

UNITED STATES OF AMERICA 76 FERC □ 61,050
FEDERAL ENERGY REGULATORY COMMISSION

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

Wisconsin Valley Improvement Company) Project No. 2113-022

ORDER ISSUING NEW LICENSE

(Issued July 18, 1996)

I. INTRODUCTION

Pursuant to Part I of the Federal Power Act (FPA), 16 U.S.C. □ 791 et seq., applications for new and subsequent licenses were filed with the Commission for the continued operation and maintenance of nine existing hydroelectric projects and one existing headwaters project, all located within the Wisconsin River Basin. 1/ The Commission's staff identified and evaluated in a draft Environmental Impact Statement (EIS) environmental resource issues that were jointly related and relevant to the continued operation of each of the projects, including fish entrainment, endangered species, recreation resources, purple loosestrife control, soil erosion control, and cumulative impacts on water quality, fish, flooding, hydrologic flow regulation, and vegetation. The Draft EIS analyzed the effects associated with the issuance of a new or subsequent license for each of the projects, and the Final EIS recommended a variety of measures to protect and enhance the environmental resources, which we adopt.

Concurrently with this order, an Order Granting Applications for license (Master Order) is being issued, which addresses matters that are of concern to all of the Wisconsin River projects. That order is incorporated by reference herein. We find that the Wisconsin River projects will be best adapted to

1/ The projects and license applicants are as follows:

Wausau Project No. 1999-004 and Jersey Project No. 2476-001,

Wisconsin Public Service Company; Wisconsin River Headwaters Project No. 2113-022, Wisconsin Valley Improvement Company; Rothschild Project No. 2212-001, Weyerhaeuser Company; Kings Dam Project No. 2239-004, Tomahawk Power and Pulp Company; Wisconsin River Division Project No. 2590-001 and Wisconsin Rapids Project No. 2256-001, Consolidated Water Power Company; Centralia Project No. 2255-003, Port Edwards Project No. 2291-001, and Nekoosa Project No. 2292-001, Nekoosa Papers, Inc.

the comprehensive development of the Wisconsin River Basin. The following discussion pertains to the Headwaters Project No. 2113.

II. BACKGROUND

Wisconsin Valley Improvement Company (Wisconsin Valley) filed an application for a new license pursuant to Section 15 of the Federal Power Act (FPA), 16 U.S.C. § 807, for the continued operation and maintenance of the Wisconsin River Headwaters Project. The headwaters system consists of 21 storage reservoirs located in Gogebic County, Michigan, and Vilas, Forest, Oneida, Lincoln, and Marathon Counties, Wisconsin. The project does not include any hydroelectric generating facilities.

The Commission issued the original license for the project to Wisconsin Valley on May 28, 1959, 2/ under its jurisdiction over constructed projects situated on navigable waters of the United States. 3/ The license expired on July 31, 1993, and since then Wisconsin Valley has operated the project under annual license. 4/

Notice of the application was published, and comments have been received from interested federal, state, and local agencies and citizens. Fourteen motions to intervene were filed in response to the notice and were granted. 5/ The Izaak Walton

2/ 21 FPC 785 (1959). Wisconsin Valley is a privately owned company created by the Wisconsin Legislature in 1907 for the primary purpose of providing more uniform flow in the Wisconsin River for hydropower generation. Its stock is owned by the various entities that produce hydropower in the basin and benefit from its operation. Its operating costs are in turn provided by these stockholders via a toll system.

3/ The pertinent portion of the Wisconsin River, from its source in Lac Vieux Desert to its confluence with the Mississippi River, is a navigable waterway of the United States. Section 23(b) of the FPA, 16 U.S.C. § 817(b), therefore requires that the project be licensed.

4/ See Section 15(a)(1) of the FPA, 16 U.S.C. § 808(a)(1).

5/ Motions to intervene were filed by: the U.S. Department of the Interior (Interior); the Wisconsin Department of Natural Resources (Wisconsin DNR); the State of Michigan, the Michigan Department of Natural Resources (Michigan DNR), and the Michigan Water Resources Commission; the Wisconsin Valley Improvement Company stockholders (Weyerhaeuser Company, Packaging Corporation of America, Wisconsin Public Service Corporation, Consolidated Water Power Company, Nekoosa Papers, Inc., and Wisconsin River Power Company);
(continued...)

League of America filed a late motion to intervene on May 9, 1994. None of the commenting agencies or intervenors expressed opposition to relicensing the project.

The Commission's staff issued a draft environmental impact statement (EIS) for ten projects in the Wisconsin River Basin, including the Headwaters Project, on February 24, 1995. Numerous comments on the draft EIS were filed, and the Commission's staff considered these comments in preparing the final EIS, which was issued on July 5, 1996. The staff also prepared a Safety and Design Assessment, which is available in the Commission's public file for this project.

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

III. PROJECT DESCRIPTION

The project consists of 21 reservoirs, operated in a store-and-release mode in order to augment downstream river flows. The reservoirs range from 313 to 7,626 acres in size, and usable storage volumes range from 23 to 4,170 million cubic feet (mcf). The total usable storage capacity of the project is 15,601 mcf. Wisconsin Valley proposes no new construction at the project. A more detailed project description can be found in ordering paragraph B(2).

IV. APPLICANT'S PLANS AND CAPABILITIES

In accordance with Sections 10 and 15 of the FPA, we evaluated Wisconsin Valley's record as a licensee for these areas: (A) conservation efforts; (B) ability to comply with the new license; (C) safe management, operation, and maintenance of the project; (D) ability to provide efficient and reliable electric service; (E) need for power; (F) transmission services; (G) cost-effectiveness of plans; and (H) compliance record.

A. Consumption Improvement Program

Wisconsin Valley does not generate any power at the Headwaters Project. Therefore, it does not have any consumption efficiency improvement programs.

5/(...continued)

the Stevens Point Flowage Property Owners Association; Eugene and Alvina DeBruin; the Spirit Reservoir Association; the Little St. Germain Lake Rehabilitation District; the Lake Nokomis Concerned Citizens, Inc.; the Lac Vieux Desert Riparian Association; the Lac Vieux Desert Band of Lake Superior Chippewa Indians; the Deerskin Lake Association; the Big Eau Pleine Citizens Organization; and the Izaak Walton League of America.

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

We have reviewed Wisconsin Valley's compliance with the terms and conditions of the existing license. We find that Wisconsin Valley has a large number of late-filed document violations in its compliance history. Wisconsin Valley has, however, shown a significant improvement in meeting schedule deadlines since 1988. Because of the improvement, we have not included a Hydropower Compliance Management Program requirement in the new license. Wisconsin Valley has or can acquire the resources and expertise necessary to carry out its plans and comply with all articles, terms, and conditions of a new license.

C. Safe Management, Operation, and Maintenance of the Project

Wisconsin Valley has historically operated the project in a safe manner. The majority of the project's dams are exempt from the requirements in Part 12 of the Commission's regulations for independent consultant safety inspections. The Commission's Chicago Regional Office inspects the project periodically and prepares operation reports describing its inspection findings. Wisconsin Valley's application provides for the continuation of its current management, operation, and maintenance methods. Wisconsin Valley's plans are adequate to manage, operate, and maintain the project safely. 6/

D. Ability to Provide Efficient and Reliable Electric Service

Wisconsin Valley has developed a knowledge of the basin hydrology, maintained competent staff, established dependable communication links with the downstream hydropower developments, and developed cooperative programs to acquire and exchange information with governmental agencies. In its operations, Wisconsin Valley uses a variety of data collection and monitoring equipment including a program that provides real-time data on river flows (RIVOPS), a database of hydrologic and meteorologic data (System 1032), and a custom reservoir operations model (WIRSOM). The project will continue to be operated and maintained in an efficient and reliable manner.

E. Need for Power

The Wisconsin Headwaters Project is located in the Midcontinent Area Power Pool (MAPP) region of the North American Electric Reliability Council (NERC). NERC annually forecasts electrical supply and demand in the nation and the region for a

6/ See the Safety and Design Assessment.

ten year period. NERC's most recent report 7/ on annual supply and demand projections indicates that for the period 1995-2004, loads in the MAPP area will grow faster than planned capacity additions, resulting in decreased reserve margins.

Even though the Wisconsin River Headwaters Project does not generate power, it provides consistent flows in the Wisconsin River that result in increased generation at many downstream hydroelectric projects. Wisconsin Valley estimates that operation of the headwaters reservoirs increases the generation of 25 downstream hydroelectric projects by about 14 percent or 112,743 megawatt-hours (MWh) annually, at a cost lower than the cost of alternative power. Thus, the headwaters project has contributed and can continue to contribute to meeting the regional need for power.

This additional generation displaces generation that would likely otherwise come from fossil-fueled plants (the MAPP area depends very heavily on fossil-fueled generation), thereby conserving nonrenewable fuels and reducing their noxious emissions, and contributing to a diverse generation resource base.

We conclude that the past use of the headwaters project, its continuing ability to contribute to efficient use of other projects downstream, and its role in reducing fossil fuel emissions and fostering a diverse generation base demonstrate that the Wisconsin River Headwaters Project can help meet a need for power in the MAPP area in the short and long terms.

F. Transmission Services

Because the Wisconsin Valley's headwaters reservoirs do not generate electricity, there are no existing or planned transmission services.

G. Cost Effectiveness of Plans

Wisconsin Valley does not propose any additional project modifications other than environmental enhancements. We conclude that the project, as presently constructed and as Wisconsin Valley proposes to operate it in conjunction with the staff's recommendations, contributes significantly to full development

and economical use of the hydropower potential of 25 downstream hydroelectric projects.

H. Actions Affecting the Public

Environmental enhancement measures included in this license will result in beneficial changes to the environmental quality of

7/ Electric Supply and Demand 1995-2004, Summary of Electric Utility Supply and Demand Projections (1995).

the project area, including aquatic resources, and to public recreation.

V. SECTION 4(e) AUTHORITY

The project areas include lands of the Nicolet and Ottawa National Forest as well as a small parcel of the Lac Vieux Desert Indian Reservation. Under Section 4(e) of the FPA, 8/ the Commission is required to include in a hydropower project's license federal land management agency conditions with respect to project works located within the geographic boundaries of reservations of the United States. 9/

The U.S. Forest Service claims Section 4(e) authority on the basis of United States ownership of mostly submerged land on six of the 21 Wisconsin Valley storage reservoirs that comprise the Headwaters Project. Interior claims Section 4(e) authority on the basis of a 1994 acquisition by the United States of a half-acre parcel of land abutting Wisconsin Valley's Lac Vieux Desert development. This parcel, which was incorporated into the Lac Vieux Desert Indian Reservation, includes a portion of the shore of the reservoir.

Wisconsin Valley points out that it holds flowage easements over the federal lands occupied by the project features, and argues that, since the project does not depend on the use of any federal rights, no part of the project is within a federal reservation as that term is defined in the FPA. 10/ On

8/ 16 U.S.C. § 797(e).

9/ *Escondido Mutual Water Co. v. LaJolla Indians*, 466 U.S. 765 (1984). Section 3(2) of the FPA, 16 U.S.C. § 796(2), defines "reservations" as:

national forest, tribal lands embraced within Indian reservations, military reservations, and other lands and interests in lands owned by the United States, and withdrawn, reserved, or withheld from private appropriation and disposal under the public land laws; also lands and interests in lands

acquired and held for any public purposes;
but shall not include national monuments or
national parks

10/ On April 12, 1995, Wisconsin Valley filed a motion with the Commission requesting additional procedures to resolve whether the Forest Service has authority under Section 4(e) of the FPA to issue mandatory license conditions. On May 26, 1995, Wisconsin Valley filed a similar motion with respect to the U.S. Department of the Interior's Fish and
(continued...)

December 1, 1995, the Commission staff requested the Forest Service to provide information supporting its claim of federal ownership of the lands in question. It did so. Wisconsin Valley responded, contesting much of the information provided by the Forest Service. 11/

If the federal government holds fee title to (or indeed any interests in) certain lands, the lands qualify as lands owned by the United States for FPA purposes, even if someone else has a continuing right to use them pursuant to an easement. 12/ Thus, even if Wisconsin Valley holds the easement it describes, that fact does not make the land in question any less a reservation for purposes of Section 4(e) of the FPA. Section 3(2) of the FPA, 16 U.S.C. § 796(2), defines the term "reservation" to include national forests and "other lands and interests in lands owned by the United States," meaning that the term is not limited to fee title. It is undisputed that part of the project is located on land in which the Forest Service has a property interest and which the Forest Service administers. Consequently, the project lands within the reservations at issue are subject to Section 4(e) conditions.

We must next determine whether the conditions prescribed by the Forest Service and Interior relate to the reservations on which the project is located. Section 4(e) requires that the

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Wildlife Service issuance of Section 4(e) conditions. One of the additional procedures requested by Wisconsin Valley was an administrative trial-type hearing that would determine ownership of certain parcels of land alleged to be within federal "reservations." Interior responded to the motion on June 12, 1995, and the Forest Service responded on October 16, 1995. Both Interior and the Forest Service opposed Wisconsin Valley's motion. In light of our holding on the issue, we deny Wisconsin Valley's motion.

11/ See Forest Service responses dated January 19 and February 28, 1996, and Wisconsin Valley's replies thereto, dated January 31 and February 16, 1996.

12/ See *Town of Estes Park, Colorado*, 75 FERC □ 61,245 (June 3, 1996); *South Carolina Electric & Gas Company*, 75 FERC □ 61,308, n.9 (June 17, 1996). In *Estes Park*, the Commission determined, based on the same analysis as in this case, that a project's location on a private right-of-way on land owned by the federal government constituted occupancy of federal lands for mandatory licensing purposes under Section 23(b)(1) of the FPA; the project in question was, however, ruled nonjurisdictional for other reasons. The issue in *South Carolina Electric & Gas* was the same as in the instant case.

conditions be "necessary for the adequate protection and utilization of such reservation." 13/

Both the Forest Service's and Interior's conditions relate to the respective reservations on which project works are located. Both the Forest Service and Interior submitted conditions requiring the licensee to grow wild rice in the Lac Vieux Desert Reservoir. 14/ The licensee is required to file with the Commission a ten-year trial Wild Rice Restoration Plan that will include efforts to grow wild rice in an area close to the Indian Reservation's shoreline as well as in other areas located in the reservoir which affect National Forest System lands.

As noted, the project's Lac Vieux Desert Reservoir abuts a small portion of the Indian reservation's shoreline, causing the shoreline portion of the reservation to be inundated at times during periods of high water elevation. Although Wisconsin Valley submitted data that suggests wild rice could not successfully grow in the areas chosen by the Forest Service and Interior, further analysis of Wisconsin Valley's data and other data submitted by the Forest Service indicates a reasonable, though uncertain, chance of successful wild rice establishment at Lac Vieux Desert Reservoir. 15/ Water level fluctuation during the critical growth period, especially the floating leaf stage, is very important to the successful establishment and perpetuation of wild rice beds. Occasional water level fluctuations of six or more inches may diminish, but not necessarily eliminate, a wild rice bed. The final version of the proposed Section 4(e) condition addresses this concern, in that it stipulates that the gates on the dam must be controlled as necessary to maintain the water level at 1,680.73 feet during the summer.

In any event, it is clear that the planned wild rice seeding is to occur on both the Indian and Forest Service reservations, and we accordingly include the conditions pursuant to

13/ As the Supreme Court has stated:

The section imposes no obligation on the

Commission or power on the Secretary with respect to reservations that may somehow be affected by, but will contain no part of, the licensed project works.

See *Escondido*, supra, 466 U.S. at 777.

14/ Indeed, Interior has adopted the Forest Service conditions, withdrawing its own preliminary Section 4(e) conditions.

15/ See EIS Table 5-30 at 5-50.

Section 4(e) of the FPA. See ordering paragraph (D) and Appendix A of this order.

VI. WATER QUALITY CERTIFICATION

Under Section 401(a)(1) of the Clean Water Act (CWA), 16/ the Commission may not issue a license for a project unless the state certifying agency has either issued water quality certification for the project or has waived certification. 17/ On March 4, 1991, Wisconsin Valley applied to the Wisconsin DNR for water quality certification. By letter dated May 17, 1991, the Wisconsin DNR waived the requirement for certification for the continued operation of the Headwaters Project.

VII. SECTION 18 FISHWAY PRESCRIPTION

Section 18 of the FPA 18/ provides that the Commission shall require the construction, operation, and maintenance by a licensee of such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate. Interior, by letter dated May 20, 1993, requested that its authority to prescribe the construction, operation, and maintenance of fishways pursuant to Section 18 be reserved at this project.

We recognize that future fish passage needs cannot always be determined at the time of project licensing. The Commission's practice has been to include a license article that reserves Interior's authority to prescribe facilities for fish passage. 19/ Therefore, Article 416 of the license reserves authority to the Commission to require the licensee to construct, operate, and maintain such fishways as the Secretary of the Interior may prescribe pursuant to Section 18 of the FPA.

16/ 33 U.S.C. § 1341(a)(1).

17/ Section 401(a)(1) requires an applicant for a federal license or permit to conduct any activity that may result in any discharge into navigable waters to obtain from the state

in which the discharge originates certification that any such discharge will comply with applicable water quality standards.

18/ 16 U.S.C. § 811.

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

VIII. ENVIRONMENTAL ANALYSIS

The Commission has reviewed the environmental data contained in the record, particularly the EIS, which was prepared pursuant to the requirements of the National Environmental Policy Act (NEPA). Our determinations with respect to basin-wide issues concerning fishery resources, water resources, recreation resources, vegetation resources, wildlife resources, and geology and soils is more fully discussed in the Master Order.

IX. RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES

Section 10(j)(1) of the FPA 20/ requires the Commission, when issuing a license, to include license conditions based on recommendations of federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act, to "adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat)" affected by the project. The general requirements of Section 10(j) are discussed in the Master Order.

The Wisconsin DNR and Interior filed fish and wildlife recommendations for the Headwaters Project. The Michigan DNR filed fish and wildlife recommendations relating to the Lac Vieux Desert development only.

The fish and wildlife agencies submitted 29 recommendations subject to the provisions of Section 10(j) and an additional 14 recommendations which are outside the scope of Section 10(j). We accepted or, subsequent to Section 10(j) discussions, reached agreement on 25 of the 29 issues raised by fish and wildlife recommendations. The 14 recommendations made by the fish and wildlife agencies outside the scope of Section 10(j) either involve studies that could have been performed prior to licensing, or do not otherwise qualify as specific measures to protect, mitigate damages to, or enhance fish and wildlife. 21/ We have, however, considered all of these recommendations under the comprehensive development and public interest standards of Section 10(a)(1) of the FPA, and we adopt 13 of those recommendations, including those resolved through the Section 10(j) discussions.

Twelve of the 29 recommendations made by fish and wildlife agencies within the scope of Section 10(j) and four of the

20/ 16 U.S.C. § 803(j)(1).

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

14 recommendations considered under Section 10(a) were preliminarily determined by Commission staff to be inconsistent with the FPA. In response to this determination, comment letters were received from the Wisconsin DNR, the Michigan DNR, and Interior. On November 2 and 3, 1995, representatives from Wisconsin Valley, the Wisconsin DNR, the Michigan DNR, and Interior met with Commission staff to attempt to resolve the inconsistencies.

Eight of the inconsistencies in recommendations within the scope of Section 10(j) were resolved through Section 10(j) discussions. We do not adopt the remaining four recommendations. As discussed in Part IX.A. below, three of the inconsistencies in recommendations considered under Section 10(a) were likewise resolved in discussion with the fish and wildlife agencies. We do not adopt the remaining one recommendation considered under Section 10(a). Recommendations considered under Section 10(a) are discussed in Part IX.B. below.

With respect to the discussions between the Commission staff and the fish and wildlife agencies on eight of the inconsistencies under Section 10(j), we adopt the resolutions that were agreed to by the parties. What follows is a summary of the issues discussed and the resolution of the specific disagreements.

(1) The fish and wildlife agencies recommended that Wisconsin Valley record operating data daily at all natural lakes for the duration of the license to demonstrate compliance. Commission staff believes that the environmental benefit which would accrue from this costly protocol is inconsistent with the balancing requirements of Section 10(a), and that this protocol is necessary only on an interim basis until the licensee documents through a required debris management plan that minimum flows are being provided consistently. The fish and wildlife agencies would be consulted in the development of the debris management plan. The Wisconsin DNR, the Michigan DNR, and Interior agreed with the Commission staff's recommendation.

(2) Rather than continuing experimental operations indefinitely at Spirit Reservoir to enhance walleye spawning, the Wisconsin DNR and Interior concurred with Commission staff's recommended approach to continue experimental operations only

until an adequate database is developed on its effectiveness, thus helping to assure that the costs of this operation are warranted by the environmental benefit, consistent with Section 10(a). The Commission will at that time determine whether the operations should continue.

(3) The Wisconsin DNR and Interior recommended that Wisconsin Valley maintain a minimum 25 percent volume (excluding ice cover) in Eau Pleine Reservoir in winter to minimize winter oxygen depletion and improve conditions for aquatic life. This would significantly reduce usable storage for hydropower

operations and Commission staff believes that there is a lack of substantial evidence under Section 313(b), to demonstrate that the reduced volume would benefit fish. At times it will be necessary for the licensee to draw down the reservoir below the 25 percent gross storage level (but not more than its proposed minimum elevation). However, to ensure appropriate balancing when drawdown decisions are made, the fish and wildlife agencies and Commission staff agreed that the 25 percent volume (elevation 1,130.7 feet) should be used as a trigger level to initiate consultation between the licensee, the Wisconsin DNR and Interior about the need for further drawdown.

(4) The fish and wildlife agencies recommended that Wisconsin Valley use October 1 as an annual target date to begin a slow drawdown of all natural lakes to reduce shoreline habitat damage due to ice. In Section 10(j) discussions, the agencies agreed with Commission staff to delay drawdown at South and North Pelican lakes and Lac Vieux Desert to enhance recreation.

(5) Wisconsin DNR and Interior recommended that Wisconsin Valley release a minimum of 10 cfs and a maximum of 31 cfs to the Deerskin River to protect trout habitat structures downstream. However, the agencies concurred with Commission staff to modify this recommendation to allow Wisconsin Valley to exceed the maximum release of 31 cfs from Long-on-Deerskin Reservoir in emergency situations for dam safety concerns.

(6) The Wisconsin DNR and Interior recommended that Wisconsin Valley participate in funding a basin-wide U.S. Geological Survey (USGS) flow gaging plan consisting of 28 permanent USGS gages and ten additional sites for part-time gaging information. Commission staff believes that only four of these gages qualify as project-related, and most of the recommended gages are useful for non-project related fish and wildlife agency purposes such as flood forecasting and monitoring wasteload allocation. Wisconsin Valley and the fish and wildlife agencies agreed that it would cost-share funding with the agencies on ten USGS gages.

(7) The Michigan DNR recommended that Wisconsin Valley fund a USGS flow gaging station downstream of Lac Vieux Desert to demonstrate compliance with minimum releases. Commission staff concluded that a USGS gage would provide little additional

benefit over a staff gage, but would be significantly more costly. The Wisconsin DNR, the Michigan DNR, and Interior agreed that weekly staff gage readings would be sufficient between December 1 and April 1 and that daily visits should be made during the remainder of the year until a debris plan is finalized and approved by the Commission.

(8) The Michigan DNR withdrew its recommendation for February water quality sampling at Lac Vieux Desert if water quality monitoring is included in the Lac Vieux Desert wild rice

enhancement plan. Such monitoring is required in the new license.

The four remaining, unresolved issues raised by Section 10(j) recommendations are: (1) minimum summer water levels in the man-made reservoirs; (2) minimum winter water levels in the man-made reservoirs; (3) minimum flow release to Pickerel Canal; and (4) maximum water level and wild rice enhancement in Lac Vieux Desert. These are discussed in the following section.

A. Attempted Resolution of Section 10(j) Inconsistencies

1. General Considerations

Operation of Wisconsin Valley's headwaters system of reservoirs has potentially significant cumulative effects on power generation, incidental flood control, water quality, and recreation throughout the Wisconsin River waterway. Major trade-offs among different nondevelopmental and developmental objectives have already been made, as reflected in the existing development of this 430-mile-long waterway.

Although operation of the headwaters system has resulted in significant benefits throughout the river basin, the potential for refining and improving the balance of developmental and nondevelopmental objectives is a major concern. Unfortunately, operating "improvements" to enhance one objective often conflict with other objectives. Consequently, we consider these fish and wildlife recommendations pursuant to our responsibilities under the FPA to balance the competing interests of power, water quality, flood control, and recreation in this river basin.

2. Minimum Water Levels in the Man-made Reservoirs

The 21 storage reservoirs in Wisconsin Valley's headwaters system consist of 16 "natural" reservoirs and five "man-made" reservoirs. 22/ Wisconsin Valley historically has subjected the 16 natural reservoirs to relatively moderate water level fluctuations (several feet) based on state-dictated drawdown limits established in 1911. There has been extensive residential and recreational development on most of the natural reservoirs. In contrast, Wisconsin Valley constructed the five man-made

reservoirs in later years for the primary purpose of providing flow regulation for downstream hydropower users. The five man-made reservoirs provide 73 percent of the total usable storage in

22/ There are 61 distinct lakes and reservoirs in the system.

In addition to the five man-made reservoirs, there are 56 lakes that comprise the 16 natural reservoirs because many of the natural reservoirs are chains of lakes formed by a single dam but connected by stream or canal "thoroughfares" between each lake.

the headwaters system and have been more heavily relied upon for flow augmentation, making them subject to more extensive drawdowns (15 to 32 feet). Most of the man-made reservoirs are sparsely developed.

As described in the EIS, the staff evaluated the operational and hydrologic capabilities of the headwaters system using the WIRSOM model. 23/ This evaluation established that there is insufficient water in the system to satisfy all of the competing interests in the basin that are involved in these proceedings. The primary competing interests are as follows:

- (1) Wisconsin DNR and Interior have recommended that the five man-made reservoirs not be drawn down more than four feet in summer and that at least 25 percent of the gross storage in these reservoirs be retained in the winter (excluding ice cover). The agencies also recommend a consultation process during droughts. We refer to this hereafter as the "agencies' plan."
- (2) Three citizens' organizations have intervened in these proceedings and requested even more restricted drawdowns for the man-made reservoirs than the agencies' plan. These organizations include Lake Nokomis Concerned Citizens for Rice reservoir, Spirit River Association for Spirit reservoir, and Big Eau Pleine Citizens Organization for Eau Pleine reservoir. We refer to this proposal as the "citizens' plan." 24/
- (3) A number of downstream municipalities, industries, and utilities have either intervened or written the Commission in the interest of their various uses of the river. 25/ In addition to

23/ See EIS Sections 4.2.2.1 and 4.2.2.2 and Appendix E.

24/ See EIS Table 4-3 and Sections 4.2.2.2 and 4.2.2.4. Lake Nokomis Concerned Citizens recommend drawdown limits of 1.0 feet as a target and 1.8 feet as a maximum for the summer with a winter limit of 4.5 feet. Spirit River Association

recommends a drawdown limit of 2.0 feet for the summer and a winter limit of 5.5 feet. Big Eau Pleine Citizens Organization recommends a drawdown limit of 2.4 feet for the summer and a winter limit of 12 feet.

25/ These intervenors include Weyerhaeuser Paper Company, Packaging Corporation of America, Wisconsin Public Service Corporation, Consolidated Water Power Company, Nekoosa Papers Inc., and Wisconsin River Power Company. In addition, the Commission has received letters from other
(continued...)

hydropower generation, many of these entities have a strong interest in protecting critical low river flows such as the seven-day, ten-year low flow (7Q10). 26/ Such flows are critical because the continued, cost-effective discharge of highly treated wastewaters into the river is dependent on the assimilative capacity provided by historical river flow conditions.

- (4) The Stevens Point Flowage Property Owners Association (SPFPOA) has intervened in the interest of downstream flood protection.

Because the system is hydrologically and operationally complex, Wisconsin Valley developed the WIRSOM model 27/ to evaluate the various alternatives and develop its proposed operating plan. Wisconsin Valley's proposal would increase early summer water levels in the five man-made reservoirs and provide more reliable downstream augmentation flows in late summer than historical operations provided. 28/

25/(...continued)

downstream interests including: Mosinee Paper Corporation, Rhinelander Paper Company, Kimberly Clark, and Wausau Papers; the cities of Wausau, Rhinelander, Merrill, Stevens Point, and Wisconsin Rapids; Mr. Walter Kuhlmann on behalf of six municipal treatment facilities; and Mr. Bruce Fenske on behalf of the city of Wausau.

26/ The 7Q10 represents the lowest flow that is expected to occur once every ten years for seven consecutive days. This flow describes a critical low flow of a river or stream. State water quality agencies typically use the 7Q10 or similar critical low flow to calculate available dilution for water quality-based permit limits for point source discharges to a river. Because the toxic effects of pollutants are related to available dilution, a lower 7Q10 would generally produce lower allowable discharge limits and, conversely, a higher 7Q10 would generally produce higher allowable discharge limits for a given discharger. For nonpoint sources of pollution and point source discharges that do not have water quality-based limits, a

lower 7Q10 would increase the concentration of the pollutant in a river, thus increasing its toxic effects.

27/ See Master Order, Section IV.C, for further discussion of the Wisconsin River System Operations Model (WIRSOM).

28/ As described in more detail in Section 4.2.2.4 in the EIS, Wisconsin Valley's proposal would substantially increase the percentage of time that water levels in these reservoirs are within four feet of full in the summer while at the same
(continued...)

In addition to these operating recommendations and proposals, the staff developed several other operating scenarios that were evaluated with the WIRSOM model. One of the issues that we considered was whether it would be appropriate to subject the natural reservoirs to additional drawdown to compensate for a reduced drawdown in some or all of the man-made reservoirs. Because the natural reservoirs have limited storage (27 percent of the system's usable storage), provide 90 percent of the system's recreation use, and have along the shorelines three times more residential development than the man-made reservoirs, the staff did not recommend subjecting the natural reservoirs to additional drawdown. The Wisconsin DNR, the Michigan DNR, and Interior concur with the drawdown restrictions that we have included in Wisconsin Valley's license for the natural reservoirs. 29/ We conclude that any plan that has significant and widespread adverse effects on water levels in the natural reservoirs, or any plan whose effects are unknown but potentially significant and widespread, is inconsistent with our balancing responsibilities in the public interest under Section 10(a) of the FPA.

Regarding the various operating scenarios for the five man-made reservoirs, Wisconsin Valley's proposed plan provides the best overall balance of developmental and nondevelopmental uses and consequently is the best adapted plan for the waterway. The plan substantially improves summer water levels in the reservoirs, enhancing fisheries, wetlands, wildlife, visual quality, and recreational opportunity compared to historical conditions. 30/ It also optimizes the basin's water resources potential because the reservoirs are drawn down in a systematic, progressive manner and target flows downstream are gradually reduced in proportion to storage remaining in the system. In addition, under Wisconsin Valley's plan, the drawdown distribution between the reservoirs is based on an indexing system that recognizes the relative resource attributes of each reservoir. The plan also more reliably protects the 7Q10 and enhances downstream water quality and wastewater assimilation by increasing the summer target flows compared to historical

28/ (...continued)

time increasing target river flows from 600 to 900 cfs at Merrill and from 900 to 1,300 cfs at Wisconsin Rapids.

These proposed target flows are slightly higher than the 7Q10 flows at each location (see Section 3.2 in the final EIS) and thus allow the 7Q10 to be more reliably provided.

29/ In the Section 10(j) meeting, these resource agencies reaffirmed their position that whatever plan is adopted should not adversely affect water levels in the natural reservoirs relative to historical operations.

30/ See Sections 4.2.2, 4.2.4.1, 4.2.4.1, 4.2.5.1, 4.2.6.2, 4.2.8.2, and 5.1.2.1 in the EIS.

operation. The plan will not adversely affect downstream flooding or water levels in the 16 natural reservoirs.

To ensure that the predicted enhancements of the new operation are realized, we have incorporated the detailed operating specifications from the WIRSOM input as conditions of Wisconsin Valley's license. The specifications of the Operating Plan are included in Articles 403 through 412. This will provide a reliable and straightforward means to ensure and assess compliance over the license term.

We do not adopt the agencies' plan for the man-made reservoirs for the following reasons. The plan, if implemented in strict accordance with the agencies' water level criteria, would result in a \$0.9 million, 17 gigawatt hour (GWh) reduction in annual energy generation, representing a 19 percent decrease in the hydropower benefit attributable to Wisconsin Valley's historical operation. There would be no apparent environmental resource benefit derived from the 25 percent winter storage requirement.^{31/} Although there may be some theoretical benefit to fisheries and recreation resources related to the agencies' summer water level criterion, WIRSOM modeling demonstrated that there is in fact insufficient water available in the system to satisfy this criterion without significant adverse impacts on downstream river flows. In addition, strict implementation of the agencies' criteria would increase flood flows and reduce water levels in the natural reservoirs.

The Wisconsin DNR stated, in its comments on the draft EIS and at the Section 10(j) meeting, that it strongly endorses the objective of preserving, and even further augmenting, critical low river flows. This position is consistent with its 1991 Upper Wisconsin River Water Quality Management Plan.^{32/} The Wisconsin DNR also argues that the agencies' plan would not adversely affect downstream water quality because reductions in critical low river flows would be avoided through agency consultation during droughts. The agencies did not provide rule curves or other operational criteria that would define how the system would be operated up to, or after, the point at which the agencies' recommended minimum water level is reached. WIRSOM modeling demonstrated, however, that there is insufficient water in the system to satisfy the agencies' drawdown criterion during typical years, not just during extreme droughts.

- 31/ See Sections 4.2.2, 4.2.4.1, 4.2.4.1, 4.2.5.1, 4.2.6.2, and 4.2.8.2 in the EIS. Because of special dissolved oxygen problems in Eau Pleine reservoir, the agencies and the Commission staff agreed at the Section 10(j) meeting to use the 25 percent level as a trigger for agency consultation prior to further draw-down at that reservoir.
- 32/ This comprehensive plan was submitted to and accepted by the Commission pursuant to Section 10(a)(2) of the FPA.

Data provided in the EIS show how frequently the agencies' recommended minimum level would be reached in summer. 33/ Assuming that Wisconsin Valley operated the system using its current rule curve until the four feet of drawdown was reached, the reservoirs would be at elevations requiring the proposed agency consultation anywhere from 15 to 60 percent of the time, depending on the reservoir (46 percent of the time on average for all five reservoirs). With the licensee's proposed rule curve, reservoir elevations requiring agency consultation would be reached from 5 to 40 percent of the time (31 percent on average). Consequently, the agencies' plan remains undefined for much of the time and would force frequent ad hoc consultation and decisionmaking. The plan would also introduce significant uncertainty to the activities of the many users of the Wisconsin River. We cannot adopt a plan that is too undefined to allow us to fully assess its adverse and beneficial effects.

As an illustration of the potential adverse effects of the agencies' plan, WIRSOM modeling showed that if it were to be implemented in strict accordance with the agencies' recommended water level criteria, there would be a reduction in the summer of 2.5 percentile low flows, which approximate the 7Q10 flows, from about 900 to 530 cfs at Merrill and from about 1,100 to 740 cfs at Wisconsin Rapids compared to Wisconsin Valley's plan. A change of this magnitude would have significant adverse impacts on downstream water quality and wastewater assimilation capacity. The agencies' water level criteria for the man-made reservoirs would also result in an average reduction in water levels in the 16 natural reservoirs of about one foot. The agencies do not advocate such declines in river flows and natural reservoir levels but have not explained how they could be avoided if the agencies' plan for the man-made reservoirs is accepted.

Pursuant to our balancing and public interest responsibilities under Sections 10(a) and 4(e) of the FPA, we also do not adopt the citizens' plan. The water level criteria recommended by the Lake Nokomis Concerned Citizens, Inc., the Spirit Reservoir Association, and the Big Eau Pleine Citizens Organization would have significant adverse effects on hydropower generation and downstream flows. This plan would result in a \$1.6 million, 33 GWh reduction in annual energy generation, representing a 33 percent decrease in the hydropower benefit attributable to Wisconsin Valley's historical operation.

The citizens' plan would also reduce the summer 2.5 percentile low flows from about 900 to 710 cfs at Merrill and from about 1,100 to 580 cfs at Wisconsin Rapids compared to Wisconsin Valley's plan. A change of this magnitude would have significant adverse impacts on downstream water quality and

33/ See Table 4-7 in Section 4.2.2.4 of the EIS.

wastewater assimilation capacity. 34/ Reductions in critical low river flows adversely affect water quality in proportion to the relative magnitude of the reduction. For example, a 25 percent reduction in flow would increase the concentrations of pollutants in the river by about 25 percent due to reduced dilution and assimilation capacity. According to the Wisconsin DNR, the main stem Wisconsin River reservoirs are already experiencing water quality problems associated with excessive nutrients from both point and nonpoint sources. 35/ The citizens' plan would also increase flood flows and have a significant impact on water levels in Willow and Rainbow reservoirs. Overall, the significant adverse impacts of this plan would not be offset by benefits that might accrue to citizens or environmental resources at Rice, Spirit, and Eau Pleine reservoirs.

The conditions that we are imposing upon Wisconsin Valley will adequately and equitably protect, mitigate damage to, and enhance fish and wildlife resources. Wisconsin Valley's proposed plan is consistent with the Wisconsin DNR's objectives to protect or enhance critical low river flows, and does so in a systematic,

34/ Wisconsin DNR stated, in its Section 10(j) recommendation letter and in its public and written comments on the draft EIS, that impacts on industrial wastewater dischargers have been overstated by Wisconsin Valley and the Commission staff because most or many of these dischargers have substantial reserve treatment capacity. Consequently, some of the citizens' organizations believe that reductions in critical low river flow would be feasible. To address this issue, in September 1995 the Commission staff requested and received information, including supporting technical data, from 13 major municipal and industrial dischargers to the Wisconsin River. This survey demonstrated conclusively that, on the whole, such excess capacity does not exist and that reductions or increases in the frequency of occurrence of critical low flows would have significant downstream impacts. Seven of the eight pulp and paper mills surveyed stated that they have no significant excess wastewater treatment capacity. Six of the eight mills had multiple wasteload violations over the last seven years and three of the eight mills stated that they must curtail production to

meet wasteload allocations during low river flows. Seven of the eight mills and four of the five municipalities surveyed have water quality-based monitoring requirements and/or limitations in their discharge permits. These permit conditions are driven by the critical low flows in the river. Any reduction in, or increased frequency of, these critical river flows would have significant adverse impacts on permit compliance, industrial production, and treatment costs.

35/ See Section 4.2.2.8 of the EIS.

rational way. Our approach does not preclude the agencies or citizens groups from recommending adjustments to the adopted operating scenario in the future; the Commission retains the authority to order such adjustments should it be necessary or appropriate. We are requiring that Wisconsin Valley file a Status Report on its operating plan every five years in consultation with the agencies. We have also adopted the agencies' recommendation that Wisconsin Valley develop a drought management plan in consultation with the agencies. Together, these requirements commit Wisconsin Valley to operate the system such that the enhancements are provided over the term of the license, but also allow the needed flexibility to adapt to unforeseen circumstances or changing conditions.

3. Minimum Flow Release to Pickerel Canal

We do not adopt the Wisconsin DNR's and Interior's recommendation for a year-round minimum flow release of five cubic feet per second (cfs) from Pickerel canal dam to the Pickerel canal because there is no substantial evidence in the record to support the recommendation. With Wisconsin Valley's current and proposed operation there is generally a four to six-week period in winter in which water levels in Pickerel Lake are drawn down below the sill of the canal dam, precluding a release during this period.^{36/} At these times, about 100 feet of the 1,000-foot-long man-made canal are dewatered, because backwater from downstream lakes keeps most of the canal inundated. There is no evidence that this small dewatered portion of the canal provides limiting habitat to any resident fish or other aquatic species.

The agencies have provided no evidence of any adverse effect on fisheries or water quality, and our analysis does not indicate that there is any such effect.^{37/} We therefore conclude that Wisconsin Valley's current and proposed winter operation for the Pickerel Canal is not harming aquatic resources. To require the agencies' recommended release during this period each winter would result in the loss of 53 percent of the usable storage in Pickerel reservoir with an attendant annual energy loss of 1,700 MWh. Because there is no apparent environmental benefit to

^{36/} See Sections 3.2.1, 4.2.2.5, and 4.2.3.4 in the EIS.

37/ The agencies cite fisheries and water quality problems in the canal system, but they provided no supporting evidence. Although a fish kill occurred in the canal in the late 1970's when flow was not released for a six month period, Wisconsin Valley has improved its operation since then and there has not been a repeat occurrence. In addition, water quality data available in Wisconsin Valley's application show that dissolved oxygen concentrations in the canal comply with Wisconsin standards during these four to six week winter periods.

providing the recommended minimum releases during this period, there is no justification for the attendant sacrifice in power and flood control benefits.

We also find that the conditions that we are imposing on Wisconsin Valley for the Pickerel Canal will adequately and equitably protect, mitigate damages to, and enhance fish and wildlife resources in Pickerel Canal. We are requiring that Wisconsin Valley release the lesser of 17.9 cfs or the maximum flow possible with the head available for the period from September 16 to April 30, and a continuous minimum flow of 17.9 cfs to the Pickerel Canal from May 1 to September 15. We are also requiring that Wisconsin Valley develop a means of demonstrating compliance with this requirement by developing relationships between lake level, gate openings, channel conditions, and other relevant factors. This information would be included in Wisconsin Valley's first Status Report on the Operating Plan that is due five years after license issuance and would be subject to Commission approval.

4. Maximum Water Level and Wild Rice Enhancement at Lac Vieux Desert

Subsequent to the Section 10(j) meeting, the U.S. Fish and Wildlife Service and the Wisconsin DNR withdrew their Section 10(j) recommendations on this topic in favor of the Forest Service and Interior Section 4(e) condition number 114 -- the Wild Rice Enhancement Plan -- providing for a maximum water level elevation of 1680.73 NGVD.

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

Regarding the 14 agency recommendations considered under Section 10(a)(1), the staff in the draft EIS recommended that ten should be adopted and that four should not be adopted. At the Section 10(j) meeting, agreement was reached on all but one of the four recommendations not supported in the draft EIS. The resource agencies and Commission staff agreed: (1) rather than retain all lands within the Headwater Project boundaries, the Commission's standard land use articles and regulations, together with a periodically updated Land Resource Management Plan, provides the necessary protection of project lands; (2) instead of developing a recreation plan specific to Lac Vieux Desert,

Wisconsin Valley will develop a comprehensive recreation plan for all 21 headwater reservoirs; and (3) Wisconsin Valley will not commit to providing operation and maintenance funding for the Michigan DNR boat launch facilities at Lac Vieux Desert, but such a funding proposal will be considered along with other proposals, in consultation with recreation users and providers, as one of the uses of the annual recreation fund provided by the licensee.

The remaining Section 10(a) issue was raised by a fish and wildlife agency recommendation to extend all boat ramps to one foot below the minimum summer water level at the man-made

reservoirs. We do not adopt the Wisconsin DNR's and Interior's recommendation because we do not adopt the agencies' related recommendation for minimum summer water levels on the man-made reservoirs. It would be physically impractical and infeasible to accept the boat ramp recommendation due to the flow plan adopted in the new license. Consequently, this recommendation is integrally related to our determination on the minimum summer and winter water levels for the man-made lakes, discussed above. The agencies did not provide any independent evidence to support the feasibility of this recommendation, nor did the staff's analysis find any support for it.

X. COMPREHENSIVE PLANS

Section 10(a)(2)(A) of the FPA requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. 46/ Of the comprehensive plans filed with the Commission, the Commission staff identified seven that are relevant to the Headwaters Project. 47/ The project does not conflict with any of these comprehensive plans.

XI. COMPREHENSIVE DEVELOPMENT

In making our comprehensive development determination under Sections 4(e) and 10(a)(1) of the FPA, we considered the project both with the applicant's mitigative proposals and with the Commission's mitigative proposals. Because this project does not generate power, the annual benefit of the project represents the difference between what it would cost the owners of the downstream hydroelectric developments to purchase alternative power if the Headwaters Project did not exist and the cost of operating the Headwaters Project. The owners of the downstream hydroelectric developments are the stockholders of Wisconsin Valley so their power production is a benefit of the Headwaters Project. Based on current economic conditions, the project, if licensed as Wisconsin Valley proposes, would produce

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

47/ State Comprehensive Outdoor Recreation Plan, 1985 and 1991, Wisconsin DNR; Wisconsin Water Quality: Report to Congress, 1986 and 1992, Wisconsin DNR; Upper Wisconsin River Northern Sub-Basin Water Quality Management Plan, 1992, Wisconsin DNR; Nicolet National Forest Land and Resource Management Plan, 1986, U.S. Forest Service; Ottawa National Forest Land and Resources Management Plan, 1986, U.S. Forest Service; A Nonpoint Source Control Plan for the Upper Big Eau Pleine River Priority Watershed Project, 1987, Wisconsin DNR; and North American Waterfowl Plan, 1986, Interior and Canadian Wildlife Service.

113 gigawatt-hours (GWh) of energy at the downstream developments. The energy would come at an annual cost of \$2,291,900 (20.29 mills/kWh) less than currently available alternative power. If licensed with the Commission's required enhancement measures, the project would produce 113 GWh of energy at the downstream developments, at an annual cost of \$2,215,100 (19.61 mills/kWh) less than currently available alternative power.

The EIS recommends a number of measures to protect and enhance environmental resources, which we adopt, as discussed herein. These measures include: preparation of a shoreline erosion control plan (Article 401); minimum flow releases for all dams (Article 404); implementing a flow gaging plan (Article 405); including staff gages and automatic headwater and tailwater level sensor to monitor operations, and removable stops to pass minimum flows (Article 406); preparation of a debris management plan (Article 408); preparation of a drought contingency plan (Article 409); implementing a long-term water quality monitoring plan (Article 411); implementing rule curves for operating the headwater reservoir system (Article 412); preparation of a fish and wildlife enhancement plan (Article 413); cooperating with agencies on purple loosestrife control (Article 414); preparation of a plan to protect bald eagles (Article 415); preparation of a recreation plan, continued monitoring of recreation needs, and establishment of a recreation fund (Article 418 and 419); and preparation of a land management plan (Article 420).

Based on our review and evaluation of the existing Headwaters Project, agency recommendations, and the alternatives documented in the EIS prepared in this proceeding, we find that the Headwaters Project, with our mitigative and enhancement measures, will be best adapted to comprehensive development of the Wisconsin River for beneficial public uses.

XII. SUMMARY

The EIS issued for this project includes background information, analysis of impacts, and support for related license articles. Issuance of this license is a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with engineering safety standards. The project will be safe if operated and maintained in accordance with the requirements of this license. We provide analysis of related issues in the Safety and Design Assessment prepared for this project.

The Commission orders:

(A) This license is issued to the Wisconsin Valley Improvement Company for a period of 30 years, effective the first day of the month in which this order is issued, to operate and maintain the Wisconsin River Headwaters Project. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and subject to the regulations that the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, shown by Exhibit G, filed on July 30, 1991:

Exhibits

	No. 2113-	Showing
G (Sheet G-1)	1	Lac Vieux Desert
G (Sheet G-2)	2	Twin Lakes
G (Sheet G-3)	3	Buckatahpon
G (Sheet G-4)	4	Long-on-Deerskin
G (Sheet G-5)	5	Little Deerskin
G (Sheet G-6)	6	Seven Mile and Lower Nine Mile
G (Sheet G-7)	7	Burnt Rollways
G (Sheet G-8)	8	Sugar Camp
G (Sheet G-9)	9	Little St. Germain
G (Sheet G-10)	10	Big St. Germain
G (Sheet G-11)	11	Pickerel
G (Sheet G-12)	12	Rainbow
G (Sheet G-13)	13	North Pelican
G (Sheet G-14)	14	South Pelican
G (Sheet G-15)	15	Minocqua
G (Sheet G-16)	16	Squirrel
G (Sheet G-17)	17	Willow
G (Sheet G-18)	18	Rice
G (Sheet G-19)	19	Spirit
G (Sheet G-20)	20	Eau Pleine

(2) The project works consisting of:

(1) the Lac Vieux Desert Development that comprises (a) a 27-foot-long by 10-foot-wide by 8.5-foot-high concrete spillway containing one 12-foot-wide by 4-foot-high Taintor

gate and (b) a reservoir with a surface area of 4,247 acres and a gross storage capacity of 2,140 million cubic feet (mcf) at the historical maximum elevation of 1,681.53 feet National Geodetic Vertical Datum (NGVD)(maximum elevation is subject to Section 4(e) conditions stipulated in Article 114;

(2) the Twin Lakes Development that comprises (a) a 21.5-foot-long by 17-foot-wide by 9.5-foot-high concrete spillway containing one 10-foot-wide by 4.33-foot-high Taintor gate, (b) a 60-foot-long right dike, (c) a 75-foot-long left dike, and (d) a reservoir with a surface area of 3,535 acres and a

gross storage capacity of 4,074 mcf at the maximum elevation of 1,682.57 feet NGVD;

(3) the Buckatahpon Development that comprises (a) a 15-foot-long by 27-foot-wide by 7.5-foot-high concrete spillway containing one 6-foot-wide by 3.83-foot-high Taintor gate, (b) a 100-foot-long right dike, (c) an 80-foot-long left dike, and (d) a reservoir consisting of two connected lakes with a combined surface area of 922 acres and a gross storage capacity of 597 mcf at the maximum elevation of 1,641.52 feet NGVD;

(4) the Long-on-Deerskin Development that comprises (a) a 18-foot-long by 15-foot-wide by 9.5-foot-high concrete spillway containing one 8-foot-wide by 5-foot-high Taintor gate, (b) a 35-foot-long right dike, (c) a 30-foot-long left dike, and (d) a reservoir consisting of two connected lakes with a combined surface area of 2,353 acres and a gross storage capacity of 2,651 mcf at the maximum elevation of 1,698.43 feet NGVD;

(5) the Little Deerskin Development that comprises (a) a 4-foot-long by 6-foot-wide by 4-foot-high concrete spillway containing one 4-foot-wide by 2-foot-high lift gate, (b) a 40-foot-long right dike, (c) a 40-foot-long left dike, and (d) a reservoir with a surface area of 313 acres and a gross storage capacity of 82 mcf at the maximum elevation of 1,642.16 feet NGVD;

(6) the Seven Mile Development that comprises (a) a 22-foot-long by 30-foot-wide by 9.5-foot-high concrete spillway containing one 8-foot-wide by 4.83-foot-high Taintor gate, (b) a 150-foot-long right dike, (c) a 110-foot-long left dike, and (d) a reservoir with a surface area of 518 acres and a gross storage capacity of 417 mcf at the maximum elevation of 1,650.14 feet NGVD;

(7) the Lower Nine Mile Development that comprises (a) a 26-foot-long by 30-foot-wide by 12-foot-high concrete spillway containing two 6-foot-wide by 6-foot-high Taintor gates, (b) a 60-foot-long right dike, (c) a 100-foot-long left dike, and (d) a reservoir with a surface area of 841 acres and a gross storage capacity of 114 mcf at the maximum elevation

of 1,643.76 feet NGVD;

(8) the Burnt Rollways Development that comprises (a) a 47-foot-long by 55-foot-wide by 16-foot-high concrete spillway containing one 16-foot-wide by 4.25-foot-high Taintor gate and one 10-foot-wide by 12-foot-high Taintor gate, (b) a 100-foot-long right dike, (c) a 150-foot-long left dike, (d) a reservoir consisting of 20 interconnected lakes with a combined surface area of 7,626 acres and a gross storage capacity of 4,525 mcf at the maximum elevation of 1,625.71 feet NGVD, (e) a boat passage facility consisting of an

electrically operated gantry hoist and 164-foot-long timber and steel trestleway, and (f) a 2.5-mile-long navigation channel;

(9) the Sugar Camp Development that comprises (a) a 12-foot-long by 15-foot-wide by 9.5-foot-high concrete spillway containing one 8-foot-wide by 7-foot-high Taintor gate, (b) a 260-foot-long right dike, (c) a 20-foot-long left dike, and (d) a reservoir consisting of five interconnected lakes with a combined surface area of 1,857 acres and a gross storage capacity of 1,120 mcf at the maximum winter elevation of 1,597.32 feet NGVD;

(10) the Little St. Germain Development that comprises (a) a 14-foot-long by 15-foot-wide by 8.5-foot-high concrete spillway containing one 5-foot-wide by 5.17-foot-high lift gate, (b) a 50-foot-long right dike, (c) a 40-foot-long left dike, and (d) a reservoir with a surface area of 1,008 acres and a gross storage capacity of 495 mcf at the maximum elevation of 1,613.88 feet NGVD;

(11) the Big St. Germain Development that comprises (a) a 27-foot-long by 22-foot-wide by 7-foot-high concrete spillway containing two 7-foot-wide by 4.17-foot-high lift gates and one 5-foot-wide by 4.17-foot-high lift gate, (b) a 55-foot-long right dike, (c) a 35-foot-long left dike, and (d) a reservoir containing two interconnected lakes with a combined surface area of 1,653 acres and a gross storage capacity of 1,501 mcf at the maximum winter elevation of 1,591.16 feet NGVD;

(12) the Pickerel Development that comprises (a) the Pickerel control dam consisting of (i) a 32-foot-long by 30-foot-wide by 20.5-foot-high concrete spillway containing one 10-foot-wide by 16-foot-high Taintor gate, (ii) a 70-foot-long right dike, and (iii) an 80-foot-long left dike, (b) the Pickerel canal dam consisting of a 28-foot-long by 37-foot-wide by 12-foot-high concrete spillway containing one 22-foot-wide by 3-foot-high Taintor gate, and (c) a reservoir with a surface area of 786 acres and a gross storage capacity of 315 mcf at the maximum elevation of 1,590.34 feet NGVD;

(13) the Rainbow Development that comprises (a) a 128-foot-long by 32-foot-wide by 38.5-foot-high concrete spillway containing three 20-foot-wide by 21-foot-high Taintor gates and two 10-foot-wide by 28-foot-high Taintor gates, (b) a powerhouse containing no generating equipment, (c) a 1,000-foot-long right dike, (d) a 1,150-foot-long left dike, (e) the 800-foot-long Sawyer dike; (f) the 1,650-foot-long Highway E dike, (g) the 1,550-foot-long Jim Hall dike, (h) the 500-foot-long Highway J dike, and (i) a reservoir with a surface area of 4,165 acres and a gross storage capacity of 2,004 mcf at the maximum elevation of 1,597.05 feet NGVD;

(14) the North Pelican Development that comprises (a) a 32-foot-long by 29-foot-wide by 10.5-foot-high concrete spillway containing three 6.5-foot-wide by 4-foot-high lift gates, (b) a 30-foot-long right dike, (c) a 170-foot-long left dike, and (d) a reservoir containing six interconnected lakes with a combined surface area of 1,295 acres and a gross storage capacity of 379 mcf at the maximum winter elevation of 1,569.60 feet NGVD;

(15) the South Pelican Development that comprises (a) a 29-foot-long by 24-foot-wide by 8-foot-high concrete spillway containing two 5-foot-wide by 3-foot-high lift gates, (b) a 20-foot-long right dike, (c) a 500-foot-long left dike, and (d) a reservoir with a surface area of 3,694 acres and a gross storage capacity of 2,175 mcf at the maximum elevation of 1,591.98 feet NGVD;

(16) the Minocqua Development that comprises (a) a 35-foot-long by 30-foot-wide by 8.75-foot-high concrete spillway containing two 8-foot-wide by 4.5-foot-high Taintor gates, (b) a 100-foot-long right dike, (c) a 150-foot-long left dike, and (d) a reservoir consisting of six interconnected lakes with a combined surface area of 6,069 acres and a gross storage capacity of 7,243 mcf at the maximum elevation of 1,585.05 feet NGVD;

(17) the Squirrel Development that comprises (a) a 15-foot-long by 21-foot-wide by 6.8-foot-high concrete spillway containing one 5-foot-wide by 4.5-foot-high lift gate, (b) a 65-foot-long left dike, and (c) a reservoir consisting of two interconnected lakes with a combined surface area of 1,505 acres and a gross storage capacity of 1,008 mcf at the maximum elevation of 1,564.93 feet NGVD;

(18) the Willow Development that comprises (a) a 72-foot-long by 29-foot-wide by 34.5-foot-high concrete spillway containing one 20-foot-wide by 12.5-foot-high Taintor gate and two 10-foot-wide by 23.5-foot-high Taintor gates, (b) a 300-foot-long right dike, (c) a 700-foot-long left dike, (d) the 1,400-foot-long Doberstein dike, (e) the 3,500-foot-long South dike, and (f) a reservoir with a surface area of 6,392 acres and a gross storage capacity of 2,924 mcf at the maximum elevation of 1,529.35 feet NGVD;

(19) the Rice Development that comprises (a) a 97-foot-long by 34-foot-wide by 19-foot-high concrete spillway containing two 20-foot-wide by 15-foot-high Taintor gates, (b) a 900-foot-long right dike, (c) a 500-foot-long left dike, (d) the 1,550-foot-long West dike, and (e) a reservoir containing three interconnected lakes with a combined surface area of 4,111 acres and a gross storage capacity of 1,922 mcf at the maximum elevation of 1,463.25 feet NGVD;

(20) the Spirit Development that comprises (a) a 60-foot-long by 35-foot-wide by 26-foot-high concrete spillway containing two 20-foot-wide by 19-foot-high Taintor gates, (b) a 1,140-foot-long right dike, (c) a 1,330-foot-long left dike, and (d) a reservoir with a surface area of 1,698 acres and a gross storage capacity of 672 mcf at the maximum elevation of 1,437.88 feet NGVD; and

(21) the Eau Pleine Development that comprises (a) a 149-foot-long by 30-foot-wide by 45-foot-high concrete spillway containing three 26-foot-wide by 15.5-foot-high Taintor gates and one 10-foot-wide by 6-foot-high sluice gate, (b) a 4,450-foot-long right dike, (c) a 4,000-foot-long left dike, and (d) a reservoir with a surface area of 6,677 acres and a gross storage capacity of 4,275 mcf at the maximum elevation of 1,145.43 feet NGVD;

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

Exhibit A--The following sections of Exhibit A filed July 30, 1991:

The dams, impoundments, and additional mechanical and electrical equipment as described in section A.2 "Physical Composition of Existing Development" on pages A-8 through A-88.

Exhibit F--The following Exhibit F drawings filed July 30, 1991:

Exhibit	FERC No. 2113-	Showing
F (Sheet F-1)	1	Lac Vieux Desert dam
F (Sheet F-2)	2	Twin Lakes dam
F (Sheet F-3)	3	Buckatahpon dam
F (Sheet F-4)	4	Long-on-Deerskin dam
F (Sheet F-5)	5	Little Deerskin dam
F (Sheet F-6)	6	Seven Mile dam
F (Sheet F-7)	7	Lower Nine Mile dam
F (Sheet F-8)	8	Burnt Rollways dam
F (Sheet F-9)	9	Burnt Rollways boat

lift

F (Sheet F-10)	10	Sugar Camp dam
F (Sheet F-11)	11	Little St. Germain dam
F (Sheet F-12)	12	Big St. Germain dam
F (Sheet F-13)	13	Pickerel control dam
F (Sheet F-14)	14	Pickerel canal dam
F (Sheet F-15)	15	Rainbow dam
F (Sheet F-16)	16	Rainbow dam
F (Sheet F-17)	17	North Pelican dam
F (Sheet F-18)	18	South Pelican dam
F (Sheet F-19)	19	Minocqua dam

F (Sheet F-20)	20	Squirrel dam
F (Sheet F-21)	21	Willow dam
F (Sheet F-22)	22	Willow dam
F (Sheet F-23)	23	Rice dam
F (Sheet F-24)	24	Rice dam
F (Sheet F-25)	25	Spirit dam
F (Sheet F-26)	26	Spirit dam
F (Sheet F-27)	27	Big Eau Pleine dam
F (Sheet F-28)	28	Big Eau Pleine dam

(3) All 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 necessary or appropriate in the operation or maintenance of the project.

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

(D) This license is subject to the articles set forth in standard form L-5 (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters and Lands of the United States" found in 54 FPC 1832, the conditions submitted by the U.S. Forest Service and the Department of the Interior under Section 4(e) of the Federal Power Act, attached hereto as Appendix A, and these additional articles:

Article 201. For the purpose of recompensing the Forest Service for the use, occupancy and enjoyment of 617.3 acres of its lands, the Licensee shall pay a reasonable annual charge as determined by the Commission in accordance with its regulations, in effect from time to time.

Article 202. The Licensee shall, subject to approval by the Commission, negotiate with the Lac Vieux Desert Band of Chippewa Indians a reasonable annual charge for the use of tribal lands at Lac Vieux Desert.

Article 203. Pursuant to Section 10(d) of the Federal Power 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. The Licensee shall set aside in a project amortization reserve account at the end of each fiscal year one-half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment.

To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the Licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until

absorbed. The Licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The Licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

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

Article 401. Within one year of license issuance, the Licensee shall file with the Commission, for approval, a Shoreline Erosion Control Plan that will control shoreline erosion throughout the term of the license

The Licensee shall update the Shoreline Erosion Control Plan every five years and file, for Commission approval, new information and needed revisions with the Commission. The plan shall include, but not be limited to, the following:

- (1) a comprehensive identification of existing erosion problems and their cause;
- (2) an assessment of the continued need for the buffer strip at Eau Pleine and Rice reservoirs or for acquisition of additional land to provide buffer where needed;
- (3) documentation of the integrity of the buffer strip and project boundary in areas where erosion is encroaching;
- (4) identification, evaluation, and proposition of erosion control measures for implementation by the Licensee to ensure maintenance of the project boundary and buffer

strips, consistent with the needs for operating and maintaining the project for aesthetic, recreational, operational, and other purposes;

- (5) a description of the Licensee's efforts to identify specific erosion control sites, prioritize erosion control activities, and correct adverse impacts;
- (6) a description of any ongoing or planned activities of the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources, U.S. Fish and

Wildlife Service, U.S. Forest Service, and others in implementing shoreline erosion control measures;

- (7) provisions for a Licensee budget to implement the Sediment and Erosion Control Plan;
- (8) provision of measures for controlling erosion at cultural resource sites, threatened and endangered species sites, Licensee-owned recreation sites, and all other ground-disturbing activity; and
- (9) implementation schedules.

The Licensee shall prepare the Shoreline Erosion Control Plan and plan updates in consultation with the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources (Lac Vieux Desert reservoir only), U.S. Fish and Wildlife Service, the Chippewa Indian tribe (Lac Vieux Desert reservoir only), U.S. Forest Service, and property owners (or owner associations, as appropriate). The Licensee shall include with the original and updated plans documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies and others, and specific descriptions of how the agencies' and other's comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies and tribe to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt an agency's recommendation, the filing shall state the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 402. At least 90 days before the scheduled start of any land-disturbing or land-clearing activities, the Licensee shall file with the Commission, for approval, a plan to control dust and erosion, to stabilize slopes, and to minimize the quantity of sediment and other potential air or water pollutants likely to result from site access, project construction, spoil-disposal, and project operation.

The dust and erosion control plan(s) shall be based on actual-site geological, soil, and groundwater conditions and on project design, and shall include, at a minimum, the following four items:

- (1) a description of the actual site conditions;
- (2) measures proposed to control erosion, to prevent slope instability, and to minimize the quantity of sediment resulting from project construction and operation;

- (3) detailed descriptions, functional design drawings, and specific topographic locations of all control measures; and
- (4) a specific implementation schedule and details for monitoring and maintenance programs for project construction and operation.

The Licensee shall prepare the plan(s) after consultation with the U.S. Fish and Wildlife Service, the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources, and appropriate federal and state soil conservation agencies, and each federal agency having managerial authority over the affected part of project lands. The Licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on geological, soil, and groundwater conditions at the site.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the Licensee is notified by the Commission that the plan is approved. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 403. The Licensee shall operate the Lac Vieux Desert reservoir to maintain a minimum water surface elevation of 1,679.36 feet National Geodetic Vertical Datum (NGVD) on a year-round basis. The maximum elevation and summer target elevations may vary in accordance with Article 114.

The Licensee shall operate the Twin Lakes reservoir to maintain a water surface elevation between 1,680.91 feet NGVD and 1,682.57 feet NGVD from June 1 to September 30 and between 1,680.57 feet NGVD and 1,682.57 feet NGVD from October 1 to May 31. The Licensee shall set a goal to operate the Twin Lakes

reservoir as near as practical to 1,682.40 feet NGVD between June 1 and September 30.

The Licensee shall operate the Buckatahpon reservoir to maintain a water surface elevation between 1,638.35 feet NGVD and 1,641.52 feet NGVD on a year-round basis. The Licensee shall set a goal to operate the Buckatahpon reservoir as near as practical to 1,641.20 feet NGVD between June 1 and September 15.

The Licensee shall operate the Long-on-Deerskin reservoir to maintain a water surface elevation between 1,696.51 feet NGVD and

1,698.43 feet NGVD from June 1 to September 30 and between 1,695.84 feet NGVD and 1,698.43 feet NGVD from October 1 to May 31. The Licensee shall set a goal to operate the Long-on-Deerskin reservoir as near as practical to 1,698.18 feet NGVD between June 1 and September 30.

The Licensee shall operate the Little Deerskin reservoir to maintain a water surface elevation between 1,640.49 feet NGVD and 1,642.16 feet NGVD on a year-round basis. The Licensee shall set a goal to operate the Little Deerskin reservoir as near as practical to 1,642.00 feet NGVD between June 1 and September 15.

The Licensee shall operate the Seven Mile reservoir to maintain a water surface elevation between 1,645.81 feet NGVD and 1,650.14 feet NGVD on a year-round basis. The Licensee shall set a goal to operate the Seven Mile reservoir as near as practical to 1,649.89 feet NGVD between June 1 and September 15.

The Licensee shall operate the Lower Nine Mile reservoir to maintain a water surface elevation between 1,639.18 feet NGVD and 1,643.76 feet NGVD on a year-round basis. The Licensee shall set a goal to operate the Lower Nine Mile reservoir as near as practical to 1,643.60 feet NGVD between June 1 and September 15.

The Licensee shall operate the Burnt Rollways reservoir to maintain a water surface elevation between 1,624.21 feet NGVD and 1,625.71 feet NGVD from May 1 to October 31 and between 1,622.96 feet NGVD and 1,625.71 feet NGVD from November 1 to April 30. The Licensee shall set a goal to operate the Burnt Rollways reservoir as near as practical to 1,625.55 feet NGVD between May 1 and October 31.

The Licensee shall operate the Sugar Camp reservoir to maintain a water surface elevation between 1,595.32 feet NGVD and 1,597.32 feet NGVD from June 1 to September 15 and between 1,592.32 feet NGVD and 1,597.82 feet NGVD from September 16 to May 31. The Licensee shall set a goal to operate the Sugar Camp reservoir as near as practical to 1,597.15 feet NGVD between June 1 and September 15.

The Licensee shall operate the Little St. Germain reservoir to maintain a water surface elevation between 1,612.05 feet NGVD and 1,613.88 feet NGVD on a year-round basis. The Licensee shall

set a goal to operate the Little St. Germain reservoir as near as practical to 1,613.71 feet NGVD between June 1 and September 15.

The Licensee shall operate the Big St. Germain reservoir to maintain a water surface elevation between 1,589.33 feet NGVD and 1,590.66 feet NGVD from June 1 to September 15 and between 1,588.16 feet NGVD and 1,591.16 feet NGVD from September 16 to May 31. The Licensee shall set a goal to operate the Big St. Germain reservoir as near as practical to 1,590.50 feet NGVD between June 1 and September 15.

The Licensee shall operate the Pickerel reservoir to maintain a water surface elevation between 1,589.34 feet NGVD and 1,590.34 feet NGVD from June 1 to September 15 and between 1,581.34 feet NGVD and 1,590.34 feet NGVD from September 16 to May 31. The Licensee shall set a goal to operate the Pickerel reservoir as near as practical to 1,590.00 feet NGVD between June 1 and September 15.

The Licensee shall operate the North Pelican reservoir to maintain a water surface elevation between 1,568.77 feet NGVD and 1,569.10 feet NGVD from June 1 to September 15 and between 1,566.60 feet NGVD and 1,569.60 feet NGVD from September 16 to May 31. The Licensee shall set a goal to operate the North Pelican reservoir as near as practical to 1,569.00 feet NGVD between June 1 and September 15.

The Licensee shall operate the South Pelican reservoir to maintain a water surface elevation between 1,591.48 feet NGVD and 1,591.98 feet NGVD from April 1 to October 31 and between 1,589.98 feet NGVD and 1,591.98 feet NGVD from November 1 to March 31. The Licensee shall set a goal to operate the South Pelican reservoir as near as practical to 1,591.80 feet NGVD between April 1 and October 31.

The Licensee shall operate the Minocqua reservoir to maintain a water surface elevation between 1,584.05 feet NGVD and 1,585.05 feet NGVD from June 1 to September 30 and between 1,582.72 feet NGVD and 1,585.05 feet NGVD from October 1 to May 31. The Licensee shall set a goal to operate the Minocqua reservoir as near as practical to 1,584.55 feet NGVD between June 1 and September 30.

The Licensee shall operate the Squirrel reservoir to maintain a water surface elevation between 1,562.76 feet NGVD and 1,564.93 feet NGVD from June 1 to September 30 and between 1,562.51 feet NGVD and 1,564.93 feet NGVD from October 1 to May 31. The Licensee shall set a goal to operate the Squirrel reservoir as near as practical to 1,564.76 feet NGVD between June 1 and September 30.

The Licensee shall operate the Rainbow reservoir to maintain a water surface elevation between 1,575.05 feet NGVD and 1,597.05 feet NGVD on a year-round basis.

The Licensee shall operate the Willow reservoir to maintain a water surface elevation between 1,510.85 feet NGVD and 1,529.35 feet NGVD on a year-round basis.

The Licensee shall operate the Rice reservoir to maintain a water surface elevation between 1,450.00 feet NGVD and 1,463.25 feet NGVD on a year-round basis.

The Licensee shall operate the Spirit reservoir to maintain a water surface elevation between 1,420.88 feet NGVD and 1,437.88 feet NGVD on a year-round basis.

The Licensee shall operate the Eau Pleine reservoir to maintain a water surface elevation between 1,118.00 feet NGVD and 1,145.43 feet NGVD on a year-round basis. The Licensee shall initiate consultation with the U.S. Fish and Wildlife and the Wisconsin Department of Natural Resources before it draws the Eau Pleine reservoir down below 1,130.70 feet NGVD. Within 45 days following each occurrence of a drawdown below 1,130.70 feet NGVD, the Licensee shall submit a report to the Commission. The Licensee shall include with the report documentation of consultation, copies of agency comments and recommendations on any need for further drawdown, and specific descriptions of how the agencies' comments were accommodated. If the Licensee does not adopt an agency's recommendation, the filing shall state the Licensee's reasons and include an explanation of the impact of the drawdown on water quality and fisheries resources. The Commission reserves the right to modify the minimum allowable water elevation.

The minimum and maximum water level requirements of this article may be temporarily modified if required by operating emergencies beyond the control of the Licensee, scheduled maintenance, and for short periods upon agreement between the Licensee, the U.S. Fish and Wildlife Service, and the Wisconsin Department of Natural Resources. The Licensee shall consult the Michigan Department of Natural Resources regarding such emergencies at Lac Vieux Desert reservoir. The Licensee shall consult with the U.S. Fish and Wildlife Service, the Wisconsin Department of Natural Resources, and the Michigan Department of Natural Resources as soon as practical before scheduled drawdowns outside the scope of normal operations, and within 24 hours following emergency drawdowns. If these requirements are so modified, the Licensee shall notify the Commission as soon as possible, but no later than ten days after each such incident.

If the water surface elevations at the project reservoirs, as measured by the approved Operating System (Article 421), exceed the above maximum or fall below the above minimum requirements, the Licensee shall file a report with the Commission within 30 days of the incident. The report shall, to

the extent possible, identify the cause, severity, and duration of the incident, and any observed or reported adverse environmental impacts resulting from the incident. The report shall also include: (1) operational data necessary to determine compliance with this article; (2) a description of any corrective measures implemented or proposed to ensure that similar incidents do not recur; and (3) comments or correspondence, if any, received from the resource agencies regarding the incident. The Commission reserves the right to require modifications to project facilities and operations to ensure future compliance.

The requirements of this article comprise, in part, the long-term Operating Plan for the headwaters reservoir system. (See Article 421.)

Article 404. The Licensee shall release from Lac Vieux Desert reservoir dam into the Wisconsin River a continuous minimum flow of 5.5 cubic feet per second (cfs) year-round for the protection and enhancement of fish and wildlife resources and riparian vegetation in the Wisconsin River.

The Licensee shall release from Twin Lakes reservoir dam into the Twin River a continuous minimum flow of 7.7 cfs year-round for the protection and enhancement of fish and wildlife resources and vegetation in the Twin River.

The Licensee shall release from Buckatahpon reservoir dam into the Buckatahpon Creek a continuous minimum flow of 4.4 cfs year-round for the protection and enhancement of fish and wildlife resources and vegetation in the Buckatahpon Creek.

The Licensee shall release from Long-on-Deerskin reservoir dam into the Deerskin River a continuous minimum flow of 10 cfs and a maximum flow of 31 cfs year-round for the protection and enhancement of fish and wildlife resources and trout enhancement structures in the Deerskin River.

The Licensee shall release from Little Deerskin reservoir dam into the Little Deerskin River a continuous minimum flow by maintaining a 1-inch opening in the lift gate in the dam year-round for the protection and enhancement of fish and wildlife resources and vegetation in the Little Deerskin River.

The Licensee shall release from Seven Mile reservoir dam into the Seven Mile Creek a minimum flow of 5.0 cfs year-round for the protection and enhancement of fish and wildlife resources and vegetation in the Seven Mile Creek.

The Licensee shall release from Lower Nine Mile reservoir dam into the Nine Mile Creek a minimum flow of 5.0 cfs year-round for the protection and enhancement of fish and wildlife resources and vegetation in the Nine Mile Creek.

The Licensee shall release from Burnt Rollways reservoir dam

into the Wisconsin River at the Otter Rapids Hydroelectric plant impoundment a continuous minimum flow by maintaining a 1-inch opening in the deep sill gate year-round for the protection and enhancement of water quality and aquatic resources in the backwater downstream of the dam.

The Licensee shall release from Sugar Camp reservoir dam into the Rainbow reservoir a continuous minimum flow by maintaining a 1-inch opening in the Taintor gate in the dam year-round for the protection and enhancement of water quality and aquatic resources in the backwater downstream of the dam.

The Licensee shall release from Little St. Germain reservoir dam into the Little St. Germain River a continuous minimum flow of 5.6 cfs year-round for the protection and enhancement of fish and wildlife resources and vegetation in the Little St. Germain River.

The Licensee shall release from Big St. Germain reservoir dam into the Pickerel reservoir a continuous minimum flow by maintaining a 2-inch opening in one vertical lift gate year-round for the protection and enhancement of water quality and aquatic resources in the backwater downstream of the dam.

The Licensee shall release from Pickerel reservoir control dam into the Pickerel canal a continuous minimum flow of 17.9 cfs from May 1 to September 15 and either a minimum flow of 17.9 cfs or the maximum flow possible with the head available from September 16 to April 30, for the protection and enhancement of fish and wildlife resources and vegetation in the Pickerel canal.

The Licensee shall release from North Pelican reservoir dam into the North Branch Pelican River a continuous minimum flow of 11.8 cfs year-round for the protection and enhancement of fish and wildlife resources and vegetation in the North Branch Pelican River.

The Licensee shall release from South Pelican reservoir dam into the Pelican River a continuous minimum flow by maintaining a 1-inch opening in one vertical lift gate in the dam year-round for the protection and enhancement of fish and wildlife resources and vegetation in the Pelican River.

The Licensee shall release from Minocqua reservoir dam into the Tomahawk River a continuous minimum flow of 6.5 cfs year-round for the protection and enhancement of fish and wildlife resources and vegetation in the Tomahawk River.

The Licensee shall release from Squirrel reservoir dam into the Squirrel River a continuous minimum flow of 3.6 cfs year-round for the protection and enhancement of fish and wildlife resources and vegetation in the Squirrel River.

The Licensee shall release from Rainbow reservoir dam a continuous flow year-round to maintain a minimum flow of 140 cfs

in the Wisconsin River between Rainbow reservoir dam and Gilmore Creek and a minimum flow of 200 cfs in the Wisconsin River downstream of the Gilmore Creek confluence for the protection and enhancement of fish and wildlife resources and vegetation in the Wisconsin River.

The Licensee shall release from Willow reservoir dam into the Tomahawk River a continuous minimum flow of 75 cfs year-round for the protection and enhancement of fish and wildlife resources and vegetation in the Tomahawk River.

The Licensee shall release from Rice reservoir dam into the Jersey City Hydroelectric plant impoundment a continuous minimum flow by maintaining a 1-inch opening in one Taintor gate in the dam year-round for the protection and enhancement of water quality and aquatic resources in the backwater downstream of the dam.

The Licensee shall release from Spirit reservoir dam into the Grandmother Falls Hydroelectric plant impoundment a continuous minimum flow by maintaining a 1-inch opening in one Taintor gate in the dam year-round for the protection and enhancement of water quality and aquatic resources in the backwater downstream of the dam.

The Licensee shall release from Eau Pleine reservoir dam into the DuBay Hydroelectric plant impoundment a continuous minimum flow by maintaining a 1-inch opening in one Taintor gate in the dam year-round for the protection and enhancement of water quality and aquatic resources in the backwater downstream of the dam.

When the water level in any project reservoir, except Long-on-Deerskin, is at or below the minimum elevation specified in Article 403, the Licensee shall release inflow to the project reservoir rather than the minimum releases specified in this article or as otherwise dictated by procedures developed under the Drought Contingency Plan (Article 409).

At Long-on-Deerskin, when the water level drops to an elevation of 1,697.18 feet NGVD, the Licensee shall initiate consultation between the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources to consider modifying the minimum flow release to prevent further reservoir water level decreases. If the flow is so modified, the Licensee shall notify the Commission, the U.S. Fish and Wildlife Service, and the Wisconsin Department of Natural Resources as soon as possible, but no later than ten days after each such incident. If the minimum release is not modified and the water level in Long-on-Deerskin reservoir continues to drop to the minimum elevation specified in Article 403, the Licensee shall release inflow to the project reservoir rather than the minimum release specified in this article.

The minimum release flows at any reservoir and the maximum release flow at the Long-on-Deerskin reservoir may be temporarily modified if required by operating emergencies beyond the control of the Licensee, and for short periods upon agreement between the Licensee, the U.S. Fish and Wildlife Service, and the Wisconsin Department of Natural Resources. The Licensee shall consult with the Michigan Department of Natural Resources regarding such emergencies at Lac Vieux Desert reservoir. If the flow is so modified, the Licensee shall notify the Commission, the U.S. Fish and Wildlife Service, the Wisconsin Department of Natural Resources, and the Michigan Department of Natural Resources as

soon as possible, but no later than ten days after each such incident.

If the minimum flow falls below the above requirements, the Licensee shall file a report with the Commission within 30 days of the incident. The report shall, to the extent possible, identify the cause, severity, and duration of the incident, and any observed or reported adverse environmental impacts resulting from the incident. The report shall also include:

(1) operational data necessary to determine compliance with this article; (2) a description of any corrective measures implemented or proposed to ensure that similar incidents do not recur; and (3) comments or correspondence, if any, received from the resource agencies regarding the incident. Based on the report and the Commission's evaluation of the incident, the Commission reserves the right to require modifications to project facilities and operations to ensure future compliance.

The requirements of this article comprise, in part, the long-term Operating Plan for the headwaters reservoir system. (See Article 421.)

Article 405. Within one year of license issuance, the Licensee shall file with the Commission for approval a Gaging Plan to provide cost-share funds for ten existing or new United States Geological Survey (USGS) flow gages in the Wisconsin River Basin. The Licensee shall select the gages in consultation with the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources. The gages shall be in addition to the two flow gages that the Licensee currently owns and maintains on the Wisconsin River at Whirlpool Rapids and on the Rib River at Rib Falls. The Licensee shall provide data from the Whirlpool Rapids and Rib Falls gages to the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources upon request.

The Licensee shall submit the Gaging Plan with documentation of consultation, copies of agency comments and recommendations, and specific descriptions of how the agencies' comments were accommodated. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt an agency's recommendation, the filing shall state the Licensee's

reasons.

The Licensee shall provide funds equal to 50 percent of the actual installation and maintenance costs for the ten gages to the USGS on an annual basis. If USGS matching funds become unavailable in the future, the Commission may modify the Licensee's level of funding.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

The requirements of this article comprise, in part, the long-term Operating Plan for the headwaters reservoir system. (See Article 421.)

Article 406. Within 60 days of license issuance, the Licensee shall install headwater staff gages visible to the public and maintain automatic headwater and tailwater level sensors and record operations data daily at Rainbow, Rice, Willow, Spirit, and Eau Pleine reservoirs.

The Licensee shall install headwater staff gages visible to the public at all natural lake dams (Lac Vieux Desert, Twin Lakes, Buckatahpon, Long-on-Deerskin, Little Deerskin, Seven Mile, Lower Nine Mile, Burnt Rollways, Sugar Camp, Little St. Germain, Big St. Germain, Pickerel, North Pelican, South Pelican, Minocqua, and Squirrel). The Licensee shall install tailwater staff gages and calibrate the gages to flow at all natural lake dams that have free-flowing tailwaters (Lac Vieux Desert, Twin Lakes, Buckatahpon, Long-on-Deerskin, Little Deerskin, Seven Mile, Lower Nine Mile, Little St. Germain, Pickerel, North Pelican, Minocqua, and Squirrel).

The Licensee shall install removable stops on gates at all natural lake dams set to pass the minimum flow specified in Article 404. The Licensee shall maintain the stops in place at all times unless the minimum release has been modified through procedures outlined in the Drought Contingency Plan (Article 409).

Within one year of license issuance, the Licensee shall file with the Commission for approval documentation of the installation of the items required in this article.

The Licensee shall record headwater and tailwater elevations and gate openings at all natural lakes daily between April 1 and November 30 and weekly between December 1 and March 31 until a formal debris plan is approved by the Commission. The Licensee shall also document debris conditions on the gates in the dam and required removal of any debris. The frequency of recording operating data may be modified by the procedures set forth in Article 407.

The Licensee shall provide monitoring data recorded pursuant

to this article to the U.S. Fish and Wildlife Service, the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources (Lac Vieux Desert only), and the Commission within 30 days of any request.

The requirements of this article comprise, in part, the long-term Operating Plan for the headwaters reservoir system. (See Article 421.)

Article 407. Within one year of license issuance, the Licensee shall file with the Commission, for approval, a Debris Management Plan for the 16 natural lake reservoirs. The debris plan shall address the likelihood of debris problems at each of the natural lakes, document past inspection and debris removal results, and establish procedures for frequency of recording headwater and tailwater elevations and of gate inspection and debris removal that will ensure that debris does not prevent the continuous release of recommended minimum flows.

The plan shall be prepared in consultation with the U.S. Fish and Wildlife Service, the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources, and the Forest Service. The Licensee shall include documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

The requirements of this article comprise, in part, the long-term Operating Plan for the headwaters reservoir system. (See Article 421.)

Article 408. Within one year of license issuance, the Licensee shall file with the Commission, for approval, a Communication Plan. The plan shall include procedures to notify downstream dam operators and appropriate public officials when high flows are expected downstream based on releases from the headwaters reservoirs. The plan shall establish trigger points to initiate communication, list parties to be notified, and set procedures for documenting all notifications. The Licensee shall continue to pursue its experimental automated phone system to enhance communication, if warranted. The Licensee shall also include development and distribution of education materials for

the public on compliance measurement using ^WIRSOM rule curves. At a minimum, these materials shall include how the storage values denoting index levels (Article 412) relate to the reservoir elevation markings on staff gages that are visible to the public (Article 406).

The plan shall be prepared in consultation with the U.S. Fish and Wildlife Service, the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources, U.S. Forest Service, and other interested groups and individuals, including the Stevens Point Flowage Property Owners Association.

The Licensee shall include documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 409. Within one year of license issuance, the Licensee shall file with the Commission, for approval, a Drought Contingency Plan for the Wisconsin River Headwaters Project.

The plan shall define drought conditions and set triggers to decrease minimum releases or downstream target flows when drought conditions occur. The Licensee shall use a hydrologic model such as WIRSOM, or an equivalent model, to analyze different operating scenarios under drought conditions to optimize operations under severe dry conditions.

This plan shall be prepared in consultation with the U.S. Fish and Wildlife Service, the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources, and interested parties. The Licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

The requirements of this article comprise, in part, the long-term Operating Plan for the headwaters reservoir system. (See Article 421.)

Article 410. To assist the Commission in evaluating the effectiveness of the Operation Plan to meet the environmental and hydropower goals of this license, the Licensee shall summarize system operating data for each reservoir and submit to the Commission a Status Report update every 5 years. The report shall consist of, at a minimum:

- (1) seasonal and annual duration curves of headwater elevations, storage volumes, and flow releases;
- (2) real-time plots of water levels and releases for the previous five years and the cumulative period since license issuance; and
- (3) narrative summary of operations and comments on actual operations versus proposed operations presented in the license application.

Article 411. Within one year of license issuance, the Licensee shall file with the Commission, for approval, its proposed Water Quality Monitoring Plan. The components of the plan shall include those outlined in its license application, including any changes or additions specified in this article. The plan shall include, but is not limited to:

- (1) long-term trophic status index monitoring in all natural lakes and man-made reservoirs;
- (2) long-term water quality monitoring at 26 stations on the man-made reservoirs; and
- (3) biweekly headwater and tailwater monitoring at the man-made reservoirs.

The Licensee shall submit the plan to the U.S. Fish and Wildlife Service, the Wisconsin Department of Natural Resources, and the Michigan Department of Natural Resources for comments and recommendations at least 30 days before filing it with the Commission for approval. If the Licensee does not adopt an agency recommendation, the Licensee should give reasons based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission. Based on the reported data and the Commission's evaluation of the data, the Commission reserves the right to require modifications to project facilities and operations.

Article 412. The Licensee shall operate the headwaters

system consistent with the operating rule curves established in this license. Specifically, the Licensee shall operate the system within the prescribed minimum and maximum levels specified in Article 403 and provide continuous minimum releases from the reservoirs as specified in Article 404.

The Licensee shall operate to maintain an approximate target flow in the Wisconsin River at Merrill from April 1 to October 31, dependent on storage as defined as the total amount of water in all natural lakes and all man-made reservoirs except

Eau Pleine reservoir, measured in mcf, according to the following equations:

$$\text{Apr: Target flow (cfs)} = 0.12 \times \text{storage (mcf)} + 1,779$$

$$\text{May: Target flow (cfs)} = 0.23 \times \text{storage (mcf)} - 199$$

$$\text{Jun: Target flow (cfs)} = 0.18 \times \text{storage (mcf)} - 13$$

$$\text{Jul: Target flow (cfs)} = 0.18 \times \text{storage (mcf)} + 49$$

$$\text{Aug: Target flow (cfs)} = 0.18 \times \text{storage (mcf)} + 103$$

$$\text{Sep: Target flow (cfs)} = 0.22 \times \text{storage (mcf)} + 77$$

$$\text{Oct: Target flow (cfs)} = 0.18 \times \text{storage (mcf)} + 415$$

The Licensee shall operate to maintain an approximate target flow in the Wisconsin River at Wisconsin Rapids from April 1 to October 31, dependent on storage as defined as the total amount of water in Eau Pleine and DuBay reservoirs, measured in million cubic feet (mcf), according to the following equations:

$$\text{Apr: Target flow (cfs)} = 0.64 \times \text{storage (mcf)} - 654$$

$$\text{May: Target flow (cfs)} = 0.54 \times \text{storage (mcf)} - 462$$

$$\text{Jun: Target flow (cfs)} = 0.58 \times \text{storage (mcf)} - 486$$

$$\text{Jul: Target flow (cfs)} = 0.64 \times \text{storage (mcf)} - 556$$

$$\text{Aug: Target flow (cfs)} = 0.70 \times \text{storage (mcf)} - 618$$

$$\text{Sep: Target flow (cfs)} = 0.93 \times \text{storage (mcf)} - 1,079$$

$$\text{Oct: Target flow (cfs)} = 1.05 \times \text{storage (mcf)} - 1,192$$

The Licensee shall operate the system from November 1 to March 31 with the goal of reaching minimum storage in each reservoir by March 31. The Licensee may adjust this goal as necessary depending on annual hydrologic conditions.

The Licensee shall operate the system from June 1 to September 30 with the goal that, at any given point in time, all reservoirs are within the same index level. The Licensee shall operate the system from November 1 to May 31 with the goal that at any given point in time, all man-made reservoirs are within the same index level. Index level and associated storage volume remaining in each reservoir (in mcf) are as follows:

Lac Vieux Desert

Level Jun Jul Aug Sep

1	5	5	5	5
2	306	306	306	306
3	407	407	407	407
4	408	408	408	408
5	409	409	409	409
6	435	435	435	435

Twin Lakes

Level Jun Jul Aug Sep

1	52	52	52	52
2	226	226	226	226
3	285	285	285	285
4	286	286	286	286
5	287	287	287	287
6	313	313	313	313

Buckatahpon

Level Jun Jul Aug Sep

1	5	5	5	5
2	89	89	89	89
3	114	114	114	114
4	115	115	115	115
5	116	116	116	116
6	130	130	130	130

Long-on-Deerskin

Level Jun Jul Aug Sep

1	68	68	68	68
2	203	203	203	203
3	248	248	248	248
4	249	249	249	249
5	250	250	250	250
6	277	277	277	277

Little Deerskin

Level Jun Jul Aug Sep

1	4	4	4	4
2	15	15	15	15
3	19	19	19	19
4	20	20	20	20
5	21	21	21	21

6 22 22 22 22

Seven Mile

Level Jun Jul Aug Sep

1 5 5 5 5

2 67 67 67 67

3 86 86 86 86

4 87 87 87 87

5 88 88 88 88

6 93 93 93 93

Lower Nine Mile

Level Jun Jul Aug Sep

1	5	5	5	5
2	89	89	89	89
3	118	118	118	118
4	119	119	119	119
5	120	120	120	120
6	121	121	121	121

Burnt Rollways

Level Jun Jul Aug Sep

1	309	309	309	309
2	620	620	620	620
3	724	724	724	724
4	725	725	725	725
5	726	726	726	726
6	779	779	779	779

Sugar Camp

Level Jun Jul Aug Sep

1	242	242	242	242
2	364	364	364	364
3	405	405	405	405
4	406	406	406	406
5	407	407	407	407
6	422	422	422	422

Little St Germain

Level Jun Jul Aug Sep

1	5	5	5	5
2	53	53	53	53
3	70	70	70	70
4	71	71	71	71
5	72	72	72	72
6	79	79	79	79

Big St Germain

Level Jun Jul Aug Sep

1	77	77	77	77
2	137	137	137	137
3	157	157	157	157
4	158	158	158	158
5	159	159	159	159

6 169 169 169 169

Pickerel

Level Jun Jul Aug Sep

1 245 245 245 245

2 266 266 266 266

3 273 273 273 273

4 274 274 274 274

5 275 275 275 275

6 290 290 290 290

North Pelican

Level	Jun	Jul	Aug	Sep
1	119	119	119	119
2	128	128	128	128
3	132	132	132	132
4	133	133	133	133
5	134	134	134	134
6	139	139	139	139

South Pelican

Level	Jun	Jul	Aug	Sep
1	228	228	228	228
2	264	264	264	264
3	276	276	276	276
4	277	277	277	277
5	278	278	278	278
6	305	305	305	305

Minocqua

Level	Jun	Jul	Aug	Sep
1	346	346	346	346
2	439	439	439	439
3	470	470	470	470
4	471	471	471	471
5	472	472	472	472
6	628	628	628	628

Squirrel

Level	Jun	Jul	Aug	Sep
1	18	18	18	18
2	130	130	130	130
3	168	168	168	168
4	169	169	169	169
5	170	170	170	170
6	182	182	182	182

Rainbow Reservoir

Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	5	5	5	0	298	298	298	298	5	5	5	5
2	437	437	437	437	798	798	798	798	437	437	437	437
3	874	874	874	874	1469	1469	1469	912	874	874	874	874
4	1311	1311	1311	1311	1707	1707	1707	1336	1311	1311	1311	1311
5	1748	1748	1748	1748	1946	1946	1946	1760	1748	1748	1748	1748

Rice Reservoir

Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	70	70	70	70	907	749	598	457	70	70	70	70
2	362	362	362	362	1087	1205	1205	1205	362	362	362	362
3	723	723	723	723	1205	1255	1255	1255	724	723	723	723
4	1085	1085	1085	1085	1305	1305	1305	1305	1085	1085	1085	1085
5	1446	1446	1446	1446	1405	1405	1405	1405	1447	1446	1446	1446
6	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808

Spirit Reservoir

Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	5	5	5	0	71	71	71	5	5	5	5	
2	155	155	155	155	374	374	374	374	155	155	155	155
3	230	230	230	230	441	441	441	441	230	230	230	230
4	380	380	380	380	546	546	546	546	380	380	380	380
5	530	530	530	530	651	651	651	651	530	530	530	530
6	756	756	756	756	756	756	756	756	756	756	756	756

Eau Pleine Reservoir

Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	118	118	118	118	490	490	490	490	118	118	118	118
2	986	986	986	1650	1091	1091	1091	1091	986	986	986	986
3	1854	1854	1854	3182	3182	3182	3182	3182	1854	1854	1854	1854
4	2721	2721	2721	3607	3607	3607	3607	3607	2721	2721	2721	2721
5	3589	3589	3589	4032	4032	4032	4032	4032	3589	3589	3589	3589
6	4457	4457	4457	4457	4457	4457	4457	4457	4457	4457	4457	4457

If the daily flow at the USGS gage at Merrill or Wisconsin Rapids is greater than 15 percent above or less than 15 percent below the applicable target flow, the Licensee shall document this deviation in a report to the Commission within 30 days of the deviation. If the index level in any reservoir on a weekly average basis is either more than one index level above or one foot above the upper limit of the index level that any other reservoir is in at that point in time, or alternatively, one index level below or one foot below the lower limit of the index level that any other reservoir is in at that point in time, the Licensee shall document this deviation in a report to the Commission within 30 days of the deviation. The report shall include an explanation of the circumstances of the deviation and the effects on environmental resources, if any. The Licensee shall also provide copies of the report to the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural

Resources within 30 days of the deviation. The Licensee shall also report deviations at Lac Vieux Desert reservoir to the Michigan Department of Natural Resources. Based on the report and the Commission's evaluation of the incident, the Commission reserves the right to require modifications to project facilities and operations to ensure future compliance.

The requirements of this article comprise, in part, the long-term Operating Plan for the headwaters reservoir system. (See Article 421.)

Article 413. Within one year of license issuance, the Licensee shall file with the Commission, for approval, a proposed Fish and Wildlife Enhancement Plan.

The Licensee shall update the Fish and Wildlife Enhancement Plan every five years by filing new information and needed revisions with the Commission, for approval. The plan shall address, but not be limited to, the following:

- (1) all items listed in the Licensee's proposed Fish and Wildlife Enhancement Plan included in the license application, except as modified in items 2 through 13 below;
- (2) an assessment report with recommendations based on the two years of baseline data already collected as part of a four year evaluation of the effect of earlier and extended macrophyte inundation on fish populations (this one-time report shall be submitted within 18 months of license issuance);
- (3) an evaluation of pothole stranding at each of the man-made reservoirs based on existing information and data;
- (4) a plan to address pothole stranding at the man-made reservoirs, if the results of the evaluation in item 3 demonstrate that such stranding has a significant adverse impact on fishery resources;
- (5) an evaluation of the effect of bar grates at Little St. Germain Lake to prevent the outmigration of game fish from the lake;
- (6) continuation of the spring operating plan at Spirit Reservoir for walleye spawning, if the Wisconsin Department of Natural Resources and the U.S. Fish and Wildlife Service demonstrate that the operating plan is beneficial and upon Commission approval;
- (7) provisions to assist the Wisconsin Department of Natural Resources in walleye assessments at intervals agreed upon in consultation with the Wisconsin Department of Natural Resources, provided that such

intervals need not be more frequent than once every 5 years;

- (8) provide \$1,000 per year adjusted annually by CPI to the U.S. Forest Service to assist with vegetation and chemical surveys as described in Article 113;
- (9) a description and implementation of the Licensee's bald eagle protection practices (see Article 415);

- (10) implementation of the memorandum of agreement (MOA) with the Wisconsin Department of Natural Resources to protect environmentally sensitive areas at Rainbow reservoir and preparation of similar MOAs with the Wisconsin Department of Natural Resources for Willow and Spirit reservoirs;
- (11) an evaluation, in coordination with the Wisconsin Department of Natural Resources and the U.S. Fish and Wildlife Service, of the feasibility of enhancing wetland habitat for waterfowl at the wetland sites on the Rice, Spirit, and Eau Pleine reservoirs;
- (12) implementation of feasible wetland enhancement measures identified through the evaluation in item 11; and
- (13) implementation schedules.

The Licensee shall prepare the Fish and Wildlife Enhancement Plan and plan updates in consultation with the U.S. Fish and Wildlife Service, the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources, and U.S. Forest Service. The Licensee shall include with the original and updated plans documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments and recommendations are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 414. The Licensee shall develop a plan to cooperate with the Wisconsin Department of Natural Resources and the U.S. Fish and Wildlife Service on controlling purple loosestrife (*Lythrum salicaria*), when deemed appropriate by the agencies. Within 120 days of a request from the agencies, the Licensee shall file with the Commission, for approval, a plan to cooperate

with the agencies to control purple loosestrife in project waters. The plan shall include, but not be limited to:
(1) procedures for implementing reasonable monitoring and control measures; and (2) a schedule for implementing the plan.

The plan shall be prepared in consultation with the Wisconsin Department of Natural Resources and U.S. Fish and Wildlife Service and submitted to the Commission for approval. The Licensee shall also prepare the plan in consultation with Michigan Department of Natural Resources regarding purple loosestrife control at Lac Vieux Desert reservoir. The Licensee

shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall state the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 415. Within one year of license issuance, the Licensee shall file with the Commission, for approval, a plan to protect the bald eagle (*Haliaeetus leucocephalus*) in the project area.

The bald eagle protection plan shall be updated and re-filed with the Commission every five years. The original and updated plans shall include, but not be limited to, the following:

- (1) measures to protect existing habitat in the project area, including protection of necessary supercanopy trees;
- (2) measures to control public access to project lands if eagle nesting begins;
- (3) measures to protect winter roosting or feeding sites identified in the future from adverse human disturbance;
- (4) measures to limit the use of herbicides and pesticides on project lands;
- (5) the estimated cost of the proposed enhancement and protection measures (implementation and maintenance) and provisions for funding the proposed measures; and
- (6) a schedule for implementing the plan.

The plan and plan updates shall be submitted to the Commission for approval as part of the Fish and Wildlife Enhancement Plan required by Article 413. The Licensee shall prepare the plan and plan updates in consultation with the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources. The Licensee shall include with the original and updated plans documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies comments and recommendations are accommodated by the plan. The Licensee shall allow a minimum of 30 days for

the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 416. The Commission reserves the authority to require the Licensee to construct, maintain, and operate or to provide for the construction, maintenance, and operation of such fishways as may be prescribed by the Secretary of the U.S. Department of the Interior.

Article 417. The Licensee shall implement the "Programmatic Agreement Among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, the State of Wisconsin, State Historic Preservation Officer, and the State of Michigan, State Historic Preservation Officer, for Managing Historic Properties That May Be Affected By New and Amended Licenses Issuing For the Continued Operation of Existing Hydroelectric Projects in the State of Wisconsin and adjacent Portions of the State of Michigan," executed on December 30, 1993, including but not limited to the Historic Resources Management Plan for the project. In the event that the Programmatic Agreement is terminated, the Licensee shall implement the provisions of its approved Historic Resources Management Plan. The Commission reserves the authority to require changes to the Historic Resources Management Plan at any time during the term of the license. If the Programmatic Agreement is terminated prior to Commission approval of the Historic Resources Management Plan, the Licensee shall obtain Commission approval before engaging in any ground-disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effect.

Article 418. Within 18 months of license issuance, the Licensee shall file with the Commission, for approval, a Recreation Plan describing existing recreation facilities, evaluating whether the existing recreation facilities are meeting public recreation demand, and proposing specific recreation improvements to address the need for new public recreation

facilities and improvements at the project's developments. The Recreation Plan shall provide for implementing specific new recreation facilities and improvements as already agreed to by the Licensee in consultation with federal and state fish and wildlife agencies, the U.S. Forest Service, and other providers of public recreation at the project. These specific agreed-upon recreation facilities and improvements are described below. The Recreation Plan shall be consistent with the protection of federal and state-listed threatened and endangered species.

The Licensee shall also file with the Commission, for approval, reports updating the Recreation Plan consistent with every sixth year due date in the Form 80 reporting cycle, for the term of the license, pursuant to Part 8 of the Commission's regulations. The first such update report will be due April 1, 2009. The update reports shall identify changes to the Recreation Plan.

The Recreation Plan and update reports shall include, at a minimum, the following:

- (1) the type and estimated amount of public and private recreation use at the project;
- (2) a discussion of the adequacy of existing recreation improvements to meet existing and future public recreation demand;
- (3) final site plans for proposed new recreation facilities, if any, to be funded in part or in whole by the Licensee;
- (4) a discussion of how existing and proposed facilities consider the needs of persons with disabilities;
- (5) an identification of the entity or entities responsible for the construction, operation, and maintenance of existing or proposed facilities and, if this is not the Licensee, documentation of the Licensee's construction, operation, and maintenance agreement with the entity or entities;
- (6) the implementation schedule for proposed new recreation improvements;
- (7) the detailed proposed policies and procedures governing the Recreation Fund described in Article 419; and
- (8) documentation of consultation with resource agencies and other providers of public recreation at the project.

The Licensee shall prepare the Recreation Plan and update

reports in consultation with the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources (Lac Vieux Desert only), the U.S. Fish and Wildlife Service, the U.S. Forest Service, affected citizens organizations, other providers of public recreation at the project, and local agencies having land management or planning/zoning authority in the area. The Licensee shall make the Recreation Plan and update reports available to consulted entities for comment at least 30 days prior to filing the Recreation Plan and update reports with the Commission for approval. The Licensee's documentation of consultation shall include copies of the consulted entities'

comments and recommendations on the completed plan or plan updates and a discussion of how the entities' comments are specifically accommodated by the Recreation Plan or update reports. If the Licensee does not adopt a recommendation made by one of the consulted entities, the Licensee shall include the Licensee's reasons, based on project-specific information.

The Recreation Plan filed pursuant to this article shall provide for implementing the specific recreation facilities and improvements described below:

Natural Lake Reservoirs

(1) Lac Vieux Desert

Site 4: Open shoreline, upgrade bridge, sign portage route, provide directional signage and barrier-free facilities including shoreline fishing pier, rest rooms, trail, and ten parking spaces.

(2) Long on Deerskin

Site 3: Provide access signage.

(3) Burnt Rollways

Site 9: Provide interpretive signage.

(4) Suqar Camp

Site 4: Install "pedestrian only" gate to restrict "all terrain vehicles" (ATVs).

(5) Big St. Germain

Site 3: Provide portage signage, bank fishing, and carry-in boat access and parking; construct portage stairs; secure dam.

(6) Pickerel

Site 2: Provide signage.

(7) North Pelican

Site 2: Provide signage, construct portage stairs.

(8) Minocqua

Site 9: Construct concrete boat ramp for access to Kawaguesaga Lake, five car/trailer parking spaces, five parking spaces for cars for fishing, and provide two signs.

Man-Made Reservoirs

(9) Rainbow

- (a) Site 1: provide signage.
- (b) Site 3: provide entrance improvements and barrier-free restrooms, extend boat ramp to 85 percent useability (to elevation 1,585.1 feet NGVD), provide interpretive signage.
- (c) Site 4: provide signage.
- (d) Site 7: provide signage.
- (e) Site 9: provide 30 additional parking spaces, interpretive signage, picnic area, and barrier-free rest rooms, extend boat ramp to provide 97.5 percent useability (to elevation 1,580.2 feet NGVD), barrier-free fishing pier, and canoe portage signage.

(10) Willow

- (a) Site 1/7: provide interpretive signage, picnic facilities, barrier-free fishing area, five car parking area, extend boat ramp to provide 97.5 percent useability (to elevation 1,512.6 feet NGVD).
- (b) Site 2: provide access signage, ten car/trailer parking, roadway and parking improvements, and hiking trail.
- (c) Site 3: provide signage.

(11) Rice

- (a) Site 2: provide access signage, extend boat ramp to provide 85 percent useability (to elevation 1,457.0 feet NGVD), improve parking, rest rooms, picnic area, and nature trail.
- (b) Site 4: coordinate with officials about road relocation and additional parking; restore picnic area; provide barrier-free trails to rest rooms; extend boat ramps to 60 feet.

(c) Site 5: define parking area; maintain site for bankfishing, as a canoe portage, and as a carry-in boat access; provide signage.

(d) Site 7: develop new handicapped-accessible boat and day use area.

(e) Block public access to boat launch area in the Rice dam tailrace due to safety concerns.

(12) Spirit

- (a) Highway "O" bridge: place warning signs.
- (b) Site 1: provide signage, organized parking, and barrier-free rest rooms; develop into primary deep water landing, relocate boat landing, and increase parking.
- (c) Site 2: extend boat landing to provide greater useability.
- (d) Site 3: repair boat landing.
- (e) Site 4: extend boat landing to provide 85 percent useability (to elevation 1,428.2 feet NGVD) and double plank.
- (f) Site 5: remove signage.
- (g) Site 6: install control gate and signage.
- (h) Site 8: provide signage; secure dam site; provide canoe portage and signage, and barrier-free fishing area.
- (i) Future Site 9: provide carry-in boat access, parking for four vehicles, and signage.

(13) Eau Pleine

- (a) Install navigational lights and markers at bridges and remove signage.
- (b) Site 1: regrade rest room area, improve bank fishing, and provide signage.
- (c) Site 7: provide picnic area, extend boat landing, provide parking and rest rooms.
- (d) Future Site 20: construct boat ramp to provide 97.5 percent useability (to elevation 1,124.4 feet NGVD), parking areas, and picnic areas; provide bank fishing and interpretive signage.

The Commission reserves the right to require changes to the Recreation Plan and update reports. No land-disturbing or land-clearing activities for recreational facilities shall begin until the Licensee is notified that the plan is approved. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

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

Article 419. Within 18 months of license issuance and thereafter by January 1 of each succeeding calendar year, the Licensee shall file, for Commission approval, a Recreation Fund Plan which details how the Licensee will provide either in-kind or financial assistance equivalent to \$11,200 annually in 1995 dollars, adjusted annually by the previous year's Consumer Price Index (CPI), to non-Licensee providers of public recreation for the purpose of providing public recreation at the project. Recreation Fund-supported public recreation shall be in addition to, and not a substitute for, the recreation facilities, improvements and operation and maintenance funding required by the initial Recreation Plan.

Subject to Commission approval, the Recreation Fund monies or in-kind goods and services may be applied to support provision of public recreation facilities and other improvements, but not land acquisition, at the project by non-Licensee providers of public recreation. Subject to Commission approval, the Recreation Fund may also be used by the Licensee to directly provide Licensee-owned public recreation facilities and improvements, including land acquisition for public recreation purposes at the project, and to provide for operation and maintenance of the Licensee's public recreation improvements. Use of the Recreation Fund to support operation and maintenance of public recreation improvements administered by providers of public recreation at the project other than the Licensee shall be determined as stipulated in item (3) below.

The Licensee, in consultation with the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources, the U.S. Fish and Wildlife Service, the U.S. Forest Service and other providers of public recreation at the project, shall detail policies and procedures governing use of these funds including at a minimum: (1) how needs for public recreation improvements to be funded through the Recreation Fund will be identified and how the Licensee will prioritize/balance competing requests; (2) the type of recreation improvements eligible for funding; (3) whether funds can be used for operation and maintenance activities and the definition of those activities; (4) the requirements for cooperative agreements between the Licensee and other providers of public recreation at the project, to be approved by the Commission, to ensure that other providers of public recreation at the project adequately operate and

maintain public recreation facilities funded in this manner for a period of not less than ten years or a period commensurate with the life of the recreation facility or the license, whichever is less; (5) cooperative agreements to ensure that funded recreation facilities be reasonably available to the public consistent with the Licensee's obligation under the Federal Power Act to provide for public recreation; (6) a disbursement schedule, which may be multi-year as necessary; (7) a description of how carry-over funds shall be reserved; and (8) a description of proposed recreation improvement uses and a proposed schedule for the use

of carry-over funds, if these are not already identified in the planned disbursement schedule.

The Licensee shall also file with the Commission an annual statement on or before November 1 of each year for the previous 12 months, in accordance with the articles of this license and the Commission's Uniform System of Accounts, showing the amounts of money the Licensee has spent or contributed pursuant to these license funding provisions. This filing should also include signed statements, from the signatory agencies and other recreation providers utilizing the Recreation Fund, that describe their expenditure of allocated Recreation Fund monies. These statements shall be in sufficient detail to show whether the monies have been contributed and spent for the approved purposes.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 420. Within one year of license issuance, the Licensee shall file with the Commission, for approval, its Land Resources Management Plan for all the Licensee-owned lands within the project boundary. The plan shall include, but not be limited to: (1) the Licensee's proposed forest management plan; (2) policies and procedures regarding leases and easements; and (3) policies and procedures regarding public access to project lands.

The Licensee shall prepare the Land Resources Management Plan in consultation with the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources (Lac Vieux Desert reservoir only), the U.S. Forest Service (Forest Service lands only), and the U.S. Fish and Wildlife Service. The Licensee shall include with the original and updated plans documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies and specific descriptions of how the agencies's comments and recommendations are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Licensee shall review and update the Land Resources Management Plan every five years, in consultation with the U.S. Fish and Wildlife Service, the Wisconsin Department of Natural Resources, the Michigan Department of Natural Resources (Lac Vieux Desert reservoir only), and the Forest Service (Forest Service lands only), by filing new information and needed revisions with the Commission, for approval.

The Commission reserves the right to require changes to the plans. Upon Commission approval, the Licensee shall implement the plans, including any changes required by the Commission.

Article 421. The Operating Plan for the headwaters project includes articles 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, and 422. The Licensee shall review the elements of the Operating Plan at least once every five years following license issuance and file a Status Report with the Commission, for approval, providing any new information affecting, or needed changes to, the requirements of this article. The Status Report shall be prepared in consultation with the U.S. Fish and Wildlife Service; the Wisconsin Department of Natural Resources; other interested parties directly affected by project operations; the U.S. Forest Service at reservoirs where Forest Service lands are affected; and the Michigan Department of Natural Resources and the Lac Vieux Desert Band of Lake Superior Chippewa Indians for Lac Vieux Desert reservoir only.

The Licensee shall include with the Status Report documentation of consultation, copies of comments and recommendations on the completed report after it has been prepared and provided to the agencies and others, and specific descriptions of how the agencies' and other comments are accommodated. The Licensee shall allow a minimum of 30 days for the agencies and other interested parties to comment and to make recommendations before filing the report with the Commission. If the Licensee does not adopt a recommendation, the filing shall state the Licensee's reasons, based on project-specific information. Based on the report, the Commission reserves the right to require modifications to project facilities and operations.

Article 422. The Licensee shall file a Status Report and Status Report updates with the Commission discussing whether the Licensee has achieved certain operating goals (specified below) and, for any year where a goal was not reached, discussing the project-specific reason for nonattainment of the goal and any proposed measures to enhance attainment in the future. These operating goals for the Licensee are intended to lessen adverse effects on environmental resources by:

- (a) minimizing draw-downs in the man-made reservoirs

between May 1 and August 31;

- (b) reaching summer target operating levels in the natural lakes by June 1, with the goals of achieving these targets by April 15 or ice-out;
- (c) achieving as early and complete a refill as is practical at man-made reservoirs to enhance fisheries and vegetation resources, with a goal of achieving refill by June 1;

- (d) beginning by October 1 slow drawdown of natural lakes, except where other agreements exist;
- (e) limiting increases in water levels at natural lakes and man-made reservoirs after ice cover has formed;
- (f) limiting headwater and tailwater level decreases in all project reservoirs except Spirit and Eau Pleine to not more than 1 inch per hour to protect aquatic resources; and
- (g) limiting headwater and tailwater level decreases at Spirit and Eau Pleine reservoirs to no more than 1 inch per hour when possible, giving priority to safety and operational needs at the project.

The requirements of this article comprise, in part, the long-term Operating Plan for the headwaters reservoir (see Article 421). The Status Report and updates required by this article shall be due when the Operating Plan Status Reports are due, with consultation as required for the Operating Plan Status Report.

Article 423. (a) In accordance with the provisions of this article, the Licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The Licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the Licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the Licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the Licensee shall take any lawful action necessary to correct the

violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any noncomplying 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) noncommercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family

type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the Licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The Licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the Licensee shall: (1) inspect the site of the proposed construction; (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the Licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the Licensee's costs of administering the permit program. The Commission reserves the right to require the Licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The Licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) nonproject overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than 1 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) nonproject overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is 5 acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the Licensee must submit a letter to the Director, Office of Hydropower Licensing, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the Licensee to file an application for prior approval, the Licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the Licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the Licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to insure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the Licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

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

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

(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) The motions for additional procedures on the Forest Service and the Department of the Interior's Section 4(e) conditions, filed by Wisconsin Valley on April 12 and May 26, 1995, respectively, are denied.

(G) This order is final unless a request for rehearing by the Commission is filed within 30 days of the date of its issuance, as provided in Section 313 of the FPA. The filing of a request for rehearing does not operate as a stay of the effective date of this order or of any other date specified in this order,

except as specifically ordered by the Commission. The Licensee's failure to file a request for rehearing shall constitute acceptance of this order.

By the Commission.

(S E A L)

Lois D. Cashell,
Secretary.

A P P E N D I X A

U.S. Forest Service and Department of the Interior Conditions for the Protection and Utilization of the Nicolet and Ottawa National Forests Submitted Under Section 4(e) of the Federal Power Act:

Article 103 Approval of Changes.

Notwithstanding any license authorization to make changes to the project, the Licensee shall get written approval from the Forest Service prior to making any changes in the location of any constructed project features or facilities, or in the uses of project lands and waters, or any departure from the requirements of any approved Exhibits filed with the Commission. Following the receipt of such approval from the Forest Service, and at least 60 days prior to initiating any such changes or departure, the Licensee shall file a report with the Commission describing the changes, the reason for the changes, and showing approval of the Forest Service for such changes. The Licensee shall file an exact copy of this report with the Forest Service at the same time it was filed with the Commission. This article does not relieve the Licensee from the amendment or other requirements of this license.

Article 104 Consultation.

Each year during the sixty (60) days preceding the anniversary date of the license the Licensee shall consult with the Forest Service with regard to measures needed to ensure protection and development of the natural resource values of the project area. Within sixty (60) days following such consultation, the Licensee shall file with the Commission evidence of the consultation with and any recommendations made by the Forest Service. The Commission reserves the right, after notice and opportunity for hearing, to require changes in the project and its operation that may be necessary to accomplish natural resource protection.

Article 110 Minimum Streamflow Requirement.

During the operation of the facilities authorized by this license, the Licensee shall maintain the following instantaneous minimum flow or the natural flow, whichever is less, immediately below the outlet structure at the Long-On-Deerskin development into the Deerskin River:

January 1 through December 31 10 Cubic feet per second

Further, the Licensee shall not exceed the following instantaneous maximum flow or the natural flow, whichever is greater, immediately below the outlet structure at the Long-On-Deerskin development into the Deerskin River:

January 1 through December 31 31 Cubic feet per second

The Licensee may temporarily modify flows if required by operating emergencies beyond the control of the Licensee. The Licensee may also modify the flows for short periods upon written consent of the Forest Service.

Consultation between the Licensee (Wisconsin Valley), the Wisconsin DNR, the Department of the Interior, and the Forest Service will be triggered when the water level on the Long-on-the-Deerskin Reservoir decreases to 1697.2' which is one foot below the summer target level.

Article 113 Fish and Wildlife Monitoring Plan.

Within 180 days of license issuance, or on a schedule mutually agreed to between the Licensee and the Forest Service, the Licensee shall file for Commission approval, a fish and wildlife monitoring plan approved by the Forest Service. The plan must be consistent with the standards and guidelines for affected management areas in the Nicolet National Forest Plan. The monitoring plan must include the following:

- a. Partial funding support by the Licensee in aquatic and chemical monitoring surveys conducted by the Forest Service on project licensed reservoirs, not to exceed one reservoir survey annually. The annual contribution will be \$1,000 in 1996 dollars which shall be adjusted annually for the Consumer Price Index for the life of the license.

The plan must include requirements for monitoring measures to meet Forest Service fish and wildlife habitat objectives and standards. The monitoring measures will be developed by the Forest Service and provided to the Licensee. The plan also must include dates for accomplishing these objectives and standards, and must identify needs for timing of any additional studies called for under the license.

Any comments of the U.S. Department of the Interior, Fish and Wildlife Service, the Wisconsin Department of Natural Resources and the Forest Service shall be filed with the plan. The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of

the project area. Upon Commission approval, the Licensee shall implement the plan.

The following water bodies will be included in the Monitoring Plan:

Project Name and Location	Type of Survey/Year*
Lower Ninemile Lake	Aquatic Vegetation/1997
	Chemical analysis
	water/sediment/1998

Sevenmile Lake Aquatic Vegetation/1999
 Chemical analysis
 water/sediment/2000

Fourmile and Big Fork Lakes Aquatic Vegetation/2001
 Chemical analysis
 water/sediment/2002

Laurel Lake Aquatic Vegetation/2003
 Chemical analysis
 water/sediment/2004

Whitefish Lake Thoroughfare Aquatic Vegetation/2005
 Chemical analysis
 water/sediment/2006

Long Lake Aquatic Vegetation/2007
 Chemical analysis
 water/sediment/2008

Big Sand Lake Aquatic Vegetation/2009
 Chemical analysis
 water/sediment/2010

Lac Vieux Desert is covered under Article 114.

* In the year 2011, the annual rotation will start once again at Lower Ninemile Lake and that rotational sequence will continue for the life of the license.

Aquatic vegetation surveys cover:

Submersed and floating-leaf plants would be surveyed, and mapped using macrophyte transects and random 0.2-m squared plots selected along the transects. Amounts would not have to be quantified specifically and range estimates for volumes could be used. Procedures would be similar to Engel and Nichols, 1994.

Chemical analysis would cover:

Once/month, May Oct. - Water, transparency, secchi reading

May-Oct, pH, Beckman & Orion models. Once/survey year -
Dissolved (true) color; Specific conductance; suspended and
total solids; Water turbidity; Alkalinity; Chloride;
Hardness, total; Metals: As, Hg, Se, B, Ba, Cd, Cr, Cu, Pb,
Ni, Zn, Ca, Fe, K, Mg and Na; Nitrogen - Dissolved NH_4 ,
Dissolved $\text{NO}_2 + \text{NO}_3$; Phosphorus - Dissolved reactive,
Sulfate. Four times/survey year - Oxygen, dissolved.

Article 114 - Wild Rice Enhancement Plan

Within 180 days of license issuance, or on a schedule mutually agreed to between the Licensee and the Forest Service, the Licensee shall file, for Commission approval, a 10-year trial Wild Rice Restoration Plan, preceded by a 2-year baseline data gathering period, approved by the Forest Service for the protection and enhancement of Wild Rice located on Lac Vieux Desert. The plan must be consistent with the standards and guidelines for affected management areas in the Nicolet and Ottawa National Forest Plans.

The Forest Service, in consultation with the Department of the Interior (Bureau of Indian Affairs and U.S. Fish and Wildlife Service), Lac Vieux Desert Band of the Lake Superior Chippewa Indians, Wisconsin Department of Natural Resources, Michigan Department of Natural Resources, and Great Lakes Indian Fish and Wildlife Commission (GLIFWC), collectively Entities, has concluded the current operating regime on this hydro facility has been detrimental to the wild rice beds which previously existed on Lac Vieux Desert, and modification of this regime is necessary to allow restoration of these beds. The wild rice beds have environmental benefits the Forest Service is seeking to protect. The goal of these conditions and the associated Wild Rice Restoration Plan is to restore approximately 80-100 acres of rice in 7 out of 10 years. Wild rice beds would be required to have a minimum stem density of 10 stems/square meter to be considered "wild rice acres."

The plan shall be developed after consultation with the Entities. The Licensee shall include with the plan documentation of consultation with the Entities, copies of comments and recommendations on the completed plan after it has been prepared and provided to the Entities, and specific descriptions of how the Entities' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the Entities to comment and make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information. The Licensee shall incorporate the following provisions into the plan:

a. Establishment of target and minimum reservoir elevations at Lac Vieux Desert to enhance Wild Rice production.

The minimum levels would not be altered. The 1679.36 foot (NGVD) winter drawdown minimum would remain. Article 33 of the current license would be removed.

To protect wild rice, a maximum operating target elevation of 1680.73 feet (NGVD) would be set. Upon

reaching 1680.73 feet, the gates shall be opened, as necessary, to maintain 1680.73 feet.

b. Contribution by the Licensee of \$5,000.00, in 1996 dollars which shall be adjusted annually for the Consumer Price Index, in each of the 4 initial years of the 10-year trial period implementing the wild rice restoration plan to purchase seed.

The plan shall specify seeding 50 lb/acre over 70 acres annually designated in the Wild Rice Restoration Plan, as determined by the GLIFWC restoration/potential habitat maps and past seeding success.

Purchasing the seeding will be the responsibility of the Forest Service, GLIFWC, and the Lac Vieux Desert Band of the Lake Superior Chippewa Indians.

c. The Licensee shall fund gathering baseline data during the two-year baseline period, prior to the ten-year trial period, and a \$30,000 cap shall be placed on gathering this data. Monitoring data to be collected during the 10-year trial period shall not exceed a cap of \$150,000 in 1996 dollars (monitoring cap). The annual dollar expenditures shall be adjusted for the Consumer Price Index. Monitoring dollars shall be jointly controlled by the 4(e) agencies. Monitoring shall include, but not necessarily be limited to, the following variables:

Water quality- pH, nitrogen, phosphorus, dissolved oxygen, clarity (annually)
Contaminants (baseline only)

Aquatic vegetation- occurrence, depth of occurrence, relative abundance, in 13 permanent vegetation plots/transects
(annually)

Fisheries- relative abundance of all species
(every 5th year, and a baseline year); creel census combined with

recreational use monitoring (year 1 of baseline and years 2, 5, 7, and 10 of the trial period)

Recreational use- types of use, time of use, amounts of use, assessment of recreation activities in wild rice areas (year 1 of baseline and years 2, 5, 7 and 10 of the trial period).

To the extent practicable, the licensee can utilize monitoring data as required elsewhere in this license.

d. The plan shall be reviewed, validated and evaluated biennially (every other year). If the results of the monitoring, required in item c, reveal the need to make reasonable modifications to the wild rice restoration plan, the Licensee shall identify, in consultation with the Entities, recommended changes to the plan.

The Entities and the licensee may choose to meet annually to discuss seeding plans and monitoring procedures and to evaluate the effectiveness of the overall plan.

If adverse effects of the new water level are discovered, a joint effort to avoid, restore, and mitigate damage will be undertaken by the Entities and the Licensee.

At the conclusion of the 10-year trial period for the wild rice restoration plan, the Licensee shall submit to the Entities for approval its recommendations, based on site-specific monitoring data, for implementing the plan throughout the remainder of the term of the license. If monitoring indicates wild rice establishment is not sustainable under the provisions of this article, the 4(e) agencies and the FERC, in consultation with the Licensee and entities, shall evaluate the monitoring information and jointly determine an appropriate course of action.

Article 115 - Threatened and Endangered Species Plan

Within 180 days of license issuance, or on a schedule mutually agreed to between the Forest Service and the Licensee, the Licensee shall file, for Commission approval, a plan approved by the Forest Service and the USDI Fish and Wildlife Service for the protection of the Bald Eagle located in the project area. The plan must be consistent with the standards and guidelines for

affected management areas in the Nicolet National Forest Plan.
The plan must include the following:

- a. Measures necessary to protect Bald Eagles and their nest trees from human disturbance or otherwise incompatible land practices on Licensee owned lands.
- b. Preservation of potential nesting habitat sites on Licensee owned lands.

This plan must identify requirements for operation and maintenance measures to meet Forest Service and Fish & Wildlife Service objectives and standards for recovery of the affected species. Any comments of the Fish & Wildlife Service, the Wisconsin Department of Natural Resources, and the Forest Service shall be filed with the plan. The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area. Upon Commission approval, the Licensee shall implement the plan.

Article 118 - Project Recreation Plan

Within 180 days of license issuance, or on a schedule mutually agreed to between the Licensee and the Forest Service, the Licensee shall file for Commission approval, a plan approved by the Forest Service to enhance project-induced recreation and provide for other recreation needs, consistent with the standards and guidelines for affected management areas of the Nicolet National Forest Plan. The recreation plan must include plans for the following:

- a. Licensee funding of operation and maintenance of National Forest recreation areas within the project, as shown in item d., below. The operation and maintenance costs, shown in 1996 dollars in item d., shall be adjusted for the Consumer Price Index.
- b. Licensee funding for installation of needed heavy maintenance and capital improvements at National Forest recreation areas within the project, as shown in item d., below. Estimated costs are shown in 1996 dollars in item d and shall be adjusted annually by the Consumer Price Index until installed.
- c. The Licensee construction, operation, and maintenance of a scenic pullout on the Heritage Drive National Scenic Byway at Sevenmile Lake on Licensee-owned lands, not to exceed \$2,000 in construction costs.

d. National Forest recreation areas:

SITE NAME AND IMPROVEMENT NEEDS	IMPROVEMENT NEEDS - 1995 \$s	ANNUAL OPERATION & MAINTENANCE - 1995 \$s
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Lower Ninemile Lake Boat Landing

Improve ramp, install barrier free toilet (1), parking lot improvement	\$ 24,700	\$ 285
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Lac Vieux Desert Campground

and Boat Launch
Install barrier free
toilets (5), improve
beach, improve ramp,
heritage resources
interpretive signing \$ 35,145 \$ 3,727

Sevenmile Lake Campground
and Boat Launch
improve ramp, install
barrier free toilets (2),
improve beach, heritage
resources interpretive
signing \$ 11,944 \$ 1,654

Laurel Lake Campground
and Boat Launch
Install barrier free
toilets (2), Improve
ramp, install barrier
free fishing pier,
heritage resources
interpretive signing \$ 34,124 \$ 3,332

TOTAL \$105,914 \$ 8,998

Upon Commission approval, the Licensee shall implement the plan. The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area.

Article 161 - Historic Resources Protection

On National Forest System lands within the project area, the Licensee shall not initiate any land-clearing, land-disturbing, or spoil-producing activities, before consulting with the Forest Service, the Federal Energy Regulatory Commission (Commission), and the Wisconsin State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP). Consultation with the latter three parties is in accordance with the provisions of the "Programmatic Agreement Among the Commission, the Advisory council on Historic Preservation, the

State of Wisconsin, SHPO, and the State of Michigan, SHPO, For Managing Historic Properties that May Be Affected by New and Amended Licenses Issuing for the Continued Operation of Existing Hydroelectric Projects in the State of Wisconsin and Adjacent Portions of the State of Michigan" (PA), which applies to this project.

The Licensee shall prepare a Historic Resource Management Plan (HRMP) for the project, based on the recommendations of the parties to the PA, and in accordance with the PA. The Forest

Service shall also be a consulting party in the development and implementation of the HRMP.

On National Forest System lands within the project area, if the Licensee discovers any previously unidentified archaeological or historic sites during the course of developing or maintaining the project works or other facilities or monitoring shorelines at the project, the Licensee shall stop all land-clearing, land-disturbing, or spoil-producing activities in the vicinity of the sites, and shall also consult with the Forest Service, the Commission, ACHP, and SHPO in accordance with the PA and the HRMP, and this condition.