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...UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

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

Northern States Power Co.) Project No. 2711-002

ORDER ISSUING LICENSE

(Issued June 2, 1994)

On March 25, 1991, Northern States Power (Northern) filed an application under Part I of the Federal Power Act (FPA) 1/ for a subsequent license 2/ to continue to operate and maintain the 1.2 megawatt (MW) Trego Project No. 2711. The project is located on the Namekagon River in the town of Trego in Washburn County, Wisconsin. For the reasons discussed below, we will issue the license.

Notice of the application was published. The Wisconsin Department of Natural Resources filed a motion to intervene but did not take a position on the license. American Rivers, Inc. filed a motion to intervene. The U.S. Department of the Interior (Interior) did not seek intervenor status, but filed comments. American Rivers does not oppose continued operation of the Trego Project (with appropriate conditions), but asserts that the Commission lacks authority to issue the project a subsequent license. 3/ Interior maintains that it has authority to require conditions pursuant to Section 4(e) of the FPA because the project is located within the Wild and Scenic Rivers System which Interior administers. These arguments are addressed below, and all other comments of intervenors, agencies, and individuals

1/ 16 U.S.C. §§ 791(a)-823(b).

2/ A subsequent license is a license issued after the expiration of a minor license for which Sections 14 and 15 of the FPA (dealing with relicensing) were waived. 18 C.F.R. § 16.2(c) (1992). Although, in a letter filed March 25, 1991, Northern stated its assumption that the initial license order for the Trego project did not waive Sections 14 and 15 of the FPA, the license order did do so. See 57 FPC 1527 (1977). The initial license order gave Northern an opportunity to file a supplemental application if it did not wish the provisions to be waived (see 57 FPC at 1531), but we have no evidence that it ever did so.

3/ Interior initially also made this assertion, but later changed its position. See discussion, *infra*.

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have been considered in determining whether, or under what conditions, to issue this license. 4/

An Environmental Assessment (EA) was issued on February 27, 1992, and is attached to and made a part of the license. A Safety and Design Assessment is available in the Commission's public file on this project.

A. PROJECT DESCRIPTION

The project facilities, which are described more fully in ordering paragraph (B)(2) below, consist of a dam comprised of two embankment sections, one 380 feet long and 30 feet high, the other 110 feet long and 25 feet high; a spillway structure 92 feet long by 27 feet high, surmounted by three Taintor gates, each 25.5 feet long by 10 feet high, and a 6-foot-wide trash gate and sluiceway; an impoundment about 6 miles long, with a surface area of 470 acres and an estimated storage capacity of 4,700 acre-feet at the normal water surface elevation; a powerhouse located adjacent to the left end of the spillway structure; two turbine-generator units rated at 700 kilowatts (kW) and 500 kW, for a total installed capacity of 1,200 kW; a small substation, feeding directly into Northern's distribution system; and appurtenant equipment and facilities. Northern proposes no new construction.

B. JURISDICTION

The Trego Project was constructed in 1926. The Namekagon River, on which it is located, is a tributary of the St. Croix River. In 1968, the Wild and Scenic Rivers Act (Rivers Act) designated parts of the St. Croix River and all of the 98-mile-long Namekagon River as the St. Croix National Scenic Riverway, to be administered by Interior. 5/ In 1977, the Commission

4/ Comments were filed by Interior, the Wisconsin Public Service Commission, the Wisconsin Department of Natural Resources, the Wisconsin State Historical Society, the Trego Lake District, U.S. Senator R.W. Kasten, S. Rowan, Barbara and Richard Ford, John W. Beissel, Paula and John Ford, Charles and Angela Kandlik, E.R. Emerson, Bruce Kearns, and A.A. Metcalf.

5/ See Section 3(a)(6) of the Rivers Act, 16 U.S.C. § 1274(a)(6). The Secretary of Agriculture administers wild and scenic rivers that are adjacent to or surrounded by national forest lands. The Secretary of the Interior administers components of the wild and scenic rivers system through the National Park Service as part of the national park system, and through the Fish and Wildlife Service as part of the national wildlife refuge system.

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issued an original license for the Trego Project, based on its determination that the Namekagon River is a navigable waterway of the United States. 6/ Section 7(a) of the Rivers Act, 16 U.S.C. § 1278, bars the Commission from licensing "the construction of" any dam, water conduit, or other project works "on or directly affecting any river which is designated ... as a component of the national wild and scenic rivers system" Since the Trego Project predates the Rivers Act, and so long as no new construction is proposed, Section 7(a) of the Rivers Act does not bar the issuance of a license for its continued operation, nor has anyone asserted otherwise.

However, the Rivers Act also provides that any component of the national wild and scenic rivers system administered by Interior through the Park Service shall become a unit of the national park system. 7/ Citing the General Authorities Act

6/ Northern States Power Company, 57 F.P.C. 1527 (1977). Under Section 23(b)(1) of the FPA, 16 U.S.C. § 817(1), projects located on navigable waterways of the United States are required to be licensed. Interior and the Wisconsin Department of Natural Resources filed comments on the original license application. No one opposed issuance of the original license. The license order mentions the 1968 Rivers Act designation, not in the "jurisdiction" discussion but in the "recreation" discussion, where it states:

Since the Trego Project is located within the St. Croix National Scenic Riverway system which is administered by the National Park Service (NPS) (Section 3(a)(6), P.L. 90-542), and the Namekagon River has been selected for recreational development by the NPS, we are not approving the voluntarily filed Exhibit R Text and recreation map.

Article 23 of the project license provides for a cooperative field study with NPS and DNR and a determination of what, if any, additional recreational development should be provided in the Trego Project area.

7/ 16 U.S.C. § 1281(c) of the Wild and Scenic Rivers Act provides:

Any component of the national wild and scenic rivers system that is administered by the Secretary of the Interior through the National Park Service shall become a part of the national park system The lands involved shall be

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of 1970, American Rivers asserts 8/ that, since the Trego Project is located in a unit of the national park system, it is subject to the rules and regulations applicable to all units of the park system. From this they reason that, since the FPA prohibits the issuance of licenses for projects located in national parks and monuments, the Commission lacks jurisdiction to issue licenses for projects located in any unit of the park system. 9/

Section 4(e) of the FPA 10/ authorizes the Commission to issue licenses for projects which, *inter alia*, are located on reservations of the United States. 11/ Section 3(2) of the FPA 12/ defines the term "reservations" to exclude "national monuments or national parks." 13/ The Authorities Act of 1970

7/(...continued)

subject to the provisions of this chapter and Acts under which the national park system ... is administered The Secretary of the Interior, in his administration of any component of the national wild and scenic rivers system, may utilize such general statutory authorities relating to areas of the national park system otherwise available to him for recreation and preservation purposes and for the conservation and management of natural resources as he deems appropriate to carry out the purposes of this chapter.

8/ July 24, 1991 motion to intervene.

9/ Interior originally made this argument as well. See the November 20, 1991 letter (filed November 25) from the Director, Office of Environmental Affairs, Office of the Secretary of the Interior, to the Commission Secretary, at 1. Interior revised its position in a letter dated December 8, 1993 (discussed below).

10/ 16 U.S.C. § 797(e).

11/ As we discuss below, the Trego Project is not located on federal lands of any kind, and therefore is not located on a reservation. However, a unit of the National Park System can encompass non-federal lands.

12/ 16 U.S.C. § 796(2).

13/ The Commission has interpreted the Section 3(2) prohibition on issuing licenses for projects in national monuments or parks as not being a bar to the relicensing of projects that
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defines "the national park system" to include "any area of land and water now or hereafter administered by the Secretary of the Interior through the Park Service for park, monument, historic, parkway, recreational, or other purposes." ^{14/} In addition to national parks and national monuments, the national park system now includes, inter alia, national memorials, national cemeteries, national recreation areas, national seashores, national seashore recreational areas, national parkways, national conservation areas, national conservation recreational areas, national historic sites, national lakeshores, national rivers, national battlefields, and national farm parks. But while national parks and monuments are units of the national park system, all other units of the park system are not national parks or monuments; the Commission has previously held that the FPA's specific prohibition on licensing projects in national parks and monuments does not extend to any other park system unit. ^{15/}

While the national park system was growing, Congress enacted a variety of statutes authorizing the Secretary of the Interior to deal with the details of its operation. Since these statutes did not clearly apply to all units of the park system, there was concern that the scope of the statutes would be limited to those units of the park system specifically named therein. ^{16/} To address this concern, the Authorities Act of 1970 provides: ^{17/}

Each area within the national park system shall be administered in accordance with the provisions of any

^{13/}(...continued)

were originally licensed before the lands they occupied were designated as national monuments or parks. See James River II, Inc., 53 FERC ¶ 61,096 (1990), reh'g denied, 55 FERC ¶ 61,034 (1991), appealed, Olympic Park Associates, et al. v. FERC, 9th Cir.-No. 91-70351 (filed May 31, 1991), in abeyance in light of Elwha River Ecosystem and Fisheries Restoration Act, Pub. L. No. 102-495 (Oct. 24, 1992). These orders contain detailed discussion of the legislative history of Section 3(2) of the FPA and of pertinent case law.

^{14/} 16 U.S.C. § 1c(a).

^{15/} Gentry Resources Corporation, 32 FERC ¶ 61,137 (1985). As discussed below, enactment of Section 2404 of the Energy Policy Act of 1992 has limited this decision.

^{16/} See H.R. Rep. No. 1265, 91st Cong., 2d Sess. (1970), reprinted in 1970 U.S.C.C.A.N. 3785.

^{17/} 16 U.S.C. § 1c(b).

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statute made specifically applicable to that area. In addition, the provisions of this Act, and the various authorities relating to the administration and protection of areas under the administration of the Secretary of the Interior through the National Park Service, . . . shall, to the extent such provisions are not in conflict with any specific provision, be applicable to all areas within the national park system[,] and any reference in such Act to national parks, monuments, recreation areas, historic monuments, or parkways shall hereinafter not be construed as limiting such Acts to those areas.

However, that Congress provided for the uniform administration of all units of the national park system does not, as American Rivers argues, mean that all units of the park system are national parks or monuments for purposes of Section 3(2) of the FPA. 18/

In the Energy Policy Act of 1992, 19/ Congress broadened the prohibition on original licenses to encompass not only all projects located in national parks and monuments but also certain other projects located in any unit of the national park system. Section 2402 of that Act provides:

After the date of enactment of this Act, the Federal Energy Regulatory Commission may not issue an original license under Part I of the Federal Power Act (nor an exemption from such Part) for any new hydroelectric power project located within the boundaries of any unit of the National Park System that would have a direct adverse effect on Federal lands within any such unit. Nothing in this section shall be construed as repealing any existing provision of law (or affecting any treaty) explicitly authorizing a hydroelectric power project.

18/ Since 1971, Congress, when providing for the addition of new components to the park system other than national parks or monuments, has specifically prohibited the Commission from licensing new projects in at least five instances: Buffalo National River, 16 U.S.C. § 460m-11; New River Gorge National River, 16 U.S.C. § 460m-21; Big South Fork National River and Recreation Area, 16 U.S.C. § 460ee; Hells Canyon National Recreation Area, 16 U.S.C. § 460gg-2; Chattahoochee River National Recreation Area, 16 U.S.C. § 460ii-3. If the reference to national parks and monuments in the FPA applied to all units of the park system, there would be no reason for Congress to specifically prohibit the licensing of new projects in these areas.

19/ Pub. L. No. 102-486, 106 Stat. 2776-3133 (Oct. 24, 1992).

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By letter dated December 8, 1993, Interior amended its comments on the Trego Project application to reflect its interpretation of Section 2402. 20/ Interior stated:

Because the Trego dam is on the Namekagon River which is included in the Saint Croix National Scenic Riverway, it is located in a unit of the National Park System. As a unit of the National Park System, the Saint Croix National Scenic Riverway is subject to the Energy Policy Act of 1992 and, more specifically, to Section 2402. Under Section 2402, the National Park Service (NPS) has determined that the issuance of a new original license for the Trego Hydro Project would not have a direct adverse effect on Federal lands within the Saint Croix National Scenic Riverway, subject to the terms and conditions included below [i.e., under the Section 4(e) Terms and Conditions section of the letter]. We take this position in light of the fact that the project was in operation before designation by Congress of the Saint Croix National Scenic Riverway, and has operated without creating adverse impacts to prompt our objection to a new original license.

Interior's December 8, 1993 letter indicates that Interior has receded from its former position that the Commission lacks jurisdiction to issue a license of any kind, original or new, for any kind of project, new or existing, in any unit of the National Park System. 21/ However, Interior's letter nevertheless misapplies Section 2402. The letter discusses issuance of a "new original license." There is no such thing. Section 2404 applies only to any "original license" issued for any "new hydroelectric power project" within any unit of the National Park System. By contrast, the Trego Project is the subject, not of an original license, but of a subsequent license for an existing project. 22/ Indeed, Northern's license application for the

20/ December 8, 1993 letter to the Commission Secretary from the Director of the Office of Environmental Policy and Compliance, Office of the Secretary of the Interior, at 1.

21/ See n. 9, supra.

22/ See Sections 7(a) and 15(a) of the FPA, 16 U.S.C. §§ 800(a), 808(a). See also 18 C.F.R. § 4.30(b)(19) (1993):

"New license" means any license, except an annual license issued under section 15 of the Federal Power Act, for a water power project that is issued under the Federal Power Act after the initial license for that project.

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Trego Project (and the license issued today) does not contemplate any new construction at the project. As such, the project does not fall within the terms of Section 2402, and does not require a finding 23/ regarding its effect on federal lands within the Park System unit. 24/

23/ The Commission has not yet addressed the issue of which agency is to make such a finding.

24/ On March 10, 1994, Interior filed a letter in which it acknowledged that there are no federally owned lands within the project boundary, but argued that the project nevertheless is subject to terms and conditions submitted by Interior under Section 4(e) of the FPA because it is located on a component of the National Wild and Scenic Rivers System administered by the Secretary of the Interior. Section 6(a)(1) of the Rivers Act gives the Secretary authority to acquire lands along segments of the National Wild and Scenic Rivers System. However, the Secretary has not exercised that authority in this instance. Thus, Interior appears to be maintaining that administrative authority, by itself, gives it conditioning authority under Section 4(e). We have been unable to find any support, in either the FPA or the Rivers Act, for Interior's position.

As defined by Section 3(2) of the FPA, 16 U.S.C. § 796(2), a reservation, for the purposes of the FPA, embraces only "lands and interests in lands owned by the United States." See Federal Power Commission v. Tuscarora Indian Nation, 362 U.S. 99, 111, 114 (1959) ("Congress intended the term 'reservations,' whenever used in the Act, to embrace only 'lands and interests in lands owned by the United States.'"). We also note that the Rivers Act does not define the term "reservation," or confer "reservation" status on any of the land through which components of the Wild and Scenic Rivers System flow, let alone purport to define the term for purposes of the FPA.

Although Interior does not have authority in this proceeding to require terms and conditions pursuant to Section 4(e), the conditions submitted by Interior are, in substance, adopted in the license. License Article 401 requires that the project be operated in a run-of-river mode; Article 405 requires that the Park Service and the Wisconsin Department of Natural Resources be consulted on any drawdown management plan; Article 408 requires that the licensee consult with the resource agencies about recreational use of the project in conjunction with the preparation of FERC Form 80, which must be filed with the Commission every six years (Interior had requested recreation and land use review every five

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In light of all of the above, we conclude that the Commission has authority to issue a subsequent license for the continued operation and maintenance of the Trego Project.

C. WATER QUALITY CERTIFICATION

On March 19, 1990, Northern filed a request for water quality certification with the Wisconsin Department of Natural Resources (Natural Resources), which on September 12, 1990, issued a notice of preliminary determination of waiver of certification. On December 3, 1990, Natural Resources notified Northern that the preliminary determination of waiver was final.

D. FISHWAYS

Section 18 of the FPA provides that the Commission shall require the construction, maintenance, and operation by a licensee at its own expense of such fishways as may be prescribed by the Secretary of the Interior or of Commerce. Pursuant to Section 18, Interior requests that any license issued for this project include a reservation of authority for it to prescribe the construction, operation, and maintenance of fishways. 25/ Consistent with Commission practice, 26/ Article 404 of the license reserves authority to the Commission to require the licensee to construct, operate, and maintain such fishways as may be prescribed by Interior pursuant to Section 18 of the FPA.

E. RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES

Section 10(j) of the FPA requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act, for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife, unless such conditions would conflict with the FPA or other law. 27/

24/ (...continued)

years); and Article 409 requires that resource agencies be consulted before any land is conveyed.

25/ See letter dated November 20, 1991, from Jonathan P. Deason, Director, Office of Environmental Affairs, Office of the Secretary, U.S. Department of the Interior.

26/ See Wisconsin Public Service Corp., 62 FERC ¶ 61,095 (1993).

27/ Measures recommended by Natural Resources that are not appropriate fish and wildlife recommendations under
(continued...)

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The EA for the Trego Project addresses the concerns of the federal and state fish and wildlife agencies in detail, and the license includes conditions consistent with the agencies' recommendations that Northern: (1) operate the project in a run-of-river mode, using new controls installed in 1990 that narrow the normal operating range of the power pool to within 0.3 foot of total fluctuation, providing stabilized and near-natural aquatic conditions for fish and wildlife at the impoundment and downstream; (2) fund Natural Resources' programs for the restoration of the sturgeon and gilt darter upstream of the project; (3) maintain the existing trashracks with 1.5-inch bar spacing to minimize fish entrainment and impingement; (4) formulate a drawdown management plan to evaluate the need for and, if needed, to implement a drawdown to control sediment accumulation and aquatic vegetation, to provide better recreational access and use of the upper impoundment; and, (5) provide fish passage facilities if future needs require.

1. Project Operation

Northern has committed to continue run-of-river operation of the project, maintaining the minimum flow at 230 cfs or inflow, whichever is less, and to maintain the impoundment level within 0.3 feet of the target elevation of 1034.9 feet msl (mean sea level) during routine operation, or within 0.6 feet during emergency operations. All parties agree that the Trego Project should be operated in a run-of-river mode, but there has been some disagreement about the maintenance of a stabilized impoundment level.

Natural Resources and Interior recommend that the elevation of the impoundment fluctuate from the target elevation no more than 0.1 feet in the winter and 0.3 feet in the summer. Natural Resources also recommends that the elevation of the impoundment be allowed to vary up to 0.6 feet under extreme conditions, such as flood flows, equipment malfunctions, or operational emergencies, provided that these terms are clearly defined and agreed to beforehand by Natural Resources. Interior suggested that elevation limits not be modified beyond recommended limits without the prior concurrence of Natural Resources, the U.S. Fish and Wildlife Service (FWS), and the Park Service.

Northern proposes a 0.3 foot normal operation range year round. Northern states that it attempts to maintain impoundment

27/(...continued)

Section 10(j) have been considered in the EA pursuant to Section 10(a)(1) of the FPA. These include recommendations concerning development of a drawdown management plan, consistency with comprehensive plans, a macrophyte survey, and recreational user surveys.

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fluctuations at the levels suggested by Natural Resources but believes that imposition of a more restrictive operating range in winter is both technically difficult and unjustified from an environmental perspective. Northern agrees with the recommended 0.6-foot variation during extreme conditions, but does not agree with the recommendation that all future deviations from normal levels be clearly defined and approved by Natural Resources, FWS, and the Park Service, because events beyond its control could cause variations in the impoundment level, and it should not be necessary to define every possible occurrence that could cause a variance from the normal operating range.

We conclude that run-of-river operation, with a ± 0.3 foot fluctuation limit, would not alter streamflow upstream or downstream of the project; therefore, fish and wildlife habitats, including wetland areas, would not be affected by project operation. We believe that the more restrictive ± 0.1 foot fluctuation during the winter would not be technically feasible and biologically would have no purpose. Also, we find that many factors can cause changes in the elevation of the Trego impoundment, and we believe that Northern should not be penalized if, while making a good-faith effort to remain within the normal operating range, it fails to achieve any overly restrictive target elevation objectives. Therefore, we will not require Northern to maintain a more restrictive impoundment fluctuation during the winter, or to enter into an agreement with the resource agencies to define all of the extreme operating conditions that could occur. The normal elevation limits for the impoundment should be lifted under extreme conditions, such as floods, ice jams, equipment malfunction, or operational emergencies. Article 401 requires that the project be operated in a run-of-river mode, sets a target elevation for the Trego impoundment at 1,034.9 feet, and allows for a fluctuation of 0.3 feet around the target elevation. Article 401 also provides for a temporary modification of run-of-river operation in emergencies and for short periods in non-emergency situations upon mutual agreement between Northern, Natural Resources, FWS, and the Park Service.

Article 402 requires Northern to operate and maintain streamflow monitoring devices and staff gages to monitor compliance with the operational requirements of the license, and adopts the agency suggestion that staff gages be made visible to permit public scrutiny of operations. Northern is also required to make project flow records available to the U.S. Geological Survey, the Park Service, FWS, and Natural Resources within 30 days of a request for these records.

2. Impoundment Drawdown

Owners of property on the shoreline of the Trego impoundment, acting as the Trego Lake District (District),

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commented that sediment and weeds limit access to the impoundment for recreational purposes. Natural Resources estimates that this sediment is deposited by the Namekegon River at a rate of 2,000 cubic yards a year, causing shallow water at the upper end of the impoundment, thereby encouraging weed growth and the development of wetlands. The District recommends a one-month drawdown of four to five feet every four to five years to remove sediment and associated weeds. Natural Resources sees no immediate need for a drawdown, but recommends that Northern prepare a drawdown management plan in consultation with the resource agencies and the District within one year of the effective date of a new license. Natural Resources recommends that plans for a drawdown include sediment management techniques that would avoid water quality problems caused by the resuspension of sediment, shown by core sampling studies to contain heavy metals in concentrations above those allowed by Environmental Protection Agency guidelines. Interior agrees that a drawdown management plan should be prepared. Both agencies are concerned about the impact of a drawdown on resident fish, amphibians, and aquatic vegetation.

Northern agrees to cooperate with the District and the resource agencies in developing drawdown management plans and in conducting project maintenance drawdowns. Because the dam is in very good condition, however, Northern does not expect a maintenance drawdown for many years. Northern proposes that a plan be developed when needed, and opposes a license requirement to develop a plan within one year of the effective date of a new license. Northern is willing to work with Natural Resources on sediment management techniques, but states that it should not be held accountable for contaminants that originate elsewhere in the watershed.

We agree with Natural Resources' recommendation that sediment sampling be done in conjunction with any planned drawdown. Should new evidence show the need for sediment management techniques, standard license Article 11 will allow the agencies to recommend changes in project structures and operations for the conservation and development of fish and wildlife resources.

We considered the District's drawdown proposal, the lack of technical evidence supporting the proposal, the concerns of the resource agencies about the environmental impacts of a drawdown, and the cost of a drawdown in lost power generation and economic benefits. 28/ The previous drawdown that removed weeds and

28/ Drawdown of the project during winter will necessitate shut-down of project generation. We estimate that a one-month project shut-down would reduce project generation by about
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sediment was an eleven-foot drawdown maintained for a period of several months during the winter. We question whether the District's proposed thirty-day drawdown of four to five feet will produce the desired result of allowing greater access to the impoundment. 29/ Therefore, we conclude that Northern should conduct a further study to substantiate the need for a drawdown and, if a need is substantiated, develop a plan in consultation with all interested parties. We are further requiring that the issue be reevaluated on a recurring basis every four years because of the high value of the project impoundment for recreational activity as part of a Wild and Scenic River. Article 405 contains these requirements.

3. Restoration of Lake Sturgeon and Gilt Darter

The lake sturgeon and the gilt darter are state-protected species that were historically found throughout the Namekagon River until the presence of the Trego Project limited the range of both to below the project. Northern has agreed to provide Natural Resources with funding, totalling \$5,000, to support a program to restore the lake sturgeon upstream of the Trego Dam. In addition, Northern will provide Natural Resources with \$500 for a habitat assessment study of the gilt darter and, if the study indicates that restoration of the gilt darter is feasible, an additional \$2,000 for restoration efforts. This program is designed to expand the geographic range of the species, increase population size, and eventually remove the species from the protected list. License Article 403 adopts these provisions.

4. Trashracks and Fish Passage Facilities

Natural Resources asserts that the project causes fish entrainment, but states that the extent to which entrainment causes fish mortality will not be known until the results from

28/ (...continued)

580,000 kilowatthours (kWh). We further estimate that the 50-year levelized cost of alternative fuel for Northern to replace the lost generation would be about 42.0 mills/per kWh. Based on this information, we estimate that a one-month shut-down would cost Northern about \$24,000. This amounts to about 7.5 percent of the project's gross benefits in any one year.

29/ Northern executed an eleven-foot drawdown in November and December of 1978 in order to repair the dam. This drawdown scoured out most of the sediment and vegetation in the upper impoundment and restored the bottom to near pre-impoundment condition. Natural Resources estimates that this process resulted in the relocation of about 20,000 cubic yards of sediment.

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ongoing and planned studies from other locations within the state are obtained. Therefore, Natural Resources recommends that the license provide that resource agencies be able to recommend modification of project structures and operation should new information indicate that changes are necessary to mitigate the Trego Project's effects on fish. Northern asserts that the project's potential for causing fish mortality is low and cites the robust fish population in both the Trego impoundment and the Namekagon River downstream of the project. Northern proposes that trashracks be maintained at a 1.5-inch bar-spacing to keep moderate and large fish out of the turbines, and allow larval and juvenile fish, for which there is no practical means of exclusion, to pass through the turbines and add to the downstream fishery. We conclude that Northern's proposal to maintain the existing trashracks minimizes the project's effect on most resident fish and find that there is no evidence to support alteration of the trashrack design. Standard license Article 11 allows the resource agencies to recommend changes in project structure and operation if, in the future, there is evidence that such changes are necessary for the preservation and conservation of fishery resources.

Natural Resources states that the current management objectives for the Namekagon River do not include facilities for upstream and downstream passage of fish at the Trego Project. As discussed above, Article 404 contains Interior's requested reservation of authority to prescribe fishways under Section 18 of the FPA.

F. OTHER AGENCY RECOMMENDATIONS

Pursuant to Section 10(a)(2)(B) of the FPA, the Commission is required to consider the recommendations of federal and state agencies exercising administration over navigation, flood control, irrigation, recreation, cultural, and other relevant resources of the state in which the project is located and the recommendations (including fish and wildlife recommendations) of Indian tribes affected by the project. Relevant agency comments are discussed below.

1. Recreation

A 1990 recreational use survey of the project area conducted by Northern was reviewed by the Northwest Regional Planning Commission (Planning Commission), 30/ which then conducted an inspection of existing recreational facilities and a recreation

30/ The Planning Commission refers to itself as an economic development district; its executive committee is comprised of representatives of counties and Indian tribal units in the northwest part of Wisconsin.

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needs assessment. Recreational facilities were found to be adequate to meet current recreational needs for the next five to ten years, except for minor improvements, detailed below, and maintenance. Natural Resources requested that data from this survey be made available for use as a baseline for decisions on future recreational needs and requested that surveys be done more frequently than in conjunction with Commission inspections at five-year intervals. FWS recommends that Northern either improve existing facilities or develop new facilities on the impoundment to optimize recreational use. Northern agrees to provide Natural Resources with the requested data, but states that it can see no reason for more frequent surveys.

The Planning Commission recommended that Northern:

- (1) provide signs indicating the parking area for walk-in fishing at North River Road;
- (2) dredge the upstream canoe take-out area;
- and (3) provide trash receptacles and restrooms for portage trail users.

Northern agrees to make these improvements with the following exceptions: (1) Northern's hydrologist has determined that cutting aquatic vegetation in the canoe take-out area will improve access to that area, thereby avoiding the adverse environmental impacts of dredging; and (2) Northern states that the installation of permanent toilet facilities at the dam portage site would require that a septic field be placed very near to the earthen dike and the river, consequently Northern has agreed to consider placing portable toilet facilities at this site.

In addition to the improvements to recreational facilities agreed upon by all parties, we will require that Northern provide portable toilet facilities at the dam portage site during peak recreational use periods, and monitor recreational use in conjunction with the preparation of FERC Form 80, Licensed Hydropower Development Recreation Reports, which must be filed with the Commission every four years. Articles 407 and 408 adopt these requirements. We conclude that the planned recreational improvements are consistent with the stated management objectives of the Park Service for this area. 11/

2. Cultural Resources

Five prehistoric sites within or immediately adjacent to the reservoir have been identified. In addition, two historic structures and another prehistoric site were located but determined to be well outside of the project. A Programmatic Agreement among the Commission, the Advisory Council on Historic Preservation, and the Wisconsin State Historic Preservation

11/ See St. Croix Scenic Riverway Final Master Plan, National Park Service, October 1976.

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Office was signed on June 16, 1992. Article 406 adopts this agreement.

G. 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. 32/ Thirty-four federal and state agencies filed comprehensive plans that address various resources in Wisconsin. Of these, the staff identified and reviewed nine plans that are relevant to this project, and did not find any conflicts between the project and these plans. 33/

H. ECONOMIC EVALUATION

In determining whether a project will be best adapted to a comprehensive plan for developing a waterway for beneficial public purposes, pursuant to Section 10(a)(1) of the FPA, the Commission considers, among other things, whether the project will provide economic benefits. In considering this factor for this project, we considered the project with both the applicant's and the Commission's mitigative measures.

The cost of the Trego Project is 17.4 mills per kWh; the project's carrying costs amount to about 3.3 mills per kWh; and the operation and maintenance, administrative, and general costs

32/ Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (1992).

33/ (1) St. Croix National Scenic Riverway Final Master Plan, 1976, National Park Service; (2) Land Protection Plan, 1984, St. Croix National Scenic Riverway, National Park Service; (3) Land Protection Plan 1984, Lower St. Croix National Scenic Riverway, National Park Service; (4) Statement for Management, St. Croix and Lower St. Croix National Scenic Riverways, 1986, National Park Service; (5) Comprehensive Master Plan for the Management of the Upper Mississippi River System - Environmental Report, 1986, National Park Service; (6) St. Croix River Basin Areawide Water Quality Management Plan, 1980, Wisconsin Department of Natural Resources; (7) Statewide Comprehensive Outdoor Recreation Plan, 1985, Wisconsin Department of Natural Resources; (8) An Evaluation of the Sedimentation Process and Management Alternatives for the Trego Flowage, Washburn County, Wisconsin, 1989, Wisconsin Department of Natural Resources; and (9) North American Waterfowl Management Plan, 1986, U.S. Fish and Wildlife Service and Canadian Wildlife Service.

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amount to about 14.4 mills per kWh. The total cost of 17.4 mills per kWh is less than the value of the project power, which is 42.0 mills per kWh. Therefore, we conclude that the continued operation of the Trego Project is economically beneficial.

I. SUMMARY OF FINDINGS

Sections 4(e) and 10(a)(1) of the FPA ^{34/} require the Commission, in acting on applications for license, to give equal consideration to the power and development purposes and to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration. We conclude that the Trego Project does not conflict with any planned or authorized development and is best adapted to comprehensive development of the waterway for beneficial public uses.

Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA. Issuance of the license is not a major federal action significantly affecting the quality of the human environment.

The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the Safety and Design Assessment, which is available in the Commission's public file on this project.

J. PROJECT RETIREMENT

The Commission has issued a Notice of Inquiry (NOI), dated September 15, 1993, requesting comments that address the potential decommissioning of licensed hydropower projects at some future time, based on project-specific circumstances. ^{35/} The NOI states that the Commission is not proposing new regulations at this time, but is inviting comments on whether new regulations may be appropriate. Alternatively, the Commission may consider issuing a statement of policy addressing the decommissioning of licensed hydropower projects, or take other measures. The Trego

^{34/} 16 U.S.C. §§ 797(e) and 803(a)(1).

^{35/} Notice of Inquiry, Project Decommissioning at Relicensing, Docket No. RM93-23-000, September 15, 1993.

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Project may be affected by future actions that the Commission takes with respect to issues raised in the NOI. Therefore, the license includes Article 202, which reserves authority to the Commission to require the licensee to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project in appropriate circumstances.

By including Article 202, the Commission does not intend to prejudice the outcome of the NOI. We are simply including the article so that we will be in a position to make any lawful and appropriate changes in the terms and conditions of this license, which is being issued during the pendency of the NOI, based on the final outcome of that proceeding.

K. TERM OF LICENSE

Section 15(e) of the FPA ^{36/} specifies that any new license issued shall be for a term which the Commission determines to be in the public interest, but not less than thirty years nor more than fifty years from the date on which the license is issued. We apply this provision to subsequent licenses, as well. Commission policy establishes thirty-year terms for projects proposing no new construction or capacity, forty-year terms for projects proposing a moderate amount of new development, and fifty-year terms for projects proposing a substantial amount of new development. ^{37/} Northern proposes no redevelopment of existing project facilities and no changes in project operation. Accordingly, under our policy the new license for the Trego Project would be for a term of thirty years.

However, about thirty miles upstream from the Trego Project is Northern's Hayward Project No. 2417. The original license for the Trego Project expired on March 31, 1993, and the original license for the Hayward Project expired on December 31, 1993. Northern has filed subsequent license applications for both projects. Commission action on the Hayward Project is targeted for the latter half of 1994. In order to facilitate the Commission's future coordinated treatment of these two projects under the comprehensive development standard of the FPA, we will add 18 months to the Trego Project license term, so that, if the Hayward Project is in line to receive a subsequent 30-year license, its license term can be adjusted in order that both

^{36/} 16 U.S.C. § 808(e).

^{37/} See Montana Power Company, 56 FPC 2008, 2011-13 (1976).

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project licenses will expire at approximately the same time. 38/

The Commission orders:

(A) This license is issued to Northern States Power Company (licensee) for a period of thirty-one years and six months, effective the first day of the month in which this order is issued, to operate and maintain the Trego Hydroelectric Project. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and is subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, shown by Exhibit G-1, FERC No. 2711-1, showing the project's location.

(2) Project works consisting of: (1) a northeastern earthfill embankment section with a length of 380 feet and a maximum height of about 30 feet; (2) a southwestern earthfill embankment section with a length of 110 feet and a maximum height of about 25 feet; (3) an Ambursen-type buttress, hollow, concrete gravity spillway structure 92 feet long by 27 feet high, surmounted by three Taintor gates, each 25.5 feet long by 10 feet high, and a 6-foot-wide trash gate and sluiceway; (4) a reservoir about 6 miles long, with a surface area of 470 acres and an estimated capacity of 4,700 acre-feet at the normal water surface elevation of 1035.0 feet National Geodetic Vertical Datum (NGVD); (5) a reinforced concrete, steel, and brick powerhouse 59.5 feet long by 30.2 feet wide by 74 feet high above the foundation, located adjacent to the left end of the spillway structure; (6) powerhouse generating equipment consisting of two open flume vertical-axis Francis turbine-generator units rated at 700 kilowatts (kW) and 500 kW, for a total installed capacity of 1,200 kW; (7) a small substation; and (8) appurtenant equipment and facilities.

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

38/ If, for some reason the Hayward license is issued later than we currently expect, it would not receive less than a 30-year license. By adding the 18 months to Trego's license term, we have some flexibility, even if the Hayward license is issued later than we currently expect, to coordinate the project licenses' expiration dates by adding a few months to the Hayward license.

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Exhibit A - The following sections of Exhibit A filed March 27, 1991:

Section 1.1, page 7, entitled "Existing Facilities," describing the generators; Section 2.0, page 7, entitled "Type of Hydraulic Turbines," describing the turbines; Section 10.0, page 12, entitled "Purpose of Project," describing the substation and transmission facilities; and the other sections of Exhibit A describing the appurtenant equipment.

<u>Exhibit</u>	<u>FERC No.</u>	<u>Showing</u>
F-1	2711-1	Principal project works - plan, section, and elevation
F-2	2711-2	Principal project works - plan, section, and elevation, and powerhouse
F-3	2711-3	Principal project works - powerhouse floor plan

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

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

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

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

(E) This license is subject to the articles set forth in Form L-9 (October 1975), entitled "TERMS AND CONDITIONS OF LICENSE FOR CONSTRUCTED MINOR PROJECTS AFFECTING NAVIGABLE WATERS OF THE UNITED STATES," and the following additional articles:

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

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States for the cost of administration of Part I of the FPA, as determined by the Commission. The authorized installed capacity for that purpose is 1,880 horsepower.

Article 202. The Commission reserves authority, in the context of a rulemaking proceeding or a proceeding specific to this license, to require the licensee at any time to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project. The terms of this article shall be effective unless the Commission, in Docket No. RM93-23, finds that the Commission lacks statutory authority to require such actions, or otherwise determines that the article should be rescinded.

Article 401. The licensee shall operate the project in a run-of-river mode so that, at any point in time, streamflow, as measured immediately downstream from the project tailrace, approximates the sum of inflows to the Trego impoundment. Under normal operating conditions, the licensee shall maintain the elevation of the Trego impoundment at a target elevation of 1,034.9 feet msl, with fluctuations limited to 0.3 foot around the target elevation, or between elevations 1,034.6 and 1,035.2 feet msl. Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee, the Wisconsin Department of Natural Resources, the National Park Service, and the U.S. Fish and Wildlife Service. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than ten days after each such incident.

Article 402. The licensee shall operate and maintain the existing headwater and tailwater streamflow monitoring equipment and staff gages in the Namekagon River to monitor compliance with the run-of-river mode of operation as stipulated by Article 401. Furthermore, the licensee shall provide improved visibility features on the staff gages to permit easy public scrutiny of operation. The project flow records shall be made available to the U.S. Geological Survey, the National Park Service, the U.S. Fish and Wildlife Service, and the Wisconsin Department of Natural Resources within thirty days of the agency's request for the data.

Article 403. Within six months from the effective date of this license, the licensee shall provide to the Wisconsin Department of Natural Resources \$5,000 for sturgeon restoration above Trego Dam and \$500 for a study to assess the potential for restoring the gilt darter above Trego Dam. If the assessment indicates that there are no gilt darters above the dam, and if suitable habitat is identified, the licensee shall provide up to \$2,000 to Natural Resources for restoration efforts. The licensee shall file a progress report on this matter with the

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Commission, together with the comments of Natural Resources, within two years from the effective date of this license.

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

Article 405. The licensee shall prepare a drawdown management plan for Commission approval. The plan shall include two components: (1) a needs analysis, to be filed six months from the effective date of this license and subsequently updated at periodic intervals; and (2) if a need is identified initially or in the future, a drawdown implementation plan to be filed within six months of the initial determination of need.

The needs analysis shall include: (a) a study to determine the amount of recreational use at the Trego impoundment, (b) a qualitative and quantitative aquatic macrophyte survey to determine the extent of aquatic vegetation in the Trego impoundment, and (c) an analysis of the effect of the vegetation and sedimentation on recreational access and use of the Trego impoundment. The needs analysis shall also consider alternative management techniques and options to drawdown (e.g., dredging, chemical treatment), and an analysis of their costs, to maintain recreational use of the impoundment.

If a drawdown is needed, the licensee shall prepare a drawdown implementation plan to include: (a) an evaluation of the consistency of a drawdown with the management objectives of the Park Service, (b) the identification of appropriate pre-drawdown studies, including any sediment sampling in the impoundment, (c) an evaluation of the specific timing, degree, and duration of the proposed drawdown, (d) evidence that appropriate state permits have been obtained, and (e) a schedule for monitoring the effects of the drawdown. The licensee shall provide a 230-cfs minimum flow release at all times during any future drawdown and the subsequent refilling of the impoundment, and shall draw down the impoundment at a rate not to exceed one foot per day for the first four days of the drawdown.

The licensee shall conduct its needs analysis and all subsequent updates, and prepare any drawdown implementation plan(s), in consultation with the U.S. Fish and Wildlife Service, the National Park Service, the Wisconsin Department of Natural Resources, and the Trego Lake District. The licensee shall include with its filings documentation of consultation and copies of any comments and recommendations of the agencies and the Trego Lake District. If the licensee does not adopt a recommendation from any of the agencies, the filing shall include the licensee's reasons, based on project-specific information.

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The needs analysis shall be filed for Commission approval within six months from the effective date of this license. The needs analysis shall be updated by the licensee as required by the Commission's regulations, 18 C.F.R § 8.11 (1993), in conjunction with the filing of the standard FERC Form 80, Licensed Hydropower Development Recreation Reports. If the needs analysis, or any subsequent updates, indicate that a need for a drawdown exists, the licensee shall proceed with the preparation of an implementation plan, as described above, and file the plan for Commission approval within six months after identifying a need. The Commission reserves the right to require changes to the implementation plan. Upon Commission approval of the plan, the licensee shall implement any measures required by the Commission.

Article 406. The licensee shall implement the provisions of the "PROGRAMMATIC AGREEMENT AMONG THE FEDERAL ENERGY REGULATORY COMMISSION, THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND THE WISCONSIN STATE HISTORIC PRESERVATION OFFICER FOR THE MANAGEMENT OF HISTORIC PROPERTIES AFFECTED BY THE TREGO HYDROELECTRIC PROJECT," executed on June 16, 1992. The Commission reserves the authority to require changes to any cultural resources management plan or plans at any time during the term of the license.

Article 407. The licensee shall provide the following recreational improvements at the project: (1) provide signs indicating the parking area for walk-in fishing off North River Road; (2) provide trash receptacles and portable toilets at its existing portage trail during the period between Memorial Day and Labor Day each year; and (3) periodically cut the emergent aquatic vegetation at its upstream canoe take-out area to improve access. In addition, the licensee shall provide its 1990 recreational use survey data to the Wisconsin Department of Natural Resources.

The licensee shall provide the recreational improvements after consultation with the U.S. Fish and Wildlife Service, the National Park Service, and the Wisconsin Department of Natural Resources. The completed facilities and access shall be shown on the as-built drawings filed pursuant to this license.

The licensee shall file a report with the as-built drawings which shall include the entity responsible for operation and maintenance of the facilities and access, and documentation of resource agency consultation and copies of the agency comments and recommendations on the report after it has been prepared and provided to the agencies, including specific descriptions of how the agencies' comments are accommodated by the report. The report shall include a description of how the needs of the disabled were considered, and indicate the specific project facilities, if any, that would be available for use by the

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

Article 408. The licensee, after consultation with the Wisconsin Department of Natural Resources, the National Park Service, U.S. Fish and Wildlife Service and other local agencies responsible for recreational facility planning, shall monitor recreation use of the project area to determine whether existing recreation facilities are meeting recreation needs. Monitoring studies shall begin within 6 years of the date this license is issued and follow the schedule thereafter for the submittal of FERC Form 80. Monitoring studies, at a minimum, shall include the collection of annual recreation use data.

Every 6 years during the term of the license, in accordance with the schedule for FERC Form 80, the licensee shall file a report with the Commission on the monitoring results. The report shall include:

- (1) annual recreation use figures;
- (2) a discussion of the adequacy of the licensee's recreation facilities at the project site to meet recreation demand;
- (3) a description of the methodology used to collect all study data;
- (4) if there is a need for additional facilities, a recreation plan proposed by the licensee to accommodate recreation needs in the project area;
- (5) documentation of agency consultation and agency comments on the report after it has been prepared and provided to the agencies; and
- (6) specific descriptions of how the agencies' comments are accommodated by the report.

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

Article 409. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational,

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and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and water for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction; (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph the licensee may, among other things, establish a program for issuing permits for the specified types of uses 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 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, expan-

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sion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph 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. If no conveyance was made during the prior calendar year, the licensee shall so inform the Commission and the Regional Director in writing no later than January 31 of each year.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for:

(1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least seventy-five feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than fifty total acres of project lands for each project development are conveyed under this clause in any calendar year. At least sixty days before conveying any interest in project lands under this paragraph, 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 forty-five days from the filing date,

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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 ensure 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.

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(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.

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

(G) This order is final unless a request for rehearing is filed within 30 days of the date of issuance of this order, pursuant to 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.

**ENVIRONMENTAL ASSESSMENT
FOR HYDROPOWER LICENSE**

Trego Hydroelectric Project

FERC Project No. 2711-002

Wisconsin

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

February 27, 1992

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SUMMARY AND CONCLUSIONS

On March 22, 1991, Northern States Power Company (Northern States) filed an application for a new license for its existing Trego Hydroelectric Project, located on the Namekagon River in Wisconsin. The project is on a reach of the Namekagon River that is included within the National Wild and Scenic Rivers System; however, the project does not occupy federal lands. The existing project has a total installed capacity of 1.2 megawatts (MW). The original license was issued on March 11, 1977, for a period of 50 years from April 1, 1943, and expires on March 31, 1993.

The Department of the Interior (Interior) and American Rivers, Inc. oppose issuance of a new license for the Trego Project. As discussed in section C.4.a.(1), Interior and American Rivers claim that because the project is located on a designated National Wild and Scenic River, a unit of the National Park System, the Commission does not have authority to relicense the project. We believe the Commission has authority to license the project because the project was operating before designation of the St. Croix Wild and Scenic Riverway, and because the enabling legislation for the National Wild and Scenic Rivers Act (P.L. 90-542) does not prohibit the licensing of existing projects. In fact, the project's existing license was issued after the Riverway was designated. Neither Interior nor American Rivers object to the project for environmental reasons.

The environmental assessment (EA) analyzes the impacts associated with issuing a new license for the Trego Project and recommends terms and conditions to become a part of any new license issued. Measures recommended to enhance environmental resources and recreational opportunities include: (1) required future operation of the project in a run-of-river mode, using the new controls installed by Northern States in 1990 to narrow the normal operating range of the power pool to within 0.3 foot of total fluctuation, thus providing stabilized and near-natural aquatic conditions for fish and wildlife at the impoundment and downstream; (2) funding of support programs for the restoration of the lake sturgeon and gilt darter upstream of the project; (3) improved recreational access facilities at the existing canoe portage near the project dam, including signs, trash receptacles, portable toilets in summer, and periodic cutting of emergent vegetation at the canoe take-out area; (4) maintenance of the existing trashracks with 1.5-inch bar spacing to minimize fish entrainment and impingement; (5) formulation of a drawdown management plan to evaluate the need for and, if needed, implement a drawdown to control sediment accumulation and aquatic vegetation, and thus provide good recreational access and use of the upper impoundment; (6) formulation and implementation of a cultural resources management plan to protect archeological sites that may be affected by project operation; and (7) provision of fish passage facilities if future needs require.

The Wisconsin Department of Natural Resources (WDNR), Interior, and the Wisconsin State Historic Preservation Officer (SHPO) generally agree with these recommendations. With the exception of the drawdown management plan and cultural resources management plan, Northern States also agrees with these recommendations. Northern States does not believe that a drawdown management plan is needed now (for discussion, see section G.5.). Also, Northern States sees no need for any further cultural resources analysis (for discussion, see section G.6).

Overall, we believe these measures would preserve and enhance the fish, wildlife, and recreational values of the Namekagon River, and would be consistent with the management objectives of the National Park Service (NPS) for the St. Croix Wild and Scenic Riverway (U.S. Department of the Interior, National Park Service, 1976). At the same time, the project would continue to produce an estimated 7,580 megawatthours (MWh) of relatively low-cost, clean, and reliable electricity, and thus conserve nonrenewable energy resources and avoid the emission of additional noxious gases that contribute to atmospheric pollution.

**ENVIRONMENTAL ASSESSMENT
FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF HYDROPOWER LICENSING
DIVISION OF PROJECT REVIEW**

**Trego Hydroelectric Project
FERC Project No. 2711-002
February 27, 1992**

A. APPLICATION

1. Application type: Minor New License
2. Date filed with the Commission: March 22, 1991
3. Applicant: Northern States Power Company
4. Water body: Namekagon River River basin: St. Croix
5. Nearest city or town: Trego
6. County: Washburn State: Wisconsin

B. PURPOSE AND NEED FOR ACTION

1. Purpose. The Licensee, Northern States Power Company (Northern States), has filed an application for a new license for the continued operation of the Trego Project on the Namekagon River. This environmental analysis (EA) assesses the impacts associated with the issuance of a new license for the project and recommends terms and conditions to become a part of any license issued.

The Federal Power Act (Act) provides the Federal Energy Regulatory Commission (Commission) with the exclusive authority to license nonfederal waterpower projects on navigable waterways and federal lands. Pursuant to Section 15(a)(1) of the Act, upon expiration of a license, the federal government can take over the project (with equitable compensation), or the Commission can issue a new license to either the existing licensee or a new licensee.

For any license issued, the Commission must determine that the project adopted will be best adapted to a comprehensive plan for improving or developing a waterway. In addition to the power and developmental purposes for which licenses are issued, the Commission shall give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality.

The primary purpose of the Trego Hydroelectric Project is to continue to generate power. The existing project has, and would continue to have, a total installed capacity of 1.2 MW, and produce an average of about 7,580 MWh of energy per year.

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

C. PROPOSED PROJECT AND ALTERNATIVES

1. Description of the proposed action. Northern States proposes to continue operating its existing licensed project facilities (see figures 1 and 2). Operation of the project would continue to be in a run-of-river mode; no new construction is proposed.

The project dam, which has an overall length of approximately 625 feet, is comprised of two embankment sections, a spillway, and a powerhouse. Accordingly, the project facilities would consist of: (1) a northeastern earth embankment section with a length of 380 feet and a maximum height of about 30 feet; (2) a southwestern earthfill embankment section with a length of 110 feet and a maximum height of about 25 feet; (3) an Ambursen-type buttress, hollow, concrete gravity spillway structure 92 feet long by 27 feet high, surmounted by three Taintor gates, each 25.5 feet long by 10 feet high, and a 6-foot-wide trash gate and sluiceway; (4) an impoundment about 6 miles long, with a surface area of 470 acres and an estimated storage capacity of 4,700 acre-feet at the normal water surface elevation of 1,035.0 feet;^{1/} (5) a reinforced concrete, steel, and brick powerhouse 59.5 feet long by 30.2 feet wide by 74 feet high, located adjacent to the left end of the spillway structure; (6) powerhouse generating equipment consisting of two open flume vertical-axis Francis turbine-generator units rated at 700 kilowatts (kW) and 500 kW, for a total installed capacity of 1,200 kW; (7) a small substation; and (8) appurtenant equipment and facilities.

There is no primary transmission line beyond the project substation because the substation feeds directly into Northern States' distribution system.

2. Applicant's proposed enhancement measures. Northern States proposes to: (1) continue to operate the project in a run-of-river mode to minimize fluctuations of the surface elevation of the impoundment and maintain the natural volume and

^{1/} The surface elevations shown are as measured from National Geodetic Vertical Datum (NGVD), the equivalent of mean sea level (msl).

periodicity of stream flow downstream of the project; (2) support programs for the restoration of the gilt darter and lake sturgeon upstream of the project; (3) keep the existing project intake structures (trashracks with 1.5-inch bar spacing) in place to minimize resident fish entrainment and impingement; (4) consult with the resource agencies and other interested parties on a recurring basis in evaluating the need for, and implementing, future drawdown(s) of the project impoundment to redistribute accumulated sediments in the upper impoundment and control associated nuisance aquatic vegetation; (5) notify property owners in the project area of the existence of archeological sites on their lands, and of the Wisconsin State Historic Preservation Officer's (SHPO) recommendations for protecting these sites; and (6) enhance existing recreational access near the project dam.

3. Federal lands affected. None

4. Alternatives to the proposed project.

a. X No reasonable action alternatives have been found. The following action alternatives were considered but eliminated from further evaluation:

(1) Federal takeover: The federal government could, by Act of Congress, take over this project and operate it according to Section 14 of the Act. On its own motion or upon recommendation of a federal department or agency, the Commission could recommend this alternative to Congress, after notice and opportunity for hearing. No federal agency has recommended a federal takeover of the Trego Project; nor would we recommend any such action based on our analysis of the project's benefits, as described herein.

Although Interior does not recommend a federal takeover, it contends that the Commission does not have authority to issue a new license for the Trego Project without specific authorization from Congress (letter from Jonathan P. Deason, Director, Office of Environmental Affairs, Office of the Secretary, U.S. Department of the Interior, Washington, DC, November 20, 1991). Interior believes the Commission lacks licensing jurisdiction because the Trego Project is located within the St. Croix National Wild and Scenic River, a unit of the National Park System, administered by the NPS. Even though Interior opposes issuance of a new license at this time, it would not oppose Congressional legislation granting the Commission authority to issue a new license. Interior takes this position because the Trego Project was in operation before Congress designated the St. Croix River as a National Wild and Scenic River, and because the project has operated without sufficient adverse impacts to prompt Interior's objection to relicensing, except for the jurisdictional issue discussed above.

American Rivers also believes the Commission lacks authority to issue a new license for the project and states further that authority for the management of the project should be transferred to the NPS, in accordance with Section 10(c) of the Wild and Scenic Rivers Act (WSRA).

As Interior noted, the Trego Project was operating before the St. Croix River and Namekagon River, its major tributary, were designated as Wild and Scenic Rivers in 1968. The enabling legislation for the National Wild and Scenic Rivers Act (P.L. 90-542) does not prohibit the licensing of existing projects. When the present license for the Trego Project was issued in 1977, the St. Croix and the Namekagon Rivers, were already within the National Wild and Scenic Rivers System. In the intervening years, the Commission has exercised its jurisdiction over the licensed project under the Act on a continuing basis without objection by Interior. Under these circumstances, and in the absence of a clear Congressional directive to the contrary, we see no justification to now withdraw from the Commission's regulatory responsibilities under the Act, including the present review of the pending application for new license, consultation with all the resource agencies, including the Interior agencies, and the issuance of any new license with appropriate terms and conditions.

(2) Other alternatives: We also considered the following alternatives: (a) issuance of a nonpower license, (b) issuance of an annual license, and (c) denial of the license application. Since no entity has recommended that a nonpower license be issued for the project, this option does not appear to be relevant and has been dropped from further consideration. Issuance of an annual license is not expected to be necessary and is not considered further because sufficient time exists for action on the pending application before the present license expires in March 1993. Any denial of license would result in the cessation of hydropower generation at the project and the potential removal of all or part of the project works. No commenting entity has recommended this option for consideration. Furthermore, Northern States would have to find a replacement source of energy, leading to the likely consumption of fossil fuels, and thus resulting in increased atmospheric emissions. Thus, denial of the pending application was not evaluated in further detail herein.

b. Alternative of no action. No action would result in continuing to operate the project as it is presently, without the environmental enhancement measures outlined herein.

D. CONSULTATION AND COMPLIANCE

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

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

2. Section 7 consultation (Endangered Species Act).

- a. Listed species: None. Present:
 b. Consultation: Not required.

Remarks: Bald eagles (Haliaeetus leucocephalus) nest along the project impoundment, but are not affected by the project. The project is within the range of the gray wolf (Canis lupis), but suitable habitat does not exist within the project area.

3. Section 401 certification (Clean Water Act).

Not required.

Required; applicant requested certification on 3/19/90.
 Status: Waived by the certifying agency on 12/03/90.

4. Cultural resource consultation (National Historic Preservation Act).

- a. State Historic Preservation Officer: Yes No.
 b. National Park Service: Yes No.
 c. National Register status: None Eligible or listed.
 d. Advisory Council: Not required. In progress.
 e. Further consultation: Not required. Required.

Remarks: We are continuing to consult with the Advisory Council for Historic Preservation and the SHPO on the Trego Project, and on a Statewide Programmatic Agreement for Wisconsin. Such an agreement would stipulate generic license conditions for preserving National Register and eligible properties at all relicensed projects in Wisconsin, including the Trego Project. Whether or not a Statewide Programmatic Agreement is executed, Northern States must consult further with the SHPO, and prepare a plan for preserving National Register and eligible properties at the Trego Project.

5. Recreational consultation (Federal Power Act).

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

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

Status: None Listed. Determination completed: 11/02/68.
 Administering agency: Department of Interior,
 National Park Service.

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Remarks: By letter dated November 20, 1991, Interior said that because the project is located on a designated National Wild and Scenic River administered by the NPS as a component of the National Park System, the provisions of Section 7(a) of the Wild and Scenic Rivers Act are applicable. Interior noted that any proposed construction at the project would require that a Section 7 determination be made by the Secretary of the Interior.

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

Status: X None. Designated.

E. COMMENTS

1. The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated July 16, 1991.

<u>Commenting agencies and other entities</u>	<u>Date of letter</u>
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State of Wisconsin Public Service Commission	06/27/91
Wisconsin Department of Natural Resources	08/28/91
Trego Lake District	08/28/91
	11/01/91
	12/12/91
U.S. Department of the Interior	11/20/91

<u>Motions to intervene</u>	<u>Date of motion</u>
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Wisconsin Department of Natural Resources	07/24/91
American Rivers, Inc.	07/29/91

Remarks: Interior and American Rivers oppose issuance of a new license for the Trego Project. As discussed in section C.4.a.(1), Interior and American Rivers claim that because the project is located on a designated National Wild and Scenic River, the Commission does not have authority to relicense the project.

2. In its December 12, 1991, response to Interior's contention that the Commission does not have the authority to issue a new license for the project, Northern States disagreed, saying that the Commission clearly possesses the authority to issue a new license for the project because neither the Act nor the WSRA prohibits the Commission from issuing a new license. On January 10, 1992, Northern States responded to the other comments filed on the application for new license.

F. AFFECTED ENVIRONMENT

1. General description of the locale.

a. **Description of the St. Croix River Basin.** The Trego Project is located on the Namekagon River, which is a tributary of the St. Croix River (see figure 2). The St. Croix River, located in northwestern Wisconsin and eastern Minnesota, is a tributary of the upper Mississippi River. The drainage area of the St. Croix River Basin is 7,650 square miles. The river flows through rolling glacial terrain, including agricultural and forest land. The entire mainstem St. Croix River is a Wild and Scenic River under the WSRA.

The Namekagon River is the largest tributary of the St. Croix River, with a drainage area of 488 square miles. The project is located 30 miles upstream from the St. Croix River confluence and 70 miles downstream from the river's origin at Lake Namekagon. The entire mainstem Namekagon is also located within the National Wild and Scenic Rivers System. The reach on which the project is located is designated "recreational," which allows limited development along the shoreline, including the shoreline of the project impoundment. One other licensed project, the Hayward Project, FERC No. 2417-001, is located on the Namekagon River, about 30 miles upstream of the Trego Project.

b. As of December 4, 1991, there are a total of 13 hydroelectric developments in the St. Croix River Basin (see figure 2), including six operating minor projects licensed by the Commission (one of which has two developments), two operating projects with license exemptions, and four operating projects without a license or exemption. On December 23, 1991, Northern States filed an application for a new license for its Hayward Project.

c. **Target Resources.** A target resource is an important resource that may be cumulatively affected by multiple development in a river basin. We have identified no target resources in the St. Croix River Basin, based on our evaluation of the significance and geographic distribution of existing resources and the comments of the resource agencies on the application for new license for the Trego Project.

2. **Descriptions of the resources in the project impact area.** (Source: Northern States Power Company, 1991(a), unless otherwise indicated).

a. **Geology and Soils:** The project is located near the northern limits of the Central Plain geologic province. The project area geology developed from glacial activity. The soil is generally sandy with pockets of heavier sandy loam. The topography is characterized by small ridges, lakes, and bogs.

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<u>b. streamflow:</u>	<u>cfs</u>	<u>flow parameter</u>
low flow:	286	exceeded 90 percent of the time
high flow:	721	exceeded 10 percent of the time
average flow:	472	average annual

Remarks: Flows are from U.S. Geological Survey (USGS) data collected at gauging station No. 05332500, located on the Namekagon River at the Trego dam during the period from 1928 to 1970.

c. Water quality: Currently, the WDNR classifies the Namekagon River at the project site as one that must meet the following categorical standards: general; fish and other aquatic life uses; standards for recreational use; standards for public health and welfare; and standards for domestic animals. Furthermore, the reach of the Namekagon River which includes the project site is also classified under Wisconsin regulations as an outstanding resource water. The standards for fish and aquatic life include the following numerical standards: a minimum dissolved oxygen (DO) concentration of 5 milligrams per liter (mg/l) at all times, natural daily/seasonal water temperature fluctuations maintained with temperature not to exceed 89 degrees Fahrenheit for warm water fish, a pH within the range of 6 to 9, and substance toxicity concentrations within the Environmental Protection Agency (EPA) guidelines. Historical water quality data on the Namekagon River and the Trego impoundment, obtained by the USGS and the NPS from 1975 to 1983, show that the water quality in the project vicinity was good for most uses (Graczyk, 1986).

d. Fisheries:

Anadromous: Absent. Present.
 Resident: Absent. Present.

The fishery of the Trego impoundment and the Namekagon River consists of a diverse community of species, and has received considerable management attention. Early management was primarily limited to stocking of gamefish, panfish, and forage fish. However, the emphasis of the stocking program has been, and continues to be, on walleye and muskellunge. As a result of these stocking efforts, the Trego impoundment has become known for its walleye, smallmouth bass, bluegill, and black crappie fishing.

Other game fish in the vicinity of the project include northern pike, largemouth bass, yellow perch, rock bass, pumpkinseed sunfish, and brown trout. Nongame fish include burbot, white sucker, golden redhorse, greater redhorse and river redhorse (both listed as threatened by the WDNR), shorthead

redhorse, northern hogsucker, yellow bullhead, black bullhead, brown bullhead, bowfin, golden shiner, madtom, log perch, mudminnow, common shiner, creek chub, and chestnut lamprey.

e. Vegetation:

<u>Cover type</u>	<u>Dominant Species</u>
Upland forest	Jack pine, aspen, white birch, red oak, Norway pine, white pine
palustrine forested wetland 2/	tamarack, black spruce, balsam fir, green and black ash, elm, and silver maple
palustrine scrub-shrub	willow
palustrine emergent persistent	cattail, bur-reed
lacustrine littoral and limnetic aquatic bed	flat-stem pond weed, coontail, water milfoil, water lily
lacustrine littoral emergent	wild rice

f. Wildlife: Upland forested areas near the project provide habitat for a variety of wildlife species including: ruffed grouse, woodcock, broad-winged hawk, osprey, bald eagle, bobcat, red and gray fox, porcupine, woodchuck, raccoon, red squirrel, short-tailed weasel, chipmunk, striped skunk, cotton-tail, snowshoe hare, white-tailed deer, black bear, and numerous small mammal species. Wetland areas at the project, especially in the upper impoundment area, provide valuable habitat for mallard, blue-winged teal, wood duck, common and hooded merganser, great blue and green heron, common loon, and aquatic furbearers.

g. Cultural: National Register (listed and eligible) properties are present at the project. The Trego Dam Historic District, consisting of the existing powerhouse, south earthen dam, reinforced multi-section dam, north earthen dam, the high-voltage substation -- all constructed in 1926-27 -- and the highway bridge are eligible for listing in the National Register of Historic Places. It is a representative and highly intact example of small-scale hydroelectric facilities constructed by the second generation of electric utility systems in Wisconsin before World War II.

Also, an archeological survey of the project reservoir shoreline, conducted for Northern States by the Burnett County Historical Society, identified five archeological and two

2/ Wetland nomenclature follows Cowardin, et al. (1979).

historic sites that are, or may be, eligible for the National Register. The two historic sites are outside the reservoir operation limits; therefore, not affected by the project and not in need of further survey work. One of the archeological sites was determined not to be eligible during a more recent survey. Of the remaining four sites, site 34:2 is considered eligible based on existing data, and sites 29:1, 29:2, and 35:1 are recommended for further evaluation for eligibility by the SHPO.

h. Visual: The project area is mostly forested and highly scenic. Shoreline development is restricted because the project area is located within the St. Croix National Scenic Riverway. In the developed areas on the Trego impoundment, most of the buildings are situated back from the shoreline and among mature trees, so that the natural view is not appreciably altered. The scenic quality of the area attracts considerable recreational use.

i. Recreation: The Namekagon River, from the railroad bridge crossing near the village of Trego, downstream to Trego dam, is classified by the NPS as a Recreation River Area within the National Wild and Scenic Rivers System. This 6.5-mile-long reach includes the entire licensed Trego Project. The river upstream and downstream of the project is classified as a Scenic River Area (U.S. Department of the Interior, National Park Service, 1976).

The project impoundment and tailrace area provide a variety of public outdoor recreational opportunities, including canoeing and other boating, fishing, and sightseeing. The impoundment is stocked with gamefish and panfish. Annual visitation at the project is estimated at 5,000 visitors, with a daily peak of 750 visitors (Northern States, 1991(b)).

Northern States provides a canoe portage at the dam's north embankment, as well as public safety facilities, fencing, and signs at the project. Other recreational facilities adjacent to the project impoundment include four privately-owned resorts (three with campgrounds), two canoe rental establishments, a public boat landing, and an 11-acre park at the upper end of the impoundment maintained by the village of Trego. Facilities at this park include 50 picnic units, 61 campsites, a playground, and sanitary facilities.

The NPS has acquired ownership of three tracts of shoreland on the Trego impoundment which have a combined area of about 151 acres. The NPS has no present plans for the acquisition of other shoreland or land rights on the Trego impoundment. A 3.6-mile-long hiking and cross-country ski trail is maintained by the NPS along the right (north) shoreline of the impoundment. The trail was designed by the NPS for beginner and intermediate skiers. The NPS also operates a visitor information center just off

Highway 63, near the upper end of the impoundment. The NPS center is visited by canoeists and other outdoor enthusiasts traveling through the area.

j. Land use: Northern States owns about 19 acres of land near the project dam, as well as flowage or fee title rights for all lands under the 470-acre impoundment. Control of shoreland development is vested in the Washburn County Zoning Administration in accordance with the County's shoreland and other zoning ordinances. The County's shoreland zoning codes require a minimum 75-foot structure set-back, a 30 percent restriction on removal or cutting of vegetation within 35 feet of the shoreline, and prohibitions on filling, grading, and ditching.

Thirty percent of the impoundment shoreline is developed with private homes, cottages, resorts and campgrounds. The remaining project area has an undeveloped, forested character.

k. Socioeconomics: The project is located in the sparsely populated northwestern corner of Wisconsin. The 1990 population of Washburn County, Wisconsin, was 13,772 (personal communication, Statistical Information Assistant, Bureau of Census, Suitland, Maryland, November 21, 1991). Tourism is a major component of the local economy, together with agriculture, especially dairy farming.

G. ENVIRONMENTAL ISSUES AND PROPOSED RESOLUTIONS

There are 7 issues addressed below.

1. Project operation: Northern States now operates and proposes to continue operating the project in a run-of-river mode, in which inflow to the project impoundment equals outflow.

Based on its pre-filing consultation with the resource agencies for relicensing, Northern States installed new operational controls in 1990 to narrow the normal range of the power pool to within 0.3-foot total fluctuation. Northern States attempts to maintain a winter pool elevation between 1,034.8 feet and 1,034.9 feet, and summer power pool elevation between 1,034.8 feet and 1,035.1 feet.

Agency recommendations. The WDNR recommends the project operate in a run-of-river mode, with the elevation of the impoundment maintained during normal operation between 1,034.8 and 1,034.9 feet in winter, and between 1,034.8 and 1,035.1 feet, during the remainder of the year (letter from William H. Clark, NWD FERC Project Manager, Wisconsin Department of Natural Resources, Spooner, Wisconsin, August 28, 1991). The WDNR says that under extreme conditions, the elevation of the impoundment should vary between 1,034.7 and 1,035.3 feet, or up to 0.6 foot,

for flood flows, equipment malfunctions, or operational emergencies, provided these terms are clearly defined and agreed to by the WDNR. To verify run-of-river operation, the WDNR recommends Northern States maintain its existing streamflow monitoring equipment, maintain daily operator logs and continuous circular chart recordings, and provide such records to WDNR within 30 days upon request.

Interior recommends Northern States maintain the surface elevation of the Trego impoundment at 1,035.0 feet, with a maximum elevation of 1,035.25 and a minimum elevation of 1,034.75 feet, or within an operating range of 0.5 foot (letter from Jonathan P. Deason, Director, Office of Environmental Affairs, Office of the Secretary, U.S. Department of the Interior, Washington, DC, November 20, 1991). Interior also recommends that the project impoundment should not be modified beyond its recommended elevation limits without the prior concurrence of the WDNR, the U.S. Fish and Wildlife Service (FWS), and the NPS. To demonstrate compliance with its recommended operational levels at the project impoundment, Interior recommends Northern States ensure that its upstream and downstream staff gages are clearly visible to the public, are acceptable to the FWS and the State, indicate the maximum and minimum allowed surface elevations at the impoundment, and maintain daily records and provide them to the FWS and the State upon request.

Applicant's response. Although Northern States attempts to limit normal impoundment fluctuations to the levels recommended by the WDNR, Northern States proposes a 0.3-foot normal operating range year-round (letter from Anthony G. Schuster, Vice President, Power Supply, Northern States Power Company, Eau Claire, Wisconsin, January 10, 1992). Northern States believes that a more restrictive operating range in winter would be both technically difficult to achieve and unjustified from an environmental perspective.

Northern States agrees with the WDNR's recommendation for a 0.6-foot impoundment variation during extreme conditions, except that the specified operating range should extend between elevations 1,034.6 and 1,035.2 feet. Northern States requests a slightly lower minimum elevation because of concern over future compliance and the operational limitations of its load control equipment, which are set to automatically shed load a final time with a falling impoundment at elevation 1,034.7 feet.

Northern States questions the WDNR's recommendation that future deviations from normal operation be clearly defined and agreed to by the WDNR. In addition to the extreme conditions referenced by the WDNR, Northern States says variations in the impoundment level could also be required during extreme drought, ice jams, or other unforeseen events beyond its control. Northern States believes it should not be necessary to define every

possible occurrence when a variance from the normal operating range may be necessary. In response to Interior's recommendation on any changes in the project operating regime, Northern States suggests that the mode of project operation could be temporarily modified in the future if required by operating emergencies beyond its control or for short periods upon mutual agreement among itself, the WDNR, and the NPS.

Northern States concurs with the WDNR's and Interior's recommendations on streamflow gaging.

Conclusion. Although Northern States recently installed new monitoring equipment in an attempt to maintain the total fluctuation of the Trego impoundment to within 0.3 foot, it has had very limited operating experience in maintaining such tight control of the surface elevations. Furthermore, Northern States' turbine-generator units are old and do not have as much flexibility to adjust to different flow conditions as newer and more modern generating units. Additionally, even though Northern States has new monitoring equipment at the project, the equipment cannot respond to instantaneous flow changes when exercising control over the turbine-generator units and/or sluice gate, thus resulting in a time lag.

We conclude that many factors can cause changes in the elevation of the Trego impoundment, as described above. We also note the factor of wind tides (wind setup) at the project. Although the impoundment has a maximum width of only 0.35 mile, it is about 6 miles long, and can be affected by wind setup which causes different elevations at different locations on the impoundment at the same time. As a result of this factor, and the various other conditions that could periodically influence impoundment levels, we believe that Northern States should not be penalized if, while making a good faith effort to remain within the normal operating range, it fails to achieve any overly restrictive target elevation objectives.

Therefore, we recommend that any new license for the project include a requirement for operation in a run-of-river mode, and for a stabilized impoundment to the extent that operating conditions and equipment calibration permits. We also recommend that any new license set a target elevation for the Trego impoundment at 1,034.9 feet, but allow for a fluctuation of 0.3 foot around the target elevation. Hence, the impoundment would have to exceed 1,035.2 feet or fall below 1,034.6 feet before Northern States is subject to any compliance action. We also recommend that under extreme conditions, such as floods, ice jams, equipment malfunction, or operational emergencies, the normal elevation limits for the impoundment be lifted.

We conclude that it is unnecessary and unreasonable to require Northern States to enter into an agreement with the WDNR

to define all of the specific extreme operating conditions that could occur in the future.

Future operation of the project in a run-of-river mode would minimize fluctuations of the surface elevation of the project impoundment, and would maintain the natural volume and periodicity of stream flow downstream of the project. Thus, aquatic resources in the Namekagon River downstream of the project would be protected. Since the project would not alter streamflow in the Namekagon River upstream or downstream of the project, fish and wildlife habitats, including wetland areas, would not be affected by project operation. Furthermore, we conclude that our recommended operating regime is consistent with the stated management objectives of the NPS (U.S. Department of the Interior, National Park Service, 1976).

The monitoring system currently used at Trego dam was installed in 1990, and consists of a Montedora-Whitney Flow/Level Computer with sensors to monitor headwater and tailwater levels. Output from these sensors are recorded on continuous recording charts which provide a permanent record of project operation. In addition, staff gages are maintained on the dam headworks and in the project's tailwaters.

We conclude that Northern States' existing streamflow monitoring system is adequate to verify compliance with the run-of-river operation and impoundment level requirements, and recommend that the system continue to be used in the future, but with the improved visibility features suggested by Interior to permit easy public scrutiny of operations. In addition, in accordance with the recommendations of the WDNR and Interior, we conclude that Northern States should be required to provide data from the monitoring system to the USGS, the NPS, the FWS, and the WDNR within 30 days of any agency request for the data.

2. Sturgeon and gilt darter reintroduction: Lake sturgeon and gilt darter are state protected species (endangered and threatened, respectively). The presence of Trego dam serves as a barrier to upstream movement of these species; however, neither species is now known to exist in the Trego impoundment (letter from William H. Clark, NWD FERC Project Manager, Wisconsin Department of Natural Resources, Spooner, Wisconsin, September 24, 1990).

Northern States, in consultation with the WDNR, has committed to provide funding (totalling \$5,000) for lake sturgeon restoration efforts upstream of the Trego dam. In general, the WDNR intends to use the funds to stock hatchery raised fingerling sturgeon in the Trego impoundment. The WDNR would monitor the success of the restoration program as part of its normal monitoring studies. The WDNR indicates that the slow growth and reproductive capacity of lake sturgeon warrants a long-term

commitment from both the WDNR and Northern States. Any new license would expire (i.e., 30 years) before a determination can be made regarding the success of the lake sturgeon restoration efforts. In addition, the WDNR requests funding (\$500 initially and \$2,000 later, if suitable habitat is found) for reintroduction of the gilt darter above the Trego Project. The WDNR recommends that the \$5,000 for lake sturgeon restoration and the initial \$500 for gilt darter habitat assessment be provided within 2 years of license issuance (letter to Lloyd Everhart, Northern States Power Company, from William H. Clark, NWD FERC Project Manager, Wisconsin Department of Natural Resources, Spooner, Wisconsin, March 21, 1991). Northern States has agreed to provide this funding within 6 months of license issuance (letter from Lloyd D. Everhart, Administrator, Hydro Licensing and Environmental Studies, Northern States Power Company, Eau Claire, Wisconsin, February 25, 1991).

The lake sturgeon and the gilt darter were historically found throughout the Namekagon River. However, the presence of Trego dam has limited the geographic range of both species to the Namekagon River downstream of the project, leading to their extirpation from the Namekagon River upstream of the Trego Project. It is the intent of the WDNR to restore the lake sturgeon and gilt darter to the Namekagon River upstream of Trego dam without reintroducing undesirable species, such as the common carp. The implementation of effective measures for lake sturgeon restoration and gilt darter reintroduction, in the form of stocking, would enhance the fish community structure upstream of Trego dam. Expanding each species' geographic range would also increase population size, and possibly lead to the removal of the species from the state protected list.

Therefore, if a license is issued for the Trego Project, we recommend that the licensee be required to provide \$5,000 to the WDNR for lake sturgeon restoration and \$500 to the WDNR for a study to assess the potential for restoring the gilt darter above Trego dam. If the study indicates that gilt darter restoration is feasible, Northern States should provide \$2,000 to the WDNR for restoration efforts.

3. Fish entrainment and mortality: The WDNR states that fish entrainment is occurring at the Trego Project, but the magnitude of fish mortality is unknown, pending the results from planned and ongoing fish entrainment studies conducted at other locations in the state. The WDNR believes its continued stocking program for the Trego impoundment provides adequate mitigation for whatever fish entrainment and mortality losses may occur in the near future. Therefore, the WDNR recommends that any license issued contain a provision requesting reopening the license and consideration of amended terms and conditions by the resource agencies should new information suggest the need for mitigation of fish entrainment and associated fish mortality losses.

Northern States says that the potential for fish entrainment and fish mortality is low at the Trego Project. Northern States supports its conclusion with four observations: 1) 1.5-inch trashrack spacing keeps moderate and large fish out of the turbines; 2) the Trego impoundment and the Namekagon River below the project have robust fish populations; 3) there are no practical means to prevent entrainment of larval and juvenile fish; and 4) juvenile and larval fish are passing through the turbines and contributing to the downstream fishery.

Background. The Namekagon River and the Trego impoundment support resident populations of sport fish. Continued operation of the project would contribute to fish mortality if fish were not prevented from entering the project intake and passing through the turbines. Once entrained, fish could be killed or injured by the turbine or subject to pressure injury in the water conveyance system (Rochester et al., 1984). Recent studies on entrainment mortality of warmwater fishes at the Thornapple Hydro Project, FERC No. 2475, on the Flambeau River, Wisconsin, showed mortality rates of less than 10 percent (initial) and less than 16 percent (delayed) for fish that are entrained through the project turbines. In addition, the entrainment rates for walleye ranged from 28 percent to 52 percent; for smallmouth bass the rate was 50 percent; and for black crappie the entrainment rate ranged from 33 percent to 60 percent.

To lessen the potential for turbine mortality associated with the Trego Project, Northern States proposes to maintain the existing trashracks, which have a 1.5-inch clear spacing between bars with an intake velocity of less than 1 foot per second (fps).

Trashracks have been used at hydropower plants to deter fish from entering project intakes. Designed to physically block the passage of larger fish while permitting smaller fish to pass through, the effectiveness of trashracks is influenced by intake velocities and the size of bar spacings (Bell, 1986).

The influence of bar spacing on fish entrainment is related to the size of the fish. For fish of a given size, the greater the spacing between trashrack bars, the greater the probability of the fish passing through the trashrack. Trashracks designed to block fish passage at hydroelectric projects (1-inch bar spacing) have not been extensively studied. However, trashracks with 1- to 3-inch spacing have been found to prevent the passage of larger fish at steam electric stations (Stone and Webster Engineering Corporation, 1986). For the Trego Project, we calculate that a 1.5-inch bar spacing would protect walleye and smallmouth bass of approximately 15.5 inches and 13.5 inches, respectively. Black crappie and bluegill in the Trego impoundment, based upon the length frequency distribution, would not be protected.

Furthermore, as part of the lake sturgeon reintroduction program, fingerling lake sturgeon would be stocked at a size ranging from 5 to 9 inches in length. Fry may also be stocked, if available. These fish would be stocked at various locations upstream of the Trego impoundment to the base of the Hayward dam. It is expected that the proposed 1.5-inch bar spacing, together with an intake velocity of less than 1 foot per second, would minimize entrainment of lake sturgeon at the Trego Project (personal conversation, Larry Deaman, Regional Fish Manager, Wisconsin Department of Natural Resources, Spooner, Wisconsin, February 18, 1992). Fry or fingerling lake sturgeon that pass through the turbine units would benefit the lake sturgeon fishery downstream of the Trego Project.

The velocity of water in the intake can influence potential impingement on the trashrack in much the same manner as the trashrack bar spacing can influence fish entrainment. There is a positive relationship between fish size and swimming ability: the greater the intake velocity, the larger the fish must be to escape possible impingement. However, it is difficult to establish one optimal intake velocity applicable to a mixed array of fish species and sizes (Hansen and Li, 1978).

Conclusion. We conclude that Northern States' proposal to keep the existing water intake structures (i.e., trashracks) in place would minimize resident fish entrainment and impingement at the Trego Project. Although it is unclear what effects the trashrack bar spacing of 1.5 inches is having on the resident bluegill and black crappie fishery, and would have on the proposed lake sturgeon fishery, we do not believe there is any evidence at this time to support the need to alter the present design of the existing trashrack. In the event that evidence shows that the design of the existing trashrack should be changed at some time in the future, standard license article 11 affords the resource agencies the opportunity to recommend changes in project structures or operation for the conservation and development of fish and wildlife resources.

4. Fish passage: Currently, upstream and downstream passage of fish past the Trego dam is not a management objective for the Namekagon River (letter from William H. Clark, NWD FERC Project Manager, Wisconsin Department of Natural Resources, Spooner, Wisconsin, August 28, 1991). However, should management objectives change and fish passage be required, it may be necessary for Northern States to install appropriate upstream and downstream fish passage facilities. Interior requests reservation of authority to prescribe the construction, operation, and maintenance of fishways for the Trego Project pursuant to Section 18 of the Federal Power Act (letter from Jonathan P. Deason, Director, Office of Environmental Affairs, Office of the Secretary, U.S. Department of the Interior,

Washington, DC, November 20, 1991). Northern States accepts Interior's request for the reservation of authority.

Section 18 of the FPA provides the Secretary of Interior the authority to prescribe fishways.^{3/} Although fish passage facilities may not be recommended by Interior at the time of project licensing, such as for the Trego Project, the Commission should include license articles which reserve Interior's prescription authority.^{4/} We recognize that future fish passage needs and management objectives cannot always be predicted at the time of license issuance. Under these circumstances, and upon receiving a specific request from Interior, the Commission should reserve Interior's authority to prescribe fishways. Therefore, an article will be included in any license issued to reserve authority to the Commission to require the licensee to construct, operate and maintain such fishways as may be prescribed by Interior pursuant to Section 18 of the Act.

5. Drawdowns to reduce sedimentation and vegetation: Since the project's construction in 1927, considerable sediment deposition has occurred, creating wetlands in inlets of the Trego impoundment, particularly the upstream end where the Namekagon River enters. In this area, 3 to 8 feet of sediment has been deposited (an estimated 145,000 cubic yards). Estimates show that 2,000 cubic yards of sediment per year continue to settle in the upper reaches of the impoundment (WDNR, 1989). As a result of the shallow conditions, aquatic plants invade such areas, especially in the 15-acre Namekagon River inlet area.

Homeowners on the shoreline of the Trego impoundment, acting through the Trego Lake District (TLD), claim that shallow water conditions and associated weed growth limit access and public use at the Trego impoundment by constraining boating activities and other recreational uses. Based on these concerns, several recent investigations of the problem have been completed to determine the nature of the issue and alternative measures to improve conditions in the upper impoundment area (WDNR, 1989). The studies have shown that the sediment originates in the upstream watershed, mostly from natural sources; the TLD suggests that local construction activities have also added to the sediment levels in the impoundment. Several alternative measures have been evaluated to correct the problem, including construction of

^{3/} Section 18 of the Act provides: "The Commission shall require construction, maintenance, and operation by a licensee at its own expense...such fishways as may be prescribed by the Secretary of Commerce or the Secretary of Interior as appropriate."

^{4/} Lynchburg Hydro Associates, 39 FERC ¶ 61,079 (1987).

an upstream sediment trap, dredging, a weed control program, as well as periodic drawdown of the impoundment.

In November and December 1978, Northern States conducted an 11-foot drawdown of the Trego impoundment to facilitate repairs to the dam. The drawdown increased hydraulic gradients and effectively scoured out most of the sediment and aquatic vegetation growing in the sediments in the upper impoundment area, thereby restoring the bottom to near preimpoundment conditions. In addition, sediment was removed by water level manipulations which allowed bottom sediments and plants to freeze into the winter ice, and the mixture of sediment and ice was then resuspended by raising water levels. The scouring, along with the effects of the freezing and refilling process, resulted in the relocation of about 20,000 cubic yards of material from the inlet area to other areas in the impoundment (WDNR, 1989).

TLD and agency recommendations. The TLD recommends a 30-day drawdown of 4-5 feet every 4-5 years, starting October 25 and ending December 5, to improve recreational access and uses in the upper Trego impoundment (letter to Northern States Power Company from Donald C. Hanson, Chairperson, Trego Lake District, Trego, Wisconsin, November 15, 1990).

The WDNR sees no present need for a drawdown of the impoundment. However, the WDNR says that it is likely that Northern States would need to schedule one or more project maintenance drawdowns during the term of any new license, and that the sedimentation issue should be considered in conjunction with any such drawdown. Therefore, the WDNR recommends that Northern States prepare a drawdown management plan in consultation with the resource agencies and the TLD within one year from the date of issuance of any new license. The plan must consider the effect of a drawdown on all project resources, and should ensure future resource protection, provide for participation by the affected property owners, outline responsibilities of all the interested parties for collecting the data, and define procedures for scheduling specific future drawdowns.

To establish baseline data for use in formulating future management decisions on drawdowns, the WDNR recommends that Northern States conduct a quantitative survey of aquatic macrophytes (vegetation) at the impoundment within one year from the date of issuance of any new license.

In addition, if a future drawdown is determined to be necessary, the WDNR stipulates that drawdowns should be scheduled to begin in early September and completed by mid-September, the rate of drawdown should not exceed one foot per day for the first four days to minimize the stranding of aquatic species in the impoundment, drawdowns should not exceed 11 feet in depth, and

the public should be notified before any drawdown occurs (letter to Northern States Power Company from William H. Clark, NWD FERC Project Manager, Wisconsin Department of Natural Resources, Spooner, Wisconsin, February 15, 1991). The WDNR says that Northern States should evaluate the need for a drawdown at about 10-year intervals over the term of any license.

To protect downstream fish and wildlife resources if a drawdown is determined to be needed, the WDNR recommends a 230-cfs minimum flow release during drawdown and refilling of the impoundment.

Further, the WDNR says that core sampling studies completed by Northern States indicate that several heavy metals ^{5/} are present in the Trego impoundment sediments in high enough concentrations to be of concern, based on EPA guidelines (letter from William H. Clark, NWD FERC Project Manager, Wisconsin Department of Natural Resources, Spooner, Wisconsin, August 28, 1991). To limit any water quality problems associated with sediment containing heavy metals being resuspended during reservoir drawdowns, the WDNR suggests that Northern States consider sediment management techniques as part of project operation. Also, the WDNR recommends that any new license contain a provision to reopen the license if new information shows a need for additional sediment sampling and appropriate management techniques.

Interior concurs with the WDNR that a drawdown management plan should be developed by Northern States, and that Northern States should ensure that: (1) the WDNR's recommended ramping rate is implemented during any drawdowns, and (2) the WDNR's recommended 230-cfs minimum flow is released during impoundment drawdown and refilling.

Applicant's proposal. In response to the comments and recommendations outlined above, Northern States remains committed to cooperate with the TLD and the resource agencies in conducting drawdowns and in developing a drawdown management plan when, and if, a project maintenance drawdown is scheduled. Northern States indicates that Trego dam is in excellent condition and, contrary to the view of WDNR, it foresees no need for any maintenance-related drawdowns for many years. Northern States opposes a license requirement to develop a drawdown management plan now, but suggests instead that such a plan should be formulated just before it is needed. Northern States acknowledges that macrophytes are now very abundant in parts of the impoundment.

^{5/} The heavy metals include arsenic (heavily polluted); and chromium, copper, and zinc (moderately polluted). In addition, the WDNR is concerned about the level of mercury in the Trego impoundment.

Northern States agrees to the recommendations of the WDNR and Interior on ramping the rate of drawdown and providing a 230-cfs minimum flow release during and after a drawdown of the Trego impoundment.

In regard to the WDNR's recommendation for a macrophyte survey, Northern States is not opposed to conducting a semi-quantitative macrophyte survey for management purposes at the project impoundment, but believes that such a survey would best be performed immediately before any planned drawdown in the future. It notes that historic macrophyte data is available as a baseline and that the year-to-year variability and seasonal changes in plant abundance could make data collected in the near term obsolete.

As to future sediment management techniques, Northern States is willing to work with the WDNR. However, its position is that because the contaminants originated elsewhere in the watershed, it should not be accountable for their removal and disposal.

Conclusion. We conclude that TLD's drawdown proposal is unreasonable, based on: (1) the lack of technical evidence to support the need for a drawdown now or at any specified intervals in the future; (2) the questionable effectiveness of a five-foot drawdown in accomplishing the stated objective; (3) the high value of the present natural resource base, including wetland areas; and (4) the environmental concerns of the resource agencies.

However, we generally agree with the recommendation of the WDNR and Interior that a drawdown management plan should be prepared by Northern States. A properly managed reservoir drawdown could improve boating conditions on Trego impoundment and control undesirable aquatic plant species, while minimizing adverse impacts on other fish and wildlife resources. We believe that such a plan should include two components: (1) a needs analysis, subsequently updated at four-year intervals in cooperation with all the parties; and (2) if a need is identified, a drawdown implementation plan, including cooperative pre-drawdown studies to determine (a) the effects of a drawdown on all resources; (b) the specific timing, degree, and duration of the planned drawdown; and (c) monitoring of the drawdown and its effects, in consultation with all the parties.

We recommend that the plan be formulated and filed for Commission approval within one year from the date of issuance of any new license, and that subsequent updates of the plan should be scheduled in conjunction with the filing of the standard FERC Form 80, Licensed Hydropower Development Recreation Reports, for the project at four-year intervals.

The need for any future drawdown should be determined cooperatively with the WDNR, the FWS, the NPS, and the TLD, based on documented recreational, fish, and wildlife needs at the project (to be determined, at a minimum, by recreational and macrophyte surveys). In determining any recreational need for a future drawdown, Northern States' plan must fully consider the recommendations of the NPS, the primary administrative agency for recreation in the project area. In determining any need for future drawdowns based on fish and wildlife requirements, Northern States' plan should give major consideration to the recommendations of the WDNR and the FWS.

If a future drawdown of the Trego impoundment is necessary, as determined according to the requirements of the drawdown management plan, a drawdown is determined to be consistent with the management objectives of the NPS, and the environmental issues are resolved to the satisfaction of the resource agencies, Northern States shall conduct a drawdown, and implement the specific ramping rate, minimum flow, and other recommendations of the WDNR and Interior, as discussed herein.

We concur with the WDNR recommendation that any license should contain a provision for Northern States to conduct sediment sampling in conjunction with any planned drawdown of the Trego impoundment. Also, should new evidence show the need for sediment management techniques, standard license article 11 affords the resource agencies the opportunity to recommend changes in project structures or operation for the conservation and development of fish and wildlife resources.

6. Cultural resources: Relicensing the Trego Project provides the opportunity for continued protection of the following cultural resources: (a) the Trego Dam Historic District (District); (b) the archeological sites identified near the reservoir margin; and (c) other unidentified archeological sites that may be buried or inundated in the project area.

As discussed in section F.2.g., there is one eligible archeological site (34:2) and three archeological sites (29:1, 29:2, and 35:1) that may be eligible. The SHPO does not recommend any particular mitigation for site 34:2. The SHPO recommends that sites 29:2 and 35:1 be evaluated for National Register eligibility; and that site 29:1, which is partially inundated, be considered eligible until it can be evaluated when exposed through reservoir drawdown. The SHPO also recommends that Northern States conduct archeological surveys in the recreation areas recommended for improvement in the Northwest Regional Planning Commission's (NRPC) report (letter to Anthony Schuster, Northern States Power Company, from Richard Dexter, Chief, Compliance Section, Division of Historic Preservation, the State Historical Society of Wisconsin, Madison, Wisconsin, June 7, 1991).

Northern States says that, since it has not proposed any repair work or modification to the Trego Dam Historic District, there is no need for a mitigation plan for the structures that make up the District. Also, Northern States believes site 34:2, which is located on a high terrace above the Trego impoundment, would not be affected by project operation, and therefore, would not require protection measures.

Northern States says it has not been able to evaluate the eligibility of sites 29:2 and 35:1 because they are on private lands whose owners have denied access. Northern States proposes, as mitigation, to notify other property owners in the area of the existence of archeological sites on their lands, and of the SHPO's recommendations for protecting these sites.

Also, because all but one of the recreation improvements recommended by the NRPC are on either NPS or village of Trego land, Northern States disagrees with the SHPO's recommendation to survey these areas. For the recreation proposal that is on Northern States land, Northern States does not propose any further survey work because the area has already been surveyed, and there would not be any ground-disturbing activity, except where ground disturbance has already taken place. Finally, Northern States did not respond to the SHPO's recommendation concerning a future survey of site 29:1 (letter to Richard Dexter from Lloyd Everhart, Administrator, Hydro Licensing and Environmental Studies, Northern States Power Company, Eau Claire, Wisconsin, July 25, 1991).

Conclusion. As for Northern States' proposal to notify other landowners about archeological sites, we see no need for Northern States to take such action because we believe that site confidentiality may serve to prevent or impede vandalism at archeological sites. To avoid potential adverse effects to National Register listed or eligible properties at the Trego Project, we recommend Northern States consult with the SHPO and the NPS and file, for Commission approval, a cultural resources management plan that addresses the following issues.^{6/}

a. **Trego Dam Historic District.** Continued operation and maintenance of the project would generally ensure the long-term preservation and protection of the District, and would therefore be beneficial. However, routine operation and maintenance could diminish the District's historic value, if these activities do

^{6/} We are not recommending any additional surveys at the areas proposed by the NRPC for recreational improvement because Northern States has insufficient control over the areas owned and operated by others, and because the recreational improvements proposed by Northern States would not require ground disturbance in any area where it has not already occurred.

not consider the area's historic qualities. Therefore, to ensure the historic values of the District are not inadvertently lost or diminished through operation and maintenance of the project, we recommend that Northern States consult with the SHPO to develop, and include as a provision in the cultural resources management plan for this project, a long-term operation and maintenance plan that would protect the District's history.

b. Archeological sites near the project impoundment. Although the NPS, in a letter dated March 8, 1991, expressed concern for potential effects to site 34:2 from Northern States' proposal to dredge the canoe access site, we conclude there would be no effect on the site because Northern States no longer proposes to dredge the access.

Archeological sites 29:2 and 35:1 (located on private lands abutting the impoundment) could be affected by erosion caused by project operation. Currently, there is minimal shoreline erosion, and we do not expect any increased erosion because our recommended operating range for the project impoundment would limit fluctuation to 0.6 foot. Since erosion is minor and Northern States has been denied access to the sites, we do not see a need for further surveys at this time. However, we recommend that Northern States include in its cultural resources management plan, a plan to: (a) monitor the reservoir shoreline, particularly the condition of sites 29:2 and 35:1, (b) file an annual report with the Commission and the SHPO on the monitoring results, and, (c) should monitoring indicate potential harm to these sites, attempt to access the sites to conduct the studies necessary to determine the sites eligibility, and develop a plan for avoiding or mitigating effects at the eligible sites.

Regarding site 29:1, we recommend that Northern States include in its cultural resources management plan measures to evaluate site 29:1 for eligibility when the reservoir is sufficiently drawn down to expose the site and allow for its evaluation. If the site is found to be eligible, Northern States should develop a plan, prepared in consultation with the SHPO, to protect the site.

c. Other unidentified archeological sites. There still could be eligible properties in the project area that could be adversely affected by unforeseen ground-disturbing activities or by project operation. Therefore, we recommend that Northern States include the following measure in its cultural resources management plan: Before engaging in any ground disturbance that has not been considered in this environmental assessment, or if properties are found during project operation, Northern States should take the following actions: (a) consult with the SHPO; (b) based on consultations with the SHPO, prepare a plan describing the appropriate course of action and a schedule for carrying it out; (c) file the plan for Commission approval; and

(d) take the necessary steps to protect the properties until notified by the Commission that all of requirements have been satisfied.

Finally, we recommend that the cultural resources management plan specifically provide for its being superseded by a Statewide Programmatic Agreement for Wisconsin if such an agreement is executed among the Commission, the Advisory Council, and the SHPO.

7. Recreation facilities: In 1990 Northern States conducted a recreational use survey of the project area. The Northwest Regional Planning Commission (NRPC) analyzed Northern States' survey results, investigated existing recreation facilities, and conducted a recreation needs assessment. The resulting report recommended that Northern States, and others administering lands on the project impoundment, provide improvements at several sites (Northern States Power Company, 1991(a), Appendix D). The NRPC recommends that Northern States: (1) construct signs indicating the parking area for walk-in fishing off North River Road; (2) dredge the upstream canoe take-out area; and (3) provide trash receptacles and restrooms for portage trail users. The NRPC notes that existing recreational facilities on or near the Trego impoundment would meet current recreational needs, provided that its recreation facility recommendations are implemented within 2 years.

The FWS recommends that Northern States, when requested by the WDNR, improve existing public access and recreational facilities or develop new facilities on the impoundment to optimize fishing, hunting, and boating activities.

To provide a baseline for future recreation development decisions, the WDNR asks Northern States to submit user count data from its 1990 recreational use survey to affected state and federal agencies within one year of license issuance (letter from William H. Clark, NWD FERC Project Manager, Wisconsin Department of Natural Resources, Spooner, Wisconsin, August 28, 1991). The WDNR also wants Northern States to develop the recreation facilities recommended by the NRPC, and to monitor recreational use and needs every 10 years for the term of the license.

Northern States agrees to provide the WDNR with the recreational use data (letter from Anthony G. Schuster, Vice President, Power Supply, Northern States Power Company, Eau Claire, Wisconsin, January 10, 1992). With respect to access at the canoe take-out, Northern States originally agreed to dredge an area 15 by 20 feet at the upstream canoe take-out. Northern States' hydrologist later determined that dredging was unnecessary for improving access (personal conversation, Pamela Gruber, Northern States Power Company, Eau Claire, Wisconsin, November 22, 1991). To avoid the adverse environmental impacts

of dredging, Northern States now proposes to improve the upstream canoe access site by cutting aquatic vegetation in an area 20 feet long by 3 feet wide. Northern States also agrees to provide the recommended signs at the North Road parking area and trash receptacles at the dam portage site. Northern States has not agreed to provide toilet facilities at the dam portage site due to the close proximity of such facilities to the earthen dike and river, but Northern States does agree to consider portable toilet facilities.

To improve public recreational access at the project, we agree that Northern States should, in consultation with the WDNR and the NPS, periodically cut the aquatic vegetation at the existing canoe take-out to facilitate boat access, provide signs at the North Road parking area, and provide trash receptacles at the dam portage site. Based on the high boating use in the area, Northern States should also provide portable toilet facilities at the dam portage site during peak recreational use periods each year. In addition, Northern States should be required to provide the 1990 use data to the WDNR, and to monitor recreational use throughout the term of the license. Licensees are required routinely to file a Form 80 with the Commission every 4 years. Licensees must monitor recreational use of the project in order to fill out the form, which is an accounting of the project recreational facilities and their use. Furthermore, we conclude that the planned recreational improvements are consistent with the stated management objectives of the NPS (U.S. Department of the Interior, National Park Service, 1976).

H. ENVIRONMENTAL IMPACTS

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

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

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

Remarks:

d. The stocking program agreed upon by Northern States and the WDNR would restore lake sturgeon and gilt darter upstream of the Trego Project.

e. Implementation of a drawdown management plan could eliminate aquatic vegetation and scour the sediment. If the impoundment is invaded by noxious species, a drawdown could reduce or eliminate these species.

g. Developing and executing a cultural resources management plan would provide for the protection of National Register and eligible properties at the project.

i. Cutting the emergent vegetation at the canoe take-out on a periodic basis, and providing signs, toilets, and trash

receptacles would enhance recreational access and oppo.unities at the project. Implementation of a drawdown management plan could improve recreational access at the Trego Project.

2. Impacts of the No-Action Alternative

If a new license is not issued for the project, with the environmental enhancement measures proposed by Northern States, and the measures recommended by the resource agencies and the staff, Northern States would continue to operate the project in accordance with its existing license. Northern States is now required to make a minimum streamflow release of 230 cfs or inflow. Although Northern States has been operating the project in a run-of-river mode in recent years, and proposes to continue to do so in its application for new license, this operation is not required in the existing license; operation in this manner stabilizes the impoundment and downstream flows. The proposed and recommended recreational improvements (as described herein) would also not be required, as well as the proposed and recommended funding of fish restoration studies, and our recommended drawdown management plan and cultural resources management plan.

I. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a) of the Federal Power Act (Act) require the Commission to give equal consideration to all uses of the waterway on which a project is located. When the Commission reviews a hydropower project, the environment, recreation, fish and wildlife, and other nondevelopmental values of the waterway are considered equally with power and other developmental values. In determining whether, and under what conditions, a hydropower license should be issued, the Commission must weigh the various economic and environmental tradeoffs involved in the decision.

Based on our independent review and evaluation of the project as proposed and the no-action alternative, we have selected issuance of a new license for the project, with additional staff-recommended enhancement measures, as the preferred option. Measures recommended to enhance environmental resources and recreational opportunities include: (1) required future operation of the project in a run-of-river mode, using the new controls installed by Northern States in 1990 to narrow the normal operating range of the power pool to within 0.3 foot of total fluctuation, thus providing stabilized and near-natural aquatic conditions for fish and wildlife at the impoundment and downstream; (2) funding of support programs for the restoration of the sturgeon and gilt darter upstream of the project through the WDNR; (3) improved recreational access facilities at the existing canoe portage near the project dam, including signs, trash receptacles, portable toilets in summer, and periodic

cutting of emergent vegetation at the canoe take-out area; (4) maintenance of the existing trashracks with 1.5-inch bar spacing to minimize fish entrainment and impingement; (5) formulation of a drawdown management plan to evaluate the need for and, if needed, implement a drawdown to control sediment accumulation and aquatic vegetation, and thus provide good recreational access and use of the upper impoundment; (6) formulation and implementation of a cultural resources management plan to protect archeological sites that may be affected by project operation; and (7) provision of fish passage facilities if future needs require.

In addition to these environmental enhancement measures, the project would provide continued developmental benefits. An estimated 7,580 MWh of relatively low-cost electricity, with an estimated levelized replacement value of about \$318,000, would continue to be generated annually from a clean, domestic, reliable, and renewable energy resource for use by Northern States' customers in portions of Wisconsin, Michigan, Minnesota, North Dakota, and South Dakota. Northern States' current average cost for power produced by the project, including operation and maintenance, property taxes, cost of capital, and depreciation, is estimated at \$17.40 per MWh of energy.

Since more than forty percent of the applicant's energy requirements are satisfied by coal-fired, steam-electric, generating facilities, any necessary replacement energy for the 7,580 MWh of annual generation from the project would probably come from coal-fired generation. Thus, continued generation from the project would: (1) conserve non-renewable energy resources; (2) avoid problems related to the extraction and transportation of additional fossil fuels and the handling, and disposal of associated wastes and byproducts such as coal fly ash and flue gas desulfurization sludge; and (3) avoid the emission of additional noxious gases that contribute to atmospheric pollution and global warming.^{1/}

^{1/} A coal-fired, steam-electric, power plant serving as an alternative source of capacity and annual energy production equal to that of the project would consume approximately 3,160 tons of coal annually. Assuming the sulfur content of the coal to be 1.0 percent, the combustion of this quantity of coal would produce 61 tons of the oxides of sulfur, 28.5 tons of the oxides of nitrogen, 1.5 tons of carbon monoxide, and 7,280 tons of carbon dioxide per year. State of the art pollution control technology is capable of effecting a 95-percent reduction in the amount of produced oxides of sulfur released to the atmosphere and a 60-percent reduction in the atmospheric release of the oxides of nitrogen -- at a cost. Sulfur dioxide and nitrous oxides are considered prime contributors to the production of acid rain, and carbon dioxide is considered to be a prime contributor to global warming.

On balance, the environmental and recreational resources that we are enhancing are worth the costs of these measures. Several environmental resources are considered especially important at this project. As stated in this EA, the fish, wildlife, and recreational values of the Namekagon River are outstanding, as indicated by its inclusion within the National Wild and Scenic Rivers System. Thus, the natural resource values in the project area are of national significance. Our objective is to preserve the present balance among these different values, and provide improvements where feasible and appropriate, based on continued consultation between Northern States and all the interested parties.

The costs of our recommended environmental and recreational measures for the Trego Project are relatively minor, with the exception of impoundment drawdown. We have evaluated the cost of a one-month drawdown every five years, as recommended by the Trego Lake District. We estimate that a one-month project shutdown would reduce project generation by about 580,000 kWh. We further estimate that the 50-year levelized cost of alternative fuel for Northern States to replace the lost generation would be about 42.0 mills per kWh. Based on this information, we estimate that a one-month shutdown would cost Northern States about \$24,000 each time the impoundment is drawn down. This amounts to about 7.5 percent of the project's gross benefits in any one year.

We considered the uncertain present need for a management drawdown, the concerns of the resource agencies over the environmental impacts of a drawdown, as well as the cost of a drawdown in lost power generation and lost economic benefits. As a result, we conclude that further study of the drawdown issue should be conducted by Northern States to substantiate the need for a drawdown, and if a need is substantiated, an implementation plan for a drawdown should then be coordinated by Northern States in consultation with all the interested parties. We further recommend that the issue be reevaluated on a recurring basis every four years because of the high value of the project impoundment for recreational activity as part of a National Wild and Scenic River.

Section 10(a)(2) of the Act also requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. Under section 10(a)(2), federal and state agencies have filed a

total of 9 comprehensive plans relevant to this project. 8/ No conflicts were found.

Based on our comprehensive evaluation of the project, we conclude that continued operation of the project would provide net positive benefits in the public's interest. Therefore, pursuant to sections 4(e), 10(a)(1) and 10(a)(2) of the Act, we find that the Trego Hydroelectric Project is best adapted to a comprehensive plan for the proper use, conservation, and development of the Namekagon River and other project-related resources.

J. CONSISTENCY OF FISH AND WILDLIFE RECOMMENDATIONS

Pursuant to Section 10(j) of the Act, we are making a determination that the recommendations of the federal and state fish and wildlife agencies are consistent with the purpose and requirements of Part 1 of the Act and applicable law. Section 10(j) of the Act requires the Commission to include license conditions, based on the recommendations of federal and state fish and wildlife agencies, for the protection, mitigation of adverse impacts to, and enhancement of fish and wildlife. We have addressed the concerns of the federal and state fish and wildlife agencies and made recommendations consistent with those of the agencies.

We believe several of the measures (i.e. 3,5,6,8-11) recommended in the WDNR's letter of August 28, 1991, are not appropriate fish and wildlife recommendations under section 10(j) because they do not provide terms and conditions for the protection, mitigation of damages to, and enhancement of fish and wildlife as stipulated in Section 10(j) of the Act. However, we have considered these measures under our Section 10(a)

8/ St. Croix National Scenic Riverway final master plan, 1976, National Park Service; Land protection plan, 1984, St. Croix National Scenic Riverway, National Park Service; Land protection plan, 1981, Lower St. Croix National Scenic Riverway, National Park Service; Statement for management, St. Croix and Lower St. Croix National Scenic Riverways, 1986, National Park Service; Comprehensive master plan for the management of the upper Mississippi River system - Environmental report, 1986, National Park Service; St. Croix River Basin areawide water quality management plan, 1980, Wisconsin Department of Natural Resources; Statewide comprehensive outdoor recreation plan, 1985, Wisconsin Department of Natural Resources; An evaluation of the sedimentation process and management alternatives for the Trego flowage, Washburn County, Wisconsin, 1989, Wisconsin Department of Natural Resources; and North American waterfowl management plan, 1986, U.S. Fish and Wildlife Service and Canadian Wildlife Service.

responsibilities of the Act and addressed them in this EA. We agree with these measures. We have not addressed measures 10 and 11, which require compliance with Wisconsin statutes and codes. This is the responsibility of the state of Wisconsin.

K. CONCLUSION

Issuance of a new license for the continued operation of the Trego Project would result in the implementation of several environmental enhancement measures, as described herein. In addition, ongoing planning and consultation activities would be required of the licensee to ensure the continued monitoring of environmental needs in the project area. Since the project is constructed and operating, there would be no project-related construction impacts associated with the recommended issuance of a new license.

On the basis of our independent environmental analysis, issuance of a new license for the Trego Project would not constitute a major federal action significantly affecting the quality of the human environment.

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