

Otter Rapids - License 10-24-1989

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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Wisconsin Public Service Corporation

Project No. 1957-003
Wisconsin

ORDER ISSUING NEW LICENSE
(Minor Project)
October 24, 1989

Wisconsin Public Service Corporation (applicant/WPSC) filed a new license application under Part I of the Federal Power Act (Act) to refurbish, operate and maintain the Otter Rapids Hydro Project located in Vilas and Oneida Counties, Wisconsin on the Wisconsin River, a navigable waterway of the United States. 1/ The current license was issued on August 8, 1975, and will expire on June 30, 1990.

Notice of the application has been published. No protests were filed in this proceeding, and no agency objected to issuance of this license. Comments received from interested agencies and individuals have been fully considered in determining whether to issue this license. A motion to intervene was filed by the Wisconsin Department of Natural Resources in order to be a party in this proceeding.

Comprehensive Development

The amendments to Sections 4(e) and 10(a)(2) of the Federal Power Act (Act) made by the Electric Consumers Protection Act (ECPA) reinforced the Commission's pre-ECPA responsibility to consider and balance aspects of the public interest in determining whether, and under what conditions, a hydroelectric license should be issued. Thus, in considering the Otter Rapids Project, which was analyzed in the environmental assessment (EA), all public interest considerations must be balanced and weighed and equal consideration must be given to the purposes specified in Section 4(e) of the Act, including the improvement and utilization of water power development and the protection, mitigation, and enhancement of fish and wildlife resources in the Wisconsin River. Specific enhancement measures that are considered for the Otter Rapids Project must be weighed with public interest considerations under Sections 4(e) and 10(a)(1) of the Act.

As discussed in the EA, section B., the project would generate 2,835 megawatthours of electrical energy per year. The project also provides for long-term energy conservation

1/ See 14 FPC 926 (1955), 147 F.2d 743.

and displacement of fossil-fueled electric power plant generation for the betterment of air quality and the conservation of fossil fuels.

The EA on the Otter Rapids Project evaluates the effects of project operation on the environmental resources of the project area and provides a discussion of the measures that should be implemented to protect and enhance these environmental resources. These measures include: (1) minimum flows; (2) measures to provide additional boat access; and (3) measures to protect cultural resources.

The beneficial effects on the environment associated with the licensing of the Otter Rapids Project would result from minimum flows required for the maintenance of recreational boating and the protection of aquatic habitats in the Wisconsin River downstream from the project dam.

Finally, the project as conditioned would be best adapted to a comprehensive plan pursuant to Section 10(a) of the Act for improving a waterway and would provide for adequate protection, and enhancement of fish and wildlife pursuant to Section 10(j) of the Act.

As discussed in detail in the EA, alternatives to issuing a new license for the Otter Rapids Project were also considered by the staff. However, Staff dismissed these alternatives in favor of issuing a license for two reasons: (1) the environmental effects of continued operation of the project would be minor with the proposed enhancement measures; and (2) the electricity generated from this renewable resource would maintain the use of existing fossil-fueled, steam-electric generating plants and nuclear generating plants at their present levels, and not contribute to air quality problems or global warming.

Section 10(a)(2) of the Act 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), federal and state agencies filed twenty-nine comprehensive plans that address various resources in Wisconsin. Of these, the staff identified and reviewed two plans relevant to this project. 2/ No conflicts were found.

2/ Wisconsin Statewide Comprehensive Outdoor Recreation Plan, 1985, Wisconsin Department of Natural Resources; Wisconsin Water Quality: Report to Congress, 1986, Wisconsin Department of Natural Resources.

Based upon a review of the agency and public comments filed in this proceeding, and on the staff's independent analysis, the Otter Rapids Project is best adapted to a comprehensive plan for the Wisconsin River.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection, mitigation, and enhancement of fish and wildlife. In the EA for the Otter Rapids Project, attached to and made part of this license, the staff addresses the concerns of the federal and state fish and wildlife agencies and makes recommendations consistent with those of the agencies.

ECPA FINDINGS

Section 10(a)(2)(C) and Section 15(a) of Act, as amended by ECPA, requires the Commission to consider in writing the following factors in issuing new licenses.

Consumption Efficiency Improvement Program (Section 10(a)(2)(C))

The applicant is engaged in the following conservation and energy consumption efficiency programs.

- a) In-place measures associated with electric generation, transmission, and distribution systems.

These measures are directed both toward improving efficiency of existing generating facilities and utilization of efficiency criteria in design and procurement of new facilities. It also entails use of renewable energy resources as a means of conserving nonrenewable fuels such as oil, natural gas, and coal. Specific types of measures include efficiency improvements and upgrades of fossil, nuclear, and hydro generating plants; transmission and distribution system loss evaluation and reduction; economy power purchases; and street lighting efficiency improvement.

- b) In-place measures associated with electric consumption by customers.

These measures include energy efficiency improvement programs; implementation of interruptible load measures, time-of-use rates, and water heater time clock load control; purchase of customer-owned generation; and measures to improve load factor.

- c) Plans for future programs directed towards improving efficiency of both electric supply and consumption

These plans are described in the applicant's 1987 Integrated Plan, filed as part of its Advance Plan 5 with the Public Service Commission of Wisconsin. It encompasses total electric resource planning and implementation.

- d) Compliance with published policies, restrictions, and requirements of agencies in the States of Wisconsin and Michigan as related to energy conservation efforts

On the basis of the above-mentioned activities, the staff concludes that the applicant is making a good-faith effort to improve and maintain a reasonably high level of energy consumption efficiency.

The Plans and Abilities of the Applicant to Comply with the Articles, Terms, and Conditions of Any License Issued to It and Other Applicable Provisions of Part I of the Act (Section 15(a)(2)(A))

The staff has reviewed the license application and considered the abilities of the applicant to comply with the articles, terms, and conditions of any license issued to it.

A review of the compliance record of the applicant indicates that the compliance with the terms and conditions of the existing license has been less than satisfactory. However, the staff feels that the compliance record does not warrant the denial of the application for a new license. Special compliance article 501 will be included in the license, requiring the applicant to develop, and file for Commission approval, a Hydropower Compliance Management Program that will ensure compliance with the terms and conditions of the new license and will allow the Commission to monitor progress toward compliance. Staff concludes with the inclusion of article 501, the applicant will be able to satisfy the conditions of the new license.

The Plans of the Applicant to Manage, Operate, and Maintain the Project Safely (Section 15(a)(2)(B))

The staff has reviewed the plans of the applicant to manage, operate and maintain the project safely.

The applicant states that it has a formal safety program administered by the safety department. The program, initiated in 1924, includes a safety rules manual which is continually updated and monthly safety meetings. No lost-time accidents or deaths have occurred related to project operation. There are also no record of injuries to the public or contractor employees.

Based upon a review of the specific information provided by the applicant on various aspects of the project that affect

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Otter Rapids - License 10-24-1989

concludes that the plans of the applicant are adequate.

The Plans and Abilities of the Applicant to Operate and Maintain the Project in a Manner Most Likely to Provide Efficient and Reliable Electric Service (Section 15(a)(2)(C))

The staff has reviewed the plans and abilities of the applicant to operate and maintain the project in a manner most likely to provide efficient and reliable electric service. The review indicates that the project is being operated in an efficient and reliable manner.

The applicant states that it evaluates and plans for energy efficiency improvement programs which integrate the generation and transmission options with conservation and load-management options for providing energy resources. Both the quantifiable as well as less easily quantifiable economic costs and benefits options, which affect customers, businesses, society and the environment, are also evaluated.

The applicant proposes to refurbish Unit No. 2 which was damaged beyond economical repair in 1971. Transmission losses are reduced through reconditioning or replacing lines and replacing transformers. Programs to upgrade the operation and maintenance of the project are continually explored and have been enhanced through company training. A professional construction and engineering staff assists the operation and maintenance personnel.

Hydropower is one of the most economical sources of power on the system and thereby contributes to maintaining the lowest possible electric rates to the customers of the company.

The staff concludes that the project is being operated in an efficient and reliable manner.

The Need of the Applicant Over the Short and Long Terms for the Electricity Produced by the Project to Serve Its Customers (Section 15(a)(2)(D))

The project is located in the Mid-America Interconnected Network (MAIN) Regional Electric Reliability Council area covering utilities in the Michigan upper peninsula, east-central Wisconsin, Illinois, and northern Missouri. The 1989 MAIN Coordinated Bulk Power Supply Report (DOE Code IE-411) projects an annual average growth rate in summer peak demand of 1.4 percent for the 1989-1998 planning period, based on a 1989 expected regional summer peak of 38,406 megawatts (MW); and about 1.6 percent for annual net energy requirements for the same planning period, based on a projected 1989 base level of 190,644 gigawatt-hours (GWH). Corresponding growth rates projected by

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the applicant for the WPSC system over this period are 0.6 percent for demand and 1.3 percent for net energy, based on a projected 1989 summer peak demand of 1411 MW and 1989 annual net

Otter Rapids - License 10-24-1989

energy requirement of 9,410 megawatt-hours (MWH), respectively. Some 55 percent of MAIN's 1989 energy requirements will be produced by the combustion of fossil fuels, increasing to an expected 58.5 percent by 1998. The corresponding level for WPSC will be in the neighborhood of 85 percent, remaining fairly constant over that period.

Through efforts to pursue an integrated least cost planning process, i.e., supply-side options such as generation life extension, renewable generation, and cogeneration; and demand-side programs such as conservation, load management, and transmission loss reductions, the applicant currently projects no need to install any new conventional generating capacity above its present base level of 1,719 MW throughout the next 20 years. However, the applicant plans a continuing effort to implement generating unit additions to existing hydropower installations within its service territory. Nevertheless, the applicant acknowledges that it could reach its minimum installed reserve criterion of 15 percent of projected demand in or about the year 2000. Although the installed project capacity of 0.7 MW and expected annual generation of 2.8 GWH is diminutive with respect to the applicant's system requirements, nevertheless the loss of the Otter Rapids Project, through denial of license, would be inconsistent with its least-cost planning objective. Furthermore, the project contributes, albeit in a small way, to the conservation of nonrenewable fossil fuels and to the reduction in emission of noxious byproducts caused by the combustion of fossil fuels. On this basis, the staff concludes that an adequate need for the project power exists.

A comprehensive analysis by the applicant shows that, of several options considered (including alternate plans for upgrading the project), the one proposed, i.e., refurbishing Unit No. 2 and maintaining Unit Nos. 1 and 3 of the project in service, provides the best overall benefit in terms of cost, system operational flexibility and reliability, and utilization of river flow. For economic evaluation purposes, the applicant considers conventional fossil capacity as the appropriate alternative source of power for the project on the basis that lower cost alternatives are either unavailable or too risky to be considered as feasible substitutes for the project. Various other alternatives considered included cogeneration, an increase in Kewaunee nuclear plant capacity, a potential power purchase from Manitoba Hydro, and solid waste generation, among others. All were discarded by the applicant due to financial risk, physical or regulatory constraints, or possible adverse impacts on system reliability involved. The economic analysis performed by the applicant also indicates that the proposed upgrading and

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continued operation of the project is a lower cost alternative to fossil capacity.

The assumptions incorporated and bases used in the applicant's analysis appear reasonable. The staff concurs, if licensing of the project, with or without the proposed upgrading,

Otter Rapids - License 10-24-1989

is not continued and the project is thereby required to cease operation, the power that would have been produced from this renewable resource will be lost and will have to be replaced by power generated largely by the consumption of nonrenewable fuels.

The staff concludes that there is a need for project power over the short and long term.

The Existing and Planned Transmission Services of the Applicant (Section 15(2)(E))

The applicant does not plan any transmission upgrade for the relicense period, and indeed none will be required for the minuscule amount of additional refurbished capacity proposed for the project (0.2 MW). Therefore, for all practical purposes, the project, as proposed for relicense, will have no additional impact whatsoever on the existing and planned transmission services of the applicant.

The staff concludes that the transmission services are adequate as they currently exist.

Whether the Plans of the Applicant Will be Achieved, to the Greatest Extent Possible, in a Cost Effective Manner (Section 15(a)(2)(F))

The applicant proposes several new plans at its project and the staff's review indicates that the plans would be cost effective to the extent possible.

The applicant states that it plans to refurbish Unit No. 2 in which generator coils and leads were damaged beyond economical repair while it was being synchronized in 1971. With the retired unit refurbished the installed capacity would increase from 500 kW to 700 kW with an increased average annual generation of 2,835,000 kWh.

The applicant would provide various recreational enhancements. The canoe portage would be improved with new signs posted to mark the portage route and alert vehicular traffic. The parking facilities would be expanded particularly at the launch site. Bank fishing along the tailwater would be landscaped and made more accessible. The project would also be modified to allow a safe public viewing area as part of a self-guided tour being developed.

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The staff concludes that the measures proposed are cost-effective.

The Applicant's Record of Compliance with the Terms and Conditions of the Existing License (Section 15(a)(3))

The compliance record of the WPSC with the terms and conditions of the existing license has been unsatisfactory. The licensee filed revised exhibit M drawings required under article

Otter Rapids - License 10-24-1989

24 one year after the due date and revised exhibit R drawings required under article 15 six months after the due date. Also, emergency action plans (EAP) were filed five months and nine months after the due dates.

The instances of non-compliance described above occurred between February 1976 and April 1983.

It is clear that the licensee has shown lack of diligence in carrying out some of its obligations and its compliance record seems to indicate that it might not be expected to satisfactorily comply with timely filings of certain items of the new license. However, we feel that the compliance record does not warrant the denial of the licensee's application for a new license. Therefore, article 501 has been added to the license requiring the licensee to develop, and file for Commission approval, a Hydropower Compliance Management Program that will ensure compliance with the terms and conditions of the new license and allow the Commission to monitor progress toward compliance.

The issuance of this license does not preclude the Commission from assessing penalties, pursuant to Section 31 of the Act, for any violation that occurred after the enactment of ECPA.

The licensee is hereby put on notice that its failure to comply with the terms and conditions of this license will subject it to the enforcement and penalty provisions of Section 31 of the Act, including civil penalties up to \$10,000 per day for each violation, or revocation of the license.

Term of License

Section 15 of the Act, as amended by ECPA specifies that any license issued under section 15 shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years. This provision is consistent with pre-ECPA Commission policy, which was to establish 30-year terms for those projects which proposed no new construction or capacity, 40-year terms for those projects that proposed a moderate amount of new development and 50-year terms

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for those projects that proposed a substantial amount of new development. 3/

The applicant proposes a moderate amount of new development to the existing project facilities. Accordingly, the new license for the project will be for a term of 40 years.

Summary of Findings

An EA was issued for this project. 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 attached to this order.

Otter Rapids - License 10-24-1989

Issuance of this 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 attached to this order.

The Director, Office of Hydropower Licensing, concludes that the project would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Wisconsin Public Service Corporation (licensee), for a period of 40 years, effective July 1, 1990, to refurbish, operate and maintain the Otter Rapids Hydro Project. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the Act.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by exhibit G:

3/ See Montana Power Company, 56 F.P.C. 2008 (1976).

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Exhibit G-	FERC No. 1957-	Showing
1	4	Location Map
2	5	Project Boundary Map
3	6	" " "
4	7	" " "
5	8	" " "

(2) Project works consisting of:

(a) a 17-foot-high and 17-foot-long reinforced concrete dam with a 300-foot-long and 12-foot-high earthen dike abutting the north end of the dam; (b) a 3,916-acre reservoir having an estimated storage capacity of 42,279 acre-feet; (c) a powerhouse integral with the dam and housing two 250-kw units and one 200-kw

Otter Rapids - License 10-24-1989

unit for a total installed capacity of 700 kW; (d) an outdoor substation located on the south bank adjacent to the powerhouse containing three single-phase 2.4/24.9-kV, 250-kVA pole mounted step-up transformers which tap to an existing 24.9-kV distribution line; and (e) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F recommended for approval in the attached Safety and Design Assessment.

(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 located within or outside the project boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibit G described above and those sections of exhibits A and F recommended for approval in the attached Safety and Design Assessment are approved and made part of the license.

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

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

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11

(E) This license is subject to the articles set forth in Form L-14, (October 1975), entitled "Terms and Conditions of License for Unconstructed Minor Project Affecting Navigable Waters of the United States", except article 20, and the following additional articles:

Article 201. The licensee shall pay the United States the following annual charges, effective July 1, 1990:

For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 940 horsepower.

Article 202. The licensee shall clear and keep clear to an adequate width all lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other

Otter Rapids - License 10-24-1989

material unnecessary for the purposes of the project which result from maintenance, operation, or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. All clearing of lands and disposal of unnecessary material shall be done with due diligence to the satisfaction of the authorized representative of the Commission and in accordance with appropriate federal, state, and local statutes and regulations.

Article 301. The licensee shall commence construction of the modifications to the project within 2 years from the effective date of the license and shall complete construction of the project within 4 years from the effective date of the license.

Article 302. The licensee, at least 60 days prior to start of construction, shall submit one copy to the Commission's Regional Director and two copies to the Director, Division of Dam Safety and Inspections, of the final contract drawings and specifications for pertinent features of the modifications to the project, such as water retention structures, powerhouse, and water conveyance structures. The Director, Division of Dam Safety and Inspections, may require changes in the plans and specifications to ensure a safe and adequate project.

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12

Article 303. The licensee, within 90 days of completion of construction of the modifications to the project, shall file, for approval by the Commission, revised Exhibits A, and F to describe and show the project as-built.

Article 401. The licensee shall operate the Otter Rapids Project to minimize fluctuations of the reservoir surface elevation for the protection of fish and wildlife resources and navigational uses in the Wisconsin River and within the Eagle River Chain of Lakes. The licensee shall act at all times to maintain the reservoir surface elevation at 1616.37 feet U.S. Geological Survey datum (USGSD), as measured immediately upstream of the project dam, and shall discharge a continuous minimum flow of 103 cubic feet per second (cfs) to the Wisconsin River, as measured immediately downstream from the project dam.

This mode of operation may be temporarily modified: (1) if required by operating emergencies beyond the control of the licensee; (2) to implement the winter drawdown described in article 402; (3) for short periods upon mutual agreement between the licensee and the Wisconsin Department of Natural Resources (WDNR); and (4) if inflows exceed the project's maximum operating capacity, the reservoir surface elevation may be raised to a maximum elevation of 1616.5 feet USGSD.

If inflows to the project reservoir remain below 103 cfs for extended periods of time and the reservoir surface elevation approaches 1616.20 feet USGSD, the licensee shall consult the WDNR and the U.S. Fish and Wildlife Service to determine if a

Otter Rapids - License 10-24-1989

reduction of the 103 cfs minimum flow release is necessary to maintain the fish and wildlife resources and navigational uses in the Wisconsin River and in the Eagle River Chain of Lakes. The licensee shall submit for Commission approval any proposal to temporarily reduce the project's minimum flow release requirement to less than 103 cfs. The Commission reserves the right to require changes to the proposed reduction of minimum flow release to less than 103 cfs; the licensee must receive Commission approval prior to altering the minimum flow requirement.

Article 402. During the annual winter drawdown period, the licensee shall limit the drawdown rate to a maximum of one inch per hour. The licensee shall not lower the reservoir surface elevation below elevation 1614.37 feet U.S. Geological Survey datum (USGSD) without notifying the Wisconsin Department of Natural Resources and the Commission's Chicago Regional Office. The reservoir surface elevation shall be returned annually to the normal elevation of 1616.37 feet USGSD by April 15 to protect and enhance fish spawning habitat in the Eagle River Chain of Lakes.

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13

Article 403. The licensee, after consultation with the U.S. Geological Survey, the U.S. Fish and Wildlife Service (FWS), and the Wisconsin Department of Natural Resources (WDNR), shall develop a plan to install water level gages in the Otter Rapids reservoir and stream flow gages in the Wisconsin River immediately downstream of the project to monitor compliance with the provisions stipulated by articles 401 and 402. The plan shall include: (1) an implementation schedule; (2) the proposed location, design, and calibration of the gaging devices; (3) the method of flow data collection; and (4) a provision for supplying flow and headpond elevation data to the FWS and the WDNR within 30 days from the date of the agency's request for the data. The plan shall be filed for Commission approval within 180 days from the effective date of this license and shall include comments and recommendations from the aforementioned agencies on the plan. The Commission reserves the right to require modifications to the plan.

Article 404. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance of such fishways, as may be prescribed by the Secretary of the Interior pursuant to Section 18 of the Federal Power Act.

Article 405. The recreation plan, filed June 28, 1988, as section 6 of the exhibit E, pages 41 through 47, and as supplemented in the additional information filed March 13, 1989, is approved. The licensee, after consultation with the U.S. Fish and Wildlife Service (FWS) and the Wisconsin Department of Natural Resources (WDNR), shall prepare final designs, and construct the approved facilities within 5 years from the effective date of this license. Within 90 days after completing the recreation facilities, the licensee shall file with the Commission as-built drawings showing the type and location of the recreation facilities in accordance with article 304.

Otter Rapids - License 10-24-1989

Documentation of consultation with the FWS and the WDNR shall be included in the filing. The licensee shall operate and maintain the facilities for the term of the license.

Article 406. The licensee, before starting any land-clearing or land-disturbing activities within the project area, or engaging in modes of project operation other than those specifically authorized in this license, shall consult with the State Historic Preservation Officer (SHPO).

If the licensee discovers previously unidentified archeological or historic properties during the course of project construction or operation, either as the result of accident or deliberate monitoring, the licensee shall stop all land-clearing and land-disturbing activities in the vicinity of the properties, protect the properties from further adverse effect, and consult with the SHPO.

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14

In either instance, the licensee shall file for Commission approval a cultural resource management plan prepared by a qualified cultural resource specialist after having consulted with the SHPO.

The management plan shall include: (1) a means to gain access to the eligible site; (2) a description of each discovered property indicating whether it is listed on or eligible to be listed on the National Register of Historic Places; (3) a description of the potential effect on each discovered property; (4) proposed measures for avoiding or mitigating effects; (5) documentation of the nature and extent of consultation; and (6) a schedule for mitigating effects and conducting additional studies. The Commission may require changes to the plan.

The licensee shall not begin land-clearing or land-disturbing activities, other than those specifically authorized in this license, nor increase the level of the reservoir behind the project dam or the volume of water released below the project dam, nor resume land-clearing or land-disturbing activities in the vicinity of a property, discovered during construction, until informed by the Commission that the requirements of this article have been fulfilled.

Article 407. Within 1 year from the effective date of this license, the licensee, after consultation with the State Historic Preservation Officer (SHPO), shall submit for Commission approval a cultural resources management plan that contains provisions for the following:

- (1) maintaining the existing project works at the historic district according to the Secretary of the Interior's Standards;
- (2) following the Secretary's Standards when undertaking new construction within the historic district;

Otter Rapids - License 10-24-1989

- (3) submitting each planned demolition event to be reviewed individually under the section 106 procedures of the Advisory Council on Historic Preservation, Title 36, Code of Federal Regulations, Part 800;
- (4) systematically and periodically monitoring the approximately 65 miles of reservoir shoreline, so that archaeological sites may be found out as they become exposed, tested, and protected according to section 106 if they are eligible; and
- (5) obtaining access to the three prehistoric archaeological sites and determining their eligibility for inclusion in the National Register of Historic Places.

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The licensee shall submit the cultural resources management plan to the SHPO and shall ask the SHPO to comment by concurring with a determination of "No Adverse Effect" based on the specific provisions of the plan as those provisions address each of the concerns listed above. The licensee shall submit both the cultural resources management plan and the SHPO's comments for Commission approval. The Commission reserves the authority to require changes to the cultural resources management plan.

Article 408. (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, cancelling 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; and (3) embankments, bulkheads, retaining walls,

Otter Rapids - License 10-24-1989

or similar structures for erosion control to protect the existing shoreline. 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

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16

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 and roads for which all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project 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

Otter Rapids - License 10-24-1989

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 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

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17

conveyed is located at least 75 feet, measured horizontally, from the edge of the project reservoir at normal maximum 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 45 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 covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to 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.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any

Otter Rapids - License 10-24-1989

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

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18

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 501. The licensee, within 4 months of the effective date of this license, shall file a Hydropower Compliance Management Program (HCMP) for Commission approval. The HCMP shall include the following elements for each license requirement:

a. The identification of and schedule for each action necessary to complete the license requirement;

b. A schedule for the start and completion of the consultation process with each resource agency required to be consulted for each action necessary to complete the license requirement;

c. The identification of specific individuals in each agency that need to be consulted on each action necessary to complete the license requirement;

d. A reporting plan to be filed with the Commission on a quarterly basis, starting 8 months after the effective date of this license, that demonstrates the progress made by the licensee under the schedule presented in elements (a) and (b) above, to complete the license requirement; and

e. A monitoring report, to be filed on an annual basis, starting one year after the effective date of this license, documenting the compliance of the licensee with all requirements of the license that do not require specific filings with the Commission.

Otter Rapids - License 10-24-1989

Four copies of all requirements under this article must be filed with the Secretary of the Commission with a copy filed with any agency consulted under element (b) above.

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19

The Commission reserves the right to require the licensee to make modifications to the HCMP and to take other measures necessary to ensure compliance by the licensee with the terms and conditions of the license.

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

(G) This order is issued under authority delegated to the Director and is final unless appealed to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in this order. The licensee's failure to appeal this order shall constitute acceptance of the license.

Fred E. Springer
Director, Office of
Hydropower Licensing

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ENVIRONMENTAL ASSESSMENT 1/

FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF HYDROPOWER LICENSING
DIVISION OF PROJECT REVIEW

Date: July 26, 1989

Project name: Otter Rapids

FERC Project No. 1957 -003

A. APPLICATION

1. Application type: Existing minor project
2. Date filed with the Commission: June 28, 1988

Otter Rapids - License 10-24-1989

3. Applicant: Wisconsin Public Service Corporation (WPSC)
4. Water body: Wisconsin River River basin: Wisconsin
5. Nearest city or town: Eagle River (See figure 1, page 22)
6. County: Vilas and Oneida State: Wisconsin

B. PURPOSE AND NEED FOR ACTION

1. Purpose. The project would continue to be operated to provide 2,835 megawatthours (MWh) of electric energy per year to help meet the applicant's customer's power requirements.

2. Need for power. The power from the project would continue to be useful in meeting a small part of the need for power projected by Mid-America Interconnected Network (MAIN) Regional Electric Reliability Council. The project would continue to displace fossil-fueled power generation in the MAIN Region, thereby conserving nonrenewable fossil fuels and reducing the emissions of noxious byproducts caused by the combustion of fossil fuels.

- 1/ Figures and attachments referenced in the text are omitted from this document due to reproduction requirements.

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C. PROPOSED PROJECT AND ALTERNATIVES

1. Description of the proposed action.

a. Original project construction began in 1906 and was completed in 1907 replacing a dam built as part of a sawmill operation in 1883. The project was partially reconstructed in 1921. The project was first licensed in 1950. The current license was issued in August 1975 and will expire in June 1990. The existing operating project consists of:

(1) an existing 17-foot-high and 174-foot-long reinforced concrete dam with a 12-foot-high and 300-foot-long earthen dike abutting the north end of the dam;

(2) an existing 3,916-acre reservoir having an estimated storage capacity of 42,279 acre-feet. The project's impoundment includes an approximately 5-mile-long reach of the Wisconsin River (known as Watersmeet Lake) and Lakes Yellow Birch, Duck, Lynx, Otter, Eagle, Scattering Rice, Voyager, Catfish, and Cranberry (also known as the Eagle Chain of Lakes) (figure 1, page 22).;

(3) a powerhouse integral with the dam and housing two 250-kilowatt (kW) units and one 200-kW unit for a total installed capacity of 700 kW;

- (4) an outdoor substation located on the south bank adjacent to

the powerhouse; and

(5) appurtenant facilities.

b. The applicant proposes to refurbish one 200-kW generating unit.

2. Applicant's proposed mitigative measures.

a. Construction. None. All proposed work would be done within the powerhouse.

b. Operation. The applicant proposes to continue to operate the project in a run-of-river mode; increasing minimum flow from 40 to 103 cfs to maintain recreational navigation downstream of the project dam and also to protect downstream aquatic habitats.

To enhance recreation opportunities in the project area, the applicant proposes to improve the canoe portage, install additional signs marking the canoe portage, expand the north parking area, construct a new parking area on the south side of the dam, expand and improve the tailwater bank fishing area, construct a handicapped-accessible fishing pier and parking area,

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develop a self-guided tour of the powerhouse facilities, and construct a restroom.

3. Federal lands affected.

X No. Yes

4. Alternatives to the proposed project.

a. No reasonable action alternatives have been found.
X Action alternative:

1. Issuance of an Annual License

Section 15(a) of the Federal Power Act (Act), 16 U.S.C. 808(a), provides for the issuance of annual licenses to the prior licensee if the license expires pending the relicensing determination.

If an annual license is issued, existing facilities would continue to operate until reevaluation of the project according to today's standards and procedures occurs. Therefore, this alternative is not recommended and not evaluated further since this license does not expire until June 1990.

2. Issuance of Nonpower License

Section 15(f) of the Act, 16 U.S.C. 808(b), authorizes the Commission to issue a license for nonpower use when the Commission "finds that in conformity with a comprehensive plan for improving or developing a waterway or waterways for

Otter Rapids - License 10-24-1989

beneficial public uses all or part of any licensed project should no longer be used or adapted for use for power purposes." A license that is granted by the Commission for nonpower use is temporary. When the Commission finds that a state, municipality, interstate agency, or another federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license, and does so, the Commission would terminate the nonpower license.

If a nonpower license is issued, the applicant would have to find a replacement source of power. No entity has recommended that a nonpower license should be considered.

3. Denial of License Application

Denial of the license application could lead to removal of the power facilities or removal of all project works. The WPSC would have to find a replacement source of energy.

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Either alternative number 2, issuance of a non-power license, or alternative number 3, denial of license, would result in the cessation of generation of power by the project and would force the applicant to replace lower-cost, non-polluting generation derived from a renewable primary energy resource with increased purchases of higher-cost capacity and energy from another source.

4. Alternative Project Operations

Alternative modes of operation of the project are discussed in section G of this report.

b. Alternative of no action.

No action on the application for a new license is not a reasonable alternative since the Commission must take some administrative action on all pending applications.

D. CONSULTATION AND COMPLIANCE

1. Fish and wildlife agency consultation (Fish & Wildlife Coordination Act).

- a. U. S. Fish & Wildlife Service (FWS): X Yes. No.
- b. State(s): X Yes. No.
- c. National Marine Fisheries Service (NMFS): Yes. X No.

2. Section 7 consultation (Endangered Species Act).

- a. Listed species: None. X Present: Eastern timber wolf (federally and Wisconsin listed) range includes the project area; bald eagle (federally listed threatened species in Wisconsin; Wisconsin listed endangered species) nests near the project; and osprey (Wisconsin listed endangered species) nests near the

Otter Rapids - License 10-24-1989

project.

b. Consultation: Not required.
Required; completed: / / .

Remarks: No endangered or threatened species would be affected by continued project operation (Sheila M. Huff, Regional Environmental Officer, Office of Environmental Project Review, U.S. Department of the Interior letter dated April 14, 1989).

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5

3. Section 401 certification (Clean Water Act).

Not required.

Required; applicant requested certification on 2/3/88.

Status : Granted by the certifying agency on / / .

Waived by the certifying agency on 7/13/88.

Waived; section 401 certification is waived if not acted upon by the certifying agency within 1 year from the date of the certifying agency's receipt of the request (See Commission order no. 464, issued February 11, 1987).

Undetermined; 1 year has not yet elapsed since the applicant's request and the state agency has not yet acted on the request.

The 1-year period would expire on / / .

4. Cultural resource consultation (Historic Preservation Act).

- a. State Historic Preservation Officer (SHPO): Yes. No.
- b. National Park Service (NPS): Yes. No.
- c. National Register status: None. Eligible or listed.
- d. Council: Not required. Completed: 6/21/89.
- e. Further consultation: Not required. Required.

Remarks: The existing project works are eligible for listing on the National Register of Historic Places as an historic district. There are also three prehistoric archaeological sites on private property at the banks of the project reservoir for which eligibility determinations must still be made, but cannot be made until after licensing. For the time being, the staff and the State Historic Preservation Officer (SHPO) are considering these three sites eligible.

5. Recreational consultation (Federal Power Act).

- a. U.S. Owners: Yes. No.
- b. NPS: Yes. No.
- c. State(s): Yes. No.

Otter Rapids - License 10-24-1989
Remarks: No U. S. owners.

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6

6. Wild and scenic rivers (Wild and Scenic Rivers Act).

Status: X None. Listed. Determination completed: / / .

Administering agency: .

7. Land and Water Conservation Fund Lands and facilities (Land and Water Conservation Fund Act).

Status: X None. Designated. Determination completed: / / .

Administering agency: .

E. COMMENTS

- 1. The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated 02/28/89.

Commenting agencies and other entities	Date of letter
U. S. Department of the Interior (Interior)	4/14/89
Motions to intervene	Date of motion
Wisconsin Department of Natural Resources (DNR)	4/13/89

- 2. X The applicant responded to the comments or motion(s) to intervene by letter(s) dated 5/10/89.

The applicant did not respond to the comments or motion(s) to intervene.

F. AFFECTED ENVIRONMENT

- 1. General description of the locale.

a. Description of the Wisconsin River Basin.

The Wisconsin River drains an area of 11,728 square miles, at Otter Rapids the drainage area is 543 square miles. The Wisconsin River is 435 miles long, flowing north to south for the first 310 miles, then to the west for the final 120 miles to its confluence with the Mississippi River. Major tributaries of the Wisconsin River include the Eagle, Tomahawk, Big Eau Claire, Prairie, Baraboo, and Kickapoo Rivers.

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Otter Rapids - License 10-24-1989

7

The topography in the Wisconsin River Basin is the result of a continental glacier receding 11,000 years ago. It is characterized by forested rolling hills and a mosaic of wetlands and lakes. Land use adjacent to the project area is primarily rural recreation and tourism. The average temperature varies from 66 degrees Fahrenheit (F) in July to 12 F in January. Annual precipitation averages about 31 inches per year. The area's average yearly snowfall is 70 inches.

b. Existing licensed projects and exempted projects (indicated by an " * " after the FERC Project No.) in the river basin, as of 05/4/89.

Project	Project name	Water body
1984	Castle Rock	Wisconsin
1984	Petenwell	"
2292	Nekoosa	"
2291	Port Edwards	"
2255	Centralia	"
2256	Wisconsin Rapids	"
2192	Biron	"
1967	Whiting Plover	"
2590	Wisconsin River Division	"
2210	Stevens Point	"
1953	Du Bay	"
2207	Mosinee	"
2212	Rothschild	"
1999	Wausau	"
1989*	Merrill	"
1979	Alexander	"
1966	Grandfather Falls	"
2180	Grandmother	"
1940	Tomahawk	Wisconsin
2476	Jersey	Tomahawk
2239	Kings Dam	Wisconsin
1968*	Hat Rapids	"
2161	Rhinelander	"
1957	Otter Rapids	"
2113	Wisconsin Headwaters	"

c. Pending license applications and exemption applications in the basin, as of 5/4/89 . (Exemption applications are indicated by an " * " after the FERC Project No.)

Project No.	Project name
None	

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d. Cumulative impacts

Cumulative impacts are defined as impacts on the environment that result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time (40 CFR, Part 1508.7).

A target resource is an important resource that may be cumulatively affected by multiple development within the basin. The staff based its selection of target resources on the regional significance and geographic distribution of the resource within the river basin.

Target resource

- (1) Wetlands
- (2) Recreational boating.

The target resources listed above are described below in section F(2). Impacts to target resources, if any, are discussed in section G.

2. Descriptions of the resources in the project impact area (Source: Wisconsin Public Service Corporation, 1986, application, exhibit E, unless otherwise indicated).

a. Geology and soils: The project is underlain by hard, crystalline igneous and metamorphic rocks. The area's irregular knob and swale topography of undulating hills with a mosaic of irregular depressions containing bogs, wetlands, and lakes -- kames, kettle holes, terminal moraines, and outwash plains -- is the result of sand and gravel deposition at the front of a collapsing, melting glacier. Soils include sandy soils formed over glacier drift sands and loams formed over glacial sand and gravel. Peat deposits occupy many of the depressions.

The applicant reports that there are no serious erosion problem areas along the shoreline of the lakes that comprise the project's reservoir (personal communication with Gregory Egtvedt, Environmental Analyst, Wisconsin Public Service Corporation, Green Bay, Wisconsin, May 16, 1989). Rather, the shoreline is well forested, even with the high level of residential development that has occurred.

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b. Streamflow:

Low flow: 127 cfs;

flow parameter: estimated 7Q10 = the average low flow over 7 consecutive days with a 10- year occurrence interval.

Otter Rapids - License 10-24-1989

high flow: 2,946 cfs; flow parameter: calculated maximum flow at the Otter Rapids Dam during the 1950-1986 period of record.

average flow: 507 cfs.

c. Water quality: Water quality within the upstream reservoir system and the downstream Wisconsin River is good, maintaining the Wisconsin state water quality criteria for fish and aquatic life both upstream and downstream. 4/ During August through October 1987, the applicant conducted a water quality study of the reservoir system. Conductivity ranged from 42.1 to 86 micromhos per centimeter; pH ranged from 6.74 to 8.35; alkalinity ranged from 27.8 to 42.2 parts per million; and dissolved oxygen, downstream from the project, ranged from 6.1 to 12.4 milligrams per liter. In general, the data indicate the reservoir system as a neutral to slightly basic, moderately hard, well oxygenated body of water which is relatively low in nitrogen, phosphorous, and potassium.

d. Fisheries:

Anadromous: X Absent. Present.

Resident: Absent. X Present. Major sport fish found in the project vicinity include: muskellunge, northern pike, walleye, yellow perch, smallmouth bass, largemouth bass, black crappie, bluegill sunfish, pumpkinseed sunfish, and rock bass. In addition, Spring Meadow Creek, which enters the Eagle River chain of lakes at Cranberry Lake, supports a native brook trout fishery. Other resident fish species found in the region include: channel catfish, yellow bullhead, black bullhead, burbot, logperch, northern hogsucker, white sucker, and several species of redhorse, dace, shiners, and chubs.

4/ Wisconsin Department of Natural Resources, Chapter NR 102, Water Quality Standards for Wisconsin Surface Waters, Register, October 1985, No. 358, Environmental Protection.

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e. Vegetation: Wetlands were chosen as a target resource because river development and use can result in their incremental loss which, in turn, can result in the loss of highly productive fish spawning, fur bearer, and water fowl habitat. Continued project operation would not result in any loss of wetlands. In fact the existence of the project contributes to the maintenance of wetlands.

Otter Rapids - License 10-24-1989

Cover type	Dominant species
northern hemlock-white pine-hardwoods	sugar maple, hemlock, basswood, yellow birch, white and red pine, quaking aspen, paper birch, jack pine
spruce-fir	black spruce, balsam fir, northern white cedar
bogs (along lake or stream margins)	black spruce and tamarack
bogs	peat moss, tamarack, black spruce, leatherleaf, bog rosemary, bog laurel, Labrador tea, blueberry, pitcher plants
shrub wetlands	alder, willow, dogwood
marshes	pickerel weed, arrowhead, sedges, grasses, rushes, cattails, water arum, wild rice, purple loosestrife
aquatic vegetation	water lilies, duckweed, pond weed, coontail, water milfoil, tape grass, elodea

f. Wildlife: Common animal species in the project area include: beaver, black bear, eastern gray squirrel, eastern cottontail rabbit, fisher, mink, muskrat, raccoon, red fox, river otter, snowshoe hare, white-tailed deer, coyote, bobcat, pine marten, deer mouse, eastern chipmunk, masked shrew, redback vole, shorttail shrew, blue-winged teal, common loon, common mergansers, grebes, gulls, herons, hooded mergansers, king fisher, mallard, ring-necked ducks, terns, wood duck, bald eagle, osprey.

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g. Cultural:

National Register (listed and eligible) properties have not been recorded.

X There are properties listed on, or eligible for listing on, the National Register of Historic Places in the project impact area.

Description: The existing project works are eligible for listing on the National Register of Historic Places as an historic district. Moreover, there are three prehistoric archaeological sites on private property at the banks of the project reservoir for which eligibility determinations must still be made, but cannot be made until after licensing. Presently,

Otter Rapids - License 10-24-1989

the staff and the State Historic Preservation Officer (SHPO) are considering these three sites eligible.

h. Visual quality: Set among the approximately 11,000 lakes of north central Wisconsin, the project's reservoir system (figure 1, page 22) is indistinguishable from the many natural water bodies in the surrounding area. Since the project facilities are presently operated in a run-of-river mode with minimal fluctuation of reservoir water levels, associated shorelines and streamflows are compatible with the visual character of the landscape. Constructed in 1906, the project's masonry dam and powerhouse have become culturally important resources (see section F2g., above) and contribute significantly to the landscape's visual quality.

Scenery along the heavily wooded shorelines of the reservoir system is diverse and interesting. With the exception of the Eagle River urban area and a few recreation-oriented businesses (i.e. marinas, motels, and resorts), development is residential. Most residences have piers and well maintained over-the-water boat houses are also quite common. County shoreline zoning requirements and state regulations governing activities below the ordinary high water marks of lakes and streams protect existing areas of natural beauty, such as wetlands and other aesthetically valuable landscape features.

i. Recreation: The project area and associated reservoir system (the Eagle River Chain of Lakes) are heavily used for water-based recreation. Summer recreation activities include fishing, boating, swimming, water skiing, camping, hunting, and hiking. Snowmobiling, cross country skiing, and ice fishing are popular winter activities. Recreational boating was chosen as a target resource because it can be cumulatively affected by reduced flows and impeded boat passage by dams in a river system.

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Recreation facilities located within the project boundary include a canoe portage around the dam with marked put-in and take-out points, a fishing pier in the tailwater, a parking area, and a snowmobile trail. There are 9 public boat access sites and 6 public parks that offer recreation opportunities at the Eagle River Chain of Lakes.

j. Land use: Land is used primarily for recreation, undeveloped woodland, and residential development.

k. Socioeconomics: The population of Vilas and Oneida Counties during the 1980 census was 16,535 and 31,216, respectively. The economy of the area is recreation and tourist-oriented. This is reflected by the peak summer population of Vilas County estimated at 83,178 in 1986.

G. ENVIRONMENTAL ISSUES AND PROPOSED RESOLUTIONS

There are 7 issues addressed below.

Otter Rapids - License 10-24-1989

1. Project operation: The applicant proposes to continue to operate the project in a run-of-river mode. While operating in this manner, the applicant would maintain the normal reservoir surface elevation at 1616.37 feet (USGS datum), the maximum elevation at 1616.50 feet, and minimum elevation at 1616.20 feet. Further, the applicant proposes to provide a minimum flow of 103 (cfs) from the powerhouse. If inflows are less than 103 cfs, the applicant agrees to consult with the FWS and the DNR to determine appropriate water releases based on the following DNR priorities:

- 1) protection of fish and aquatic life in the area downstream from the Otter Rapids dam to the Rainbow Reservoir
- 2) protection of fish and aquatic life in the Eagle Chain of Lakes (Otter Rapids reservoir system)
- 3) protection of recreational navigation in the Eagle River Chain of Lakes (Otter Rapids reservoir system)
- 4) protection of recreational navigation in the area downstream from the Otter Rapids dam

Interior recommends that the project be operated in an instantaneous run-of-river mode and concurs with the applicant's proposed maintenance of the reservoir surface elevations. Interior recommends that the licensee not modify operation of the project reservoir beyond the recommended elevation limits without receiving prior written concurrence from the DNR. Interior agrees to the applicant's proposed minimum flow, suggesting that a block be placed in the wicket gate governor of unit #1 to prevent the unit's gates from completely closing, thus providing

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13

the continuous minimum flow release. Under low-flow conditions, when the minimum reservoir surface elevation (1616.20 feet USGS datum) has been or is likely to be reached, Interior recommends that the licensee consult with the FWS and the DNR to manage the available water to protect fish and wildlife resources and to maintain recreational navigation.

Operating the proposed project in an instantaneous run-of-river mode would require project discharges to equal inflow to the project reservoir. Under this operational mode, the normal reservoir surface elevation should be stabilized. However, when inflows exceed the project capacity, the FWS and the DNR (as referenced by letters included in the license application) agree that the reservoir surface elevation could be raised to the proposed maximum level. During these high-flow periods, water may still have to be released through the spillway gates to maintain the proposed maximum reservoir elevation. The project head could gain a minor amount of additional head without flooding properties located adjacent to the reservoir. When high inflows subside to a volume which can be fully utilized by the project turbines without spillage, the project reservoir should be brought to the normal surface elevation (1616.37 feet).

Otter Rapids - License 10-24-1989

The recommendation for a minimum flow would initially seem unnecessary under a strict run-of-river operational mode, since no ponding or peaking activities are proposed. The river flow below the project dam would equal the incoming flows and thus should protect downstream aquatic habitats in the Wisconsin River. However, the river's natural flow regime has been altered due to water regulation activities upstream of the project. Therefore, a minimum flow release, drawing on reservoir storage, would be necessary to meet instream flow needs below the project dam.

Upon the completion of field studies conducted on October 15, 1987, and April 11, 1988, the applicant, the FWS, and the DNR, agreed that a minimum flow of 103 cfs should be provided to primarily maintain recreational navigation downstream of the project dam and also to protect downstream aquatic habitats. In its license application, the applicant provided flow records from July through August, 1987, indicating that the likelihood of inflows being less than 103 cfs is rare (letter from Gregory W. Egtvedt, Environmental Analyst, Wisconsin Public Service Corporation, Green Bay Wisconsin, to Bob Martini, Department of Natural Resources, Rhinelander, Wisconsin, and to Janet Smith, U.S. Fish and Wildlife Service, Green Bay, Wisconsin dated April 21, 1988). Should upstream flow manipulations reduce project inflows below 103 cfs, the minimum flow release could still be maintained by drawing on reservoir storage. Under this condition, the normal reservoir surface elevation could be reduced to its minimum surface elevation without substantial impairment to aquatic habitats and recreational navigation within

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14

the project reservoir. If inflows remain low for extended periods and the minimum surface elevation approached, the licensee should consult the DNR and the FWS to determine appropriate flow allocations for maintaining the area's fish and wildlife resources and navigational uses.

The staff concludes that the project should be operated to stabilize the normal reservoir surface elevation at 1616.37 feet, to the extent possible. The applicant should be required to consult with the DNR before altering this mode of operation. When inflows exceed the project's maximum capacity, the reservoir surface elevation can be raised to the proposed maximum level without flooding adjacent properties; after inflows decline, the project reservoir should be stabilized at its normal elevation. The project should also continuously discharge a minimum flow of 103 cfs from the project dam for the protection of fish and wildlife resources and recreational navigation within the Wisconsin River. If low flows occur for extended periods, the licensee should consult with the resource agencies to determine appropriate flow allocations; any recommended changes to project discharges should be submitted to the Commission for approval.

In responding to Interior's comment letter, the applicant points out that restricting the minimum flow release to a

Otter Rapids - License 10-24-1989

specific unit is not practical and cannot be achieved at all times. However, should unit #1 be out of service, the minimum flow could be released in a variety of ways, including operating units 2 or 3, or providing a gated spillway release. The FWS does not object to other methods of providing the minimum flow (personal communication on June 13, 1989, with Jim Fossum, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Green Bay, Wisconsin). The staff concludes that the licensee should not be restricted in its methods for providing the recommended continuous minimum flow.

2. Winter reservoir drawdown: The applicant states that the current normal operation of the reservoir allows for a late winter (after March 1) drawdown of up to 2 feet to prevent shoreline erosion and ice pile-up. By April 15, the reservoir returns to its normal operational level.

Interior recommends the winter drawdown rate be limited to a maximum of 1 inch per hour; the applicant agrees with this recommendation. In addition, Interior recommends that the reservoir surface elevation not be lowered below 1614.37 USGS datum (2 feet below the normal reservoir surface elevation) without prior written concurrence from the DNR. Finally, Interior recommends that the reservoir surface elevation be returned to its normal elevation of 1616.37 by April 15 to protect and enhance littoral zone spawning areas utilized by northern pike and walleye.

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15

A late winter reservoir drawdown should reduce ice build-up within the reservoir and in turn, reduce the amount of ice-related shoreline erosion. Interior's recommended maximum drawdown rate should allow the reservoir surface to be gradually drawn down. Finally, refilling the reservoir by April 15 to its normal elevation should allow the vegetated, near-shore areas (littoral zone) to be rewatered in time to provide useable spawning sites for fish.

The staff recommends that the late winter drawdown as proposed be continued, observing Interior's recommended maximum rate of elevational drawdown. Should a drawdown of greater than 2 feet below the normal reservoir elevation be needed, the applicant should be required to seek prior concurrence with the DNR.

3. Streamflow gaging: To demonstrate compliance with the recommended reservoir operational levels and the minimum flow releases, Interior recommends that staff gages be installed on the upstream and downstream faces of the dam, or other appropriate location. Such gages should be clearly visible to the public and should indicate the specified maximum and minimum reservoir surface elevations based on an appropriate stage versus discharge relationship for the project. Interior recommends that the tailwater gage be clearly marked or "red-lined" at the stage that corresponds to the recommended 103 cfs minimum flow release. Further, Interior recommends that the applicant calibrate the

Otter Rapids - License 10-24-1989

flow versus wicket gate opening by stream gaging at a minimum of every 5 years to ensure the blocked wicket gate opening is passing 103-cfs. Finally, Interior recommends that the applicant maintain daily operational flow records and upon request, provide these records to the FWS and the DNR.

The applicant agrees to install staff gages to indicate reservoir elevations and tailwater flows, and would make operational flow records available to the agencies per their request. The applicant states that stream gaging studies were undertaken in the fall of 1987 to document flows at various operational levels, including minimum flows. Unless major equipment is replaced, the applicant submits that stream flow gaging calibration is not necessary every 5 years. However, the applicant proposes to undertake stream gaging calibration once every 10 years if requested by the DNR or the FWS.

The licensee should install and maintain appropriate reservoir level and streamflow gaging devices, and must keep accurate records from such devices to demonstrate compliance with the terms and conditions of its license. Likewise, the licensee is responsible for ensuring that the gaging equipment and records accurately reflect the project operations. Therefore, to monitor compliance with the recommended the reservoir elevations and minimum flow releases, the licensee, after consultation with the

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16

FWS, the DNR, and the U. S. Geological Survey, should develop and implement a reservoir level and streamflow gaging plan.

4. Future recommendations to protect and enhance fish and wildlife resources in the Wisconsin River Basin: In its comment letter, Interior states that the FWS and the DNR are in the process of reviewing the system-wide effects of the continued operation of eight hydroelectric projects in the Wisconsin River Basin whose licenses expire at the end of 1993. Based on this review, the agencies will likely recommend project-specific and basin-wide measures to protect and enhance fish and wildlife resources in the basin; such measures could affect the operational conditions recommended for the Otter Rapids Project. Subsequently, Interior recommends that the license be conditioned requiring the licensee, upon order by the Commission, to implement recommendations developed by the FWS to protect and enhance fish and wildlife resources in the Wisconsin River Basin, based on the agencies' analysis of system-wide effects of continued multiple hydropower operations.

The applicant requests that the FWS and the DNR consult with the WPSC relative to any changes that may affect the Otter Rapids Project. Further, the applicant states that since the agencies' recommendations may be broad-ranging and costly, the WPSC requests the opportunity for a hearing on any recommendation that may affect the project.

The staff recognizes that future changes to fish and wildlife management objectives, goals, and techniques cannot be

Otter Rapids - License 10-24-1989

predicted at the time of issuance of a license. Therefore, to consider these future changes, standard license articles are included in any license to allow for future project modifications. Prior to the Commission ordering specific changes as may be recommended by the resource agencies, these standard articles allow the licensee the opportunity for a hearing.

5. Reservation of authority to prescribe fishways: Interior states that upstream and downstream fish passage past the Otter Rapids dam is not a current management objective for the Upper Wisconsin River. However, should management objectives change and subsequently require fish passage facilities, Interior requests that its authority to prescribe the construction, operation, and maintenance pursuant to Section 18 of the Federal Power Act (FPA) be reserved.

The applicant voiced opposition to Interior's request for a reservation of authority to prescribe fishways, stating that no showing has been made that such a reservation would be in the public interest. The applicant suggests that a requirement to add a fish passage facility might, depending on its design, have a significant impact on the project's economics. Further, the applicant notes that the inclusion of a license article reserving

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Interior's prescription authority is clearly within the Commission's discretion, although such a decision should be supported by more than a simple request by Interior.

Section 18 of the FPA provides the Secretary of Interior the authority to prescribe fishways. 5/ Although fish passage facilities may not be recommended by Interior at the time of project licensing, the Commission should include license articles which reserve Interior's prescription authority. 6/ The staff recognizes that future fish passage needs and management objectives cannot always be predicted at the time of license issuance. Under these circumstances, and upon receiving a specific request from Interior, the Commission should reserve Interior's authority to prescribe fishways.

6. Recreation facilities: The applicant proposes to enhance the recreation facilities in the immediate vicinity of the Otter Rapids dam and powerhouse. Specifically, the applicant would improve the canoe portage, install additional signs marking the canoe portage, expand the north parking area, construct a new parking area on the south side of the dam, expand and improve the tailwater bank fishing area, construct a handicapped-accessible fishing pier and parking area, develop a self-guided tour for the public to view the powerhouse facilities, and construct a restroom. The FWS and the DNR agree with the applicant's proposed recreation plan. The FWS recommends that the recreation improvements be implemented within 5 years from the date of issuance of the license. The applicant has agreed to this time-frame.

Bank fishing and canoeing are the most popular recreation

Otter Rapids - License 10-24-1989

activities in the project area with the greatest potential for increased use (Wisconsin Public Service Corporation, 1989). Despite the many recreation opportunities in the vicinity of the project, the Wisconsin State Comprehensive Outdoor Recreation Plan indicates a need for additional fishing and canoeing opportunities (Wisconsin Department of Natural Resources, 1985). Therefore, the applicant's proposal to enhance bank fishing and canoeing opportunities would provide for existing and future recreational needs for these activities in the project area.

- 5/ Section 18 of the FPA provides: "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 of the Secretary of Interior as appropriate."
- 6/ Lynchburg Hydro Associates, 39 FERC 61,079 (1987).

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Flow releases discussed above (in section G1) and the proposed improvement of the canoe portage serve to improve recreational boating in the Wisconsin River thereby averting adverse cumulative impacts on this resource.

The licensee should construct the aforementioned recreation facilities as described in detail in the recreation plan, filed June 28, 1988, as section 6 of the exhibit E, pages 41 through 47, and as supplemented in the additional information filed March 13, 1989.

7. Cultural Resources: The effect of granting the new license would not be adverse if certain conditions are met.

The conditions for the no-adverse effect at the historic district are in the SHPO's February 9, 1989, letter to the staff. According to this letter, the licensee should maintain the existing project works at the historic district according to the Secretary of the Interior's Standards; follow the Secretary's Standards when undertaking new construction within the historic district; and submit its plans for each demolition event to be reviewed individually under procedures described in section 106 of the National Historic Preservation Act.

The conditions for the no adverse effect at archaeological sites are in the staff's June 20, 1989, letter to the SHPO. According to this letter, the licensee should develop a management plan for protecting the important characteristics of the historic district, for the three prehistoric archaeological sites, and for every other eligible property that comes to light at the project in the future, as each new discovery is made, or when there is ground disturbance at the project that was not contemplated prior to licensing. The licensee should also

Otter Rapids - License 10-24-1989

develop a plan for systematically and periodically monitoring the approximately 65 miles of reservoir shoreline, so that archaeological sites may be discovered as they become exposed, tested, and protected, according to section 106 if they are eligible; and for obtaining access to the three prehistoric archaeological sites and determining their eligibility. This second plan should be submitted to the Commission shortly after licensing.

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H. ENVIRONMENTAL IMPACTS

1. Assessment of impacts expected from the applicant's proposed project (P), with the applicant's proposed mitigation and any conditions set by a federal land management agency; the proposed project with any additional mitigation recommended by the staff (Ps); and any action alternative considered (A). Assessment symbols indicate the following impact levels:

0 = None; 1 = Minor; 2 = Moderate; 3 = Major;
 A = Adverse; B = Beneficial; L = Long-term; S = Short-term.

Resource	Impact			Resource	Impact		
	P	Ps	A		P	Ps	A
a. Geology-Soils	0			f. Wildlife	0		
b. Streamflow	1BL			g. Cultural:			
c. Water quality:				Archeological	2AL	0	
Temperature	0			Historical	0		
Dissolved oxygen	0			h. Visual quality	0		
Turbidity and sedimentation	0			i. Recreation	1BL		
d. Fisheries:				j. Land use	0		
Anadromous	0			k. Socioeconomics	0		
Resident	1BL						
e. Vegetation	0						

Remarks: During periods of low inflow, the applicant's proposed minimum flow would augment streamflow below the project dam, thus providing short-term benefits to the downstream fish and wildlife resources and recreational navigation; these benefits would accrue for the duration of the license.

The project could adversely affect three archeological sites that may be eligible for inclusion on the National Register of Historical Places. Staff's proposed measures would negate any adverse impact.

2. Impacts of the no-action alternative.

Under the no-action alternative, the project would continue to operate as it has in the past, under an annual license after July 30, 1990. There would be no construction or changes to the existing physical, biological, or cultural components of the

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area. The additional electrical power that would be generated by the proposed refurbished generating unit would have to be generated from other available sources or offset by conservation measures.

3. Section 4(e) of the Federal Power Act (Act) states that in deciding whether to issue a license, the Commission, in addition to power and development purposes of the project, shall give equal consideration to the purposes of energy conservation, of the protection, mitigation of, damage to, and enhancement of, fish and wildlife, of the protection of recreational opportunities, and of the preservation of other aspects of the environmental quality. Further, the Act in section 10(a) states that the project adopted shall be such that in the judgement of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water power development, for the adequate protection, utilization, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes discussed in section 4(e).

This assessment evaluates the effect of project operation on the environmental resources of the project area and provides a discussion of mitigative measures that should be implemented to protect and enhance these environmental resources. Mitigative measures include minimum flow releases below the Otter Rapids dam, measures to protect cultural resources prior to any future land disturbing activities in the project area, and construction of recreational facilities to meet the public demand. These measures represent the most comprehensive use of the resources.

Based upon a review of the agency and public comments filed in this proceeding, and on the staff's independent analysis, the Otter Rapids Hydroelectric Project is best adapted to a comprehensive plan for the Wisconsin River.

4. Recommended alternative (including proposed, required, and recommended mitigative measures):

<input checked="" type="checkbox"/> Proposed project.	<input type="checkbox"/> Action alternative.	<input type="checkbox"/> No action.
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5. Reason(s) for selecting the preferred alternative.

Issuing a new license for the existing project is the preferred alternative because electricity generated from a

Otter Rapids - License 10-24-1989
renewable resource would be used, thus lessening the use of
existing fossil-fueled, steam-electric plants, without
significant environmental effects.

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21

I. UNAVOIDABLE ADVERSE IMPACTS OF THE RECOMMENDED ALTERNATIVE

There are no known adverse impacts.

J. CONCLUSION

X Finding of No Significant Impact. Approval of the recommended alternative [H(3)] would not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

Intent to Prepare an EIS. Approval of the recommended alternative [H(3)] would constitute a major federal action significantly affecting the quality of the human environment; therefore, an EIS will be prepared.

K. LITERATURE CITED

Wisconsin Department of Natural Resources. 1985. Wisconsin statewide comprehensive outdoor recreation plan, 1986-1991. Madison, Wisconsin. September 1985. Volume IV.

Wisconsin Public Service Corporation. 1988. Application for license for the Otter Rapids Hydroelectric Project, a minor water project of 1.5 megawatts or less, FERC No. 1957, Wisconsin. June 28, 1988.

_____. 1989. Additional information for the application for new license for the Otter Rapids Hydroelectric Project, a minor water power project of 1.5 megawatts or less, FERC Project No. 1957, Wisconsin. March 13, 1989.

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SAFETY AND DESIGN ASSESSMENT
OTTER RAPIDS HYDROELECTRIC PROJECT
FERC NO. 1957-003 - WISCONSIN

DAM SAFETY

The Commission's Chicago Regional Director classified the Otter Rapids Project as having a low hazard potential because a failure would pose no hazard to human life or property downstream of the development. The classification was based on field observations, dam failure analysis, and other information.

By letter dated February 17, 1984, the project was also exempted from the requirement to submit consultant's safety inspection reports under Part 12, Subpart D of the Commission's Regulations.

PROJECT DESIGN

The existing project would consist of: (1) a 17-foot-high and 174-foot-long, reinforced concrete dam with a 300-foot-long and 12-foot-high earthen dike abutting the north end of the dam; (2) a 3,916-acre reservoir having an estimated storage capacity of 42,279 acre-feet; (3) a powerhouse integral with the dam and housing two 250-kilowatt (kW) units and one refurbished, 200-kW unit for a total installed capacity of 700 kW; (4) an outdoor substation containing three single-phase 2.4/24.9-kV, 250-kVA pole mounted step-up transformers located on the south bank adjacent to the powerhouse which taps to an existing 24.9-kV distribution line; and (5) appurtenant facilities.

The applicant has proposed no major new construction of any principal project works except refurbishing the 200-kW unit which was damaged in 1971. Therefore, the project license includes only those special engineering articles which are related to this work.

The Chicago Regional Office Operation Inspection Report cited no deficiencies in project safety and operation.

The staff concludes that the project would be safe and adequate if operated in conformance with the terms of a new license.

WATER RESOURCES PLANNING

The project would continue to operate run-of-river in an automatic mode. The three-unit powerplant would have a hydraulic capacity of 862 cubic feet per seconds (cfs) and would operate at an average head of 12.5 feet. The average annual generation is estimated at 2,835,000 kilowatt-hours (kWh).

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The applicant, after consulting with the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources, agreed to release a minimum flow of 103 cfs, whenever available, for environmental reasons. Inflows less than 103 cfs would be released in consultation with the resource agencies.

The drainage area at the project site located on Wisconsin River is 543 square miles consisting primarily of the headwaters of the Wisconsin River, the Eagle River Chain of Lakes, and the Three Lakes Chain of Lakes.

Wisconsin Valley Improvement Company (WVIC), a state-chartered company, operates 21 reservoirs on the Wisconsin River, 8 of which are above the Otter Rapids Project. WVIC operates the upstream reservoirs to conserve water and control the river.

A streamflow of 965 cfs, which is the combined minimum flow and hydraulic capacity of the powerplant, is equalled or exceeded 6 percent of the time on the flow-duration curve. The average flow of the river at the project site is 507 cfs. The project site is adequately developed.

The Wisconsin River Basin Planning Status Report includes no projects, either proposed or constructed, on Wisconsin River or its tributaries that this project would impact. Therefore, the project is not in conflict with any project in the basin.

No specific state and federal agency comments or recommendations were made addressing flood control, navigation, water supply, or irrigation requirements in the basin.

The staff identified twenty-nine comprehensive plans related to water resources. Two plans were reviewed in relation to the proposed project, as part of a broad public interest examination under section 10(a)(2) of the Act. No conflicts were found. There are no competing applications for the site currently pending before the Commission.

Based on a review of the agency and public comments filed in this proceeding, and on the staff's independent analysis, the Otter Rapids Project is best adapted to a comprehensive plan for the Wisconsin River. The project is properly designed to develop the hydropower potential of the site.

ECONOMIC EVALUATION

The proposed refurbishing of Unit No. 2 would be economically beneficial, so long as the projected levelized cost is less than the levelized cost of alternative energy to any utility in the region that can be served by the project.

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Otter Rapids - License 10-24-1989

The staff has identified projected long-term levelized alternative energy costs in the region of at least 37.3 mills/kWh. Since the levelized cost of energy from the project is estimated to be 37.1 mills/kWh, the project is estimated to provide a levelized economic benefit of 0.2 mills for each kWh of energy produced, or about \$1,000 annually.

The refurbishing of Unit No. 2 would be financed by the applicant from internal cash flow. The Otter Rapids Hydro Project is an integral part of the applicant's generating system that supplies electric power to the applicant's service area and the power generated would be incorporated in the applicant's system for supply to its customers. The staff concludes that the project is economically beneficial.

There is no need for a power-sales contract because the applicant is an electric utility. Given that the applicant has captive customers and is allowed to collect revenues necessary to support whatever generating resources are developed, economic power benefits are the only meaningful criteria upon which to judge the feasibility of utility hydropower projects.

EXHIBITS

The staff concludes that the following parts of exhibit A and the following exhibit F drawings conform to the Commission's rules and regulations and should be included in the license:

Exhibit A. Item 2 Sections entitled "Generating Units" and "Hydraulic Turbines"

Exhibit F Drawing	FERC No.	Showing
F-1	1957-1	Powerhouse and Dam
F-2	1957-2	Powerhouse - Unit No. 1
F-3	1957-3	Dam and Embankment - Sections

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