at the Pine Project.

We also reject Wisconsin DNR's recommendation that the appropriate value of lost fish -- should compensatory mitigation be required -- would be the state's restitution value for each fish lost. This would constitute an assessment of damages, and the Commission has no authority to require the payment of damages. 34/ As we stressed in Ohio Power Company, the validity of the level of funding does not stand or fall with the precision of the Commission's calculations of the number, type, and replacement cost of each fish killed or injured. Rather, the goal in requiring compensatory mitigation is to balance the project-caused resource loss with a roughly proportionate resource gain. In order to establish a funding level that reflects this balancing, we estimate the number of fish that are killed by the project and multiply that number by the generally accepted replacement value of such fish.

In addition to requiring Wisconsin Electric to evaluate the effectiveness of the barrier net, Article 409 reserves the Commission's authority to require changes to project facilities or operations to protect fish resources or to consider alternative protective measures, including compensatory mitigation. If the Commission determines in the future that use of the barrier net is ineffective and should not continue, the Commission can at that time consider alternative recommendations from the licensee and resource agencies, including a requirement that Wisconsin Electric institute compensatory mitigation or enhancement measures. Such measures would be implemented under the principles set forth in Ohio Power Company, but consideration

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32/(...continued)
operations, the staff concluded that annual mortality at the Pine Project would total 11,691 fish. Staff also concluded that fish killed would be mostly small, young fish that could be replaced by stocking without notable losses to the quality or recreational value of the fisheries.

33/ 71 FERC at p. 61,314. See also Michiana Hydro-Electric Power Corporation, 73 FERC ¶ 61,154 (1995).

34/ See South Carolina Public Service Authority v. FERC, 850 F.2d 788 (DC Cir. 1988).

of such measures at this time, before the barrier net has been installed and evaluated, would be premature.

D. Water Quality Maintenance and Monitoring

Wisconsin DNR requests a license article requiring Wisconsin Electric to maintain state water quality standards for dissolved oxygen (DO), pH (a measure of acidity), and temperature, and to perform periodic water quality monitoring to ensure compliance with the standards. 35/ The state standards are: (1) DO shall be no less than 5 milligrams per liter (mg/l); (2) no temperature changes shall occur that may adversely affect aquatic life, natural daily and seasonal temperature fluctuations shall be maintained, and temperature shall not exceed 89 degrees Fahrenheit; (3) pH shall be within the range of 6.0 to 9.0, with no more than 0.5 units outside the estimated natural seasonal maximum and minimum. 36/ Water quality monitoring would be done within five years of the issuance of the license and every five years thereafter during the license term. Samples would be taken in 30-minute intervals between July 1 and September 30.

Wisconsin Electric states that it would be willing to monitor water quality during man-made disruptions of the upstream watershed or when there is significant construction at the Pine Project. However, it objects to the regular water quality monitoring requested by Wisconsin DNR. It cites its pre-license studies involving continuous monitoring of DO, pH, and temperature in the Pine Project's tailrace from April through November 1990, in which all readings for each of the monitored water quality parameters were within state standards. 37/

Pre-licensing water quality studies show that the DO, pH, and temperature of project waters are within state standards. Moreover, Wisconsin DNR provided no information, such as fish kill or an inability to achieve fishery management objectives down-stream of the dam, suggesting that the quality of water in

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35/ Also, Interior recommends that Wisconsin Electric be required to file a water quality monitoring plan to maintain state standards deemed appropriate by Wisconsin DNR. As noted above, Wisconsin DNR waived certification under Section 401(a)(1) of the Clean Water Act. Accordingly, the state water quality standards are not requirements of the license unless the Commission makes them so.

36/ A pH measure of 7 is neutral. Measurements below 7 are increasingly acidic, measurements above 7 are increasingly base.

37/ See Table 1 of the EA.

the Pine River adversely affects environmental resources. However, in order to ensure that the change in project operations from peaking to run-of-river will not lead to a drop below acceptable standards, Article 418 will require Wisconsin Electric to maintain the state water quality standards described above and to submit a plan for periodic water quality monitoring, as Wisconsin DNR requests. 38/

E. Cycling of Turbines During Low Flow Periods

A matter that is related to the project's run-of-river operations is Wisconsin Electric's intent to cycle turbines on and off during some winter conditions when inflows are insufficient (below 110 cfs) to run a single turbine. To maintain run-of-river operations during such cycling, Wisconsin Electric proposed to maintain the headwater elevation within the prescribed bandwidth (±0.5 feet, with the goal of operating within ±0.3 feet) even when turbines are cycling. Wisconsin DNR opposes Wisconsin Electric's proposal to cycle during winter months, asserting that cycling, which starts and stops project generators and attendant powerhouse discharges, conflicts with run-of-river operations, where instantaneous inflow equals outflow.

In the Draft EA, the Commission's staff stated that, although staff recognized that Wisconsin Electric's proposed operation in the winter months did not represent run-of-river operation as defined by the agencies (i.e., instantaneous inflow equals outflow), the staff concluded that some cycling of turbines during winter months may be necessary to maintain operations. 39/

Based on comments received on the Draft EA and discussions at the Section 10(j) meeting, Wisconsin Electric further investigated the capabilities of its equipment, and the generating system's low-flow capabilities. Due to concerns with operating the units more frequently at lower flows, Wisconsin Electric installed a supplemental turbine-bearing and turbine-shaft-packing watering system to allow operations at lower flows.

38/ See Section V.B.2. of the EA. Compare Mead Corporation, Publishing Paper Division, 72 FERC ¶ 61,027 at pp. 61,071-72 (1995), where the Commission included a license article in the new license for Project No. 2506 requiring the licensee to monitor water quality and to maintain state water quality standards, in light of changes in project operations, and notwithstanding pre-licensing studies showing that the water quality of the project's waters were within state standards.

39/ See Section V.B.2 of the Draft EA.

Wisconsin Electric concluded that the system will most likely allow operation of the units at flows lower than the 92 to 110 cfs generation limitation originally established. Wisconsin Electric believes that it can operate the generators at flows low enough to avoid winter cycling.

The Commission believes that the licensee's proposal to avoid cycling would satisfy the agencies' concerns with winter cycling. Accordingly, Article 401 of the Pine Project license requires Wisconsin Electric to operate the project year round in a run-of-river mode, maintaining the prescribed bandwidth of ±0.5 feet, with the goal of operating within ±0.3 feet. Article 403 requires that the licensee file for Commission approval, after consultation with the resource agencies, an operational monitoring and compliance plan showing how the project will be operated during low-flow conditions.

VII. OTHER COMMENTS AND RECOMMENDATIONS

The EA discussed the following concerns in detail, as well as several other concerns which have been resolved among the participants to the proceeding. We adopt the staff's recommendations for the reasons provided in the EA and briefly discuss the contested matters below.

A. Whitewater Boating

The Boating Groups and the Park Service request that the new license authorize, at least four days during the summer, four to six hours of 225 cfs whitewater releases. 40/ Wisconsin DNR, however, states that it considers provision of artificial flow releases for whitewater boating in the bypassed channel to be inconsistent with the Pine River's wild river status. 41/ Michigan DNR opposes periodic recreational flows, on the ground that such flows have similar adverse effects to aquatic resources as peaking flows. 42/ Wisconsin Electric reports that few whitewater boaters use the bypassed reach, 43/ while other

40/ As noted, the Boating Groups alternatively request denial of Wisconsin Electric's application, addressed below.

41/ Wisconsin's April 20, 1994 revised comments on the Draft EA at 4.

42/ July 8, 1993 comments to Commission from Michigan.

43/ At an October 14, 1993 site visit, Wisconsin Electric staff estimated that the project's waters attract about ten whitewater boaters annually. See response no. 4 to the

(continued...)

opportunities for whitewater boating exist in the region, including four Class IV miles on the Menominee River and four Class III-IV miles on the Peshtigo River. 44/

As described in the Section V.B.8. of the EA, on August 27, 1991, a "kayak test" in the bypassed reach was conducted by representatives of Wisconsin Electric, Wisconsin DNR, FWS and the Park Service. It demonstrated that a flow release of at least 225 cfs into the channel would provide whitewater opportunities for all levels of boaters, including the advanced level of Class IV. The test also demonstrated that without ramping (here, gradual reduction of flows) numerous fish would be stranded after the release. A review of monthly flow duration curves from 1923 to 1975 determined that, between April and September, natural flows exceed 865 cfs approximately 32 days during that six-month period. Seventy per cent of these days occur in April and May, with the remainder occurring in June, July, and September. The annual power loss attributable to providing special release flows would be 30 MWh.

We decline to require Wisconsin Electric to provide special whitewater releases. In addition to the environmental and fishery concerns expressed by the resource agencies, as discussed above, and the existence of other regional whitewater opportunities, we have also considered the loss of generation from providing the special releases and necessary ramping. To enable whitewater boating on the Pine River's bypassed reach on those days when natural flows are suitable, we are requiring Wisconsin Electric to provide a telephone hotline to communicate daily flows at the powerplant and in the bypassed reach so the public can know when flows are sufficient in the bypassed reach to allow whitewater boating activities (license Article 415).

B. Notification of Emergency and Planned Draw-downs

The resource agencies requested that they be notified of emergency draw-downs at the Pine Project within 24 hours after their occurrence, so that they could determine measures for protecting the affected environment. While the ultimate responsibility for determining appropriate protection measures rests with the Commission, the notification request is

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43/(...continued)
National Park Service's April 20, 1994, comments on the Draft EA in Appendix B of the EA.

44/ The substantial alternative whitewater boating opportunities are discussed below in greater detail, in the context of the Boater Groups' request to deny Wisconsin Electric's application.

reasonable, and we will include it in Article 401. Similarly, whenever possible, the licensee will be required to notify the agencies no less than 30 days in advance of a planned draw-down.

C. Incorporate Comprehensive Land Management Plan

Wisconsin Electric included in its application for new license a Comprehensive Land Management Plan (CLMP) for the Pine Project. 45/ The CLMP details management of its lands within the project boundary, and provides for annual meetings with agencies to review their management practices. The CLMP details timber management, wildlife habitat, and aesthetic considerations for project lands. The Commission concludes that the CLMP should be modified to incorporate the following additional provisions: (1) fish and wildlife protection measures (for example, surveys of project lands for state-concerned species and preserving supercanopy trees for bald eagle nesting); (2) consultation with resource agencies prior to undertaking land disturbing activities in order to protect environmental resources as well as aesthetics and to ensure consistency with the Wild Rivers legislation; and (3) annual meetings with resource agencies to review and update the plan. Article 410 requires Wisconsin Electric to modify the CLMP accordingly.

VIII. COMPREHENSIVE PLANS

Section 10(a)(2)(A) 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. 46/ Under this section, federal and state agencies filed 59 comprehensive plans addressing various resources in Wisconsin. Of these, five plans are relevant to the Pine Project. 47/ No conflicts were found.

45/ The Land Management Plan was filed as Appendix 12 to Wisconsin Electric's application for a new license. See also Section V.B.8.f of the EA.

46/ Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (1995).

47/ (1) U.S. Fish and Wildlife Service, North American Waterfowl Management Plan, 1990; (2) Wisconsin Department of Natural Resources, Statewide Comprehensive Outdoor Recreation Plan, 1986-91, 1985; (3) Wisconsin Department of Natural Resources, Statewide Comprehensive Outdoor Recreation Plan, 1991-96, 1991; (4) Wisconsin Department of Natural Resources, Upper Green Bay Basin-Water Quality and (continued...)

IX. COMPREHENSIVE DEVELOPMENT

Sections 4(e) and 10(a)(1) of the FPA, 16 U.S.C. §§ 797(e) and 803(a)(1), require the Commission, in acting on applications for a 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 judgement will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

The EA analyzed the effects associated with the issuance of the new license for Project No. 2486. It recommends a number of measures to protect and enhance environmental resources, which we adopt, as discussed herein. These measures include: operating the project in a run-of-river mode; providing a year-round flow release of 27 cfs to the bypassed channel; installing a barrier net upstream from the power canal to mitigate fish entrainment and mortality (and preparing and implementing a plan for evaluating the net's effectiveness); modifying Wisconsin Electric's described Comprehensive Land Management Plan to include provisions for fish and wildlife protection measures; agency consultation; and implementing the recreation plan prepared for the project. Implementation of these measures would enhance fishery, recreation, and wildlife resources in the project area.

As noted, the Boating Groups request that the Commission deny Wisconsin Electric's application and require Wisconsin Electric to remove the project structures from the Pine River to enhance the wild river values of the river and white water boating opportunities. 48/ The Boating Groups assert that the project has small generating capacity and produces uneconomical power, whereas project removal would provide a substantial extension -- now inundated by the project's reservoir -- of the existing advanced-to-expert whitewater run of the Pine River in

47/(...continued)
Management Plan, 1993; and (5) Wisconsin Natural Resources Board, Pine-Popple Wild Rivers Master Plan, 1981.

48/ As discussed above, the Boating Groups requested in the alternative a license requirement for four to six week-end white water releases.

the project's bypassed reach. 49/ The Boating Groups also assert that project removal would eliminate a barrier to fish passage, and would restore the wild and scenic character of the Pine River corridor.

On balance, we believe that the benefits of issuing a new license for the project outweigh the increment of enhanced white water and scenic values that immediate dam-removal would bring. There are three other whitewater stretches along the Pine River upstream of the dam that provide Class II and III rapids. Five other rivers near the project area (Brule, Peshtigo, Pike, Popple, and Menominee) have stretches offering whitewater rapid opportunities. Most are Class I to III whitewater boating runs. The Peshtigo and Menominee rivers have more advanced whitewater boating runs with a combined total of eight miles of Class IV runs. 50/ Statewide, there are 42 segments that provide 502.5 miles of whitewater boating.

Moreover, while immediate project removal would create increased whitewater recreation, it would eliminate other recreation benefits of the project that are of at least comparable benefit to a broad spectrum of users. Within the project boundary are two formal recreation areas in which Wisconsin Electric provides camping and boat launch facilities. Three campsites are provided at each recreation site, and canoe portage is provided at the dam. Removal of the dam would lead to loss of reservoir boating opportunities. The boat launch facilities at the two recreation sites would no longer be functional, and camping at the two recreation sites maintained by Wisconsin Electric within the project boundary could also be adversely affected. The camping sites might remain usable but be located farther away from the water than present. 51/

49/ Removal of the dam would restore a 0.75-mile section of rapids that is currently inundated and a 0.4-mile section in the bypass reach that is currently de-watered, creating a 2.5 mile whitewater stretch beginning upstream of the project at LaSalle Falls rapids. See the EA, Section V.B.8. However, the quality or level of white water boating in the inundated stretch is of course unknown.

50/ See Table 4 of the EA.

51/ An estimated 2,228 recreationists visit the Pine recreation sites annually. This is expected to increase by about 35 percent, to 3,000 user-days, over the next 20 years. Nearly half the recreationists visit the project to fish, from both the shoreline and boats. About 14 percent of the user-days are attributable to camping. See the EA, Tables 2 and 3).

The analysis of project economics in the EA militates against immediate project removal. The EA analyzed the economic effects of five project alternatives: (1) the baseline operations -- continued peaking operation with no enhancements; (2) Wisconsin Electric's proposal -- run-of-river operation and additional recreational and land management enhancements; (3) staff's proposal -- Wisconsin Electric's proposal and telemetering the USGS gage and water quality maintenance and monitoring; (4) the agency proposal -- the staff's proposal plus fish replacement costs; and (5) the whitewater release proposal -- the agency proposal plus four special releases per year of 225 cfs for five hours. 52/ The EA also analyzed the economic results of two project removal alternatives: dam removal with and without sediment removal. The least costly of the two dam removal alternatives (dam removal without sediment removal), with an annual cost of $515,000, is more than twice as costly as the project alternative adopted in this order.

Based on our analysis of the project as proposed by Wisconsin Electric, the project with additional environmental measures, the dam removal/decommissioning alternative, and the baseline operations alternative, we adopt Wisconsin Electric's proposal with staff's recommended additional mitigation and enhancement measures as the preferred option. The project, as licensed with these measures, will enhance fish resources, water quality, recreational resources, and cultural and archaeological sites. Also, electricity generated from the project will continue to offset the use of fossil-fueled, electrical generating plants, conserve non-renewable energy resources, and reduce atmospheric pollution.

As discussed in detail in our recent orders in Mead Corporation, Publishing Paper Division, 53/ and Duke Power Company, 54/ in determining whether to issue a new license for an existing hydroelectric project the Commission considers a number of public interest factors, including the projected economic benefits of project power. In view of the changing, increasingly competitive electric utility industry, the Commission now 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

52/ See the EA, Table 9.

53/ 72 FERC ¶ 61,027 (1995).

54/ 72 FERC ¶ 61,030 (1995).

of a project, and reasonable alternatives to project power. The analysis helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

In addition, certain economic factors related to project decommissioning impinge on the decision to issue a new license that are not present in the licensing of new projects. If an existing project is not issued a new license, or if the licensee declines to accept the new license, the project probably will have to be retired in one form or another. This could range from simply removing the generator at the project to major environmental restoration varying from minor measures to dam removal.

We have applied this new analysis to the Pine Project. Based on current economic conditions, without future escalation or inflation, the project if licensed as Wisconsin Electric proposes would produce an average annual generation of about 18,878 MWh at an annual cost of about $202,000 greater than the likely cost of alternative power. 55/ When licensed in accordance with the conditions adopted herein, the project would produce about an average annual generation of 15,984 MWh at an annual cost of about $225,000 greater than the likely cost of alternative power. 56/ Since no party has requested decommissioning without removing the project dam, we have only considered in detail the costs of decommissioning with dam removal. As noted, the costs of decommissioning far exceed the cost of continuing to operate the project. We conclude that while, under each licensing alternative, except for the project under the existing license, the Pine Project produces power at a cost greater than the likely cost of alternative power, the project remains a viable energy-producing resource to Wisconsin Electric and its rate-payers.

Section 10(a)(1) of the FPA requires the Commission to examine all aspects of the public interest in determining whether or not to issue a license and, if so, under what conditions. 57/ As noted, project economics is only one of

55/ See the S&DA section entitled "Developmental Resources (Economics)." See also section VI of the FEA.

56/ See Table 3 of the S&DA. Because the levelized annual cost of project power with the measures proposed by staff is close to the annual cost of power associated with Wisconsin Electric's own proposal, we conclude that our additional enhancements would not put an undue burden on Wisconsin Electric.

57/ Udall v. Federal Power Commission, 387 U.S. 429, 450 (1967).

the many public interest factors we consider. With regard to the issuance of new licenses, Sections 15(a)(2)(C) and (D) of the FPA also require the Commission to consider, among other things, "[t]he plans and abilities of the applicant to operate and maintain the project in the manner most likely to provide efficient and reliable electric service" and "[t]he need of the applicant over the short and long term for the electricity generated by the project or projects to serve its customers, including, among other relevant considerations, the reasonable costs and reasonable availability of alternative sources of power. . . ." Thus, while economic considerations are a significant element of the public interest balancing for both new and existing projects, they are by no means the sole determinative consideration, and a finding of negative economic benefits does not preclude issuance of a license.

In analyzing public interest factors, we have also taken into account the fact that the project provides the following benefits: the generation of renewable enemy that is the equivalent of the energy produced by 28,000 barrels of oil or 6,900 tons of coal annually in a steam-electric plant; recreational benefits, including maintenance of campsites in the project boundary; and a land management plan that includes maintenance of supercanopy trees to provide bald eagle nesting.

Although we find that continued operation of the project would be more economical than project retirement, Wisconsin Electric is finally responsible and best able to determine whether continued operation of the existing project is a reasonable decision in these circumstances. We conclude that it is in the public interest to issue the license, with conditions needed to meet the equal consideration/comprehensive development standards of FPA Sections 4(e) and 10(a)(1), and we leave to Wisconsin Electric the judgement of whether or not to accept the license and to continue to operate and maintain the project as so conditioned.

X. PROJECT RETIREMENT

Wisconsin DNR requests that Wisconsin Electric study project retirement during the term of the new license and file a plan and request to remove the project by the end of the term of the new license. Interior, Michigan DNR, and Wisconsin DNR request that Wisconsin Electric be required to establish a fund to finance project retirement. These recommendations are considered under

the comprehensive development requirements of Section 10(a)(1) of the FPA. 58/

A. Project Retirement Trust Fund

Interior, Wisconsin DNR, and Michigan DNR request that we include a license article requiring Wisconsin Electric to establish a trust fund to cover the costs of project retirement. The agencies fear that without a trust fund to cover the cost of project retirement, Wisconsin Electric could transfer its license to another entity unable to bear the costs of project retirement, so that Wisconsin will have to bear these costs when the Pine Project is retired.

We are not requiring Wisconsin Electric to establish a project retirement trust fund. In its December 14, 1994 Policy Statement on Project Decommissioning at Relicensing, 59/ the Commission found that project decommissioning issues should be addressed on a case-by-case basis. It found that there may be particular facts in the record in individual cases that would justify license conditions requiring the establishment of decommissioning cost trust funds in order to assure the availability of funding when decommissioning occurs. The Commission stated that it would consider, for example, whether there are factors suggesting that the life of the project may end within the license term and whether the financial viability of the licensee indicates that the licensee would be unable to meet

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58/ The recommendations of Interior and Wisconsin DNR to establish a fund to finance project decommissioning and to develop a study to remove the project are not measures specifically designed to protect, mitigate damages to, or enhance, fish and wildlife, and therefore are not Section 10(j) recommendations. See Potlatch Corporation, 72 FERC ¶ 61,029 at p. 61,171 (1995). See also the definition of "fish and wildlife recommendation" in 18 C.F.R. § 4.30(b)(9)(ii). Wisconsin DNR's recommendation to remove the project is designed to fulfill the requirements of the state wild river statute "to afford the people of this state an opportunity to enjoy natural streams, to attract out-of-state visitors and assure the well-being of our tourist industry... ." See p. 15 of Wisconsin DNR's July 12, 1993 10(j) recommendation letter. Under Section 4.30(b)(9)(ii), the Commission excludes from "fish and wildlife recommendations" requirements designed "to benefit recreation or tourism."

59/ See 60 Fed. Reg. 339, 346-47 (Jan. 4, 1995); III FERC Stats. & Regs., Regs. Preambles, ¶ 31,011 at pp. 31,233-34 (Dec. 14, 1994).

likely levels of expenditure without some form of advance planning.

The record before us today does not reveal any reasons to question either the project's future viability and usefulness at the end of the license term, or Wisconsin Electric's ability to finance decommissioning at a future time. As noted, when the currently ongoing repair work is finished, the Pine Project will be safe for continued operation, and there is nothing in the record to suggest that the project would be in any other condition at the end of the license term. Wisconsin Electric's application states that Wisconsin Electric has assets of $2,183,283,240 and annual revenues of $1,220,170,387 as of 1990. 60/ While, under each licensing alternative, except for the project under the existing license, power from the Pine Project is more expensive than power from alternate energy sources, decommissioning is a significantly more expensive alternative, albeit one that Wisconsin Electric appears to be financially capable of bearing, and the project remains a viable energy-producing resource. In short, the Pine Project is physically sound and has no significant adverse environmental impacts if operated consistent with the requirements of the license, and there is no evidence in the record that Wisconsin Electric will need advanced financial planning to meet future decommissioning requirements.

Nor do we believe that a decommissioning fund is necessary on the theory that Wisconsin Electric might seek to transfer the project license to another entity that would be financially incapable of paying for decommissioning. In its December 14, 1994 Policy Statement on Project Decommissioning at Relicensing, the Commission addressed the issue of a licensee seeking to transfer an increasingly marginal project to a new licensee that lacked the financial resources to maintain it or close it down in an appropriate manner. While the Commission found no widespread problems of this type, it stated that transfer applications would be scrutinized to foreclose this sort of situation. 61/ The Commission would issue public notice of such a transfer request, which would give the agencies and any other interested person or agency the opportunity to intervene in the transfer proceeding and raise the issue of the transferee's financial fitness. Nevertheless, in light of the concerns expressed by the resource agencies about the special nature of the waterway involved, we are including in the license (Article

60/ See Wisconsin Electric's Application, Exhibit H, pp. H-19 and H-20.

61/ 60 Fed. Reg. 339, supra, 345-46, III FERC Stats. & Regs., Regs. Preambles, supra, ¶ 31,011 at pp. 31,232-33.

420) a requirement that Wisconsin Electric serve the Wisconsin DNR, Michigan DNR, and Interior with a copy of any future application it may have occasion to file to seek Commission approval to transfer the license for the Pine Project. 62/

B. Wisconsin DNR's Request for Project Retirement

Wisconsin DNR requests license articles requiring Wisconsin Electric, during the term of the license, to consult with resource agencies on a plan to remove the project; to file the plan by the end of the term of the new license; and, if the environmental analysis of the plan shows that removal is in the public interest, to remove the project. Wisconsin DNR states that removal of the project would produce significant ecological, recreational, scenic, aesthetic and cultural benefits by: (1) restoring approximately 6,800 feet of free flowing, high gradient river habitat (4,700 feet of which includes three waterfalls that are currently impounded by the project flowage, and 2,100 feet of which constitutes the project's bypassed channel); (2) enhancing recreational kayaking and canoeing opportunities; and (3) furthering Wisconsin's objectives of having a free flowing wild river, all consistent with the Wisconsin's State wild river legislation.

We decline to adopt license articles along the lines Wisconsin DNR requests. That removal of the project would be consistent with certain scenic and recreational values supported by Wisconsin's wild river legislation is not, in and of itself, an adequate basis for requiring Wisconsin Electric to perform expensive decommissioning studies or to seek removal of the project by the end of the new license's 30-year term. The state legislation designating the project's waters as a state wild river pre-dates the project and does not call for its removal. Moreover, as the EA finds, the project adheres to several

62/ Interior argues in its comments on the draft EA that the Commission should follow the precedent in the licenses for the Mishawaka Project No. 10895, the LeClaire Project No. 3862, and the Chippewa Falls Project No. 2440, by including a condition in the license that reserves the Commission's authority "to require the licensee to conduct studies, make financial provisions or otherwise make reasonable provisions for decommissioning the project." These licenses, however, merely included an article that preserved Commission authority to act on this issue pending final Commission action on the Policy Statement on Project Decommissioning. The Commission deleted all such articles by an order in Alabama Power Co., et al., 69 FERC ¶ 61,338 (1994), where the Commission found that issuance of its policy statement rendered the articles moot.

recreational and scenic value requirements in the Pine-Popple Wild Rivers Master Plan, which establishes Wisconsin DNR policy for land management around the project area. 63/ We will not circumscribe Wisconsin Electric's right to apply for a new license for its project at the expiration of the license issued herein. The issue of project decommissioning can be raised when the new license expires.

XI. LICENSE TERM

Pursuant to Section 15(e) of the FPA, 16 U.S.C. § 808(e), relicense terms shall not be less than 30 years, nor more than 50 years. The Commission's policy is to establish 30-year terms for the licenses for projects with little or no proposed 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. The license issued herein does not involve any project redevelopment or new construction. Accordingly, the license will have a term of 30 years.

XII. SUMMARY

Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA, which is attached to and made a part of this order. Issuance of the license is not a major federal action significantly affecting the quality of the human 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. Analysis of related issues is provided in the Safety and Design Assessment, which is available in the public file associated with this project.

For the reasons discussed above, we conclude that the Pine Hydroelectric Project does not conflict with any planned or authorized development and is best adapted to the comprehensive development of the Pine River for beneficial public uses.

63/ See the EA, Section V.B.6. The project, for example, provides for continued access to camping facilities within the project boundary that are visually screened from the river.

The Commission orders:

(A) This license is issued to Wisconsin Electric Power Corporation (licensee), for a term of 30 years, effective the first day of the month in which the license is issued, to operate and maintain the Pine Hydroelectric Project. This license is subject to the terms and conditions of the FPA, which is 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, enclosed by the project boundary shown by exhibit G:

Exhibit	FERC Drawing No.	Showing
G-1	2486-7	Project Boundary

(2) Project works consisting of: (1) a 628-foot-long structure comprising of (a) a 146-foot-long dam, (b) a 358-foot-long earth dike containing a concrete corewall, (c) a 124-foot concrete spillway section with seven Taintor gates and (d) a concrete gravity non-overflow section; (2) a reservoir with a surface area of 180 acres and a total storage volume of 1,540 acre-feet; (3) a reinforced concrete canal intake structure equipped with slots for stop logs; (4) a 1,530-foot-long canal that directs water to the powerhouse; (5) penstock headworks; (6) two 9-foot-diameter, 340-foot-long steel penstocks; (7) a reinforced concrete and brick-and-steel 50.6-foot-long by 58.4-foot-wide frame powerhouse containing (a) two vertical shaft Francis turbines with a combined normal hydraulic capacity of 640 cubic feet per second (cfs) rated 3,000 horsepower each, and (b) two 3-phase, 60-cycle, vertical shaft generators rated 1,800 kilowatts (kW) each, providing a total plant rating of 3,600 kW; and (8) appurtenant facilities. A 0.4-mile-long segment of the original river channel is bypassed by the project. There are no primary transmission lines included in the project.

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 December 23, 1991:

Pages 1 through 16, Tables 1 and 2, and Figure A-1, describing the existing mechanical, electrical and transmission equipment, filed December 23, 1991.

Exhibit F: The following Sections of Exhibit F filed December 23, 1991:

Exhibit	FERC Drawing No.	Showing
Sheet F-1	2486-1	Pine Hydroelectric Project General Layout
Sheet F-2	2486-2	Pine Hydroelectric Project Section & Plan of Head Works/Plant
Sheet F-3	2486-3	Pine Hydroelectric Project Cross Section & Floor Plans of Plant
Sheet F-4	2486-4	Pine Hydroelectric Project Plant Elevations
Sheet F-5	2486-5	Pine Hydroelectric Project Spillway and Canal Entrance
Sheet F-6	2486-6	Pine Hydroelectric Project Abutment Walls

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project and located within the project boundary, all portable property that may be employed in connection with the project and all riparian or other rights that are 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) This license is subject to the articles set forth in Form L-3 (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States," and the following additional articles:

Article 201. The licensee shall pay the United States an annual charge, effective the first day of the month in which this license is issued, for the purpose of reimbursing the United States for the cost of administration of Part I of the FPA, as determined by the Commission. The authorized installed capacity for that purpose is 3,600 kilowatts (4800 horsepower).

Article 202. Pursuant to Section 10(d) of the FPA, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the

project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly includible in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question plus 4 percentage points (400 basis points).

Article 401. The licensee shall operate the project in a run-of-river mode for the protection of fish spawning in the project impoundment, riparian vegetation above and below the project, and recreational opportunities in the project impoundment on the Pine River. The licensee shall at all times act to minimize the fluctuation of the reservoir surface elevation by maintaining a discharge from the project so that, at any point in time, flows, as measured immediately down-stream from the project tailrace, approximate the sum of inflows to the project reservoir.

To ensure run-of-river operation, the licensee shall maintain a reservoir water surface elevation of 1,191.6 ±0.5 feet NGVD (National Geodetic Vertical Datum) as measured immediately up-stream from the project dam. While compliance shall be monitored based on the above elevations, the licensee shall attempt to operate with the goal of maintaining a water surface elevation of 1,191.6 feet ±0.3 feet NGVD. The licensee shall not operate over the full range on a daily basis for the purpose of power system load-following.

In order to monitor run-of-river operation, the licensee shall measure water surface elevations on the project reservoir.

The licensee shall maintain records of the headwater elevations in the form of daily operator logs and continuous circular chart recordings. Such records shall be provided to the Wisconsin Department of Natural Resources, Michigan Department of Natural Resources, and U.S. Fish and Wildlife Service within 30 days upon request.

Run-of-river operation and reservoir water surface elevations may be temporarily modified if required by operating emergencies beyond the control of the licensee, including flood and ice conditions, and for short periods, including droughts, upon mutual agreement between the licensee, Wisconsin Department of Natural Resources, Michigan Department of Natural Resources, and U.S. Fish and Wildlife Service.

If the flowage elevation is modified under emergency circumstances, the licensee shall notify the Commission, Wisconsin Department of Natural Resources, and Michigan Department of Natural Resources as soon as possible, but no later than 24 hours after each such incident.

In case of a planned draw-down, the licensee shall notify the Commission, Wisconsin Department of Natural Resources, and Michigan Department of Natural Resources 30 days in advance.

Article 402. The licensee shall release from the Pine Project to the Pine River bypassed reach a minimum flow of 27 cubic feet per second (cfs) year-round – at a location determined in the bypass compliance plan required under Article 404 – for the protection and enhancement of fish and the aquatic community, as well as aesthetics, in the Pine River.

This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and Wisconsin Department of Natural Resources, Michigan Department of Natural Resources, and U.S. Fish and Wildlife Service. If the flow is modified for emergency purposes, the licensee shall notify the Commission and the Wisconsin Department of Natural Resources and the Michigan Department of Natural Resources as soon as possible, but no later than 24 hours after each such incident.

Article 403. Within 180 days of license issuance, the licensee shall file with the Commission, for approval, a plan to monitor headwater elevation and outflow from the project to document compliance with the run-of-river operation as required by Article 401. The plan shall describe how the impoundment level and spillage from the dam will be monitored. The plan shall include, at a minimum, the following:

(1) a schedule for re-activation and installation of telemetry at the down-stream USGS gage (No. 04064500);

(2) a schedule for installation of a visible staff gage on the face of the dam, and a staff gage in the bypassed reach;

(3) maintenance of automatic water level sensors to continuously record the elevation of the Pine Project impoundment;

(4) maintenance of a log of the elevations of the Pine Project's impoundment and turbine operation;

(5) provisions for providing data to the regulatory agencies in a timely manner; and

(6) provisions for operating equipment during low flow conditions.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources, Michigan Department of Natural Resources, and U.S. Fish and Wildlife Service. The plan shall include documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared, 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 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 404. Within 180 days of the issuance of this license, the licensee shall file with the Commission a plan to provide and continuously monitor a year-round flow release from the dam to the bypassed reach. The intent of the plan is to provide a reliable and accurate means to provide the year-round flow as well as means to determine compliance with the releases required in Article 402. The plan should also include provision and procedure for notifying agencies if flows to the bypassed reach must be discontinued due to safety reasons.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources, Michigan Department of Natural Resources, and U.S. Fish and Wildlife 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.

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 180 days of license issuance, the licensee shall file a plan, for Commission approval, addressing how flow shall be re-established in the case of power outage or other event causing the Pine Project to either become inoperable or preventing re-connection to the electrical transmission. The plan will establish procedures for both the ice-in and ice-out seasons.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources and Michigan Department of Natural Resources. 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 specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agency to comment and 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 90 days of license issuance, the licensee shall file with the Commission, for approval, a five-year plan to monitor and report annual compliance with the operational requirements stated in Articles 401 and 402.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources, Michigan Department of Natural Resources, and U.S. Fish and Wildlife 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 specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agency to comment and 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.

If, at the end of the five year period, the project has shown a record of compliance, annual reporting shall no longer be required.

Article 407. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or to provide for 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 408. The licensee shall, within 180 days of license issuance, file for Commission approval, detailed design drawings of the licensee's proposed barrier net to reduce entrainment of resident fish, as described in Wisconsin Electric's Application and Additional Information response, dated March 2, 1993, and filed March 5, 1993, together with a schedule to install the barrier net. The net will be deployed during ice-free months only. The filing shall include, but not be limited to:

(1) specifications of the barrier net mesh size and dimensions of the net;

(2) the maximum approach velocity at the face of the barrier net;

(3) a description of how the net will be installed, operated and maintained; and

(4) a schedule for initial installation of the net.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the Wisconsin Department of Natural Resources and U.S. Fish and Wildlife Service. The licensee shall include with the drawings documentation of consultation, copies of agency comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule 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 proposed facilities and schedule. Project operation with the barrier net in place shall not begin until the licensee is

notified by the Commission that the filing is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 409. The licensee shall, within 180 days of license issuance, file with the Commission, for approval, a plan to monitor the effectiveness of the barrier net, described in Article 408, to reduce entrainment of fish in the project turbines. The effectiveness monitoring shall include conducting a performance evaluation two years after the net's installation.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources and U.S. Fish and Wildlife 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.

If the results of the monitoring indicate that changes in project structures or operations are necessary to protect fish resources, the Commission may direct the licensee to modify project structures or operations or consider alternative protection measures (including compensatory mitigation for entrained fish).

Article 410. The licensee shall file within 180 days of license issuance, for Commission approval, its revised comprehensive land management plan (CLMP) for the Pine Project. The final CLMP, at a minimum, shall incorporate or adopt by reference all other resource protection plans, and include the following additional provisions and policies:

(1) the revised bald eagle management plan (consistent with Article 412);

(2) fish and wildlife protection measures as they relate to the wood turtle potential nesting site survey and impact assessment and a freshwater mussel survey (consistent with Article 411);

(3) the purple loosestrife plan (consistent with Article 413);

(4) the recreation plan and recreation monitoring provisions (consistent with Articles 414, 415 and 416)

(5) provision for consultation with Wisconsin Department of Natural Resources prior to any land disturbing activities in order to ensure protection of fish and wildlife and ensure consistency with the wild rivers legislation

(6) provision for annual meetings with the Wisconsin Department of Natural Resources to review and update the plan

The licensee shall prepare the revised plan after consultation with the Wisconsin Department of Natural Resources and U.S. Department of the Interior. The licensee shall include with the Commission filing, documentation of consultation, copies of comments and recommendations on the revised guidelines, and completed plan after they are prepared and provided to 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 revised guidelines and plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on site-specific conditions.

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 411. The licensee shall, within 180 days of license issuance, file with the Commission, for approval, a plan for conducting a wood turtle potential nesting site survey and impact assessment, and a freshwater mussel survey. The plan shall be submitted as part of the CLMP for the project.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources. 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 agency, and specific descriptions of how the agency's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agency 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 412. The licensee shall file within 180 days of license issuance, for Commission approval, its revised "Bald Eagle Management Protection Plan" to include protection of super canopy trees. The plan shall be submitted as part of the CLMP for the project.

The licensee shall prepare the revised guidelines after consultation with the Wisconsin Department of Natural Resources and U.S. Fish and Wildlife Service. The licensee shall include with the Commission filing documentation of consultation, copies of comments and recommendations on the revised guidelines, and completed plan after they are prepared and provided to 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 revised guidelines and plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on site-specific conditions.

The Commission reserves the right to require changes to the guidelines and plan. Upon Commission approval, the licensee shall revise the Guidelines for Bald Eagle Management Protection, including any changes required by the Commission.

Article 413. The licensee shall file within 180 days of license issuance for Commission approval, a plan to monitor the distribution and abundance of purple loosestrife (lythrum salicaria) on the Pine Project lands and waters. The plan shall include, but not be limited to the following: (1) the method of monitoring; (2) frequency of monitoring; (3) a schedule for providing monitoring results to the Wisconsin Department of Natural Resources; and (4) documentation of transmission of monitoring data to the resource agency. The plan shall be submitted to the Commission for approval as part of the CLMP for the Pine Project. If at any time during the period of the license, Wisconsin Department of Natural Resources deems it necessary to control purple loosestrife, the licensee shall cooperate in this matter. The Commission reserves the right to require changes to the plan.

The licensee shall include documentation of consultation before preparing the plan, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agency, and specific descriptions of how the agencies recommendations are accommodated by the plan. The licensee shall allow a minimum of 30 days for the Wisconsin Department of

Natural Resources to comment and 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.

Article 414. The licensee shall, within 180 days of license issuance, file for Commission approval a plan for implementing the following recreation enhancement measures:

(1) six fire rings at the six existing campsites (detailed in Exhibit E of the application for new license, filed December 23, 1991);

(2) barrier-free facilities at Recreation Site No. 24, including upgraded boating ramp, hardened fishing access trail, and restrooms (detailed in Appendix 11 of the Additional Information Response, dated October 15, 1992, and filed October 19, 1992); and

(3) relocation of the canoe portage trail to Route B (detailed in Appendix 12 of the Additional Information Response, dated October 15, 1992, and filed October 19, 1992).

The plan shall include, at a minimum, the following: (1) final site plans for the recreation facilities cited above; (2) a discussion of how the facilities will conform to the guidelines established by the Architectural and Transportation Barriers Compliance Board (Federal Resister, Vol. 56, No. 144); (3) the entity responsible for operation and maintenance of the facilities; and (4) the implementation schedule not to exceed one year from the date of license issuance.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources Wild Rivers Coordinator and the National Park Service.

The licensee shall include with the plan documentation of agency consultation, copies of comments and recommendations on the report after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the report. The licensee shall allow a minimum of 30 days for the agencies to comment before filing the report 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.

Within 90 days of completion of construction, the licensee shall file as-built drawings of the recreation facilities with the Commission.

Article 415. The licensee shall file within 180 days of license issuance, for Commission approval, a plan for implementing a telephone hotline to communicate, to the public, daily flows into both the reservoir and the bypassed reach.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources and National Park Service. The plan shall include documentation of agency consultation, and description of how the agencies' recommendations are accommodated by the plan. 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 install the telephone hotline system, including any changes required by the Commission.

Article 416. The licensee, after consultation with the Wisconsin Department of Natural Resources and National Park Service, shall monitor recreation use of the project area to determine whether existing recreation facilities are meeting recreation needs. Monitoring studies shall begin within 5 years of the issuance date of this license. Monitoring studies, at a minimum, shall include the collection of annual recreation use data.

In conjunction with submitting Form 80 during the term of the license, the licensee shall file a report with the Commission on the monitoring results. This report shall include:

(1) annual recreation use figures;

(2) a discussion of the adequacy of the licensee's recreation facilities at the project site to meet recreation demand;

(3) a description of the methodology used to collect all study data;

(4) if there is a need for additional facilities, a recreation plan proposed by the licensee to accommodate recreation needs in the project area;

(5) documentation of agency consultation and agency comments on the report after it has been prepared and provided to the agencies; and

(6) specific descriptions of how the agencies' comments are accommodated by the report.

The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the report with the Commission.

Article 417. The licensee shall implement the Programmatic Agreement Among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, and the Wisconsin Historic Preservation Officer, for Managing Historic Properties That May Be Affected By A License Issuing to the Wisconsin Electric Power Company for the continued operation of the Pine Hydroelectric Power Project in Wisconsin, executed on December 30, 1993, including but not limited to the Cultural Resources Management Plan for the project. In the event that the Programmatic Agreement is terminated, the licensee shall implement the provisions of its approved Cultural Resources Management Plan. The Commission reserves the authority to require changes to the Cultural Resources Management Plan at any time during the term of the license. If the Programmatic Agreement is terminated prior to Commission approval of the Cultural Resources Management Plan, the licensee shall obtain Commission approval before engaging in any ground disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effect.

Article 418. Within 180 days from the date of issuance of this license, the licensee shall file with the Commission, for approval, a plan to monitor dissolved oxygen, pH, and temperature of the Pine River downstream of the project every five years.

The purpose of the monitoring plan is to ensure that streamflows below the project, as measured immediately downstream of the project tailrace, maintain a dissolved oxygen content of at least 5 milligrams per liter, a pH of between 6.0 and 9.0 with no change greater than 0.5 units outside the estimated seasonal maximum and minimum, and a temperature not to exceed 89 degrees Fahrenheit.

The monitoring plan shall include a schedule for:

(1) implementation of the program;

(2) consultation with the appropriate federal and state agencies concerning the results of the monitoring;

(3) filing the results, agency comments, and Licensee's comments with the Commission.

The Licensee shall prepare the plan after consultation with the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources.

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 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 419. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article.

If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and 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 (69-kV or less); and

(8) water intake or pumping facilities that do not extract more than 1,000,000 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 five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year.

At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of 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:

(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, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised exhibit G 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.

Article 420. Any application to transfer this license shall include proof of service of a copy of that application on the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources, and the U.S. Department of the Interior.

Article 501. If the licensee's project was directly benefitted by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (excluding extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license.

(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 the Commission filing. Proof of service on these entities must accompany the filing with the Commission.

(F) This order is final unless a request for rehearing is filed within 30 days of the date of its issuance, as provided in Section 313 of the FPA. The filing of a request for rehearing does not operate as a stay of the effective date of this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this license.

By the Commission.

(S E A L)

Lois D. Cashell,
Secretary.

FINAL ENVIRONMENTAL ASSESSMENT FOR HYDROPOWER LICENSE

Pine Hydroelectric Project

FERC Project No. 2486—Wisconsin

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Review
825 North Capitol Street, NE
Washington, D.C. 20426

(Issued December 19, 1995)

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Appendices

SUMMARY

Wisconsin Electric Power Company (WEPCO) proposes continued operation of its hydroelectric project on the Pine River, near the town of Florence, in Florence County, Wisconsin. The project has an installed capacity of 3.6 megawatts (MW), and the proposed operation would produce about 15,984 megawatt-hours (MWh) of hydroelectric power annually.

In addition to WEPCO's proposal, we considered three alternatives: (1) WEPCO's proposal with additional environmental measures, (2) dam removal, and (3) no action. We recommend that WEPCO implement the project as proposed incorporating the following additional environmental measures:

- Prepare an operational monitoring and compliance plan.
- Equip to U.S. Geological Service (USGS) gaging station with telemetry equipment.
- Provide periodic water quality monitoring.
- Provide a 27-cubic feet per second (cfs) flow release year-round to the bypass reach.
- Install and maintain a staff gage on the reservoir and in the bypass reach.
- Notify the Commission and resource agencies within 10 days of an emergency draw-down, and 30 days in advance of a planned draw-down.
- Modify the bald eagle management plan to include protection of supercanopy trees, where appropriate.
- Provide a telephone hotline to notify the public of flow releases in the bypass channel and when natural flows would accommodate whitewater boating.

Removal of the dam would consist of decommissioning the project, removing the existing structures, and returning the river to a free-flowing condition. This alternative would eliminate electrical energy produced by the project and would require other power generating or conservation resources to replace the lost power. Under this alternative, WEPCO would, in the long term, need to replace its energy and capacity by purchases or construction in order to maintain an acceptable reserve margin. Removal would involve:

- construction of a temporary diversion dam and canal to divert river flows during drainage of the reservoir,
- stabilization and removal of reservoir sediment,
- complete removal of the dam and other project structures, and
- reclamation and revegetation of disturbed areas.

No action would involve continued operation of the project under the terms and conditions of the existing license with no change to the environmental setting or project operation (used as an environmental baseline).

Under Section 10(a)(2) of the Federal Power Act (FPA), federal and state agencies filed 59 comprehensive plans that address various resources in Wisconsin. Five of those plans are relevant to this project. The proposed project would not conflict with any of the plans and is consistent with state comprehensive plans for improving and conserving the Pine River.

Under Section 10(j) of the FPA, we determined that the applicant should not be required to implement a fish recovery and ramping rate plan because this action is not consistent with public interest and comprehensive development standard of the FPA. In light of our denial of special whitewater releases we find that the ramping requirement is unnecessary.

Based on our review of the alternatives and the proposed action under Section 10(a) of the FPA, we conclude that National Park Service's recommended special release of flows for whitewater boating is inconsistent with the intent of the Pine River's designated state wild river status. Further, because natural high flows permit whitewater boating to occur in the bypass reach, we conclude that additional releases are not justified, based on resource balancing.

Based on our independent analysis, issuance of a license 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 PROJECT REVIEW

Pine Hydroelectric Project
FERC Project No. 2486-Wisconsin
November 7, 1995

INTRODUCTION

The Federal Energy Regulatory Commission issued the Pine Project Draft Environmental Assessment (DEA) for comment on March 8, 1994. In response, six comment letters were filed. Those commentators are listed in Section IV.E-Comments on the DEA. All comment letters were reviewed by the staff. The sections of the DEA that have been modified as a result of comments received are identified in the staff responses to the right of the letters of comments, in Appendix B.

I. APPLICATION

On December 31, 1991, Wisconsin Electric Power Company (WEPCO) filed an application for a new license for the existing Pine Hydroelectric Project, a major project with an installed capacity of 3.6 megawatts (MW). The project is located on the Pine River near the unincorporated community of Florence, in Florence County, Wisconsin (Figure 1). It is the only hydropower project on the Pine River. It does not occupy any United States lands.

II. PURPOSE AND NEED FOR ACTION

A. Purpose of Action

We completed this environmental assessment (EA) to analyze the effects associated with continued operation of the existing project, to evaluate project alternatives, to submit a recommendation to the Commission on whether to issue a license, and if so, to recommend terms and conditions to become a part of any license issued. The Federal Power Act (FPA) provides the Commission with the exclusive authority to license nonfederal water power projects on navigable waterways and federal lands.

The Commission considers several important factors in its decision to license a facility. Among these are (1) the effective use of the resource to generate power and (2) the project's compatibility with objectives set forth by the resource agencies' comprehensive planned use of the waterway. In addition to the power and developmental purposes for which

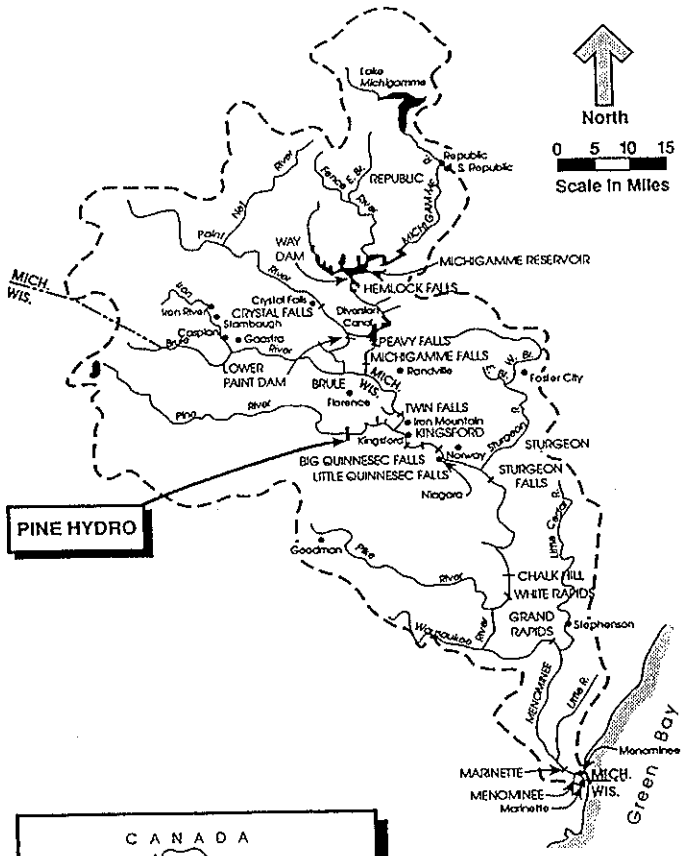

FIGURE 1
Menominee River Basin

licenses are issued, the Commission must give equal consideration to the protection, mitigation of damage to, and enhancement of fish and wildlife (including related spawning grounds and habitat); the protection of recreational opportunities; the preservation of other aspects of environmental quality; and opportunities for energy conservation.

B. Need for Power

The North American Electric Reliability Council (NERC) prepares an annual 10-year forecast of supply and demand for electrical power within the region and nation (*Electric Supply and Demand 1993-2002, Summary of Electric Utility Supply and Demand Projections*, June 1993). The Pine Hydroelectric Project is within the Mid-America Interconnected Network (MAIN) region of NERC and within the Wisconsin-Upper Michigan Area of MAIN. Within the area and the nation, both load and peak demand are projected to grow faster than planned generating capacity, resulting in a decrease in capacity margin. Within the area, system load is projected to grow at 2.0 percent and peak demand at 2.3 percent, whereas planned capacity will grow at only 1.9 percent. This will result in a decrease in capacity margin from 14.9 to 13.8 percent in the area where the capacity margin is already significantly lower than the nation as a whole. These projections support the long-term need for power produced by the Pine Project.

Power generated by the project is delivered to the company's transmission and distribution systems to help supply the needs of customers. Wisconsin Electric Power Company (WEPCO) produces, transmits, and distributes electric power and energy for sale to more than 852,000 wholesale and retail customers in Wisconsin, the Upper Peninsula of Michigan, and northern Illinois. The company owns 16 hydroelectric projects, five fossil-fuel projects, one nuclear power project, four gas turbines, and one diesel turbine. It also has a 25 percent interest in a 380-MW fossil-fuel unit. WEPCO's electric system is also interconnected with neighboring utilities.

WEPCO states that the project has historically operated in a peaking mode and generated an annual average of 18,878 megawatt-hours (MWh) of energy.

III. PROPOSED ACTION AND ALTERNATIVES

A. Applicant's Proposal

1. Project Facilities

The Pine Hydroelectric Project has been in operation since 1922. Timber production and forest-based recreation are the predominant land uses along the Pine River.

The Pine Project spans 628 feet and consists of the existing 146-foot-long gravity dam (closed dam), a 358-foot-long earth dike containing a concrete corewall, and a 124-foot concrete spillway section with seven Taintor gates (one with remote control capability), and a concrete gravity non-overflow section. Other project facilities include: (1) a reservoir with a surface area of 180 acres and a total storage volume of roughly 1,540 acre-feet; (2) a reinforced concrete canal intake structure equipped with slots for stop logs; (3) a 1,530-foot canal that directs water to the powerhouse; (4) penstock headworks; (5) two 9-foot-diameter, 340-foot-long steel penstocks; (6) a reinforced concrete and brick-and-steel 50.6-foot-long by 58.4-foot-wide frame powerhouse containing (a) two vertical shaft Francis turbines with a design capacity of 624 cfs and combined normal hydraulic capacity of 640 cfs rated 3,000 hp each, and (b) two 3-phase, 60-cycle, vertical shaft generators rated 1,800 kilowatts (kW) each, providing a total plant rating of 3,600 kW; and (7) various appurtenant facilities. The dam and powerhouse de-waters 0.4 mile of the natural river channel during normal operation.

There are about 570 acres within the project boundary, of which WEPCO owns 442 acres that are used for project operations. WEPCO maintains flowage rights within the portions of the project boundary where they do not own lands (portions along the north bay of the reservoir and property on the north side of the bypass channel). WEPCO provides two public recreation sites at the impoundment and a canoe portage around the dam and powerhouse. Formal recreation opportunities include camping, fishing, boating, and picnicking. Lands at the project site are also open to hunting and other public use.

WEPCO proposes modifying operation of the project from peaking mode to run-of-river mode. WEPCO proposes a year-round target elevation of 1,191.6 feet (National Geodetic Vertical Datum [NGVD]) ± 0.5 foot. While they propose a ±0.5 foot target elevation for compliance purposes, WEPCO states they intend to operate with the goal of staying within ± 0.3 foot of the target elevation.

2. Proposed Environmental Measures

WEPCO proposes the following enhancements related to project operation:

- Funding reactivation of the U.S. Geological Service (USGS) gaging station down-stream of the hydroelectric plant.
- Releasing 27 cfs flow into the historic river channel for fish habitat and aesthetic purposes.

- Installing a fish barrier net at the entrance of the power canal during ice-free months to reduce the number of fish entering the power canal, and conducting a barrier-net effectiveness study.
- Installing six fire rings at existing campsites.
- Relocating the canoe portage to provide a shorter and less rugged route.
- Providing barrier-free recreation opportunities at Recreation Area No. 24, including a boating pier, a fishing access trail with shore access, and upgraded restrooms.

We discuss these proposals in the individual resource sections.

3. Mandatory Requirements

In its letter dated July 8, 1993, the Department of the Interior (DOI) reserved the authority to prescribe the construction, operation, and maintenance of fishways pursuant to Section 18 of the FPA. When DOI prescribes such a fishway, the Commission will require the licensee to install it, pursuant to Section 18.

B. Modification to Proposed Project Operation or Facilities

An alternative to licensing the project as proposed is to license the project with modifications and resource protection, and enhancement measures. The following additional enhancements have been proposed by various agencies and environmental groups:

- Install and maintain a staff gage on the upstream wall of the dam and in the bypass reach, and monitor and record elevations and operations.
- Equipment the USGS flow gaging station with telemetry equipment.
- Provide 100 percent fish protection by compensating for fish loss due to barrier net ineffectiveness.
- Provide four special flow releases of 225 cfs per year in the bypass channel for whitewater boating.
- Provide year-round flow release of 27 cfs in the bypass channel.
- Prepare an operation and compliance plan.
- Provide periodic water quality monitoring.

- Establish a project retirement fund and study the effects of removal of the dam.
- Survey project lands for additional state concern species.
- Provide a mechanism to notify the public of naturally occurring flow releases in the bypass channel to communicate when natural flows would be conducive to whitewater boating.
- Provide a fish recovery and ramping plan.

We discuss each of these recommendations in the individual environmental resource sections.

C. Dam Removal Alternative

We considered and evaluated a dam removal alternative in response to specific requests by the American Whitewater Affiliation (AWA), U.S. Fish and Wildlife Service (FWS), and WDNR. AWA requested that dam removal be considered as an alternative action in this environmental analysis.

WDNR and FWS requested that WEPCO evaluate dam removal during the period of the new license and remove the dam at the end of the new license period. The basis for this request is the Pine's status as a state-protected "wild" river.

This alternative would involve decommissioning the project, removing the existing structures, and returning the river to a free-flowing condition. The alternative would eliminate the electrical energy produced by the project and would require other power generating resources to replace the lost power. If the project were retired, WEPCO would, in the long term, need to replace its energy and capacity by purchases or construction in order to maintain an acceptable reserve margin.

The removal plan described represents one of several possible approaches to dam removal. It addresses both safety requirements and environmental impacts in light of available knowledge of geologic and sediment conditions within the reservoir. We analyzed two scenarios: one where reservoir sediments would be removed, and one where sediments would be stabilized in place. Project removal would involve: (1) constructing a temporary diversion dam and canal to divert river flows during drainage of the reservoir; (2) either stabilizing reservoir sediments or removing sediments; (3) removing the dam and other project structures; and (4) reclaiming and revegetating disturbed areas. The principal elements of the removal plan are summarized in the following paragraphs.

WEPCO prepared a sediment survey, which found that the reservoir contains areas with an average of 2 to 3 feet of highly organic fine silt. It would be necessary to prevent the sediment from flowing downstream during removal of the project. To prevent the river flow from washing the sediment downstream, the river would be diverted around the reservoir during demolition. Constructing a temporary diversion dam at the upstream end of the reservoir and a temporary diversion canal around the south side of the reservoir would accomplish this. The temporary diversion canal would join the existing power canal, and water would be discharged through the power plant back to the river during dam removal.

The reservoir would be drawn down at a normal rate to the spillway crest of the dam (12 feet). The reservoir would then be gradually lowered (about 1 foot per week) over about six months. This would minimize sediment flowing into the river channel and allow consolidation. After the reservoir had been drained, the sediment would continue to consolidate for several months. Under one scenario we assumed that sediments would not be contaminated and would be excavated and hauled to a disposal area within five miles of the project site. Under the second scenario we assumed sediments would stabilize and remain in place.

Removal of the dam would begin during the reservoir draining period. The power plant, penstocks, and canal structures would not be taken out of operation and demolished until the sediment had been excavated. We have assumed that concrete will be blasted and hauled to a site within five miles of the project, and that excavated embankment material will be used to fill the power canal once the diversion is no longer needed.

Restoration costs would include removing the temporary diversion dam, filling both the power canal and temporary diversion canal, and revegetating all disturbed areas with native plant species to restore the site as closely as possible to its pre-construction condition.

We discuss the impacts of dam removal in each of the individual resource sections in Section V.

D. No-Action Alternative

Under the no-action alternative, the project would continue to operate under the terms and conditions of the existing license, and no new environmental protection, mitigation, or enhancement measures would be implemented. We use this alternative to establish baseline environmental conditions for comparison with other alternatives.

E. Alternatives Considered but Eliminated from Detailed Study

We considered several other alternatives to the applicant's relicensing proposal but eliminated them from detailed study because they are not reasonable in the circumstances of this case. They are:

- Federal takeover and operation of the project
- Issuing a nonpower license
- Decommissioning the project without removal of the facilities

Federal takeover and operation of the project would require Congressional approval. While that fact alone would not preclude further consideration of this alternative, there is no evidence to indicate that federal takeover should be recommended to Congress. No party has suggested federal takeover would be appropriate, and no federal agency has expressed an interest in operating the project.

Issuing a nonpower license would not provide long-term resolution of the issues presented. A nonpower license is a temporary license that the Commission will terminate whenever it determines another governmental agency will assume regulatory authority and supervision over the lands and facilities covered by the nonpower license. In this case, no agency has suggested its willingness or ability to do so. No party has sought a nonpower license, and we have no basis for concluding that the project should no longer be used to produce power. Thus, a nonpower license is not a realistic alternative to relicensing in these circumstances.

The project could be decommissioned with or without dam removal. Either alternative would involve denial of the relicense application and surrender or termination of the existing license with appropriate conditions. We have analyzed a decommissioning alternative involving dam removal for this project as part of the environmental analysis.

A second decommissioning alternative would involve retaining the dam and disabling or removing equipment used to generate power. Project works would remain in place and could be used for historic 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. American Whitewater Affiliation (AWA) recommended this second option, however, we do not consider it to be a reasonable alternative because it would not restore the area to its natural condition (as stated as a goal of the Pine-Popple Master Plan). We do not consider removal of the electric generating equipment to be a reasonable alternative for this project.

WDNR and FWS have requested that WEPCO perform a study to determine the costs associated with dam removal and establish a fund to cover such costs. They also have asked that WEPCO remove the dam at the end of the relicense period. Neither agency, however, advocates dam removal/decommissioning at this time. WDNR requests that WEPCO begin consulting with resource agencies five years after license issuance on a plan for studying the costs of complete project removal. Upon completion of studies, WEPCO would be required to submit study reports to the Commission and resource agencies, and in the first general change of rate filings, WEPCO would be required to include costs related to establishing a trust fund to collect the cost of complete project removal from the rate payers.

In its December 14, 1994, Policy Statement on project decommissioning (RM93-23-000) the Commission declined to impose a generic decommissioning requirement and instead decided to address the issue on a case-by-case basis. Commensurate with its decommissioning policy, the Commission will address project decommissioning and the proposed decommissioning trust fund in the License Order for this project.

IV. CONSULTATION AND COMMENTS

A. Agency Consultation

The following entities commented on the application by the July 12, 1993, deadline specified in our notice that the application was ready for environmental analysis.

Commenting Agencies and Other Entities	Date of Letter
Wisconsin Department of Natural Resources	July 8, 1993
Michigan Department of Natural Resources	July 8, 1993
Department of Interior*	July 8, 1993
American Whitewater Affiliation, et al.**	July 12, 1993

* Includes National Park Service and Fish and Wildlife Service.

** Includes American Rivers, Inc.; Sierra Club-John Muir Chapter; Chicago Whitewater Association; University of Wisconsin-Hoofers Outing Club; Badger State Boating Society; American Canoe Association; Cascaders Canoe and Kayak Club; Izaak Walton League of America; Boat Busters Anonymous; Whitewater Specialty's Inc.; and Green Bay Paddlers, United.

WEPCO responded to their comments and recommendations in their letter dated August 20, 1993 (filed with the Commission August 25, 1993).

B. Interventions

In addition to providing comments, organizations and individuals may petition to intervene and become a party to any subsequent proceedings. The following entities filed a motion to intervene in the proceeding.

Intervenor	Date of Motion
Wisconsin Department of Natural Resources	July 14, 1992
Department of Interior	July 22, 1992
American Whitewater Affiliation	July 31, 1992

WEPCO opposed the intervention by AWA in their letter filed August 17, 1992. The Commission granted intervention status to AWA on August 27, 1992.

C. Water Quality Certification

On April 11, 1990, WEPCO applied to the WDNR for Section 401 water quality certification (WQC), required by the Clean Water Act. In its letter dated May 4, 1990, WDNR waived the requirement for WQC for the Pine Hydroelectric Project (letter to Noel Cutright, WEPCO from Ronald Fassbender, WDNR).

D. Scoping

We conducted a site visit to the project area on October 14, 1993. WEPCO, WDNR, FWS, and the Sierra Club-John Muir Chapter attended.

We issued a Scoping Document on November 4, 1993, describing the environmental issues we felt should be analyzed in detail, as well as issues that should not be analyzed based on input received through the project application, agency comments, and intervention process. The following agencies and individuals commented on the Scoping Document:

Commenting Agencies and Other Entities	Date of Letter
Sierra Club-John Muir Chapter	November 29, 1993
Wisconsin Department of Natural Resources	December 6, 1993
Wisconsin Electric Power Co.	December 6, 1993
Erik Sprenne	December 7, 1993

Comments from these entities have been considered and are discussed in this EA as appropriate.

E. Comments on the Draft Environmental Assessment

The DEA was issued March 8, 1994. In letters to the agencies dated March 8, 1994, staff made a preliminary finding pursuant to Section 10(j) that certain recommendations may be

inconsistent with the FPA. We considered all comments in preparing this EA (see Appendix B). Respondents commenting on the DEA are as follows:

Commenting Agencies and Other Entities	Date of Letter
U.S. Fish and Wildlife Service	April 21, 1994
National Park Service	April 20, 1994
Wisconsin Department of Natural Resources	April 18, 1994
Michigan Department of Natural Resources	April 20, 1994
American Whitewater Affiliation	April 21, 1994
Wisconsin Electric Power Co.	April 19, 1994

Commission staff held a meeting pursuant to Section 10(j) of the FPA with WDNR, MDNR[1], and DOI on June 23, 1994, to attempt to resolve preliminary identified inconsistencies between the agencies' section 10(j) recommendations and sections 4(e) and 10(a) of the FPA. This FEA reflects all timely additional information, comments, and recommendations submitted pursuant to the 10(j) process.

V. ENVIRONMENTAL ANALYSIS

A. General Description of the Locale

1. Pine River Basin

Constructed in 1922, the Pine River project dam impounded a canyon containing two 8-foot falls, one 12-foot fall, and more than 0.5 mile of rapids. The project dam lies 12.7 miles upstream of where the Pine River joins the Menominee River, which forms the part of the border between Wisconsin and the Upper Peninsula of Michigan. The Pine River, 89 miles long, drains a 528-square-mile area upstream of the Pine Dam.

Florence County is sparsely populated. The county's 1990 population was 4,590. The nearest towns with populations greater than 5,000 are Iron Mountain and Kingsford, Michigan, both about 15 miles from the project.

The predominant land type in Florence County and the Pine project area is forest. About 72 percent of the land in the county is classified as natural (forest, wetlands, and surface waters). The rest of the land is used for agriculture, primarily silviculture.

The Pine River is a state-designated "wild river" because of its natural and relatively free-flowing character and limited

[1]MDNR is not considered a 10(j) agency for this project, which is located in the State of Wisconsin.

development. The project is within the wild river boundary. The shoreline is generally steep, rocky, and forested. There is little development within the wild river zone, as the WDNR actively pursues acquisition of property along the river to ensure preservation of its pristine nature. The nearest shoreline development is a single cabin, 12 miles upstream from the project.

WEPCO maintains a 400-foot shoreline protection zone in its natural condition (semi-wilderness). The remainder of the project lands are managed for timber production.

2. Proposed and Existing Hydropower Development

There are no other existing or proposed hydropower projects in the Pine River Basin.

3. Cumulative Impacts

We have not identified any resources that would be cumulatively affected by the proposed action in conjunction with other developmental activities within the river basin. The Pine Project is the only hydroelectric development on the Pine River. The river's wild status provides it with corridor development protection. Therefore, there is no other development along the Pine River that, combined with the hydroelectric project, cumulatively affects the environment.

4. Scope of the Environmental Assessment

During the agency consultation process, WDNR and DOI recommended that the project be analyzed as part of a basinwide EA with several other hydroelectric projects that will be up for relicensing in the next few years. Those projects are Sturgeon Falls, Sturgeon, Little Quinnessec, Big Quinnessec, Kingsford, and Twin Falls (referred to by WDNR as the "Mid-Menominee Basin Dams"). Additionally, AWA requested that an EIS be prepared for the project rather than an EA. We decided to analyze the project as a single project in an EA for the following reasons:

- The Pine Project is the only hydroelectric development on the Pine River, so the issues pertaining to it are sufficiently separate and discrete from issues prevalent in the Menominee River Basin.
- The license applications for the other projects are not ready for environmental analysis. Combining the Pine Project in a basinwide EA would unnecessarily delay—perhaps for years—the project's additional benefits under the new license recommended in this EA.

- The discrete and limited nature of the project's environmental issues make an EA the appropriate environmental document.

B. Environmental Resources

In this section, we describe the general environmental setting in the project locale and the effects the project may have on environmental resources.

1. Geological Resources

Affected environment: The project area is dominated by glacial drift landforms with underlying bedrock. Topsoil consists of silty and sandy loams. The shoreline around the Pine River flowage rises abruptly and is fairly stable. There has been no shoreline erosion problem in the project area.

Environmental impacts and recommendations: Operations changes proposed by WEPCO would not affect geology and soils in the project area.

Removal of the dam and reservoir would restore the rapids and waterfalls that are presently inundated. The stretch includes two 8-foot falls, one 12-foot fall, and more than 0.5 mile of rapids. Dam removal could have short-term adverse effects on geological resources in the project area. Dam removal would cause localized erosion and sedimentation in the Pine River downstream of the dam. Construction of a diversion canal during dam removal would disturb soil and cause erosion on the south side of the project area.

Lowering the reservoir level would cause some erosion of deposited sediment from the newly exposed banks. Removal of sediment from the reservoir bottom would cause localized erosion and sedimentation.

Unavoidable adverse impacts: Under the dam removal alternative, short-term erosion and stream sedimentation in the Pine River would occur. There would be no long-term unavoidable adverse impacts.

2. Water Resources

Affected environment: The Pine River is designated an outstanding water resource because of its state wild river designation. In the flowage and downstream of the project, state water quality standards must be met for recreation, fish, and wildlife. Upstream of the project, the Pine River also must meet state standards for trout habitat. The river receives special management protection to preserve its natural character and shoreline.

The dam and powerhouse arrangement de-waters 0.4 mile of the natural river channel during normal operations (Figure 2). Under present conditions, no flow is released to the bypassed natural channel unless the flow into the project exceeds the project's storage or generation capacity.

Mean annual river flow at the project is 427 cfs. April has the highest mean monthly flow (953 cfs) and February has the lowest (186 cfs). Highest peak daily flows typically occur in spring. The highest recorded flow (4,380 cfs) at the nearest USGS gage on the Pine River occurred on April 9, 1929.

The minimum flow required to operate one unit for power generation is 110 cfs. WEPCO indicates that it is likely able to operate the turbines at flows less than 110 cfs, under low flow conditions. Normal hydraulic capacity of the power plant is 640 cfs; maximum hydraulic capacity is 760 cfs. Leakage through each unit when not generating is 22 cfs.

Water diverted through the hydropower units is used exclusively for hydropower generation and then returned to the Pine River. There are no consumptive uses of project water. Therefore, the project does not appear to affect any existing water rights. Water quality in the reservoir and tailrace is good and meets state water quality standards.

Environmental impacts and recommendations:

a. Project operations

WDNR, Michigan Department of Natural Resources (MDNR), and FWS all agree the project should operate in a run-of-river mode, whereby outflow from the project is equal to the instantaneous sum of inflows to the reservoir. The agencies also recommend that WEPCO act to minimize water level fluctuations in the reservoir.

WEPCO proposes to operate the project in a run-of-river mode by maintaining the reservoir water level at 1,191.6 feet NGVD ± 0.3 foot under normal conditions and ± 0.5 foot under special conditions (severe rain events, spring ice breakup). Compliance would be measured at ± 0.5 foot. WEPCO originally proposed 1,191.1 feet as the target elevation during winter but has since determined that a single year-round target elevation is adequate for operations. The agencies had recommended a target elevation of 1,191.6 feet in the ice-free months and 1,191.1 feet otherwise. The agencies concur with WEPCO regarding maintaining ± 0.3 foot under normal conditions and ± 0.5 foot under special conditions. The agencies further recommend that excursions outside the normal ± 0.3 foot last no longer than 8 hours.

At the Pine project, we recognize that normal operation of a hydropower facility requires some water level fluctuations and

GLW7003I.A0.01 Schematic Site Plan 7-22-96mms

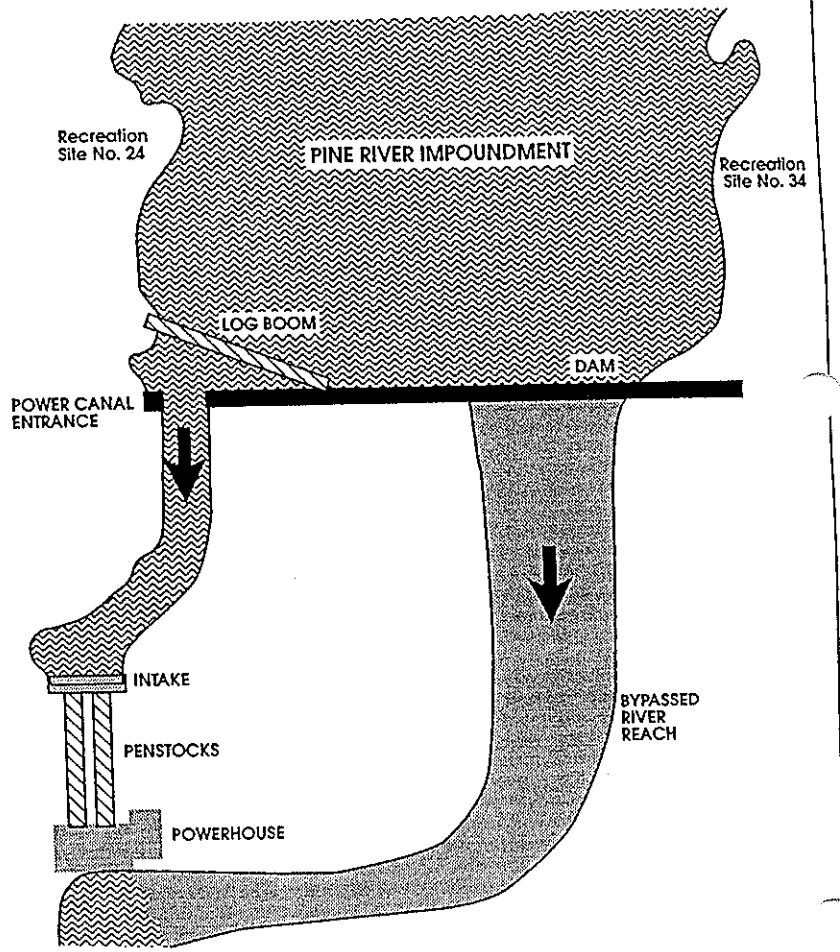

FIGURE 2
Schematic Site Plan

agree with WEPCO's and the agencies' proposal for headwater elevation and allowable bandwidth. Therefore, we recommend that WEPCO maintain a headwater elevation of 1,191.6 feet NGVD ± 0.5 foot at all times, with the goal of operating at ± 0.3 foot under normal conditions. When events cause WEPCO to operate outside ± 0.3 foot, they should operate with the goal of returning to normal range within 8 hours. We recommend that WEPCO notify MDNR and WDNR within 24 hours of, or the first normal working day following an event causing operation outside ± 0.3 foot, whichever is later.

Text in the DEA stated that during winter months true run-of-river operation would be maintained only if there was sufficient inflow to the reservoir (159 cfs) to allow the turbines to be operated. When inflow to the reservoir was less than 159 cfs in the winter, WEPCO proposed to cycle the turbines on and off while staying within the ± 0.3 foot elevation range. WEPCO explained that the low generation limit was established based on limitations of the turbine bearing and packing that provides the water seal around the turbine shaft. With increasing vacuum (which occurs as water flows through the unit decrease) there is less pressure on the bearing, allowing them to dry out. This eventually causes them to overheat, which destroys them. Therefore, the turbines could not be shut down for any length of time in winter without potentially damaging equipment at the facility. Further, ice would form on the trash racks, intake canal, penstocks, and turbine assemblies. Additionally, the turbines provide the only heat to the powerhouse; therefore, the turbines needed to be operated to avoid damage to equipment.

Although we recognize that WEPCO's proposed operation in the winter months is not a true run-of-river operation as defined by the agencies, we concur with WEPCO's claim that some cycling of turbines during winter months may be necessary to maintain operations. Ice would form quickly on the trash racks, intake canal, penstocks, and turbine assemblies. In addition, operation of the turbines is the only means of providing heat to the powerhouse. Without heat, equipment in the powerhouse could be damaged. Flow in the Pine River downstream of the powerhouse would be at least 71 cfs (44 cfs from leakage and 27 cfs from the bypass release) at all times. Therefore, de-watering of the Pine River downstream of the powerhouse is not expected.

Based on comments received on the DEA and discussions at the 10(j) meeting, WEPCO further investigated the capabilities of their equipment, and the generating system's low-flow capabilities. Due to concerns with operating the units more frequently at lower flows, WEPCO installed a supplemental turbine-bearing and turbine-shaft-packing watering system to allow operations at lower flows. They concluded that the system will most likely allow operation of the units at flows lower than the 92 to 110 cfs generation limitation originally

established. WEPCO believes that it can operate the generators at flows low enough to prevent winter cycling. We conclude that these upgrades satisfy the agencies' concerns with winter cycling. To determine the specific operating requirements, we recommend the operational monitoring and compliance plan address how the plant and turbines will be operated during low-flow conditions.

Dam removal would return the river flow to its natural state. Under current peaking operations, released flow varies between 0 cfs and 760 cfs. During dry summer months, there may be no released flow for days. Under spring runoff and storm conditions, the reservoir attenuates peak flows. Dam removal would return the river flow to its natural state, with low flows during dry summer months and high flows during spring runoff and storm events. Dam removal would also return the river to its natural course through the bypass channel.

b. Flow releases

Resource agencies (WDNR, MDNR, FWS) recommend a release of 27 cfs in the bypass channel year-round for protection of aquatic organisms and habitat, and for aesthetic purposes.

In the DEA we stated that WEPCO proposed to pass 27 cfs through the bypass channel during the ice-free period (generally April 1 through November 30) but was opposed to providing a winter release. Based on comments in the DEA, and discussions at the 10(j) meeting, WEPCO reviewed other projects that provide a year-round release. WEPCO determined that it may be able to provide a year-round release in a method similar to the Grandfather Falls Project (discussed in detail under V.B.3—"Fisheries"). We reviewed this information and developed our own independent estimate of the probable cost to provide a year-round flow similar to that at the Grandfather Falls Project. We concluded that a similar system could be installed for approximately $100,000 in 1994 dollars.

Based on our rationale as presented in Section V.B.3.b of "Fisheries," we concur with WEPCO's and the agencies' recommendation to provide a year-round release of 27 cfs in the bypass channel. We further concur with WEPCO's proposal to consult with the resource agencies on the method for providing the winter flow release (as stated in its August 3, 1994 letter), and recommend that this be incorporated into WEPCO's operational monitoring and compliance plan.

AWA and NPS recommended flow releases of 225 cfs in the bypass channel for recreation purposes four times a year for 4 to 6 hours. The MDNR and WDNR oppose artificial recreation flow releases in the bypass channel. MDNR maintains that such flows are similar to peaking; and the WDNR maintains that orchestrated flows for the purpose of providing whitewater boating is not consistent with the wild river designation.

WEPCO also opposes the recreation releases because of a concern for public safety, effect on aquatic habitat, and effect on run-of-river operation. We recommend that recreation flow releases not be provided because natural high flows provide sufficient whitewater opportunity. This is further detailed in Section V.B.8—"Recreation."

FWS requested that WEPCO develop and implement a plan to establish limits on ramping rates in the bypass channel when recreational flow releases occur. Because we do not recommend that WEPCO provide recreation flow releases, ramping rates are not an issue. Further, with our recommendation for a continuous flow in the bypass reach, ramping rates at other times such as plant shutdown would be unnecessary because there would never be a time that flow releases were discontinued to the bypass reach. Thus, no fish stranding would occur.

Under the dam removal alternative bypass, flow releases would no longer be an issue because the river would be restored to a natural, free-flowing condition.

c. Compliance monitoring

WEPCO agreed to fund the reactivation of the USGS gage 1.9 miles downstream of the project. WDNR, MDNR, and FWS request that WEPCO also provide telemetry at the gage station, contending that telemetry will allow them regularly to monitor river flow.

WEPCO is opposed to providing telemetry capabilities for the unit, stating that it is not needed to monitor compliance because compliance will be based on headwater elevation.

We support WEPCO's proposal to fund the reactivation and maintenance of the USGS gage. Further, while we agree with WEPCO that headwater elevation compliance will be monitored by the level sensor at the Taintor gate, a telemetered gage would be useful to resource agencies to monitor project operations. Run-of-river operation could be verified by checking the river flow at regular intervals to assure that peaking operation is not occurring. We recommend that WEPCO fund the reactivation, maintenance, and telemetry at the USGS gage down-stream of the dam. The gage should be constructed in a manner that will blend in with the natural setting, consistent with the "wild river" designation. Therefore, we also recommend that location of the gage be determined in consultation with the WDNR Wild Rivers Coordinator.

WDNR, FWS, and MDNR request that a staff gage be installed on the dam for public monitoring of compliance. The agencies state that the gage would also be useful for agency staff to conduct periodic compliance checks. WEPCO is opposed to installing staff gages, stating that public inquiries are few

and that the plant electronic sensors provide more accurate information for compliance demonstration.

During subsequent consultation at the 10(j) meeting, WEPCO agreed to work with the agencies to provide a staff gage in the reservoir. We concur with WEPCO's willingness to install a staff gage visible to the public showing the reservoir operating range. This would provide both staff and visitors to the project the ability to monitor reservoir water surface elevations.

FWS and MDNR also recommended a staff gage be installed in the bypass reach to measure compliance with the 27 cfs continuous minimum flow. WDNR recommended that WEPCO install a staff gage or other mutually agreeable means to demonstrate compliance with the bypass flow. We concur with the agencies that WEPCO must demonstrate compliance with the minimum flow requirement. However, until WEPCO identifies the mechanism they will install to provide the continuous minimum flow, we cannot recommend the best method to demonstrate compliance.

Because of the low cost associated with a staff gage, we recommend that WEPCO install one in the bypass reach for public and agency viewing, although we do not recommend that this necessarily be used to measure compliance with the 27 cfs minimum flow requirement. In our judgement, a staff gage in the bypass channel would not be the most accurate means of measuring compliance because the steep grade and irregular channel bottom would not lend itself to an accurate stage-discharge relationship. In the 10(j) meeting, we recommended that—as part of its consultation with agencies on how to provide a year-round flow to the bypass reach—WEPCO develop a method for how compliance will be demonstrated. The agencies agreed with this approach.

We recommend that, as part of WEPCO's consultation with agencies on how to provide a year-round flow to the bypass reach, WEPCO develop a method for how compliance will be measured.

WDNR, MDNR, and FWS request that the electronic headwater and tailwater level sensors be maintained throughout the term of the license and that operational data be recorded every 30 minutes to demonstrate compliance. WEPCO proposes to continue its current 60-minute recording interval.

Based on a review of hourly operational data, we conclude that the headwater elevation does not change quickly enough to warrant 30-minute observations. The operational data provided demonstrate that 60-minute observations sufficiently characterize changes in headwater elevation. The resource

agencies provided no evidence that 30-minute recording would provide any better data than 60-minute recording. We recommend that WEPCO continue to record operations data every 60 minutes.

WDNR and FWS request that WEPCO develop and implement a plan to monitor compliance with the operational requirements of the license. WEPCO did not respond to this recommendation. We recommend that WEPCO prepare an operational monitoring and compliance plan within one year of license issuance, and in consultation with the agencies. It should address compliance demonstration methods, procedures during power outages and other emergencies, reservoir draw-downs, how the plant and turbines will be operated during low-flow conditions, and flow releases. Operating data should be summarized in an annual report to be submitted in the Commission and agencies. The operational compliance plan should be updated every five years.

Under the dam removal alternative, compliance monitoring would no longer be an issue.

d. Flow during power outages

WDNR and FWS recommends that—in the case of plant blackout[2]—WEPCO be required to restore run-of-river operation within minutes. WEPCO proposes to reestablish flow rapidly, but states that during certain conditions it may take longer than a few minutes. During the ice-free season, WEPCO would use remote operations to restore run-of-river flow in the event of a power outage. However, during the ice-in period, WEPCO states that remote operation of the spillway gate may damage the gates. WEPCO proposes that, if flow cannot be re-established, an operator be dispatched to the site to re-establish flow.

We recommend that WEPCO do everything possible to restore flow through the plant quickly without causing damage to equipment. During non-winter months, flow should be restored within minutes by remote operation of a Taintor gate. We acknowledge that flow restoration may take more than several minutes during ice-in conditions because an operator would have to be dispatched to the site. We do not recommend requiring remote operation of the spillway gates during ice-in conditions if it will damage the equipment.

If the dam were removed, this would no longer be an issue.

[2] The applicant defines "plant blackout" as a period when the plant trips off line and is out of service.

e. Reservoir draw-downs

WDNR requests notification of an emergency draw-down within 24 hours, consultation on flow level restoration, and a report within 30 days that outlines the actions, remedial measures taken, and measures to prevent a recurrence. MDNR requests notification within 24 hours of an emergency draw-down.

WEPCO proposes to notify the Commission as soon as possible, and to copy the agencies following an emergency draw-down. WEPCO also proposes to notify the Commission and agencies as soon as possible in advance of a planned draw-down.

Reservoir draw-downs can adversely affect aquatic life, wildlife, recreation, and water quality. We recommend that WEPCO notify the Commission, WDNR, MDNR, and FWS following an emergency draw-down and in advance of a planned draw-down so that the resource agencies can assess and minimize adverse environmental effects. While ultimate responsibility for determining appropriate protection measures rests with the Commission, the request for 24-hour notification is reasonable. Similarily, we recommend that, whenever possible, WEPCO be required to notify the agencies no less than 30 days in advance of a planned draw-down.

If the dam were removed, reservoir draw-downs would not be an issue.

f. Water quality

WDNR requests that WEPCO begin a water quality monitoring program within five years of license issuance. The agency requests that dissolved oxygen (DO), pH, and temperature readings be taken in the tailrace every 30 minutes from July 1 through September 30 and DO and temperature profiles be taken at one meter intervals in the reservoir once per week. WDNR recommends that the monitoring program be repeated once every five years for the duration of the license to ensure that water quality will not be degraded because of run-of-river operation or future changes in the basin. DOI also recommends a plan to periodically monitor water quality downstream of the project, although it provides no specific recommendation for monitoring frequency or parameters.

WEPCO is opposed to providing water quality monitoring, stating that it has demonstrated that water quality is good in both the reservoir and the river downstream of the project.

Operation in a run-of-river mode rather than a peaking mode should not adversely affect water quality. Water is withdrawn from the reservoir surface rather than the bottom, which minimizes the possibility for DO problems in the tailrace (reservoir bottom water typically has less DO in it). WEPCO performed continuous monitoring of DO, pH, and temperature in the tailrace from April through November 1990 (see Table 1). A comparison of the Pine River tailrace data with the Wisconsin state water quality standards shows that water quality in the tailrace is generally very good and well within state standards.

Table 1. 1990 water quality data.

Location	DO (mg/L)	Average pH (S.U.)	Temperature (C)
Pine River tailrace [1]	5.6-15.0	7.8	1-27
Wisconsin Standard [2]	> 5.0	6-9	< 32

[1] WEPCO Application, Appendix 7.
[2] Wisconsin Administrative Code NR 102.4.

We compared the 1990 tailrace monitoring data with quarterly grab samples collected by the USGS on the Popple River, an upstream tributary of the Pine River. Although only two of the quarterly samples were useful for comparison during the critical summer months, both samples showed very good agreement with the data from the Pine River tailrace. Therefore, we found no evidence that the Pine project is degrading water quality in the Pine River tailrace. Figures 3 and 4 show that the project has minimal effect on DO.

Additionally, the Pine River watershed is protected from future development and disturbances through the state wild river designation. WDNR has alleged no present or past water quality problems at the project, nor has WDNR stated that the project water quality prevents them from achieving fishery management objectives down-stream of the dam. This suggests that quality of water in the Pine River does not adversely affect environmental resources. However, periodic monitoring to demonstrate that this valuable resource continues to exhibit good water quality is a reasonable request. Because the monitoring would be required only once every five years, it would not place undue burden on WEPCO, nor is it excessive for its stated purpose. We recommend that WEPCO implement the water quality monitoring plan as recommended by WDNR.

Dam removal would temporarily increase pollutant levels in the river. Turbidity, total suspended solids (TSS), total dissolved solids, nutrients, and biochemical oxygen demand would likely increase and DO would decrease downstream during dam removal. Appropriate erosion control measures could minimize adverse impacts.

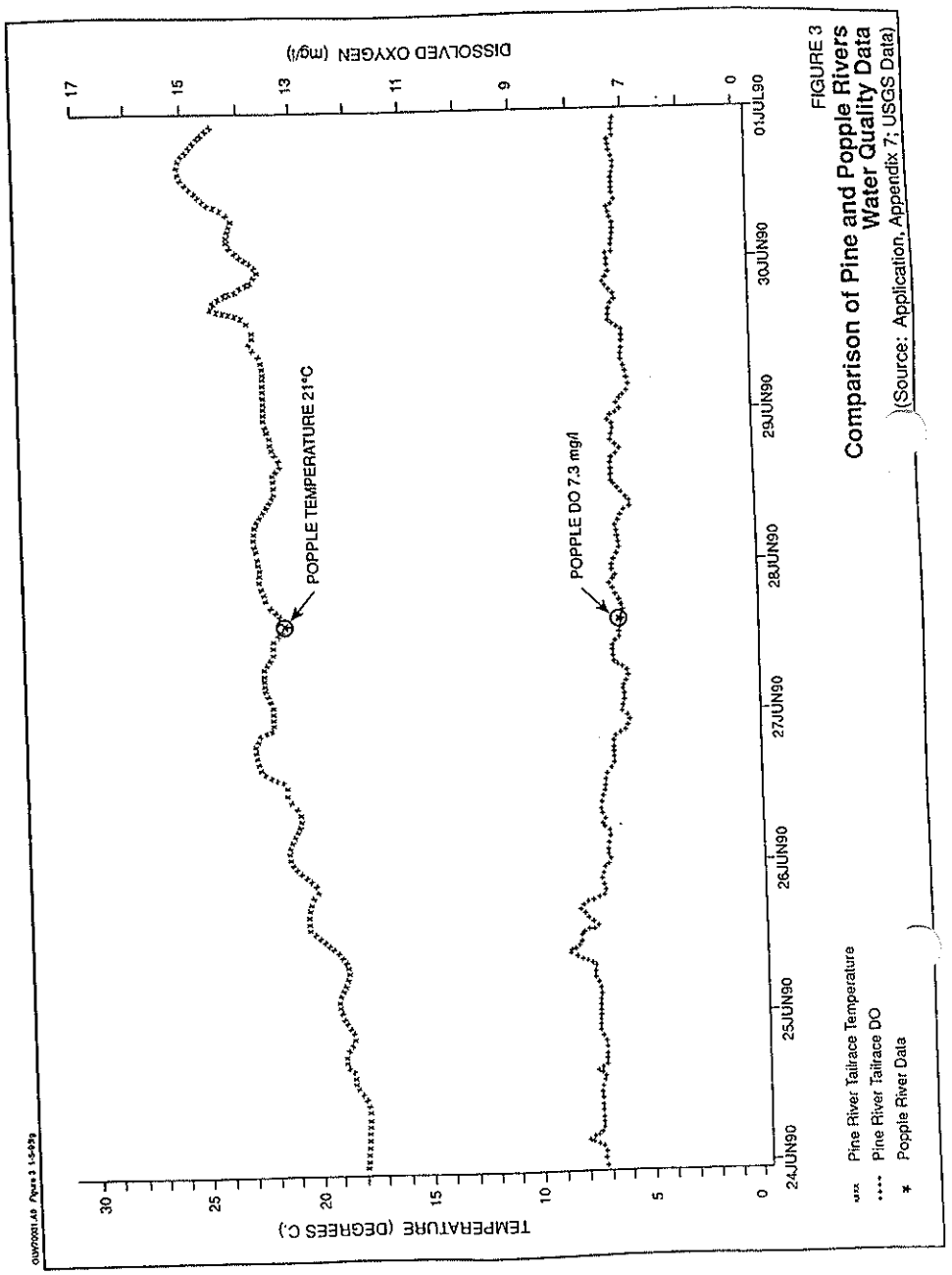

FIGURE 3
Comparison of Pine and Popple Rivers Water Quality Data
(Source: Application, Appendix 7; USGS Data)

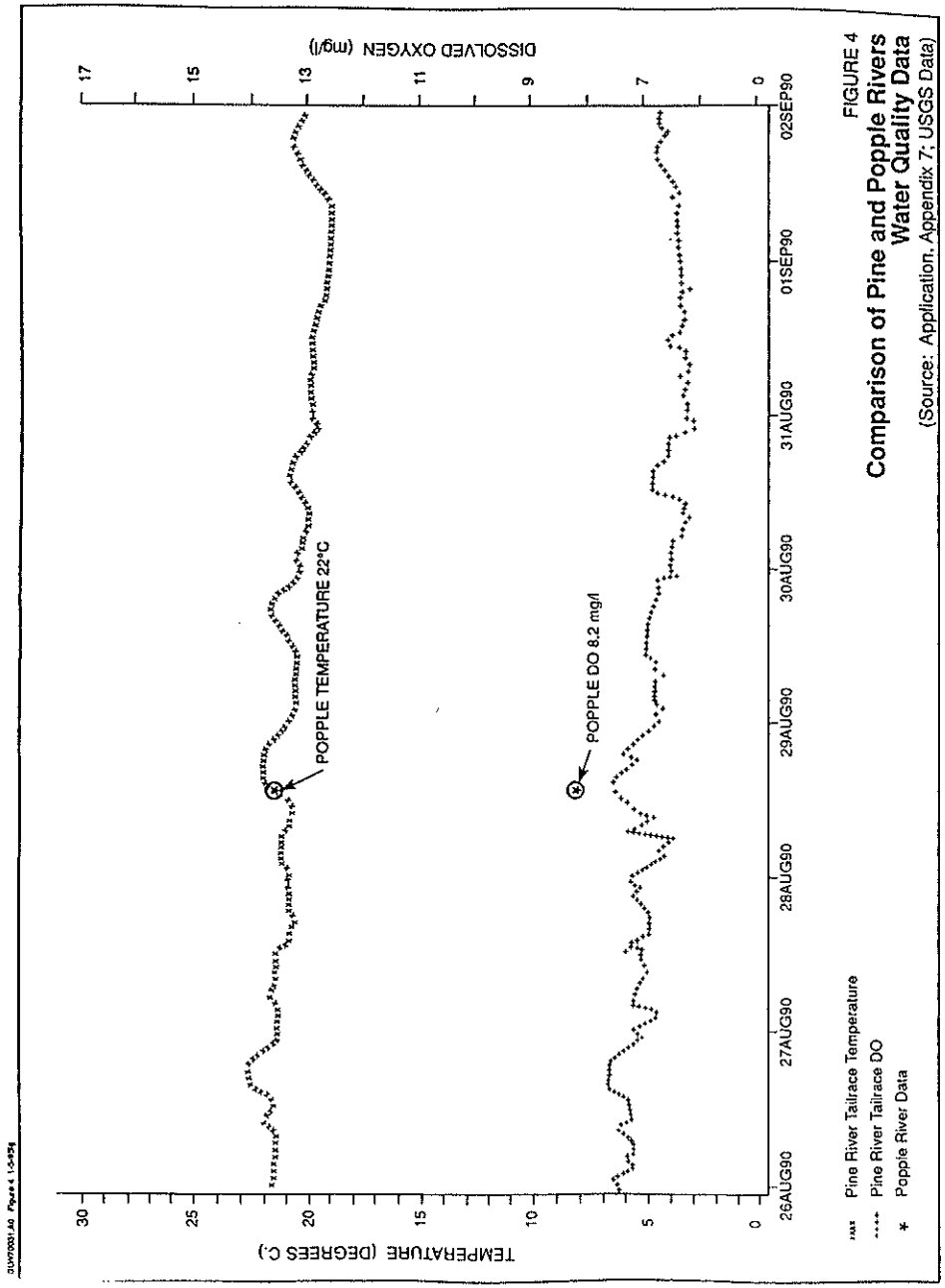

FIGURE 4
Comparison of Pine and Popple Rivers Water Quality Data
(Source: Application, Appendix 7; USGS Data)

Under the dam removal alternative, the impoundment would be returned to a riverine environment. This would affect fish resources through physical habitat and water quality alterations, and would be beneficial for some riverine fish species. Further, dam removal would restore fish passage and eliminate fish losses due to turbine mortality.

Dam removal would create approximately 2.3 miles (about 20 acres) of river habitat but would result in the loss of 180 acres of reservoir habitat. This could potentially eliminate panfish populations and would reduce, through habitat loss, populations of smallmouth bass, largemouth bass, walleye, and northern pike that currently inhabit the flowage. The additional 2.3 miles of river habitat in the flowage area would eventually result in locally improved conditions for brook and brown trout. However, it could take years before the flowage channel stabilizes, develops riparian vegetation for shade and fish cover, becomes cleared of fine sediments, and establishes riffle/run/pool river habitat features. Despite the enhancement of the river habitat, dam removal would cause the net loss of 160 acres of aquatic habitat and would result in an overall reduction in fish and benthic invertebrate production.

In downstream areas, physical habitat would be affected primarily by fine sediment (silt, sand, and clay) following dam removal. The transport of large woody debris from the reservoir area to downstream reaches is not anticipated. Fine sediments could be released for years while the former flowage stabilizes. Downstream sediment accumulations could temporarily fill pools, reduce interstitial gravel spaces, and result in reduced short-term production in invertebrate and fish populations. Once the flowage area is stable, downstream habitats should return to their present status. Enhanced downstream production in fish and benthic invertebrate populations is not anticipated following dam removal.

b. Instream flows in bypassed reach

WDNR, MDNR, and FWS recommend that a continuous minimum flow of 27 cfs be maintained in the bypass channel. This minimum flow could be temporarily modified due to operating emergencies or upon agreement between WEPCO and the state fishery resource agencies.

In the DEA, the text stated that WEPCO proposed to pass 27 cfs through the bypass channel during the ice-free period (generally April 1 through November 30) but was opposed to providing a winter release. We concurred with the general desirability of a 27-cfs minimum flow release to the bypass channel throughout the year, allowing benthic macroinvertebrates, forage fish, and small game fish to recolonize the channel, and allowing fish access to the lower portion of the channel from the mainstem of the Pine River.

We concluded that a winter release to the bypass channel was not justified due to: (1) the high cost to provide (originally estimated at $200,000); and (2) the potential freezing of the water, which would nullify the intended environmental benefit.

At the 10(j) meeting and in subsequent letter filings, agencies identified other projects where year-round bypass release flows were provided in a more cost-effective manner.

Upon review of other projects, WEPCO concluded that it may be able to provide a year-round bypass flow release at the Pine Project similar to the way bypass release flows are provided at Wisconsin Public Service Company's (WPSC) Grandfather Falls Project (a 50-cfs flow is provided to its bypassed reach). At that project, WPSC modified its Taintor gates by welding three 6-foot-long, 18-inch-diameter iron pipes containing valves over holes in the gates. Grates upstream of each pipe act as trashracks. Air valves installed upstream of the water valve are used to pressurize the pipe and blow back debris when necessary. The valves are also equipped with infrared heat to prevent freezing in the winter months. WPSC's cost of installation was $49,500 in 1985 dollars. We developed our own independent estimate of the probable cost to provide a year-round flow similar to that at the Grandfather Falls Project. We looked at current equipment costs and concluded that a similar system could be installed for approximately $107,000 in 1995 dollars.

In light of this new information, we reconsidered the agencies comments regarding the benefits of a flow release for fisheries and aesthetic enhancement. We conclude that, so long as the 27 cfs release does not freeze in the bypass channel, providing a winter bypass flow would benefit aquatic habitat, and aesthetics as well. Therefore, we recommend that WEPCO provide a year-round release of 27 cfs to the bypassed channel. We recommend that WEPCO incorporate into its operational monitoring and compliance plan the following measures relating to the bypassed reach flow: (1) a method for documenting compliance, and (2) an agency notification procedure if the release needs to be terminated due to dam safety reasons, or due to flows freezing in the reach. The operation and compliance plan should be prepared in consultation with WDNR, MDNR, and FWS and submitted to the Commission for approval within one year of license issuance.

The NPS and AWA recommend special flow releases of 225 cfs to the bypass channel for whitewater boating. MDNR is opposed to providing special recreation flows, stating that they are similar to peaking flows in their effects on aquatic habitat in this reach. WDNR states that providing recreation flows is not consistent with the intent of the state wild river legislation. WEPCO is also opposed to providing special recreation release flows. We do not agree with the NPS or AWA

recommendations for periodic releases of 225 cfs for the benefit of whitewater boaters because naturally occurring flows permit whitewater boating to occur 32 days annually. This is further detailed in Section V.B.8—"Recreation."

Under the dam removal alternative, provision for flow releases in the bypassed reach would no longer be necessary. This channel would no longer be bypassed but would be the main channel through which all water would flow. This would benefit fish and fish habitat as natural flows would allow benthic invertebrates and forage and small game fish to recolonize the channel.

c. Fish passage

DOI requests reserved authority to prescribe the construction, operation, and maintenance of fishways pursuant to Section 18 of the FPA. WDNR and MDNR have also requested the authority to require WEPCO to provide fish passage facilities at a future date. The two agencies have stated that they would request such facilities only after development of a river management plan.

WEPCO is opposed to an article reserving authority to prescribe fish passage facilities, stating that fish passage at the project is not a reasonable goal. It has further requested that DOI not exercise its Section 18 authority until after WDNR has prepared and filed its Comprehensive River Management Plan for the Pine River with the Commission.

We recognize that future fish passage needs and management objectives cannot always be predicted at the time a license is issued. Although DOI is not recommending fish passage facilities be installed at this time, we will include a license article reserving their prescription authority[3]. Once fisheries management objectives have been developed, WDNR or MDNR may request fish passage under the provisions of the Standard Article 15 (which will be included in the license), or through DOI, which may request fish passage in the future under Section 18.

Under the dam removal alternative, we do not expect upstream fish passage to be substantially enhanced because two sets of rapids and one waterfall (Twin Falls), that are currently inundated by the flowage would serve as natural barriers to upstream fish passage. It is possible that fish would be able to ascend the rapids and waterfall under some flow conditions but not under all conditions. The dam removal alternative

[3] Section 18 of the FPA states "The Commission shall require construction, maintenance, and operation by a licensee at its own expense of . . . such fishways as may be prescribed by the Secretary of Commerce or Secretary of Interior as appropriate."

would, however, enhance downstream fish passage by eliminating the dam structure itself, which would eliminate turbine-related mortalities.

d. Fish screens

The fishery resource agencies (FWS, WDNR, MDNR) and WEPCO have agreed on an approach for fish protection. The proposed approach involves installing a barrier net below the power canal log boom, as well as conducting a study to monitor the net's effectiveness. In consultation with the agencies, WEPCO would conduct a performance evaluation within two years of license issuance.

WDNR and FWS recommend that WEPCO compensate for unavoidable losses due to fish protection ineffectiveness. The monies paid would go to a special fund that would be used only on the project reach of Pine River. WDNR also states that the value of a fishery exceeds the cost of producing a fishery and that compensation for fishery losses should be adjusted accordingly.

WEPCO does not consider compensation for residual fish losses appropriate. It argues that the barrier net system proposed should be at least 85 percent effective and that no fish protection device would be completely effective. WEPCO also states that the flowage created by the project provides the aquatic habitat necessary for the success of the game fish populations that make an important local fishery possible.

In the DEA, we recommended that compensation would only be appropriate if the barrier net or other protection measures proved ineffective. In response to agency comments on the DEA, we reconsidered the issue of compensatory mitigation for residual, unavoidable fish losses beyond barrier net effectiveness at the Pine Project.

Although a site-specific field study of entrainment mortality was not conducted at the Pine Project, we estimated the replacement cost of fish killed by entrainment to place in perspective the cost of compensatory mitigation without the barrier net. The methods and results of our entrainment mortality analyses are presented in Appendix A. For our estimates we used the replacement values derived by the American Fisheries Society (1992). We do not agree with WDNR's recommendation that the appropriate value of lost fish would be the state's restitution value. This would constitute an assessment of damages, and it is well established that the Commission has no authority to adjudicate claims for, or require payment of, damages (Ohio Power, 71 FERC 61,092 (1995)). Fish killed would be mostly small, young fish that could be replaced by stocking without notable losses to the quality or recreational value of the fisheries. Our estimated cost to replace (in 1989 dollars) fish at the Pine Project is

$9,000 per year if a barrier net is not used. The estimated $9,000 is intended as a basis for compensatory mitigation or enhancement. We recognize that this is an approximation. Further refinement of these figures, however, would require extensive post-licensing field studies, which would cost on the order of $300,000 to $500,000. We conclude that the benefits derived from such studies would not be commensurate with the costs and that our extrapolation estimates are conservative. We conclude that WEPCO's plan to install a barrier net and conduct post-monitoring effectiveness studies adequately protects the fishery resource and that compensation for additional fish loss is unwarranted. Therefore, we continue to recommend that compensatory mitigation or enhancement for unavoidable losses be required only if the barrier net proves to be ineffective.

We recommend that WEPCO develop a fishery protection/resource protection or enhancement plan in consultation with the WDNR and DOI and submit it to the Commission for approval. The plan should include methods for evaluating the barrier net's effectiveness and criteria for determining if its use should be continued indefinitely at the Pine Project. The plan should also include alternate forms of resource protection or enhancement—should the barrier net prove ineffective and compensatory mitigation be required—with the goal being to balance the project-caused resource loss with roughly proportionate resource gain.

After WEPCO's evaluation of the barrier net is complete, we recommend that the Commission revisit the issue of compensatory mitigation/enhancement. If the Commission determines at that time that use of the barrier net is ineffective and should not continue, WEPCO could be required to institute compensatory mitigation or enhancement measures.

In the event that future compensatory mitigation were to be required by the Commission, any monies allocated by WEPCO would be allocated specifically for resource-based mitigation or enhancement activities in the Pine River basin. Mitigation or enhancement could include such activities as fish stocking and habitat improvement projects.

WEPCO or the resource agencies should submit annual resource enhancement status reports for Commission review. The status reports should include barrier-net deployment and effectiveness monitoring results, as well as implementation of any other mitigation and enhancement measures. The Commission reserves the right to require changes in the fisheries enhancement program as necessary.

If the dam were removed, the need for screens or other fishery protection measures would be eliminated.

Unavoidable adverse impacts: As long as the project remains in place, no fish screening system would be completely effective, and there would be unavoidable fish losses to entrainment and turbine mortality. With implementation of the proposed barrier net, such losses would have minimal effect on fishery resources.

Under the dam removal alternative, we expect turbidity increases to persist for several years while accumulated sediment in the flowage area stabilizes, which would, in turn, reduce algal, benthic invertebrate, and fish production. After the area stabilizes, downstream algal, benthic invertebrate, and fish production should return to current levels. This alternative would also reduce the amount and diversity of fish because of the loss of flat water habitat. The loss of the reservoir would reduce, and in some cases eliminate, existing panfish populations.

4. Threatened and Endangered Species

Affected environment: The bald eagle (*Haliaeetus leucocephalus*), a federally listed endangered species, has been known to forage the area and nest on project lands. A nest is located west of the Pine flowage, although it has been inactive since 1989. The project is also within lands listed as potentially suitable habitat for the gray wolf (*Canis lupus*), a federally listed endangered species.

Bird species of state interest observed in the Pine flowage and tailwaters include the great blue heron (*Ardea herodias*), common merganser (*Mergus merganser*), osprey (*Pandion haliaetus*), yellow-throated vireo (*Vireo flavifrons*), and the black-and-white warbler (*Minotilta varia*).

WDNR indicated that a wood turtle (*Clemmys insulpta*) was observed below the project in 1988. Dragonfly species of special concern identified downstream of the project are *Ophiogomphus carolus*, *Gomphurus ventricosus*, and *Hylogomphus brevis*. No fish, reptiles, amphibians, or invertebrates of special interest were observed during the field investigations conducted by WEPCO.

Environmental impacts and recommendations: In its July 8, 1993 letter, the FWS concluded that the federally endangered bald eagle and grey wolf would not be affected by project operations, and that Section 7 consultation under the Endangered Species Act was not necessary.

The WDNR and FWS support WEPCO's bald eagle management plan but requests that WEPCO preserve all trees that extend beyond the average canopy height ("supercanopy trees") as available

nesting sites for bald eagles in the future. WEPCO agrees to preserve such trees as practicable but states that it needs the latitude to be able to remove trees that threaten the integrity of its transmission system, the plant, or dam operation.

We agree that WEPCO should be able to remove trees that threaten the safety of the project. Therefore, WEPCO should preserve supercanopy trees on its lands to the extent that they do not interfere with project operations.

WDNR states that the following state-threatened or state-concern species have a high probability of occurring at the site and recommends that WEPCO conduct endangered resource surveys and impact assessments:

- Northern blue butterfly (*Lycaeidea idas nobokovi*)
- Dwarf bilbery (*Vaccinium cespitosum*)
- Marsh valerian (*Valeriana sitchensis*)
- Goblin fern (*Botrychium mormo*)
- Plains ragwort (*Senecio indecorus*)
- White adder's mouth (*Malaxis brachypoda*)
- Blandings turtle (*Emydoidea blandingi*)
- Hairy beardtongue (*Penstemon hirsutus*)

WEPCO is opposed to performing such surveys but is willing to support and assist WDNR with surveys for state special concern, threatened, or endangered species that have a high probability of occurring at the project. WDNR also requests that WEPCO conduct a survey of potential wood turtle potential nesting sites and impact assessment and a fresh water mussel survey, and that it integrate protection practices into its land management plan. WEPCO has agreed to perform a freshwater mussel survey for the project. WEPCO has also agreed to conduct a shoreline survey for wood turtle nesting sites, but does not agree that an intensive population study is warranted because the proposed run-of-river operation should benefit wildlife resources by providing more stable headwater and tailwater elevations.

It is inappropriate for WEPCO to be required to survey its project lands for state-concern species that are not potentially affected by project operations. Additionally, WEPCO's land management plan requires that surveys be undertaken before land disturbing activities are performed.

We agree with WEPCO's willingness to conduct a freshwater mussel survey and a shoreline wood turtle survey. If surveys reveal the presence of these species, WEPCO should modify its land management plan appropriately.

The dam removal alternative would not appreciably alter the features of the project that would be important to the bald eagle or grey wolf. Given the limited use of the project area

by those federal endangered species, we find that—with the exception of possible temporary construction impacts during dam removal—this alternative would have no long-term effect on them.

Removal of the dam would affect both the wood turtle and freshwater mussels if they exist in the reservoir. The wood turtle, a semi-terrestrial species, lives along forest streams. Removing the dam would displace turtle nesting sites along the forested reservoir shoreline. Its habitat would be displaced from this section of the river while forest vegetation reestablished and matured. Once the shoreline was reforested, turtles could use the habitat area again.

Removal of the dam could lead to loss of freshwater mussel habitat if reservoir sediment were removed, or as the mussels washed downstream. Freshwater mussels need a soft substrate bottom to survive in. Once sediment was removed, the riverine conditions in the area (rocky substrate) would not support the species. There is little potential for freshwater mussels to repopulate once riverine conditions are restored. Mussels are dispersed by attaching to fish gills. Given the sets of rapids and the waterfall that serve as natural barriers to upstream fish passage once riverine conditions were restored, potential for increased dispersal would be very low.

Unavoidable adverse impacts: Removal of the dam would, over the short term, destroy the habitat of the wood turtle. Loss of the reservoir would permanently destroy habitat that might support freshwater mussels (soft, substrate bottom). The river's rocky bottom, combined with natural barriers to fish movement, would limit future habitat for freshwater mussels.

5. Terrestrial Resources

Affected environment: Vegetation and wildlife habitat in the project vicinity are relatively pristine because of the wild river protection status and WEPCO's land management program. The area is heavily forested and contains a variety of deciduous and coniferous tree species.

There are four major wetland areas along the reservoir, providing a total of 84.7 acres of various wetland types. The wetlands are located around the west end of the flowage and along the smaller tributaries to the Pine River. Swamp conifers are found in a few small low-lying areas along the shore, and are most notable around the north end of the flowage.

Environmental impacts and recommendations:

a. Wetlands

Under WEPCO's proposed change from peaking to run-of-river mode, there would be no loss of acreage of existing wetlands. The change to run-of-river mode would protect wetlands by providing relatively stable reservoir levels.

WDNR, MDNR, and FWS have requested that WEPCO monitor the project area for purple loosestrife (a wetland invading plant), and that if it is detected, the applicant coordinate with agencies to implement a plan to control its spread. Currently, purple loosestrife is not present in project area wetlands. WEPCO has agreed to report any findings to WDNR and is willing to coordinate with WDNR on eliminating the plant if it is found within the project boundary.

Purple loosestrife was introduced from Europe. Often, it grows profusely, at the expense of the native wetland vegetation, reducing wildlife habitat value of wetlands. Measures available to control purple loosestrife are limited. However, recognizing the need for protection of the wetlands in the Pine flowage from purple loosestrife invasion, we recommend the licensee, in consultation with WDNR, develop a monitoring plan, to be submitted to the Commission for approval, and upon approval, be implemented. The plan would be part of the land management plan, to be filed after license issuance. It would include but not be limited to: (a) a description of the monitoring methods; (b) a monitoring schedule; and (c) a schedule for providing the monitoring results to the WDNR. Furthermore, if at anytime the agency deems it necessary to control/eliminate purple loosestrife, and there is a biologically safe method of removal available; the licensee should cooperate with the WDNR to control/eliminate the plant.

The dam removal alternative would potentially eliminate or degrade wetlands associated with the reservoir that are dependent on the slow water and sediment that occurs in the reservoir. Dam removal would increase water velocity in the area, reduce the amount of area inundated, and reduce the amount of sediment. The portions of wetlands along the tributaries to the Pine River are supplied by surface water runoff, as well as the tributaries themselves, and are not completely dependent on water from the reservoir. Over time, the wetland areas would likely be smaller in size, and changed in composition and type of habitat they support. Dam removal and restoration of the natural channel may also lead to new wetlands along the riparian corridor.

b. Uplands

The WDNR and FWS request that WEPCO preserve all trees that extend beyond the average canopy height ("supercanopy trees") for protection of bald eagles. The applicant has agreed to this as long as it has the latitude to remove trees that threaten the integrity of dam its transmission system, the plant, or dam operation. We agree, and discuss this issue under V.B.4--"Threatened and Endangered Species."

Under the dam removal alternative, removal of project facilities, including the powerhouse, dam, reservoir, and appurtenant facilities, would result in about 200 acres of recovered land that would need to be revegetated. It is expected that most of this area would eventually support the same plant communities that grow on adjacent undisturbed sites.

Unavoidable adverse impacts: The dam removal alternative would lead to a change in the size and composition of wetlands.

6. Aesthetic Resources

Affected environment: The project area, located in the scenic northwoods, is a high-quality visual resource. The characteristic landscape of the project area is forest. The region offers moderate relief, including bedrock hills and incised stream valleys. The natural wilderness quality of the impoundment shoreline offers a high quality visual experience. The bypassed reach below the dam is generally steep and rocky, and the elevation drops 35 feet over a 0.4-mile stretch. The bypassed reach of the Pine River between the dam and powerhouse exhibits little hydraulic expression, because most of the time it is de-watered. The area is relatively remote, far from highways or well-traveled county roads, and is heavily wooded. The few people who view the area are those who come specifically to visit.

The Pine-Popple Wild Rivers Master Plan establishes WDNR policy for vegetation management around the project area. It protects lands within 150 feet of the shore from management, except where necessary to control erosion or to conduct restoration activities. The plan also stipulates that lands between 150 to 400 feet from the river be managed to maintain the forest environment to its greatest potential for scenic enjoyment. These policies have created a pristine, natural environment along the river.

Environmental impacts and recommendations:

a. Aesthetics at recreation sites

WEPCO's proposed recreation enhancements would have no material effect on the visual quality of the forest environs. We believe that the recreation improvements would be compatible with the Pine-Popple Master Plan. The recommended action in the Pine-Popple Master Plan (VIII.C and VIII.D of the Pine-Popple Wild Rivers Master Plan, 1981) calls for continuing to provide access and camping facilities at existing locations, of which WEPCO's sites are specifically identified. The Plan states that such facilities should be well screened from the river. Site 24, where improvements are proposed, is heavily landscaped and visually buffered from the water. Recreation Site 34, however, is in a more open area, and WEPCO maintains that it is impossible to provide complete screening of the boat launch area because of the site's proximity to the earthen dike (which must be maintained free of woody growth). WEPCO agrees to work with WDNR to establish plantings where appropriate and practical. They also agree to place any future development outside the 150-foot protection zone. To protect the visual appearance and further enhance the wilderness character of the area and recreation sites, we recommend that WEPCO modify its land management plan (LMP) to include provisions for consulting with the WDNR Wild Rivers Coordinator prior to any land disturbing activities.

b. Bypass channel flows

WEPCO, after consultation with WDNR, MDNR, and FWS, has recommended a year-round flow release of 27 cfs in the historic channel to benefit both fisheries and aesthetics. Diverting 27 cfs to the bypassed reach would enhance the river's visual character. These flows would provide access along the rock outcroppings for viewing at each of the three drops. We conclude that the 27-cfs bypass flow would benefit the aesthetics in the 0.4-mile bypassed reach and recommend no further enhancement for visual impacts in the bypassed reach.

c. Aesthetics if dam were removed

The dam removal alternative would, in the long term, fully meet the wild rivers goal of restoration of the river to its natural, free-flowing condition and restoration of the surrounding environment. The long-term benefits would include restoration of the impounded falls and rapids (two 8-foot falls, one 12-foot fall, and 0.5 mile of rapids), revegetation of the shoreline, and removal of the most significant manmade structure on this river. Removal of the dam would be consistent with the goals and policies of the wild river program to restore the river's natural beauty and aesthetic quality.

In the short term, the dam removal alternative would adversely affect aesthetic quality of the environment. Lowering of the water level at the project reservoir would expose old stumps, mudflats, and debris and create a visual contrast with the dense vegetation along the shoreline. Large equipment moving sediment and other materials would also degrade the scenic environment. Within a few years, shrubby and herbaceous vegetation would blend with the existing mature forests found in the area.

Unavoidable adverse impacts: During the draw-down period and the process of project removal, the visual environment would be adversely affected. Regrowth of shrubby and herbaceous vegetation would take a few years. The permanent loss of the scenic water body would replaced by the free-flowing river with waterfalls and rapids.

7. Cultural Resources

Affected environment: WEPCO conducted a survey of cultural resources that included evaluating all structures within the project area and in a one-mile buffer zone around the project limits. It also surveyed the five-mile flowage for archaeological resources. In its letter of February 5, 1992, the State Historic Preservation Officer (SHPO) concurred that the hydroelectric facility was historically significant and eligible for nomination to the National Register of Historic Places. NPS Form 10-900 was completed and submitted to the SHPO. SHPO also concurred that the two archaeological sites that were discovered were ineligible for listing in the National Register.

WEPCO submitted its Cultural Resources Management Plan (CRMP) on January 4, 1993. The SHPO indicated, in its letter of January 26, 1993, it would withhold comments pending development of the statewide Programmatic Agreement. The Statewide Programmatic Agreement was signed by the Commission, the Advisory Council on Historic Preservation, the Wisconsin SHPO, and the Michigan SHPO in December 1993. However, no additional comments relative to the Pine Project were submitted subsequent to the signing.

Environmental impacts and recommendations: The hydroelectric plant would not be affected by the proposed changes to project operations (changing to run-of-river mode and environmental enhancements). It is possible that undiscovered properties in the project area could be affected adversely by future activities. Any sites discovered during project operation or during ground-disturbing activities other than those approved in the license would be protected by the statewide Programmatic Agreement and CRMP. We recommend that the Programmatic Agreement and the CRMP be incorporated as a license condition to ensure protection of any future finds.

Under dam removal, the hydroelectric facility powerhouse, which is listed on the National Register of Historic Places, would either be removed or could be modified to allow re-use of the facility. Future use potential or effect to the historic character of the facility is unknown.

Unavoidable adverse impacts: Removal of the dam and appurtenant facilities could have an adverse effect on an eligible National Register property depending on potential re-use of the powerplant. It is also possible that previously undiscovered archaeological sites could be affected during removal of the project. The excavation of sediment in the reservoir would likely disturb the original ground surface.

8. Recreation and Other Land and Water Uses

Affected environment:

a. Recreation

The project site is in a region of Wisconsin recognized for natural amenities and recreation opportunities. It is one of the few remaining northwoods areas that has not been exploited by intensive tourism and resort development. The area does not compete directly with the other popular Wisconsin vacation areas, such as Minocqua, Eagle River, Hayward, or Door County, because it offers a recreation environment that is distinctly different—a natural, rustic recreation experience. Major recreational resources in the region include the Nicolet National Forest and county forest lands. The applicant operates 12 other hydroelectric projects in the region, owns a significant amount of land along the rivers and reservoirs, and provides recreation opportunities. Popular recreation activities in the region include camping, fishing, swimming, hunting, and whitewater rafting.

Within the project boundary are two formal recreation areas in which WEPCO provides camping and boat launch facilities. Three campsites are provided at each recreation site, and canoe portage is provided at the dam. Day canoe trips are offered along a 12-mile stretch west of the project area between Highway 101 and the Pine project. Canoeists on the Pine River usually stop at the dam because portaging is difficult and because the river is relatively shallow east of the dam. There are no formal recreation facilities in the bypassed reach or downstream of the dam and power station, although the entire project area is open for dispersed recreation.

An estimated 2,228 recreationists visit the Pine recreation sites annually. This is expected to increase by about 35 percent, to 3,000 user-days, over the next 20 years (Table 2). Nearly half the recreationists visit the project to fish, from both the shoreline and boat. About 14 percent of the user-

days are attributable to camping (Table 3). Other popular recreation activities include swimming, camping, hunting, and snowmobiling.

Table 2. Existing and projected annual recreation user-days (Source: Exhibit E; 10/92 AIR).

Year	User-days
1991	2,228
2001	2,585
2011	3,000

Table 3. Campsite use (Source: Exhibit E and 10/92 AIR)

Year	User-days
1989	369
1990	254
1991	316

The bypass reach exhibits characteristics that offer whitewater boating opportunities. Whitewater boating is possible on the 0.4-mile stretch of the bypass reach of Pine River when flows are 200 cfs or greater (which occurs only during natural high flows). Three major drops in the reach are classified as Class IV on the International Scale of River Difficulty. The lower section of the river (beyond the bypassed reach) is classified as Class II. There are three other stretches along the Pine River upstream of the dam that provide Class II and III rapids. Five other rivers near the project area—Brule, Peshtigo, Pike, Popple, and Menominee—have stretches offering whitewater rapid opportunities. Most are Class I to III whitewater opportunities; the Peshtigo and Menominee rivers have more advanced whitewater opportunities with a combined total of 8 miles of Class IV runs (Table 4). Statewide, there are 42 segments that provide 502.5 miles of whitewater opportunity.

Whitewater boating use in the bypass reach is minimal, and estimated to be less than 10 boaters annually. Several factors contribute to low use, including unreliable flows, poor access, and the shortness of the boatable reach.

Table 4. Nearby whitewater activities (Source: AWA Nationwide Inventory, 2/92, Intervention Exhibit No. 1)

River	Length of Run (miles)	Class
Brule	25 6	I-II II-III
Menominee	4	IV
Peshtigo	16 4	II-III III-IV
Pike	6 3	II III
Pine	21 10 9	II III III
Popple	19 10	II III

b. Land and other water uses

The Pine River is a state designated wild river. The intent of legislation is to preserve the river in a free-flowing condition and to protect it from development. The river receives special management (administered by WDNR) to assure the preservation, protection, and enhancement of its natural beauty and unique

recreational and other inherent values. Part of the intent of the legislation is to restore the natural appearance of river areas that have been artificially modified (NR 302.3(b)). Accordingly, the state has attempted to acquire properties along the river that are not consistent with the legislation. The dam, having been constructed before this designation, is considered a pre-existing use.

Other than the dam and recreation sites, the project lands are forested and managed for timber production. There are no other nonpower uses of water along the Pine River.

Environmental impacts and recommendations

a. Improvements to recreation sites

WEPCO proposes to install fire rings at the existing campsites and to provide barrier-free recreation facilities, consistent with the Americans with Disabilities Act, at Recreation Site No. 24 (including upgraded boating pier, hardened fishing access trail, and restrooms). WEPCO also prepared a Comprehensive Long-Range Recreation Plan to address basinwide recreation needs.

All agencies and intervenors support WEPCO's proposed enhancements. WDNR requests that WEPCO initiate consultation before construction to ensure that recreation improvements conform to the wild rivers intent. WEPCO's proposed recreation improvements would be adequate and would enhance public use of the area. We recommend that WEPCO consult with the WDNR Wild Rivers Coordinator before construction of the improvements.

Under the dam removal alternative, there would be a loss of flatwater recreation opportunities on the reservoir but an increased length of free-flowing river that would be available for other recreation opportunities, including canoeing and whitewater boating.

Removal of the dam would lead to loss of reservoir boating opportunities: recreationists who visit the reservoir to boat fish would not be able to in a fast flowing river. The boat launch facilities at the two recreation sites would no longer be functional. Boating opportunities exist, however, on other nearby lakes and impoundments. The loss of flat water boating would be offset by increased river fishing opportunities, as well as canoe and whitewater boating opportunities. Removal of the dam would restore a 0.75-mile section of rapids that is currently inundated and a 0.4-mile section that is currently de-watered.

Camping at the two recreation sites could be affected under the dam removal alternative. The camping sites would remain usable, but be located farther away from the water than

present. The number of campers might change, given the change in type of recreation activities combined with the distance of the recreation sites to the water. Removal of the dam would lead to a more wilderness recreation experience, which may enhance camping.

b. Canoe portage

WEPCO proposes to relocate the existing canoe portage to provide a shorter and less rugged route. WEPCO originally proposed Route A, which would have been routed south of the power canal and plant, and would have required new construction along most of the trail route. DOI and WDNR agreed with the recommendation to construct Route A with the provision that WEPCO coordinate with WDNR's Wild Rivers coordinator regarding location and specific improvements.

Since release of the DEA for public comment, WEPCO has reevaluated the canoe portage location and concluded that Route B represents a shorter, easier route for canoeists.

WEPCO, therefore, proposes construction of Route B located on the south side of the river. The take-out would be located downstream of Recreation Site 24. Canoeists would then cross the power canal via the existing bridge and continue traveling along WEPCO's service road that runs parallel to the bypassed channel. The put-in would be located below the plant. WDNR, NPS, and AWA all concur with this recommendation.

We concur that Route B represents the best canoe route location. We recommend that WEPCO consult with the WDNR Wild Rivers Coordinator regarding location and specific improvements of the portion of trail that represents new construction (e.g., path width, cover material).

If the dam were removed, an additional portage trail would be needed around the newly exposed 0.75-mile reach of fast water, as all canoeists and most kayakers (except the most experienced) would be unable to maneuver over the falls and through the bypass channel at any flow.

c. Whitewater recreation in the bypassed reach

The bypass channel down-stream of the dam offers whitewater boating characteristics consistent with other whitewater reaches. However, two factors prevent sustained recreational boating interest: (1) lack of sufficient flows in the reach, and (2) lack of knowledge of when natural flows are sufficient to permit whitewater boating. Whitewater recreation is not prohibited at the project in the bypassed channel during high flow periods, but WEPCO does not provide any enhanced access or encourage use of the bypass channel for these activities.

To evaluate the potential for whitewater opportunities in the bypassed reach, NPS and WEPCO sponsored a flow release demonstration in August 1991. Thirteen kayakers and two canoeists participated. WEPCO released flows at about 150, 200, 250, and 300 cfs. The study participants concluded that 225 cfs would be the best flow, with 200 cfs being too "scrapey" and flows beyond 225 cfs acceptable only for the most skilled boaters. Three-fourths of the participants rated the whitewater reach as having regionwide significance. The others rated it as having statewide significance because it would provide Class IV opportunities during a season when few other opportunities exist and because it could be combined with trips through other nearby whitewater runs (specifically, Pier's Gorge). Boaters felt the stretch was unique due to the character and nature of the drops. It was also noted that the drops could offer training for novice boaters.

AWA and NPS have requested recreational releases in the bypass channel of the Pine River. NPS has requested a flow release of 225 cfs for a 4-hour period from 11:00 a.m. to 3:00 p.m., on the third Saturday of May, June, July, and August. AWA also requests at least four recreational flow releases per year, with a flow of 225 cfs for 4 to 6 hours in duration, beginning no earlier than 11:00 a.m. AWA recommends that the flow releases occur on the third Saturday in July and August, as well as July 4 and Labor Day holidays. MDNR opposes providing periodic recreational flows, reasoning that these are similar to peaking flows in their effects on the aquatic habitat in the reach. At the October 14, 1993, site visit, WDNR expressed concern that providing artificial recreation flow releases in the bypass channel which are orchestrated for the purpose of providing whitewater boating at specific times is not consistent with the wild river legislation.

AWA has requested that WEPCO clear a rough path on the north side of the river for recreationists to carry their boats. It has also requested that the license include a means for controlling the number of whitewater releases based on recreation demand. Finally, it has requested that WEPCO institute a telephone hotline to provide flow information for both the hydroelectric facility and the bypass reach.

WEPCO opposes providing recreational flow releases on the basis of public safety and potential liability, disruption of aquatic habitat in the river reach, and effect on run-of-river operation. WEPCO maintains that whitewater activity would be dangerous at the project because of steep, rocky access and the lack of safe viewing areas along the shore. WEPCO also states that the reach may attract boaters lacking sufficient skill to negotiate the run. WEPCO also reasons that it has agreed to provide a minimum flow release of 27 cfs in the bypass channel to enhance aquatic habitat, and that periodic whitewater flows would potentially destroy any aquatic life.

Finally, WEPCO states that it may not be able to comply with the run-of-river operation during whitewater flow releases.

While installing a rough path on the north side of the river would allow boaters to more easily traverse the bypass reach, the Pine-Popple Master Plan stipulates a 150-foot buffer zone along the shoreline in which natural vegetation would not be altered. Therefore, we conclude that a formally designated path along the shoreline should not be constructed.

We evaluated the proposal to provide whitewater flow releases and concluded that special release flows should not be provided in the bypass reach because providing artificial releases for the purpose of providing whitewater boating at specific times is inconsistent with the intent of the wild river legislation, and because natural high flows permit whitewater activities during the recreation season.

We reviewed the monthly flow duration curves to identify whether natural flows could accommodate whitewater boating. The maximum hydraulic capacity of the plant is 640 cfs, so flow to the bypass reach would exceed 225 cfs when inflow to the reservoir is 865 cfs or greater. Between April and September flow exceeds 865 cfs from 5 to 45 percent of the time (Table 4). August is the only month in which flows are below 800 cfs, and therefore would not provide sufficient boating flow to the bypass reach.

We conclude that the bypass reach would have limited appeal to whitewater boaters because of its remote location, limited access, and shortness of the run. We also concluded that providing additional boating flows would not justify the cost of lost power, as naturally occurring flows already allow for 32 potential whitewater boating days in the Pine River bypass channel (Table 5). Providing 4 additional days would add only 14 percent more whitewater opportunity beyond what exists.

Table 5. Percent of time flows exceed 865 cfs (Source: AIR, monthly flow release curves).

Month	Percent exceedance	Number of days
April	45	14
May	30	9
June	15	4
July	10	3
August	0	0
September	5	2

Therefore, we conclude that special flow releases are not appropriate and we do not recommend providing them. We recommend that WEPCO maintain its present policy regarding whitewater recreation activities in the bypass reach. However, we recommend that WEPCO establish a telephone hotline to report daily flows so the public can know when flows are sufficient in the bypass reach to allow whitewater boating activities.

Under the dam removal alternative, whitewater opportunities would be enhanced by exposing rapids that are inundated by the flowage, by restoring flows to the historic river channel, and by removal of the dam structure. WDNR indicates—and a historic topographic map confirms—that removal of the dam would expose several stretches of rapids inundated by the reservoir. This, combined with the 0.4-mile stretch downstream (in the bypass reach) and the stretch above the flowage, (beginning at LaSalle Falls rapids), would provide a significant, continuous stretch of free-flowing fast water. The stretch would be about 2.5 miles long, representing a significant whitewater recreation enhancement.

While the quality or International Scale of River Difficulty of the inundated stretch is not known, we do know that removing the dam would provide more whitewater opportunity than currently exists at the reservoir. We know that flow levels of 225 cfs or greater are needed to accommodate whitewater boating in the bypassed reach. Without the project's water needs for power generation, there would be 143 potential whitewater boating days within this river segment between April and September (Table 6).

Table 6. Percent of time flows exceed 225 cfs (Source: Applicant's AIR, Monthly Flow Release Curves

Month	Percent Exceedance	Number of days
April	95	29
May	95	29
June	85	26
July	70	22
August	55	17
September	65	20

Enhanced whitewater opportunity would increase visitation to the area. As an upper limit, we estimate that the number of canoeists/kayakers could increase to 500 per season (April through September). This would equate to about 80 visitors per month, or 20 visitors per weekend. This estimate is based on the following factors:

- An estimated 10 people visit the Pine project area annually to canoe or kayak.
- The shoreline and surrounding lands would remain natural, and no physical improvements would be made to provide ease of access.
- Existing recreation sites can accommodate six overnight visitors and parking for about 10 vehicles.

d. Land use and wild river status

Neither the proposed change in operation to run-of-river mode nor proposed environmental enhancements would affect existing land use in the project area.

AWA, WDNR, and FWS have requested an analysis of dam removal, stating that removal would enhance the character and further the objectives of the state designated free-flowing wild river. The purpose of the wild rivers program is

". . . to protect legislatively designated wild rivers from development so as to afford the people of this state an opportunity to enjoy those rivers in their natural, free-flowing condition . . . "[4].

Removal of the dam would remove an industrial use along the river and restore large areas for wildlife and vegetation. This action would enhance the character, and further the objectives of the state designated free-flowing wild river. We recognize that removing the dam may enhance ecological, scenic, aesthetic, and recreational attributes of the area. Removing the dam would disturb an environment established when the dam was constructed 70 years ago, and its removal would alter or eliminate several project benefits that exist in the reservoir, including flatwater recreation, a diverse panfish population, wetlands, and wildlife species.

The dam removal alternative would involve several years of heavy construction activities that would negatively affect recreation uses in the area. The recreation sites would be unusable during the period when the dam was being removed. The two roads that serve the project would be heavily used by trucks hauling concrete rubble to disposal areas. Besides affecting the roads, dam removal equipment and the process of removing the dam would create substantial noise, dust, and emissions. The area, however, is relatively isolated, and except for rendering the recreation sites unusable for a short time, these impacts would not significantly affect the human environment.

e. Establishment of project retirement fund

The agencies and environmental groups state that significant benefits would be realized if the dam were removed, including restoring free-flowing high gradient river habitat, uncovering three waterfalls currently inundated by the flowage, and providing enhanced recreational kayaking and canoeing opportunities. Hiking, sightseeing, camping, and overall enjoyment of the wilderness experience would also be enhanced. WDNR requests that, five years after this license is issued, WEPCO begin consulting with resource agencies and the Commission on a plan for studying costs of complete project removal, and that if the analysis results in a finding that net public benefits would be achieved by this proposal, that WEPCO begin project removal within 12 months. FWS recommends that a trust fund be established to cover the cost of retiring

[4] Chapter NR 302 of the Wisconsin Administrative Code.

the Pine project, when necessary. FWS recommends that WEPCO begin payments to the fund five years after the license issuance.

On December 14, 1994, the Commission issued a policy statement that addresses issues arising out of the September 15, 1993 Notice of Inquiry[5] concerning relicensing and decommission of hydropower projects.[6]

Commensurate with its decommissioning policy, the Commission will address project decommissioning and the proposed decommissioning trust fund in its Order for the Pine Project. The Order will address the need for license requirements which would require the licensees to conduct studies, make financial provisions, or otherwise make reasonable provisions for retirement of the project.

f. Ownership and management of project lands.

WDNR and FWS have recommended that WEPCO maintain the existing project boundary, and that any proposal to withdraw lands be reviewed by agencies before final approval by the Commission. WEPCO does not agree with this recommendation and reserves the right to be able to adjust its project boundary when appropriate, noting that such changes are subject to Commission approval. At this time, WEPCO does not plan to modify the project boundary.

Any withdrawal of, modification, or addition to project lands and waters would require approval of the Commission by an amendment of the license, unless such action falls within the scope of the "minor conveyances" provisions of the land use article. The "minor conveyances" provision exempts minor changes to project land use from requiring prior Commission approval[7].

WDNR and FWS recommend that WEPCO implement the provisions of their land management plan (LMP), which is found in Appendix 12 of the Project Application. WEPCO is willing to implement its plan, which details management of its lands within the project boundary, and proposes annual meetings to

[5] Notice of Inquiry, Project Decommissioning at Relicensing, Docket No. RM93-23-000, September 15, 1993. 58 F.R. 48, 991-96(1993).

[6] Dam Decommissioning at Relicensing, Policy Statement. 69 FERC ¶ 61,336. An errata was issued on January 11, 1995 to correct one project number and add another.

[7] As part of the Commission's standard land use article which is included in every license, there is a "minor conveyances" which authorizes the licensee to transfer narrowly circumscribed rights in project property--such as easements for access roads, bridges, and boat docks--without formal Commission approval.

review pertinent aspects of the LMP. The LMP details timber management, wildlife habitat, and aesthetic considerations for project lands. WEPCO does, however, reserve the ability to make balanced resource decisions for their property. For instance, they note that their forestry program partially offsets the costs of recreation and land management expenditures and it is necessary for WEPCO to have the ability to manage their lands for multiple purposes.

We recommend that WEPCO implement its LMP in order to protect fish and wildlife resources. We concur with WEPCO's proposal to meet annually with agencies to review and update its plan, as needed, as well as consult with agencies and land owners prior to undertaking significant land disturbing activities. We recommend that WEPCO add these provisions to its LMP.

If the dam were to be removed, WEPCO may conclude that it need not maintain ownership of the project lands. The WDNR has expressed willingness to buy the lands associated with the Pine project and would maintain the area in its natural conditions.

Unavoidable adverse impacts: None.

9. Socioeconomics

Existing environment: Wood products manufacturing, agriculture (primarily silviculture), and tourism are the predominant industries in the basin. Because of the abundance and availability of other water bodies in the region (both lakes and rivers), the Pine River is visited mainly by local residents.

Environmental impacts and recommendations: WEPCO's proposal, with or without our proposed enhancements, would have negligible impacts on socioeconomics.

Unavoidable adverse impacts. None.

VI. DEVELOPMENTAL RESOURCES

Historically, the Pine Project generated an average of 18,878 MWh of hydroelectric power annually.

WEPCO modeled energy generation under various operating scenarios, including operating within a 0.2-foot bandwidth and operating within a 0.5-foot bandwidth. They did not, however, model power generation with a 0.3-foot bandwidth, which is our recommended operating scenario. We used WEPCO's numbers, with some minor adjustments, to establish the generation values used in our economic analyses. WEPCO's model predicted slightly higher generation values than actual. For example,

the actual average annual generation over 30 years at the Pine project was 18,878 MWh, whereas the model predicted an annual average generation of 19,853 MWh. Therefore, all model values were adjusted downward by 5 percent.

WEPCO's modeling estimates that, under run-of-river mode with a ± 0.5-foot fluctuation, 18,665 MWh of power would be produced. WEPCO's modeling also estimates a ± 0.2-foot fluctuation would generate 18,053 MWh of power. By interpolation, we estimate that a ± 0.3-foot fluctuation would generate 18,257 MWh of power annually. Adjusting the 18,267 MWh value downward by 5 percent yields an energy generation value of 17,354 MWh. We then calculated the additional energy generated by operating the project at a year-round target elevation of 1,191.6 feet, rather than 1,191.1 feet in the winter (WEPCO originally proposed the lower winter target level and we assume that all of their energy calculations were based on that). We estimate the higher winter target level would produce an additional 20 MWh annually, bringing annual energy generation to 17,374 MWh.

We then calculated energy values for providing the 27 cfs year-round release to the bypass reach, as well as providing special whitewater releases. WEPCO estimates that the loss of generation due to bypassing 27 cfs for 8 months per year would be 894 MWh. We calculated additional lost generation for the four additional months to be 500 MWh, based on flow duration curves, turbine efficiency, and turbine capacities. Therefore, energy losses to provide the year-round 27 cfs release would total 1,390 MWh. Power loss attributable to the proposed whitewater releases (20 hours of 225 cfs released flow annually) would reduce annual generation by 30 MWh. Generation calculations are summarized in Table 7.

Table 7. Energy generation calculations (Source: staff interpolation from application).

Description	Generation (MWh)
Historical peaking operation	18,878
Run-of-river operation maintaining 1,191.6 ± 0.3 ft year round	17,374
27 cfs release to bypass year round (generation change)	-1,390
Special release flows for whitewater (4 times/year) (generation change)	-30

The project does not carry a high undepreciated debt, however, neither is it a large source of revenue relative to the cost of operation. Consequently, the project's economics are sensitive to cost increases and revenue decreases.

In addition to modifying its operations, WEPCO has proposed several environmental enhancements, and agencies and staff have also proposed measures (Table 8). Undefined enhancement costs, such as bald eagle protection measures, establishment of a telephone hotline, and annual reporting recommendations, are not included in our economic analysis. They would have a negligible effect on the economics of the project (indicated as "indeterminate" in Table 10).

Table 8. Costs for various proposed environmental measures (Source: Staff, WEPCO, and USGS).

Proposed Enhancement	Agency/Entity	Capital Cost	Annual O&M Cost
Recreation Improvements	WEPCO	$16,000	$2,000
Barrier Net	WEPCO	$50,000	$5,000
USGS Gaging Station	WEPCO	$10,000	$9,500
Telemetry for USGS Gaging Station	WDNR, MDNR, FWS	$10,000	$500
Bypass Flow Release Mechanism	WDNR, MDNR, FWS	$100,000	$5,000
Water Quality Monitoring	WDNR, FWS	--	$8,000

We analyzed the economic effects of five scenarios that contained varying environmental enhancements:

Case A. No action (baseline operations)—Continued peaking operation with no enhancements

Case B. WEPCO's proposal—Run-of-river operation plus its proposed enhancements

Case C. Staff's proposal—WEPCO's proposal plus telemetering the USGS gage plus water quality monitoring

Case D. Agency proposal—Staff's proposal plus water quality monitoring plus fish replacement

Case E. Whitewater release proposal—Agency proposal plus four special releases per year of 225 cfs for 5 hours

We also prepared two project removal cost analyses (Cases F and G). Economic costs and benefits were not quantified for all resources, rather, they were discussed qualitatively under each resource section in Section V. For dam removal, we included costs for physical removal of all project facilities and restoration of the project area. Case F included costs to remove and dispose of sediments, while Case G assumed sediments would remain in place. Economic costs and benefits were not quantified for other values, such as lost reservoir

recreation opportunities or increased whitewater opportunities, as these are extremely difficult or impossible to quantify.

Table 9 shows the results of our economic analysis of the various alternatives using the current cost approach.

No action (Case A) is the only alternative that yields positive economic results; all other alternatives yield annual costs greater than the likely cost of alternative power. However, relicensing the project with the applicant's proposed "enhancements" have a net annual benefit of -$202,000 which WEPCO foresaw. The project with staff's enhancements is -$225,000, which is rather close to WEPCO's accepted annual cost figure. 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. The cost of either decommissioning alternative is high (cases F or G), and would eliminate needed power, as indicated by energy forecasts.

An important issue in this EA is whether the benefits of removing the dam and restoring the river to its natural, free-flowing and wild character would justify the costs. We find that removing the project would provide certain environmental enhancements. Fish would not be entrained, thus eliminating turbine mortality; inundated waterfalls would be uncovered from beneath the reservoir; and natural flows would be returned to the bypass reach, which would benefit aquatic resources as well as whitewater recreation and aesthetics. If the project were removed, WDNR indicated a willingness to acquire WEPCO-owned lands if WEPCO was no longer interested in owning the property.

We also find that removal of the project would have some negative impacts on environmental resources. Water quality impacts could include sediment-loading resulting from removal of the project. Wildlife resources, including threatened and endangered species, might not be protected through implementation of the LMP. Existing reservoir wetlands would be lost when the reservoir was removed. In addition, the Commission would no longer have jurisdiction over the wetlands within the boundary; thus, protection against invasion of exotic species may be lost. Cultural resources associated with the project would no longer be protected through Wisconsin's Statewide Programmatic Agreement or a cultural resources management plan. Finally, the lost power would be equivalent to energy produced by burning 28,000 barrels of oil or 6,900 tons of coal annually in a steam-electric power plant.

Table 9. Pine hydroelectric project summary of economic analysis [1995] (source: staff).

($1,000)	A Baseline	B WEPCO	C Staff	D Agency	E Agency, AWA	F Dam Removal[1]	G Dam Removal[2]
Total Construction Cost	$1,747	$1,847	$1,888	$1,998	$1,998	$20,823	$4,312
Total Operations and Maintenance Cost	407	449	468	469	469	0	0
Annual Cost	606	670	693	708	708	2,487	515
Annual Power Value	796	468	468	468	468	0	0
Annual Net Benefit	190	-202	-225	-240	-240	-2,487	-515

[1] Including costs for sediment removal
[2] Excluding costs for sediment removal

Based on our independent review and evaluation of the proposed Pine Project, agency recommendations, the proposed project with our enhancement measures, dam removal, and no-action alternative as documented in the EA, we have selected issuing a new license, with additional staff-recommended enhancement measures, as the preferred option. We recommend this option because (1) our required measures would continue to maintain and enhance environmental resources in the Pine River and (2) the electricity generated would continue to conserve nonrenewable energy resources. Licensing the Pine Project, even with our enhancement measures, would ensure that Wisconsin Electric rate payers would continue to receive the benefits of non-fossil-fueled hydroelectric power while providing environmental enhancement measures that we conclude would be in the public interest.

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 recreational, fish and wildlife, and other nondevelopmental values of the waterway are considered equally with its electric energy and other developmental values. In deciding whether and under what conditions a hydropower license should be issued, the Commission must weigh the various economic and environmental tradeoffs involved in its decision.

A. Recommended Alternative

From our evaluation of the environmental and economic effects of the project and the alternatives, we conclude that WEPCO's proposal, with additional recommended enhancement measures specified below, would offer the greatest public benefits from the waterway.

The existing project with the recommended enhancement measures would provide several benefits. An estimated 15,984 MWh of electricity worth about $960,000[8] would continue to be generated annually from a clean, domestic, reliable, and renewable energy resource for use by consumers.

The electricity that would be generated by the proposed run-of-river operation would be equivalent to the energy produced by burning 28,000 barrels of oil or 6,900 tons of coal annually in a steam-electric power plant.

[8] Staff estimate based on WEPCO rates in Wisconsin.

Beneficial effects to the environment associated with licensing the project would result from measures required for protection and enhancement of natural resources in the project area. We recommend the following measures to protect and enhance the environment.

- Prepare an annual operational monitoring and compliance plan in consultation with the agencies for both the reservoir and bypass reach and submit it to the Commission for approval.
- Provide a 27 cfs flow release year round to the bypass reach.
- Provide periodic water quality monitoring.
- Reactivate the USGS gaging station down-stream from the project and equip it with telemetry equipment.
- Install and maintain staff gages in the reservoir and bypass reach.
- Notify the Commission and resource agencies within 10 days of an emergency draw-down and 30 days in advance of a planned draw-down.
- Install a barrier net up-stream from the power canal, and prepare and implement a plan for evaluating the net's effectiveness.
- Modify the bald eagle management plan to include protection of supercanopy trees to the extent that they do not interfere with operational safety.
- Provide a telephone hotline to notify the public of flow releases in the bypass channel to communicate when natural flows would accommodate whitewater boating.

B. 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. Under Section 10(a)(2), 59 comprehensive plans were filed by various federal and state agencies that address various resources in Wisconsin. Of those, we identified five relevant to the project[9]. The project fully complies with

[9]*Wisconsin's Statewide Comprehensive Outdoor Recreation Plan*, 1986-91 and *1991-96*, WDNR, Madison, Wisconsin; *Pine-Popple Wild Rivers Master Plan*, 1981, Wisconsin Natural Resources Board, Madison, Wisconsin; *The Upper Green Bay Basin-Water Quality Management Plan*, 1993, WDNR; *North American Waterfowl Plan*, 1990, FWS.

these comprehensive plans. The Pine project is recognized as a preexisting use in the *Pine-Popple Wild Rivers Master Plan*, which states:

> The Pine River Dam and Generating Plant, owned and operated by Wisconsin Electric Power Company, have been in operation since 1922. Their current Federal Power Commission license is in effect through December 31, 1993. The structure and 127-acre flowage, the two water access sites and campgrounds are long established and well accepted. The shorelands are undeveloped and wild appearing. The company and WDNR signed a mutual agreement covering these lands in 1969. The operating procedures and public uses are expected to continue.

Nowhere in the master plan nor in the legislation is there specific mention or consideration of project removal. The plan states that the purpose of the "wild river" legislation is:

> "To preserve the free-flowing state of wild rivers, no man-made dams or other man-made structures which impound water shall be permitted on such rivers with the exception of most projects, licensed by the Federal Energy Regulatory Commission, in existence prior to November 18, 1965 (NR 302.04, Management of Wisconsin's Wild Rivers)."

The plan references a mutual agreement between WEPCO and WDNR, clearly indicating that the wild river and the facility may coexist under the terms and conditions of the agreement.

VIII. CONSISTENCY WITH FISH AND WILDLIFE RECOMMENDATIONS

In its letter dated July 8, 1993, the DOI requested reservation of its authority to prescribe fishways pursuant to Section 18 of the FPA[10]. We recommend that the Commission reserve authority in any license issued for this project to require WEPCO to provide appropriate fish passage facilities when deemed appropriate by the DOI.

Under the provisions of the FPA, as amended by the Electric Consumers Protection Act of 1986, each hydroelectric license issued by the Commission shall include conditions based on recommendations provided by federal and state fish and wildlife agencies under the Fish and Wildlife Coordination Act

[10]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."

for the protection, mitigation, and enhancement of such resources affected by the project.

Section 10(j) of the FPA states that whenever the Commission believes that any fish and wildlife agency recommendation may be inconsistent with the purposes and the requirements of the FPA or other applicable law, the Commission and the agency shall attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agency.

We evaluated all WDNR, MDNR, and FWS fish and wildlife recommendations. The water, fisheries, and/or terrestrial resources sections of this FEA present our conclusions. Table 10 summarizes these conclusions and our actions on those recommendations. In each individual resource section we describe our reasons for adopting or not adopting each recommendation. We address the concerns of the federal and state fish and wildlife agencies and made recommendations that are largely consistent with those of the agencies.

Pursuant to Section 10(j) of the FPA, we determined that one recommendation of the federal and state fish and wildlife agencies may be inconsistent with the purpose and requirements of Part 1 of the FPA or other applicable laws. Recommendations considered to be outside the scope of Section 10(j) are considered under Section 10(a) of the FPA and are addressed in the specific resource sections of this report.. Table 10 summarizes recommendations and whether they are adopted under the staff-recommended alternative.

FWS recommends ramping and a fish recovery plan in association with providing special release flows for recreation. We do not recommend special release flows for whitewater activities, therefore, a ramping and fish recovery rate plan is unnecessary. Further, the 27 cfs flow to the bypassed reach will be provided year-round. Therefore, even in cases of project shutdown, continuous flow will be provided-obviating the need for ramping in those circumstances. We conclude that the resource is protected.

Table 10. Summary of all fish and wildlife resource agency recommendations* both 10(j) and 10(a) and their associated costs (source: Staff).

	Agency Recommendation	Within scope of 10(j)	Annual cost of environmental measure	Adopted
1	FWS, WDNR, MDNR- Run-of-river operation and target reservoir operating level	Yes	$301,166**	Yes
2	FWS, WDNR, MDNR- 27-cfs year-round flow in bypass channel	Yes	$43,128**	Yes
3	FWS, WDNR- Provide for flow continuation during power outages	Yes	Indeterminate	Partial; we recommend the applicant reestablish flow as quickly as possible without compromising dam safety.
4	FWS, WDNR, MDNR- Install staff gage in reservoir	Yes	$834	Yes
5	FWS, WDNR, MDNR- Install staff gage or other mechanism in bypassed reach to demonstrate compliance	Yes	$834 (staff gage)	Yes (resolved at 10(j) meeting); staff gage will be provided and agencies and WEPCO will consult on method for demonstrating compliance.
6	FWS, WDNR, MDNR- Provide automatic water level sensors	Yes	Indeterminate	Yes
7	FWS, WDNR, MDNR- Daily record operations	Yes	Indeterminate	Yes
8	FWS, WDNR, MDNR- Fund and maintain USGS gage	Yes	$11,130	Yes
9	FWS, WDNR, MDNR- Equip USGS gage with telemetry	Yes	$1,639	Yes
10	FWS- Provide fish recovery and ramping rate plan for periods following special release recreation flows	Yes	Indeterminate	No; recreation flows not recommended and 27 cfs flow requirement will occur even during project shutdown obliviating need for ramping.
11	FWS, WDNR- Provide barrier net and perform net effectiveness study	Yes	$13,201	Yes
12	FWS, WDNR- Provide fish compensation for loss due to barrier net ineffectiveness	No	$1,049	Partial; we recommend compensatory mitigation only if barrier net is found ineffective.
13	FWS, WDNR- Provide water quality monitoring	Yes	$8,392	Yes
14	FWS, WDNR- Provide bald eagle protection	Yes	Indeterminate	Yes
15	FWS, WDNR- Control purple loosestrife	Yes	Indeterminate	Yes; we recommend that WEPCO monitor and report to agencies.
16	FWS, WDNR- Retain all lands in project area	Yes	Indeterminate	Yes; Standard License Article 5 requires WEPCO to apply to the Commission to remove lands from project area.

*MDNR is not a fish and wildlife 10(j) agency for this project.
**Capital cost and lost energy cost.

Table 10. Summary of all fish and wildlife resource agency recommendations* both 10(j) and 10(a) and their associated costs (source: Staff).

	Agency Recommendation	Within scope of 10(j)	Annual cost of environmental measure	Adopted
17	FWS, WDNR- Establish project retirement fund	No	Indeterminate	No; see Commission Order.
18	FWS, WDNR- Reserve Section 18 authority	No	Indeterminate	Yes. Authority reserved for DOI Under Section 18 of FPA. State can request through DOI.
19	WDNR, MDNR- Notify agencies of draw-downs	Yes	Indeterminate	Yes
20	WDNR, DOI- Implement land management plans	No	Indeterminate	Yes
21	WDNR- Manage shoreline and project lands consistent with Wild Rivers legislation	Yes	Indeterminate	Yes
22	WDNR- Comply with state laws for dam safety, comply with state floodplain regulations	No	Indeterminate	No; Commission's dam safety program adequately covers dam safety.
23	WDNR- Develop long-range recreation plan	No	Indeterminate	Yes
24	WDNR- Survey for wood turtle	No	$2,122	Licensee agreed to conduct surveys.
25	WDNR- Survey for freshwater mussels	No	$2,122	Licensee agreed to conduct surveys.
26	WDNR- Survey for state concern species (plant and animal)	No	$2,122	No; continued operation of the project will not affect these species; additionally WEPCO's land management plan protects lands and requires that surveys be undertaken prior to land disturbing activities.
27	WDNR- Prepare basinwide analysis	No	Indeterminate	No; an EA was the appropriate document to prepare because it's a single project on the river, issues pertaining to it are sufficiently separate, and combining it with other projects would unnecessarily delay relicensing.
28	WDNR, MDNR- Reopener article	No	Indeterminate	Yes; Standard Commission reopener applicable to fish and wildlife issues.
29	WDNR- Study project retirement/dam removal during new license and establish trust fund	No		No; no reason to expect WEPCO to retire project within license term, or to lack financial resources to do so at end of term.

*WDNR is not a fish and wildlife 10(j) agency for this project.
**Capital cost and lost energy cost.

IX. FINDING OF NO SIGNIFICANT IMPACT

Implementing the staff-recommended enhancement measures described in this FEA would ensure that the environmental effects of continued operation would be insignificant.

On the basis of our independent analysis, issuance of a license with conditions incorporated would not constitute a major federal action significantly affecting the quality of the human environment.

X. LITERATURE CITED

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————. 1992. Report correcting deficiencies and providing additional information, Pine Hydroelectric Project, FERC No. 2486. October 1992.

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APPENDIX A
METHODS TO ESTIMATE FISH REPLACEMENT COSTS

Appendix A
Methods to Estimate Fish Replacement Costs

Introduction

This appendix presents an estimate of fish entrainment mortality at the Pine Hydroelectric Project. We have also computed a replacement cost for the estimated fish losses.

To estimate entrainment mortality we used data and trends reported in the Electric Power Research Institute (EPRI) report, *Fish Entrainment and Turbine Mortality Review and Guidelines* (1992). The EPRI report summarizes the results of most of the larger entrainment studies completed to date. Because site-specific entrainment mortality data do not exist for the Pine project, our estimates based on other studies must be viewed as only an approximation. Our intent in making these estimates is merely to get a better understanding of the level of entrainment mortality that might exist at Pine using several broad assumptions so that we can determine if post-licensing studies or mitigation are warranted. While site-specific data is preferable, we conclude that the available scientific information from other entrainment and turbine mortality studies recently conducted in Wisconsin and Michigan on rivers with similar types of fisheries as that on the Pine River is fully adequate for our intended purpose.

Entrainment Estimates

Entrainment Rate

To estimate entrainment rates, we used data from the EPRI report for areas in the same geographic region as the Pine River and only those studies that offered a fairly complete set of annual sampling data. While most of the studies were done on moderate to large rivers as compared to the Pine River, all have fish communities similar to those of the Pine River. The studies selected and their monthly estimated entrainment rates are summarized in Table 1.

The average entrainment rate for the sites over a 12-month period is 4.5 fish per hour per turbine. Because most of the studies were not adjusted for net efficiency and intrusion by tailrace fish, we adjusted the rate upward by 43 percent, which approximates the adjustments other studies cited in the EPRI report for net efficiency with small fish. This resulted in an estimate of 6.7 fish per hour per turbine and reflects the entrainment rate for all size classes of fish in each of the respective studies.

Table 1. Summary of adjusted[a] entrainment rates for nine hydropower plants in Michigan and Wisconsin.

Project	Entrainment rate (fish/hour) per turbine													Overall Percent of Total
River	Escanaba	Kleber	Tower	Prickett	Brule	White Rapids	Thornapple	Centralia	Rothschild	River Division				
State	Michigan	Black Michigan	Black Michigan	Sturgeon Michigan	Brule Wisconsin	Menominee MI/WI	Flambeau Wisconsin	Wisconsin Wisconsin	Wisconsin Wisconsin	Wisconsin Wisconsin	Average			
Jan	0.2	0.3[b]	0.5	0.5[b]	0.3[b]	0.3[b]	0.3[b]	0.3	0.4	0.3	0.5			0.6%
Feb	0.1	1.8	0.2	0.8[b]	0.6[b]	0.6[b]	0.6[b]	0.3	0.5	0.6[b]	0.8			1.0%
Mar	0.2	1.0	0.7[b]	0.9[b]	0.1	0.6	2.0	0.7[b]	0.1	0.7[b]	0.9			1.1%
Apr	11.6	55.9	10.2	0.1	0.7	1.0	2.3	10.7[b]	2.1	2.0	19.7			24.4%
May	5.1	6.3	1.4	5.4	3.8	2.1	2.7	0.1	1.7	1.4	4.6			5.7%
Jun	5.6	5.0	7.4	14.6	10.2	4.0	1.9	2.8	11.3	3.2	8.6			10.7%
Jul	1.4	6.6	2.5	11.9	8.3	10.3	7.1	26.5	33.8	10.9	15.8			19.7%
Aug	0.7	11.6	0.9	3.1	2.2	4.0	4.4	8.2	5.6	4.2	6.2			7.7%
Sep	0.6	23.8	0.7	3.6	2.5	5.6	6.2	4.0	8.5	1.6	7.9			9.8%
Oct	1.9	31.8	1.8	5.6	3.9	14.3	9.5	2.7	4	0.6	10.5			13.1%
Nov	2.4	12.2	1.1	0.7	0.5	2.4	2.1	3.5	0.9	1.4	3.9			4.9%
Dec	0.2	0.3	0.2	0.0	0.0	0.0	0.2[b]	0.2[b]	0.4	0.2[b]	1.0			1.3%
Avg.	2.5	18.5	3.3	9.7	3.9	5.4	4.7	7.6	8.3	3.3	Overall Average 6.7			

[a] Raw entrainment rates reported by EPRI were adjusted upward 43% to account for capture efficiency
[b] Values were not reported during this month for this project. The average value of the other projects was used to complete the data set for this project.

Entrainment by Size Class

Studies have found that small fish are much more prone to turbine entrainment than are large fish. Results from studies reporting entrainment by fish size class show that 85 to 99 percent of fish entrained are less than about 200 mm with an average of 93 percent (Table 2). Therefore, we will assume that 93 percent of the fish entrained are less than 200 mm and 7 percent greater than 200 mm.

Table 2. Size distribution of entrained fish at seven midwest hydropower facilities.

Project	Distribution of entrained fish
Kleber, MI	96% < 200 mm
Prickett, MI	99% < 203 mm
Tower, MI	82% < 200 mm
Escanaba Dam 1, MI	93% < 191 mm
Escanaba Dam 3, MI	96% < 191 mm
Centralia, WI	95% < 100 mm
Wisconsin River	96% < 100 mm
Division, WI	94% < 200 mm
Pine, WI	85% < 203 mm
Thornapple, WI	

Source: EPRI, 1992.

Adjusting for Hydropower Plant Operations

Using a per-turbine entrainment rate implies that entrainment is directly proportional to the number of fully operating turbines. However, turbines do not operate continuously or at full capacity at all times. It is necessary to adjust the fish entrainment rate to account for such times. This is most easily done by multiplying the entrainment rate by the plant factor, which is defined as the ratio of annual average generation to maximum generation capacity. The plant factor accounts for the seasonal and daily periods when the turbines are not operating at full capacity. The plant factor for the Pine Hydroelectric project is 0.60.

Entrainment Estimate Calculations

With the above assumptions, the calculation of estimated entrainment per scenario is as follows:

Total Annual Entrainment per size class = fish/turbine/hour x no. of turbines x plant factor x 8,760 hours/year x percent of fish in size class

This results in an estimated total annual entrainment of 90,609 fish less than 200 mm and 6,820 fish greater than 200 mm for a total of 97,429 fish annually.

Turbine Mortality Rates

EPRI concludes that turbine induced mortality for naturally entrained resident fish at low-head hydroelectric projects is about 4 to 6 percent. However, the head at the Pine project is considerably higher (about 146 feet) than the head at projects from which the EPRI conclusion was derived. Previous studies have shown that mortality increases with head for Francis turbines (Eicher, 1987). Thus, applying the slope of the relationship between increasing hydraulic head and mortality developed by Eicher, we estimated that the mortality rate at the Pine project should be about 12 percent.

Estimated Entrainment Mortality

Assuming 12 percent mortality rate, total annual mortality is calculated as follows:

Total Annual Mortality per size class = estimated annual entrainment per size class x mortality rate

Total estimated mortality is 10,873 fish less than 200 mm and 818 greater than 200 mm for a total of 11,691 fish.

Replacement Cost for Turbine Induced Mortality

Without a comprehensive understanding of the fish population dynamics in the Pine River, it is difficult to conclude whether the expected level of entrainment mortality at the hydropower facility will adversely affect populations of adult or catchable-sized fish. Most entrainment likely consists of small young-of-year fish. If that is the case, then a biologically significant impact is doubtful because turbine-induced mortality is relatively minor for smaller fish and most of the fish are probably being displaced downstream in response to population densities exceeding the carrying capacity upstream.

In response to WDNR's request that we address the entrainment issue at this project, we computed a monetary value for the estimated entrainment mortality. Consistent with commission policy, we used the replacement cost of entrained fish. The replacement cost is based on the cost to artificially raise fish of the same kind and size as those lost to entrainment mortality.

To do this, an estimate is needed for the species, size, and numbers of fish killed. We have assumed that the fish species listed in the environmental assessment for the river upstream of the reservoir, and the reservoir itself, would be those subject to entrainment, and that each species would have equal probability of entrainment and mortality. Our calculated overall average replacement cost is $0.63 for fish less than 200 mm in length and $2.74 for fish greater than 200 mm (Table 3). The estimated annual replacement cost is

$9,900 under present operations. This estimated annual replacement is for entrainment mortality without any facilities in place to minimize fish entrainment. The applicant is proposing to install a barrier net at the intake of the power canal to protect fish, which has an estimated exclusion efficiency greater than 85 percent, with a more typical efficiency of 90 percent. With this net in place, entrainment, entrainment mortality, and the subsequent replacement cost would be 90 percent less than those stated above. This would result in an estimated annual replacement cost of about $1,000.

Table 3. Replacement values for fish species known to occur in Waters of the Pine Hydroelectric project.

Common name	American Fisheries Society Replacement Value[a] ($)	
	Fish > 200 mm[b]	Fish < 200 mm[b]
brook trout	0.28	1.62
brown trout	0.28	1.62
walleye	1.15	6.41
northern pike	0.62	1.36
smallmouth bass	1.66	6.31
largemouth bass	0.98	3.60
yellow perch	0.72	1.88
rock bass	0.47	1.31
bluegill	0.47	1.31
white sucker	0.63	2.00
shiner spp.[c]	0.19	[e]
chub spp.[d]	0.08	[e]
Average	**0.63**	**2.74**

[a] American Fisheries Society, 1992.
[b] Species values were calculated by averaging the values for each size (typically 1-inch increments) up to 200 mm and those over 200 mm reported by AFS, 1992
[c] Assumed same as golden shiner
[d] Assumed same as "other" cyprinid listed in AFS, 1992
[e] Assumed not be commonly reach 200 mm in length

Conclusions

The above estimates represent a conservative approximation of entrainment mortality and the associated replacement cost. We believe that our calculations overestimate entrainment mortality at the Pine Hydroelectric facility for the following reasons:

- Our entrainment rate is based on the results of studies conducted on much larger and more productive rivers with larger reservoirs.

- Turbine flow capacity (640 cfs combined) is much less at the Pine project compared to other projects from which we derived our entrainment rate estimate.

The lack of empirical data for the Pine Hydroelectric project prevents further refinement of these estimates. As noted, however, precise entrainment mortality figures are not needed for our purposes.

References

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APPENDIX B
RESPONSE TO DRAFT EA COMMENTS

Contents

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Green Bay Field Office
1015 Challenger Court
Green Bay, Wisconsin 54311-8331

IN REPLY REFER TO

April 21, 1994

Mr. Dean L. Shumway
Director, Division of Project Review
Federal Energy Regulatory Commission
825 N. Capitol, N.E.
Washington, D.C. 20426

Draft Environmental Assessment
Pine Hydroelectric Project
FERC No. 2486-002
Pine River, Florence County, WI

Dear Mr. Shumway:

Your letter of March 8, 1994, to Ms. Shelia Minor Huff, Regional Environmental Officer, requested Department of the Interior review of the draft Environmental Assessment (EA) in support of the license for the referenced hydroelectric project. The U.S. Fish and Wildlife Service's (Service) Green Bay Field Office will respond to your letter and comment on the EA.

SPECIFIC COMMENTS

There are several errors in the draft EA that should be corrected in the revised EA, as discussed in our specific comments section.

1 Page 2, Need for Power, 3rd. paragraph. The annual average generation of 17,984,000 kilowatt-hours is in error; it should be 18,878,000 kilowatts (reference page A-9, Volume 1 of the Pine Project application for license). Please also correct this on page 38, Developmental Resources.

2 Page 3, 1st. paragraph. The combined hydraulic capacity of the vertical Francis turbines is 624 cubic feet per second (cfs), rather than 640 cfs as stated here (reference page A-2 of the application). Please correct this on page 11 of the EA as well.

3 Page 7, Agency letters. The date of the Department of the Interior (DOI) comment letter on the application is July 8, 1993, which should be added to Section IV.A. on page 7 of the EA. The Wisconsin Electric Power Company's (WEPCO) letter to Ms. Lois Cashell, responding to Agency (Service and Wisconsin Department of Natural Resources) recommended terms and conditions was August 20, 1993, rather than August 25, 1993, as stated in the EA.

4 Page 9, Pine River Basin, 3rd. paragraph. It is stated, "About 72 percent of the land in the county is classified as natural (forest, wetlands, and surface waters)." On page E-7 of the application, it is stated, "Approximately 80 percent of Florence County is covered by forests..." There appears to be an inconsistency in information presented which should be corrected.

5 Page 10, Geological Resources, 3rd. paragraph. It is stated, "Removal of the dam could have short-term adverse effects on geology and soils in the project area." How would removal of the dam affect the geology of the area?

Letter from U.S. Fish and Wildlife Service, April 21, 1994

Response 1. We changed the text appropriately, and re-ran the eco cases using the 18,878 kWh number. We also provided additional explanation of how our calculations were derived in Section VI.

Response 2. The turbines are designed for 624 cfs, as you've not However the plant's maximum hydraulic capacity is 760 cfs, and th applicant states that the plant's normal hydraulic capacity is 64 at its rated head of 94.0 feet at the 0.7 gate opening. We chang the text to clarify design versus operation capacity (Section III.A.1).

Response 3. The DOI letter and date received was provided in thi section, but the rows were mis-aligned. This has been corrected. also revised the EA to reflect that WEPCO's letter was dated August 20, 1993; and filed August 25, 1993.

Response 4. The data on forest cover that we referenced in the E (72 percent) came from the "Report on Land Management and Aesthet page E-67 of the Application. The applicant referenced Bay-Lake Regional Planning Commission data, which was provided in Appendix

Response 5. We modified the text to indicate that dam removal co have short-term adverse effects on "geological resources" in the project area. Our use of "geological resources" encompasses all geologic features, including soils. Erosion and sedimentation impacts, which were described, are part of these effects (see Section V.B.1).

Page 12, 1st full paragraph. It is stated, "The agencies concur with WEPCO regarding maintaining ± 0.3 foot under normal conditions and ± 0.5 feet under special conditions. The agencies further recommend that excursions outside
6 the normal ± 0.3 foot last no longer than 8 hours." In the next paragraph, the Federal Energy Regulatory Commission (FERC) staff states that "When events cause WEPCO to operate outside ± 0.3 foot, they should operate with the goal of returning to normal range within 24 hours. Why did the FERC staff recommend 24 hours instead of 8 hours, as recommended by the Agencies?

Page 14, 1st. full paragraph. FERC staff state here that public compliance monitoring is not warranted and that staff gauges do not have to be installed in the headwater, tailwater, or bypass channel. We are puzzled by this recommendation as staff gauges are very inexpensive and will not affect the economic viability of the project. Furthermore, the FERC has required staff gauges in recent licenses, e.g., Chippewa Falls Project (FERC No. 2440-002),
7 and we see no basis for the inconsistent treatment of this issue. We believe the public has the right to determine if the Pine project is being operated in compliance since WEPCO is using a public water resource to generate power for profit. The DOI did not recommend a tailwater staff gauge, but did recommend one in the headwater and one in the bypass channel. It is imperative that a staff gauge, calibrated to a stage versus discharge relationship, be installed in the bypass channel so the Service and Wisconsin DNR (Agencies) can determine WEPCO compliance with the 27 cfs minimum flow.

Same page, flow during power outages. Please include the DOI along with the
8 Wisconsin DNR as recommending that "in the case of plant blackout-WEPCO be required to restore run-of-river operation within minutes" (reference page 6 of the July 8, 1993 DOI letter).

Page 18, 1st. full paragraph. It is stated under the dam removal alternative
9 that "Fine sediment could be released for years while the former flowage stabilizes." We believe this is a gross overstatement. This concern would have to be addressed in a sediment control plan to insure that adverse impacts to aquatic habitat from sediment would not occur to any substantial degree.

Page 23, 2nd. full paragraph. The DOI also supported the Company's bald eagle
10 management plan and also made the recommendation that all super canopy trees be preserved as available nesting sites in the future (reference page 9 of the July 8, 1993 DOI letter).

11 Same page, 4th. full paragraph. Gobbin fern should be goblin fern.

Page 24, 5th. paragraph. It is stated here that under the dam removal alternative, the natural waterfalls would prevent upstream fish passage once riverine conditions were restored. This statement is overly speculative and should be revised. Whether fish can or cannot ascend the falls is not known
12 and remains to be seen. It is likely that fish may be able to ascend the falls under some, but perhaps not all, flow conditions. The Wisconsin DNR informed us that they have observed this flow-dependant, fish passage phenomenon at waterfalls on other rivers in the area.

Page 25, last sentence. In reference to dam removal, it is stated, "Any net
13 loss of wetlands would need to be replaced in accordance with federal regulations." While we agree that a wetland impact evaluation should be done, (e.g., in conjunction with a U.S. Army Corps of Engineer's Section 404 permit review), we do not agree that wetlands lost by dam removal would necessarily have to be replaced because dam removal would restore the preexisting condition before the dam was built. Therefore, we do not believe this is a viable argument to use against dam removal.

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Response 6. Your comment is noted; we provided additional text i section V.B.2.a. to clarify that we recommend that WEPCO be requi to return to the ± 0.3 foot bandwidth within 8 hours, but that WE be required to notify agencies within 24 hours of, or the first n working day following an event causing operation outside the ± 0. foot, whichever is later.

Response 7. WEPCO has agreed to install a staff gauge on the dam consultation with agencies. We support a cooperative solution, b not recommend that this be mandated as part of the license.

We agree with FWS that WEPCO must demonstrate compliance wit minimum flow requirement. However, until WEPCO identifies the mechanism they will install to provide the continuous minimum flo cannot recommend the best method to demonstrate compliance. Becau of the low cost associated with a staff gauge, we recommend that W install one in the bypass reach for public and agency viewing, although we do not recommend that this be used to measure compliar with the 27 cfs minimum flow requirement. In our judgement, a sta gage in the bypass channel would not be the most accurate means of measuring compliance because the steep grade and irregular channel bottom would not lend itself to an accurate stage-discharge relationship. In the 10(j) meeting, we recommended that--as part WEPCO's consultation with agencies on how to provide a year-round to the bypass reach--they develop a method for how they will demonstrate compliance. The agencies agreed with this approach.

Response 8. In response to your comment, we added DOI as a refere

Response 9. Your comment is noted; however this is a moot point s we are not recommending dam removal. Should dam removal become an action in the future, an erosion and sedimentation control plan wo be required.

Response 10. In response to your comment, we added DOI as a reference.

Response 11. In response to your comment on section V.B.4., "Gobb fern" has been changed to "Goblin fern."

Response 12. We note your comment and have made modifications to text in Section V.B.3.C.

Response 13. We have removed wetland replacement cost estimates f the dam removal economic cases and have removed text references in Section V.B.5.a.

winter pond elevation of 1,191.1 feet NGVD (reference Volume 2, Appendix 3, Page 2 of the application). The WEPCO now proposes a year-round target elevation of 1,191.6 feet. This change in operational head will affect generation, thus the economic analysis should take this into consideration for cost/benefit computations. Any computational changes should be included in the revised EA.

Page 41, Recommended Alternative, 4th. paragraph. In the list of FERC staff
20 recommendations, FERC staff should concur with WEPCO's commitment to run-of-river operation and with run-of-river as defined by the Agencies. Also,
21 under the barrier net recommendation, we recommend FERC staff add "When an appropriate and effective fish protection option is identified, operational procedures for its deployment, storage, and maintenance shall be developed."

Page 43, Table 8. It is stated that "Install staff gauges for public monitoring" is not within the scope of 10(j) and not adopted by FERC staff. As previously explained in this letter, the DOI believes that the staff gauges are a necessary part of any operational compliance plan. Although they will
22 primarily be used by the Agencies and the licensee, the public should also have the opportunity to view the staff gauges. We believe not including staff gauges is inconsistent with the environmental protection mandates of the Federal Power Act because their use is directly related to ensuring that fish and other aquatic life are protected at the Pine Project.

GENERAL COMMENTS

We wish to respond to FERC staff's analysis of three of the DOI recommendations stated in Mr. Shumway's March 8, 1994 letter to Ms. Huff.

Recommendation No. 1. Year-round release of 27 cubic feet per second (cfs) in the bypass channel.

FERC staff contends that a year-round discharge is inconsistent with the public interest. We strongly disagree. If flow in the bypass channel is not released year-round, it would, in our opinion, be inconsistent with the public interest because fish and other aquatic life, which are managed in the public trust, would be unnecessarily killed during winter months and would result in a loss of an important resource.

Once the spillway channel receives a stable minimum flow, the channel will contain sufficient depth and habitat structure to provide living space for game fish (especially fish of sub-adult size) and other aquatic fauna such as benthic macroinvertebrates, mollusks, amphibians, and reptiles. The bypass
23 channel will provide a refugia for small fish, which will enhance the fish population in the main channel of the Pine River as the fish grow and leave the bypass channel. Naturally, carry-over of each year class will depend on a year-round steady flow. Termination of the minimum flow in the channel during winter, as FERC staff proposes, would essentially kill most if not all aquatic life in the channel. It is not logical to commence a steady minimum flow early in the season after ice-out, begin to establish a balanced aquatic community, then terminate the flow in November and largely eliminate the aquatic community during winter. Certainly, this cannot be in the public interest.

The mechanical problems of icing associated with releasing a minimum flow through a tainter gate or other structure, contrary to FERC staff's contention, are not insurmountable. For example, WEPCO committed to a minimum flow year-round in the bypass channel at the Brule Project (FERC No. 2411), located on the Brule River about 20 miles from the Pine Project (reference WEPCO's July 13, 1993 letter to Ms. Lois Cashell). Originally, the Company objected to winter discharge, but after a trial period, concluded that they could overcome icing problems. Other companies have agreed to a year-round

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Response 20. We define run-of-river operation as releasing a flow from the project that approximates the sum of inflows to the reservoir.

Response 21. We have recommended that a plan be prepared for installation and monitoring of the barrier net's effectiveness. Th plan will be prepared after consultation with fish and wildlife resource agencies.

Response 22. We agree with FWS that WEPCO must demonstrate compli with the minimum flow requirement. However, until WEPCO identifies the mechanism they will install to provide the continuous minimum flow, we cannot recommend the best method to demonstrate compliance Because of the low cost associated with a staff gauge, we recommend that WEPCO install one in the bypass reach for public and agency viewing, although we do not recommend that this be used to measure compliance with the 27 cfs minimum flow requirement. In our judgement, a staff gage in the bypass channel would not be the most accurate means of measuring compliance because the steep grade and irregular channel bottom would not lend itself to an accurate stage-discharge relationship. In the 10(j) meeting, we recommended that part of WEPCO's consultation with agencies on how to provide a year-round flow to the bypass reach--they develop a method for how they will demonstrate compliance. The agencies agreed with this approac

A staff gauge in the reservoir will not be used to monitor compliance, nor is it requested to protect fish and wildlife resources. Compliance with the headwater bandwidth will be measure by the electronic headwater sensor. Therefore, installation of a reservoir staff gage is not a 10(j) issue. Although public inquiri are infrequent, WEPCO has agreed to work with agencies to identify appropriate location for a staff gauge in the reservoir. We support mutually agreeable solution, but we do not recommend this be mandat in the license.

Response 23. Based on negotiations at the 10(j) meeting, and subsequent consultation between WEPCO and the agencies, WEPCO concluded that they may be able to provide a year-round release to bypass channel in a manner similar to the Grandfather Falls Project. We reviewed comparable project information provided by the agencies, and developed an independent cost estimate for providing a winter fl release mechanism. We concluded that a similar system could be installed at less capital expense than originally estimated, and ag with both WEPCO and the agencies that a year-round bypass flow can, and should, be provided. Section V.B.3 provides detailed informatic on this subject.

minimum flow as well, in spite of possible icing problems on the gates. At the Grandfather Falls Project (FERC No. 1965) on the Wisconsin River, the Wisconsin Public Service Corporation has been releasing a minimum flow in the bypass channel year-round since 1988. FERC staff accepted this recommendation from the Agencies and it became Article 402 of the Grandfather Falls license. The Wisconsin Public Service Company has also agreed to release a minimum flow, year-round, through a tainter gate in the spillway bypass channel at the Wausau Project (FERC No. 1999, Wisconsin River), as has the Consolidated Water Power Company at the Wisconsin Rapids Project (FERC No. 2256, Wisconsin River). Other examples could be cited but the point here is that the precedent for a year-round minimum flow in a spillway bypass channel has been well established in FERC hydroelectric licensing in Wisconsin.

Other comments we have on FERC staff's rationale (Page 19 of the EA) for not recommending winter discharge follow:

a) Safety concerns. A winter release through the Taintor gates was deemed to be a serious safety concern because of spray freezing on the gate mechanisms and access routes to the gates. This concern may be overstated. Rather than relying on speculation, a trial period should be required to determine how winter discharge affects dam safety.

b) Uneconomical. FERC staff states that the cost of two other alternatives for a minimum flow release, other than by a cracked taintor gate, would cost $200,000, which would make the project uneconomical. This cost seems excessive. Please send us the plans and cost estimates for both alternatives. How was this cost computed? According to WEPCO's analysis in Volume 2, Appendix 3, Table 3 of the application, the side channel minimum flow device would cost $47,832.

c) Icing concerns in the channel. FERC staff's concern here seems to be that a winter release could freeze the channel, thus minimizing protection of, or increasing damage to benthic organisms as well as fish. While we agree that this may be a concern during some winters, the benefits of providing a constant winter flow far outweigh the adverse affects of terminating the flow, which in all likelihood, would result in a complete loss of the aquatic community every year.

d) Effect on operation. FERC's staff's discussion on how the minimum flow during the winter would affect the operation of the Pine Project is not consistent with how the agencies define run-of-river operation. The Agencies have repeatedly stated that for run-of-river operation, discharge must closely match inflow on an instantaneous basis to minimize fluctuations in tailwater stage. Relative to FERC staff's example, if, during a dry winter period, flows were too low to operate one unit continually while still maintaining the 27 cfs flow in the spillway channel, the Agencies' run-of-river rules would require that the unit be shut off and the entire incoming flow be passed through the spillway.

e) Inconsistent with comprehensive development standards. We do not understand how a winter release "...would be inconsistent with the comprehensive development standards of the Federal Power Act." Please explain this in the revised EA.

Given the rationale discussed above, the Service strongly recommends that FERC staff reconsider and recommend in the revised EA that a minimum flow of 27 cfs be released year-round at the Pine Project.

Recommendation No. 2. Monetary compensation for unavoidable fish loss.

The Service's position is that project operation results in mortality of important fishery resources and the licensee should be required to compensate for residual fish losses after the protective device is in place. Fish are a trust resource of the State of Wisconsin and fish that escape the barrier net and are entrained are subject to turbine mortality, which will result in a property loss to Wisconsin over the period of the license. We cannot comment on the specifics of fish residual losses at the Pine Project at this time. First, it is necessary for the Agencies to review the results of the barrier net evaluation study to determine what species will be entrained. Subsequent to that review, the Agencies can assign a monetary value for the lost fish.

Although we cannot comment on the anticipated magnitude of residual fish losses until monitoring studies are completed, we maintain that the concept of compensation for residual losses should be applied to the Pine Project. The FERC has included provisions for compensating for unavoidable fish losses in several recent licenses, including those for the Chippewa Falls and LeClaire Projects. For both of those projects, FERC included special license conditions that require implementation of entrainment avoidance measures to minimize fish losses. In those two licenses, FERC concedes that no avoidance measures are 100 percent effective, and accordingly, required provisions for compensating for unavoidable fish losses in addition to avoidance measures. We concurred with that conclusion and see no basis for treating the issue of compensation for unavoidable fish losses associated with the Pine Project inconsistently with the Chippewa Falls and LeClaire Projects.

24

The FERC staff provides on page 21 of the EA its justification for not requiring compensation. These reasons are that 1) WEPCO's proposed barrier net would substantially reduce entrainment and mortality; 2) agency review of the barrier net's effectiveness will ensure that it is sufficiently protective; and 3) improved fish production resulting from run-of-river operation and stabilized flowage pool levels will somehow offset turbine mortality losses.

With regard to points 1 and 2, we maintain that the issues of minimizing fish mortality and compensation of unavoidable fish losses are integral components of the overall concept of mitigation. As we have indicated consistently in the past for this and other projects, our mitigation goal is complete mitigation of fishery losses. Accordingly, we view mitigation as involving a sequence of steps, consistent with the definition of mitigation in the Service's Mitigation Policy and in the National Environmental Policy Act. While minimization of impacts is the initial and perhaps, the most productive step, mitigation is not complete without measures to address unavoidable losses (compensation). This same philosophy has been accepted by FERC in a number of recent licenses and for FERC to now not require compensation for unavoidable losses, particularly without sound justification, is both puzzling and disturbing.

Recommendation No. 3. Water Quality Monitoring.

If the FERC does not order any water quality monitoring, then FERC staff, the Agencies, and WEPCO will not know whether or not the project discharge is in compliance with the State Water Quality Standards. The Wisconsin DNR should not have to do water quality monitoring, as suggested in the EA, because it is WEPCO's project that uses a public resource of the state of Wisconsin. We believe that WEPCO should demonstrate through periodic water quality monitoring that they are not adversely affecting that resource.

25

Response 24. Because WEPCO will implement fish protection measures at the project, we recommend that compensatory mitigation or enhancement for unavoidable losses should only be required if the barrier net proves to be ineffective.

The Commission will retain authority for any future actions that might be required of WEPCO regarding fish protection or enhancement. We modified the language in the text to make this clear.

Response 25. The project waters have been monitored and found to meet or exceed State standards. However, staff reconsidered and concluded that periodic monitoring to demonstrate that this valuable resource continues to exhibit good water quality is a reasonable request. The document has been revised to require water quality monitoring as recommended by FWS and WDNR.

CONCLUSIONS

Upon review of the FERC staff's EA, the Service believes that substantive issues remain to be resolved for the Pine Hydroelectric Project including, but
26 not limited to, minimum flow, mitigation for turbine mortality, and water quality monitoring.

If FERC staff cannot accept the Agencies' recommended terms and conditions for the license, we recommend that FERC staff convene a meeting in Wisconsin, preferably in Green Bay or Marinette, to attempt to resolve these outstanding issues in accordance with the provisions of Section 10(j)(2) of the Federal Power Act. We do not believe a conference call would be productive because they are cumbersome given the number of participants involved. Further, the group would not have the benefit of sharing data from several documents in a meeting atmosphere.

27

We are also concerned with the 75-day time limit to conclude the 10(j) negotiations. It is stated in your March 8, 1994 letter that the EA is DRAFT and that the Agencies have 45 days from the date of the March 8 letter to comment on the draft. That only leaves FERC staff 30 days to revise the draft EA, send the Agencies a revised draft, and conduct 10(j) negotiations on remaining outstanding issues. We are concerned that this is not a realistic deadline and that adequate time may not be provided for FERC staff to seriously evaluate the Agencies' comments.

The Service provided input to and concurs with the Wisconsin DNR's April 18, 1994 comment letter on the EA. Given the serious concerns pertaining to the
28 economic assessment of the project that the Wisconsin DNR discusses in their letter, we strongly concur with the Wisconsin DNR that FERC staff should do the economic assessment over and present it in the revised EA.

If you wish to discuss these comments further, please contact me or Jim Fossum of my staff at 414-433-3803. Please send us a copy of the revised EA.

Sincerely,

Janet M. Smith

Janet M. Smith
Field Supervisor

cc: Robert Rosenberger, Wisconsin DNR, Marinette, WI
Gary Whelan, Michigan DNR, MI
Donald Henne, Regional Environmental Officer, Department of the Interior, Philadelphia, PA
FERC Project Intervenors List

Letter from U.S. Fish and Wildlife Service, April 21, 1994

Response 26. Your opinion is noted (a 10(j) meeting was held to discuss unresolved issues).

Response 27. A 10(j) meeting was held in Green Bay to discuss the Pine Project. Regarding your comment on the 75-day time limit, Commission regulation (18 C.F.R.§4.34(e)(5)) set a limit of 75 days for a meeting to address fish and wildlife differences under Section 10(j).

Response 28. Your opinion is noted. The economics have been revised in the FEA to incorporate your comments as well as the Commission's revised economic analysis policy for hydroelectric projects.

WISCONSIN DEPT. OF NATURAL RESOURCES

George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Industrial Parkway
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Marinette, Wisconsin 54143
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April 18, 1994

IN REPLY REFER TO:3600

SECRETARY LOIS CASHELL
FEDERAL ENERGY REGULATORY COMMISSION
825 NORTH CAPITOL NE
WASHINGTON DC 20426

SUBJECT: Comments on Draft Environmental Assessment for the Pine Hydroelectric Project (FERC #2486.002)

Dear Secretary Cashell:

The Department has conducted it's review of the Commission's Draft Environmental Assessment (DEA) of the Pine Hydroelectric Project. We have a number of comments and found a number of errors in this analysis which should be corrected before a valid assessment of project impacts can be made. We also have significant disagreements with the recommendations of the Commission's staff on this assessment.

1.) Page 2, Paragraph 1 - The DEA relates the projected supply and demand for electricity within the region. It states that system load and peak demand will both grow faster than planned generating capacity
1 and it states that these projections support the long-term need for power produced by the Pine Project. We feel that if this information is used in the assessment, you should state how the generation from the Pine Project would impact the system load and peak demand projections. In other words, if the Pine Project was removed how would these projections change?

2.) Page 2, Paragraph 3 - The DEA states that the project generated an annual average of 17,984,000 kilowatt-hours (kWh) of energy. This is an error, on page A-9 of Wisconsin Electric Power Company's (WEPCO) application for the Pine Project, they state that the annual average generation, based on thirty
2 years of historic data, is 18,878,000 kWh. This is verified in Volume 7, Section 2, Page 65 of the Pine Hydro Matrix. The applicant states that the 17,984,000 kWh figure is the 30 year average future generation if historic operation was to continue, corrected for loss due to 27 cfs flow (Volume 7, Section 2, Page 65 of the Pine Hydro Matrix). However, in Appendix 3, Table 1 of the application the 17,984,000 cfs flow is called the 30 year historic median flow. These flow figures need to be corrected in the DEA as they play a large part in the economic analysis. We want to see all of the calculations, spreadsheets and assumptions used to calculate these annual generation figures.

3.) Page 3, Paragraph 1 - The DEA states that the hydraulic capacity of the project is 640 cubic feet per
3 second (cfs). This is a mistake, it should be 624 cfs (Application, page A-2).

4.) Page 5, Paragraph 3 - FERC details their preferred approach for dam removal. They state that this
4 is one of several approaches to dam removal. We would like to see what other approaches were considered and why this approach was selected based on safety requirements and environmental impacts.

Letter from Wisconsin Department of Natural Resources, April 18,1994

Response 1. Regional projections would not change, but the region's generating capacity would decrease by the amount that the project generates (3.6 megawatts). The Pine is a small fraction of the total generating capacity for the entire region (representing approximately .03 percent of the total region's energy), but it contributes to meeting overall energy demand. Removing the project would further reduce supply in an area with already insufficient capacity to meet growing demand.

Response 2. We changed the text appropriately, and re-ran the economic cases using the 18,878 kWh number. We also provided additional explanation of how our calculations were derived in Section VI.

Response 3. The turbines are designed for 624 cfs, as you've noted. However, the plant's maximum hydraulic capacity is 760 cfs, and the applicant states that the plant's normal hydraulic capacity is 640 cf at its rated head of 94.0 feet at the 0.7 gate opening. We changed the text to clarify design versus operation capacity (see Section III.A.1).

Response 4. Your comments are noted. We did not consider other dam removal options in the EA; our alternative assumed restoration of the site to preproject conditions. This included sediment removal and restoration, and complete removal of the dam and powerhouse. In the revised document, we have included a seventh case (Case G), which is our dam removal scenario, without sediment removal costs.

We acknowledge that other partial dam removal alternatives could allow the powerhouse to remain in place, this would not restore the Pine River to its wild and natural condition (as stated in the Pine-Popple Master Plan). Therefore, other dam removal alternatives were not considered, as discussed in Section III.C ("Alternatives Considered but Eliminated from Detailed Study").

We considered your critique of our dam removal approach and your alternative proposal for removal of the Pine Project. We maintain that our cost estimate is reasonable and defensible. You did not provide sufficient detail on your approach or cost estimate for us to be able to thoroughly review or accept it as reasonable.

We agree that the first 14 feet of drawdown would not cause a sedimentation problem. Our decision to include a diversion dam and canal in our cost was based on the need to minimize sediment impacts from drawing the reservoir down the remaining 25 feet below the spillway crest. Incorporation of the diversion scheme does not greatly increase our cost of dam removal. Our cost estimate for constructing and removing the diversion facilities is less than 1 percent of our total dam removal cost of $20.8 million and less than

We also believe that the cost estimates for the various approaches that you considered should be included in the DEA.

The Wisconsin Department of Natural Resources (WDNR) believes that the construction of a temporary diversion dam and canal to divert river flows during drainage of the flowage is not necessary and could cause greater environmental impacts than the removal would. This proposed method also greatly increases the cost of the dam removal. The flowage was drawn down 14 feet last fall by the licensee, without any diversion of the flow, and the problem of downstream sedimentation did not occur. In addition we do not feel that all of the sediment in the flowage would have to be removed. As the flowage is gradually drawndown, the river will cut a new channel through the sediment that is eroded from the stream channel and could be caught and removed in a downstream trap at the present dam site. The remainder of the sediment in the former flowage bed should then be stabilized and revegetated before the dam itself is removed. Once the river has cut a new channel and the former flowage bed is stabilized and revegetated, the silt trapped in front of the dam could be removed, followed by the dam structure itself. The deep sluice gates can be opened to expose over two thirds of the impoundment.

The actual removal can begin once the high runoff is passed and the sluices clear the impoundment. There is good access to both sides of the dam and this will reduce removal expenses. Most of the concrete structures from the power house, penstocks and embankments can be buried in the power canal. Since this is a canyon area, minimal quantities of riprap should be required to stabilize the banks.

Based on our experience and expertise in dam removal projects, we conservatively estimate that the entire removal should be less than $1 million. Our rough cost breakdown is as follows:

Studies and engineering	$100,000
Powerhouse/Penstock	$100,000
Dam Including Embankments	$600,000
Power Canal Restoration	$50,000
Sediment Control/Restoration	$100,000
	$950,000

The WDNR feels that the construction of a temporary dam and diversion ditch is not needed and should not be considered in dam removal.

The DEA did not detail the proposed restoration plan nor did it explain how the expense of restoration was calculated. Our experience with dam removal projects indicates that most impoundments will revegetate naturally and quickly if the drawdown takes place early enough in the growing season to get good germination of the seed base in the sediment. Therefore, costs for revegetation should be minimal.

5 5.) Page 10, Paragraph 8, - The DEA states that the removal of the dam could have short-term adverse effects on geology and soils in the project area. How would the removal of the dam effect the geology of the area?

6 6.) Page 12, Paragraph 4, - The first sentence states that dam removal would return the river flow to its natural state, similar to run of river mode. This statement should be omited or corrected. While run-of-river is closer to the natural flow than the present operation, calling the flow through the power canal and penstocks similar to the natural flow is misleading.

Letter from Wisconsin Department of Natural Resources, April 18,1994

10 percent of the $4.3 million estimate that excludes sediment remov costs.

Regarding your cost estimates, we are skeptical that an effect: trap could be constructed and later removed, that sediment accumula: in the trap and at the base of the dam could be removed and disposec of, and other sediment restoration activities completed all for tot: of $100,000.

Finally, we do not agree that removal of the powerhouse, penstocks, dam and embankment, and restoring the power canal could ; be accomplished for your estimate of $750,000. Our independent analysis of costs for these same items totals $4.3 million. Our estimate also assumes that as much material as possible from these structures would be used to fill the power canal.

Response 5. We modified the text in Section V.B.1 to indicate that dam removal could have short-term adverse effects on ''geological resources'' in the project area. Our use of ''geological resources' encompasses all geologic features, including soils. Erosion and sedimentation impacts, which were described, are part of these effects.

Response 6. In response to your comment we revised the sentence, deleting the analogy of returning the river flow to its natural stat as being similar to run-of-river mode of operation.

7 7.) Page 13, Paragraph 1 - The DEA states that WEPCO investigated other ways to provide flow releases in winter and found two feasible alternatives: through a valved pipe through the Taintor gate, or through a siphon over the dam. It goes on to state that WEPCO estimates the construction costs for either alternative would be $200,000 to $225,000. The WDNR would like to see the cost estimates for both of these alternatives. Was there any independent analysis of the costs for these two alternatives and if not why not? In WEPCO's application for this project they list the cost of a side channel minimum flow device at $47,832 (Appendix 3, Table 3). They also state that this was an actual cost. What alternative was this cost estimate for and why was it not selected? The resource agencies feel that a siphon tube could be installed at this project to provide a year round minimum flow at a cost of much less than $200,000.

The WDNR is aware of a number of other projects in this area that pass a minimum flow to a spillway channel without the problems mentioned. The Brule Project (FERC #2431), which is located about 20 miles from the Pine, has provided a year around minimum flow to a spillway channel. Originally the licensee, WEPCO, objected to a winter discharge at this plant, but after a trial period, they found that icing problems did not exist. Wisconsin Public Service Corporation has been releasing a minimum flow in a bypass channel year around at their Grandfather Falls Project (FERC #1966) since 1988. The same company has committed to a year around flow in the bypass channel at their Wausau Project (FERC #1999) and Consolidated Water Power Company has agreed to release a minimum flow to the spillway channel through a tainter gate, year around, at the Wisconsin Rapids Project (FERC #2256). All of these projects are located in northern Wisconsin.

8 8.) Page 13, Paragraph 3 - The DEA states that the Michigan Department of Natural Resources (MDNR) and the WDNR oppose the recreational flow releases because of the peaking nature of the flows and the inconsistency with the wild river designation. This statement should be clarified, the WDNR feels that "artificial" flow releases in the bypass channel which are orchestrated for the purpose of providing whitewater boating at specific times is not consistent with the wild river designation. The WDNR feels that whitewater boating in itself is a legitimate, non-consumptive use in a wild river, it is simply the "artificially" induced flow releases that we are opposed to.

9 9.) Page 13, Paragraph 5 - Under the dam removal alternative, the benefits of natural flows analysis is limited to only fisheries and kayaking. The removal of the dam and restoration of flow to the historic river channel will also benefit other areas of interest. Additional analysis should include the beneficial effects that dam removal will have on aesthetics, natural scenic beauty, camping, uniqueness of the area, and the wilderness experience.

10 10.) Page 14, Paragraph 2 - FERC states that they do not recommend that staff gauges be installed in the headwater, tailwater, or bypass channel. Staff gauges are very inexpensive to install and maintain. Their installation would not have any effect on the economics of the project. A staff gauge in the headwater would allow anyone in that area to determine if the project was operating within compliance at that time. The general public would have no other way to determine compliance with the run of the river condition at this project. The agencies believe that the general public has the right to determine if the Pine Project is being operated in compliance with their license, since WEPCO is using a public resource to generate power for their own profit. A staff gauge in the spillway channel is needed as it would be the only way the agencies could determine compliance with the 27 cfs minimum flow, unless WEPCO would install some type of minimum flow device in the spillway or provide another United States Geological Service (USGS) gauging station at this location.

11 11.) Page 16, Paragraph 1 - FERC staff states that a comparison of the water quality data collected in 1990 from the Pine tailrace by WEPCO and from a USGS gauge on the Popple River showed that the

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Response 7. Based on negotiations at the 10(j) meeting, and subsequent consultation between WEPCO and the agencies, WEPCO concluded that they may be able to provide a year-round release to bypass channel in a manner similar to the Grandfather Falls Project We reviewed comparable project information provided by the agencies and developed an independent cost estimate for providing a winter release mechanism. We concluded that a similar system could be installed at less capital expense than originally estimated, and ag with both WEPCO and the agencies that a year-round bypass flow can should be provided. Section V.B.3 provides detailed information on this subject.

Also, see Response 13, below.

Response 8. The text has been modified to incorporate your comment

Response 9. We deleted the sentence providing cross-reference regarding the effect of dam removal to fisheries and kayaking. We not mean to imply that these were the only resources studied with respect to dam removal. We considered dam removal benefits to all resources, including visual resources (Section V.B.6.c), camping (Section V.B.8.a), and the wilderness experience (Section V.B.8.d). The EA frequently documents the uniqueness of the area and the limi development along the Pine River.

Response 10. We agree that WEPCO must demonstrate compliance with 27-cfs flow in the bypass reach. Because the provision of flow to bypass reach impacts fish and wildlife, this is a 10(j) issue. We agree with MDNR that WEPCO must demonstrate compliance with the minimum flow requirement. However, until WEPCO identifies the mechanism they will install to provide the continuous minimum flow, cannot recommend the best method to demonstrate compliance. Becaus of the low cost associated with a staff gage, we recommend that WEP install one in the bypass reach for public and agency viewing, although we do not recommend that this necessarily be used to measu compliance with the 27 cfs minimum flow requirement. In our judgement, a staff gage in the bypass channel would not be the most accurate means of measuring compliance because the steep grade and irregular channel bottom would not lend itself to an accurate stage discharge relationship. In the 10(j) meeting, we recommended that part of WEPCO's consultation with agencies on how to provide a year round flow to the bypass reach--they develop a method for how they will demonstrate compliance. The agencies agreed with this approac

A staff gage in the reservoir will not be used to monitor compliance, nor is it requested to protect fish and wildlife resources. Compliance with the headwater bandwidth will be measure by the electronic level sensor. Therefore, installation of a reservoir staff gage is not a 10(j) issue. Although public inquiri

are infrequent, WEPCO has agreed to work with agencies to identify an appropriate location for a staff gage in the reservoir. We support a mutually agreeable solution, but we do not recommend that this be mandated in the license.

Response 11. In response to your comment, we have provided additional explanation of the water quality data (Section V.B.2.f). There is no evidence of water quality problems associated with the project historically, nor do we have any reason to conclude this will change. We have removed the Popple River data from the table because it was misleading. The Popple River data represented quarterly samples in one year, whereas the Pine River data represented continuous monitoring for eight months. A comparison of Popple and Pine River on specific days showed very good agreement in water quality both upstream and downstream of the dam.

However, staff reconsidered this issue and concluded that periodic monitoring to demonstrate that this valuable resource continues to exhibit good water quality is a reasonable request. The document has been revised to require water quality monitoring as recommended by FWS and WDNR.

project is not affecting water quality in the Pine River. How can such a statement be made when the upstream data is taken from a tributary to the Pine River and water quality parameters were indeed better at this upstream station than they were in the Pine tailrace. The DEA is contradictory in that in the first paragraph on page 16 it states "...that the project is not adversely affecting water quality in the Pine River" and yet in the fourth paragraph on the same page it states "Water quality could improve over existing conditions after the dam is removed and the area is revegetated...". If the water quality may improve if the dam were to be removed than the project must in some way be impacting water quality. If an ongoing water quality monitoring program is not ordered by FERC, the WDNR will not be able to determine the project's compliance with state water quality standards. The state should not have to conduct a water quality monitoring program for this project at their own expense. WEPCO is requesting a license to use a state resource, they should pay for the monitoring program to show that they are not impacting that resource.

12.) Page 18, Paragraph 2 - The DEA states that "In some stream areas, physical habitat would be affected primarily by fine sediment (silt and clay) releases following dam removal. Fine sediment could
12 be released for years while the former flowage area stabilizes.". If the dam removal alternative became a reality, an erosion/sediment control plan would be devised that would eliminate most fine sediment releases downstream. We would definitely require that the sediments in the former flowage area be stabilized within a year of dam removal.

13.) Page 19, Paragraph 1 - FERC staff give their rational for not requiring a 27 cfs release in the spillway channel during the winter. The WDNR does not agree with this reasoning. FERC staff state that the release cannot be made from the Taintor gates because of serious safety concerns; namely spray and steam from the release could freeze gate mechanisms and access routes to the gates, rendering them inoperable. The Taintor gates open from the bottom at this project. If one of the gates was opened slightly to provide the 27 cfs release, we doubt that it would create a spray 17 feet high that would ice the Taintor gate walkway. In any event a test should be conducted during the winter to determine whether or not this type of a problem actually exists. WEPCO expressed similar concerns at their Brule Project (FERC # 2431) on a winter release of a minimum flow through a spillway and once they tried it for a year they found that their initial fears were unwarranted. This project is located within twenty miles of the Pine Project.

The DEA states that both alternatives the applicant looked at for providing a spillway release would be
13 costly and would have questionable reliability and the proposed cost of the enhancement would make the project uneconomical. We have a concern with the use of the applicant's data without any indication of an independent Commission analysis to verify the accuracy of these cost estimates. The additional information request does not include any cost estimates for the two alternatives (Appendix 5). This biases the analysis and encourages applicants to submit high cost estimates. The higher the proposed cost the less likely that anything will be implemented. This type of analysis is inappropriate. As mentioned in #5 above, WEPCO lists a capital cost of $47,832 for a side channel minimum flow device (Appendix 3, Table 3), which alternative is this cost estimate for?

The assessment goes on to state that during prolonged severe winter conditions, much of the water released and much of the habitat area in the bypass could freeze, nullifying most of the benefit of the release. Even if this statement were true, some water in the bypass reach is better than a dry channel. Even if most of the 27 cfs release would freeze, more protection would be given to the aquatic resource with a year round flow than if you would have a dry stream channel. Many of the benthic macroinvertebrates inhabiting the stream channel would burrow into the stream substrates during the winter and these areas would not freeze with a year round flow, however they would be dried out if you had no flow released during the winter months. In actuality any release to this bypass channel would

Response 12. Your comment is noted; however this is a moot point since we are not recommending dam removal. Should dam removal beco a reality in the future, an erosion and sedimentation control plan would be required.

Response 13. Based on negotiations at the 10(j) meeting, and subsequent consultation between WEPCO and the agencies, WEPCO concluded that they may be able to provide a year-round release to bypass channel in a manner similar to the Grandfather Falls Project We reviewed comparable project information provided by the agencies and developed an independent cost estimate for providing a winter f release mechanism. We concluded that a similar system could be installed at less capital expense than originally estimated, and ag with both WEPCO and the agencies that a year-round bypass flow can- should be provided. This is discussed in Section V.B.3.

Following the 10(j) meeting and subsequent consultation with t agencies, WEPCO filed information in a letter dated August 3, 1994, stating that when they voluntarily began to operate their project i run-of-river mode, they modified their system to allow operations a lower flows. Based on further evaluation, they have concluded that this should eliminate the need for winter cycling. We conclude tha these upgrades satisfy the agencies' concerns with winter cycling. This is discussed in Section V.B.2.

come from a depth of about 12 feet, the bottom of the Taintor gates. The water at this depth is somewhat warmer than surface water and hence would not be "super-cooled" as mentioned in the DEA. In any event, the channel would not be frozen from the bottom up.

WEPCO states that the 27 cfs release in the side channel during the winter would lead to a greater frequency of on/off operating cycles during dry winter periods. The WDNR feels there should be no on/off cycling occurring at this plant under the run of the river condition. If flows were too low to operate one unit continually while still maintaining the 27 cfs spillway minimum, then the unit would have to be turned off and entire incoming flow would have to be released through the spillway channel. On/off cycling of a unit is not run of the river operation and is not acceptable to the WDNR.

FERC staff state that a winter release requirement would be inconsistent with the comprehensive development standards of the FPA, and their recommended seasonal flow release regimen would adequately protect environmental resources. The WDNR would like an explanation of how a winter release requirement at this site would be inconsistent with the comprehensive development standards of the FPA. It is completely illogical to think that the seasonal release proposed by FERC staff would adequately protect environmental resources. Appendix 6 of the applicant's additional information request details how the agencies determined the appropriate side channel flow to protect the resource. This document clearly states that the management objectives defined would be met by a year-round flow and the applicant agreed with the agencies rationale and the magnitude of the minimum flow release (page 7, additional information). The aquatic resources in the sidechannel could not be sustained by being dewatered during a portion of the year. The aquatic fauna, such as fish, benthic macroinvertebrates, mollusks, amphibians, and reptiles, will begin to repopulate the sidechannel once stable flows are restored. If flows are terminated the more mobile organisms will move out of the area, while the immobile fauna will be left to die. You will never be able to establish a balanced aquatic community in this manner and this is certainly not in the public interest.

14.) Page 20, Paragraph 5 - FERC staff states that an article will be included in the license which will reserve the Department of Interior's fish passage prescription authority. The DEA makes no mention of the WDNR's request to provide an article in the license to have the licensee provide upstream passage
14 if and when the WDNR requests it. We realize that we do not have Section 18 authority, but we have similar state laws which require dam owners in the state of Wisconsin to provide adequate fish passage when the WDNR deems it necessary (Section 31.02(4) Wisconsin State Statutes). This is one of the oldest resource laws in Wisconsin and it is only right that FERC licensed dams be held to at least the same standards as state licensed dams.

15.) Page 21, Paragraph 5 - FERC staff believe that compensation for unavoidable fish losses should not be required at this project. The WDNR strongly disagrees with this position. It is the position of the State of Wisconsin that: 1.) fish are the property of the State of Wisconsin; 2.) FERC is required to take all appropriate measures to protect and enhance fishery resources; 3.) the Federal Power Act empowers the courts and not the Commission with the authority to adjudicate damage and eminent domain actions; and 4.) Wisconsin is entitled to the full measure of damages to its fishery resource.

15 FERC staff state that no fish screening device is 100% effective, but WEPCO's proposal should substantially reduce the number of fish entrained by the turbines. The WDNR feel that there is no basis for this assumption. A fish entrainment study was never conducted at this site, so there is no way to determine the effectiveness of any means of fish protection. A properly designed evaluation study of the barrier net will give an indication of how many fish are still able to elude the net, however it will not identify how many fish have been stopped by the net. Until an adequate evaluation study is conducted with the barrier net in place, the WDNR will not be able to determine what type of fishery losses are still

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Response 14. The document referenced both WDNR's and MDNR's requests for fishway reservation. However, the FPA makes only federal resource agencies the holder of Section 18 fishway prescription. Both state agencies may request fish passage in the future under the provisions of the standard articles or through DOI.

Response 15. Because WEPCO will implement fish protection measures a the project, we recommend that compensatory mitigation or enhancement for unavoidable losses should only be required if the barrier net proves to be ineffective.

The Commission will retain authority for any further actions tha might be required of WEPCO regarding fish protection or enhancement.

occurring at this project. Subsequent to the evaluation study the WDNR will be able to assign a monetary value to the residual fish losses. The WDNR takes the position that mitigation is necessary for any residual fish losses that occur at this project after the fish protection devices are in place. In the WDNR "Guidelines for Fish Entrainment and Mortality Mitigation at Federal Energy Regulatory Commission Licensed Hydropower Projects" (copy attached), it clearly states that compensation should be provided to replace any residual entrainment and mortality losses that remain after minimization and rectification efforts have been made. The WDNR feels that the following mitigation steps should be applied sequentially in order of preference starting with avoidance and followed by minimization, rectification, with compensation last.

Although we cannot comment on the anticipated magnitude of the residual fish losses at the Pine Project until evaluation studies are completed, we feel that the concept of compensation for residual losses must be applied to the Pine Project. FERC has included provisions for compensating for unavoidable fish losses in several recently issued licenses, including those for the Chippewa Falls and LeClaire Projects. We see no reason for the inconsistency in the way FERC staff handles the issue of unavoidable fish losses between the Pine Project and the aforementioned projects.

16.) Page 24, Paragraph 5 - The DEA states that given the natural waterfall barriers that would prevent upstream fish passage once riverine conditions were restored, potential for increased dispersal would be very low. How were these waterfalls evaluated to determine that they would be a barrier to upstream
16 fish passage? It is the WDNR's feeling that these would not provide a barrier to upstream fish movements, at least at certain flows. These statements should be removed from the assessment unless it can be proven that these would be barriers to fish movement.

17.) Page 25, Paragraph 6 - The DEA states that the dam removal alternative would potentially eliminate or degrade wetlands associated with the reservoir. It goes on to state , "Any net loss of wetlands would need to be replaced in accordance with federal regulations." While we agree that a wetland impact evaluation should be done, (e.g, in conjunction with a Corps of Engineer's Section 404 permit review), we do not agree that wetlands lost by dam removal would necessarily have to be replaced because dam
17 removal would restore the preexisting condition before the dam was built. There are no regulations for dam removal projects that require Federal agencies to compensate for wetland losses. It should be noted that these wetlands created by the impoundment are artificial. It is in the overall best public interest of the residents of the state that the dam be removed even though it may result in the loss of some anificially created wetlands. Thus we do not believe that this criteria is a viable argument to use against dam removal and it should be removed from the environmental assessment.

18.) Page 26, Paragraph 5 - The DEA describes the aesthetic resources at the Pine Project. It mentions
18 the natural wilderness shoreline of the reservoir shoreline. It should be noted here that the entire project, including the reservoir, is an intrusion on this State designated Wild River. This project negatively impacts the aesthetic resources associated with the Pine's wild river status.

19.) Page 27, Paragraph 2 - Both sites 24 and 35 are within 150 feet of the river and are contrary to the Wild Rivers management plan. Site 24 is at present somewhat screened from the river, however, the planting of additional screening vegetation in this area would represent a small financial cost and would be in keeping with the intent of the Wild River legislation. WDNR disagrees that site 35 could not be
19 screened better from view. While the boat ramp itself may require an open area of about 20 feet, the remaining approximately 250 feet of shoreline at this site should be revegetated to provide screening from the river. The establishment of a more confined boat launch will also help to eliminate erosion caused by the beaching of boats and foot traffic in the open area. Once again, the financial outlay to vegetate this site would be minimal. This action would not bring these sites into compliance with the Wild Rivers

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Response 16. We have made some modifications to the text in Section V.B.3.c.

Response 17. We have removed wetland replacement cost estimates f the dam removal economic cases and have removed text references in Section V.B.5.a of the EA.

Response 18. The Pine Project pre-dates the state wild river legislation.

Response 19. In response to this issue, we acknowledge that WEPCO could provide some landscaping to soften the visual appearance of recreation site. However, the existence of the dam (and maintenan of the earthen berm) adjacent to the recreation site prevents full visual screening of the area. WEPCO has agreed to work with the W to provide landscaping at this site to the extent that it does not interfere with the project facilities. Further, we have recommend that the CLMP be modified to include provisions for consultation w the WDNR Wild Rivers coordinator prior to any land disturbing activities (see Section V.B.6.a).

management but would return a small amount of the wilderness feel to the river.

20.) Page 27, Paragraph 3 - FERC staff conclude that the 27 cfs bypass flow would benefit the aesthetics in the 0.4 mile bypass reach and recommend no further enhancement for visual impacts in the bypassed
20 reach. How are the aesthetics of the bypassed reach impacted by the lack of any flow releases in the winter months? If the 27 cfs flow would benefit aesthetics during ice-free months, why doesn't the same hold true during the winter months?

21.) Page 27 Paragraph 5 - The statement that.."it will take decades of vegetation growth....to blend into the mature forest" is a misleading overstatement. The short term aesthetic losses will not be as severe as is stated in the DEA. The exposed mudflats resulting from the drawdown will be revegetated immediately
21 as part of the soil erosion control plan. Fast growing pioneer plant species will be established in this open area and this vegetation will quickly return the site to its natural scenic beauty. Also, dam removal will allow the topography of the canyon area that had been lost by the impoundment to return to its natural state.

22.) Page 28, Paragraph 2 - FERC staff state that the loss of a scenic water body would be a permanent adverse impact. The WDNR feels quite to the contrary that the loss of a man-made flowage on a wild river would be a very beneficial impact. The flowage currently drowns two falls each eight feet high,
22 one falls that is twelve feet high and a half mile rapids. This is in addition to the 0.4 mile long spillway channel, almost all whitewater rapids, which would also be regained if the project were removed. The loss of this artificial impoundment on a state wild river would definitely not be a permanent adverse impact.

23.) Page 28, Paragraph 7 - The DEA states that removal of the dam could affect previously undiscovered archeological sites. In our dam removal plan, this potential affect on undiscovered archeological sites will
23 be negligible since we believe that it will be unlikely that it would be necessary to excavate sediment in the reservoir. Also, dam removal would enhance any undiscovered archeological sites that have been flooded by the impoundment.

24.) Page 29, Paragraph 3 - The DEA states that recreational opportunities within the project boundary are limited to two areas at the reservoir in which WEPCO provides camping and boat launch facilities. This is not the case. WEPCO has historically maintained a policy of allowing the public access for recreation to all WEPCO owned project lands, with the exception of limited areas near hydroelectric dams and generating facilities that pose a potential safety or security hazard. WEPCO has again restated this
24 policy to the agencies in their application (Volume 7, Section 2, Pine Hydro Matrix, page 12). WEPCO also maintains a canoe portage at this project for the use of recreationists. Annual use figures are only for users of the developed recreational facilities on the project, but do not include the recreationists using other project lands. The user survey did not include canoeists using project lands if they did not stay at one of the camp sites. It should be stated that the recreational use figures used in the DEA are minimal at best.

25.) Page 29, Paragraph 3 - The DEA states that canoeists on the river stop at the dam because of the difficult portage and that the river is relatively shallow east of the dam. This statement should be modified
25 to indicate that approximately 1/2 mile of the historic river channel is shallow because the flow has been diverted to the power canal and penstocks. Removal of the dam will allow the river to return to the historic channel.

26.) Page 30, Paragraph 1 The last sentence states that "Statewide there are...more than 500 miles of
26 whitewater opportunity." A definite mileage should be used here. This sentence could lead the reader

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Response 20. Following the 10(j) meeting WEPCO agreed to provide a year-round flow. We recommend that WEPCO consult with agencies on details of providing this flow and methods for measuring compliance.

Response 21. In response to your comment we modified the text to stat that within a few years shrubby and herbaceous vegetation would blend with the existing mature vegetation in the area.

Response 22. In response to your comment we added to the document that the loss of flatwater would be balanced by restoration of free-flowing river and removal of dam structure.

Response 23. Your comment is noted.

Response 24. In response to your comment we revised the text to stat that there are two formal recreation facilities and a canoe portage, and that the remainder of the project lands are open for dispersed recreation (see Section V.B.8.a).

We reviewed WEPCO's recreation survey methodology in response to your comment. The recreation survey was developed by visiting the tw formal recreation facilities to observe the number of visitors to the flowage. We conclude that this was sufficient, as the only access to the reservoir is via the two roads that serve the recreation sites, o by boating to the area from upstream. Although the entire project area is accessible to the public, it is reasonable to assume that visitors will be either at the recreation sites or at the reservoir. WEPCO's recreation survey included day visitors (including canoeists) not merely overnight campers to the sites.

Response 25. Your comment is noted, however we did not modify the text because there is no evidence indicating that this segment of the river is shallow due to the diversion of water to the power canal. W acknowledge that removal of the dam would restore flows to the historic river channel.

Response 26. We modified the EA to specify that there are 502.5 mile of whitewater opportunity in the state; and that there are 8 miles of Class IV rapids in nearby rivers (Peshtigo and Menominee). The text states that flows in the 0.4 mile bypass reach would offer Class IV rapids, and that removing the dam would provide a 2-1/2 mile stretch of whitewater recreation opportunity at varying levels of difficulty. (See section V.B.8.a.)

to conclude that the rapids at the dam are not significant which is far from the truth. The total rapids area that is affected by the dam is very significant. With dam removal, the rapids area would extend from La Salle Falls through the present flowage, past the dam location to the power house. This represents an area of rapids two and one half miles long, made up of class IV rapids. According to the chart provided, removal of the dam would increase the area total of class IV whitewater by 31%. These facts need to be included in order to give a more accurate picture of the significance of the area obliterated by the hydro project.

27.) Page 30, Paragraph 2 - FERC staff state that based on random observations, the whitewater boating use in the bypass reach is minimal. How and when were these observations made? How was this data expanded to account for the use figure of 10 boaters annually. During what year was this analysis done? How often were there flow releases during that year that were suitable for whitewater boating? Without
27 knowing this data it is impossible to predict current or future use of the bypass channel by whitewater boaters.
A further explanation of the reasons for the low usage should be included. The removal of the dam would eliminate the problem of the short run, the erratic water levels and the poor access.

28.) Page 31, Paragraph 1 - The DEA states that the dam, having been constructed before the wild river designation, is considered a preexisting use. It is true that the dam was on the river prior to the Pine's designation as a state wild river, however that does not mean that the WDNR wants to see its continued
28 existence on the river. The goal of the Pine - Popple Wild Rivers Master Plan clearly states, "To restore and perpetuate, through special management, a wild and natural condition on the Pine and Popple rivers and their adjacent shorelands..." In short, the Pine dam does not enhance the quality of this state designated wild river.

29.) Page 31, Paragraph 6 - The DEA denotes the loss of "boat fishing" opportunities if the dam were
29 removed, but it says nothing about the increased river fishing opportunities which would exist if the dam were not present.

30.) Page 31, Paragraph 7 - The statement that the use of the camp sites may be eliminated because of the loss of the flowage and the distance the sites would be from the water is erroneous. The removal of
30 the flowage would put the camp sites 400 feet from the scenic river well within ear shot and easy walking distance. The conclusion in the EA should be reevaluated.

31.) Page 33, Paragraph 1 - While the WDNR has stated that recreational flow releases are not consistent
31 with the wild river intent, it should be pointed out that recreational uses of the river are not only considered consistent with the intent, recreation is encouraged. The removal of the dam would make the issue of recreation releases a mute point and return the river to its natural condition.

32.) Page 33, Paragraph 4 - This paragraph points out an inconsistency that runs through out the report. In this paragraph it is pointed out that a foot path for the users of the river within the 150 foot zone
32 would be inconsistent with the wild rivers. This is true, however on page 27 paragraph 2 the DEA does not have a problem with the camp sites on the river and sees no need to screen them from the water. This use of the Wild Rivers intent to justify not complying with a recommendation followed by the disregard of the Wild Rivers intent concerning other issues needs to be rectified. The most inconsistent element in this discussion, when it comes to the intent of the wild rivers, is the dam.

33.) Page 33, Paragraph 5 - Points out again the inconsistent use of the Wild River as a reason not to
33 implement a particular point. If the Wild River legislation is to be complied with in one area, such as the special release flow, then it should also be complied with for dam removal.

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Response 27. Your comment is noted. Information on existing whitewater visitors to the area was provided by WEPCO at the site visit. No one has provided information to substantiate a higher existing whitewater recreation use.

The purpose of this information is to indicate that whitewater boati can-and does-occur in this reach, but not frequently, due to reasons stated in the text. Later in the same section, there is discussion how, if the dam were removed, impediments to whitewater boating in that reach would be eliminated.

Response 28. Your opinion is noted.

Response 29. We added text stating that the loss of reservoir fishi opportunities would be balanced with increased river fishing opportunities.

Response 30. We provided additional discussion about potential chan to recreation opportunities as they relate to overnight visitation.

Response 31. We note your comment that recreation use is consistent with the intent of the wild river designation. We agree that remova of the dam would make the issue of special release flows a moot poin However, for this project, we do not recommend dam removal.

Response 32. See Response 19 of this letter.

Response 33. Your opinion is noted.

34.) Page 34, Paragraph 1 - The DEA states that the normal hydraulic capacity of the plant is 640 cfs. This is an error on page A-2 (Table A-2) of the application, it lists the hydraulic capacity as 624 cfs. This error would also change the figures in the rest of this paragraph. The assessment should be corrected using the appropriate flow figures.

35.) Page 35, Paragraph 1 - We feel that the criteria used to project the future use of the site after dam removal is erroneous. The use of the estimate of 10 people visiting the site now has no bearing on the number who would visit the site if the dam was removed and a 2.5 mile white water run was available. The fact that 10 people (a figure we believe to be low) are willing to struggle through the difficulty to use the area below the dam now is an indication of how extraordinary and rare this opportunity is. That would indicate that if the area was expanded to 2.5 miles of Class IV whitewater, the number of people using this area would increase dramatically. The use of the fact that there are six overnight camp sites at the dam also would have little bearing on use and is misleading. The Forest Service, Florence County and a number of private individuals offer camping accommodations within a 1/2 hour drive, all of these areas are available to the river users. With a 2.5 mile whitewater run available after dam removal, an increase of river users who start at the access points above La Salle Falls will be seen and this information needs to be factored in. The removal of the dam and the accompanying whitewater will open up the opportunity for wilderness canoe and kayak trips of more than one day.

36.) Page 35, Paragraph 5 - An explanation of what criteria were considered when judging which other white water experiences were similar to this project is needed. We feel that the $25 estimate is very low. Was only the .4 miles of river below the dam considered, or was the whole 2.5 miles of white water looked at? Was the rareness of the opportunity in the midwest considered? Was the uniqueness of the wilderness experience considered?

37.) Page 35, Paragraph 8 - The DEA lists a series of objectives for a state wild river. These are not the objectives that are listed in the Pine - Popple Wild Rivers Master Plan. We do not know where these came from and some further explanation is warranted in the assessment.

38.) Page 36, Paragraph 1 - Increased recreation activity should include hiking, sightseeing, wilderness experience, camping and uniqueness.

39.) Page 36, Paragraph 2 - The DEA states that WEPCO opposes establishment of a retirement fund and gives the company's reasons. However, FERC staff's position on the retirement fund is not discussed. It is stated in the table on page 44 that "establish project retirement fund" is not a 10(j) issue and that FERC staff did not adopt it. The FERC staff's position on this subject and their reason for not adopting it should be stated in the revised EA. It should be mentioned that the WDNR still feels that WEPCO should establish a retirement fund for this project even if FERC decides against immediate dam removal. These hydros, especially small marginally economic facilities like the Pine Project, will not be around forever. Arrangements should be made to make sure that the companies that made profits off of these facilities are the ones that pay for their eventual removal. The State feels that the people of Wisconsin should not be made to pay for the removal of these old hydro projects. In order to preserve public rights in navigable waters, Wisconsin State Law allows the Department to require persons operating a dam for profit to create a fund or reserve to be used for major repairs, reconstruction or removal of a dam. We respectfully request that FERC recognize our concurrent jurisdiction and interest within this license.

40.) Page 36, Paragraph 2 - The last line would indicate that the Wild Rivers program does not support the removal of the dam. The legislation was passed in spite of the dam to protect an otherwise very undeveloped river system. The policy has been to obtain improvements as they became available. Neither the legislation, the master plan nor the administrative code calls for the removal of any man made

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Response 34. See Response 3 of this letter.

Response 35. We stand by our estimate of potential increased whitewater recreation use if the dam were removed.

Response 36. Because a site-specific study of the value of whitewat recreation was not conducted at this site, we concluded that it was inappropriate to estimate values. Therefore, we have removed all references to dollar values of those recreation activities.

Response 37. In response to your comment we replaced quoted text wit a quote from Wisconsin Administrative Code, NR 302. As a point of clarification, this quote was highlighted in two separate letters frc WDNR (letter from Thomas Watkins, Bureau of Property Management and WDNR, dated January 14, 1994; and letter from Daniel J. Heath, Marinette Area Real Estate Specialist with WDNR, dated January 14, 1994).

Response 38. Your comments have been incorporated.

Response 39. The Commission issued a policy statement regarding decommissioning on December 14, 1994. The License Order provides detailed information on this subject.

Response 40. We modified the sentence in the referenced paragraph to clarify that ''they'' is WEPCO. We did not mean to imply that this was the intent of the Wild Rivers program, we were merely stating WEPCO's opinion.

development by name. The fact that the dam is not specifically mentioned for removal is in no way an indication that the dam does not intrude on the Wild River and is not intended to be removed when the opportunity arises. Prior to the passage of the Electric Consumers Protection Act of 1986, there was no mechanism available for the discussion of dam removal let alone a process for actual removal. Before that time there was little point in discussing an alternative that did not exist. The intent of the law is very clear and that is "...to preserve some rivers in a free flowing condition and to protect them from development..."

41.) Page 36, Paragraph 3 - The statement that the removal of the dam would alter or remove an (artificial) environment that was established 70 years ago seems insignificant when compared to the fact that the removal would reestablish a natural environment that was lost when the dam was constructed. This environment had been developing for centuries before being interrupted by the dam construction.

42.) Page 37, Paragraph 3 - The DEA states that if the dam were removed, WEPCO may conclude that it need not maintain ownership of the project lands and FERC staff state that it is not known whether a federal or state agency would have the interest or the ability to acquire the property, or what the future use could be. This is not the case. The WDNR told WEPCO in a meeting on September 20, 1990 that we would be willing to buy their lands associated with the Pine Project, but we would not assume the dam and project removal costs (meeting notes Section 5, Volume 9 of the Application). The environmental assessment should be corrected on this account.

43.) Page 37, Paragraph 4 - This statement should read; As long as the dam is present, it would continue to conflict with the intent of the wild river designation. The remainder of the sentence as it appears in the EA is misleading.

44.) Page 37, Paragraph 5 - The state has offered to buy the lands making this a mute point.

45.) Page 37, Paragraph 6 - The DEA states that the Pine River is visited mainly by local people. This is an error and should be removed from this analysis. The recreational user survey shows that 65% of the individuals interviewed in the survey travelled over 100 miles to the Pine Project and only 25% came from less than 25 miles (Applicant's Additional Information, Volume 2, Appendix 8, Page 10).

46.) Page 38, Paragraph 1 - FERC staff state that they reviewed other nonuse studies that quantify the value of free-flowing rivers and estimated that the value for the Pine River would be $17 annually. We would like to see all of the studies that were used in determining this figure and exactly why the $17 figure was picked for the Pine. In addition where any of the rivers used in these studies state designated wild rivers? The value of a free flowing wild river would most certainly be more than for other rivers without that designation.

As stated in point 27 above, most of the use of the Pine River is not from locals but from people travelling to the area from over 100 miles away. The remainder of the nonuse analysis is thus in error. We suggest that the total number of households in a 250 mile radius be used in recalculating the nonuse value. The environmental assessment should be corrected to reflect these changes.

47.) Page 38, Paragraph 3 & 4 - The DEA states that the socioeconomic impact of removing the project would result in a loss of local and state tax revenues currently derived from operating the project. In Appendix 3 of WEPCO's application, page 6 under taxes it states..".The Wisconsin State do not charge any property tax in Wisconsin. Since the Pine Project is located in Wisconsin, the company does not pay property taxes for the Pine Project. No other tax has been included in this analysis". Based on these statements the DEA should be amended and the section on the economic loss of tax revenues should be

Letter from Wisconsin Department of Natural Resources, April 18,19

Response 41. Your comment is noted.

Response 42. We modified the text to reflect your interest in purchasing project lands if WEPCO were to elect to sell the proper

Response 43. We modified the text on page 37 based on your comment

Response 44. See Response 42 of this letter.

Response 45. In determining use at the site, we reviewed WEPCO's recently completed Comprehensive Long Range Recreation Plan. In th assessment of visitation and use at their projects within the Menominee River Basin, they concluded that the focus of the region which the Pine is located is—and will continue to be—to accommodate local resident uses. We agree with their study's conclusion that t Pine is not a unique resource to the area, given the abundance of streams, rivers, and lakes, and wooded, natural areas throughout northern Wisconsin and the Upper Peninsula of Michigan.

Although the area has appealing intrinsic properties, such as good water quality and a pristine environment, knowledge about the area is obtained primarily from visiting the site.

Response 46. Because we did not conduct a site-specific nonuse stu at this project, we concluded that it was inappropriate to include this in the EA. We have removed all text and references from the document.

Response 47. We removed all reference to tax impacts, as WEPCO indicated that they do not pay taxes. We also modified the text to indicate that the effects on local employment would be negligible o the long term.

eliminated. Based on this the next paragraph on unavoidable adverse impacts should also be eliminated.

48.) Page 38, Paragraph 4 - The purchase of the land by the state for the wild rivers program would increase the tax payments to the county, town, school and other entities that are funded by property tax. As of January 1, 1992 the WDNR aids-in-lieu-of-taxes will be equal to property taxes that would be paid if the property was under private ownership.

48

49.) The economic analysis that was done in the DEA is inaccurate because the wrong generation and energy benefit numbers were used for the different operational scenarios. The charts below attempt to show the differences in the numbers used in the DEA versus the numbers used in the application.

Historic (30 year average generation from historic records)		
	Total kw	Energy Benefits
Environmental Assessment	17,984,000	$9,315,000
Application (actual)	18,878,000	*
Application (simulated)	19,853,000	*

* Not found in application.

49

Historic (corrected for loss due to 27 cfs bypass flow)		
	Total kw	Energy Benefits
Environmental Assessment	*	*
Application (simulated)**	17,984,000	$10,860,940

* Not found in assessment.
** The application does not state whether the correction for the 27 cfs bypass flow was made for the entire year or just for the open water months.

Run of River (without 27 cfs bypass flow)		
	Total kw	Energy Benefits
Environmental Assessment	*	*
Application (simulated)	18,665,000	*

* Not found in the assessment or the application.

Letter from Wisconsin Department of Natural Resources, April 18,1994

Response 48. No response required.

Response 49. We changed the text appropriately, and re-ran the economic cases using the 18,878 kWh number (see Section VI).

Run of River (corrected for 27 cfs bypass flow - open water months only)		
	Total kw	Energy Benefits
Environmental Assessment	16,854,000	$7,479,000
Application (simulated)**	*	*

* Not found in the assessment or the application.
** The application does not state whether the correction for the 27 cfs bypass flow was made for the entire year or just for the open water months.

Run of River (corrected for 27 cfs bypass flow - year around)		
	Total kw	Energy Benefits
Environmental Assessment	*	$7,281,000
Application (simulated)**	16,854,000	$8,101,690

* Not found in the assessment.
** The application does not state whether the correction for the 27 cfs bypass flow was made for the entire year or just for the open water months.

The DEA should be revised using the correct generation and energy benefit figures.

50.) Page 38, Under Developmental Resources - We noted that the applicant used sunk cost in their analysis of the value versus cost of the plant (Application Volume 2, Appendix 3, Page 6). They state "Relicensing capital cost represent the cost of studies, and internal and consultants, both completed to date, as well as projected." Using projected cost in an economic analysis is appropriate, but including already spent money that can never be recovered regardless of alternative selected is clearly incorrect. Money already spent should not be included in an analysis of this type. Since the present value of this item is over 1.5 million dollars it could have a substantial impact on the analysis and the recommended alternative. We note that the DEA's projected cost appear to be similar to the applicant's. Since it appears that the DEA used sunk cost within their analysis it needs to be revised.

50

51.) Page 38, Paragraph 5 - FERC staff state that the Pine Hydroelectric Project has generated an average of 17,984,000 kWh of electric energy annually. This is in error. As stated in Point 2 above, the 17,984,000 kWh is not the 30 year historic median or mean, it is a figure that has been corrected for the loss of 27 cfs in the side channel (the application does not state for what part of the year the 27 cfs loss in the sidechannel was calculated for). The actual 30 year average generation from historic operation is 18,878,000 kWh. This entire section of the environmental assessment needs to be redone using the correct generation figures.

51

The DEA states that WEPCO proposes to modify its existing operation from peaking to run of the river, which will decrease annual generation by 1,130,000 kWh to 16,854,000 kWh. Evidently FERC obtained these figures from the WEPCO's application for this project (Table 1, Appendix 3, Volume 2 of 9). The run of the river projected generation figures for this table are based on model output for the 1982 water

Letter from Wisconsin Department of Natural Resources, April 18,1994

Response 50. It is valid to use past study costs when they are capitalized as a cost and incorporated into the rate structure.

Response 51. We changed the referenced text and re-ran all economic cases using the 18,878 kWh number. The application states that the year 1982 was chosen by resource agencies as representative of a long-term average water year. We also accounted for the higher wate: target level (see Section VI).

year corrected for the thirty year historic average. Why was only this one year used in the projection when data was available for at least three water years (1973, 1977 and 1982). If the energy production is averaged for those three years quite different figures are obtained. It shows that simulated average annual energy production under the run of the river scenario is 18,053,000 kWh, while based on the present peaking operation it would be 18,459,000 kWh. This would result in a decrease of only 406,000 kWh rather than the 1,130,000 kWh in the DEA (see attached). We are requesting to see all the data, spreadsheets, and the assumptions that were used to make the above calculations.

All of the energy generation calculations in the DEA and the application are based on an open water pond elevation of 1,191.6 feet (NGVD) and a winter pond elevation of 1,191.1 feet (NGVD)(Application Volume 2, Appendix 3, Page 2). WEPCO now proposes a year round target elevation of 1,191.6 feet. Because of this change in operational head during a portion of the year, the predicted generation figures will change. Any economic analysis must take this into account.

52 52.) Page 39, Paragraph 1 - The DEA lists various scenarios for environmental enhancements. These benefit analyses are not accurate because of the use of the wrong predicted generation figures as described above. This whole section of the assessment should be redone.

53 53.) Page 39, Table 6 - The DEA lists the capital costs for a number of proposed enhancements. For recreational improvements a cost of $60,000 is listed. We would like to see an explanation of what improvements this includes and a cost-breakdown of these improvements. We can not see any place in the application or additional information supplied by the applicant that details recreational improvements at this project totalling $60,000. In addition WEPCO will begin charging a daily fee for camping at their recreational sites beginning in the summer of 1994. Where has the income generated from these fees been entered into the economic analysis?

There is a cost of $200,000 listed in Table 6 for winter outlet works. Where does that cost estimate come from and why isn't the $47,832 cost estimate for a side channel minimum flow device used instead?

54 54.) Page 41, Paragraph 2 - The entire section on the recommended alternative should be rewritten based on the new economic analysis which must be done.

55 55.) Page 42, Paragraph 1 - The Upper Green Bay Basin - Water Quality Management Plan, January 1993 has also been accepted by FERC as a comprehensive management plan and is relevant to the Pine Project. The draft assessment should be changed to recognize this plan.

56 56.) Page 42, Paragraph 3 - The statement that the master plan does not specify project removal has been addressed in comment 40. It should be removed from this paragraph as inaccurate and misleading.

57 57.) Page 42, Paragraph 3 - The statement that the master plan acknowledges the presence of the dam in the context used is misleading. The context construes this to mean that the dam's continued presence is in compliance with the intent of the legislation. In fact, it is only an observation that a dam physically exists at this location.

Further, in the same sentence, the DEA states that the master plan expects the dam to continue. This is not an affirmation that the dam should remain. This conclusion was reached in 1981, a full 5 years before the passage of the Electric Consumers Protection Act of 1986. Prior to ECPA, the state had no mechanism for removal. The statement should be removed as misleading and is not supportive of the conclusion that the dam and the wild river can coexist.

Letter from Wisconsin Department of Natural Resources, April 18,199

Response 52. See Responses 2, 49, and 51 of this letter.

Response 53. In response to your comment on table 6, page 39, we re-visited WEPCO's proposed cost estimates and independently verifi their information.

Based on negotiations at the 10(j) meeting, and subsequent consultation between WEPCO and the agencies, WEPCO concluded that t may be able to provide a year-round release to the bypass channel i manner similar to the Grandfather Falls Project. We reviewed comparable project information provided by the agencies, and develc an independent cost estimate for providing a winter flow release mechanism. We concluded that a similar system could be installed a less capital expense than originally estimated, and agree with both WEPCO and the agencies that a year-round bypass flow can-and should provided. This is discussed in Section V.B.3.

We reviewed WEPCO's recreation line item cost estimates and fo that they do not total $60,000, as they had provided in the license application. Cost estimates for each specific enhancement were as follows:

Fire rings:	$ 480
Canoe portage:	$1,500
Recreation site 24:	$6,297
TOTAL	$8,277

Planning, engineering, and administration costs for the physic improvements was not included, therefore we estimated this to be 30 percent of construction costs, or $2,483. Additionally, no cost was provided for preparation of the basinwide comprehensive plan. estimated this cost to be $60,000 divided by 12 projects, or $5,00(for this project. We revised the economic analysis, incorporating recreation cost of $16,000.

Response 54. Your comment is noted. See Responses 2, 49, 51, and of this letter.

Response 55. In response to your comment we added the referenced report as a comprehensive plan applicable to the Pine project.

Response 56. We note your comment and made minor modifications to text under Section VII.B. However, we still state that the Pine-Popple Master Plan does not mention project removal or even contemplate a future without it. We've also added reference to th Wisconsin Administrative Code as it relates to the presence of the dam.

Response 57. See Response 56 of this letter.

58 58.) Page 42, Paragraph 3 - The fact that a mutual management agreement for WEPCO's lands in the Wild River area was reached in no way indicates that the dam is consistent with the intent of the Wild Rivers legislation. The agreement was developed to maintain the surrounding area in compliance with the intent of the legislation. The conclusion in the DEA that the WDNR supports the continuation of the dam is inaccurate. This conclusion should be removed from the EA as being inconsistent with the facts and is an unsupported conclusion.

59 59.) Page 43, Table 8 - FERC staff have made a recommendation that installation of staff gauges is not within the scope of Section 10(j) and yet they feel that the USGS gauge and daily records of operations are within the scope of 10(j). This is inconsistent as all three of these recommendations were made to determine project compliance. Staff gauges are not only needed in the headwater and the sidechannel for public monitoring, but it is the only way the resource agencies have to check compliance on the sidechannel flows.

CONCLUSIONS

60 Upon review of the DEA, the WDNR feels that there are enough errors and inconsistencies in this document that an accurate and thorough evaluation of the impacts of project operation on the environment cannot be made. We do not feel that the implementation of the mitigative measures described in the DEA would ensure that the environmental effects of project modification and continued operation would be insignificant. A thorough rewrite of the assessment should be done, which incorporates the points that we have made above.

61 If FERC staff cannot accept the WDNR's recommendations and conditions for this license (July 8, 1993 letter), we recommend that FERC staff convene a face to face meeting in Wisconsin, preferably in Green Bay or Marinette, to attempt to resolve the outstanding issues in accordance with the provisions of Section 10(j)(2) of the Federal Power Act. We feel that there are enough outstanding issues to resolve that two days should be set aside for such a meeting. A conference call is not an acceptable way to meet on these issues. These calls are not productive because they are cumbersome in nature and do not allow for a free sharing and exchange of data.

We are also concerned with the 75 day time limit in which to conduct the 10(j) negotiations. This does not give FERC staff adequate time to revise the DEA or to seriously evaluate the agencies comments. We suggest that this time line be extended to allow sufficient time for the evaluation of agency comments and the negotiations of the outstanding issues.

The Department appreciates the opportunity to comment on this document. If you have any questions please feel free to contact us at (715) 732-5521.

Sincerely,

Robert Rosenberger
FERC Project Coordinator

encl-guidelines, energy production attachments

cc. Tom Camp-FERC
Rita Hayen-WEPCO

Letter from Wisconsin Department of Natural Resources, April 18,1994

Response 58. See Responses 56 and 57 of this letter.

Response 59. See Response 7 of this letter.

Response 60. Your opinion is noted. The FEA reflects comments and recommendations made by your agency and other commentors.

Response 61. Your comment is noted. Commission regulations (18 C.F.R. § 4.34 (e)(5)) set a limit of 75 days for a meeting to addres fish and wildlife differences under Section 10(j).

NATURAL RESOURCES COMMISSION

STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF NATURAL RESOURCES

Stevens T. Mason Building, P.O. Box 30028, Lansing, MI

ROLAND HARMES, Director

April 20, 1994

Ms. Lois Cashell
Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, NE
Washington, DC 20426

Re: Pine Hydroelectric Project (FERC No. 2486) 002
Draft Environmental Assessment Comments and
Section 10(j) Consultation Request

Dear Ms. Cashell,

The Department has reviewed the Draft Environmental Assessment (DEA) for the Pine Hydroelectric Project. Given the location of this project in Wisconsin, the Department will limit it's comments to the project operation, project retirement and compliance gaging at this site since these are the areas that will impact the resources of the State of Michigan. The Department has the following comments:

1 1) Pages 11-12, Project Operation - The Department is pleased that the DEA accepted resource agencies' recommendations on run-of-river at this project. The Department would also like to be notified when there are operating excursions outside of the ± 0.3 foot range as this could impact critical habitat for fish from Michigan waters.

2 2) Pages 13 and 18-19, Flow releases - The Department strongly opposes the DEA decision not to provide the 27 cfs minimum flow on a year-round basis. The seasonal dewatering of this habitat will substantially decrease and prevent the establishment of a benthos community that is necessary for the optimal use of this habitat for fish spawning and recruitment production. Additionally, any fish that reside in the bypassed reach will be stranded each year upon cessation of the minimum flow.

The rationale given for not honoring this request includes WEPCo concerns with freezing problems from the provision of these flows. This has not been a problem at a nearby WEPCo project (Brule Project) where such flows are presently provided through an orifice. So the rationale that freezing is a major concern is simply not true as other projects in the vicinity, including a WEPCo Project 30 miles to the north, that provide year round minimum flows are not having any problem with icing. Additionally, there are other mechanisms (other than an orifice) that could be used to provide the minimum flow. The estimated cost of a siphon in the DEA is substantially inflated in our opinion. Did the Commission do an independent analysis of these cost estimates and how do they compare to estimates from other areas? The possible lack of such independent analysis would significantly bias the NEPA process. The Department recommends that the Commission

Response 1. In response to your comment, we added that MDNR should be notified when WEPCO is operating outside of the ± 0.3-foot range. WEPCO will be required to restore the normal bandwidth within 8 hours (see Section V.B.2.a) and to notify agencies within 24 hours of, or the first normal working day following an even causing operation outside ± 0.3-foot, whichever is later.

Response 2. Based on negotiations at the 10(j) meeting, and subsequent consultation between WEPCO and the agencies, WEPCO concluded that they may be able to provide a year-round release to the bypass channel in a manner similar to the Grandfather Falls Project. We reviewed comparable project information that the agencies provided, and developed an independent cost estimate for providing a winter flow release mechanism. We concluded that a similar system could be installed at less capital expense than originally estimated, and agree with both WEPCO and the agencies that a year-round bypass flow can and should be provided. Section V.B.3 provides detailed information on this subject.

conduct on independent analysis on all costs provided by the applicant and that you examine the filings on the Prickett Project which provide more likely cost estimates than these inflated estimates. The Prickett Project filing also provides information on another operating siphon in Southeastern Michigan which provides similar flows to that recommended for this project.

The DEA goes on to state that under severe winter conditions the winter flows would cause bottom icing from supercooled water. This would not be a significant problem if water at 4 C from the bottom half of the impoundment is provided via an orifice or siphon. This water will not freeze quickly, as seen at the Brule Project, and will protect benthos and fish resources in this channel. It should be noted while much of the channel will be ice covered on the surface, the 4 C water will provide flowing water habitat and will ensure that the bottom substrate and hyporrhic zone is protected. The provision of no water will ensure that these refugia will be eliminated.

In respect to the WEPCo cycling problem, we do not agree with their analysis and believe that the minimum flow could be provided at this site if the licensee would be willing to work or would be required to work with the resource agencies on this issue.

The last DEA comment on this issue states that the year round recommendation for the 27 minimum flow in the bypassed river channel is inconsistent with the FPA. Please provide the Department with your specific rationale on this finding which should include the appropriate federal code citations.

The Department requests Section 10(j) consultation on this issue and maintains it's position that the 27 cfs year-round flow is necessary at this site to protect fish and wildlife resources.

3 3) Page 13, Compliance Monitoring - The Department is pleased that the DEA accepted resource agencies' recommendations requiring the applicant provide funding for the reactivation, maintenance and telemetry at USGS gage below this project. The Department strongly disagrees with the DEA that the staff gages in the impoundment and the side channel are not warranted. The public has a right to determine if the project is maintaining compliance with it's Federal license. The staff gages provide a simple and inexpensive method to allow the public to determine project compliance. The Department can not understand why the DEA does not provide for this recommendation that could save many hours of inquires on project compliance to all involved.

It is also not clear how the DEA expects the licensee to provide compliance data on the bypass channel flows. This issue needs to be clarified.

The Department requests Section 10(j) consultation on the staff gage recommendations and how the Commission will determine compliance with the bypass channel flows.

4 4) Page 14, Flow during power outages - It is unclear what the DEA recommends with respect to providing flows during plant outages. The Department expects that the licensee would be required to develop a plan, in consultation with the resource agencies, on this issue. This issue needs to be clarified and the Department requests Section 10(j) consultation on this issue.

Response 3. We agree with MDNR that WEPCO must demonstrate compliance with the minimum flow requirement. However, until WEPCO identifies the mechanism they will install to provide the continuous minimum flow, we cannot recommend the best method to demonstrate compliance. Because of the low cost associated with a staff gage, we recommend that WEPCO install one in the bypass reach for public and agency viewing, although we do not recommend that this necessarily be used to measure compliance with the 27 cfs minimum flow requirement. In our judgement, a staff gage in the bypass channel would not be the most accurate means of measuring compliance because the steep grade and irregular channel bottom would not lend itself to an accurate stage-discharge relationship. In the 10(j) meeting, we recommended that—as part of WEPCO's consultation with agencies on how to provide a year-round flow to the bypass reach—they develop a method for how they will demonstrate compliance. The agencies agreed with this approach.

A staff gage in the reservoir will not be used to monitor compliance, nor are they requested to protect fish and wildlife resources. Therefore, this is not a 10(j) issue. Although public inquiries are infrequent, WEPCO has agreed to work with agencies to identify an appropriate location for a staff gage in the reservoir. We support a mutually agreeable solution, but do not recommend this be mandated in the license.

Response 4. In response to your comment we added text to Section V.B.2.d, and will require that flow during power outages be addressed as part of the operations and compliance plan.

5) Pages 44-45, Project Retirement - The Department strongly disagrees on the lack of project retirement funding at this project which is financially marginal at this time. The Department agrees with both the WDNR and FWS positions on this matter which is clearly a Section 10(j) issue. Given the marginal economics of this project, it is imperative that a mechanism be provided to fund the removal this project at the end of the license period. It has been our experience that large companies such as WEPCo will look to sell such non-profitable projects to third parties who are not likely to have the financial means to properly maintain or removal such facilities. A poorly maintained structure that collapses or an improperly done removal would surely cause significant resource damage which could be avoided with a retirement fund. This is particularly important on a river which is recognized as a key resource in the region. The designation of this stream and the license recommendations by the WDNR clearly show that the State of Wisconsin would like to see this river as a free-flowing system in the future which also has benefits to the State of Michigan.

5

The Department is also concerned about the generally poor analysis and negative portrayal of the dam removal scenario. No discussion is provided on the benefits of restoring this state designated river. The Department requests that the analysis of this scenario be redone for the final EA and should completely address the positive benefits of the removal of this facility which should include and not be limited to the following: 1) restoration of fish passage to all reaches in this system and should include an estimate of the increased fish production from reconnecting this fragmented system; 2) an estimate of the restored river habitat and the fish production from this reach to include the restoration of river habitat in the present impoundment location and in the currently bypassed river channel; 3) an estimate of the increased canoeing and kayaking that would be the result of dam removal to include the economic benefits of such restoration; 4) an estimate of the amount of woody debris that would be transported into the lower system (presently trapped by the impoundment) to include an analysis of the additional fish and benthos production from this additional habitat; and 5) an estimate of the impact of the disruption of sediment transport in this system because it's capture by the present impoundment.

6

The Department strongly supports the WDNR and FWS position on removal of this project after this license period and that a funding mechanism is required to take care of this need. The WDNR and FWS recommendation provides for the proper allocation of public resources at this location and includes a reasonable time frame for the licensee both to use to resource to produce revenue and to restore the river to public. The Department requests Section 10(j) consultation on this matter.

7

The Department appreciates the opportunity to comment on this document. If you have any questions, please contact me or Mr. Gary Whelan of my staff.

Sincerely,

James G. Truchan

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

cc: as attached

Letter from Michigan Department of Natural Resources, April 20, 1994

Response 5. The Commission issued a policy statement regarding decommissioning on December 14, 1994. The License Order provides detailed information on this subject.

Regarding the inability of potential license transferee to maintain or remove a project at some time in the future, the commission would issue a public notice of a transfer application if WEPCO were to sell the project. The commissions's decommissioning rulemaking noted that transfer applications should be scrutinized to avoid this sort of situation.

Response 6. We prepared a reasonable, rational approach for dam removal and a thorough analysis of both beneficial and adverse impacts that would result from dam removal.

In response to your specific fisheries issues, we have provided additional qualitative analysis of fisheries impact if the dam were removed in Section V.B.3.a. We have not included quantitative numeric estimates of increased fish production, river habitat, woody debris transport, or sediment transport because there is insufficient information on existing and preproject conditions.

Response 7. See Response 5 above.

Wisconsin Electric POWER COMPANY

231 W Michigan, PO Box 2046, Milwaukee WI 53201-2046

April 19, 1994

Ms. Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
825 North Capitol, N.E.
Washington, D.C. 20426

RE: PINE HYDRO PROJECT, FERC PROJECT NO. 2486-002
DRAFT ENVIRONMENTAL ASSESSMENT
WISCONSIN ELECTRIC POWER COMPANY'S COMMENTS

Dear Ms. Cashell:

In accordance with the March 8, 1994 notice of availability of draft environmental assessment (DEA) for the Pine hydro project, FERC Project No. 2486-002, Wisconsin Electric (WE) is filing this original and 8 additional copies of its comments on this DEA. WE's comments are presented below.

In general, WE concurs with both FERC's assessment and its recommended alternative, as detailed in the Pine project DEA. However, there are still a few issues that WE would like to clarify for the record.

1) Section III A, page 3. WE does not own all land surrounding the flowage. For example, along the north bay as well as along the north side of the bypassed river channel, the land is not under WE ownership.

1

2) Section III C, page 5. The sediment survey indicated that 2 to 3 ft. of sediment can be found only on certain ledges, not throughout the reservoir as stated in the DEA.

2

3) Section V B 2a, page 12. WE agrees to notify the WDNR when it operates outside the +/- 0.3 ft range. FERC does not specify a frequency for this notification, such as daily, weekly, monthly, etc. Unless otherwise stated, WE presumes that FERC prefers notification within 24 hours of, or the first normal workday following an event, whichever is later.

3

4) Section V B 2e, page 15. WE agrees to notify FERC, WDNR and FWS within 24 hours following a reservoir drawdown, but questions the need to notify the MDNR. FERC, in its scope of environmental assessment, indicated that issues pertaining to the Pine project are separate and discreet from issues prevalent on the Menominee River (page 10 of Pine DEA.). Since this project is located solely in Wisconsin and has limited impact on the Menominee River, a border river, WE suggests that notification of MDNR is not necessary at this project.

4

A subsidiary of Foreign Corporation

Letter from Wisconsin Electric Power Company, April 19, 1994

Response 1. In response to your comment, we modified the text Section III.A. to indicate WEPCO's land ownership within the proj boundary.

Response 2. We acknowledge that your sediment survey did not quant amount of sediment in the flowage. For the dam removal analysis estimated that the reservoir contained 2 to 3 feet of sediment, account for higher volumes of sediment near the dam and lower volu elsewhere in the reservoir.

Response 3. We have clarified that WEPCO notify WDNR, MDNR, and FWS restore the normal bandwidth of ± 0.3 feet within 8 hours (Sect B.2.A), as agreed to in your August 20, 1993 "Response to Agencies Te and Conditions" letter.

Response 4. In response to your comments, we modified text in Secti V.B.2.e. We conclude that it is appropriate that MDNR be notifi because the Pine River contributes significantly to downstream flows the Menominee River (the Pine River contributes 25 percent of the fl to the Kingsford Dam on the Menominee River).

5) Section V B 3c, page 20. WE would like to clarify that, under the dam removal option, waterfall features in the bypassed river channel not normally inundated would also likely prevent upstream fish passage.

6) Section VII B 9, page 38. In its socioeconomic evaluation, FERC indicates that the non-use value of the Pine River is based on a total number of households in the area in 1990. Since this number represents the maximum number of households in the area that could directly benefit from dam removal and that not all households will choose to make use of this flowage, WE suggests that the DEA wording be augmented to reflect the theoretical nature of this evaluation. The final sentence in the first paragraph would then read, 'This results in a total maximum theoretical annual nonuse value...'.

7) In Figure 2 and on page 27, FERC mistakenly identifies recreation area 34 as 35. To be correct, these references to recreation area 35 should be changed to recreation area 34.

WE continues to disagree with a portion of two recommendations:

1) Barrier net. WE agrees to install and evaluate the effectiveness of a barrier net. Further, WE concurs with FERC's assessment that further compensation for unavoidable fish losses should not be required. WE strongly disagrees that, if the barrier net is ineffective, it will evaluate additional fish protection options. WE has already evaluated a full range of fish protection options in 1989. (See Appendix 15 of the Pine license application.) A barrier net is the only cost effective option available at this project. With project economics being break even, this project can support neither further studies of alternatives nor the more expensive alternatives available for fish protection. Finally, WE proposes that, rather than allowing the agencies to solely determine whether the level of net effectiveness provides sufficient protection, FERC either set the acceptable threshold or participate in setting this threshold prior to effectiveness testing. WE's concern stems from the agencies' zealous pursuit of 100% protection/mitigation as the only acceptable standard.

2) Telemetered gauge. The USGS gauge formerly located 1.9 miles downstream of the Pine plant has been removed. WE supports reinstallation of a USGS gauge at this location and has discussed requirements for gauge reinstallation with WDNR. Since the Pine River is a wild and scenic river, WDNR requests that its wild river representative be given the opportunity to review and comment on an installation plan, that the gauge be screened from view and that the gauge have a minimal impact on the river way. WE agrees to consult with WDNR representatives and to help ensure that the WDNR needs are met.

Letter from Wisconsin Electric Power Company, April 19, 1994

Response 5. We disagree that fish passage would be unlikely in the bypassed reach if the dam were removed. The 0.4 mile stretch drops 35 feet, translating to a 1.7 percent slope. Although it would depend on flows, upstream fish passage could occur.

Response 6. We incorporated your comment.

Response 7. We corrected the appropriate text and Figure 2.

Response 8. We have reevaluated the fish protection and compensation issue in relation to agency comments and recommendations (see Section V.B.3.d). We continue to recommend that WEPCO only be required to institute compensatory mitigation or enhancement measures if the conclusions of the two year study are that the barrier net is ineffective and should not be used. This would be concluded in consultation with agencies and subject to Commission approval.

The Commission will retain authority for any future actions that might be required of WEPCO regarding fish protection or enhancement. We modified the language in the text to make this clear.

Response 9. In response to your comment, we will recommend that the USGS gauging station's location be determined in consultation with agencies.

However, WE remains opposed to telemetering this gauge. Since FERC agrees that compliance monitoring will be based on headwater elevation compliance, WE contends that downstream gauge readings provide no guarantee of this headwater based compliance. A static head in the flowage can coexist with both fluctuating flows and tailwater elevation. WE does not understand the need to fund a telemetered gauge downstream of the Pine hydro plant when the information will not be nor should be used to verify compliance. Further, FERC states that this information would be useful to the agencies to monitor releases. Monitoring flow releases will most likely become a quasi-compliance monitoring scheme, with associated problems, discussed both above and during consultation. WE disagrees that it should fund telemetering to provide information that is merely useful to the agencies but that should not be used for compliance. The agencies are not and should not be placed in the position of verifying compliance, especially when compliance monitoring would be based on a faulty method, namely the gauge information.

WE appreciates the opportunity to provide FERC with its comments on the Pine hydro DEA. Please contact me at (414) 221-2413 if there are any questions.

Sincerely,

Rita L. Hayen, PE
Project Engineer, Hydro Licensing

cc: R. Rosenberger, WDNR
J. Fossum, USFWS
G. Whelan, MDNR
B. Deephouse, MDNR
Attached List of Intervenors and Interceders

g:\so\wp\hayen\draft.env

United States Department of the Interior

NATIONAL PARK SERVICE
Midwest Region
1709 Jackson Street
Omaha, Nebraska 68102-2571

IN REPLY REFER TO:
APR 20 1994

L7619(MWR-PC)
FERC No. 2486

Honorable Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
825 Capitol Street, North East
Washington, D.C. 20426

Dear Secretary Cashell:

This letter is in response to the Notice of Availability of draft environmental assessment for the Pine Hydroelectric Project, Federal Energy Regulatory Commission (FERC) number 2486, issued March 8, 1994. We have the following comments.

Recreational Flow Releases

Several of the arguments for not providing periodic recreational flow releases in the environmental assessment (EA) are unfounded while other pertinent issues are not addressed. The assumption equating periodic recreational releases with peaking is inappropriate. Our recommendation of four releases, each of a four-hour duration, dispersed over four summer months is not equal to a daily peaking cycle. Rather, these recreational releases simply equate to the summer high water event of 865 cubic feet per second which, on the Pine, occurs naturally on an average of 32 days during the boating season. The only difference would be in the predictability of the releases. An analysis of the potential impact, if any, of releases on affected fish species and vulnerable stages within the life cycle would need to be made before a conclusion equating these recreational releases to peaking is appropriately made. In addition, installation of ramping devices would reduce the impact of the releases. The actual cost of providing these releases while maintaining run-of-river through the power plant should be provided in the EA. 1

The EA does not include the feasible alternative of maintaining a run-of-river regime downstream of the bypass reach while providing recreational releases. This may be done by simultaneously increasing flows through the bypass channel for whitewater boating while decreasing flows by the same amount through the power plant. The cost of this scenario should be included in the EA.

Concerns for safety surrounding recreational flow releases, mentioned on page 33, is not justification for precluding these releases. Whitewater boaters fully recognize the inherent risks of their sport and only approach rapids which their skill level accommodates. The issue of liability is addressed by the fact that boaters assume personal responsibility for their actions. Indeed, FERC recognizes individual responsibility and has issued hydropower licenses with articles which require recreational flow releases. 2

The statement on page 30 that Statewide there are 42 segments of whitewater which, combined, totals 500 miles does not highlight the uniqueness of the Pine River. In Wisconsin, only a total of 8.5 miles of class IV whitewater exists; 4 on the Menominee, 4 on the Peshtigo, and 0.5 on the Pine (unclassified in American Whitewater Affiliation's Nationwide Inventory.) 3

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Letter from National Park Service, April 20, 1994

Response 1. The statement that special release flows are similar peaking operations has been made by MDNR. All references in the E relative to this issue represent MDNR's position, not Commission staff's position or conclusion.

We do not recommend special release flows because we conclude that naturally occurring high flows can accommodate whitewater boa 32 days a year. Providing four additional releases does not justi the value of lost power (see Section V.B.8.C.) Further, WDNR considers such releases to be inconsistent with state designation the Pine as a wild river (see comment 8 of WDNR's April, 1994 lett and the EA agrees with that statement.

Because we do not recommend additional special recreation flo releases beyond what occurs naturally, we concluded it was not necessary to include discussion about maintaining run-of-river operations while providing special release flows.

Response 2. The text referenced is an explanation of WEPCO's posi regarding boater safety surrounding recreational releases-not the Commission's. Our basis for not recommending special release flow not based on safety concerns but is detailed in Response 1 (see Section V.B.8.C).

Response 3. In response to your comment, we modified the EA to specify that there are 502.5 miles of whitewater opportunity in th state; and that there are 8 miles of Class IV rapids in nearby riv (Peshtigo and Menominee). The text states that providing flows in bypass reach would increase Class IV boating by another 0.4 miles.

On page 30, the EA states that "based on random observations, the use is less than 10 boaters annually." Judgement should not be made based on random observations because no indication is given as to the frequency and timing of the observations. All 10 boaters may have been counted in one observation with no other observation made. This statement of random observation adds no valid information to the analysis. Observations should have been made when spring flows provided for whitewater boating. 1

Dam Removal

In this section, the text creates inconsistency in FERC's opinion statements, contains several subjective statements, and makes economic statements which are suspect. The document states under "Aesthetics" on page 27 that the "dam removal would, in the long term, fully meet the wild rivers goal of restoration of the river to its natural, free-flowing condition and restoration of the surrounding environment." Further in the document under "Comprehensive Plans" on page 41, the inconsistency arises in "it would appear that the intent of the act establishing the wild river and the plan were to protect the undeveloped character of the river, yet provide for the continued operation of the hydroelectric facility."

The "Aesthetics" section, pages 27-28, fails to describe the geologic features of rapids and waterfalls that would be exposed if the flowage were drained. This stretch would include two 8-foot falls, one 12-foot falls, and a 1/2 mile of rapids. These features, especially when combined with the 1-mile segment of rapids above the flowage and the 0.5-mile segment below, would add significantly to the aesthetics of the area.

Also in this section, the statement that the dam removal alternative would result in the loss of a scenic water body which would "be a permanent adverse impact" is made. It should be balanced by a statement in the same section that this alternative would also result in a "permanent beneficial impact" resulting from the conditions stated above, i.e., the unveiling of falls and rapids.

The aesthetic evaluation also includes negative impacts which would occur if the dam were removed as proposed in the EA. However, we disagree with the removal alternative proposed, discussed later in this letter. Under a gradual dam removal alternative, sediment removal by large earth moving equipment would not be involved and revegetation would occur quickly.

Under "Cultural Resources," page 28, the text fails to mention that dam removal may not only have a potential adverse effect on previously undiscovered archeological sites, it may also have a beneficial effect in returning sites inundated by water for 70 years to their original terrestrial state. In addition, the assumption is made that the removal alternative proposed which would entail large earth moving equipment would affect undiscovered sites. This may not be an issue under other removal alternatives. Lastly, the alternative of allowing the powerhouse, which is on the National Register of Historic Places, to remain while the rest of the dam is removed is not addressed.

Under "Socioeconomics" on page 38, the total "non-use value" (commonly referred to as "preservation value") was based solely on Florence County, Kingsford, and Iron Mountain because "most use on the Pine River is local." An important missing factor in the equation is the great influx of outdoors enthusiasts from Green Bay, Milwaukee, Madison, Chicago, and points in between. The recreational user survey documents in the applicant's response to FERC's Additional Information Request (volume 2, appendix 6, page 10) that 65 percent of those interviewed traveled over 100 miles to the project. Their

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Letter from National Park Service, April 20, 1994

Response 4. Information on existing whitewater visitors to the area was provided by WEPCO at the site visit. No one has provided information to substantiate a higher existing whitewater recreation use.

The purpose of this information is to indicate that whitewater boating can-and does-occur in this reach, but not frequently, due to reasons stated in the text. Later in the same section, there is discussion of how, if the dam were removed, impediments to whitewater boating in that reach would be eliminated.

Response 5. In response to your comments, we deleted the sentence referred to in Section VII.B (''Comprehensive Plans''). In Section V.B.6.c (''Aesthetic Resources''), we provided further description of the rapids and waterfalls that would be restored under project removal and modified the discussion of permanent adverse impacts.

Response 6. We did not consider other dam removal options in the EA; our alternative assumed restoration of the site to preproject conditions. This included sediment removal and restoration, and complete removal of the dam and powerhouse. In the revised document, we have included a seventh case (Case G), which is our dam removal scenario, without sediment removal costs.

While we acknowledge that other partial dam removal alternatives could allow the powerhouse to remain in place, this would not-to our understanding-be in keeping with the intent of the wild rivers. The goals, stated in the Pine-Popple Master Plan, is to restore, through special management, the wild and natural condition on the Pine River. Therefore, other dam removal alternatives were not considered, as discussed in Section III.C (''Alternatives Considered but Eliminated from Detailed Study''). We also reviewed WDNR's dam removal scenario (see Response 4 to WDNR's April 18, 1994, letter).

Response 7. We reviewed WEPCO's recently completed Comprehensive Long Range Recreation Plan. In its assessment of visitation and use at their projects within the Menominee River Basin, WEPCO concluded that the focus of the region in which the Pine is located is-and will continue to be-to accommodate local resident uses. We agree with the study's conclusion that the Pine is not a unique resource to the area, given the abundance of streams, rivers, and lakes, and wooded, natural areas throughout northern Wisconsin and the Upper Peninsula of Michigan, although the river has appealing intrinsic properties, such as good water quality and a pristine environment, knowledge about the area is obtained primarily from visiting the area.

We reconsidered our analyses of preservation value of the Pine River and concluded that, because a site-specific study was not completed to

contribution to the "non-use value," based on user or tourism statistics, may prove to be significant. Indeed, studies indicate that preservation value decreases only minutely with distance ($0.05 per mile). In addition, since the Pine is designated a State wild river, the "non-use value" would likely be higher per household due to its significance.

8 The text on page 37 erroneously states that if the dam were removed, "it is not known whether a Federal or State agency would have the interest or ability to acquire the property, or what the future use will be." The Wisconsin Department of Natural Resources expressed their willingness in 1990 to buy the lands associated with the project to be managed under the Wisconsin Wild River Program; their interest remains intact.

9 The text states on page 38 that removing the project would result in a loss in local and State tax revenues. However, on page 6 of appendix 3 of the company's application, it is stated that "the company does not pay property taxes for the Pine Project." Clarification or elimination of this issue is needed.

10 The document states on page 38 that "the long-term operational and maintenance work force would decline compared to current conditions." No facts are provided regarding the current full-time staff positions presently needed to carry out these functions. With a fully automated small hydropower project such as the Pine and only two camp sites, this number must be quite small and would most likely have an insignificant effect on local employment and tax revenue.

11 Under "Developmental Resources," page 40, the figure of $22.5 million which is provided as an estimate for dam removal is inappropriate. It appears that the method proposed, the only one presented, is a most extravagant and costly option. Alternative dam removal scenarios should be provided such as partial concrete removal or staged removal over several years with either partial or complete removal. Partial removal would allow a natural, gradual reduction of sediment and would avoid the expense and negative impacts of building an unnecessary diversion dam and channel as well as avoid active sediment removal. We concur with the analysis made by WDNR's Dam Safety Unit, which includes the company's quantity estimates, that a conservative estimate of dam removal is just under $1 million. This figure includes a provision for sediment control and restoration.

In the same section, a $138,500 figure is provided as a sum of the economic benefits attributable to use and non-use after dam removal. This total is inappropriate because it does not incorporate "non-use value" of the 65 percent of users who travel over 100 miles to the Pine River, nor does it factor in the actual expenses that would be spent by increased visitation of tourists (local and non-local) to a unique, attractive series of waterfalls on a state designated wild river.

12 No mention is made by FERC regarding a project retirement fund. It should be noted that Consumer's Power Company in Michigan has committed to establishing retirement funds for its projects and will begin seeking current rate collection of retirement costs.

Recreation Mitigation

13 We concur that the company should install a telephone hotline to inform the public of natural flows in the bypass channel which would accommodate whitewater boating. The license article should specify that accurate information regarding flows through the bypass channel should be updated daily. If possible, the article should also include a provision that the hotline provide accurate, daily-updated information regarding inflow into the flowage as well. The latter would enable boating groups to plan for trips on the Pine upstream from the flowage.

Letter from National Park Service, April 20, 1994

determine values for this project, that extrapolating from other studies was inappropriate. We, therefore, removed all references passive use valuation.

Response 8. We modified the text in Section V.B.8.f to reflect WI interest in purchasing project lands if WEPCO were to elect to sel the property.

Response 9. We removed all reference to tax impacts from Section V.B.9.

Response 10. In response to your comments, we modified the text u ''Socioeconomics'' (Section V.B.9) to indicate that the effects on local employment would be negligible over the long term if the dam were removed.

Response 11. We disagree with your assertions regarding our dam removal analysis, and stand by our analysis. Our dam removal anal represents a reasonable approach to removing the project. We revi WDNR's dam removal alternative (see Response 4 to WDNR's April 18, 1994 letter).

We conclude that the analysis we undertook to estimate non-us value is reasonable and defensible (see Response 7 to this letter)

Response 12. The Commission issued a policy statement regarding decommissioning on December 14, 1994. The License Order provides detailed information on this subject.

Response 13. WEPCO will be required to develop a plan, in consultation with agencies, for providing a telephone hotline. It will include provisions for frequency of updates, type of informat conveyed, etc.

14 The EA nor the final application does not explain how the $60,000 mentioned on page 39 of the EA for "Recreation Improvements" will be spent.

Conclusion

The final EA should address each of the points above with the pertinent information inserted in the respective sections under "Environmental Impacts." The economic figures addressed above should be recalculated using the correct figures. Using this new information, an unbiased and valid determination of the positive and negative impacts of dam removal should be made. We hope these comments are helpful in preparing the final EA. Should you have any questions, please direct them to Ms. Angela Torres of my staff at 414-297-3605.

Sincerely,

William W. Schenk

William W. Schenk
Acting Regional Director

cc:
Mr. Tom Tuemler
Wisconsin Department of Natural Resources
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Letter from National Park Service, April 20, 1994

Response 14. In response to your comment, we reviewed WEPCO's proposed cost estimates and found that their proposed recreation enhancements do not total $60,000, as stated in the license application. Cost estimates for each specific enhancement were as follows:

Fire rings:	$ 480
Canoe portage:	$1,500
Recreation site 24:	$6,297
TOTAL	$8,277

Planning, engineering, and administration costs for the physic improvements was not included, therefore we estimated this to be 30 percent of construction costs, or $2,483. Additionally, no cost was provided for preparation of the basinwide comprehensive plan. estimated this cost to be $60,000 divided by 12 projects, or $5,000 We revised the economic analysis, incorporating a recreation cost o $16,000.

April 21, 1994

Honorable Lois Cashell, Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, NE
Washington, DC 20426

RE: Project 2486 (Pine Hydroelectric Project)

Dear Ms. Cashell:

This letter is in response to the March 8, 1994 Notice of Availability of the Draft Environmental Assessment (EA) for the Pine Project in Wisconsin.

Prior to commenting on individual issues contained within this notice, we would like to remark on the overall tone and language utilized by the Commission throughout this draft.

In a recent meeting between Commission staff and members of the Hydropower Reform Coalition,[1] our Coalition expressed concern over the possible existence (within the Commission) of two separate tiers of mitigation criteria for relicensing. One tier for projects which exhibit economic stability, and another for marginally economic projects such as the Pine.

1 This is not a new concern. An April 24, 1992 a Fish and Wildlife Service memorandum, entitled "FUTILE FERC FLOUNDERING", commented as follows:

"Despite requirements of the Federal Power Act, to give the environment, recreation, and fish and wildlife consideration equality to power and development objectives, such consideration does not occur. Hydropower development is by far the major objective of any evaluation, with all else being secondary..."

"...If an environmental feature reduces hydropower benefits, the feature is dropped..."

The Draft EA for the Pine intensifies this concern. The Commission repeatedly refers to the burden of cost shouldered by the applicant, and seems to anguish over how "enhancement...would make this project uneconomical" (page 19 regarding a 27 cfs. minimum year round flow in the bypass).

[1] The Hydropower Reform Coalition consists of 22 national, regional and local river organizations, including the American Whitewater Affiliation and American Rivers, Inc. Referenced FERC staff discussions were held at the last Coalition meeting, March 10 - 11, in Washington, DC.

Letter from American Whitewater Affiliation, April 21, 1994

Response 1. Your opinion is noted.

It is our understanding that the mandate of the Commission, under the Federal Power Act, is to balance both power and non-power use of our nation's rivers. We are unaware of any language which relieves this responsibility due to the marginal economic position of a specific project.

We would argue the reverse. In the case of a project offering little power capability (such as the Pine with an installed capacity of only 3.6 megawatts), it is in the best interest of the public to look at enhancing the many non-power values of the river. This should prove even more compelling on a river which is a state designated Wild and Scenic River.

2 The Commission's statement on page ii, that "The proposed project would not conflict with any of the plans and is consistent (with) state comprehensive plans for improving and conserving the Pine River" is erroneous.

RECREATION

Whitewater Flows

The assumption equating periodic recreational flows with peaking is inappropriate. Boater recommendations of four releases, at four hours each, and dispersed over four summer months is not equal to an ongoing peaking operation.

Dam peaking operations typically have flow changes on a daily basis nearly every day or weekday of the year. Peaking operations may have many fluctuations in a single day, have no minimum flow releases, include no ramping considerations, and have significant temperature variations.

3 In contrast, the requested whitewater flows (Artificial Varied Flows - AVFs) would take place over a very short duration and low volume (250 cfs. or less). Recreational flows across the country are routinely managed to address both ramping rates and temperature variations.

Some examples are AVF's used by Army Corps operations to both benefit the stream environment and provide whitewater recreation. In certain cases, AVFs have been demonstrated to do both (North Branch of the Potomac). In addition, Maryland fisheries personnel suggest that AVF's for the Savage River (MD) in the early fall may improve trout spawning.

The requested whitewater releases are not an un-natural occurrence, rather they equate to the summer high water flows which occurs on an average of 32 days during the boating season. The difference lies in the predictability of the flows, and the significant benefits this will have on the economic potential of whitewater recreation

Letter from American Whitewater Affiliation, April 21, 1994

Response 2. The project's presence is not in conflict with approved comprehensive plans. Both the legislation and the Pine-Popple Wild Rivers Master Plan recognize the dam as a preexisting use.

Response 3. The statement that special release flows are similar to peaking operations has been made by MDNR. All references in the EA relative to this issue represent MDNR's position, not Commission staff's position or conclusion.

We do not recommend special release flows because we concluded that naturally occurring high flows can accommodate white-water boating 32 days a year (see Section V.B.8.c.). Providing four additional releases does not justify the value of lost power, nor are special release flows considered to be consistent with the state's wild river designation (see comment 8 of WDNR's April 18, 1994 letter).

The EA does not include the feasible alternative of maintaining a run-of-river regime downstream of the bypass while providing recreational releases. This is easily
4 accomplished by reducing the flow through the power plant during recreational releases, and has been recommended by the Commission at numerous other relicensing projects around the country.

On page 32, the EA states that "Boaters felt that the stretch was unique because the drops could offer training for novice boaters." This statement is inaccurate. The
5 general consensus among the participating boaters was that the section from the base of the drops to the power house would be a good training site for novice boaters, but that the uniqueness of the site was due to the character and nature of the drops themselves.

Recreation Economics

On page 30, the EA states that there are 42 segments of whitewater which, combined, total 500 miles.[1] This statement is misleading.

In Wisconsin, only a total of 4.5 miles of class IV whitewater exist, 4 on the Menominee and 0.5 on the Pine. What the EA fails to address is that all 4.5 miles are subject to Commission relicensing during the "Class of '93", and that only the artificial course in Wausau and the Pier's Gorge Section of the Menominee (No. 2536) can
6 provide advanced whitewater during normal off-peak flow periods.[2]

Through the current relicensing process, whitewater recreation stands to gain significant improvements on two of the above listed rivers. Scheduled whitewater releases on the Pine, when combined with improvements on the Menominee River, will offer more advanced and more varied recreation opportunities in the Midwest Region. When scheduled in concert with other recreational releases, releases on the Pine could exponentially enhance economic gains to the Region, as they do at other sites with dependable, summer, whitewater flows (Savage River, MD, Russell Fork, VA).

[1] The AWA Nationwide Whitewater Inventory lists a total of 502.5 miles of whitewater in WI.

[2] Another major recreational river for the Mid-West is also involved in relicensing, the St. Louis project (No. 2360-MN). These projects make up a large part of the available and dependable summer whitewater rivers in the region.

Letter from American Whitewater Affiliation, April 21, 1994

Response 4. We agree that it appears feasible to maintain run-of-river operations by reducing flows through the turbines during specia release flows. However, this is a moot point because we do not recommend additional flow release beyond what occurs naturally. Natural flows permit whitewater boating approximately 32 days between April and September. We conclude that the naturally occurring high flows provide adequate opportunity for this activity.

Response 5. We modified the text to reflect your comment.

Response 6. We modified the EA to specify that there are 502.5 miles of whitewater opportunity in the state; and that there are 8 miles (not 4.5 miles as you stated in your letter) of Class IV rapids in nearby rivers (Peshtigo and Menominee). The text states that flows i the 0.4 mile bypass reach would offer Class IV rapids.

We acknowledge that much of the area's whitewater potential is tied to FERC relicensing. However, each project has to stand on its own. We do not have reason to conclude that scheduled whitewater releases are inappropriate at this project due to the wild river status and the fact that natural flows provide whitewater opportunity

On page 30, the EA states that 'The bypassed reach exhibits characteristics that offer
7 whitewater boating characteristics." This leads one to doubt weather or not the Pine is suitable for whitewater, and ignores conclusive whitewater test results gathered in August, 1991.

Page 30 continues, "Whitewater boating use in the bypass is minimal. Based on random observations, the use is less than 10 boaters annually". Random observations are irrelevant, and again, misleading.

8 The fact that 10 boaters annually use a bypassed reach with no dependable flow, and of such short length, is actually a testimony to the uniqueness of the Pine and to the scarcity of whitewater resources in the Mid-West.[4] A more in-depth discussion on the number of observations, time of year and day, and available flow are necessary to explain the validity of any such observations.

Page 35 discusses the value of a visitor-day for whitewater recreation. The EA
9 estimates whitewater value on the Pine to be approximately $25. This is only a tiny fraction of the visitor-day value calculated for other whitewater rivers. Additional information on what criteria was used to judge similar whitewater experiences, on other rivers, is needed.

All of the existing impediments to boating on this section of the Pine (unreliable
10 flows, poor access, and the shortness of the run) would be eliminated by removal of the dam. This too must be explored in greater detail.

Recreation Mitigation

We agree that the Company should install a telephone hotline to inform the public of
11 natural flows in the bypass. However, this draft contains no information explaining how this will be updated, what information will be available, or what Commission guidelines the Company will be held accountable for. Specific requirements should be included in the final EA.

Given the applicants well documented refusal to recognize whitewater recreation at
12 this project, how will unrestricted access be guaranteed during natural high flows, in the final license? The draft EA does nothing to assure whitewater access, except to reiterate the applicants position, which "does not provide any enhanced access or

[4] Another indication of the scarcity of the resource was the August 17, 1991 whitewater test which attracted boaters on short notice, and from as far away as Chicago. Fifteen of the 17 boaters who participated in the flow study rated the historic channel as having region-wide significance (See survey forms in Appendix 15 of the ARRA1).

Letter from American Whitewater Affiliation, April 21, 1994

Response 7. We disagree with the comment that the text leads one t doubt whether or not the Pine is suitable for whitewater boating. EA clearly documents the potential for Class IV whitewater opportunities in the bypass reach with adequate flows. See Section V.B.8.c.

Response 8. Information on existing whitewater visitors to the are was provided by WEPCO at the site visit. No one has provided information to substantiate a higher existing whitewater recreation use.

The purpose of this information is to indicate that whitewater boating can-and does-occur in this reach, but not frequently, due t reasons stated in the text. Later in the same section, there is discussion of how, if the dam were removed, impediments to whitewat boating in that reach would be eliminated.

Response 9. We reconsidered our analyses and concluded that becaus site-specific study of the value of whitewater recreation was not conducted at this site, that it was inappropriate to estimate and extrapolate values. Therefore, we have removed all references to dollar values of recreation activities.

Response 10. In response to your comment we provided additional discussion of how dam removal would enhance whitewater opportunity removing the physical structure and restoring inundated rapids and falls in the Pine River.

Response 11. WEPCO will be required to develop a plan, in consultation with agencies, for providing a telephone hotline. Thi will include provisions for frequency of updates, type of informati conveyed, etc. This will be detailed in the license order.

Response 12. WEPCO has stated that the project area will remain op to the public, as detailed in their land management plan (which wil be adopted in any license issued). If WEPCO impedes access to proje lands, including the bypass channel, then recreationists can notify the Commission.

encourage use of the bypass channel for these activities."

If this project cannot afford to mitigate the adverse impacts to whitewater boating use (including 4 releases a year), then a mitigation program specifically targeting
13 whitewater boating should be established which addresses funding to improve other recreational areas, either along the Pine, or along another river impacted by the applicants projects.

A flow phone is not adequate mitigation, in itself, to offset the impacts to scarce whitewater resources in Wisconsin.

Liability

"WEPCO opposes providing recreational flow releases on the basis on public safety and potential liability, disruption of aquatic habitat in the river reach, and effect on run-of-river operation." (page 33).

The applicant has used the liability and safety issue as a smokescreen throughout this proceeding. A large percentage of the most popular whitewater runs in the country, usually popular because of dependable summer releases, are controlled by dams.[5]

The Commission, within the 1993 relicensings, has completed studies and
14 recommended recreational release on rivers of much greater difficulty than the Pine.[6] Whitewater boating participants have, in almost all cases, been responsible for on-the-water safety, and worked with Commission staff on establishing safety procedures.

The limited number, and short duration of proposed yearly releases further reduces any safety concerns regarding the uniformed public. During releases, advanced boaters will be on the river - when the releases are over, safety concerns are eliminated.

The applicant is protected from liability in a downstream accident (the location of any potential whitewater incident) in several ways:

[5] Other advanced runs in Wisconsin, including Piers Gorge on the Menominee and the popular section above the Caldron Falls project on the Peshtigo, are dam controlled. Other examples include the Lower and Upper Youghiogheny (MD-PA), Gauley (WV), Kern and South Fork American (CA), and the Arkansas (CO). These represent some of the highest recreation use rivers in the United States.

[6] Tallulah Falls (GA), Colton bypass on the Racquette (NY), and the Kern (CA) offer examples.

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Response 13. We concluded that providing four special release flows to enhance whitewater opportunity was not justified because: (1) naturally occurring high flows accommodate whitewater boating 32 days a year; and (2) we estimate whitewater use would be low due the length of the run. The enhancement is not justified given the limited resource opportunity in the bypass reach. Our justification is further detailed in Section V.B.8.c.

Response 14. The text referenced is an explanation of WEPCO's position regarding boater safety surrounding recreational releases in the Commission's. Our basis for not recommending specific release flows is not based on safety concerns but is detailed in Response 12 above (also see Section V.B.8.c).

- The Assumption of Risk Doctrine is always available to the defendant in any lawsuit involving damages to voluntary participants in sporting events and dangerous outdoor Activities.[7] Assumption of Risk means voluntarily assuming the risk of an accident, which may not occur, and which the person assuming the risk may be careful to avoid; it defeats recovery because it is a previous abandonment of the right to complain if an accident occurs.[8]

- Negligence In situations such as whitewater sports where there are known or obvious dangers, courts have consistently held that there is no duty to warn visitors of the hazards.[9] It would be substantially more difficult to prove negligence for those projects with FERC licenses, where flow releases (for either recreation or other project purposes) are part of the license purpose.

- Additionally, the applicant is also protected by the Wisconsin State Recreational Statute. To the best of our knowledge, there have been no successful challenges to the constitutionality of the recreational use statutes.

The Wisconsin statute (Ann. §895.52) is one of the strongest in the country and requires landowners "no duty to keep property safe for recreational activities, to inspect property, or to warn of unsafe conditions."

Recreation and Wilderness Rivers

The relationship between outdoor recreation and wilderness rivers has been distorted throughout this relicensing.

"It would appear that the intent of the act establishing the wild-river and the plan
15 were to protect the undeveloped character of the river, yet provide for the continued operation of the hydroelectric facility." (page 41)

It is frustrating to hear, again and again, how a hydro-project is more compatible with Wild and Scenic (as a pre-existing use), than a non-consumptive outdoor recreation activity.

Wisconsin has clarified this issue as follows. "While the WDNR has stated that

[7] See cases cited in 57 Am Jur 2d, negligence @284 and 4 Am Jur 2d Amusements and Exhibitions.

[8] Kleppe v. Prawl 181 Kan. 590, 313 P.2d 227 (1957), suits by skiers against ski resorts).

[9] Harmon v. U.S. (532 F. d 6690) (Dept. of Interior not liable for warning rafters on the Salmon River).

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Response 15. We modified the text and corrected the Sections V.B.8.c (clarifying WDNR's position regarding special release flows) and VII. (clarifying the State's ''Wild Rivers'' Act) in response to your comments.

recreational flows are not consistent with the wild river intent it should be pointed out that recreational use of the river is not only considered consistent with the intent, (but that) recreation is encouraged." WDNR also adds, "The removal of the dam would make the issue of recreation releases a moot point and return the river to its natural condition".[18]

Dam Removal

Consistent throughout this proceeding has been the united interest, by all intervening parties (agency, conservation and recreational), to examine the potential of dam removal in fully restoring the Wild nature of the Pine.

Through removal, all non-power interests find an equitable solution on how to enjoy and share the value of the Pine river. Dam removal adequately addresses whitewater recreation, fish restoration and flows, aesthetics, and tourism.

Just very little discussion is provided in the draft EA on the expanded benefits to whitewater recreation and economics under a free flowing river. Under this scenario, the whitewater run would extend from La Salle Falls downstream for 2.5 miles, and offer scarce class IV whitewater, including two eight foot falls and one twelve foot falls. 16

However, the Commission has dismissed dam removal as an alternative, without any supporting studies, and based primarily on the "lost power" scenario and short-term environmental concerns with actual removal. Very little consideration is given to the immense long-term benefits of dam removal on this river.

In this draft EA, dam removal is estimated to cost approximately $22.5 million. However, WDNR's Safety Unit has estimated a greatly reduced figure of just under $1 million. Further analysis is needed to narrow the range.

Other options for dam removal should also be considered due to the Wild and Scenic designation of the Pine River corridor. Restoration of the project site to pre-project conditions would be an ideal scenario, but would adversely impact the project site due to the proposed earthmoving requirements presented on page 5 of the draft EA. One possible alternative that should be considered in the EA would be to remove only the concrete spillway portion of the dam, the concrete spillway, the penstocks, and powerhouse, while leaving the earthen dike and all natural landforms upstream of the dam untouched. The issue of sediment removal could then be addressed by a step-wise lowering of the reservoir level, which would allow for consolidation of the sediments and revegetation to fix the sediments in place.

[18] April 14, 1994 phone conversation with Dan Heath, WDNR.

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Response 16. We did not consider other dam removal options in the EA; our alternative assumed restoration of the site to preproject conditions. This included sediment removal and restoration, and complete removal of the dam and powerhouse. In the revised document, we have included a seventh case (Case G), which is our dam removal scenario, without sediment removal costs.

While we acknowledge that other partial dam removal alternatives could allow the powerhouse to remain in place, this would not be in keeping with the intent of the wild rivers legislation. The Pine-Popple Wild River Master Plan states that its goal is to restore, through special management, the wild and natural condition on the Pine River. Because partial removal would not return the area to its natural conditions, we did not consider other dam removal alternatives, as discussed in Section III.C (''Alternatives Considered but Eliminated from Detailed Study'').

We also reviewed WDNR's dam removal scenario (see Response 4 to WDNR's April 18, 1994, letter).

In its final EA, the Commission should also give consideration to requiring dam removal during the last years of the license term. Implicit in this scenario is the requirement that WEPCO set up a retirement/removal fund during the operational portion of the license term for dam removal at the end of the term. 17

Dated this 21ST day of April, 1994.

Respectfully submitted,

For: THE AMERICAN WHITEWATER AFFILIATION
AMERICAN RIVERS INC.
AMERICAN CANOE ASSOCIATION
CHICAGO WHITEWATER ASSOCIATION
BOAT BUSTERS ANONYMOUS
THE BADGER STATE BOATING SOCIETY
GREENBAY PADDLERS UNITED
SIERRA CLUB - JOHN MUIR CHAPTER
THE UNIVERSITY OF WISCONSIN - HOOFERS OUTING CLUB
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Letter from American Whitewater Affiliation, April 21, 1994

Response 17. The Commission issued a policy statement regarding decommissioning on December 14, 1994. The License Order provides detailed information on this subject.