UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Wisconsin Public Service Corporation Project No. 1966-003

ORDER ISSUING LICENSE
(Major Project - Existing Dam)

(Issued April 14, 1988)

Wisconsin Public Service Corporation (applicant) has filed an application for new license under section 15 of the Federal Power Act (Act) to continue to operate and maintain the Grandfather Falls Project, located in Lincoln County, Wisconsin, on the Wisconsin River, a navigable waterway of the United States. The license for the project, which was issued on February 26, 1951, with an effective date of January 1, 1938, expired on December 31, 1987. 1/

Notice of the application has been published. The motions to intervene that have been granted and the comments and protests filed by agencies and individuals have been fully considered in determining whether to issue this license, as discussed below.

The State of Wisconsin, Department of Natural Resources (WDNR) filed on July 3, 1985, a motion to intervene. In its motion, WDNR states, among other things, that potential modifications to project transmission facilities and operations of the Grandfather Falls Project could result in environmental impacts to land, air, water, wildlife, and other natural resources.

The issues raised by WDNR are addressed in the attached environmental assessment (EA), with the exception of the possible revision of the transmission facilities and the construction of a new substation. The applicant indicated in its application a proposal to modify its electrical system to improve the level of service provided to the Tomahawk area. According to the applicant, a request to amend the license will be made when proposed changes are made to the industrial loads in the Tomahawk area.

The Wisconsin Public Power Incorporated System (WPPI) filed on July 5, 1985, a motion to intervene solely on the basis that it has an interest in the proceeding as a competitor and that it intends to assert its municipal preference rights under section 7(a) of the Act. However, since the Electric Consumers

1/ 10 FPC 757 (1951)

Protection Act of 1986 (ECPA), Public Law No. 99-495 (October 16, 1986) specified that municipal applicants do not have preference at relicensing, WPPI requested on January 12, 1987, that its license application for Project No. 8243 be withdrawn.

Section 10 of the Federal Power Act

Section 3 of ECPA amended section 10 of the Act, 16 U.S.C. §803, with regard to various aspects of the Commission's hydroelectric program. Section 15(a)(2) of the Act, as added by section 4 of ECPA, provides that the requirements of section 10 of the Act are applicable to Commission consideration of applications for new license under section 15 of the Act. Following is a discussion of the relevant provisions of section 10.

1. Recommendations of Federal and State Fish and Wildlife Agencies - Section 10(j)

Section 10(j) of the Act, as amended by ECPA, 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 Grandfather Falls Project, the staff addressed the concerns of the federal and state fish and wildlife agencies, and makes recommendations consistent with those of the agencies.

2. Comprehensive Plans - Section 10(a)(2)(A)

Section 10(a)(2) of the Act, as amended by ECPA, requires the Commission to consider the extent to which a project is consistent with comprehensive plans (where they exist) for improving, developing, or conserving a waterway or waterways affected by the project. The plans must be prepared by an agency established pursuant to federal law that has the authority to prepare such a plan or by the state in which the facility is or will be located. The Commission considers plans to be within the scope of section 10(a)(2) only if such plans reflect the preparers' own balancing of the competing uses of a waterway, based on their data and on applicable policy considerations (i.e., if the preparers consider and balance all relevant public use considerations). With regard to plans prepared at the state level, such plans are within the scope of section 10(a)(2) only if they are prepared and adopted pursuant to a specific act of the state legislature and developed, implemented, and managed by an appropriate state agency. 2/

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2/ See Fieldcrest Mills, Inc., 37 FERC ¶ 61,264 (1986).

The Commission has concluded that the comprehensive planning under section 10(a)(2)(A) should, like comprehensive planning under section 10(a)(1), take into account all existing and potential uses of a waterway relevant to the public interest, including navigation, power development, energy conservation, fish and wildlife protection and enhancement, recreational opportunities, irrigation, flood control, water supply, and other aspects of environmental quality. In order that the Commission may fully understand or independently confirm the content and conclusions of a comprehensive plan, it provided general guidelines for developing such plans which should contain the following: (1) a description of the waterway(s) subject to the plan, including pertinent maps; (2) a description of the significant resources of the waterway(s); (3) a description of the various existing and planned uses for these resources; and (4) a discussion of goals, objectives, and recommendations for improving, developing, or conserving the waterways in relation to these resources. The more closely a plan conforms to these guidelines, the more weight it will have on the Commission's decisions. However, the Commission will consider plans that do not meet the criteria for comprehensive plans, as it considers all relevant studies and recommendations, in its public interest analysis pursuant to section 10(a)(1) to the extent that the documentation supports the plan.

The staff reviewed one resource plan 3/ that addresses various aspects of waterway management in relation to the proposed project, as part of a broad public interest examination under section 10(a)(1) of the Act. In addition, the staff identified no comprehensive plan, as defined under section 10(a)(2) of the Act, which conforms to the guidelines established by the Commission for such a plan. 4/

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

3. Recommendations of Other Agencies - Section 10(a)(2)(B)

Section 10(a)(2)(B) of the Act requires the Commission to consider the recommendations of relevant federal and state agencies exercising administration over flood control,

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3/ Wisconsin Water Quality Report to Congress, June 1986, Wisconsin Department of Natural Resources.

4/ Order No. 481, 52 FED. REG. 39,905 (October 26, 1987), III FERC STATS. & REGS. ¶ 30,773 (1987).

navigation, irrigation, recreation, cultural and other relevant resources, and the recommendations of Indian tribes affected by the project.

No specific state and federal agency comments or recommendations were made addressing flood control, navigation, irrigation, or cultural requirements in the basin. Comments and recommendations concerning recreational resources are addressed in the EA. There are no Indian tribal lands affected by the project.

4. Consumption Efficiency Improvement Program - Section 10(a)(2)(C)

Section 10(a)(2)(C) of the Act, as amended by ECPA, requires that the Commission, in considering license applications submitted by an applicant primarily engaged in the generation or sale of electric power, consider the electricity consumption efficiency improvement programs of the applicant, including its plans, performance,and capabilities for encouraging or assisting its customers to conserve electricity cost-effectively, taking into account the relevant requirements of state regulatory authorities in this regard. Since the applicant is primarily engaged in the generation and sale of electric power, the application falls within the purview of this section of the Act.

The ongoing and planned measures of the applicant to improve the efficiency of both electric supply and consumption, and to reduce the peak demand for generating resource capacity in the applicant's service area, are comprehensive. The applicant presently is in the process of formulating new plans and evaluation processes to address energy efficiency from the perspective of least-cost integrated planning. This process integrates the analysis of supply-side (generation and transmission) options with demand-side (conservation and load management) options to arrive at a least-cost direction to proceed with providing future energy resources. This process is being undertaken as a joint effort among the major Wisconsin electric utilities in cooperation with the Public Service Commission of Wisconsin (PSCW). The integrated planning process will be an ongoing activity which will continually re-evaluate and reshape plans as conditions change.

In-place conservation measures of the applicant related to electric generation and supply include nuclear and hydro plant upgrades, transmission and distribution system loss evaluation and reduction programs, fossil plant efficiency upgrades, economy purchases, and street lighting conservation programs, among others. In-place measures on the customers' side include conservation programs, interruptible load program, time-of-use rate program, water heater time clock load control, purchase of customer-owned

generation, and load factor improvement, among others. Those activities and quantitative results therefrom are described in a report entitled "Electric Energy Efficiency Improvement Programs," prepared by the System Planning Department of the applicant, Wisconsin Public Service Corporation, and dated January 30, 1987.

In view of these developments, staff concludes that the applicant has made, and is continuing to make, a good faith effort to reduce the consumption of electricity on its system.

Section 15(a) of the Federal Power Act

Section 4 of the ECPA amended Section 15 of the Act to specify a number of factors the Commission is required to consider in acting on applications for new license following the expiration of existing licenses.

1. 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)

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 and other applicable provisions to this part. The applicant, the previous licensee, has established a record of safe and efficient operation. The project is inspected periodically by the Chicago Regional Office (see section 15(a)(3)(A)) and the applicant has had only one instance of non-compliance with the conditions of the previous license. Staff concludes that based on the applicant's past good record of compliance, the applicant will be able to satisfy the conditions of the new license.

2. The plans of the applicant to manage, operate, and maintain the project safely - Section 15(a)(2)(B)

Staff has reviewed the plans of the applicant to manage, operate, and maintain the project safely. The applicant has proposed no change in project operation which would have an adverse impact on project safety.

The applicant has developed an Emergency Action Plan (EAP) for the Grandfather Falls Project. The EAP establishes appropriate federal, state and local agencies that must be informed of a project emergency to ensure prompt public notification and to maintain the safety of the public. Also, the applicant has developed a warning system consisting of flashing amber lights and sirens that signal when any gates are in operation which would change the downstream water level. The applicant has also placed signs at locations downstream of the dam and along the dam explaining the system.

Piezometers have been placed in the power canal embankment to monitor seepage on a monthly basis during the months of April through November. This data is transmitted to the Commission in the Consultant's Part 12 Safety Inspection and annually to the inspecting engineer.

The licensee has also developed a Hydro Plant Maintenance Procedure which provides a monthly checklist for penstock inspection and maintenance, dam inspection and inspection of the waterwheel and generator.

The project has experienced 2 fatalities and 2 lost time accidents within the project boundaries. The two fatalities experienced at the project are not related to the applicant's operation of the project.

Based upon a review of the specific information provided by the applicant on various aspects of the project that affect public safety and a review of project records including the independent consultant Part 12 report, staff concludes that the plans of the applicant are adequate.

3. 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)

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 Wisconsin Valley Improvement Company (Company) owns and operates 21 storage reservoirs on the Wisconsin River, of which 20 are located upstream of the Grandfather Falls Project. The reservoirs are operated by the Company for the benefit of 26 hydroelectric projects on the Wisconsin River. The Company is jointly owned by 11 industries, companies and utilities, of which the applicant is one of the utilities. The 20 storage reservoirs above the Grandfather Falls Project have a total usable storage capacity of 298,125 acre-feet. The storage reservoirs are extensively used for recreation activities. Also, the storage reservoirs are operated to reduce high flows during flood periods and augment flows during dry periods. The Grandfather Falls Project depends on controlled flows from the Company's upstream reservoirs and other upstream users.

The applicant proposes to re-establish the fishery in the Wisconsin River channel in the reach located downstream of Grandfather Falls Dam and the powerhouse by releasing between 25 to 50 cfs at the dam. The water released for the fishery will be

unavailable for generation. The loss in generation due to the release will be between 1.32 GWh/yr at 25 cfs to 2.64 GWh/yr at 50 cfs. Staff has determined that the Grandfather Falls Project would have a reduction in benefits of $112,000 per year with a release of 25 cfs and a reduction in benefits of $224,400 per year with a release of 50 cfs. A bypass flow between 25 and 50 cfs would have no major impact on project economics.

Staff has reviewed the operation inspection reports by the Regional Director and the applicant's past performance and future plans to operate the project, and concurs with the applicant that the project is being operated and maintained in an efficient and reliable manner.

4. The need of the applicant over the short and long term for the electricity generated by the project to serve its customers - Section 15(a)(2)(D)

The applicant has developed a 1987 Integrated Resource Plan which summarizes projected capacity resource needs for the 20-year period, 1987-2006. The process used integrates the analysis of supply-side (generation and transmission loss reduction) options with demand-side (conservation and load management) options to arrive at a least-cost direction to proceed with providing future energy resources. Through efforts to pursue demand-side programs, generator life extension, renewable generation, and cogeneration, the applicant currently projects no need to install any new conventional generating capacity (primarily fossil steam and combustion turbines) throughout the next 20 years to essentially realize his current criteria of installed reserves equal to 15 percent of annual peak demand, adjusted for conservation and load management. This is based on a projected average annual base demand increase of less than 1.0 percent, and combined increase in load management, conservation, and nonconventional resources of 493 MW over this period.

In the event the relicense application is denied and the project power becomes unavailable, the applicant would expect to experience capacity deficiencies by 1999 according to the preliminary 1987 Integrated Resource Plan, and possibly as early as 1995 under a high range load forecast. A number of possible alternative substitute resources have been identified, including fossil-fueled utility generation, large industrial cogeneration, solid waste and wood burning generation, small hydro upgrades, life extension of existing facilities, interruptible load, conservation, load management, and transmission loss reductions. Of these alternatives, all those less costly than conventional fossil capacity and not restricted from planning due to unacceptable risks, uncertainties, or other factors, will very likely appear in the

applicant's least-cost integrated plan as it develops over time, regardless of whether this relicense application is approved or denied. Therefore, the most realistic replacement for Grandfather Falls capacity would be conventional fossil-steam capacity. Staff's economic analysis indicates that replacement power from such a resource would cost 84.9 mills/kWh. This represents a levelized cost over a 50-year relicensing period, and includes fuel cost, other variable operating and maintenance costs, and capacity cost, all expressed in terms of equivalent energy cost in 1988 dollars. This compares with a calculated levelized cost of project power of 14.7 mills/kWh over the same time period.

In addition to cost considerations, the use of fossil-fueled capacity to replace Grandfather Falls hydro generation would result in increased consumption of natural resources and increased air pollution.

On the basis of the foregoing considerations, staff concludes that the project could continue to be useful in meeting existing and projected power needs of the applicant, and in displacing fossil-fueled generation, thereby justifying project relicensing.

5. The applicant's existing and planned transmission services - Section 15(a)(2)(E)

The project's two-unit, 17.2-MW powerhouse taps to a remote loop of applicant's old and weak 46-kV transmission network between Tomahawk Dam and the Alexander Hydro Plant in north central Wisconsin. Although plans are not complete, the applicant expects to eliminate the Tomahawk-Grandfather Falls-Alexander 46-kV line and, in its place, tap the project to the Pine-Eastom 115-kV line serving this area through a 6.9/115-kV stepup transformer installed at the project switchyard, provided the project relicense is granted. This would provide improved reliability of service to the City of Tomahawk which is served at 46 kV near the Eastom 115-kV substation. Otherwise, reliability of service to Tomahawk may suffer if Grandfather Falls generation, which is currently an important source to the weak 46-kV transmission system serving the City, is shut down because of relicense denial. This provides additional basis supporting relicensing of the project. If a new license is not granted, higher loading would occur on weak portions of applicant's transmission system.

6. Whether the plans of the applicant will be achieved, to the greatest extent possible, in a cost effective manner - Section 15(a)(2)(F)

An evaluation of the project was performed which showed that the increase in net benefits, if any, was not enough to warrant modification of the existing facilities or operations.

One study involved the capacity and energy production under present conditions and with an increase of 50 and 100 percent. In each case, the plant was assumed to operate 14 hours on-peak per day and with a maximum drawdown limit of one foot. As the plant was expanded, the monetary benefits increased from 4.52 million dollars under present conditions to 4.80 million dollars at 100 percent expansion. However, this .28 million dollar increase was not enough to make expansion economically beneficial.

In another study, the possible reduction in benefits by diverting minimum releases at the dam was evaluated. In the present system, there are no minimum releases at the dam and the total annual benefits are 4.52 million dollars. Since the total annual benefits will be reduced to 4.45 million dollars when 50 cfs is released continuously at the dam and 4.36 million dollars when 100 cfs is released continuously at the dam, staff has determined the present system to be the most cost effective.

Present and alternative systems operations were also studied. The present system, which has a maximum drawdown of 1 foot, operates 14 hours on-peak with the exception of the high flow season (March-June) when the system becomes a run-of-river type operation. By modifying the operation so that an additional foot of drawdown was taken, the energy increased by 6 percent which resulted in a total increase in benefits of $190,000 per year. However, this 1 foot increase in benefits would cause impaired recreation use and hardship to property owners around the reservoir. By transforming the system into a run-of-river operation, the monetary benefits decreased by $370,000 per year. A decrease in total annual benefits also resulted from shortening the on-peak hours.

The lowest annual benefits, a total of 4.48 million dollars, resulted from the 8 hour on-peak schedule with the highest annual benefits at the 14 hour on-peak schedule. Therefore, the present systems operation was determined to offer the maximum net annual benefits.

The applicant plans no efforts to increase generation of the project. Staff concurs with the applicant that the project as presently constructed and operated will achieve its plan to the greatest extent possible in a cost effective manner.

7. Such other factors as the Commission deems relevant - Section 15(a)(2)(G)

As discussed elsewhere in this order and in the attached EA, the issuance of a new license for the project would not result in any major, long-term adverse environmental impacts. Moreover, the issuance of a new license will permit the implementation of applicant's proposed fish mitigation and recreational improvements, which would benefit the environmental resources of the project area.

8. The applicant's record of compliance with the terms and conditions of the existing license - Section 15(a)(3)(A)

Based on a review of the Regional Director and other Commission records, it is concluded that the applicant has had only one instance of non-compliance with the terms and conditions of its existing license. This instance occurred in the mid-1970's when the applicant failed to notify the Commission of replacement of the penstock. There was confusion over the interpretation of articles 3 and 4 regarding prior notification in the event of major maintenance repair of the project. Also pursuant to Part 12 of our regulations, the applicant has filed an emergency action plan and periodic updates. Thus, the applicant's compliance record indicates that it has an overall good record.

9. The actions of the applicant related to the project which affect the public - section 15(a)(3)(B)

The record indicates that the applicant has a good record of providing recreation facilities at the project. Also, its regard for public safety is demonstrated by the installation of public safety devices. Thus, the actions affecting the public taken by the applicant in relation to Project No. 1966 support the issuance of a new license.

Conclusion

As amended by ECPA, Section 15(a)(2) of the Act requires the Commission to issue new licenses "to the applicant having the final proposal which the Commission determines is best adapted to serve the public interest". As explained previously, the provisions of Section 10 of the Act are applicable to applications for new license under Section 15. Consequently, Section 10(a)(1) of the Act, as amended by ECPA, governs Commission consideration of applications for new license, and the Commission may issue a new license only if the proposal "will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water power development, for the adequate protection, mitigation, 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 referred to in Section 4(e) of the Act. 5/

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5/ Section 4(e) of the Act authorizes the Commission to issue licenses for project works "necessary or convenient for the development and improvement of navigation and for the development, transmission, and utilization of power ... ."

(continued...)

Based upon the review of the agency and public comments filed in this proceeding, and the Commission's independent analysis of the requirements of Sections 4(e), 10, and 15 of the Act as discussed herein, it is concluded that the Grandfather Falls Project would not conflict with any planned or authorized development and is best adapted to a comprehensive plan for the Wisconsin River, taking into consideration the equal consideration requirements of Section 4(e) of the Act and the beneficial public uses described in Section 10(a)(1) of the Act.

Section 15(e) of the Federal Power Act

Section 5 of ECPA added a new subsection (e) to Section 15 of the Act specifying 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 new provision is consistent with pre-ECPA Commission policy, which was to establish 30-year terms for those projects which proposed no or less than moderate new construction or capacity, 40-year terms for those projects that proposed a moderate amount of new development, and 50-year terms for those projects that proposed a substantial amount of new development. 6/

Wisconsin Public Service Corporation proposes no modifications to the existing project facilities or changes in operation of the project. Accordingly, the new license for the project will be for a term of 30 years.

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5/(...continued)
Also, Section 4(e) provides, in a provision added by Section 3(a) of ECPA, that:

> In deciding whether to issue any license under this Part for any project, the Commission, in addition to the power and development purposes for which licenses are issued, shall give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality.

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

Based upon the review of the agency and public comments filed in this proceeding, and the Commission's independent analysis of the requirements of Sections 4(e), 10, and 15 of the Act as discussed herein, it is concluded that the Grandfather Falls Project would not conflict with any planned or authorized development and is best adapted to a comprehensive plan for the Wisconsin River, taking into consideration the equal consideration requirements of Section 4(e) of the Act and the beneficial public uses described in Section 10(a)(1) of the Act.

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

Summary of Findings

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. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

Pursuant to Section 15(a)(2) of the Act, as amended by ECPA, the Commission considers Wisconsin Public Service Corporation's plans and abilities to be adequate in regard to compliance with the articles, terms, and conditions of the license and in managing, operating, and maintaining the project safely and in a manner that would provide efficient and reliable electric service.

Wisconsin Public Service Corporation has demonstrated its need for project power, taking into consideration system reliability and reasonable costs and availability of alternative sources of power and their effect on the provider of the alternative power sources, its customers, and system operating and load characteristics.

The project will be safe if operated and maintained in accordance with the requirements of this license and Part 12 of the Commission's regulations. Analysis of dam safety issues is provided in the Safety and Design Assessment attached to this order.

Pursuant to Section 15(a)(3) of the Act, it is concluded that Wisconsin Public Service Corporation has also demonstrated an adequate record of compliance with the terms and conditions of the existing license, and has taken appropriate actions related to the project which affect the public. Maintenance of the project has been adequate. No significant environmental problems are apparent.

The Director orders:

(A) This license is issued to Wisconsin Public Service Corporation (licensee), for a period of 30 years, effective the first day of the month in which this order is issued, to operate and maintain the Grandfather Falls 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:

| Exhibit G- | FERC No. 1966- | Showing |
|---|---|---|
| 1 | 6 | Project Boundary |

(2) Project works consisting of: (a) a 410-foot-long by 36-foot-high reinforced concrete dam; (b) a reservoir with a surface area of 200 acres and a storage capacity of 2,540 acre-feet at elevation 1,396.8 feet WPSC 7/ ; (c) a 300-foot-wide by 4,000-foot-long power canal; (d) an 11-foot-diameter wood stave penstock and a 13.5-foot-diameter wood stave penstock, each approximately 1,310 feet long, which connect to two steel penstocks that are 61.5 feet and 68.5 feet long; (e) a powerhouse containing two generating units rated at 6,240 kW and 11,000 kW, respectively, for a total installed capacity of 17,240 kW; (f) a tailrace; (g) the 6.9-kV generator leads, the three 5-MVA, 6.9/46-kV Auto transformers, and the three 2.6-MVA, 6.9/46-kV step-up transformers; and (h) 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) This license is subject to the articles set forth in Form L-3, (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States." The license is also subject to the following additional articles:

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

> For the purpose of reimbursing the United States for the cost of administration of Part I of the 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 23,000 horsepower.

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7/ Wisconsin Public Service Datum (WPSC) = NGVD + .7 feet.

Article 202. Pursuant to Section 10(d) of the Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One half of the project surplus earnings, if any, accumulated under the license, in excess of the specified rate of return per annum on the net investment. shall be set aside in a project amortization reserve account at the end of each fiscal year. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year under the license, the amount of that deficiency shall be deducted from the amount of any surplus earnings subsquently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, shall be set aside in the project amortization reserve account. The amounts established in the project amortization reserve account shall be maintained until further order of the Commission.

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

Article 301. The licensee shall within 90 days of issuance of this license, file in accordance with the Commission's Rules and Regulations revised Exhibit F drawings showing the as-built details of the water release device.

Article 401. The licensee shall maintain a continuous minimum flow of 400 cubic feet per second or inflow to the project reservoir, whichever is less, as measured immediately below the project tailrace to protect and enhance water quality and fishery resources in the Wisconsin River. This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee or for short periods upon agreement with the Wisconsin Department of Natural Resources.

Article 402. The licensee shall maintain a continuous minimum flow of 50 cubic feet per second into the bypassed section of the Wisconsin River between the project dam and the tailrace discharge for the protection and enhancement of water quality and fishery resources in the bypassed section of the Wisconsin River. This flow may contribute to the minimum flow required by article 401. This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee or for short periods upon agreement with the Wisconsin Department of Natural Resources.

Article 403. The licensee, after consultation with the Wisconsin Department of Natural Resources and the U. S. Fish and Wildlife Service, shall prepare a study plan and schedule to monitor the required minimum flow required in article 402 for the bypassed section of the Wisconsin River to ensure that the minimum flow provides adequate habitat conditions for the protection and enhancement of the fishery in the bypassed section of the Wisconsin River. The licensee shall within 1 year of the date of issuance of the license file for Commission approval the study plan. Comments of the consulted agencies shall be included with the filing.

The results of the study shall be filed with the Commission according to the approved timetable. Should the results of the study indicate that changes in project operation are necessary to protect or enhance the fishery in the Wisconsin River, the licensee shall file for Commission approval proposed changes in project operation along with the study results. Agency comments on the study results and any proposed changes in project operation shall be included with the filing. The Commission reserves the right to modify project operation.

Article 404. The licensee, after consultation with the Wisconsin Department of Natural Resources (DNR) and the Geological Survey, shall develop a plan to install stream flow gages in the Wisconsin River, to monitor compliance with articles 401 and 402. The plan shall include an implementation schedule, the proposed location, design, and calibration of the gages, the method of flow data collection, and a provision for providing flow data to the DNR within 30 days from the date of the agency's request for the data. The plan shall be filed with the Commission for approval within 6 months from the date of issuance of this license, and shall include comments from the consulted agencies on the plan. The Commission reserves the right to modify the proposed plan.

Article 405. The licensee shall maintain the reservoir pool level between elevations 1395.1 and 1396.1 feet National Geodetic Vertical Datum during peaking operation of the Grandfather Falls Project. This pool level may be modified for purposes of flood control and for short periods upon mutual agreement with the Wisconsin Department of Natural Resources.

Article 406. The licensee, after consultation with the Wisconsin Department of Natural Resources and the U. S. Fish and Wildlife Service, shall prepare and file for Commission approval within 1 year from the date of issuance of the license, a comprehensive wildlife management plan to enhance wildlife habitat at the project. The plan shall include: a description of specific management activities to be used to protect and enhance wildlife habitat on the 640 acres of forest land, installation of wood duck nesting boxes, creation of additional waterfowl habitat on the project reservoir and tributaries, a schedule for implementation of the plan, a monitoring program to determine the effectiveness of the plan, and documentation of agency consultation on the plan. The Commission reserves the right to modify the proposed plan.

Article 407. The licensee, after consultation with the National Park Service and the Wisconsin Department of Natural Resources, shall develop a plan for recreational development at the project. The plan shall include but not be limited to the following: a schedule for improving the canoe-portage trail around the project dam, increased recreational access to the project site, new parking facilities, the short and long-term need for recreational facilities and a timetable for their construction. Within 1 year after the date of issuance of this license, the licensee shall file the recreational development plan for Commission approval, along with comments of the consulted agencies on the plan.

Article 408. The licensee, after consultation with the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources, shall conduct a study to determine if additional measures are necessary to warn recreationists of changes in the rate of releases from the project structures. The study shall be filed within 6 months from the date of issuance of the license. Agency comments shall accompany the filing. If additional measures are indicated by the results of the study, the licensee shall file for Commission approval a schedule for the implementation of these measures. The Commission reserves the right to require additional measures.

Article 409. (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, 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 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 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 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 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 violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

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

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

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

(F) This order is issued under authority delegated to the Director and is final unless appealed under Rule 1902 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

ENVIRONMENTAL ASSESSMENT
Grandfather Falls Project
FERC No. 1966-003--Wisconsin 1/

I. APPLICATION

The Wisconsin Public Service Corporation (WPSC) filed on December 20, 1984, an application for a new major license for its existing Grandfather Falls Project, FERC No. 1966. The project is located on the Wisconsin River, Section 31, Rock Falls Township, Lincoln County, Wisconsin.

II. RESOURCE DEVELOPMENT

A. Need for Power

The applicant, the Wisconsin Public Service Corporation, has been operating the Grandfather Falls Project since 1938 to meet the WPSC system power needs.

The 1987 Integrated Resource Plan developed by the applicant states that, assuming that the Grandfather Falls Project is relicensed, there is no projected need to install any new conventional generating capacity throughout the next 20 years to realize the current criteria of installed reserves. This assumes a projected average increase of annual base demand of less than 1.0 percent, combined increase in load management, conservation, and nonconventional resources of 493 megawatts (MW) over this 20-year period.

In the event the relicense application is denied and the project power becomes unavailable, the applicant expects to experience capacity deficiencies by 1999 according to the 1987 Integrated Plan, and possibly as early as 1995 under a high range load forecast. The project's 17.2 MW of operating capacity with an average plant capacity factor of about 67 percent would assist in maintaining WPSC's minimum installed reserve criterion of 15 percent while utilizing renewable, non-polluting resources to meet system load requirements.

B. Project Purpose

The WPSC proposes to continue selling energy produced by the existing facility to the nearby communities of Merrill, Tomahawk, Rhinelander, and Antigo.

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

## III. Proposed Project and Alternatives

### A. Proposed Project

#### 1. Project Description

The project would utilize the existing Grandfather Falls dam, powerplant, and appurtenant hydroelectric facilities. Existing features include: a 410-foot-long and 36-foot-high reinforced concrete dam; a reservoir with a surface area of 200 acres and a storage capacity of 2,540 acre-feet at a powerpool elevation of 1,396.8 feet (WPSC datum) 2/; a 4,000-foot-long by 300-foot wide by 11-foot-deep power canal; two approximately 1,310-foot-long, 13.5-foot and 11-foot-diameter wood stave penstocks, which connect to two steel penstocks that are 61.5 feet and 68.75 feet long; a powerhouse containing two generating units rated at 6,240 kilowatts (kW) and 11,000 kW, respectively, for a total installed capacity of 17,240 kW; a tailrace; and a 6.9 kilovolt (kV) transmission line. The average annual energy generation is estimated to be 100.2 gigawatthours (GWh).

#### 2. Applicant's Proposed Mitigative Measures

The WPSC proposes to construct a new public boat ramp with a parking area for approximately 10 cars and boat trailers. The ramp would be located on the west shore of the river near the county E Road bridge. Two parking areas for fishermen would be provided on the east side of the river, one near Route 107 and Grandfather dam, and the other near the intake structures. Each parking area would accommodate 10 cars. The WPSC proposes to provide a warning system to advise fishermen of abrupt flow releases in the bypassed channel, improve existing canoe portage facilities, and provide adequate recreational signage.

### B. Alternatives to Proposed Project

#### 1. Denial of New Power License and Issuance of Nonpower License

Section 15(b) of the Federal Power Act (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 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 shall thereupon terminate the nonpower license.

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2/ WPSC datum is equal to the NGVD + 0.7 feet.

If a nonpower license were granted for the Grandfather Falls Project, the project could be operated to maximize flood control, fishery, and recreational resources.

If a nonpower license were granted, the applicant would, at some future date, have to develop additional power resources to replace the power lost from the Grandfather Falls Project.

2. Denial of License Application

Denial of the license application could lead to removal of the power facilities and removal of all project works. Such action would eliminate power production from a renewable natural resource and national goal of energy self-sufficiency. Loss of the project power would require the applicant to obtain equivalent power from another source.

The removal of project works would adversely affect project benefits, which include flood control, tax revenues, and recreation. Adverse environmental effects would occur, such as the resuspension of sediment that has accumulated behind the dam. Construction and operation of an alternative energy source would have additional impacts.

Considering the need for the project's power, the significant benefits that would be lost, and the adverse environmental impacts that would result, removal of project works is not considered to be a realistic alternative and is not discussed further.

3. Federal Takeover

An alternative to issuing a new license for continued operation of the Grandfather Falls Project would be takeover of the project by the federal government. Such action can be recommended to Congress by the Commission on its own motion or upon recommendation of a federal department or agency, under the provisions of Section 14 of the Act. If the Commission determined, after notice and opportunity for hearing, that the United States should exercise its right to take over the project, the Commission would submit its recommendation to Congress with such information as it considers appropriate.

If the federal government were to take over the project, the project would be operated in coordination with the other hydro projects in the region just as it has in the past. The only difference would be that the federal government would market the power rather than the applicant, and the applicant would have to develop or obtain alternative additional generation resources in the future to make up for the loss of power from the Grandfather Falls Project.

No agency has recommended federal takeover. Federal takeover would not appear to offer any significant environmental benefits as compared to issuing a new license for the project. Federal takeover is not recommended.

4. Issuance of An Annual License

Section 15(a) of the Act, 16 U.S.C. §808(a), provides for the issuance of annual licenses to the licensee if the license expires pending the relicensing determination. Under this alternative, an annual license would continue to be issued to the applicant. The annual license contains the same terms of the expired license, thereby maintaining the status quo.

## IV. CONSULTATION AND COMPLIANCE

### A. Agency Consultation

Commission regulations require prospective applicants to consult with appropriate resource agencies before filing an application for license. Consultation constitutes an initial step in compliance with the Fish and Wildlife Coordination Act, the Endangered Species Act, the National Historic Preservation Act, and other federal statues. Preapplication consultation must be complete and documented. After the Commission accepts the application, formal comments may be submitted by concerned entities during the public notice period. The following entities commented on the application subsequent to the public notice which was issued on April 29, 1985.

| Commenting entity | Date of letter |
|---|---|
| Department of Commerce | May 15, 1985 |
| Wisconsin Department of Natural Resources (DNR) | June 12, 1985 |
| | June 27, 1985 |
| Wisconsin Public Power Incorporated System | June 28, 1985 |
| Department of the Interior (Interior) | August 5, 1985 |

### B. Water Quality Certification

As authorized under section 401 of the Clean Water Act, the Wisconsin Department of Natural Resources waived water quality certification for the Grandfather Falls Project on April 24, 1984.

## V. ENVIRONMENTAL ANALYSIS

### A. Proposed Project

#### 1. General Description of the Locale

The Grandfather Falls Project is located on the Wisconsin River in the gently sloping, heavily forested terrain of north-central Wisconsin. There are many lakes, potholes, and wetlands in the region. The area is aesthetically pleasing, with scenic, rural, forestland vistas. Dairy farms are scattered throughout the area. Most of the surrounding lands are under private ownership and are designated for recreational use or conservation. The nearest city, Merrill, is approximately 12 miles downstream from the project site. The county's population averages one person per 20 acres. Residential or commercial development along the river is concentrated along a 4-mile-long stretch parallel with Route 107, on the east shore of the river between Grandfather dam and Grandmother dam; there are about 50 dwellings altogether. The west bank of the river is relatively undeveloped except for an occasional summer cabin on the river valley sideslopes upstream from the project. A small county campground, about 1 mile below the project, can accommodate about a dozen families on an overnight basis.

The climate of the project area is characterized by cool summers and long, severe winters, with snow typically on the ground from December until April. The rapid succession of storms across the area creates climatic conditions that are varied and unpredictable. The mean annual temperature is 43 degrees Fahrenheit. The mean annual precipitation is 31 inches; about 45 percent of that amount is snowfall.

The proposed relicensing of the existing project would not affect the geology and soils, visual, cultural, or socioeconomic resources. A discussion of other resource concerns follows.

#### 2. Water Resources

Affected Environment: The Wisconsin River is a tea-colored, slightly acidic, hardwater river, typical of many rivers within the Great Lakes region, that flows through boggy or heavily forested areas where large amounts of organic materials are contributed naturally to the stream. The Wisconsin River drainage at the project site is approximately 2,270 square miles and has an average flow of about 2,070 cubic feet per second (cfs). Grandfather dam forms an impoundment on the Wisconsin River that covers about 200 acres and contains 2,540 acre-feet of water under normal pool conditions. The impoundment extends about 5 miles upstream to within a short distance of Grandmother dam. The water is held in the impoundment a very short time (approximately 15 hours) before it passes through the generators, and for this reason the reservoir

functions much the same as a riverine environment. Three small creeks that drain wetlands enter the west side of the impoundment, immediately upstream from Grandfather dam.

Flows within the upper Wisconsin River are heavily regulated by a series of 10 hydropower dams, including the existing Grandfather Falls dam, and by 20 storage reservoirs upstream of Merrill, Wisconsin. There are six hydroelectric projects on the river between the Grandfather Falls dam and Rhinelander, Wisconsin, nearly 41 miles upstream (Fenske et al., 1981). Operation of the Grandfather Falls Project depends on controlled flows from upstream reservoirs.

The water quality of the Wisconsin River at the project site can be described as reasonably good, despite its tea-colored and slightly acidic condition. While water quality was seriously degraded in the river during the past century, primarily from the commercial paper and pulp milling industries upstream, conditions have improved substantially with the enactment of the Clean Water Act of 1972 and amendments, and since 1977 the river has been classified as "fishable" and "swimmable" in the project area by the DNR.

The Grandfather Falls Project operates in a run-of-river mode during the high flow season (April through June) and with a limited, seasonal peaking operation during lower streamflow periods. Peaking operations usually involve an 8 to 12 inch drawdown of the reservoir during a 14-hour period between 8 a.m. and 10 p.m.; the reservoir is refilled during the late evening and early morning hours.

The operation of the existing project would continue to affect the amount of water passing through a 0.9-mile-long bypassed river channel. Under present conditions, the bypassed section of the Wisconsin River receives water when the river flow is in excess of generating capacity or when the generators are shut down. As a result, with the exception of the 5 cubic feet per second (cfs) leakage through the dam, the bypassed channel is without flowing water for much of the year.

Two hydroelectric projects, Tomahawk, FERC No. 1940, and Grandmother Falls, FERC No. 2180, and a nonpower dam at Spirit Lake, all located 5.5 to 10 miles upstream from the project, coordinate their water releases with those from Grandfather Falls Project to ensure that adequate water is available during the seasonal low-flow periods.

Dissolved oxygen levels at the project site range from 6.0 to 13.8 milligrams per liter (mg/l) during the year, and in combination with cool water temperatures, provide a habitat that is suitable to most sport fish. Sediments in the reservoir contain high levels of barium, arsenic, and manganese, and probably reflect

Affected Environment: The fishery resources of the Grandfather Falls Project, including the bypassed river channel of the Wisconsin River and the 200-acre reservoir, consists of populations of warmwater and coolwater fish. Twenty fish species were reported by the WPSC (1984) and the DNR between 1975 and 1984, and are indicative of a rich diversity of species common to riverine situations.

Game fish are northern pike (Esox lucius), walleye (Stizostedion vitreum), smallmouth bass (Micropterus dolomieui), black crappie (Pomoxis nigromaculatus), bluegill (Lepomis macrochirus), yellow perch (Perca flavescens), rock bass (Ambloplites rupestris), and pumpkinseed (Lepomis gibbosus). The forage fish populations consist of golden shiner (Notemigonus crysoleucas), emerald shiner (Notropis atherinoides), common shiner (Notropis cornutus), finescale dace (Phoxinus neogaeus), blacknose dace (Rhinichthys atratulus), longnose dace (Rhinichthys cataractae), Johnny darter (Etheostoma nigrum), white sucker (Catostomus commersoni), shorthead redhorse (Moxostoma macrolepidotum), and the mottled sculpin (Cottus bairdi). Both black (Ictalurus melas) and yellow bullheads (Ictalurus natalis) were captured in the reservoir and in the bypassed channel at the project site. No federally listed endangered or threatened fish species occur within the project area.

Environmental Impacts and Recommendations: The WPSC proposes to provide minimum flow releases for the bypassed channel by control outlets in the existing spillway gate. The proposed minimum flow release would not cause a change in the normal water level fluctuation in the reservoir, which presently fluctuates 1 foot between elevations 1395.8 feet and 1396.8 feet (WPSC datum) during project operation. Since spawning activity in the reservoir occurs during non-peaking periods, this limitation on the amount of fluctuation in the reservoir during the remainder of the year adequately protects the fishery resources.

Implementation of minimum flows in the bypassed channel as discussed in the water resources section, would improve the fishery resources at the project site. A 0.9-mile-long bypassed reach below the project dam receives only leakage flows during normal project operation. The reduced flows in this bypassed reach reduces the available habitat for fishery and other aquatic organisms.

The Interior recommends a minimum flow through the bypassed reach of between 25 and 50 cfs and that the flow be monitored to ensure that viable pool conditions are maintained in the bypassed reach. The Environmental Protection Agency states that based on a study of releases made in 1984, a minimum flow of 50 cfs would provide the

pool and riffle conditions necessary to support the reestablishment of warm water fish populations in the bypassed channel.

The results of the trial flows in 1984 indicate that a 50 cfs minimum flow would maintain suitable conditions in the 0.9-mile-long bypassed reach for the resident warm water fish populations. The licensee should maintain a 50 cfs minimum flow in the bypassed reach for the protection and enhancement of the fishery resources. In recognition of the short duration of the flow test in 1984, the licensee should after consultation with the DNR and the FWS monitor the minimum flow in the bypassed reach to ensure that suitable habitat is maintained in the bypassed reach for the resident warmwater fishery.

Unavoidable Adverse Impacts: None.

d. Terrestrial Resources

Affected Environment: Nearly all of the land surrounding the Grandfather Falls reservoir and the bypassed channel of the Wisconsin River is heavily forested. Only the areas immediately around the dam, power canal, penstocks, and project facilities are clear of forest cover. East of the river, across state route 107, significant amounts of forest have been converted to agricultural use. About 640 acres of forestland at the project site is owned by the WPSC and has been kept in its natural condition (Wisconsin Public Service Corporation, 1984).

Northern hardwood forests have replaced much of the pine forest that once covered the Wisconsin River Basin. The hardwood forest in the project area is primarily the maple-basswood type, with widespread stands of aspen-birch prevalent where recent cutting or other disturbances have occurred. The common tree species are sugar maple (Acer saccharum), red maple (A. rubrum), basswood (Tilia americana), paper birch (Betula papyrifera), yellow birch (B. lutea), large-toothed aspen (Populus grandidentata), and trembling aspen (P. tremuloides). Although dominated by maples and birch, the forest contains a considerable variety of other species. Widely scattered stands of white pine (Pinus strobus) and red pine (P. resinosa) occur throughout the area, and balsam fir (Abies balsamea) and eastern hemlock (Tsuga canadensis) occur in low lying, boggy areas, particularly on the western side of the river (Wisconsin Public Service Corporation, 1984).

The DNR classifies three small streams that enter the west side of the river as wetlands. These three wetlands - Berry Creek, Alsey Creek, and an unnamed tributary near the dam - are small, narrow streams with forest cover, and provide limited habitat for waterfowl and other wildlife. In addition, two stands of wild rice (Zizania aquatica) occur in the Grandfather Falls Project area. One area is less than 0.5 mile north of the project dam in the shallows near the west bank; the other area is upstream about 0.5

mile south of Grandmother dam (Wisconsin Public Service Corporation, 1984).

The diverse habitats created by the heterogeneous forest and by the Wisconsin River and its tributaries support populations of many species, including some that are significant because of their recreational importance or their rarity. Important game mammals in the project area are the white-tailed deer (Odocoileus virginianus) and snowshoe hare (Lepus americanus) and the less common black bear (Ursus americanus). Coyote (Canis latrans) and bobcat (Lynx rufus) occur in low densities; other furbearers, including the red fox (Vulpes fulva), beaver (Castor canadensis), mink (Mustela vison), and muskrat (Ondatra zibethica), are common.

Approximately 200 species of birds, both resident and migrant, are found in Lincoln County. Ruffed grouse (Bonasa umbellus) and woodcock (Philohela minor), two important upland game species, occur in the woodlands along the Grandfather Falls Reservoir. Waterfowl, particularly mallards (Anas platyrhyncos) and wood ducks (Aix sponsa), are found on the river, streams, and wetlands throughout the area. Breeding populations are generally low in this part of Wisconsin (March et al., 1973), but wood ducks are moderately abundant in the project area. This relative abundance is due in part to a DNR nesting program on the river near the Alexander Project, FERC No. 1979 approximately 10 miles downstream from Grandfather dam (Wisconsin Public Service Corporation, 1984).

Two federally listed endangered species, the bald eagle (Haliaeetus leucocephalus) and the eastern timber wolf (Canis lupus), occur in Lincoln County. Bald eagles have nested on the Wisconsin River several miles upstream from the project for several years. The nesting site is about 1 mile south of Grandmother Dam. Timber wolves generally occur north and west of the project but could occasionally move into the woodlands surrounding the Grandfather Falls Project (Wisconsin Public Service Corporation, 1984).

Environmental Impacts and Recommendations: About 60 acres of forest were cleared when the project facilities were constructed in the early 1900's and in the late 1930's. Many of those original clearings have remained relatively clear and maintain a growth of grasses, forbs, and shrubs. By providing increased habitat transition areas and diversity, these open areas probably benefit many wildlife species including the important game species such as ruffed grouse, woodcock and whitetailed deer (McCaffery and Creed, 1969; Gullion, 1984).

The Interior states that continued operation of the Grandfather Falls Project would not affect the bald eagle or the eastern timber wolf.

The diversity of habitats in the project area support wildlife populations which are significant because of their recreational importance or their rarity. The licensee discusses several possible efforts it could take to enhance wildlife habitat at the Grandfather Falls Project. The suggested activities include managing the 640 acres of forest in project lands to enhance wildlife habitat, installing wood duck nesting boxes, and creating additional waterfowl habitat on the flowage and tributaries. The DNR encourages and supports the wildlife habitat improvement activities proposed by the applicant. Developing and implementing a comprehensive plan incorporating the proposed activities, and possibly others, could further enhance wildlife resources on project lands. In order to effectively manage the project lands for the protection and enhancement of wildlife, the licensee should develop a comprehensive wildlife management plan for the project. The plan should include: managing the 640 acres of forest land at the site to enhance wildlife habitat; installing wood duck nesting boxes; and creating additional waterfowl habitat on the project reservoir and its tributaries.

Unavoidable Adverse Impacts: None.

5. Recreation and Other Land and Water Uses

Affected Environment: The recreational opportunities in the project area are mostly undeveloped. The existing recreational activities occur where access is available. Fishing is the most commonly pursued recreational activity. Although the quality of the existing sport fishing at the project site is marginal, northern pike, walleye, panfish, and bass, have been taken by anglers, and there is a great potential for improving the existing fishery. Other recreational activities that occur in the project area are canoeing, sailing, kayaking, swimming, hiking, birdwatching, camping, hunting, trapping, wild rice harvesting, cross-country skiing, and snowmobiling.

An existing canoe portage trail at the project site allows canoeists to move from the reservoir to the tailwaters. The DNR has advised the applicant that the trail needs maintenance and that the take-out point presents a safety hazard because of the steep embankment. The nearest boat dock and boat-launching ramp, which are located approximately 3.5 miles upstream, are privately owned, very primitive, and not readily accessible to the public. The nearest public park, a small county-owned park located about 1 mile downstream, provides limited camping and boating facilities.

No components of the National Wild and Scenic Rivers System, the National Trails System, nor the Wilderness Area are located in or near the proposed project.

Environmental Impacts and Recommendations: The DNR recommends improvements in the canoe-portage trail, increased public access,

and development of two new parking ares adjacent to State Highway 107. The FWS also recommends construction of new parking facilities as well as installation of a hazard warning system for the safety and protection of recreationists in the bypassed reach.

The applicant proposes to implement the recommendations of the DNR and the FWS.

With the increased recreational use and diverse recreational potential of the project site, a comprehensive recreational plan is necessary to efficiently manage the many recreational activities available at the project site. The licensee should, after consultation with the FWS and the DNR, prepare a comprehensive recreational plan for the project area. The plan should include a schedule for improving the canoe-portage trail, increased recreational access, new parking facilities, and any other facilities proposed in the comprehensive plan.

A warning system to inform recreationists of rapid changes in flows below the project is necessary to protect public safety. The applicant has developed a warning system consisting of flashing amber lights and sirens that signals when any gates are in operation that would change the downstream water level. The applicant has also placed signs at locations downstream of the dam explaining the system. The licensee should consult with the FWS and the DNR to ensure that implemented measures provide adequate protection for downstream recreationists. If additional measures are recommended by the FWS and the DNR, the licensee should file a schedule for the implementation of the proposed measures.

Unavoidable Adverse Impacts: Current recreational activities would be disrupted during the construction of new recreation facilities, but these impacts would be short-term and minor in nature.

B. Alternatives to the Proposed Project

No viable alternatives have been proposed for the production of hydropower at the existing site.

C. Recommended Alternative

The project as proposed and under the terms and conditions of the license would provide hydropower with no significant environmental impacts.

V. FINDING OF NO SIGNIFICANT IMPACT

The proposed project would use the existing Grandfather Falls dam and other related hydroelectric facilities without additional construction to these facilities. The installation of a boat launching facility, parking lots, and improved canoe portage trail

would disturb the riverbed or land surfaces producing minor, short-term increases in sedimentation and erosion.

No federally listed threatened or endangered species would be affected by the project. Similarly, no sites or structures listed or eligible for listing in the National Register of Historic Places would be affected.

On the basis of the record and of the staff's independent environmental analysis, issuance of a license for the project would not constitute a major federal action significantly affecting the quality of the human environment.

## VIII. LITERATURE CITED

Gullion, G.W. 1984. Managing northern forests for wildlife. The Ruffed Grouse Society. 72 pp.

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McCaffery, K.R., and W.A. Creed. 1969. Significance of forest openings to deer in northern Wisconsin. Wisconsin Department of Natural Resources. Technical bulletin no. 44. 104 pp.

Wisconsin Public Service Corporation. 1984. Application for license for major project--existing dam, Grandfather Falls Hydro Project, FERC no. 1966-003, Wisconsin. December 1984.

Wisconsin Public Service Corporation. 1987. Supplemental application filing in response to the Electric Consumers Protection Act. May 1987.

Fenske, B.A., D.J. Patterson, J.W. Rogers, and J.F. Sullivan. 1981. Water quality modeling of the Upper Wisconsin River for wasteload allocation development (segment A). Bureau of Water Quality Management. Wisconsin Department of Natural Resources, Madison, Wisconsin. 72 pp.

## IX. LIST OF PREPARERS

John Schnegl--Environmental Assessment Coordinator, Water Resources, Fishery Resources (Aquatic Ecologist, M.S., Limnology).

Brian J. Romanek--Outdoor Recreation Planner, Recreational Resources and Other Land and Water Uses (B.S., Recreational Resource Management).

John E. Estep--Botanist, Terrestrial Resources (M.S., Wildlife Management).

Timothy Looney--Engineer, Need for Power (B.S. Electrical Engineering).

# SAFETY AND DESIGN ASSESSMENT
# GRANDFATHER FALLS PROJECT
# FERC NO. 1966-003 - WISCONSIN

## DAM SAFETY

The Commission's Chicago Regional Office inspected the Grandfather Falls Project on September 16 and 17, 1987. The downstream hazard potential was classified as potentially high hazard. Grandfather Falls Dam is classified as having a high hazard potential because Alexander Dam is located downstream and there are numerous homes surrounding Alexander Lake and along the Wisconsin River. The inspector noted that project structures were in satisfactory condition, with the exception of the penstocks. The wood stave penstocks are leaking excessively and the leakage appears to be undermining the supporting cradle. The licensee has hired a consultant to recommend corrective measures. The problem with the penstock does not have an adverse impact on the safety of Grandfather Falls Dam.

The project facilities are also inspected regularly by the applicant's staff. In addition, the project is inspected in-depth every five years by an independent consultant in accordance with Part 12 of the Commission's regulations.

Staff has reviewed the stability analysis for the concrete structure and agrees with the applicant's consultant that the structures are safe for normal, unusual,and extreme loading conditions. Analysis of the earth embankment sections of the power canal indicates that the upstream slope has a factor of safety of less than 1 during a rapid drawdown and 1.1 for high water condition. The licensee's consultant has recommended that drawdown be limited to 1 inch per hour and inspected before refilling the reservoir. The 1.1 factor of safety for the high water condition is less than the 1.4 required in the Commission's guidelines for embankment dams. A dam breach study indicates that a failure would not significantly increase the hazard to downstream life or property. The consultant's recommendations would be directed by the Commission under its Part 12 authority to ensure that the project will continue to be safe and adequate.

Project Design

The existing Grandfather Falls Dam, located at river mile 317 of the Wisconsin River, is a concrete and masonry structure with a maximum height of 36 feet above the river bed, with a gross storage capacity of 2,540 acre-feet and a surface area of 200 acres at a water surface elevation of 1396.8 feet 1/. The dam has a gated spillway with a total length of 263 feet. The three tainter gates on the east side have a crest elevation of 1383.0 feet and the four tainter gates on the west side have a crest elevation of 1385.0 feet. The dam has an abandoned powerhouse (integral with the dam) and a gravity section with a total length of 147 feet. Water from the reservoir is conveyed to the powerhouse intakes by a 300-foot-wide by 4,000-feet-long power canal. Water from the power canal is conveyed to the powerhouse by two 11 foot and 13.5 foot-diameter wood stave pipes, approximately 1310 feet long, which terminate in a short section of steel penstock. The powerhouse is a brick and steel structure 67 feet wide by 50 feet long. The powerhouse contains two vertical Francis turbines rated at 14,700 horsepower (hp) and 8,350 hp connected to two generators with a rated capacity of 13,850 KVA and 7,800 KVA, with a power factor of 0.8 each. Water is then returned to the Wisconsin River approximately 1 mile downstream of the dam.

The applicant is proposing to retire the existing 6,900/46,000 volt transformers and associated 46,000 volt oil circuit breakers and replace them with a new 6,900/115,000 volt transformers and associated 115,000 volt oil circuit at a site adjacent to the existing facilities. The change is being made to improve the level of service provided to the Tomahawk load area.

The applicant has installed three valve controlled outlet pipes in one of the spillway gates. According to the Chicago Regional Office, November 21, 1986, Operation Report, each outlet pipe can release a maximum of approximately 25 cfs. The licensee is installing the water release device in an attempt to help re-establish the fishery between Grandfather Falls Dam and the powerhouse. Article 301 requires the licensee to file as-built drawings for the water release device.

1/ All elevations are referenced to Wisconsin Public Service Corporation (WPSC) datum. WPSC datum = NGVD + 0.7 feet

Project Economics

The Grandfather Falls Project is an existing hydroelectric project that has been producing power for the Wisconsin Public Service Corporation since 1938. The licensee is now proposing to re-establish the fishery in the Wisconsin River between the dam and powerhouse by starting to release between 25 and 50 cfs through water release device located at the dam.

A release of 25 cfs would reduce project generation by an estimated 1.32 GWh annually, and 50 cfs would reduce project generation by an estimated 2.64 GWh annually. Over the life of the license a constant release of 25 cfs would have a levelized reduction in project benefits of $112,000/year, while a constant release of 50 cfs would have a levelized reduction in project benefits of $224,400/year.

Water Resource Planning

The Grandfather Falls Project generates electricity using water releases from 20 Wisconsin River headwater storage reservoirs located upstream of the project. The headwater storage reservoirs are owned and operated by the Wisconsin River Valley Improvement Company and are managed for the benefit of the downstream power producers. In turn, the Improvement Company is owned and operated by the benefited power projects. The headwater reservoir system is used to regulate storage on a seasonal basis.

The project has a hydraulic capacity of 2820 cfs. The project has an annual plant factor of 67% based on a bypass flow of 25 cfs (66% based on a bypass flow of 50 cfs). The hydraulic capacity of the plant would be equaled or exceeded 11% of the time. The project adequately develops the flow and fall of the Wisconsin River.

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

Exhibits

The following portions of Exhibit A and the following Exhibit F drawings conform to the Commission rules and regulations and should be included in the license.

Exhibit A

Section entitled "Turbine and Generators" and "Additional Electrical Equipment."

Exhibit F

| Drawing | FERC No. 1966- | Title |
|---|---|---|
| F-1 | 1 | General Plan |
| F-2 | 2 | Dam and Spillway Sections |
| F-3 | 3 | Penstock Plan and Intake Sections |
| F-4 | 4 | Powerhouse Plan and Sections |

Form L-3
(Revised October, 1975)

FEDERAL ENERGY REGULATORY COMMISSION

# TERMS AND CONDITIONS OF LICENSE FOR CONSTRUCTED MAJOR PROJECT AFFECTING NAVIGABLE WATERS OF THE UNITED STATES

Article 1. The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. The project area and project works shall be in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

Article 4. The project, including its operation and maintenance and any work incidental to additions or alterations authorized by the Commission, whether or not conducted upon lands of the United States, shall be subject to the inspection and supervision of the Regional Engineer, Federal Power Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him such information as he may require concerning the operation and maintenance of the project, and any such alterations thereto, and shall notify him of the date upon which work with respect to any alteration will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall submit to said representative a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of any such alterations to the project. Construction of said alterations or any feature thereof shall not be initiated until the program of inspection for the alterations or any feature thereof has been approved by said representative. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant

to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a non-power licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

Article 7. The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

Article 8. The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location

of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 9. The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

Article 13. The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 11. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits

provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

Article 12. The United States specifically retains and safeguards the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and the operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Secretary of the Army may prescribe in the interest of navigation, and as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Secretary of the Army may prescribe in the interest of navigation, or as the Commission may prescribe for the other purposes hereinbefore mentioned.

Article 13. On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefitting or after notice and

opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 14. In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

Article 15. The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

Article 16. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be

reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 17. The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

Article 18. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

Article 19. In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

Article 20. The Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. All clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

Article 21. Material may be dredged or excavated from, or placed as fill in, project lands and/or waters only in the prosecution of work specifically authorized under the license; in the maintenance of the project; or after obtaining Commission approval, as appropriate. Any such material shall be removed and/or deposited in such manner as to reasonably preserve the environmental values of the project and so as not to interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the District Engineer, Department of the Army, in charge of the locality.

Article 22. Whenever the United States shall desire to construct, complete, or improve navigation facilities in connection with the project, the Licensee shall convey to the United States, free of cost, such of its lands and rights-of-way and such rights of passage through its dams or other structures, and shall permit such control of its pools, as may be required to complete and maintain such navigation facilities.

Article 23. The operation of any navigation facilities which may be constructed as a part of, or in connection with, any dam or diversion structure constituting a part of the project works shall at all times be controlled by such reasonable rules and regulations in the interest of navigation, including control of the level of the pool caused by such dam or diversion structure, as may be made from time to time by the Secretary of the Army.

Article 24. The Licensee shall furnish power free of cost to the United States for the operation and maintenance of navigation facilities in the vicinity of the project at the voltage and frequency required by such facilities and at a point adjacent thereto, whether said facilities are constructed by the Licensee or by the United States.

Article 25. The Licensee shall construct, maintain, and operate at its own expense such lights and other signals for the protection of navigation as may be directed by the Secretary of the Department in which the Coast Guard is operating.

Article 26. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

Article 27. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

Article 28. The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

P-1967-002

United States Of America
Federal Energy Regulation Commission

**Notice of Application Filed with the Commission**

(April 15, 1988)

**Take notice that the following hydroelectric application has been filed with the Federal Energy Regulatory Commission and is available for public inspection:**

a. Type of Application: Amendment of License

b. Project No.: 1967-002

c. Date Filed: March 25, 1988

d. Applicant: Kimberly-Clark Corporation

e. Name of Project: Whiting-Plover

f. Location: Whiting Paper Mill Dam on the Wisconsin River in the Village of Whiting, Portage County, Wisconsin.

g. Filed Pursuant to: Federal Power Act, 16 U.S.C. §791(a) - 825(r)

h. Applicant Contact: Mr. Michael R. Holcomb
President, Neenah Paper
Kimberly-Clark Corporation
1400 Holcomb Bridge Road
Roswell, GA 30076
(404) 587-8634

Mr. F. Anthony Maio
Foley & Lardner
777 East Wisconsin Avenue
Milwaukee, WI 53202
(414) 289-3764

i. FERC Contact: Patrick K. Murphy, (202) 376-9640

j. Comment Date: MAY 02 1988

k. Description of Amendment of License: Kimberly-Clark Corporation (licensee) proposes to close-off the intakes of units no. 5 and 6 of its 6-unit, 600-kilowatt, licensed project. The intakes would be closed through the expansion of the Whiting Paper Mill building.

l. This notice also consists of the following standard paragraphs: B and C.

P. Comments, Protests, or Motions to Intervene - Anyone may submit comments, a protest, or a motion to intervene in accordance with the requirements of the Rules of Practice and Procedure, 18 C.F. R. §§385.210, .211, .214. In determining the appropriate action to take, the Commission will consider all protests or other comments filed, but only those who file a motion to intervene in accordance with the Commission's Rules may become a party to the proceeding. Any comments, protests, or motions to intervene must be received on or before the specified comment date for the particular application.

C. Filing and Service of Responsive Documents - Any filings must bear in all capital letters the title "COMMENTS," "NOTICE OF INTENT TO FILE COMPETING APPLICATION", COMPETING APPLICATION", "PROTEST" or "MOTION TO INTERVENE", as applicable, and the Project Number of the particular application to which the filing is in response. Any of the above named documents must be filed by providing the original and the number of copies required by the Commission's regulations to: the Secretary, Federal Energy Regulatory Commission, 825 North Capitol Street N.E., Washington, D.C. 20426. An additional copy must be sent to: Dean Shumway Acting Director, Division of Project Review, Federal Energy Regulatory Commission, Room 203-RB, at the above address. A copy of any notice of intent, competing application or motion to intervene must also be served upon each representative of the Applicant specified in the particular application.

Lois D. Cashell
Acting Secretary

Document Content(s)