79 FERC ¶ 62,101

United STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Midwest Hydraulic Company, Inc.)
)

Project No. 10805-002
Wisconsin

ORDER ISSUING LICENSE
(Major Project)

(Issued May 8, 1997)

INTRODUCTION

On September 25, 1992, Midwest Hydraulic Company (MHC) filed an application for an original major license under Part I of the Federal Power Act (FPA) for the proposed Hatfield Hydroelectric Project. The Hatfield Project would be located at an existing dam on the Black River, in the Township of Hatfield in Jackson and Clark Counties, Wisconsin. Development of the project would affect the interests of interstate commerce. 1/ The project would have an installed capacity of 6,830 kilowatts (kW).

BACKGROUND

Notice of the application was published on May 15, 1993. American Whitewater Affiliation, Northern States Power Company, and Wisconsin Department of Natural Resources (Wisconsin DNR) filed motions to intervene. None of the intervenors, however, objected to licensing the proposed project.

The Commission's staff issued a draft environmental assessment (EA) for this project on October 28, 1996, and a final EA on March 11, 1997. Comments on the draft EA were addressed in the final EA. The final EA is attached to and made part of the license.

PROJECT DESCRIPTION

MHC proposes to rehabilitate and add new generating capacity to an existing, but currently inoperative, hydropower development. The proposed project consists of the following: (1) an existing diversion dam, 3,100 feet long and 48 feet high;

1/ The Black River is a tributary of the Mississippi River, a navigable waterway of the United States. The applicant would sell power to a utility that is connected to an interstate grid. Since the project is located on a stream over which Congress has jurisdiction under the Commerce Clause, affects interstate commerce through its connection to an interstate power grid, and is to be constructed after 1935, it is required to be licensed pursuant to Section 23(b)(1) of the FPA.

(2) an existing reservoir (Lake Arbutus) with a surface area of 945 acres and a gross storage capacity of 10,800 acre-feet; (3) a single new submersible generating unit rated at 430 kW installed at the dam adjacent to the power canal gatehouse; (4) an existing 2.4-mile-long power canal with a new section excavated around the breached portion; (5) two existing 10-foot-diameter penstocks and one existing 2-foot-diameter penstock, each extending 265 feet in length; (6) an existing powerhouse containing two refurbished existing turbine-generator units with a capacity of 6,000 kW and a new third 400-kW unit; and (7) appurtenant facilities.

COASTAL ZONE MANAGEMENT

The proposed Hatfield Project is not located in the coastal zone boundary designated by the Coastal Zone Management Program. Therefore, no coastal zone consistency certification is needed for this project.

WATER QUALITY CERTIFICATION

Section 401(a)(1) of the Clean Water Act (CWA) requires an applicant for a federal license or permit for any activity that may result in a discharge into navigable waters of the United States to provide to the licensing or permitting agency a certification from the state in which the discharge originates that such discharge will comply with certain sections of the CWA. 2/

Section 401(d) of the CWA provides that state certification shall set forth conditions necessary to ensure that applicants comply with specific portions of the CWA and with appropriate requirements of the state law. 3/

The Wisconsin DNR issued its first 401 water quality certificate (WQC) on June 3, 1992. In MHC's filing dated October 11, 1996, it proposes to excavate a new channel adjacent to the existing breached portion of the power canal. In light of this new proposal, MHC requested a new 401 WQC on November 4, 1996. A revised 401 WQC was issued on January 16, 1997, incorporating the conditions listed in the Wisconsin DNR notice dated November 18,

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2/ 33 U.S.C. § 1341(a)(1).

3/ 33 U.S.C. § 1341(d).

1996. The new 401 WQC includes five requirements. 4/ My findings regarding the WQC conditions are as follows. 5/

Condition 1 states: The licensee shall allow the Wisconsin DNR reasonable entry and access to the project site to inspect for compliance. This condition is included as part of the license.

Condition 2 states: At least 5 business days prior to the beginning of the discharge of water through the power canal, the licensee shall notify the Wisconsin DNR of its intent to discharge. This condition is included as part of the license.

Condition 3 states: Within 5 business days after the completion of the discharge of water through the power canal, the licensee shall notify the Wisconsin DNR of the completion of the discharge. This condition is included as part of the license.

Condition 4 states: An erosion control plan including specific measures, shall be incorporated into the reconstruction and design plan and shall be approved by the Wisconsin DNR prior to project reconstruction. The condition 4 reference to Wisconsin DNR approval would give the Wisconsin DNR authority beyond that provided for in Section 401. However, Article 411 of this license requires MHC to prepare, in consultation with the Wisconsin DNR, a plan, for Commission approval, to minimize and control soil erosion associated with project construction and operation. 6/

Condition 5 states: A complete and accurate set of reconstruction and design plans shall be submitted to the Wisconsin DNR's Dam Safety Unit, c/o Bill Sturtevant, Asst. Dam Safety Engineer, 101 South Webster Street, P.O Box 7921, Madison, Wisconsin 53707. These plans must be approved prior to project reconstruction. The condition 5 reference to Wisconsin DNR prior approval would, in effect, give the Wisconsin DNR the unilateral authority to control the timing of project construction and is

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4/ During the Section 10(j) teleconference, the Wisconsin DNR clarified that "discharge" in the 401 WQC refers to flow in the power canal.

5/ See Great Northern Paper, Inc., 77 FERC ¶ 61,068 at pp. 61,271-72 (1996).

6/ Id.

thus beyond the authority provided for in Section 401. 7/ This condition is not included in the license. 8/

SECTION 18 OF THE FEDERAL POWER ACT

The Department of the Interior (Interior) has requested that reservation of authority to prescribe fishways under Section 18 of the FPA 9/ be included in any license issued for the Hatfield Project. Article 409 reserves the Commission's authority to require the licensee to construct, operate, and maintain such upstream fish passage facilities as may be prescribed by the Secretary of the Interior.

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, for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife resources. In the draft EA, the staff addressed the concerns of the Federal and state fish and wildlife agencies, recommended adoption of some of the fish and wildlife recommendations, and found some recommendations to be inconsistent with the FPA, as discussed below.

In determining whether to accept or reject recommendations of fish and wildlife agencies under Section 10(j), the Commission first determines whether each recommendation is supported by substantial evidence in the record; if not, the recommendation is inconsistent with the requirements of Section 313(b) of the FPA that Commission orders be supported by substantial evidence.

Second, the Commission determines whether a substantiated recommendation is inconsistent with the FPA or other applicable law. Any such inconsistency is usually with the Commission's determinations under the equal consideration/comprehensive development standards of FPA sections 4(e) and 10(a)(1), in that the recommendation conflicts unduly with another project purpose or value.

Third, the Commission must show how the fish and wildlife conditions that are adopted will "adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife

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7/ Id.

8/ Subsequent to issuance of the 401 WQC, Wisconsin DNR recognized Federal preemption of state dam safety requirements (see discussion of other issues).

9/ 16 U.S.C. §811.

(including related spawning grounds and habitat)" affected by the project.

The staff recommended adoption of, and this license contains, conditions consistent with Wisconsin DNR's and Interior's recommendations that MHC:

1) operate in a run-of-river mode (Article 401); and conduct an operations evaluation study (Article 402);

2) provide instream flows from the project dam for adequate habitat (Article 403);

3) implement a drought contingency plan (Article 405);

4) develop and implement an operational compliance monitoring plan (Article 406);

5) install and maintain trashracks with no greater than 1-inch clear bar spacing to protect fish from turbine entrainment and impingement (Article 407);

6) develop and implement a fish stranding plan for the bypassed reach (Article 408);

7) develop and implement a water quality monitoring plan in the project impoundment, power canal, bypassed reach, and downstream from the powerhouse in the Black River (Article 412); and

8) implement a bald eagle management plan (Article 413);

Although considered outside the scope of section 10(j) of the FPA, staff recommended the adoption of, and this license contains, conditions consistent with Wisconsin DNR's and Interior's recommendations that MHC:

1) provide instream flows for whitewater boating(Article 404);

2) develop and implement a land management (Article 410) and soil erosion remediation plan (Article 411); and

3) develop and implement a final recreation plan (Article 414).

For those fish and wildlife agency recommendations that the staff found in the draft EA to be inconsistent with the FPA or other applicable law, staff and the Wisconsin DNR held a teleconference meeting on January 13, 1997, to attempt to resolve the inconsistencies. Interior agreed with staff's findings in

the draft EA and did not participate in the section 10(j) meeting. All inconsistencies discussed were resolved by staff.

Resolution of the inconsistencies is discussed below:

1) Run-of-River Operations - Flowage and Power Canal Water Levels

Wisconsin DNR recommended that the project operate in a run-of-river mode and maintain a reservoir target elevation of 882.5 ± 0.25 ft. Staff recommended in the draft EA a compromise flowage water level operating range of plus or minus 0.5-foot. Staff also recommended a "target" plus or minus 0.25 range limit at least 50 percent of the time to allow for some operating flexibility, however none of the range could be used for peaking. Wisconsin DNR agreed to this alternative as long as MHC provides evidence, through a report to the Commission, that MHC has made all reasonable efforts to stay within the plus or minus 0.25-foot range (Article 401).

Wisconsin DNR stated that the draft EA recommendations did not provide sufficient guidance to ensure that: 1) canal water levels and run-of-river operations would be maintained; 2) compliance would be easily determined; or 3) violations would be identified and corrected. After some discussion of the definition of run-of-river, the use of generation records and impoundment elevations as quantifying factors, and the types of equipment necessary to monitor run-of-river operation, staff and Wisconsin DNR agreed on license conditions requiring run-of-river operations with impoundment and power canal elevation restrictions (Article 401). Wisconsin DNR and staff also agreed that the licensee should develop an operation compliance monitoring plan in consultation with Wisconsin DNR and U.S. Geological Survey, with collection of data for one year (with graphs, as necessary, to evaluate run-of-river measurements and elevation restrictions (Article 402)).

Other Issues

Staff and the agencies also resolved the following agency recommendations. These recommendations are outside the scope of Section 10(j) because they do not provide specific measures for the protection, mitigation of damages to, and enhancement of fish and wildlife resources affected by the Hatfield Project, but were considered under Section 10(a) of the FPA.

1) 200-foot Buffer Zone

Interior and National Park Service (NPS) recommended that MHC maintain a minimum 200-foot buffer zone on all riparian company-owned properties. The buffer zone would be maintain in a natural condition with no cutting of vegetation allowed. The NPS

agreed to withdraw the "no-cut" provision from their minimum 200-foot buffer zone recommendation, based on staff's analysis. The NPS recognized that the "no-cut" restriction would not allow for old-growth forest management.

2) Macrophyte Study

The Wisconsin DNR recommended that MHC conduct a 3-year post-licensing macrophyte survey. Staff determined that stabilized water elevations would enhance the macrophyte community and therefore it is unlikely that the survey would precipitate information on adverse project impacts. Wisconsin DNR indicated it would conduct the survey and agreed to withdraw the recommendation for a 3-year post-licensing macrophyte survey.

3) Recreation Facilities

The Wisconsin DNR recommended that MHC acquire property or rights to improve parking for up to six (6) vehicles and provide a walk-in access, according to ADA standards. Based on additional information presented at the Section 10(j) meeting, MHC, Wisconsin DNR, and Commission staff agreed that public access to the upper backwater area could be provided. Consequently, this additional recreation enhancement measure is included in the required recreation plan (Article 414).

The parties discussed Interior's/NPS's recommendation for MHC to send a notice of the scheduled flow releases and toll-free number to each of the seven whitewater boating clubs that participated in the boating study. The NPS agreed to withdraw this recommendation.

4) Dam Safety Regulations

The Wisconsin DNR recommended that the Commission require MHC to comply with Wisconsin State administrative code pertaining to dam design and construction. Staff explained that the Commission's jurisdiction of project safety is preemptive, and MHC has already complied with a number of the Commission's dam safety requirements. Wisconsin DNR recognized that the Commission has jurisdiction over dam safety. Therefore, compliance with Wisconsin administrative code pertaining to dam safety is duplicative and unnecessary.

5) Project Retirement/Maintenance Fund

The Wisconsin DNR recommended that MHC establish a dam retirement/maintenance fund in the event MHC surrenders the license or otherwise cannot operate the project. In the draft EA, Staff determined that there is nothing to indicate that MHC is not committed to the operation and maintenance of the project.

In addition, MHC's partner, Howard Energy, has substantial financial assets.

Absent the establishment of a project retirement/maintenance fund, Wisconsin DNR recommended during the Section 10(j) meeting, that MHC and Howard Energy Company petition to become co-licensees or a license condition be included. This requires any future transfer application be served upon the Wisconsin DNR.

Staff agreed to recommend a license condition requiring the licensee to serve a copy of any future transfer application on Wisconsin DNR. Article 204 requires the licensee to serve Wisconsin DNR with a copy of any transfer application.

To address adjacent land-owners' concerns, Staff agreed that the licensee should be required to file a project financing plan for Commission approval to show that MHC has acquired the funds or commitment for funding, as necessary to construct the project. Article 305 requires the filing of a project financing plan before start of construction.

COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with Federal or state comprehensive plans for improving, developing, or conserving waterways affected by the project. Under Section 10(a)(2) of the FPA, Federal and state agencies filed a total of 68 comprehensive plans that address various resources in Wisconsin. Of these, we identified and reviewed eight plans relevant to the project.10/ We found no inconsistencies.

10/ **State**: Black River Basin area-wide water quality management plan, Wisconsin Department of Natural Resources, January 1980; Statewide comprehensive outdoor recreation plan, 1986-91, Wisconsin Department of Natural Resources, September 1985; Wisconsin water quality assessment report to Congress, Wisconsin Department of Natural Resources, April 1992; Wisconsin statewide comprehensive outdoor recreation plan for 1991-96, Wisconsin Department of Natural Resources, October 1991; Wisconsin's biodiversity as a management issue, Wisconsin Department of Natural Resources, May 1995; and Wisconsin's forestry best management practices for water quality, Wisconsin Department of Natural Resources, March 1995.

Federal: Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service, undated; The nationwide rivers inventory, National Park Service, January 1982.

We also reviewed Federal, state, and local plans that were relevant to the project, but were not listed as Commission approved comprehensive plans. They are as follows: Shoreland/Wetland Zoning Ordinance of Clark County, Wisconsin, August 1985; Shoreland Zoning of Jackson County, Wisconsin, May 1987; Black River State Forest Master Plan, Wisconsin Department of Natural Resources, February 1983; and North American waterfowl management plan: Upper Mississippi River and Great Lakes region joint venture implementation plan, U.S. Fish and Wildlife Service, March 1993. We found no inconsistencies.

COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a)(1) of the FPA, 16 U.S.C. §§ 797(e) and 803(a)(1), require the Commission, in acting on applications for license, to give equal consideration to all uses of the waterway on which a project is located. When the Commission reviews a hydropower project, the recreational, fish and wildlife, and other nondevelopmental values of the waterway are considered equally with its electric energy and other developmental values. In deciding whether, and under what conditions a hydropower license should be issued, the Commission must weigh the various economic and environmental tradeoffs involved in the decision.

Based on the staff's independent review and evaluation of the project, the project with additional environmental measures, and the no-action alternative, I have selected the Hatfield Project, with additional required mitigative measures, as the preferred option. I selected this option because: (1) project construction, rehabilitation, and operation would have minor environmental effects; (2) our mitigative measures would protect geological, water quality, fish and wildlife, recreation and cultural resources; and (3) the electricity generated from a renewable resource would be beneficial because it would offset the use of fossil-fueled, steam-electric generating plants, thereby, conserving nonrenewable energy resources and reducing atmospheric pollution.

The final EA analyzes the effects of MHC's project on the Black River and recommends thirteen measures to protect the environmental resources. These measures would require the licensee to: (1) conduct a post-operation water quality/sediment study to ensure that the project meets state water quality standards; (2) operate the project in a run-of-river mode with a target reservoir elevation of 882.5 feet plus or minus 0.25 feet, while maintaining at all times the elevation (within plus or minus 0.50 feet to protect water quality and aquatic resources; (3) provide scheduled flow releases into the 3-mile-long bypassed reach on the third Saturday of April, May, June, July, and August of every year to enhance whitewater boating opportunities; (4) develop and implement an operational compliance monitoring plan;

(5) implement the drought contingency plan; (6) install and maintain trashracks with no greater than 1.0-inch spacing to protect fish from turbine entrainment and impingement; (7) implement a fish stranding plan for the bypassed reach; (8) implement the bald eagle management plan to protect the federally-listed bald eagle and its habitat; (9) develop and implement a final recreation plan; (10) implement the Programmatic Agreement to protect cultural and archaeological resources; (11) develop and implement a soil erosion plan; (12) develop and implement a land management plan to protect project riparian lands and provide for public access and use of the project; and (13) blend construction of project-related facilities with the surrounding environment.

In determining whether a proposed 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, project economics.

The staff performed an economic analysis for the proposed project. The proposed project would provide an estimated average annual generation of 20,000,000 kilowatt-hours. The annual cost of producing power is $703,800 or 35.19 mills/kWh, and the value of power based on an annual power sales contract with NSP is $720,000 or 36.0 mills/kWh. As a result, the net annual benefit for generating power is $16,200.

TERM OF LICENSE

Because the proposed project would utilize an existing dam, based on Commission policy, the term of this license will be 40 years. 11/

OTHER FINDINGS

The final EA, issued on March 11, 1997 and attached to this order, includes background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be

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11/ City of Danville, Virginia, Project No. 10896, 58 FERC 61,318 (1992).

safe if constructed, operated, and maintained in accordance with the requirements of this license. 12/

I conclude that issuing a license, with the required environmental measures and other license conditions, would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Midwest Hydraulic Company, Inc. (licensee) for a period of 40 years, effective the first day of the month in which this order is issued, to construct, operate and maintain the Hatfield Project. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

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

Exhibit G	FERC No. 10805-	Showing
G-1	6	Location Map

(2) Project works consisting of: (a) an existing diversion dam 3,100 feet long and 48 feet high; (b) an existing reservoir (Lake Arbutus) with a surface area of 945 acres and a gross storage capacity of 10,800 acre-feet; © a single new submersible generating unit rated at 430 kW installed at the dam adjacent to the power canal gatehouse; (d) an existing 2.4-mile-long power canal with a new section excavated around the breached portion; (e) two existing 10-foot-diameter penstocks and one existing 2-foot-diameter penstock, each extending 265 feet in length; (f) an existing 150-foot-long by 60-foot-wide powerhouse containing two refurbished existing turbine-generator units with a capacity of 6,000 kW and a new third 400-kW unit; and (g) appurtenant facilities.

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

12/ A design assessment for this project was prepared and is available in the Commission's files.

Exhibit A - The following sections of exhibit A filed on September 25, 1992.

The existing turbines as described in section 3.A-1, page A-7, the existing generators as described in section 3.A-2, page A-8, and additional electrical and mechanical equipment as described in section 5, page A-8. The following portions of additional information submissions filed on August 31, 1994 and August 14, 1995. The proposed turbine and generator as described in "Item 14" and "Item 2".

Exhibit F - The following exhibit F drawings filed on September 25, 1992.

Exhibit	FERC No. 10805-	Showing
F-1	1	General Plan View
F-2	2	Dam Profile and Cross Sections of Dikes
F-3	3	Overflow Spillway and Canal Headworks
F-4	4	Gateway Spillway
F-5	5	Power Canal Profile and Cross Sections

(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) This license is subject to the articles set forth in Form L-11, (October 1975), entitled "Terms and Conditions of License for Unconstructed Major Project Affecting the Interests of Interstate or Foreign Commerce," except article 20, and the following additional articles:

Article 201. The licensee shall pay the United States the following annual charge, effective as of the date of commencement of project construction:

For the purpose of reimbursing the United States for the costs of administrating Part I of the Federal Power Act, a reasonable amount as determined in accordance with this

provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 6,830 kilowatts.

Article 202. The licensee shall clear and keep clear to an adequate width all lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which result from maintenance, operation, or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. All clearing of lands and disposal of unnecessary material shall be done with due diligence to the satisfaction of the authorized representative of the Commission and in accordance with appropriate federal, state, and local statutes and regulations.

Article 203. The licensee, within 45 days of the date of issuance of the license, shall file an original set and two duplicate sets of aperture cards of the approved drawings. The set of originals must be reproduced on silver or gelatin 35mm microfilm. The duplicate sets are copies of the originals made on diazo-type microfilm. All microfilm must be mounted on type D (3-1/4" x 7-3/8") aperture cards.

Prior to microfilming, the FERC Drawing Number (F-1 to F-2 through G-1) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number must be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (e.g., F-1, G-1, etc.), Drawing Title, and date of this license must be typed on the upper left corner of each aperture card.

The original and one duplicate set of aperture cards must be filed with the Secretary of the Commission, ATTN: DLC/ECB. The remaining duplicate set of aperture cards shall be filed with the Commission's Chicago Regional Office.

Article 204. Any application to transfer this license shall include proof of service of a copy of that application on the Wisconsin Department of Natural Resources and the U.S. Department of the Interior.

Article 205. Pursuant to Section 10(d) of the FPA, after the first 20 years of operation of the project under license, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of the specified rate of return per annum on the net investment. To the extent

that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year after the first 20 years of operation under the license, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

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

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

Article 302. Within 90 days of completion of construction of the facilities authorized by this license, the licensee shall file for approval, revised Exhibits A, F, and G to describe and show the project as-built.

Article 303. Before starting construction, the licensee shall review and approve the design of contractor-designed cofferdams and deep excavations, and shall make sure construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of the cofferdam, the licensee shall submit one copy to the Commission's Regional Director and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, Division of Dam Safety and Inspections), of the approved cofferdam construction drawings and specifications and the letters of approval.

Article 304. The licensee shall, at least 60 days prior to the start of construction, submit one copy to the Commission's Regional Director and two copies to the Commission (one of these shall be a courtesy copy to the Director, Division of Dam Safety and Inspections), of the final contract drawings and specifications for pertinent features of the project, such as

water retention structures, powerhouse, and water conveyance structures. The Commission may require changes in the plans and specifications to assure a safe and adequate project. If the licensee plans substantial changes to location, size, type, or purpose of the water retention structures, powerhouse, or water conveyance structures, the plans and specifications must be accompanied by revised Exhibit F and G drawings, as necessary.

Article 305. At least 90 days before starting construction of those project works not required for dam safety, the licensee shall file for approval, with the Director, Office of Hydropower Licensing, three copies of a project financing plan. The plan must show that the licensee has acquired the funds, or commitment for funds, necessary to construct the project in accordance with this license. The licensee shall not acquire any property through condemnation proceedings or start any project construction (other than dam safety repairs) or ground-disturbing activities (other than those required for subsurface site exploration) that are inseparably associated with the project before the financing plan is approved. The requirements of this article shall not apply to, or restrict, those activities ordered by the Commission's Chicago Regional Office or the Division of Dam Safety and Inspections in the interest of public or dam safety.

Article 401. The licensee shall operate the Hatfield Project in a run-of-river mode for the protection of aquatic resources in Lake Arbutus and the Black River. The licensee shall at all times act to minimize the fluctuation of the reservoir surface elevation by maintaining a discharge from the project so that, at any point in time, flows, as measured immediately downstream of the project powerhouse, approximate the sum of inflows to the project works. This requirement is modified under drought conditions to satisfy the priorities outlined in Article 405.

Consistent with run-of-river operation, the licensee shall maintain a target reservoir surface elevation of 882.5 ± 0.25 feet National Geodetic Vertical Datum (NGVD) at least 50% of the time, and ± 0.50 feet at all times. In addition, the licensee shall maintain the surface elevation of water in the power canal at 879.0 ± 0.1 feet NGVD at all times after operation commences. None of the allowable impoundment or power canal water surface elevation fluctuation shall be used for pulsing, peaking, or ponding purposes. The licensee shall make all reasonable efforts to maintain the elevation within the ± 0.25-foot operation band for the impoundment and as small an operation band as feasible for the power canal. Reservoir elevation and turbine operation records, along with data from the powerhouse gage, shall be used to assess compliance with run-of-river operation, but the use of these measures for compliance measurements shall be re-evaluated within 18 months after project operation is initiated (as outlined in Article 402).

Run-of-the-river operation, and the reservoir and power canal water surface elevations specified above, may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods upon mutual agreement between the licensee and the Wisconsin Department of Natural Resources (Wisconsin DNR). If the river flow or water surface elevations in the reservoir or power canal are so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident. The licensee shall consult with the Wisconsin DNR at least 2 months prior to the start date of any planned drawdown, if possible.

The licensee shall notify the Wisconsin DNR at the earliest possible opportunity, but in no case later than 24 hours after any emergency drawdown of the reservoir or power canal. Within 30 days after any emergency drawdown, the licensee shall consult with the Wisconsin DNR and submit a report to the Commission describing the emergency, action taken, measures proposed for remediation and to prevent reoccurrence, and an implementation schedule for these measures, for review. The licensee shall include any comments received from the Wisconsin DNR in this filing with the Commission. The Commission reserves the right to require changes to the proposed remediation and prevention measures, or implementation schedule. Upon Commission approval, the licensee shall implement the remediation and mitigative measures, according to the approved schedule.

Article 402. Within 18 months after the onset of project operation, the licensee shall file, an operations evaluation report showing the technical and financial feasibility of continuing with the impoundment and power canal water surface elevation restrictions, and the success of operating within the intent of run-of-river (as specified in Article 401). The report shall include at least one contiguous year of operation records including, but not limited to, generation records, flow records for the bypassed reach, water surface elevation data in Lake Arbutus, water surface elevation data in the power canal, and flow records immediately downstream from the project powerhouse (measuring the total flow from the bypassed channel and the project powerhouse). The report shall include any requests by the licensee to modify the conditions in Article 401.

The operations evaluation report shall be filed with the Commission and shall include comments from the Wisconsin DNR on the report. The licensee shall allow a minimum of 30 days for the agency to comment and to make recommendations before filing the operations report with the Commission. The Commission shall then determine whether the run-of-river requirement shall need further measurements specified, and whether the reservoir and power canal water surface elevation fluctuation limits shall be

modified. After evaluation of this report, the Commission may modify the requirements specified in Article 401.

Article 403. The licensee shall release from the Hatfield Project Dam into the dam tailwater pool (immediately downstream of the trip gate section) in the bypassed reach of the Black River a minimum flow of 75 cubic feet per second (cfs), or a flow as required by Article 405 under low flow conditions, for the protection of aquatic resources in the Black River.

Further, the licensee shall open the Taintor gates at the Hatfield Project Dam from right to left looking downstream during high flow periods (e.g., during naturally high inflow periods or during recreation flow releases), and close them in the reverse order, to reduce fish stranding and poaching in the bypassed reach.

These flow and gate opening requirements may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods upon mutual agreement between the licensee and the Wisconsin DNR. If the flow or gate opening requirements are so modified, the licensee shall notify the Commission and the Wisconsin DNR as soon as possible, but no later than 10 days after each such incident.

To date, the exact depth of the intake for the bypass turbine has not been identified. Because the location of this intake could influence the dissolved oxygen (DO) level and temperature of the water withdrawn from the impoundment, as well as have an effect on the potential impacts associated with fish entrainment, the licensee shall consult with Wisconsin Department of Natural Resources (Wisconsin DNR) on the location of the intake for this minimum flow unit. Within 90 days from the issuance date of this license, the licensee shall provide to the Commission, for approval, a bypass flow intake plan, including detailed drawings indicating the depth of the intake, and implementation schedule, developed in consultation with the Wisconsin DNR. The licensee shall prepare the bypass flow intake plan after consultation with the Wisconsin DNR. The licensee shall include with the plan, copies of agency comments and recommendations on the plan and implementation schedule after it has been prepared and provided to the agency, and specific descriptions of how the agency's comments are accommodated by the licensee's plan. The licensee shall allow a minimum of 30 days for the agency to comment and to make recommendations before filing the bypass flow intake plan and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the bypass flow intake plan. Upon Commission approval and within 90

days of project start-up, the licensee shall implement the plan, including any changes required by the Commission, according to the approved schedule.

Article 404. After the completion of construction of the project facilities, the licensee shall release minimum flows into the bypassed reach for whitewater boating on the third Saturday of April, May, June, July, and August of every year according to the following: for April--2,350 cubic feet per second (cfs), for May--1,595 cfs, for June--895 cfs, for July--1,070 cfs, and for August--835 cfs.

These flows may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods of time upon mutual agreement between the licensee, the Wisconsin Department of Natural Resources (Wisconsin DNR), the National Park Service (NPS), and the American Whitewater Affiliation (AWA). If the flows are so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Furthermore, the licensee shall maintain maximum rates of change in river flow (ramping rate) according to the following: (1) an up-ramping rate of 3 hours per 1,000 cfs when increasing discharge; (2) a peak flow for no more than 3 hours during the middle of the day; and (3) a down-ramping rate of 24 hours per 1,000 cfs when decreasing discharge. These restriction may be temporarily modified if required by operating emergencies beyond the control of the Licensee, or for short periods of time upon mutual agreement between the licensee, the Wisconsin DNR, the NPS, and the AWA. If the ramping rate requirements are so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident. The licensee shall make available ramping rate flow information (via project operation records) required by this article to the Commission and appropriate agencies within 30 days of a request for the information.

If instantaneous inflow to the Hatfield Project impoundment (Lake Arbutus) is less than the 50th percentile flow on the flow duration curve for that month as follows, for April--1,800 cfs, for May--1,045 cfs, for June--345 cfs, for July--520 cfs, and for August--285 cfs, then releases for whitewater boating into the bypassed reach shall not be required.

These flow releases shall be subject to the drought contingency plan required by Article 405.

The licensee shall also provide and maintain a toll-free telephone line with 24-hour updates of flow releases in the bypassed reach, including a monitoring log, and provide

information specifying times when the flow information shall be available.

At the end of the fifth year following the year in which whitewater flows are initially implemented, the licensee shall reassess whitewater boating in the bypassed reach to determine whether the continued release of required flows for whitewater boating is warranted. The licensee, in consultation with the Wisconsin DNR, the NPS, and the AWA, shall prepare and file a report with the Commission on its findings.

Article 405. Should drought conditions (as discussed below) allow insufficient water to satisfy all of the operational requirements specified in Articles 401, 403 and 404, the licensee shall give the following preference by chronological order to maintain water quality, fisheries, and recreational needs:

1. Maintain flows in the bypassed reach of at least 9.8 cfs (7Q10 flow).

2. Maintain Lake Arbutus within impoundment elevation 882.5 ± 0.25 feet National Geodetic Vertical Datum (NGVD) at least 50% of the time, and ± 0.50 feet at all times, while providing some, if not all, of the 75-cfs bypassed reach minimum flow.

3. Maintain the surface elevation of water in the power canal at 879.0 ± 0.1 feet NGVD.

4. Provide sufficient water turnover rate in the power canal to maintain the state standard dissolved oxygen level of 5 milligrams per liter (mg/l).

5. Provide recreation navigation flow releases in the bypassed channel, as specified in Article 404.

6. Provide water for power production.

The priorities specified above, may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods upon mutual agreement between the licensee and the Wisconsin Department of Natural Resources (Wisconsin DNR) and the National Park Service (NPS). If the operation is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident. The licensee shall notify the Wisconsin DNR and the NPS at the earliest possible opportunity, but in no case later than 24 hours after any emergency drawdown of the reservoir or power canal.

Because the drought conditions for which these priorities apply are yet to be defined and priority (2) requires greater

specificity, the licensee shall file within 6 months of the issuance date of this license and prior to project operation, a functional definition of drought conditions (e.g., flows less than x cfs as measured at a gage on one of the tributaries to Lake Arbutus) and a rule curve that prioritizes the maintenance of specific elevations of Lake Arbutus and flows in the bypassed reach. The drought flow definition and the rule cure regarding priority (2) shall be developed in consultation with the Wisconsin DNR and the NPS, and shall include comments from these agencies. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drought flow definition and rule curve with the Commission.

The Commission reserves the right to make changes to these drought flow provisions. The licensee shall not begin project operation until it has been notified that the Commission has approved drought flow provisions. Upon Commission approval, the licensee may operate under the constraints of the approved drought flow provisions, including any changes required by the Commission.

Article 406. Within 180 days from the date of issuance of this license, in order to monitor the run-of-river operating mode and reservoir and power canal water surface elevation requirements required by Article 401 (as may be modified by Article 402), the instream flow requirement specified in Articles 403 and 404, and drought condition priorities required by Article 405, the licensee shall develop, in consultation with the Wisconsin Department of Natural Resources (Wisconsin DNR) and the U.S. Geological Survey (USGS), an operational compliance monitoring plan, for Commission approval. This plan must include, but is not limited to, an implementation schedule and provisions to: (1) install and maintain staff gages, visible to the public, in the project impoundment, the power canal, and bypassed reach (this gage shall be visible from County Highway "K"); (2) maintain water level sensors to continuously record the elevation of Lake Arbutus and the project power canal; (3) record river flows (total from powerhouse and the bypassed reach) at the project powerhouse; (4) maintain a log of water surface elevations, turbine operations, and flows; and (5) rate turbines.

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

The Commission reserves the right to require changes to the plan. The licensee may not begin project operation until it has been notified that the Commission has approved the operational compliance monitoring plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission, according to the approved schedule. The licensee shall provide these monitoring data to the Wisconsin DNR and the Commission within 30 days of receiving a written request for such information.

Article 407. The licensee, within 180 days from the date of issuance of this license, shall file, for Commission approval, a fish protection plan, including detailed design drawings of the licensee's one-inch (clear bar spaced) trashrack structures at the penstock intakes (proposed) and bypass minimum flow turbine intake (installed), to reduce the entrainment of fish, together with a schedule to install the trashracks before operation of the project.

This plan shall include, but not be limited to: (1) a detailed drawing indicating the dimensions and location of the trashracks; (2) an estimate of the maximum intake approach velocity (one foot in front of the trashracks); and (3) a description of the methods and a schedule for installing the trashracks.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the Wisconsin Department of Natural Resources (Wisconsin DNR). The licensee shall include with the drawings documentation of consultation, copies of agency comments and recommendations on the drawings and schedule after they have been prepared and provided to the agency, and specific descriptions of how the agency's comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agency to comment and to make recommendations before filing the drawings and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the fish protection plan. The licensee shall not begin project operation until it has been notified that the Commission has approved the fish protection plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission, according to the approved schedule.

Article 408. Within 180 days from the date of issuance of this license, and prior to project operation, the licensee shall file, for Commission approval, a fish stranding monitoring plan and schedule, developed in consultation with the Wisconsin Department of Natural Resources (Wisconsin DNR), the National

Park Service (NPS), and whitewater boating groups of the American Whitewater Affiliation (AWA), to evaluate post-operational fish stranding in the bypassed reach. This plan shall consider the flow releases for aquatic habitat and whitewater boating specified in Articles 403 and 404, respectively, and shall evaluate the effectiveness of the Taintor gate opening and closing procedure (specified in Article 403) in reducing fish stranding in the bypassed reach.

The licensee shall prepare the fish stranding monitoring plan and schedule after consultation with the Wisconsin DNR, NPS, and AWA. The licensee shall include with the plan documentation of consultation, copies of agency comments and recommendations on the plan and implementation schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's plan and schedule. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the fish stranding monitoring plan and schedule. The licensee may not begin project operation until it has been notified that the Commission has approved this plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission, according to the approved schedule.

Article 409. 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 Federal Power Act.

Article 410. Within 12 months from the date of issuance of this license, the licensee shall prepare and file for Commission approval, a land management plan to protect the Hatfield Project's existing aesthetic resources, water quality, and enhance public recreational opportunities. The land management plan, at a minimum, shall include:

(1) the criteria used for selecting the buffer zone widths (using 200 feet as a rule of thumb);

(2) allowable uses for the buffer zone lands;

(3) conditions to be specified for such allowable uses;

(4) maps that clearly delineate the shoreland protective buffer zone area; and

(5) how existing zoning ordinances were incorporated into the plan.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources (Wisconsin DNR) and the National Park Service (NPS). The licensee shall include with the land management plan documentation of agency consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments and recommendations are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

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

Article 411. At least 90 days before the start of any land-clearing or ground-disturbing activities, the licensee shall file with the Commission, for approval, a plan to control soil erosion, slope instability, and to minimize the quantity of sediment resulting from project related construction and operation. The plan shall identify, and include measures to stabilize, severely eroded sites on licensee-owned Lake Arbutus, power canal, bypassed reach or other frontage and tailwater lands, including lands where archeological resources have been identified.

The plan shall be based on actual site geological, soil, and groundwater conditions and final facility designs and shall include, at a minimum, the following items:

(1) a description of the actual site conditions;

(2) a description of the type and extent of land-clearing and/or ground disturbing activities to be carried out at the site;

(3) detailed descriptions, functional design drawings, and specific topographic locations of all measures proposed to control soil erosion, to prevent slope instability, and to minimize the quantity of sediment at the sites; and

(4) a specific implementation schedule and details for monitoring and maintenance of the control measures specified in item (3) above.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources (Wisconsin DNR) and the Natural Resources Conservation Service (NRCS). The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' recommendations are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment on the plan and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on actual site conditions and final facility designs.

The Commission reserves the right to require changes to the plan. No land-clearing or ground-disturbing activities shall begin until the licensee is notified by the Commission that the erosion and sedimentation control plan for those activities is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 412. Within 180 days from the date of issuance of the license, the licensee shall, after consultation with the Wisconsin Department of Natural Resources (Wisconsin DNR) and the U.S. Fish and Wildlife Service (FWS), file with the Commission for approval, a plan to monitor water temperature and dissolved oxygen (DO) and sample sediments in the impoundment, in the bypassed reach, in the power canal, and in the river immediately below the powerhouse.

The monitoring plan shall include monitoring of summer DO levels and water temperatures (to include testing for toxic substances), measures to identify when project operations result in DO violations, and measures for altering project operations to ensure maintenance of state standards for DO and water temperature in the Black River. In preparing the monitoring plan, the licensee shall consult with the Wisconsin DNR and the FWS on the intake location for the bypass minimum flow generating unit and its effects on DO levels and temperature of water withdrawn from the impoundment and on the requirements for fish protection under Article 403.

The monitoring plan shall include a schedule for: (1) implementation of the plan; (2) consultation with the Wisconsin DNR and FWS concerning the results of the monitoring; and (3) filing the results, agency comments, and licensee's response to agency comments with the Commission.

The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agency comments

are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

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

Article 413. The Bald Eagle Management Plan (ensures adequate protection of the federally-listed bald eagle and its habitat), dated August 13, 1992, and consisting of 11 pages is approved and made part of this license and shall be implemented with the following modifications:

(1) changes in time periods:

Activity	Dates
"Moderately critical" nesting	June 15 to July 31
Critical nesting period	February 15 to August 15
Activities allowed in the Secondary Zone	August 31 through February 15

(2) repairs to the power canal shall be restricted to a minimum distance of 0.25 mile from the bald eagle nest site during the period from February 15 to August 15; regular maintenance of the power canal and dike shall be restricted from August 15 to February 15, and the area within 0.25 mile of the nest shall be avoided except from October 1 to February 15.

The Commission reserves the right to require changes to the plan to ensure adequate protection of the federally-listed bald eagle and its habitat.

Article 414. Within 18 months of license issuance, the licensee shall file for Commission approval and, upon approval, implement, a final recreation plan for the Hatfield Project to include the following:

(1) at the power canal, improve the existing public access, including parking, site accessibility to persons with disabilities, and a fishing area; (2) at the tailrace, construct a fishing platform and parking area; (3) relocate about a 100- to 150-foot-long section of the existing approximately 1,200-foot-long informal trail at the put-in area and install soil erosion control measures; (4) improve the parking area with gravel (8-10 spaces) at the powerhouse and provide toilet facilities in the area; (5) provide a gravel parking area (8-10 spaces) along Clay

School Road; (6) remove the no trespassing signs at the powerhouse site; and (7) develop public access to the upper backwater area of the power canal.

The licensee shall develop the final recreation plan in concert with the Bald Eagle Management Plan required in Article 413.

The licensee shall prepare the final recreation plan after consultation with the U.S. Fish and Wildlife Service, Wisconsin department of Natural Resources, and the National Park Service. The licensee shall include with the final recreation plan a construction schedule, the entity responsible for operation and maintenance of the facilities, costs for construction and yearly maintenance of each facility, a description of the directional signs to be installed in order to identify public access areas and associated trails, a description of the public recreational safety measures, documentation of agency consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments and recommendations are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

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

Article 415. At least 90 days before the start of any land-clearing or ground-disturbing activities, the licensee shall file with the Commission, for approval, a plan to avoid or minimize disturbances to the quality of the existing visual resources of the project area. The plan, at a minimum, shall include the licensee's proposal for:

(1) blending the project works into the existing landscape character;

(2) revegetating, stabilizing, and landscaping new construction areas and areas adjacent to the project site disturbed by previous construction or that presently impact the visual resources of the surrounding area;

(3) grading, planting grasses, repairing slopes damaged by erosion, and preventing future erosion; and

(4) an implementation schedule and monitoring program.

Items (2) and (3) are also to be filed as part of the soil erosion plan requirements under Article 411.

The licensee shall prepare the plan after consultation with the Wisconsin Department of Natural Resources and the Department of the Interior. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' recommendations are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment on the plan and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on actual site conditions and final facility designs.

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

Article 416. 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 Historic Preservation Officer for Managing Historic Properties That May Be Affected by A License Issuing to Midwest Hydraulic Company, Inc. for the Operation of the Hatfield Hydroelectric Project in Wisconsin," executed on January 24, 1997.

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

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

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

(c) The licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and Federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or

major electric distribution lines (69 kV or less); and (8) water intake or pumping facilities that do not extract more than 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.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and Federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (I) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Hydropower Licensing, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph © 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.

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

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

(F) This order is delegated to the Director and is final unless a request for rehearing is filed within 30 days from the date of issuance, as provided in Rule 385.813. 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.

Kevin P. Madden
Acting Director
Office of Hydropower Licensing

Appendix A

Water Quality Certificate Conditions for Hatfield Hydro Project Issued January 16, 1997 by the State of Wisconsin Department of Natural Resources.

1. The Applicant shall allow the Department reasonable entry and access to the project site to inspect for compliance with this certification and applicable laws.

2. At least five business days prior to the beginning of the discharge, the Applicant shall notify the Department of its intent to commence the discharge.

3. Within five business days after the completion of the discharge, the Applicant shall notify the Department of the completion of the discharge.

4. An erosion control plan including specific measures, shall be incorporated into the reconstruction and design plan and shall be approved by the Department prior to project reconstruction.

5. A complete and accurate set of construction and design plans shall be submitted to the Department's Dam Safety Unit, c/o Bill Sturtevant, Asst. Dam Safety Engineer, 101 South Webster, P.O. Box 7921, Madison, Wisconsin 53707. These plans must be approved prior to project reconstruction.

FINAL
ENVIRONMENTAL ASSESSMENT
FOR HYDROPOWER LICENSING

HATFIELD HYDRO PROJECT
(FERC Project No. 10805)

WISCONSIN

March 10, 1997

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Washington, D.C.

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SUMMARY

On September 25, 1992, Midwest Hydraulic Company, Inc. (MHC) filed an application for an original license for the Hatfield Hydroelectric Project (FERC No. 10805-002) with an installed proposed capacity of 6,830 kilowatts (kW). The project site is located on the Black River near Hatfield, in Jackson and Clark Counties, Wisconsin. MHC proposes to rehabilitate a retired hydroelectric facility that was built in 1907-1908, utilizing the existing dam, reservoir, powerhouse, and other appurtenant project works. Most of the powerhouse equipment would be replaced.

On April 2, 1992, pursuant to Section 401 of the Clean Water Act, MHC applied to the Wisconsin Department of Natural Resources (Wisconsin DNR) for 401 water quality certification (WQC) for the Hatfield Project. On June 3, 1992, the Wisconsin DNR issued a WQC with requirements (see section II. A.3.b.). To reflect a modified power canal design, Wisconsin DNR issued a revised WQC on January 16, 1997, adopting conditions in the November 18, 1996, Notice of Determination of Water Quality Certification.

This final environmental assessment (FEA) analyzes the effects of the proposed action and various alternatives to the proposed action, including denial of the application, for the proposed Hatfield Project. The FEA recommends measures proposed or recommended by MHC, various agencies, nongovernmental organizations, and the staff in order to mitigate for adverse impacts to, protect, and enhance environmental resources. These measures are discussed in sections IV.C. and V., and summarized in section VI. of the FEA.

Overall, these measures, along with standard articles provided in any license issued for the project, would protect, enhance, or mitigate for adverse impacts to geology and soils, water quality, and fishery, terrestrial, aesthetic, recreation, and cultural resources, and protect existing and undiscovered archeological sites. In addition, electricity generated from the proposed project would reduce the use of fossil-fueled, electric generating plants, conserve non-renewable energy resources, and reduce atmospheric pollution. Denying the license -- meaning that the power that would have been produced by the Hatfield Hydro Project would not be realized and no measures would be implemented to enhance existing environmental resources -- has been considered.

Based on our independent review and evaluation of the proposed project, agency recommendations, and the no-action alternative, we recommend issuing an original license for the Hatfield Hydro Project with our recommended mitigative and enhancement measures. We recommend this option because: (1) rehabilitating the project would have minor environmental

effects; (2) our recommended measures would adequately protect and/or enhance geology and soils, water quality, fishery, terrestrial, aesthetic, recreation, and cultural resources; and (3) about 20.0 gigawatt-hours (GWh) of energy that would be generated annually from a renewable resource would reduce the use of fossil-fueled, steam-electric generating plants, conserve nonrenewable energy resources, and reduce atmospheric pollution.

Section 10(j) of the Federal Power Act (FPA) requires the Federal Energy Regulatory Commission (Commission) to include license conditions, based on recommendations of Federal and state fish and wildlife agencies, for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife resources. Pursuant to Section 10(j) of the FPA, we had made a preliminary determination that some recommendations of the Federal and state fish and wildlife agencies might be inconsistent with the purposes and requirements of Part I of the FPA. We held a Section 10(j) meeting with the Wisconsin Department of Natural Resources on December 13, 1997, and the National Park Service and a member of the press also, in the teleconference. The U.S. Fish and Wildlife Service chose not to participate in the teleconference. We resolved all outstanding issues. The results of these negotiations are reflected in the appropriate sections of this FEA.

Based on our independent environmental analysis, we conclude that issuance of a license for the Hatfield Project would not constitute a major Federal action significantly affecting the quality of the human environment.

FINAL ENVIRONMENTAL ASSESSMENT

FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF HYDROPOWER LICENSING, DIVISION OF LICENSING AND COMPLIANCE

Hatfield Hydroelectric Project
FERC Project No. 10805-002, Wisconsin
February 28, 1997

I. PURPOSE AND NEED FOR POWER AND ACTION

A. Application and Purpose of Action. On September 25, 1992, Midwest Hydraulic Company, Inc. (MHC), filed an application with the Federal Energy Regulatory Commission (FERC) for an original license for the Hatfield Hydroelectric Project, FERC No. 10805-002 (Figure 1).

The project is located on the Black River in the Township of Hatfield in Jackson and Clark Counties, Wisconsin. The Black River, which drains an approximate area of 1,290 square miles at Hatfield dam, is located in the Black River sub-basin, which is part of the Mississippi River Basin.

The Hatfield Project, with an installed capacity of 6,830 kilowatts (kW), would generate about 20.0 gigawatt-hours (GWh) of electric energy per year, based on the staff's independent estimate (Figure 2). This energy could be sold to any utility in the region. MHC also originally proposed to repair the 2.4-mile-long breached power canal with the construction of a preformed concrete "U" channel section (see section V.A for project costs). Currently, MHC will excavate around the the breached portion of the power canal.

B. Need for Power. This application for license is an action in which the need for the project power rests on the virtues of electric power production by hydroelectric facilities, in addition to the need for additional capacity in the region (see Section II.A.1). MHC would sell its electric energy to Northern States Power Company (NSP). NSP would rely upon the electricity produced by the Hatfield Project to supply a portion of the electricity needs of its end-use customers.

NSP is a member of the Mid-America Interconnected Network (MAIN) reliability council. The MAIN reliability council collects, organizes and coordinates the data which are required for the preparation of the Department of Energy (DOE) Code OE-411 Report. The data content and format of the OE-411 Report are specified by DOE and complied with by all of the regional reliability councils of North America. In all OE-411 council reports, data for the year prior to the reporting year for summer and winter peak demands, capacity resources and annual energy requirements are actual data. For the reporting year and the

remaining years of the 10-year planning period, these data are projections or forecasts.

According to the April 1993 OE-411 Report, the summer peak hour demand for the MAIN Council Area, in 1992, was 38,819 megawatts (MW) and the value for 2002 is projected to increase to 49,659 MW. These data yield a compound annual growth rate of approximately 2.5 percent. For the same period, the projected data yield a compound annual growth rate in net annual energy requirements for the MAIN Council service area of approximately 1.2 percent. The MAIN Council service area plans to increase its net summer capacity resources from 49,104 MW in 1993 to 56,464 MW in 2002--a compound annual growth rate of approximately 1.6 percent. These data add further support to a long-term need for the electricity generated by the Hatfield Project.

II. PROPOSED ACTION AND ALTERNATIVES

A. Applicant's Proposal

1. Project Facilities and Operations. MHC proposes to rehabilitate, add new generating capacity to, and operate an existing, but currently inoperative hydropower development. Repairs would be made to the existing power canal, dam, gatehouse structure, and powerhouse equipment. The proposed project consists of the following: (1) an existing diversion dam 3,100 feet long and 48 feet high; (2) an existing reservoir (Lake Arbutus) with a surface area of 945 acres and a gross storage capacity of 10,800 acre-feet; (3) a single new submersible generating unit rated at 430 kW installed at the dam adjacent to the power canal gatehouse; (4) an existing 2.4-mile-long power canal with a new section excavated around the breached portion; (5) two existing 10-foot-diameter penstocks and one existing 2-foot-diameter penstock, each extending 265 feet in length; (6) an existing 150-foot-long by 60-foot-wide powerhouse containing two refurbished existing turbine-generator units with a capacity of 6,000 kW and a new third 400-kW unit; and (7) appurtenant facilities. There is no primary transmission line associated with the project. The total project capacity would be 6,830 kW.

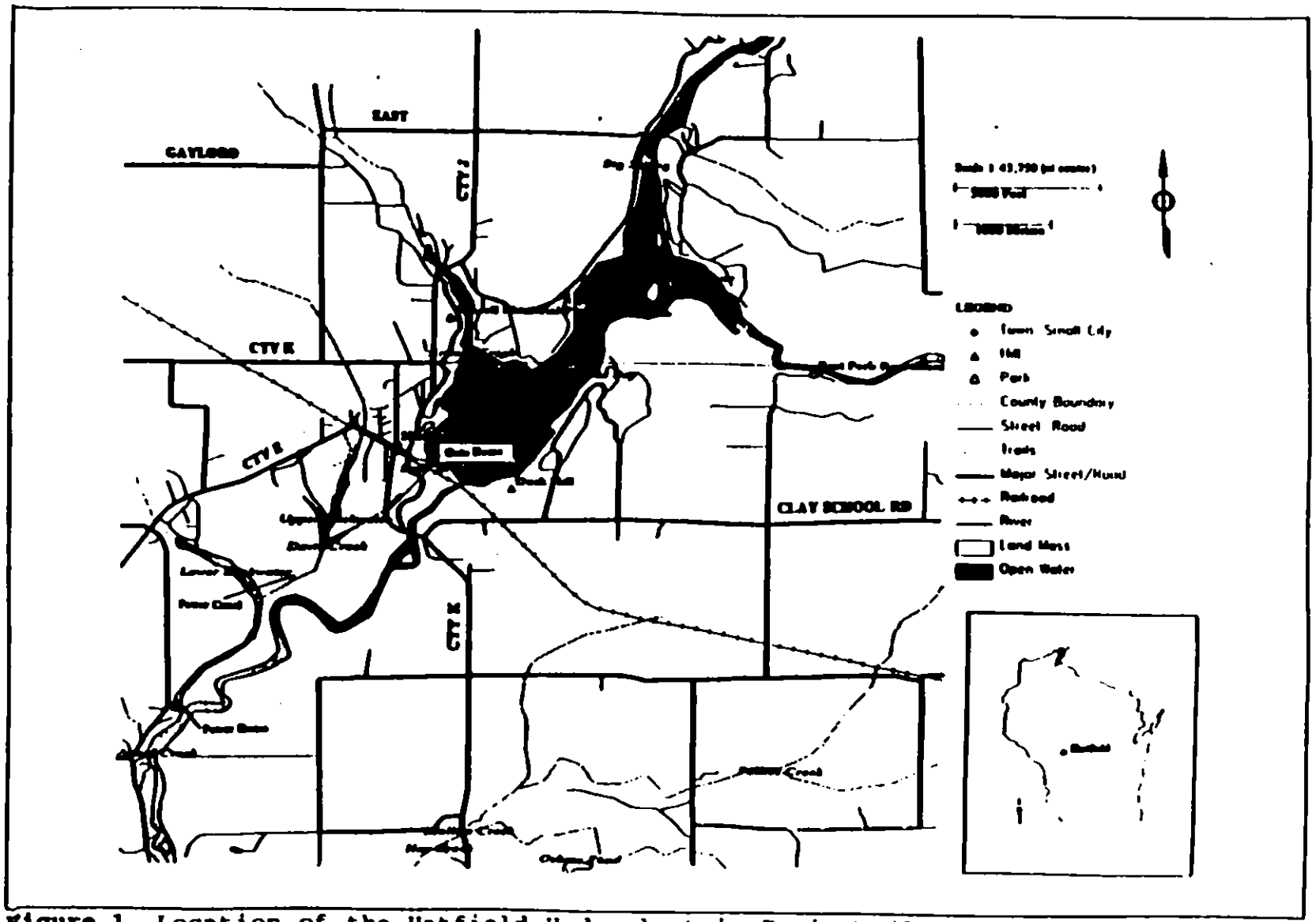
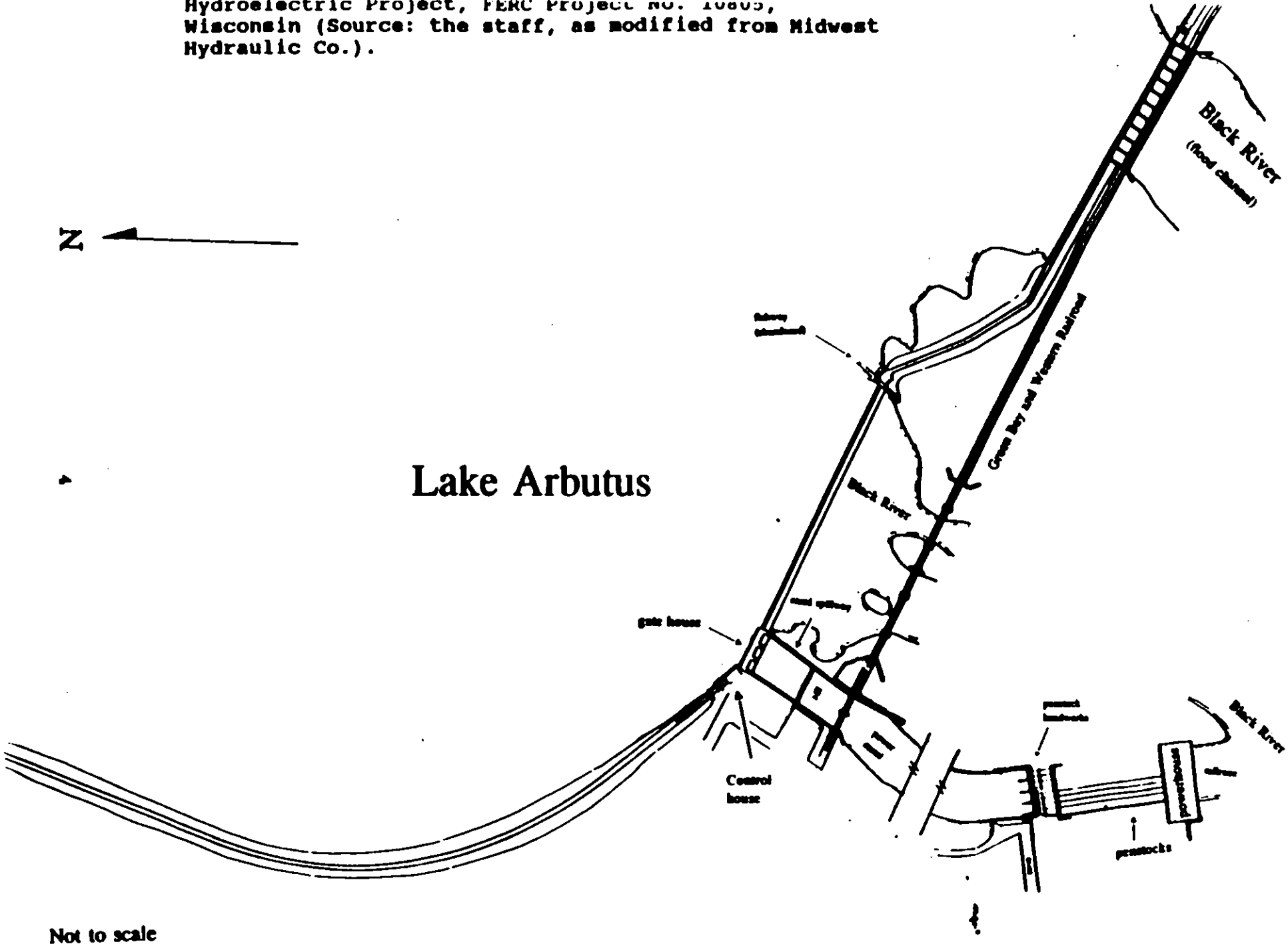


Figure 1. Location of the Hatfield Hydroelectric Project (Source: Mead & Hunt, Inc., 1995).

Hydroelectric Project, FERC Project No. 10805, Wisconsin (Source: the staff, as modified from Midwest Hydraulic Co.).



Not to scale

Alternate Design For Canal Repair

By letter dated July 29, 1996, MHC stated that it proposes an alternative plan to restore the approximate 2.4-mile-long power canal. This alternative would consist of rerouting a section of the power canal and excavating a new channel in the adjacent natural ground to the north of the breach location, and as discussed in the appropriate resource sections of the FEA.

The proposed project would operate in a run-of-river mode, except when inflows are greater than the minimum flow requirement for the bypassed reach, but less than the minimum hydraulic capacity of the proposed powerhouse low-flow unit, (25 cubic feet per second (cfs)). When inflows are between 1 and 25 cfs above the minimum flow requirement for the bypassed reach, the low-flow unit at the powerhouse would be operated in a cycling mode, within the proposed 0.25 feet operating band of the impoundment surface elevation. MHC estimates that the total average annual energy generation of the project would be 20.0 GWh.

2. Proposed Environmental Measures

To protect, mitigate adverse impacts to, and enhance project-related environmental resources, MHC proposes to:

- operate the project in a run-of-river mode, and attempt to maintain a normal headpond elevation of 882.5 ± 0.25 feet National Geodetic Vertical Datum (NGVD)1/ and a constant power canal water surface elevation of 879.0 feet NGVD;

- provide sufficient water turnover volume in the power canal to protect water quality;

- release a minimum flow of 75 cfs into the 3-mile-long bypassed reach of the river;

- operate the project during low-water years according to the following order of priority: (1) maintain the proposed water surface target elevation for Lake Arbutus; (2) maintain the proposed water surface target elevation for the power canal; (3) provide sufficient flow through the power canal to protect water quality; and (4) provide the required minimum flow in the bypassed reach of the river;

- monitor compliance with run-of-river and minimum flow requirements using a staff gage in the bypassed reach, the U.S. Geological Survey (USGS) Neillsville gage; and turbine operation records;

1/ All elevations are in National Geodetic Vertical Datum unless otherwise specified.

- cooperate with the Wisconsin Department of Natural Resources (DNR) in re-establishing a recreational fishery in the power canal following the rehabilitation of the canal;

- conduct a post-operational water quality/sediment study to ensure that the project meets state water quality standards;

- open the Taintor gates at the dam from right to left (looking downstream) during high-flow periods to alleviate the fish stranding and poaching problems that presently occur in the pools of the bypassed reach;

- determine, through consultations every eight years with appropriate agencies, whether a partial impoundment drawdown is needed for shoreline maintenance, and conduct such drawdowns according to Wisconsin DNR conditions and approval, and cooperatively with landowners;

- implement a Bald Eagle Management Plan;

- provide public access and facility improvements at four locations along the power canal and at the powerhouse tailwater, as outlined in its proposed recreational use management plan, to enhance river bank fishing opportunities;

- discourage power boat use on the power canal to prevent erosion problems to the canal dikes;

- provide scheduled flow releases to the 3-mile-long bypassed reach on the third Saturday of April, May, June, July, and August of every year to enhance whitewater boating opportunities, as specified and conditioned in MHC's August 1995 recreational boating study report;

- provide access and facility improvements at put-in and take-out locations to enhance whitewater boating opportunities in the bypassed reach, as specified in MHC's August 1995 recreational boating study report;

- install and/or maintain various public safety devices as outlined in its public safety plan; and

- blend the construction of project-related facilities, to the extent possible, with the surrounding environment.

3. Mandatory Requirements

a. Section 18 Fishway Prescription.

The Department of the Interior (Interior) has requested that reservation of authority to prescribe fishways under Section 18

of the Fedral Power Act (FPA) be included in any license issued for the Hatfield Project (Interior 1996).

b. Water Quality Certificate (401 WQC).

Pursuant to Section 401 of the Clean Water Act, the Wisconsin DNR issued an original 401 water quality certificate (WQC) on June 3, 1992.

In MHC's filing dated October 11, 1996, it proposes to excavate a new channel adjacent to the existing breached portion of the power canal. We reviewed MHC's new proposal to reroute this portion of the power canal. In total, 2.58 acres, comprised of 1.66 acres of meadows and 0.92 acres of pine trees, would be affected by this reroute.

In light of this new proposal, MHC requested a new 401 WQC on November 4, 1996. A revised 401 WQC was issued on January 16, 1997, incorporating the conditions listed in the Wisconsin DNR Notice of Determination of Water Quality Certification dated November 18, 1996. The new 401 WQC includes five requirements2/, as follows:

(1) Licensee shall allow the Wisconsin DNR reasonable entry and access to the project site to inspect for compliance.

(2) At least 5 business days prior to the beginning of the discharge of water through the power canal, the licensee shall notify the Wisconsin DNR of its intent to discharge.

(3) Within 5 business days after the completion of the discharge of water through the power canal, the licensee shall notify the Wisconsin DNR of the completion of the discharge.

(4) An erosion control plan including specific measures, shall be incorporated into the reconstruction and design plan and shall be approved by the Wisconsin DNR prior to project reconstruction.

(5) A complete and accurate set of reconstruction and design plans shall be submitted to the Wisconsin DNR's Dam Safety Unit, c/o Bill Sturtevant, Asst. Dam Safety Engineer, 101 South Webster Street, P.O Box 7921, Madison, Wisconsin 53707. These plans must be approved prior to project reconstruction.

c. Coastal Zone Management Program

2/ At the Section 10(j) teleconference, the Wisconsin DNR clarified that "discharge" in the 401 WQC *refers to flow* in the power canal.

The Wisconsin Coastal Management Program (CMP) is responsible for reviewing the Hatfield Project for consistency with the state's CMP. Under the Coastal Zone Management Act of 1972, before the Commission can issue a license, the Wisconsin CMP must: (1) find the project consistent with the CMP, or (2) waive the requirements by failing to act in a timely manner on a consistency certification.

Based on Wisconsin DNR's CMP (1987), we conclude that the Hatfield Project is located outside of Wisconsin's coastal boundary and therefore, no coastal zone consistency certification is needed for the project.

B. No-Action Alternative

Taking no-action or denial of the license, would preclude MHC from rehabilitating, operating, and maintaining the proposed project. There would be no changes to the existing physical, biological, aesthetic, recreational, or cultural components of the project area; however, this would not preclude these resources from being affected by commercial practices or other forms of potential development in the future.

Taking no-action, or denying the license, would mean that the power that would have been produced by the Hatfield Project would be generated by alternative resources, which would release varying amounts of pollutants into the atmosphere, and contribute to other environmental impacts from excavation and transport of these fuel sources. Furthermore, no measures would be implemented to protect, mitigate adverse impacts to, or enhance existing environmental resources.

C. Alternatives Considered but Eliminated from Detailed Study

No reasonable action alternatives have been found other than the licensing action recommended in this FEA.

III. AGENCIES AND ENTITIES CONTACTED

A. Agency Consultation

The following entities commented in response to the notice that the application is ready for environmental analysis. The notice specified April 21, 1996, as the deadline to respond. All comments received from concerned entities become part of the record and are considered during the staff's analysis of the proposed action.

Entity	Comment Date
Department of the Interior	04/30/96
Wisconsin Department of Natural Resources	04/22/96

B. Interventions

The following entities filed a motion to intervene, but not in opposition, in the proceeding. We address all environmental concerns raised in the interventions in appropriate sections of the FEA.

Intervenor	Date of Motion
American Whitewater Affiliation (AWA)	11/23/92
Northern States Power Company	07/19/93
Wisconsin Department of Natural Resources	05/18/93

IV. ENVIRONMENTAL ANALYSIS

A. General Description of the Black River Basin

The Black River watershed lies in a transition area between glaciated and unglaciated areas of Wisconsin with the northeastern portion of the basin being glaciated. The greyish-yellow silt loams found throughout the upper Black River Basin are slightly impervious to water resulting in little percolation and rapid runoff, which accounts for the flashy nature of the stream. The general area has a covering of weakly cemented sandstones of Upper Precambrian age, and is about 4 to 30 feet thick in the Hatfield area. Greyish-yellow silt loams cover the project area in Clark County and sandy soils (greyish-brown unglaciated silt loams) occur in the area in Jackson County.

The area around the Hatfield Project experiences long, severe winters and short, warm summers. Aside from recreation-oriented businesses, industry in the Jackson and Clark Counties includes farming and small manufacturing.

B. Scope of the Cumulative Effects Analysis

Based on the license application, comments from agencies and other interested entities and our preliminary analysis, we reviewed all resources to determine if they could be affected in a cumulative manner by development of the Hatfield Project. We used this review to determine the geographic and temporal scope of our cumulative effects analysis. We identified possible cumulative effects on water quality, fishery, wetlands and associated wildlife, threatened and endangered species, recreation, and cultural resources.

1. Geographic Scope of CEA Resources

The geographic scope of our cumulative effects analysis defines the physical limits or boundaries of the proposed *action's* effects on water quality, *fishery resources*, wetlands

and associated wildlife, threatened and endangered species, recreation, and cultural resources.

We have defined the geographical boundary of our environmental analysis as the Black River sub-basin of the Mississippi River Basin. We chose this geographic scope because of the direct and indirect effects of project operation and other activities potentially affecting these resources within the Black River sub-basin. We decided not to include the entire Mississippi River Basin primarily because the Black River is a minor tributary in the basin and contributes little to cumulative effects on environmental resources in the Mississippi River in its entirety. Rehabilitating the Hatfield Project on the Black River would have little influence on the water quality or fishery resources in the Mississippi River Basin or Black River sub-basin. However, licensing the Hatfield Hydro Project, when combined with the impacts of past and future water resource developments could cumulatively affect these resources within the Black River sub-basin.

For fisheries and water quality, the proposed minimum flow in the bypassed reach of 75-cfs well exceeds the 7Q10 flow of 9.8-cfs (mean 7-day low flow with a recurrence interval of 10 years), and therefore appropriate dilution of current or future permitted effluents would occur in the reach. During drought conditions, maintaining a minimum flow in the bypassed reach of 9.8 cfs is the first priority. Monitoring and subsequent mitigative action, if necessary, would ensure maintenance of water quality standards in the Black River.

Habitat for fish and other aquatic organisms in the Hatfield impoundment and Black River downstream from the proposed project would be maintained by run-of-river operation. The fish and benthic invertebrate habitat in the bypassed reach would also be protected with the recommended 75-cfs minimum flow. In general, the recommended project operation would result in a beneficial cumulative effect for aquatic organisms in the project area and Black River sub-basin, as compared to the historical operation of the project.

Beneficial cumulative effects on wetlands and associated wildlife could result from the proposed project run-of-river mode with a target operating water level of 882.5 feet $\pm$ 0.25 feet (maintaining this at least 50% of the time, and $\pm$ 0.50 feet at all times) because fluctuations in reservoir surface elevations and flows downstream from the project would be minimized. Implementing the recommended enhancement measures for the federally-listed bald eagle (*Haliaeetus leucocephalus*) and its habitat would benefit this species.

Based on the comments received from the resource agencies and nongovernmental organizations (NGOs), recognizing that the

Black River is a unique river among recreational users, we identified recreation as a resource that could be cumulatively affected. In particular, the instream flow releases into the approximate 3-mile-long bypassed reach, which were negotiated between MHC, the resource agencies, and NGOs, as well as the recommended recreation enhancement measures, would contribute to a beneficial effect on the recreation resources within the Black River sub-basin.

For cultural resources, implementing the provisions of the Programmatic Agreement would protect the Hatfield Project (see section IV.C.8), which is National Register of Historic Places (National Register) eligible as an historic district, due to its association with events that have made a significant contribution to the broad patterns of our history. The protection afforded to the Hatfield Project and associated archaeological sites would result in a cumulative beneficial effect on these resources.

2. Temporal Scope of Analysis

The temporal scope includes a discussion of the past, present and future actions and their effects on water quality and fisheries. Based on a license term, the temporal scope looked 30 to 50 years into the future, concentrating on the effects on the resources from reasonably foreseeable actions. The historical discussion of past actions and effects was, by necessity, limited to the amount of available information for each resource.

C. Proposed Action and Other Recommended Environmental Measures

Only the affected resources are included in detail in this FEA. The operation of the proposed Hatfield Project would not affect socioeconomics. We've excluded this resource from our detailed analysis because no major construction activities, with their associated effects on employment, business, infrastructure, and tax revenues, are proposed.

1. Geology and Soils

a. Affected Environment

The project area lies along the river in a narrow belt cut down to Lower or Middle Precambrian rocks. Two major soil types, principally stratified sand and gravel, cover the project area. Around Lake Arbutus and portions of the Black River and East Fork of the Black River is a belt of Boone and associated sands on infertile Cambrian sandstone. Also, occurring in the area are soils of the Humbird loamy sand (silt loam).

The steepness of the bank slope around the reservoir shoreline varies, ranging from a nearly flat gradient, mainly along the county parks and campgrounds at the lower end of the

reservoir, to more moderate slopes at the upper end of the middle west shore and at upstream portions of the river. Vertical walls of crystalline bedrock (igneous and metamorphic rock) occur just upstream of the dam on the east shore, and at other points along the lake, and in the river channel downstream.

Several isolated areas of shoreline erosion occur around the reservoir. These erosion areas are characterized by steep sandy slopes, which are unstable and are susceptible to storm runoff, wind and wave action. At several areas along the shoreline, land owners have installed measures, including rock riprap, log bulwarks, and sea walls either to control or prevent erosion. Most of the undeveloped reaches of shoreline are heavily vegetated and/or comprise rocks and bedrocks, which are natural means of bank stabilization.

The 2.4-mile-long power canal traverses through rural woodland; at approximately 4,000 feet downstream from the dam, there is a 700-foot-wide breach, which has caused some denuded areas and exposed bedrock, and an unsightly outwash area. The dewatered portion of the power canal is covered with some vegetation. Water from two streams continue to flow through the breached area and cause further erosion. It is estimated that 100,000 cubic yards of material has been washed into the Black River.

b. Environmental Impacts and Recommendations

MHC proposes to renovate the project by repairing the power canal and diverting water from the reservoir via the canal to the powerhouse. MHC also proposes to construct two low-flow units--one at the powerhouse and one at the dam adjacent to the canal intake. The horizontal unit proposed to be installed at the powerhouse will require use of an existing 2-foot-diameter penstock to the powerhouse. A submersible unit is proposed to be installed adjacent to the power canal gatehouse at the dam. MHC also proposes to construct recreational access facilities at the dam, powerhouse tailrace, and on the power canal and expand several existing recreational access facilities.

MHC proposes no measures to control soil erosion and no additional shoreline protective measures.

The Wisconsin DNR recommends that within 1 year of license issuance, the Licensee should identify and, after consultation with the Wisconsin DNR, develop a plan to stabilize severely eroded shorelines on Licensee-owned Lake Arbutus, power canal, bypassed channel or other frontage and tailwater property, including those where archeological resources have been identified.

Construction of the two proposed low-flow units could cause minor impacts to soil erosion because much of the area is exposed rock. Construction of the recreation facilities would also cause minor, short-term impacts (see Section IV.C). Effects of soil erosion on archeological resources will be addressed in a programmatic agreement (see Section IV.C.7).

As a design alternative to the repair of the power canal with a concrete U-section, MHC is currently proposing rerouting a section of the canal around the breached segment. This would require the excavation of a new power canal section to a stream which would be used to convey the water back into the original canal. We estimate that about 32,900 cubic yards of material would be excavated, and that excavated material would be used to fill the breached canal section to create an embankment. This ground disturbing activity would have the potential for moderate soil erosion effects. However, soil erosion from the ground-disturbing activities could be kept to a minimum, provided adequate erosion control measures were used.

Therefore, we recommend that in any license issued, the licensee prepare for all project erosion sites, in consultation with the Wisconsin DNR and the Natural Resources Conservation Service, and file for Commission approval and upon approval, implement a soil erosion control plan. The soil erosion control plan should include, but not be limited to: 1) a description of the actual site conditions; 2) measures proposed to control soil erosion, to prevent slope instability, and to minimize sedimentation; 3) functional design drawings of all control measures; 4) a specific implementation schedule; and 5) documentation of agency consultation.

Although MHC has proposed no reservoir shoreline protective measures, their proposal to operate the project in a run-of-river mode with a 1.5-foot or less, reservoir fluctuation band, as opposed to historical peaking operations, would be beneficial in reducing any further shoreline erosion at the existing sites. The repair of the power canal by rerouting the canal around the breach would stabilize the area, and prevent further soil erosion.

c. Unavoidable Adverse Impacts

There would be short term, minor soil erosion and sediment loss during construction of the generating units, the new canal section, and recreation facilities.

2. Water Resources

a. Affected Environment

Lake Arbutus, created by the construction of the Hatfield dam, is a flowage lake that is fed mainly by two rivers, each free-flowing and unregulated to their uppermost headwaters. A small creek which enters and terminates in the northeastern portion of Lake Arbutus has little, if any, influence on water quality.

Located about 13 miles upstream of the proposed project in Neillsville, Wisconsin, is the U.S. Geological Survey (USGS) stream gage number 0538199. The gaging station has a drainage area of 749 square miles, and has a period of record from 1905 to 1909 and 1913 to 1989. By adjusting for the difference in drainage area at the Hatfield dam (*i.e.*, 1,290 square miles), we calculated the mean annual discharge at the development to be 1,200 cfs. The percent exceedance flows in the Black River at the Hatfield Project are shown in table 1. The mean 7-day low flow with a recurrence interval of 10 years or 7Q10 flow is approximately 9.8 cfs.

Table I. Percent of time flows are exceeded in the Black River at the Hatfield Project (Source: MHC 1992).

Percentage of time exceeded (%)	Flow (cfs)
10	2,650
50	245
90	60
95	45

The State of Wisconsin classifies the Black River upstream and downstream of the Hatfield dam as warmwater, capable of supporting a community of, or serving as a spawning area for, warmwater sport fish. The State of Wisconsin sets the minimum warmwater water quality standards for the Black River for recreation, fish and other aquatic life uses. These standards include: a minimum dissolved oxygen (DO) concentration of 5.0 milligrams per liter (mg/l); b) a maximum temperature of 89.0° F (31.7° C); and c) a pH between 6.0 and 9.0 units.

Water chemistry monitoring was conducted during 1991 at three sites within Lake Arbutus and two sites below the dam (*i.e.*, 1.5 miles below dam in the proposed bypassed reach and below the powerhouse). Parameters measured (alkalinity, chlorides, chlorophyll-a, ammonia, sulfates, calcium, potassium, iron, manganese, magnesium, sodium, total suspended solids,

turbidity, and phosphorus) were within acceptable environmental levels when compared to state water quality limits.

Chemical analysis was performed on sediment samples collected during 1991 at three sites within Lake Arbutus. One sample was collected just upstream from the dam, another was taken from a deep site near the center of the impoundment, and a third was collected from the north branch of the impoundment. As sediments became increasingly distant from the dam, levels of heavy metals (nickel, cadmium, barium, chromium, copper, arsenic, manganese, and zinc) decreased in concentration. In addition, mercury, organo-pesticides, and poly-chlorinated byphenols (PCBs) were undetected at the three sites. No state standards exist for heavy metals or contaminant levels.

Lake Arbutus is characterized as a mesotrophic to eutrophic lake, with high nutrient and chlorophyll-a levels. MHC's 1991 water quality study indicated that a high total phosphorus concentration occurred in the impoundment. Phosphorus concentrations were higher than historical levels and may be a result of various agricultural practices. The results also demonstrated that water quality met the Wisconsin standards for DO concentration and water temperature in downstream receiving waters and within the impoundment. Continuous water quality monitoring from early-July through late-August 1991 showed that DO concentrations ranged between 7.0 mg/l and 8.5 mg/l. During this same period, continuous temperature monitoring indicated that the maximum temperatures recorded in the Hatfield tailwater were below 89° F.

During MHC's 1991 water quality study, DO concentrations below state standards were measured at the head of the power canal during the summer. Continuous monitoring data indicated that DO levels at this one location were almost always below 5 mg/l during summer months. This single violation that occurred was due to a pocket of water which was isolated when the power canal was non-operational. Therefore, water in this area was a direct result of limited mixing at the power canal entrance which caused rapid stagnation.

Hydroelectric projects can affect water quality by decreasing the spillage of water over the dam, and thus reducing the aeration of flows in the river. Also, impoundments may thermally or chemically stratify. From about June through August, Lake Arbutus (15 meters at the deepest point) stratifies and becomes anoxic at a depth of about 7-8 meters; the hypolimnion occurs at about 10-11 meters below the surface. DO concentrations in the Black River may be affected by the

biological oxygen demand (BOD)3/ load from other point and non-point sources within the river basin.

The Town of Hatfield's sewage treatment plant, which would discharge into the proposed bypassed reach about 2,400 feet downstream from the dam, has been in operation since 1992. The National Pollutant Discharge Elimination System (NPDES) permit limits the maximum discharge of treated wastewater during most of the year to 170,000 gallons per day (gpd), or about 0.26 cfs. During high flow months (April, May, October, and November), the allowable maximum discharge is 1,100,000 gpd (1.7 cfs). NPDES permits for wastewater treatment facilities typically allow the discharge of only as much wastewater as may be assimilated by the 7Q10 flow.4/

Other sources of BOD substances include agricultural run-off and industrial discharges. Silviculture and agriculture practices within the river basin contribute to the sediment load of the Black River, although the impoundment traps some sediments. Consumptive withdrawals for adjacent towns decrease the quantity of water available for the assimilation of waste by decreasing the diluting ability of the system. These influences, in addition to hydropower development, could contribute to cumulative effects on water quality.

b. Environmental Impacts and Recommendations

Construction of Proposed Generating Units and Canal Repair

Construction of the low-flow units and reconstruction of the canal have the potential to affect water quality and cause some turbidity in the river downstream. However, with our recommendation for MHC to develop and implement a soil erosion control plan (see Section IV.C.1), and with the use of cofferdams, the impacts to water quality caused by project-related construction would be minimized.

The proposed operation of the low flow by-pass generating unit at the dam would have no appreciable effect on downstream water quality in the bypassed reach, because the water withdrawal and intake for the Flygt unit should most likely be from near the top of the water surface.

3/ The oxygen required to degrade organic material and oxidize reduced substances in water.

4/ The NPDES permit for the Town of Hatfield wastewater treatment facility was based on an estimated low flow of 9.8 cfs.

However, at the Section 10(j) meeting, MHC stated that the final design details for the bypass turbine were not finalized. Since the location of the intake for the bypass turbine could influence the DO level and temperature of the water withdrawn from the impoundment, as well as have an effect on the potential impacts associated with fish entrainment, we recommend that MHC consult with Interior and Wisconsin DNR on the location of the intake for this minimum flow unit.

Dissolved oxygen and temperature

Conversion of the river from a free-flowing system into a river system with impoundments has altered the normal temperature and heat flux in the river, as well as significantly changed processes involved with DO consumption and replenishment. If the river were free-flowing, DO would normally be near saturation from the headwaters to the mouth (barring BOD loading). However, deep impoundments often develop thermoclines in the late summer which could result in low or depleted oxygen concentrations near the bottom; this was demonstrated to be the case for Lake Arbutus by MHC's 1991 water quality study. These effects may be somewhat mitigated depending on the rate of river flow, the impoundment turnover rate, and the re-aeration provided by spill-flows and project tailrace discharges.

The run-of-river mode of operation, as proposed by MHC, would provide an improvement over water quality that occurred previously under peaking operations, by maintaining more natural flow conditions. Run-of-river operation would prevent periods of unnatural low flow downstream of the project; low flows could cause elevated temperatures and reduced DO levels.

Refurbishing the Hatfield Project would reduce spillage at the dam and reduce the quantity of flow in the bypassed reach. The reduction of spillage at Lake Arbutus dam could decrease DO levels downstream of the dam and adversely affect waste assimilation. The assimilation of wastewater effluent from the Town of Hatfield Wastewater Treatment Plant (HWTP) would be provided for under the proposed bypassed reach flow. Although MHC proposes no enhancement measures to improve water quality, MHC's proposed minimum flow for aquatic habitat below the dam (*i.e.*, 75 cfs, or inflow if less) would also ensure that water quality is maintained in the bypassed reach and downstream.

We expect DO concentrations throughout the project area to be above state minimum standards, undergoing only a seasonal fluctuation and minimal depletion in the impoundment and power canal. Once the Hatfield Project becomes operational and flow through the canal is reestablished, there would no longer be an area of stagnation in the canal, and DO concentrations would likely be acceptable in this area to support a warm water fishery.

MHC would have minimal operational control over the temperature and DO profiles in the impoundment or river. There would be no polluting discharges associated with the operation of the project, and MHC owns only a limited amount of the land adjoining the river and impoundment. Although in some instances stratification can result in the discharge of water with low DO concentrations and temperature into the downstream receiving waters of some hydropower facilities, this would not be the case for the proposed project since water would be released from the reservoir into the power canal at a depth of 5 meters to surface level and into the downstream bypassed reach by spillage over the dam or through the low flow unit. Because the canal intake would withdraw mostly from surface waters, the DO concentration of water released downstream into the power canal would be within state standards. Even though surface temperatures are warmest during summer stratification, these also appear to be within state standards. Additionally, the DO and temperature of the minimum flow in the bypassed reach would be minimally affected since surface water from the impoundment would be discharged into the bypassed reach, and sufficient flow (75 cfs) should prevent stagnation of water in this reach.

Because the project has been non-operational, MHC proposes to conduct a post-operational sediment/water quality monitoring study to evaluate potential water quality impacts associated with project operation (MHC 1992). The monitoring plan would include recording continuous DO and temperature levels immediately below the powerhouse, in the bypassed reach, and in the power canal. Sediment samples would be collected throughout the impoundment and also at the continuous monitoring sites as stated above.

Wisconsin DNR (1996) recommends that MHC, in consultation with the Wisconsin DNR, complete and file a report to the Commission for post-operational water quality/sediment studies to include the details of the study plan outlined in MHC (1992) with the following modifications: 1) calibrate automated DO monitoring equipment; 2) relocate water quality monitoring site 4 to accurately reflect the quality of water leaving Lake Arbutus; 3) consult with the Wisconsin DNR on the need for follow-up sediment sampling for arsenic; and 4) consult with the Wisconsin DNR regarding the timing of water quality sampling in relation to the delivery of bypass channel recreational flow releases.

Although MHC's study did not show that violations of water quality standards occurred except as stated above, the study was limited in that it did not include water quality monitoring from mid-August through the end of September. Violations of water quality standards could still occur during this period. We concur that water quality should be monitored to ensure that state standards for DO and temperature are maintained under any license issued for the project, and to detect any other potential water quality problems in the project area related to sediment

contamination. Therefore, we recommend that any license issued for the Hatfield Project require MHC to develop and implement, in consultation with Wisconsin DNR and U.S. Fish and Wildlife Service (FWS), a water quality/sediment and mitigation plan for the project. The plan should include monitoring of summer DO levels and water temperatures (to include testing for toxic substances), measures to identify when project operations result in DO violations, and measures for altering project operation to ensure maintenance of state standards for DO concentration and temperature in the Black River. The plan should also include measures to identify any areas of contaminant concern.

In the event that inflow is insufficient (drought conditions) to meet all requirements for project operation (*i.e.*, run-of-river, water elevations, and minimum flow), Wisconsin DNR recommends (as modified during the Section 10(j) process) that MHC consult with the Wisconsin DNR and give the following preference by chronological order to maintain water quality and recreational needs:

1. Maintain flows in the bypassed reach of at least 9.8 cfs (7Q10 flow).

2. Maintain Lake Arbutus within impoundment elevation 882.5 ± 0.25 feet at least 50% of the time, and ± 0.50 feet at all times, while providing some, if not all, of the 75-cfs bypassed reach minimum flow.

3. Maintain the surface elevation of water in the power canal at 879.0 ± 0.1 feet.

4. Provide sufficient water turnover rate in the power canal to maintain the state standard dissolved oxygen level of 5 mg/l.

5. Provide recreation navigation flow releases in the bypassed channel, as specified in section IV.C.8.

6. Provide water for power production.

Wisconsin DNR believes that during extreme low-flow conditions, power canal water levels and minimum bypassed channel flows would be concurrently maintained. We agree that Wisconsin DNR's above proposal would protect water quality, while balancing other uses of the water, and should be incorporated into any water quality monitoring and mitigation plan required to be filed. We recommend that MHC, in consultation with Wisconsin DNR and Interior, develop a rule curve which meets the above objectives, to be filed with the Commission for approval.

c. Unavoidable Adverse Impacts

Operation of the Hatfield Project in a run-of-river mode may result in a reduction in DO and increase in water temperature, depending on the turnover rate of water in the power canal; however, we anticipate that water quality standards would be maintained under the recommended operation regime. Reduced flow in the bypassed reach would decrease assimilative capacity in the reach and may raise temperatures. However, violations of water quality standards are not anticipated in this reach under our minimum flow recommendations.

3. Fishery Resources

a. Affected Environment

We identified fisheries as a resource that could be cumulatively affected in the Black River drainage. Development in the basin could affect the reproductive potential of species in the basin by limiting access to spawning sites and by decreasing the suitability of those sites. Hydropower development could also adversely affect the fishery in the basin by reducing aeration, limiting fish movements, and impinging and entraining fish.

The fishery resources populate three distinct areas around the project development, including the project impoundment (Lake Arbutus), the bypassed reach, and downstream of the powerhouse, in addition to the power canal and associated backwater areas (figure 2).

The Hatfield dam creates a 945-acre impoundment on the Black River. The impoundment created by the Hatfield dam provides lacustrine habitat for a variety of fish and wildlife species. Aquatic habitats within the impoundment include: deep water zones, shallow backwater tributary zones, and shallow littoral zones. The shallow littoral zones support a limited submergent and emergent aquatic vegetation community which provides some forage areas and refugia for fish within the Lake Arbutus impoundment.

Currently, the Hatfield impoundment supports a warmwater-coolwater fishery. Fish surveys conducted by Wisconsin DNR between 1960 and 1986 consistently reveal that the Lake Arbutus fish community is both diverse and temporally dynamic. Walleye dominated the sport fishery with consistent recruitment year to year. Naturally reproducing populations of smallmouth bass, largemouth bass, northern pike, and muskellunge are also consistently found in the impoundment, although in lower abundance. The muskellunge population has often been supplemented by stocking over the years (table 2), and there is some question as to whether this population is self-sustaining or not (MHC, 1992).

In addition, Lake Arbutus supports sportfish populations of yellow perch, black crappie, white crappie, bluegill, rock bass, pumpkinseed, and channel catfish. Other non-sport fish species include: shorthead redhorse, golden redhorse, silver redhorse, greater redhorse, white sucker, common carp, northern hog sucker, logperch, golden shiner, blackside darter, and finescale dace.

The power canal fishery historically provided good recreational opportunities for area anglers, and was heavily stocked over many years (table 2). Recent canal levee failures in 1989 and 1992 dewatered the power canal and its associated backwater areas. Both events resulted in significant losses to the canal fishery resources. At present, very little water flows

Table 2. Summary of the fish stocking effort from 1959 to 1985 by the Wisconsin Department of Natural Resources for the Lake Arbutus area (Source: MHC 1992).

Location	Species	Year	# Stocked
Impoundment	Walleye	1959	5,074
	Walleye	1964	4,800
	Walleye	1968-1969	1,003,500
	Smallmouth bass	1971-1972	5,752
	Muskellunge	1975-1984	5,864
	Tiger Muskellunge	1981	75
Power Canal	Walleye	1969-1976	21,000
	Muskellunge	1969-1985	2,500
	Tiger Muskellunge	1981	50

through the power canal. Wisconsin DNR anticipates surveying and re-establishing a quality recreational fishery in the power canal following rehabilitation of the canal. Because the current proposal of MHC involves excavation of a new canal portion, there would be some new habitat created, while a portion of the former habitat in the canal would not be watered, and would not serve as fishery habitat. There would undoubtedly be a lag time before the new canal portion would be colonized by micro- and macro-invertebrates and be suitable for fish habitat.

The bypassed channel consists of cobble, boulder, and bedrock substrate with numerous deep holes and high gradient riffle areas. Historically under past operation, this reach of river was mostly de-watered for a large portion of the year, resulting in habitat loss and low fish populations. At present, all flows are diverted down the bypassed reach due to power canal shut-down.

The Wisconsin DNR, Division of Health, issues a health guide for certain species of fish from Wisconsin lakes and streams. In these aquatic systems, fish contain levels of toxic chemicals that may be harmful if those fish are eaten too often by humans. The determination of the need for an advisory is stipulated largely by human risk determinations (including trophic level increases to key-level predator fish species), but does not consider possible health-related implications to terrestrial fauna from consumption of fish.

For Lake Arbutus and the associated Black River, Wisconsin has issued health advisories restricting the consumption of walleye, northern pike, smallmouth bass, muskellunge, black crappie, and channel catfish due to high mercury loads (Wisconsin DNR, Division of Health, 1994). The health advisory specifies meal consumption limitations for specific sizes of these fishes. There are additional restrictions for women and children.

b. Environmental Impacts and Recommendations

1. Project Operation

Currently, all inflows pass over the open spillway of the dam. MHC proposes to operate the project in a run-of-river mode, such that the sum of outflows from the project would equal the sum of inflows at the project dam (*i.e.*, natural flows to Lake Arbutus minus any consumptive use and evaporation). MHC's proposal to operate the facility to stabilize water levels, whereby the impoundment is maintained within a narrow operating band, would provide numerous long-term benefits to resource areas, including reduced erosion, and enhanced water quality, fisheries, recreation, and aesthetics resources, as compared with historical operation. These benefits have been realized since 1988, when MHC assumed operations. Previous to that, the impoundment had been operated in a peaking mode to maximize daytime generation, which adversely affected the above-listed resources. MHC also states that equipment limitations, specifically the lack of automated operations at the project (beyond headwater sensors), limits the precision with which instantaneous flow can be controlled.

MHC proposes to maintain the *target* impoundment level at 882 ± 0.25 feet to benefit fishery and recreational resources. MHC also proposes to maintain the power canal at a constant water

elevation of 879.0 feet. However, MHC states that in order to avoid compliance violations of a 0.5-foot operating band, it believes that an operating band of 1.5 feet (maintaining a normal headpond elevation to within 882.5 ± 0.75 feet) would be necessary. MHC indicated that it would be able to possibly maintain the normal headpond elevation to within ± 0.25 feet about 70 percent of the time, but the actual headpond control capability of the project facilities would be unknown until the project was operational.

The Wisconsin DNR originally recommended that MHC maintain a stable flowage water level at 882.5 ± 0.25 feet, which the agency considers to be essential to protect aquatic and terrestrial resources and provide recreational opportunities. MHC (1994) stated that a 1.5-foot operating band would result in alternately watering and dewatering 13.6 acres of flowage littoral zone. Wisconsin DNR states that such a degree of fluctuation would cause severe biological impacts to the flowage, including: direct exposure and mortality of invertebrates and other benthic organisms; severely limited fish access to fish spawning areas and egg hatch success; and limited macrophyte community development (which is already severely limited, likely from historical peaking operations). In addition, Wisconsin DNR believes that the 1.5-foot operating band would disrupt recreational use by creating unstable navigation conditions on the water and at public and private boat/launch dock facilities and disrupt such shoreline recreation uses as bank fishing and swimming at the three public shores (see section IV.C.8).

The Wisconsin DNR originally recommended that the project operate in a run-of-river mode such that inflow is equal to outflow below the powerhouse, and that the flowage elevation be maintained at 882.5 ± 0.25 feet, for the protection of fish and wildlife resources. Wisconsin DNR intends to allow for summer reservoir and canal evaporation and winter ice formation in its run-of-river recommendation. This recommendation is consistent with using reservoir levels to monitor run-of-river operation (see *Operational Compliance Monitoring* section, page 27).

Fluctuations of flow associated with peaking operations have been shown to be detrimental to river productivity by reducing the food base of aquatic plants and benthic invertebrates on which fish populations depend, and harming wetland plant species relying on saturated soils (Rochester et al. 1984) and duck breeding habitat. Flow reductions may cause reduced spawning success and strand fish and invertebrates, subjecting them to desiccation and predation from terrestrial predators (Cushman 1985; Orth 1987; Bain and Boltz 1989). In addition, if flows from the project fluctuate widely, benthic organisms, fish eggs, and larvae could be swept downstream (Rochester et al. 1984). We conclude that operating the project in a run-of-river mode would minimize reservoir fluctuations and prevent large fluctuations in

flow downstream of the project that would be detrimental to aquatic resources by reducing or altering available habitat. Therefore, we recommend that MHC operate the project in a run-of-river mode.

We recommend that water level fluctuation in the impoundment be limited to within a ± 0.5-foot band-width of tolerable fluctuation (as contrasted with MHC's tolerable band width of ± .75), with ± 0.25 feet to be maintained at least 50 percent of the time. However, MHC would be required to make all reasonable efforts to maintain the elevation within ± 0.25 feet at all times, in accordance with its agreement to maintain a target elevation range within ± 0.25 feet in the impoundment. MHC would not be allowed to use any of the allowable fluctuation limits for peaking or pulsing purposes. In our Section 10(j) negotiations, Wisconsin DNR agreed with our recommendation and MHC concurred. Limiting impoundment fluctuation to a band width of 6 inches, under most circumstances, would protect nearshore aquatic habitat, stabilize water levels for recreationists and landowners, and allow the limited flexibility needed for efficient project operation.

During The Section 10(j) negotiations, Wisconsin DNR recommended that the power canal elevation be restricted to 879.0 ± 0.1 feet, except during drawdown, flood, or drought conditions. No restrictions apply during flood conditions. The priority list for drought conditions are cited in Section IV.C.2.b, and other drawdown restrictions are cited below. MHC indicated that it believes that it can operate within this band. Maintenance of the power canal within these bounds, in combination with maintaining an adequate turnover rate in the power canal would protect aquatic habitat in this area. Therefore, we agree with this recommendation.

We recommend that MHC, within 18 months of the onset of project operation, file with the Commission, after consultation with the Wisconsin DNR, a project operation evaluation report indicating the success of operating within the *restricted* impoundment and power canal elevation fluctuation limits. In this report MHC must provide evidence (including generation records) that all reasonable efforts were made to stay within the ± 0.25-foot operating band for the impoundment and to keep water surface elevation flucuations to a minimum for the power canal. After evaluation of these data and in consideration of MHC's report, the agency comments on this report, and MHC's response to the agency comments, the Commission will re-evaluate the operational limits and may change the reservoir and power canal elevation fluctuation limits.

Further, this project operations evaluation report must include a summary of at least one year of operation data, with the type and format of the data to be determined in consultation

with the Wisconsin DNR, and subject to modification and approval by the Commission, to allow an assessment of whether or not operation, as monitored, is consistent with the Commission's run-of-river intent. Our run-of-river intent is that the sum of outflows from the project would approximately equal the sum of inflows at the project dam (*i.e.*, natural flows to Lake Arbutus, plus any additional inflows minus any consumptive use, seepage and evaporation) at any given point in time. The Commission would consider these data, the comments from the Wisconsin DNR, and MHC's responses, in determining whether any changes to protect operation are needed to better attain run-of-river, and if so, may require such a change.

Bypassed Reach

Under past operations, the 3-mile-long bypassed reach of river was mostly dewatered for a large portion of the year, resulting in habitat restriction and low fish productivity (MHC 1992). Except during drought conditions, MHC proposes to release at least 75 cfs into the project's bypassed reach at all times for aquatic habitat in the downstream river reaches.

MHC's flow proposal is based upon the best flows to support macroinvertebrates, adult slenderhead darter, adult walleye, adult smallmouth bass, juvenile and adult longnose dace, and juvenile and adult white sucker, as determined by an Instream Flow Incremental Methodology (IFIM) study (MHC 1994). MHC selected these groups based on occurrence within the chosen habitat types, diversity of habitat constraints, and availability of established habitat criteria. The habitat suitability curves utilized were developed by literature and Wisconsin DNR for use in Wisconsin and represent suitability of velocity, water depth, substrate, and cover (if applicable) for the different species and life stages. MHC selected two run-riffle-pool sequences, located about 3,000 feet and 11,000 feet downstream of the Lake Arbutus dam, as representative reaches for the IFIM study.

Only one fauna group, adult walleye, had more habitat availability at a discharge of less than 50 cfs. In contrast, the majority of the fauna groups appear to have more habitat at a discharge of 75 cfs. At a discharge of 100 cfs, no sizeable amount of suitable habitat was gained over that of 75 cfs. Based on the study results, we agree with MHC that a minimum flow of 75 cfs would be adequate to protect and maintain biological integrity within the bypassed reach of the Hatfield Project.

The Wisconsin DNR is in agreement and recommends that MHC provide a constant minimum flow of at least 75 cfs at all times to be discharged from the dam to the 3-mile-long bypassed reach except during drought conditions. If at any time drought conditions occur, the flow allocation should be according to the preferential order as described in section IV.C.2.b. During

drought conditions, the Wisconsin DNR and the Commission recommend, and MHC concurred during Section 10(j) negotiations, that a minimum flow of 9.8 cfs be released into the bypassed reach for water quality purposes.

The Bureau of Land Management (BLM) currently administers an island in the Public Domain approximately 0.5 mile below the Hatfield dam. Although the island is in close proximity to the project, it is not within the project boundary. A survey of the island conducted in 1975 by BLM characterized the island as being very rocky with a mature white pine forest type, an understory cover of sapling hardwoods and softwoods, and varying ground cover vegetation. BLM maintains that the Public Domain island would potentially be impacted by the operation of the Hatfield project, but BLM had no specific concerns or recommendations.

Maintaining a minimum flow of 75 cfs in the bypassed reach (except under drought conditions) would ensure that the integrity of the BLM island remains unimpeded by erosive forces such as past watering and de-watering of the bypassed reach under historical operation. The depositional nature of the island substrate would continue; however, less flows would pass in the bypassed reach than under recent conditions without project operation. The 75-cfs flow is less than the median August flow (representing typical low flow conditions to which aquatic organisms are adapted) of 200 cfs, and is substantially greater than the 7Q10 flow (representing drought conditions) of 9.8 cfs.

We conclude that the proposed instream flow release would result in more fisheries habitat than under the historic de-watering of the bypassed reach, although less habitat than may occur under the natural flows that have passed through this reach since operation ceased due to the breach. Operation of the project would cause some flow fluctuation in the bypassed reach, most commonly between the minimum hydraulic capacity of the bypass turbine (75 cfs) and up to about 3 times that flow, accounting for the difference between the operating ranges of the units on the proposed system. At inflows exceeding the maximum hydraulic capacity of all of the units, bypass flows would increase commensurate with the natural increases of inflow.

In sum, the minimum flow and flow fluctuations would provide less shoreline erosion and better habitat in the bypassed reach than under the extreme flow variations and low flow periods experienced under historical operation, and would provide adequate habitat for aquatic organisms. We recommend that any license issued for the Hatfield Project include a condition to release a minimum instream flow of 75-cfs into the bypassed reach at all times except during drought conditions when the drought contingency plan would take effect (as stated above in the water quality discussion).

Operational Compliance Monitoring

MHC proposes to monitor compliance with the run-of-river and minimum flow requirements using a staff gage in the bypassed reach, the USGS Neillsville gage, and turbine operation records. In addition, MHC proposes to use a 75-cfs minimum, low-flow turbine located at the dam to comply with the proposed bypassed reach minimum flow.

Wisconsin DNR recommends that MHC develop a plan to install and maintain necessary equipment capable of measuring and demonstrating run-of-river compliance. Wisconsin DNR further recommends that MHC develop a plan to install and maintain a flow recording device and a staff gage in the bypassed channel visible from County Highway (CTH) "K" to measure compliance with the 75-cfs minimum flow. In addition, Wisconsin DNR recommends that MHC develop a plan to install and maintain a water level recording device and staff gages at specific locations in Lake Arbutus (visible from the dam) and the power canal (visible from CTH "K") to measure compliance with maintenance of the proposed water level and power canal elevations. Wisconsin DNR recommends that the monitoring plan be approved prior to project start-up.

We conclude that MHC's monitoring methods are not sufficient to verify project operations. To monitor compliance with run-of-river operation, elevation restrictions, and our minimum flow recommendation for the bypassed reach, recording devices for reservoir and power canal elevations, a tailwater gage, and project operation records would be needed. MHC indicated that a new gage has recently been installed in the power plant which records stage, and could be used to estimate the sum of flows from the bypassed reach and the powerhouse (although MHC has yet to file requested information regarding this gage). The bypass flow could be approximated by subtracting the powerhouse generation flows from the gage records downstream from the powerhouse. The operation records from the 75-cfs low flow turbine would also demonstrate compliance with the minimum flow requirement in the bypassed reach, under most conditions. In addition, bypass, reservoir, and power canal staff gages would aid the public, agencies, and MHC in identifying any potential variations from operational requirements.

We recommend that MHC develop, after consultation with Interior and Wisconsin DNR, a final operation monitoring plan, for Commission approval, including a description of the utilization of generation records and the exact location and design of the impoundment, canal, bypass and downstream water level recording devices and stream gages described above, and an implementation schedule. The plan should identify the exact equipment that would be utilized, and include provisions to furnish the results of the monitoring to the Commission and the resource agencies. Upon Commission approval, MHC should

implement the approved plan, including any changes to the plan made by the Commission, before starting project operation.

Emergency and Planned Drawdowns

The Wisconsin DNR recommends that the licensee coordinate with that agency on all emergency and planned maintenance reservoir and power canal drawdowns. The Wisconsin DNR recommends that it be notified at the earliest possible opportunity, but in no case later that 24 hours after any proposed or already enacted emergency drawdown done to prevent dam or dike failure and/or imminent risk to public health and safety. We recommend that a requirement be included in any license issued for the Hatfield Project that MHC advise the Wisconsin DNR of any emergency drawdowns as soon as possible, but no later than 24 hours subsequent to any drawdown.

Wisconsin DNR also recommends that, within 30 days, the licensee consult with that agency and submit a report to the Commission describing the emergency, action taken, remedial measures proposed, and measures proposed to prevent reoccurrence. We agree with this condition.

For proposed reservoir or power canal drawdowns and refills for dam maintenance or fish, wildlife, or recreation enhancement purposes, the Wisconsin DNR recommends that MHC consult with and follow the agency's prescriptions 5/ aimed at minimizing potential adverse environmental and social effects. In addition, the Wisconsin DNR recommends that the licensee provide at least 2 months advance notice of its proposed drawdown to allow a reasonable time for agency consideration of alternatives to prevent or minimize adverse impacts.

Clark County has indicated an interest in having 4-5-foot drawdowns every 8-10 years for shoreline maintenance purposes. For improved fish, wildlife, and botanical habitat conditions, the Wisconsin DNR recommends stable flowage levels, but suggested that periodic drawdowns for shoreline maintenance be proposed on an as-needed basis, in cooperation with the Wisconsin DNR. MHC proposes to consult with the appropriate county agencies every 8 years to determine whether a partial impoundment drawdown is needed for shoreline maintenance, and to conduct such drawdowns according to Wisconsin DNR conditions and approval, and in cooperation with landowners.

We agree that the stable water levels will improve fish and wildlife habitat, as compared to historical peaking operation. However, there are some types of project or shoreline maintenance

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5/ We presume that the Wisconsin DNR is referring to the agency's recommendations.

(e.g., the construction of the Hatfield Sanitary Sewer in 1991) which may require drawdowns. Because circumstances requiring a drawdown may arise at any time, we believe that MHC should consult with entities and conduct drawdowns on an as-needed basis.

In any license issued, the articles pertaining to project operation (including power canal and reservoir water elevations) would contain standard language which would allow for operation to be temporarily modified if required by operating emergencies beyond the control of the Licensee, and for short periods upon mutual agreement between the Licensee and the state fish and game agency. This condition would accommodate most of the areas of concern.

In addition, we recommend that the MHC be required to consult with the Wisconsin DNR and the USGS, and other affected parties (e.g., affected landowners) on the timing of planned drawdowns, at least 2 months prior to the planned start date of the drawdown, if possible. However, any maintenance or remedial action at the site, and the timing thereof, would be under the jurisdiction of the Commission, as the Commission is responsible for oversight of project integrity and dam safety.

Dam safety oversight

The Wisconsin DNR recommended that MHC, in the operation and maintenance of the project facilities, comply with the requirements of the Wisconsin Administrative Code concerning dam design and construction standards, the Wisconsin statute for the regulation of dams on navigable waters, and other laws, to include the dam safety requirements contained in the dam ownership transfer permit. Wisconsin DNR was unclear as to whose jurisdiction the proposed project was under prior to license issuance.

At the prelicensing stage after an application for license has been filed, the Commission under certain circumstances, has the authority to require a license applicant to make modifications to project works in the interest of public safety. MHC has already complied with a number of dam safety requirements by the Commission's Chicago Regional Office. We see no problem with joint coordination or cooperation as long as there is no conflict between the state's requirements and the Commission's requirements. It should be noted, however, that the Commission's jurisdiction over project safety, is preemptive.

Backup power

The Wisconsin DNR recommended that MHC provide a source of back-up power to operate the Taintor gates in case of a power outage during flood conditions. This recommended condition is an

item that is normally incorporated into an emergency action plan or other requirement under the Commission's Part 12 safety regulations.

2. Fish Stranding

Fish stranding below the Taintor gates at the Hatfield dam has historically occurred due to the constant watering and de-watering of the bypassed reach in the Black River. Under proposed operation, as spillway releases (e.g., for recreation or during flood flows) subside and Taintor gates are closed, a smaller minimum flow would be discharged into the bypassed channel (see section IV.C.8). The resulting flow reductions may strand fish in the rock boulder tailwater areas. Fish rescue, ramping rates or other such measures may be needed to avoid stranding mortality or to prevent fisherman from poaching in isolated pools.

MHC proposes to open Taintor gates from right to left (looking downstream) during high-flow periods to alleviate the fish stranding and poaching problems that presently occur in the pools of the bypassed reach.

Wisconsin DNR recommends that MHC conduct a post-operational fish stranding evaluation within 12 months following start-up of project operation in consultation with Wisconsin DNR, and submit a report to the Commission on fish stranding below the gated spillway section of the dam after flood flow or recreation flow releases. Wisconsin DNR recommends that the report should respond to any remedial action and schedules recommended by Wisconsin DNR such as the need for fish rescue, gate ramping rates or other remedial measures to avoid or minimize adverse environmental impacts.

We agree with Wisconsin DNR that a post-operational fish stranding evaluation be conducted by MHC within 12 months of project start-up. We also agree with MHC that the Taintor gates at the dam should be opened from right to left (looking downstream) as flows to the bypassed reach increase. In addition, we recommend that the Taintor gates should be closed from left to right (looking downstream) after high-flow releases (e.g., during flooding and recreation flow releases) to reduce potential fish stranding in the isolated pools immediately below the left Taintor gates. We recommend that any license issued for the Hatfield Project include a condition requiring MHC to develop a plan, in consultation with the Wisconsin DNR, the National Park Service (NPS), and whitewater boating groups of the American Whitewater Affiliation (AWA), to conduct an evaluation of post-operational fish stranding in the bypassed reach and submit a report to the Commission on fish stranding. The plan should be developed in concert with the final recreation plan (see section IV.8.b.4), and include measures for mitigating fish stranding.

3. Aquatic Macrophyte Habitat

Aquatic macrophytes are important not only for providing fish and wildlife habitat and aquatic productivity, but also for maintaining water quality, providing shoreline and lake bed stabilization, benthic organism habitat, and trapping sediments that would otherwise pollute waterways (Dahl 1990). In addition, aquatic vegetation provides decaying matter and plant seed from further upstream, which are important to the biological food chain (Benyus 1989).

Mead and Hunt (1992) conducted an aquatic macrophyte survey on Lake Arbutus which indicated that aquatic macrophyte communities were scattered and poorly developed. The paucity of macrophytes was consistent with the overall lack of organic sediments at suitable depths within the impoundment, and the predominance of nutrient-poor, mineral substrates. However, the small macrophyte communities present are well established and stable (see Section IV.C.4).

Wisconsin DNR (1996) originally recommended that MHC conduct a follow-up macrophyte survey within three years of project start-up to document any change in the aquatic macrophyte communities as a result of operating the project with the proposed water level regime. Wisconsin DNR believes that the survey would document potential expansion of the macrophyte community and the overall biological productivity enhancement in Lake Arbutus. In our Section 10(j) negotiations, Wisconsin DNR withdrew this recommendation and indicated that it will conduct the study itself.

MHC's proposal to stabilize water levels relative to historical generation periods by operating in a run-of-river mode would substantially increase the chances for enhancing the aquatic macrophytes in Lake Arbutus. The proposed project operation would expose less substrate and eliminate the constant watering and de-watering which occurred under historic operation, thereby likely contributing to a beneficial effect on the aquatic macrophyte community. The proposed mode of project operation is anticipated to continue to improve aquatic macrophyte communities, to the extent related to project operation.

4. Turbine Entrainment and Impingement of Fishes

The project would use flows between the minimum (approximately 25 cfs) and maximum (1,115 cfs) hydraulic capacity of the units, diverting up to all river inflow in this range, minus the 75-cfs minimum flow to the bypassed reach, through operating project turbines. Flows in excess of the maximum hydraulic capacity of the units plus the bypassed flow (total of 1,190 cfs) would pass over the spillway and/or through the Taintor gates. Fish in the vicinity of the project may become

entrained at the project intake and be subject to direct and delayed mortality due to turbine strikes, pressure changes, or sheer forces in the water conveyance system (Rochester *et al.*, 1984).

Turbines at the project powerhouse are protected by trashracks. MHC has installed trashracks at the powerhouse with 1-inch clear bar spacing. This small spacing would prevent turbine entrainment of most of the adult game fishes in Lake Arbutus and the power canal. The velocity in front of the intake can influence potential impingement on the screens. We estimate the average velocity of the water 1 foot in front of the trashracks to be 1.5 feet per second (fps) at maximum hydraulic capacity. This decreases to less than 1 fps just upstream from the trashracks. With the intake configuration at the proposed project, we predict that fish would be able to escape impingement at the project. Based on swimming speed data compiled by Beamish (1978), the fish that would not fit through the 1-inch trashracks would be able to swim at burst speed, if necessary, off the trashracks and upstream into the lower velocity areas in the canal, where they could continue to swim upstream at sustained swimming speeds.

Wisconsin DNR recommends that MHC maintain trashracks at the powerplant intakes with spacing no greater than one inch to prevent and minimize adverse fishery impacts; including impacts to the greater redhorse, a state listed threatened species. Specifically, Wisconsin DNR recommends that these trashracks be installed at the bypass minimum flow turbine intake, the penstock intake (already installed), and, if so requested in the future, at the power canal entrance.

We agree that the recommended measures would adequately protect fish in Lake Arbutus and the power canal from turbine entrainment and impingement. The proposed trashracks at the project would minimize the contributions to adverse cumulative effects on the fisheries in the Black River drainage. To provide for such protection, we agree that MHC should install and maintain the proposed bypassed reach turbine trashracks with one-inch clear bar spacing and maintain the recently-installed one-inch trashracks at the penstock intake. Therefore, we recommend that MHC consult with the Wisconsin DNR to develop a fish protection plan, including design drawings and an implementation schedule, for the afore-mentioned trashracks.

We understand that it is not the intent of Wisconsin DNR to exclude fish from the power canal at this time. However, as a result of discussions at the Section 10(j) negotiations, we understand that it is possible (although currently unforeseen) that management strategies may change in the future, which may require excluding fish from entering the power canal. Therefore, we also recommend that MHC should install fish exclusion devices

at the power canal intake structures, if so requested by the Wisconsin DNR in the future. If such devices are requested, MHC should submit to the Commission, for review and approval, and upon approval, implement a supplemental fish protection plan which provides for installation of one-inch clear bar spaced trashracks at the canal entrance. This plan should include design drawings and an implementation schedule, developed in consultation with the Wisconsin DNR.

5. Fish Passage

Pursuant to Section 18 of the FPA, Interior reserves its authority to prescribe fishways at the Hatfield Project.

Section 18 of the FPA provides the Secretary of the Interior the authority to prescribe fishways. Although fish passage facilities may not be prescribed by Interior at the time of project licensing, the Commission's practice is to include a license article which reserves Interior's prescription authority.6/ We recognize that future fish passage needs and management objectives cannot always be predicted when a license is issued. Under these circumstances, and upon receiving a specific request from Interior, the Commission should reserve Interior's authority to prescribe fishways.

c. Unavoidable Adverse Impacts

Some minor losses of small fish may occur from turbine entrainment and some minor unidentifiable losses may occur indirectly from decreased drop-down of fish from the impoundment into the Black River. Project operation would decrease habitat availability in the bypassed reach as compared to existing conditions, but the recommended minimum flows would protect water quality for fish and other aquatic organisms, while providing substantially greater habitat availability than under historical operation.

4. Terrestrial Resources

a. Affected Environment

The proposed project is located in the Northern Forest community of the Northern Dry-Mesic Forest (Wisconsin Department of Natural Resources 1995). This community is dominated by white pine, jack pine, northern red oak, and northern pin oak with an understory of ferns, grass, and woody shrubs.

6/ Wisconsin Public Service Corporation, 62 FERC ¶ 61,095 (1993); aff'd, Wisconsin Public Service Corporation v. FERC, 32 F.3d 1165 (1994).

Wetlands in the Lake Arbutus area are restricted by the local physiography (Mead and Hunt 1992). The wetlands of Lake Arbutus, and the project area can be characterized as emergent, scrub-shrub, and forested. Mead and Hunt (1992) conducted a survey of wetlands and aquatic macrophytes. Survey results indicate that emergent macrophytes, such as spikerush and arrowhead, occur around a small island south of the confluence of the East Fork of the Black River and Lake Arbutus. Macrophytes were found at depths between 1.5 and 4.0 feet and on sand, gravel, and cobble substrates. Along the East Fork of the Black River, the dominant species of the scrub-shrub and forested wetland consist of tamarack, river birch, and a surface layer of *Sphagnum* moss.

An approximately 40-acre forested wetland, consisting of white pine, red maple, and tamarack, occurs several hundred feet south of the junction of the East Fork of the Black River with Lake Arbutus. No state-listed wetland plant species of special concern were identified (Midwest Hydraulic Company 1992).

No purple loosestrife (*Luthrum salicaria*) exists in the project impoundment (Midwest Hydraulic Company 1992).

The diverse vegetative communities and the adjacent Black River contribute to a variety of wildlife, such as white-tailed deer, cottontail rabbit, opossum, striped skunk, eastern gray squirrel, little brown bat, and downy woodpecker.

Beaver, muskrat, and raccoon are associated with the habitat along the Black River. Mallard, wood duck, common loon, lesser scaup, and ring-necked duck are known to occur along the Lake Arbutus flowage. In addition, the Hatfield Project area lies within the breeding range of some waterfowl species, such as the American black duck, blue-winged teal, and common mergenser (Midwest Hydraulic Company 1992).

Raptors, such as Cooper's hawk, red-tailed hawk, great horned owl, and osprey, are known to occur in the project area. Various non-game birds, mammals, reptiles, and amphibians also occur.

b. Environmental Impacts and Recommendations

Constructing the proposed and improving the existing recreational facilities would disturb approximately 5 acres of vegetation (Federal Energy Regulatory Commission, 1996).

In addition, MHC plans to re-route a section of the existing approximately 2.4-mile-long power canal by excavating a new section in natural ground to the north of the breach location (see section IV.C.1).

As a result of constructing and improving the existing recreation facilities and excavating a new section of the power canal, habitat disturbance would likely result in wildlife species being displaced. Revegetating the disturbed areas, where appropriate, immediately after construction would restore the vegetative cover of the area and would minimize the length of time wildlife habitat would be disturbed (see section IV.C.1 for our recommendation).

MHC proposes to release a minimum flow of 75 cfs into the approximately 3-mile-long bypassed reach of the Black River. The remaining river flow would be passed through the repaired power canal (see section IV.C.3). Flows released into the bypassed reach for recreational boating were negotiated between MHC, the resource agencies, and NGOs and are discussed in section IV.C.8.

Wetlands are noted for their diversity of vegetation and wildlife, including aquatic species. Operating the project in a run-of-river mode with a target operating water level of 882.5 feet ± 0.25 feet (see section IV.C.2) would minimize reservoir fluctuations and prevent large fluctuations in flows downstream of the project that could adversely affect waterfowl nesting and feeding areas along the Black River. Substantial water level fluctuations could also adversely affect wetland plant species relying on saturated soil (Rochester *et al.* 1984). The proposed project operation, therefore, would result in a cumulative beneficial effect on wetlands and associated wildlife within the Black River sub-basin.

In any license issued for the Hatfield Project, we recommend that the licensee be required to operate the Hatfield Project in a run-of-river mode with a target operating water level of 882.5 feet ± 0.25 feet. For further discussion on project operation and Wisconsin DNR's recommended drought contingency plan, see section IV.B.2.

c. Unavoidable Adverse Impacts

Constructing the proposed and improving the recreational facilities would disturb approximately 5 acres of vegetation. Rerouting a section of the existing power canal would result in an approximate 2.58 acres of land (1.66 acres of meadow and 0.92 acre of pine trees) being disturbed. However, impacts on terrestrial resources would be minimized by implementing the measures contained in our recommended soil erosion control plan.

5. Threatened and Endangered Species

a. Affected Environment

By letter dated April 30, 1996, Interior states that the federally-listed bald eagle (*Haliaeetus leucocephalus*) and Kirtland's warbler (*Dendroica kirtlandii*), and the federally proposed for listing Karner blue butterfly (*Lycaeides melissa samuelis*) may be present in the vicinity of the project. The FWS records indicate, however, that the Karner blue butterfly and Kirtland warbler are not known to occur on project lands. A bald eagle nest occurs on project lands.

By letter dated December 2, 1996, the Wisconsin DNR states that there would be no adverse effects on endangered, threatened, or species of special concern or other sensitive resources, provided that the Bald Eagle Management Plan, as revised by the FWS, is followed.

b. Environmental Impacts and Recommendations

To protect the bald eagle and its habitat, MHC proposes to implement a Bald Eagle Management Plan, dated August 13, 1992.

Interior recommends that, to protect the bald eagle, MHC should implement the Bald Eagle Management Plan, dated August 13, 1992, with appropriate revisions as contained in the FWS's letter dated April 9, 1993. These revisions include the following:

(1) changes in time periods:

Activity	Dates
"Moderately critical" nesting	June 15 to July 31
Critical nesting period	February 15 to August 15
Activities allowed in the Secondary Zone	August 31 through February 15

(2) repairs to the power canal should be restricted to a minimum distance of 0.25 mile from the bald eagle nest site during the period from February 15 to August 15; regular maintenance of the power canal and dike should be restricted from August 15 to February 15, and the area within 0.25 mile of the nest should be avoided except from October 1 to February 15; and (3) the power line poles in the bald eagles' nesting territory should be modified consistent with the guidelines for raptor protection as outlined in Olendorff, 1981. The FWS states that bald eagles use the existing powerline poles along the power canal for perching.

Interior states that, provided the Bald Eagle Management Plan, including the revisions, are incorporated into any license issued for the Hatfield Project, the federally-listed bald eagle will not be affected by the operation of the project.

Wisconsin DNR recommends that, except as noted in FWS's April 9, 1993 letter, MHC should follow "Management constraints for breeding area" listed in the Bald Eagle Management Plan, and protect large size white pine trees in the same general vicinity as the current nest site for possible future nest use (Wisconsin Department of Natural Resources 1996).

Aboveground transmission lines are a potential electrocution hazard to perching raptors unless properly designed (Olendorff, 1981). Raptors, including the federally-listed bald eagle, are known to occur in the project area. No primary transmission lines are associated with the project.

We agree with Interior's and Wisconsin DNR's recommendation that MHC implement the Bald Eagle Management Plan, with revisions. In addition, MHC should retain ownership of all project riparian lands and continuous uplands within the project boundary to protect the federally-listed bald eagle and its habitat, and incorporate this measure into the final Bald Eagle Management Plan. This plan, including the revisions, would protect the bald eagle and its habitat, identify new nests, and require further consultation with the resource agencies, and, thereby, contribute in a beneficial manner to the protection and enhancement of the bald eagle.

Therefore, in any license issued for the Hatfield Project, we recommend that the licensee be required to implement the Bald Eagle Management Plan, including the FWS's recommended measures described above. Furthermore, we conclude that if the project is modified or new information about the project becomes available that indicates listed or proposed species or critical habitat may be present or affected, the Commission would reinitiate consultation with the FWS.

c. Unavoidable Adverse Impacts

None.

6. Aesthetic Resources

a. Affected Environment

The project is located in Wisconsin's central plains region, near the Town of Hatfield, a seasonal community, and contains prairies, gentle rolling hills, and escarpments. Woods surround most of the project area. Existing landscape features in the area include the project dam, power canal, the impoundment, and a free flowing stretch of the Black River downstream of the dam.

The project area landscape exhibits a wide variety of aesthetically interesting and pleasing visual and aural elements. The bypassed reach of the river between the dam and the

powerhouse is dominated by steep, high rocky banks interspersed with low wide areas, and contains rapids.

Shoreline aesthetics are very good with minimum lake intrusion by residences and boat houses due to county zoning setbacks (see section IV.C.8).

An aesthetic amenity that has been created by the dewatering of the canal and the cessation of generation is the continuous total river flow over the dam and into the bypassed reach. The dewatered portion of the power canal, although now aesthetically better with some vegetation cover, is not as aesthetically pleasing as when the canal was in operation.

b. Environmental Impacts and Recommendations

MHC proposes to renovate the project by repairing the appoximately 2.4-mile-long power canal, and diverting water from the Black River via the canal to the powerhouse (see Sections II and IV.C.1). MHC has stated that its project-related construction activities would not involve any topographic changes, but in any case, MHC proposes to blend the project-related facilities, to the extent possible, with the surrounding environment.

Project-related construction, additions, site modifications, and operations would adversely affect the aesthetic value of the project area landscape. Our recommended erosion control and revegetation measures (see Section IV.C.1) would protect aesthetic resources from impacts caused by site clearing and earthwork (including the construction of a new canal section around the breach), and would adequately restore the appearance of disturbed areas of the project site landscape. Our recommended run-of-river mode of operation and minimum flow measures (see Section IV.C.2) would avoid the visual effects caused by impoundment surface elevation and downstream flow fluctuations and would minimize the adverse aesthetic effects from river flow reductions over the project dam and through the bypassed reach. Rewatering of the existing power canal would restore its visual integrity and improve the visual quality of the project landscape. In addition to the above recommended measures, we recommend that any license issued, include a condition requiring the licensee to blend its project-related facilities, to the extent possible, with the surrounding environment.

c. Unavoidable Adverse Impacts

Minor short-term aesthetic impacts would be caused by project-related construction activities. Minor long-term aesthetic impacts would be caused by the reduction of flows over the dam and through the bypassed reach.

7. Cultural Resources

a. Affected Environment

The area of potential effect for this project, in addition to the buildings and structures comprising the project works -- which are eligible for listing in the National Register as an historic district -- includes the shoreline of the Black River and Lake Arbutus. MHC in 1992 commissioned Philip H. Salkin to conduct an archaeological survey of this area in support of its application for a license. Salkin's work resulted in the discovery of 26 archaeological sites of Native American Indian affiliation and several isolated finds.

These results, reported in, *A Cultural Resources Study of the Hatfield Hydroelectric Facility and Associated Project Area in Jackson and Clark Counties, Wisconsin,* (Salkin 1992), indicate that, in addition to the project works being eligible, four archaeological sites in the project corridor appear to be eligible, three more will require further investigation to ascertain whether they are eligible, and six that may be eligible could not be evaluated due to their being inaccessible.

Hatfield Hydroelectric Project Historic District. Consisting of a diversion dam with associated regulating works, a power canal, a penstock headworks, and a powerhouse with tailrace, the Hatfield Project is eligible for listing in the National Register as an historic district7/ due to its association with events that have made a significant contribution to the broad patterns of our history.8/

Wisconsin's hydroelectric industry began in the 1880s, when small facilities provided intermittent service to their immediate localities, primarily in southern or central Wisconsin along the Wisconsin River and its tributaries. Projects of 1,000-kw or more were not developed until 1906. Thus, the Hatfield Project, built in 1907-1908 to accomodate four generating units and, by 1911, equipped with two 2,400-kW generating units, serves an early example of a large-scale hydroelectric facility in Wisconsin. Moreover, the Hatfield Project is the only one on the Black River developed originally for (not coverted to) hydroelectric generation. It was developed at a cost of one and

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7/ As used in this connection, a *district* is a geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united by past events or aesthetically by plan or physical development. See 36 C.F.R. 60.3.

8/ See 36 C.F.R. 60.4.

one-half million dollars, with 90 head feet; about 30 percent of the total head feet for the entire drainage.

Moreover, the Hatfield Project has significantly affected the economic history of the community of Hatfield and the surrounding area. Constructing the Hatfield Project initially provided work for over 700 men. More importantly, it created a recreational feature which has become the area's economic mainstay. In fact, it may reasonably be asserted that completion of the Hatfield dam has been the single most important development in the history of the community, in particular, and Jackson and Clark Counties, in general. Shortly after the dam was built, a hotel was also constructed in Hatfield; recreational cottages, taverns, and restaurants followed.

Both the power canal and powerhouse are presently out of service due to heavy damage to these project components sustained in a mid-1993 flood event. The power canal was breached to a depth of about 60 feet for a distance of about 150 feet along the axis of its left dike. Flood waters covered the powerhouse floor to a depth of about four feet, damaging both the building itself and its equipment. Repair of these components is in progress.

Archaeological Sites Eligible for Listing in the National Register. Four archaeological sites in the area of potential effects -- designated 47Cl-23, -52, -55, and 47Ja-118[9/] -- on the basis of having been evaluated, appear to be eligible for listing in the National Register because they have yielded or may be likely to yield information important in the study of certain periods of prehistoric occupation.

Archaeological site 47Cl-23 is a large multi-component site situated on a level terrace above Lake Arbutus. Some of its deposits remain intact and it has yielded prehistoric artifacts diagnostic of Woodland (ca. 500 B.C. to 1600s A.D.), Early Woodland (ca. 500 B.C. to 100 A.D.), Late Archaic (ca. 3000 to 500 B.C.), and Early Archaic (ca. 8000 to 5000 B.C.) periods of prehistoric occupation.

Archaeological site 47Cl-52 appears to be a Late Woodland (ca. 400 to 1600s A.D.) site situated on the east side of Lake Arbutus. Its artifact density is fairly continuous if not high, and yields evidence of several prehistoric activities having occurred here. Stone tools were made or repaired here, perhaps both. The discovery of a prehistoric stone scraper and drill

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9/ These trinomial site designations are to be understood as follows: 47 indicates the State of Wisconsin; Cl and Ja indicate Clark and Jackson Counties, respectively; and the final numeric characters distinguish the individual archaeological site.

suggests some industrial activity as well. Finally, a dense scattering of fire-cracked rock filled in with dark, organic material, including charcoal, suggests an earth oven, which implies cooking.

Archaeological site 47Cl-55 is a generally intact deposit of prehistoric cultural material on the Black River. Its one diagnostic artifact, a Monona Stemmed projectile point,10/ is usually associated with the Early-to-Middle Woodland period of occupation. Activities carried on at this site, based on the data recovered so far, probably included making-repairing stone tools, cooking, and perhaps hunting.

Archaeological site 47Ja-118 appears to represent a Late Woodland occupation with some integrity in its deposits. Activities carried on at this site probably included making-repairing stone tools.

Archaeological Sites Requiring National Register Evaluation. Three archaeological sites -- designated 47Cl-46, -56, and 47Ja-116 -- may be eligible for listing in the National Register but require further study before this question can be settled. So far, none of the following archaeological sites have yielded researchers artifacts diagnostic of a particular cultural context, although all have yielded non-diagnostic artifacts, and all have intact deposits. The only cultural activity that can be clearly established at these archaeological sites is making-repairing stone tools, although archaeological site 47Cl-56 has yielded evidence of some other industrial activity (as indicated by a utilized stone fragment), and cooking (as indicated by a small unidentifiable bone fragment).

Archaeological Sites That Could Not Be Evaluated. Although six archaeological sites were identified in the area of potential effects, in addition to those listed above, they are located on lands belonging to NSP, which denied permission to conduct subsurface investigation at them. Such permission was denied at archaeological sites 47Cl-47, -50, -53, -54, -59, and 47Ja-175. While, according to Salkin, NSP was most cooperative in allowing excavations on its lands south of the Hatfield dam, these archaeological sites are situated on its lands above the dam.

b. Environmental Effects and Recommendations

Issuing a license for the construction, operation, and maintenance of the Hatfield Project may affect Historic Properties listed in or eligible for listing in the National Register. Certain of these effects may be adverse. Adverse

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10/ This type of projectile point typically has an expanding stem with wide, shallow side notches.

effects can be taken into account by executing a Programmatic Agreement pursuant to Section 106, National Historic Preservation Act, and the regulations of the Advisory Council on Historic Preservation, 36 C.F.R Part 800. On January 24, 1997, a Programmatic Agreement was executed among the State Historic Preservation Officer (SHPO), the Commission, and the Advisory Council.

Hatfield Hydropower Project National Register Historic District. Since the Hatfield Project is a National Register historic district, issuing MHC a license to continue operating and maintaining it under the protection afforded by Section 106 of the National Historic Preservation Act, is generally to be considered a beneficial effect, but in itself does not ensure that adverse effects would not ensue. Adverse effects may inadvertently occur during routine daily activities at the project, in the absence of operation and maintenance plans designed to hold intact their historic integrity.

The Programmatic Agreement would require the Licensee to develop for Commission approval and, upon approval, implement a Cultural Resources Management Plan. The Cultural Resources Management Plan would accomplish several purposes, one of which would be to specify a procedure for operating and maintaining the project without loss of its historic integrity.

In developing this portion of its Cultural Resources Management Plan, it is important to recognize that, while its purpose is to preserve intact those components of the project that contribute to the National Register eligibility of the historic district, the structure is a functional hydroelectric facility which must operate in a safe and cost-effective manner and be adequately maintained for this purpose.

We recommend that MHC locate original elevations, blueprints, and plans that document the construction of the project facilities, if this is possible, and make them available for reproduction. The project facilities should be thoroughly documented using a National Park Service Form 10-900, taking particular care to record every contributing element of the historic district in detail and to note its present condition. The narrative description should be supported with appropriate photographic documentation. Then, MHC should develop its Cultural Resources Management Plan to preserve intact, to the extent possible, each of these contributing elements.

If modifications to any of the contributing elements becomes a practical necessity, the Licensee, when possible, should repair rather than replace original features and equipment. When replacement is necessary, priority should be given to replacement using comparable materials. Major modifications that would result in a substantial loss of the historic district's historic

integrity should only be made following extensive photographic documentation according to the standards of the Historic American Building Survey and the Historic American Engineering Record.

National Register Eligible Archaeological Sites in the Area of Potential Effects. Since the four archaeological sites designated 47Cl-23, -52, -55, and 47Ja-118 are located in the area of potential effects and, having been evaluated, appear to be eligible for listing in the National Register, they appear to be subject to adverse effects resulting from the operation of the project, primarily from erosion, but also from other sources of effect as well, such as construction, vehicular use, and effects resulting from public recreational use.11/

Efforts should be made to preserve in-place these archaeological sites from further effects from erosion, if possible, through bank stabilization. If they cannot be preserved in-place, effects should be mitigated. The method adopted for preserving these archaeological site or for mitigating effects to them should be spelled out by MHC in its Cultural Resources Management Plan.

Archaeological Sites That Could Not be Evaluated. Since archaeologists have not been able to gain access to archaeological sites 47Cl-47, -50, -53, -54, -59, and 47Ja-175, in spite of every reasonable effort having been made to do so, we are unable to determine whether National Register eligible archaeological deposits may be affected by a license issuing to MHC to continue operating the project. This does not mean, however, that we should presume that these sites are not eligible or that access to them should be denied.

Archaeological Sites Requiring National Register Evaluation. Archaeological sites 47Cl-46, -56, and 47Ja-116 may be eligible for listing in the National Register but require further study before this question can be settled. The remaining intact deposits at these sites would permit archaeologists to conduct such further study. MHC should address this requirement in its Cultural Resources Management Plan.

Cultural Resources Management Plan. In his May 24, 1996, letter the SHPO stated he needed additional information to determine whether the Hatfield structures plus three

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11/ Effects at Historic Properties located in the project's area of potential effects, whether the result of erosion, ice scour, recreational use, or other project-related agents of effect, must be taken into account, under Section 106 of the National Historic Preservation Act, by the Federal Energy Regulatory Commmission, and, in accordance with the Programmatic Agreement, by the Licensee.

archaeological sites -- designated 47Ja-116, 47Cl-46, and -56 -- are eligible for listing in the National Register.12/ Second, the SHPO requested further justification for considering archaeological site 47Ja-176 not eligible for listing in the National Register. Third, he requested a copy of MHC's erosion study, including a map of the project shoreline, to aid in developing a comprehensive shoreline erosion control strategy to protect National Register eligible archaeological sites and a schedule to survey areas affected by active shoreline erosion.

Data that are insufficient presently to determine the eligibility of archaeological sites should be provided following the issuance of any license for this project in accordance with the Programmatic Agreement. The required provisions in the excecuted Programmatic Agreement would capture all the data that the SHPO has requested and mandates that they be provided before National Register or eligible properties may be adversely affected.

Repair of the damaged power canal and powerhouse is underway; adverse effects that may occur as a result of the repair, following the issue of any license, would be avoided or mitigated under the Cultural Resources Management Plan.

Besides repairing the two existing Allis-Chalmers single runner, horizontal Francis-type hydraulic turbines, MHC proposes to add two low flow units: one at the powerhouse, the other at the dam. Since the proposed new unit would replace the currently non-functional exciter, an adverse effect would not result.

The precise location of the low flow unit proposed to be installed at the dam would not be determined before a license issues for this project. If such a license issues, the precise location of the low flow unit would be reported in the Licensee's Cultural Resources Management Plan.

The Licensee should withhold locational data about archaeological sites, especially if not withholding their locations may result in National Register eligible archaeological sites being looted or vandalized, or otherwise adversely affected.

If the Licensee significantly draws down the project reservoir, it should consult with the SHPO to determine whether additional archaeological study is warranted.

12/ As has already been stated, the Hatfield Project is a National Register eligible historic district, due to its association with historically important events.

Finally, we recommend that the Licensee should be required to monitor the area of potential effects at regularly scheduled intervals, and following major flood events, to determine whether erosion is exposing additional archaeological materials.

c. Unavoidable Adverse Impacts

None.

8. Recreation and Other Land Uses

a. Affected Environment

Historically, the Black River sub-basin, in which the Hatfield Project is located, provided primarily fishing and hunting opportunities. The development of the Hatfield dam and Lake Arbutus in 1908 brought recognition to the area for recreation purposes and some hotels and cabins were built (Salkin, 1992). Current regional recreational activities include fishing, hunting, camping, sightseeing, cross-country skiing, and snowmobiling.

Lake Arbutus supports a variety of recreational uses, including camping, fishing, boating, hunting, and hiking; winter activities include cross-country skiing, ice-fishing, and snowmobiling. Of these activities., fishing and boating are the most popular. The most important fish species in Lake Arbutus for recreation are panfish (i.e., crappie, rock bass), northern pike, muskellunge, smallmouth bass, and largemouth bass. In the future, an increase in fishing and boating activities in Clark and Jackson Counties, which includes Lake Arbutus, is expected and the demand for additional recreation facilities to accommodate the increase in public recreational use has been identified (Wisconsin Department of Natural Resources 1993).

The approximately 2.4-mile-long power canal generally parallels the right bank of the Black River between the dam and the powerhouse. Recreational fishing historically occurred in the power canal and its backwaters, which consisted of walleye and muskellunge fisheries.

No historical data on recreational fishing in the approximately 3-mile-long bypassed reach exists due to the lack of public access and, under past operations, the bypassed reach was dewatered (Midwest Hydraulic Company 1992). Due to the historic dewatering of the bypassed reach, whitewater boating in this stretch of the Black River is relatively new (Mead and Hunt, 1995).

Currently, MHC does not own or provide any of the existing recreation facilities or developments; however, MHC proposes to implement several recreation measures at the Hatfield Project

(see section IV.C.8.b). A variety of public recreational sites exists in close proximity to the Hatfield Project:

o The State of Wisconsin owns about 200 acres of woodlands adjacent to the Hatfield Project along the East Fork of the Black River, which is part of the state's Black River State Forest. Facilities at the 15-acre East Fork Campground include 24 camp sites, picnic areas, pit toilets, drinking water wells, and a boat launch.

o Jackson County owns a 270-acre park and campground on Lake Arbutus, which offers 196 camp sites, pit toilets, picnic areas, a parking area, a playground, drinking water wells, two boat launches, and sandy beaches.

o Clark County operates and maintains a 60-acre public park and campground (Russell Memorial Park) on Lake Arbutus, which offers 195 camp sites, pit toilets, facilities providing potable water, picnic areas, two boat launches, a parking area, a playground, and a beach.

MHC conducted a recreational use survey (January through December, undated), as part of their license application filing, at Lake Arbutus, the power canal, bypassed river reach, and other project lands. The survey included site visits and personal interviews. Survey results indicated that recreational use at Lake Arbutus was higher in the summer (June through August) than the winter (December through February). Also, the survey showed that recreational use of Lake Arbutus was extensive for fishing and boating in the summer and, in the winter, for icefishing and snowmobiling. We note, however, that MHC did not provide the number of users associated with each recreational activity, except for boating in the approximately 3-mile-long bypassed river reach. Results of the boating survey conducted from April 1, 1992 to July 30, 1992 indicated that 42 boaters (canoes and kayaks) used the bypassed reach.

Public safety: MHC maintains warning signs upstream and downstream of the project structures. A boat-restraining barrier is maintained about 200 feet upstream from the spillway and power canal sections. In the winter, MHC removes the boat restraining barrier and replaces the barrier with upright, canister warning buoys in place. In the spring, after ice-out, MHC installs the boat restraining barrier (Midwest Hydraulic Company 1994).

b. Environmental Impacts and Recommendations

1. Recreation development

MHC proposes to construct, operate, and maintain the recreation facilities contained in their recreational use management plan, filed with the Hatfield Project license

application, including additional recreation developments contained in subsequent filings.13/ Table 3 shows the recreation measures proposed by MHC and recommended by Wisconsin DNR, the NPS 14/, and the staff.

Wisconsin DNR (1996) states that existing public recreation access is inadequate to the power canal, bypassed river reach, and river below the powerhouse, limiting use of the Black River. In addition, Wisconsin DNR states that no barrier-free recreation facilities exist. The NPS (1996) states that no formal access is provided at the put-in nor take-out and the existing informal trail at the put-in area is near an eroding, estimated 100-foot-high, steep slope.

In our Section 10(j) meeting, MHC agreed, in consultation with the Wisconsin DNR and NPS, to re-route about 100 to 150 feet of the estimated 1,200-foot-long existing informal trail in order to provide safe public access away from the eroding 100-foot-high, steep slope. We recommend that this additional measure be included in the licensee's final recreation plan.

We agree with the resource agencies that existing public recreation access at the Hatfield Project is inadequate, thereby limiting use of the Black River. The Black River is recognized as a unique river among recreational users. According to the Wisconsin Statewide Comprehensive Outdoor Recreation Plan (SCORP) (Wisconsin Department of Natural Resources 1993), the need for fishery habitat improvements, fishing piers, boat launches, and public access to uncrowded waters was identified for Jackson and Clark Counties, in which the Hatfield Project is located.

We assume that recreational use at the Hatfield Project would increase due to MHC's proposals to release flows into the bypassed reach for recreational boating and restore the fishery resource in the power canal. To accommodate existing and future public recreation use at the Hatfield Project, we recommend that MHC, in consultation with Interior, Wisconsin DNR, and NPS, file for Commission approval, and upon approval implement, a final recreation plan, including MHC's proposals, as shown in Table 4 and our additional recommended measures, as discussed below. The final recreation plan must be developed in conjunction with the final Bald Eagle Management Plan (see section IV.C.5).

13/ Mead & Hunt, 1995, Recreational boating study, Hatfield Hydroelectric Project, Madison, Wisconsin, August 1995; Letter dated July 28, 1995, to Mr. Perry Rosa, Mead & Hunt, Inc., Madison, Wisconsin from Ms. Angela M. Tornes, National Park Service, Milwaukee, Wisconsin.

14/ The specific recreation measures were *recommended* by the NPS, rather than Interior.

Furthermore, MHC proposes to provide directional signs to the put-in area off Clay School Road and at the take-out area at the powerhouse. Wisconsin DNR and NPS, reiterating the need for public access, recommend that MHC develop a parking area (8-10 spaces) along Clay School Road for whitewater boating or riverbank fishing access to the tailwater area. We agree that the agencies' recommended measure for a parking area along Clay School Road would enhance the existing site and meet a need for public access, as defined by the Wisconsin SCORP. Therefore, in any license issued for the Hatfield Project, we recommend that the licensee should be required to develop, in consultation with the Wisconsin DNR and NPS, a parking area (8-10 spaces) within the Hatfield Project boundary, along Clay School Road.

In our Section 10(j) meeting, MHC agreed to develop, operate, and maintain, in consultation with Wisconsin DNR and NPS, public access to the upper backwater area of the power canal. We recommend that this additional measure be included in the licensee's final recreation plan.

The final recreation plan should include, but not be limited to: (1) final design drawings of all recreation enhancements; (2) a discussion of how the needs of the disabled were considered in the design of each access or facility; (3) a description of the directional signs to be used to identify public access areas and associated trails; (4) a description of the public safety measures; (5) a discussion of the soil erosion control measures to be used during construction and improvement of the recreation facilities; (6) a description of the compatibility of the construction materials for the recreation facilities with the natural character of the surroundings; (7) costs for the construction and yearly maintenance of each facility; (8) a construction schedule; (9) identification of the entity responsible for operation and maintenance of the facilities and access areas; and (10) documentation of agency consultation.

The recommended recreation measures would meet existing and future recreational fishing and boating use at the Hatfield Project. Furthermore, these measures would increase opportunities for persons with disabilities by providing barrier-free facilities, thereby encouraging use among persons with disabilities. To determine the adequacy of the proposed facilities to meet recreation demand, the licensee should monitor recreation use. Information collected and filed pursuant to the requirements for FERC Form 80-Recreation Report, per the Commission's regulations at 18 CFR Section 8.11, may be used in the monitoring program.

Table 3. Applicant-proposed, agency- and staff-recommended recreational facilities at the Hatfield Project (Source: the staff).

MHC	NPS	Wisconsin DNR	Commission Staff
At the power canal, improve the existing public access near the gatehouse (includes parking, making the site barrier-free, & adding a barrier-free fishing area (perhaps at County Highway K)).		Improve parking & public access for riverbank fishing near the gatehouse. Develop parking for up to 6 vehicles & ADA access for riverbank fishing at power canal off County Highway K.	At the power canal, improve the existing public access near the gatehouse (includes parking, making the site barrier-free, & adding a barrier-free fishing area (perhaps at County Highway K)).
Construct a barrier-free fishing platform & parking area at the tailrace.			Construct a barrier-free fishing platform & parking area at the tailrace.
Provide an "800" toll-free line with 24-hour updates of flow levels in the bypassed reach.	Notify the seven whitewater boating clubs of the flow schedules & toll-free number.	Provide notification system (*i.e.* telephone hot line) which alerts prospective navigators of flow releases.	Provide an "800" toll-free line with 24-hour updates of flow levels in the bypassed reach.
Reroute the put-in access trail & install soil erosion measures.	Relocate put-in trail away from its current location, which is adjacent to a steep, eroding slope.		Re-route a section of the existing informal trail at the put-in area & install soil erosion control measures.
	Redirect boaters to take-out at another location downstream of transformers & fence off powerhouse & transformers for safety reasons; provide new take-out area if one doesn't exist.		

Table 3. Applicant-proposed, agency- and staff-recommended recreational facilities at the Hatfield Project (Source: the staff).

MHC	NPS	Wisconsin DNR	Commission Staff
Provide a 10-car parking area near the powerhouse & at the put-in; provide toilet facilities at the site.	Improve with gravel the 10 space parking area at the powerhouse; provide toilet facilities in the area.	Complete ongoing improvements for parking & ADA access for riverbank fishing & canoe launch/take-out below powerhouse.	Improve with gravel the 8-10 space parking area at the powerhouse; provide toilet facilities in the area.
Provide directional signs to put-in off Clay School Road & at the take-out at the powerhouse.	Create a gravel parking area (10 spaces) along Clay School Road near the old logging trail.	Develop parking for up to 8 vehicles & public access off Clay School Road for whitewater boating or riverbank fishing to tailwater area.	Create a gravel parking area (8-10 spaces) along Clay School Road near the old logging trail & provide directional signs.
Provide directional signs to the put-in & access near the powerhouse from County Highways K & E.	Install directional signs to Hatfield Recreation Area; install directional signs to put-in & take-out from County Highways K & E and from Powerhouse Road.	Develop, install, & maintain directional signs at County Highways K & E.	Install directional signs to Hatfield Recreation Area; install directional signs to put-in & take-out from County Highways K & E and from Powerhouse Road.
Remove the "no trespassing" signs at the powerhouse site.	Remove the "no trespassing" signs at the powerhouse site.		Remove the "no trespassing" signs at the powerhouse site.
If MHC can either lease or obtain an easement for an existing access site in backwater area of power canal, then MHC would improve site.		Acquire property or rights to improve parking for up to 6 vehicles & provide ADA access for riverbank fishing at upper backwater of power canal.	Develop, operate, & maintain public access to the upper backwater area of the power canal.
Provide public recreational safety measures.			Provide and maintain public recreational safety measures.

2. Schedule for Recreation Development

The Wisconsin DNR states, by letter dated April 15, 1996, that at a rate of no less than one every 2 years after license issuance, the licensee should, in consultation with the Wisconsin DNR, design, install, and maintain the proposed recreation facilities. In a letter dated April 30, 1996, Interior states that the proposed recreation facilities should be completed promptly and all facilities monitored regularly and maintained.

Even though MHC submitted a schedule for improving and developing recreation facilities and access areas at the Hatfield Project, we conclude that MHC's schedule does not account for the additional proposed recreation facilities, which MHC submitted in subsequent filings. Therefore, we recommend that in any license issued for the Hatfield Project, the licensee should be required to develop, in consultation with Interior, Wisconsin DNR, and the NPS, a construction schedule, as identified in our recommended final recreation plan.

3. Public safety

MHC proposes to use signs, horns, and general news releases to inform the public about hazardous areas around Hatfield dam. In consultation with the Wisconsin DNR and the Commission, MHC proposes to develop an internal safety program and update this program accordingly.

By letter dated April 15, 1996, Wisconsin DNR recommends that MHC develop and implement a warning system consisting of signs, horns, lighting or other measures to provide advance warning to recreation users of rapid flow increases in the tailrace area. Wisconsin DNR states that an advance warning system would allow recreation users reasonable time to adjust their activities safely.

We recommend that an audible alarm warning system be installed at the powerhouse to warn recreationists of the powerhouse generating unit start-up.

Rapid flow increases in the tailrace area can create a dangerous hazard for recreationists. Therefore, in any license issued for the Hatfield Project, we recommend that the licensee, in consultation with the Wisconsin DNR and the Commission's Chicago Regional Office, develop and implement an audible alarm warning system consisting of signs, horns, lighting or other measures to provide advance warning to recreational users of rapid flow increases in the tailrace area. In addition, we recommend that the licensee continue to maintain warning signs upstream and downstream of the project structures. These public safety measures should be contained in the recommended recreation plan.

4. Recreational flow releases into the bypassed reach

In May 1995, Mead & Hunt, in consultation with the NPS, the Wisconsin DNR, and whitewater boating groups of the AWA, conducted a field evaluation to determine the minimum and optimal water levels for canoeing and whitewater boating in the bypassed reach of the Black River. The study (Mead & Hunt 1995) resulted in a negotiated agreement between MHC, the resource agencies, and NGOs for recreational flow releases into the bypassed reach.

In particular, Wisconsin DNR, in a letter dated July 24, 1995, stated that they would not object to recreational boating releases if the following conditions and limits are incorporated. These conditions and limits would provide recreational boating opportunities, while minimizing conflicts with and adverse impacts to other power and non-power values.

The agreed-upon recreational flow releases are as follows:

(1) The scheduled flow releases would occur on the third Saturday of April, May, June, July, and August of every year and would be as follows:

April:	2,350 cfs	July:	1,070 cfs
May:	1,595 cfs	August:	835 cfs
June:	895 cfs		

(2) To minimize impact on the Black River's natural resources and somewhat duplicate the natural hydrograph of Black River floods (where Taintor gates would be used to spill excess inflow), the peak discharge would be built and dropped gradually as follows:

(a) a rising limb (up-ramping rate) of 3 hours per 1,000 cfs of peak discharge.

(b) a peak flow of no more 3 hours during the middle of the day.

(c) a falling limb (down-ramping rate) of 24 hours per 1,000 cfs of peak discharge.

(3) Releases would not be made in any month, if inflows to the impoundment (Lake Arbutus) are less than the 50th percentile flow on the flow duration curve for that month as follows:

April:	1,800 cfs	July:	520 cfs
May:	1,045 cfs	August:	285 cfs
June:	345 cfs		

(4) At the end of each release, the tailwater area below the Taintor gates would be inspected twice daily (once in the early morning and once in the late afternoon) for stranded fish. Any stranded fish would be rescued and released to channel depths sufficient for escape.

(5) Unnecessary drawdowns of Lake Arbutus would be prevented by MHC storing water at the maximum lake level of 882.75 feet before scheduled releases. The minimum allowable lake level during and after a release would be 882.25 feet. Within this range, this provides 450 acre-feet of storage supplementing inflows during scheduled releases.

The NPS states, by letter dated July 28, 1995, that the physical characteristics of the Hatfield Project bypassed reach of the Black River is not found anywhere else in the area, which provides a unique whitewater boating experience. The Town of Hatfield is about a 2-hour drive from both Minneapolis/St. Paul and Madison; and, the next available whitewater opportunity is within 4 hours of each place.

By letter dated July 25, 1995, Wisconsin DNR states that the negotiated recreation flow releases for whitewater boating will adversely impact fishing activities within and along the bypassed channel. Wisconsin DNR estimates that 20 to 30 anglers use this area. Impacts from rising and falling discharges would result in fish disorientation, disrupted fish feeding activities, and fish movement to avoid flow changes. However, Wisconsin DNR further states that limits on the number, duration, and magnitude of the recreation boating releases would minimize conflicts with recreational fishing.

Whitewater boating is a relatively new opportunity due to the shutdown of power generation in 1988 by the former Hatfield Project owner, NSP, and the return of natural river flows to the bypassed reach (Mead & Hunt 1995). In particular, between March and early April, Class III and Class IV whitewater flows 15/ occur in the bypassed reach between the dam and the powerhouse, attracting a medium-to-large number of whitewater boaters. Lower level releases of between 850 cfs and 1,200 cfs during the summer months (June through August) would provide Class I and Class II conditions. Within 2 hours driving time of the Black River, there are no comparable whitewater opportunities. Consequently, this bypassed reach of the Black River provides a unique whitewater opportunity.

15/ Based on the International Scale of Difficulty, which defines six difficulty classes of whitewater: Class I, Easy; Class II, Novice; Class III, Intermediate; Class IV, Advanced; Class V, Expert; Class VI, Extreme.

While conflicts among the resources (e.g., flows for fisheries/recreational fishing and flows for whitewater boating) may occur, we conclude that these conflicts would be minimized due to the agencies' and NGOs' agreed-upon flow releases into the bypassed reach for whitewater boating prior to the angling season. Therefore, in any license issued for the Hatfield Project, we recommend that the licensee implement the agreed-upon recreational flow releases into the bypassed reach, as defined in Mead & Hunt (1995). These flows would provide a beneficial cumulative effect on whitewater boating opportunities within the Black River sub-basin.

Furthermore, MHC proposes to provide an "800" toll-free telephone line with 24-hour updates of flow releases in the bypassed reach. In our Section 10(j) meeting, the NPS agreed to withdraw their recommendation in which MHC would be required to notify each of the seven whitewater boating clubs, that participated in the Mead & Hunt (1995) study, of the flow schedules and "800" toll-free telephone line. The parties agreed with MHC's proposed measure.

At the public scoping meeting for the Hatfield Project on June 5, 1996, some parties expressed a concern that whitewater recreational boating was not needed at the Hatfield Project. As a result, Wisconsin DNR, MHC, and the Commission staff agreed to reassess whitewater boating in 5 years to determine whether the continued release of flows for whitewater boating is warranted. We, therefore, recommend that MHC, in consultation with Wisconsin DNR, NPS, and the boating groups of the AWA, reassess recreational whitewater boating in 5 years at the Hatfield Project, and file a report with the Commission on its findings.

5. Other Land Uses

Land development within the proposed project area is minimal with timbered lands bordering much of the project area shoreline. A total of approximately 1,700 acres of rural land within the proposed project boundary provides much recreational activity, thus characterizing the project as an outstanding recreational resource. Outlining Lake Arbutus is a nearly 17-mile-long shoreline, along with 5 miles of shoreline at the power canal and an additional 3 miles of shoreline at the backwaters. Recreation dominates the total shoreline also, as state forest and county parks account for almost 24 percent of these areas.

Drawing heavy summer usage, nearly 150 seasonal residences within Clark and Jackson Counties edge the shoreline on or near the project area; some of the residences are occupied year round. Having the residences accounting for 35 percent of the total shoreline, the remaining 40 percent of the shoreline is mostly privately owned and undeveloped woodlands. With 1,400 acres available for private ownership, MHC holds fee-title ownership to

about 300 acres to be utilized for project operation. MHC uses these 300 acres for public safety measures such as signs and fences around the project structures, as well as for recreational use. The remaining area belonging to MHC is unharvested forest.

All private development within the project and adjacent to it are regulated by shoreland, floodplain, and forest ordinances. These ordinances regulate all structures and land use within 1,000 feet of a lake and 300 feet from a river, stream or creek, and its backwaters. Another ordinance known as overall county zoning protects the quality of the private development.

MHC owns only 1-mile (6 percent) of the shoreline of Lake Arbutus; the remaining 94 percent is owned by others. Of that 94 percent, as mentioned above, 4 miles (23.5 percent) is developed by county and state parks and 12 miles (70.5 percent) is privately owned, some developed and some not developed. Private ownership includes the approximately 3 miles of shoreline of the canal backwaters.

MHC's proposal to rehabilitate the project would be compatible with existing adjacent land uses. MHC proposes no development that would alter right-of-ways and access roads, and intends to comply with the Wisconsin DNR's regulations regarding all structures in lakes or streams that extend beyond the natural bulkhead line, such as any piers, docks, boat landings, bulkheads or other shoreline facilities on land owned by others.

Buffer Zone

Wisconsin DNR, by letter dated April 15, 1996, recommends that the licensee retain ownership of all project riparian lands and continuous uplands, and develop and implement a management plan for these lands to protect biological habitats, including those noted in the Bald Eagle Management Plan, and provide for free public access and use. Our recommendation is consistent with Wisconsin DNR's recommendation (see Sections IV.C.b and IV.C.8.). Therefore, after consultation with Wisconsin DNR and the FWS, we recommend that the licensee should develop and implement a land management plan.

The NPS recommends for aesthetic and ecological purposes, that the licensee maintain a minimum 200-foot, no-cut natural buffer zone on all riparian company-owned properties for the duration of the license. MHC does not believe that acquiring a buffer zone is necessary for the following reasons: (1) all new private development in and around the project area is subject to shoreland zoning ordinances; (2) the 23.5 percent of Lake Arbutus shoreline already under state and county ownership provides excellent public access to the project land and waters; (3) there is no benefit for MHC in the acquisition of additional shoreline property; (4) there would be much opposition from shoreline

residents who thoroughly enjoy their life on the lake; and (5) for MHC to buy the lands, would mean county parks would lose their revenue.

In our Section 10(j) meeting, the NPS agreed to withdraw the no-cut provision of their buffer zone recommendation. To protect environmental resources, the parties agreed and we recommend that the licensee establish a buffer zone for lands within the project boundary. No standard size for a buffer zone has been established by the Commission, however, 200 feet has been used as a rule-of-thumb. 16/ The buffer zone recommendation should be incorporated into our recommended land management plan.

c. Unavoidable Adverse Impacts

Minor, long-term impacts on fishery resources and associated recreational fishing would occur as a result of releasing scheduled varied flows for whitewater boating into the bypassed reach. However, these impacts would be minimized by using the recommended ramping rate that mimics the natural hydrograph of the Black River.

V. DEVELOPMENTAL ANALYSIS

A. Power and Economic Benefits

Staff's analysis of the cost of generating power at the Hatfield Project is based on the capital costs of refurbishing the project facilities and conducting licensing studies and annual costs, such as: operation and maintenance (O&M) cost, state and local taxes, and insurance cost. MHC provided a detailed schedule and cost estimate for project refurbishment in an additional information submission, filed with the Commission on August 14, 1995. In another additional information submission, filed with the Commission on October 25, 1996, MHC provided the costs of licensing studies and a cost estimate for repairing the power canal by excavating a new channel in natural ground, north of the breach location. Based on this information , we estimate that the total cost of project refurbishment and licensing would be about $1,974,000 (1996 dollars).

The annual costs, used in our economic analyses for O&M and insurance, $315,700 and $36,500, respectively, were derived from

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16/ The idea of a 200 foot buffer zone was established by Commission Order 313, pursuant to the Commission's responsibilities under Section 10(a) of the Federal Power Act and the policy on outdoor recreation found in the Outdoor Recreation Programs Act of 1963 (34 FPC 1546, 30 Federal Register 16197 (1965)).

values provided in Exhibit D of the license application and the first additional information submission described above.

In view of the restructuring in the electric industry, and the fact that project economics is one of many public interest factors the Commission considers in project licensing, we apply a current cost approach in our economic analysis with no escalation for alternative fossil fuel or other costs.17/ Table 4 provides a summary of all the assumptions used in our economic analyses.

Table 4. Staff assumptions used in economic analyses.

Date License Issued	1996
Period of Financing	20 years
Period of Current-Cost Analysis	30 years
Construction Cost Escalation Rate Until License is Issued	2.5 percent
Operation and Maintenance Escalation Rate until License is Issued	3.0 percent
Maximum Federal Tax	34 percent[1]
State and Local Tax	3.05 percent[2]
Interest Rate	10 percent
Discount Rate	10 percent

Notes: 1. 34 percent of taxable income.
2. 3.05 percent of project capital cost.

Based on our analysis, the annual cost of generating power at the Hatfield project would be about $703,800 (or 35.19 mills/kWh).

MHC estimates, based on discussions with NSP concerning a power sales contract, as of August 1995, that they would be paid about 36.0 mills/kWh for energy produced at the project.18/ We adopted this value as the average value of power in our economic analyses. MHC has estimated that the project would generate about 20.0 GWh of energy annually. Our independent

17/ See Mead Corporation, Publishing Paper Division, 72 FERC, ¶ 61,027 (July 13,1995).

18/ Andrew R. Blystra, Midwest Hydraulic Company, "Economic Evaluation of the Recreational Boating Study at the Hatfield Hydroelectric Project", 1995.

studies show that this is a reasonable estimate. We estimate the annual value of power would be about $720,000. As a result, the annual cost of producing power at the project would be about $16,200 less than the cost of currently available alternative power.

B. Environmental Enhancements

We identified and evaluated the environmental enhancement measures proposed by the MHC, and recommended by Wisconsin DNR, NPS, and staff which would affect the economics of the Hatfield Project. Measures considered would affect project economics by either adding directly to the project cost or reducing project energy generation by diverting flows for purposes other than power generation.

A description of the environmental enhancement measures we analyzed and the current annual costs of implementing the measures are shown below in Table 5.

Table 5. Annual cost of environmental enhancement measures.

Enhancement Measure	Annual Cost			
	MHC	WDNR	STAFF	NPS
Conduct a post-operation water quality/sediment study to ensure that the project meets state water quality standards	$1,000	$1,000	$1,000	$1,000
Provide public access and facility improvements at four locations along the power canal and at the powerhouse tailwater, to enhance river bank fishing opportunities	$6,400	$6,400	$3,200	$6,400
Provide scheduled flow releases to the 3-mile-long bypassed reach on the third Saturday of April, May, June, July and August of every year to enhance whitewater boating opportunities	$10,000	$10,000	$10,000	$10,000
Provide access and facility improvements at put-in and take-out locations to enhance whitewater boating opportunities in the bypassed reach	$3,200	$3,200	$3,200	$3,200
Total:	$20,600	$20,600	$17,400	$20,600

C. Pollution Abatement Benefits

We have made estimates of the amount of coal necessary if the 20 GWh of electric energy were generated in a coal-fired, steam-electric plant. We have also made estimates of the amounts of pollutants--oxides of sulfur, oxides of nitrogen, carbon monoxide, carbon dioxide, and particulate matter--produced by burning that coal. In our analysis we assumed that the coal burned would contain 1.0 percent sulfur and the powerplants would not have state-of-the-art emission control systems. Table 6 below shows the results of our analysis.

Carbon dioxide is considered to be a prime contributor to global warming, and the oxides of nitrogen and sulfur are considered to be prime contributors to the production of acid rain. The recently enacted Clean Air Act mandates control of the fraction of the oxides of sulfur and nitrogen produced by combustion which can be released to the atmosphere. State-of-the-art pollution control technology is capable of removing about 95 percent of the oxides of sulfur and about 60 percent of the oxides of nitrogen from the flue gases produced by the combustion of coal by utility companies.

Table 6. Amounts of coal, resulting pollutants, and annual costs for pollutant removal, necessary to produce equivalent amounts of generation from a coal-fired steam-electric plant annually. (Source: Staff 1996)

Item	Amounts
Pulverized Bituminous Coal (tons)	8,393.0
Oxides of Sulfur (tons)	164.0
Oxides of Nitrogen (tons)	76.0
Carbon Monoxide (tons)	3.9
Carbon Dioxide (tons)	19,304.0
Particulates (tons)	502.0
Removal Costs for Oxides of Sulfur	$84,940.00
Removal Costs for Oxides of Nitrogen	$19,060.00

Removing the oxides of sulfur and nitrogen from the flue gas increases the cost of generating electricity. We have made estimates of costs to utility companies for removing these oxides, assuming that the utility were to generate equivalent amounts of power that would be produced by the Hatfield Hydro Project. These costs are also shown in Table 6. The removal costs for the oxides of nitrogen can vary widely; consequently, we used a midpoint cost in our above analysis.

VI. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVES

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located. When the Commission reviews an application for a proposed project, the various resources (such as, recreational and fish and wildlife resources) and other nondevelopmental values 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 proposed project, the project with our additional recommendations, and the no-action alternative under Sections 4(e) and 10(a) of the FPA, we have selected the proposed project, with our recommended enhancement measures, as the preferred option. Our recommended measures would require MHC to: (1) conduct a post-operation water quality/sediment study to ensure that the project meets state water quality standards; (2) operate the project in a run-of-river mode with a target elevation of 882.5 ± 0.25 feet (maintaining within ± 0.50 feet at all times) to protect water quality and aquatic resources; (3) provide scheduled flow releases into the 3-mile-long bypassed reach on the third Saturday of April, May, June, July, and August of every year to enhance whitewater boating opportunities; (4) develop and implement an operational compliance monitoring plan; (5) implement the drought contingency plan; (6) install and maintain trashracks with no greater than 1.0-inch spacing to protect fish from turbine entrainment and impingement; (7) implement a fish stranding plan for the bypassed reach; (8) implement the bald eagle management plan to protect the federally-listed bald eagle and its habitat; (9) develop and implement a final recreation plan; (10) implement the Programmatic Agreement to protect cultural and archaeological resources; (11) develop and implement a soil erosion plan; (12) develop and implement a land management plan to protect project riparian lands and provide for public access and use of the project; and (13) blend construction of project-related facilities with surrounding environment.

We have selected the proposed project with our additional recommended enhancement measures because: (1) issuance of a license would allow MHC to operate the project as a beneficial and dependable source of electric energy for sale to NSP's customers; (2) the 6,830-kW project would eliminate the need for an equivalent amount of fossil-fuel-derived energy and capacity, which helps conserve these nonrenewable resources and limits atmospheric pollution; and (3) our recommended measures would result in a cumulative beneficial effect on water quality, wetlands and associated wildlife, threatened and endangered species, cultural and recreation resources within the Black River sub-basin.

Based on a review of the agency and public comments filed on the project, and on our independent analysis pursuant to Sections 4(e), 10(a)(1), and 10(a)(2) of the FPA, we conclude that licensing the Hatfield Project, with our required enhancement measures and other special license conditions, would permit the best comprehensive development of the Black River.

VII. CONSISTENCY WITH FISH AND WILDLIFE RECOMMENDATIONS

Pursuant to Section 10(j) of the FPA, we make a determination that most recommendations of the Federal and state

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

We made a preliminary determination in the DEA that some of Interior's and Wisconsin DNR's recommendations for the Hatfield Project might be inconsistent with the comprehensive planning and public interest standards of Sections 4(e) and 10(a) of the FPA. The specifics of each recommendation's inconsistency are discussed below.

We disagreed with Interior's following recommendation which is within the scope of Section 10(j), that the licensee maintain a minimum 200-foot, no-cut natural buffer zone on all applicant owned properties. While we agreed with Interior's recommendation to implement a minimum 200-foot buffer zone on all riparian company-owned lands, we disagreed with a no-cut buffer zone because a no-cut buffer zone would be too restrictive for the licensee's proposed activities and in meeting future Commission requirements.

We disagreed with the following Wisconsin DNR's recommendation which is within the scope of Section 10(j), that a target impoundment elevation of 882.5 feet ± 0.25 feet be maintained, and that the power canal surface elevation be held at 879.0 feet. We recommended that the impoundment elevation be held at all times within ± 0.50 feet, but targeting ± 0.25 feet, and that no peaking be allowed within this range. The feasibility of maintaining a strict elevation limit would be evaluated post-operationally. We recommended that the power canal be held at a target elevation of 879.0 feet.

Wisconsin DNR recommended that the licensee do a follow-up macrophyte survey and prepare a report to the Commission to document any changes which may result from the recommended target water elevation of 882.5 feet ± 0.25 feet, pursuant to Section 10(j) of the FPA. We determined that this is an inappropriate fish and wildlife recommendation, under Section 10(j) of the FPA, because the macrophyte survey is not a specific measure to protect fish and wildlife resources.

We disagreed with Wisconsin DNR's recommendation which is outside the scope of Section 10(j) to develop a plan to either maintain the dam in perpetuity or remove the dam when the project is no longer economically viable, as discussed below.

Other measures outside the scope of Section 10(j) that we disagreed with and were discussed in our Section 10(j) meeting include: (1) Interior's recommendation that the licensee send, to the seven whitewater boating clubs who participated in the recreational boating study (Mead & Hunt, 1995), a notice of the flow schedules and toll-free-number; and (2) Wisconsin DNR's recommendation that the licensee acquire property or rights to improve parking for up to 6 vehicles & provide barrier-free access for riverbank fishing at the upper backwater of the power canal. We concluded that Interior's recommended notice is duplicative of MHC's proposal to establish an "800" toll-free line with 24-hour updates of the flow levels in the bypassed reach. We concluded that Wisconsin DNR's recommendation for MHC to acquire property or rights at the upper backwater of the power canal is unwarranted.

Project Decommissioning

The Wisconsin DNR recommended that MHC establish a project maintenance or retirement fund to cover the cost of project maintenance for a period of 5 years in the event the license is surrendered or the project is retired. Wisconsin DNR stated that MHC is a smaller company than the current dam owner, Northern States Company, and that MHC could lack sufficient funds to retire the project in the future.

In its Policy Statement on project decommissioning, the Commission determined that a licensee is responsible for project decommissioning, but declined to impose a generic decommissioning requirement. Instead the Commission decided to address the issue on a case-by-case basis, and found that there may be particular facts on the record in individual cases that would justify a license condition requiring the establishment of a decommissioning fund.

We are unpersuaded that the establishment of a retirement fund is needed. The mere fact that one company has smaller financial assets than another is not sufficient to require that company, if it becomes a licensee, to maintain a retirement fund. There is nothing to suggest that MHC is not committed to the construction, operation, and maintenance of the project over the term of the license. MHC has already spent substantial monies in the preparation of a license application and to make modifications to structures at the request of the Commission's Division of Dam Safety and Inspections. Howard Energy Company, MHC's partner has substantial financial assets. Staff has evaluated the economics of the project and the project would have current positive net benefits. Moreover, if a license is denied, and Northern States retains ownership of the dam, there is no assurance that Northern States will continue to maintain the dam in the future. We will recommend that the Commission require MHC

before the start of project construction to demonstrate that it has the resources to complete construction of the project.

Section 10(j) Resolutions

By letter dated November 1, 1996, we informed Interior and the Wisconsin DNR of the inconsistencies and requested that they consider other options that would be agreeable and would adequately protect fish and wildlife resources consistent with other project purposes. We requested that Interior and the Wisconsin DNR submit these options to the Commission within 45 days of the date of our letter.

The FWS responded by letter dated December 18, 1996, to our inconsistency letter. In its letter, the FWS deferred fish and wildlife concerns to the Wisconsin DNR. Furthermore, the FWS stated that two issues pertaining to (1) notification of whitewater boating clubs by a "800" toll-free number, and (2) a "no-cut" provision in a 200-foot buffer zone were recommendations made by the NPS and suggested that we resolve these issues with the NPS.

The Wisconsin DNR responded by letter dated December 2, 1996. For those fish and wildlife agency recommendations that the staff found in the DEA to be inconsistent with the FPA or other applicable law, staff and the resource agencies held a teleconference meeting on January 13, 1997, to attempt to resolve the inconsistencies. Inconsistencies on all of the Section 10(j) measures were resolved.

Here is how the inconsistencies were resolved:

1) Run-of-River Operations: Flowage and Power Canal Water Levels

Wisconsin DNR recommended a reservoir target elevation of 882.5 ± 0.25 ft. be maintained. Staff recommended in the draft EA, a compromise flowage water level operating range of 882.5 ± 0.5 ft., with a "target" ± 0.25 ft. range limit at least 50 percent of the time, and with no allowable use of this range for peaking. MHC requested flexibility on operating range at project start-up in the event of unforseen problems. Wisconsin DNR agreed to this latitude as long as evidence is provided, through a report to the Commission, that MHC has made all reasonable efforts to stay within the ± 0.25 ft. range.

Wisconsin DNR also stated that the staff recommendations in the draft EA do not provide sufficient guidance to ensure that the canal water level of 879.0 ft. and run-of-river operations would be maintained, that compliance could easily be determined or that violations would be corrected. Commission staff stated that turbine operation records were usually sufficient to

determine compliance with run-of-river operation. After some discussion on the kind of equipment needed, staff and Wisconsin DNR agreed on a license condition requiring the filing of a gaging plan, to include gaging of water surface elevation at Lake Arbutus. Staff also agreed to Wisconsin DNR's request for 1 year's worth of data to include a graph to compare inflow versus outflow.

2) A 200-foot No Cut Buffer Zone

The parties discussed Interior's/NPS's recommendation for MHC to maintain a minimum 200-foot no-cut natural buffer zone on all riparian company-owned properties. After Interior was notified of staff's preliminary determination of inconsistency, Interior concurred with staff and did not participate in the Section 10(j) teleconference. The National Park Service (NPS) agreed with Commission staff to withdraw the "no-cut" provision from NPS' minimum 200- foot buffer zone recommendation. The NPS recognized that the "no-cut" restriction would not allow for old-growth forest management.

Staff reached resolution on the following measures which are outside the scope of section 10(j) and which were not adopted in the Draft EA, because they do not provide specific measures for the protection, mitigation of damages to, and enhancement of fish and wildlife resources affected by the Hatfield Project.

1) Macrophyte Study

Wisconsin DNR agreed with FERC staff to withdraw the recommendation for a 3-year post-licensing macrophyte survey.

2) Dam Safety Regulations

Wisconsin DNR recognized that the Commission has jurisdiction over dam safety.

3) Project Retirement/Maintenance Fund

Absent the establishment of a project retirement/maintenance fund, Wisconsin DNR recommended during the Section 10(j) meeting, that MHC and Howard Energy Company (MHC's partner) petition to become co-licensees or a license condition be included, which requires any future transfer application be served upon the Wisconsin DNR.

Staff agreed to consider Wisconsin DNR's recommendation that any license include a condition requiring the licensee to serve a copy of any future transfer application on Wisconsin DNR.

4. Recreation Facilities

The Wisconsin DNR recommended that MHC acquire property or rights to improve parking for up to six (6) vehicles and provide a walk-in access, according to ADA standards, for free public bank fishing at the power canal upper backwater. Based on more current information presented at the Section 10(j) meeting, MHC, Wisconsin DNR, and Commission staff agreed that public access to the upper backwater area could be provided. Consequently, this additional recreation enhancement measure would be required in the required recreation plan.

The parties discussed Interior's/NPS's recommendation for MHC to send a notice of the scheduled flow releases and toll-free number to each of the seven whitewater boating clubs that participated in the boating study. The NPS agreed to withdraw this recommendation.

VIII. CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with Federal or state comprehensive plans for improving, developing, or conserving waterways affected by the project. Under Section 10(a)(2) of the FPA, Federal and state agencies filed a total of 68 comprehensive plans that address various resources in Wisconsin. Of these, we identified and reviewed eight plans relevant to the project.19/ No inconsistencies were found.

We also reviewed Federal, state, and local plans that were relevant to the project, but were not listed as Commission approved comprehensive plans. They are as follows: Shoreland/Wetland Zoning Ordinance of Clark County, Wisconsin, August 1985; Shoreland Zoning of Jackson County, Wisconsin, May 1987; Black River State Forest Master Plan, Wisconsin Department

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19/ **State**: Black River Basin areawide water quality management plan, Wisconsin Department of Natural Resources, January 1980; Statewide comprehensive outdoor recreation plan, 1986-91, Wisconsin Department of Natural Resources, September 1985; Wisconsin water quality assessment report to Congress, Wisconsin Department of Natural Resources, April 1992; Wisconsin statewide comprehensive outdoor recreation plan for 1991-96, Wisconsin Department of Natural Resources, October 1991; Wisconsin's biodiversity as a management issue, Wisconsin Department of Natural Resources, May 1995; and Wisconsin's forestry best management practices for water quality, Wisconsin Department of Natural Resources, March 1995.

Federal: Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service, undated; The nationwide rivers inventory, National Park Service, January 1982.

of Natural Resources, February 1983; and North American waterfowl management plan: Upper Mississippi River and Great Lakes region joint venture implementation plan, U.S. Fish and Wildlife Service, March 1993. No inconsistencies were found.

IX. FINDING OF NO SIGNIFICANT IMPACT

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

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_____. 1996. Comments and recommendations for terms and conditions, Midwest Hydraulic Company, FERC Project No. 10805-002, Hatfield Hydro, Black River Falls, Wisconsin.

XI. LIST OF PREPARERS

Dr. Jennifer Hill -- Eight years' experience in assessing environmental impacts associated with hydroelectric developments (Fisheries Biologist, Ph.D., Fisheries Ecology).

James T. Griffin -- Twelve years' experience in assessing cultural resources impacts associated with hydroelectric developments (Archeologist, B.A., Anthropology, Master of Public Administration).

Mary Golato -- Fifteen years' experience in hydroelectric developments (B.S., General Studies--American Studies)

William Guey-Lee -- Registered Professional Engineer with 18 years of general engineering experience associated with hydroelectric developments (B.S., M.S., Aerospace Engineering, Engineer Degree, Civil Engineering).

Ed Lee -- Sixteen years' engineering experience associated with regulatory licensing of hydroelectric projects. Professional Engineer since 1976. (M.S., Civil Engineering).

Patti Leppert-Slack -- Twelve years' experience assessing environmental impacts associated with natural gas pipelines and hydroelectric developments (M.A., Recreation and Parks/Biology).

Christopher Metcalf -- Seven years' experience associated with conducting and evaluating environmental assessments for hydroelectric developments (B.S., M.S., Fish Biology and Management).

David Snyder -- Four years' engineering experience associated with evaluating hydroelectric project design, safety, economics, and operations (M.S., Civil Engineering).

XII. APPENDIX A: STAFF RESPONSES TO COMMENTS ON THE DEA

Comment letters to the DEA issued October 29, 1996, appear in the following order:

United States Department of the Interior, National Park Service (NSP)	December 2, 1996
Wisconsin Department of Natural Resources (WDNR)	December 2, 1996
Hoofer Outing Club (HOC)	December 3, 1996
Wisconsin Senator Brian Rude (Sen. Rude)	December 5, 1996
Mr. William H. Bast (Bast)	December 11, 1996
Mr. David Hoffman (Hoffman)	December 26, 1996
Mr. Duane W. Ring (Ring)	December 31, 1996

ORIGINAL

United States Department of the Interior

NATIONAL PARK SERVICE

December 2, 1996

L7619 (MWR-RTCA)
FERC Number 10805

Ms. Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

RE: Hatfield Hydroelectric Project, FERC No. 10805 -002

Dear Ms. Cashell:

We have reviewed the Draft Environmental Assessment (DEA) for Licensing the Hatfield Hydro Project, FERC Number 10805, on the Black River near Hatfield in Jackson and Clark Counties, Wisconsin. We have the following comments.

General Comments

NPS--1 The DEA refers to the National Park Service (NPS) and the Department of the Interior (DOI) as if they were two disjunct entities. Because the NPS is only one agency within the DOI, along with the U.S. Fish and Wildlife Service (USFWS) and several others, clarification is needed. Since 1992, all of the DOI/NPS comments regarding recreational facilities, recreational instream flow, and maintenance of a riparian buffer for this project have originated from the same source, the Rivers, Trails, and Conservation Assistance Program of the National Park Service. It was only in spring of 1996 that the DOI requested comments from all of its agencies, including USFWS, in response to FERC's Notice of Application for Subsequent License in order to consolidate all DOI comments into its April letter. Therefor, the document should be edited to reflect the fact that the specific recreation comments mentioned above did not originate from two separate sources but one, the National Park Service. This is particularly necessary when FERC staff recommends that the applicant consult with NPS and Interior regarding recreation issues when, due to staffing

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DEC - 9 1996

RESPONSE TO COMMENTS

NPS--1 We note that the Department of Interior (Interior) and National Park Service (NPS) filed with the Federal Energy Regulatory Commission (Commission) separate comment letters, which we cite in the draft environmental assessment (DEA). The parties agreed, in the Section 10(j) meeting held on January 13, 1997, that Midwest Hydraulic Company, Inc. (MHC) would consult with the NPS, the Wisconsin Department of Natural Resources (WDNR), and the Commission's Chicago Regional Office on recreational resources. MHC does not need to consult separately with Interior on recreation.

constraints within DOI, there exists only the one agency (NPS) with which to consult for this project. This error occurs on page 47 (3 times), 48 (2 times), 49-51 (revise Table 3), 52 (once), 56 (once), 57 (once), 63 (twice), and 64 (twice)

NPS--2 In addition, we recommend that FERC prepare a table indicating their staff recommendations similar to or in conjunction with the table indicating agency recommendations. This table would improve the ease with which comparisons are made and have been done in other FERC EA's.

NPS--2 See revised Table 3.

Recreation and Other Land Uses

NPS--3 As stated in the DEA the applicant, agencies, and NGO's collaborated in seeking flows in the bypass reach which would address economic, whitewater boating, and fisheries interests. These are described in the DEA and include specific rising and falling limbs associated with the releases which mimic the natural hydrograph of the watershed. We maintain our support for this decision to provide recreational flow releases on the third Saturday of each month April through August.

NPS--3 Comment noted.

NPS--4 We also support the applicant's decision and FERC staff's recommendation to construct, operate, and maintain the 8-10 space parking lot for access at the put-in along Clay School Road. However, the DEA includes our earlier statement that the informal trail to the put-in is near an eroding, 100-foot high, steep slope and states that formal public access would concentrate boaters into safely designed areas. It fails to state that all the parties involved recognize the unsafe condition of the trail and that the applicant has committed to work with the agencies in designing an alternative route away from the eroding slope. Therefor, this recommendation should be addressed by FERC and added to the text and to Table 3.

NPS--4 Comment noted. Regarding an alternative route for a section of the existing informal trail, see revised text in section 8.b.1 and revised Table 3.

NPS--5 In addition, the enhancements for the take out near the power house to which the agencies and the applicant have agreed have been omitted. These enhancements, most of which benefit both boating and tailwater fishing, include creating an 8-10 space parking lot, providing toilet facilities, removing the "No Trespassing" sign at the drive's entrance, and providing an adequate new take-out for boaters away and downstream from the power house. The NPS recommended that the applicant relocate the fencing around the power house and transformers for safety purposes and so that the tailwaters are available for shoreline fishing. All of these recommendations should be addressed by FERC and included in the text and tables of the Final EA. These enhancements should be included as elements of the recreation plan; planning for them should be undertaken in conjunction with the agencies.

NPS--5 We note that the recreation measures were included in the DEA, but we revised Table 3 to read more clearly.

Other Land Uses - Buffer Zone

NPS--6 The DEA states that Interior (actually NPS) recommends that a 200-foot riparian buffer zone be maintained on all riparian company-

NPS--6 See revised text in section 8.b 5.

owned properties for the duration of the license. The next sentence implies that the applicant assumes the recommendation has been made to acquire new riparian buffer land. This is not the case. The recommendation specifies the riparian protection apply to all riparian company-owned land (existing).

Environmental Enhancements

NPS--7 This last section which summarizes the EA omits the NPS from the entities recommending environmental enhancement measures. This should be corrected to include NPS.

Thank you for your interest in ensuring a balance among the many interests and resources surrounding hydropower relicensing. Should you have any questions, please contact me at 414.297.3605.

Sincerely,

Angela M. Torres

Angela M. Torres
River Conservation Coordinator

cc:

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NPS--7 See revised text in section V.B.

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RESPONSE TO COMMENTS

12-03-96 13:23 DEPT OF NAT RES

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State of Wisconsin — Department of Natural Resources

Box 7921, Madison, WI 53707
TELEPHONE 608-266-2621
FAX 608-267-3579
TDD 608-267-6897

December 2, 1996 IN REPLY REFER TO: 1600

Ms. Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1-A
Washington, DC 20426

FILED
OFFICE OF THE SECRETARY
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FEDERAL ENERGY REGULATORY COMMISSION

SUBJECT: Hatfield Hydro Project, FERC No. 10805-002, Comments on Draft Environmental Assessment (EA) and 10 (j) Preliminary Determination

Dear Ms. Cashell:

This responds to the above Federal Energy Regulatory Commissions' (Commission) draft EA (dated October 28, 1996) and your November 1 letter (Hill to Lovejoy) inviting comments and describing the Commissions' preliminary determination as to whether our licensing recommendations are outside the scope of Section 10(j) of the Federal Power Act.

Our review of the EA indicates that of the sixteen license articles recommended by the Department (letter dated April 15, 1996), eight were fully adopted, (#3, 4, 5, 6, 7, 8, 10, and 12), two were mostly adopted but need clarification (#9 and 11), four were partially adopted (#1, 2, 13, and 14), and two were rejected (#15 and 16), as follows:

WDNR--1 1. Dam Safety, Water Regulation

Partially addressed on EA pages 7 and 28-29.

We recognize and agree with pages 28-29 subject to prevailing Commission dam safety jurisdiction.

We do not agree with EA page 7 that it is the Commissions' decision whether or not a new 401 water quality certification (WQC) is needed or that our 1992 WQC addressed the newly proposed scope of change for the project canal repairs. On November 6, 1996, Midwest Hydraulic Company (MHC) submitted a new (additional) request for WQC for the canal relocation proposal. Our preliminary review indicates approval is likely and could be issued within 5-6 weeks after submittal and applicants' proof of public notice, (allows for 30 day public comment period). Expected conditions are that construction cannot proceed until after engineering plans and an erosion control plan are approved by the Department. These conditions are not substantially different than those

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WDNR--1 We have received the revised water quality certificate and are citing this document and its conditions in the FEA.

RESPONSE TO COMMENTS

the Commission proposes in EA pages 28-29 (dam safety plans) and pages 12-13 (erosion control plan for canal repair). Thus, our concern here is largely jurisdictional with respect to WQC authority.

Since NHC has applied for an additional WQC, and Department is expecting an approval consistent with proposed Commission licensing conditions, we believe the Commission should require NHC to comply with June 3, 1992, WQC conditions and whatever [illegible] conditions the Department issues with respect to NHC's new canal relocation proposal. If not, the Department requests Section 10(j) conflict resolution on this issue.

WDNR--2 3. Run-of-River Operations; Flowage and Power Canal Water Levels

Partially addressed on EA pages 18 and 22-27.

(a) Part 'd' of our recommendation (drought contingency) was adequately addressed on EA page 18.

(b) Part 'a' of our recommendation (power canal water level maintained at constant 879.0' elevation) was slightly modified on EA page 27 to be a Commission recommendation as a target 879.0' elevation while allowing for "minor" fluctuations recognizing equipment response tolerances. We agree that reasonable tolerances are allowable, but feel some quantifiable limit is necessary to ensure protection of aquatic habitat. We, therefore, recommend limits be imposed allowing a ± 0.1' range around 879.0' except for drawdowns, flood or drought conditions. For flood conditions, no limits are necessary. For drawdowns and drought conditions, other recommendations (#4 and 6 respectively) adequately address canal water level limits.

(c) For our recommendation part 'b' the Commission recommends, on EA page 23, a compromise flowage water level operating range of ± 0.5', with a "target" ± 0.25' range limit at least 90 percent of the time and with no allowable use of this range for peaking. It also recommends a report to the Commission with agency consultation after the first year of operation (we suggest the report be required no later than 6 months following one year operation) indicating the ability/feasibility of always staying within the ± 0.25' range. Licensee has said they are mostly confident they can operate within the ± 0.25' range. But, they want some latitude at start-up in the event unforeseen problems arise which would cause violations. We concur this is a fair compromise but we will want evidence in its first year report that licensee has made all reasonable efforts to stay within the ± 0.25' range.

(d) Part 'c' of our recommendation is not adequately addressed. EA page 23, second paragraph, suggests using reservoir water levels to monitor run-of-river compliance. In the next paragraph the Commission goes on to say operating in a run-of-river mode would minimize reservoir fluctuations and prevent large fluctuations in flow downstream that would be detrimental to aquatic resources. The Commission recommends, therefore, the project be operated run-of-river. We agree. On EA page 26 the Commission recommends NHC develop a gaging plan to ensure monitoring methods to verify (run-of-river) project operations. The discussion here continues that these methods are needed to "ensure

WDNR--2 (a) Comment noted.

(b) We agree that the power canal water surface elevation should be maintained at 879.0 ± 0.1 feet except for drawdowns, flood, or drought conditions.

(c) We appreciate Wisconsin DNR's agreement with our recommendation, and we agree that the licensee should be required to make all reasonable efforts to keep within the ± 0.25-foot range of flowage water surface elevation.

(d) Wisconsin DNR and FERC staff compromised on this issue in 10(j) negotiations. FERC staff agreed to recommend that the reservoir and power canal water surface fluctuation could not be used for peaking and pulsing purposes. Parties also agreed that the licensee should be required to use reservoir elevation and turbine operation records, along with data from the new powerhouse gage, to assess run-of-river operation, but to evaluate the success of meeting the intent of run-of-river operation after a full year's operational data are available.

compliance with run-of-river operations "... It is the Departments' position, and reason for recommendation 2.a., that adequate gaging will not ensure compliance. Maintenance of reservoir water levels will also not ensure compliance. Adequate monitoring will only provide information by which compliance can be determined. As the EA on page 34 points out, maintenance of reservoir water levels within a ± 0.25' range provides 450 acre feet of storage to "play" with (± 0.5' would be 900 acre feet). Even if not used intentionally for hydrogeneration at peak times of energy demand (and when energy prices are highest), unregulated "pulsing" use of such water storage could easily disrupt flows downstream such that the natural (i.e., inflow) hydrograph would be greatly disrupted. Associated large fluctuations downstream would result, as the Commission points out, in detrimental effects on aquatic resources.

MDDM - - 2 (d)

The Department does not feel Commission EA recommendations provide sufficient guidance to ensure canal water levels and run-of-river operations would be maintained, compliance easily determined or violations be enforceable. In support of our position we direct the Commission to consider another Commission project (No. 10078-014). As Rio Gallo hydro the Department and Commission enforcement staff argued before Commission Administrative Law Judge (ALJ) D. Harfeld that, among other things, run-of-river violations were occurring as a result of project operations. Evidence was submitted clearly showing the project repeatedly induced significant downstream flow fluctuations, sometimes completely shutting off flow and other times doubling or halving flows over one hour or less time period. The project exemption (issued 1987) contained similar run-of-river language as that we have proposed here (Article 2 - The project shall be operated as run-of-river such that instantaneous impoundment inflow equals instantaneous outflow released from either the powerhouse or dam). Exemptee argued they believed that controlling the head pond water level would ensure compliance with the run-of-river requirement. The ALJ considered the issue to be whether the exemption language provided sufficient guidance so exemptee could comply with the run-of-river guideline. In his 9/7/93 Initial Decision Imposing Civil Penalty (not yet affirmed by the Commission) ALJ Harfeld at page 16 found that the Commission, and the Department who filed a complaint, "collectively failed to promulgate concrete guidelines that would have made exemptees aware that they were violating the run-of-river operating condition." As a result the ALJ found that whether or not the exemptee did in fact comply did not need to be addressed.

We feel a measurable and quantifiable compliance standard is needed to avoid misunderstanding as to what exactly run-of-river means. We do not believe "target" or restricted "ranges" of water levels in the flowage and/or canal will restrict operations sufficiently to prevent significant downstream fluctuations that do not reasonably mimic the natural (inflow) hydrograph. We do not believe the Commission should unilaterally impose or the Department unilaterally recommend such a standard. We feel licensee should have the best knowledge of what its proposed equipment can achieve in terms of duplicating the inflow hydrograph in downstream discharges from the dam or generating units.

Accordingly, as stated in our recommendation 1.a., we believe the licensee should, prior to start-up and in consultation with the Department, develop for Commission review and incorporation as a license condition a measurable and quantifiable standard providing sufficient guidance to determine the conditions by which the project is or is not operating in a run-of-river mode.

If the Commission does not agree with suggested above changes, the Department requests Section 10(j) conflict resolution.

WDNR--3 | 3. Operational Compliance Monitoring

We concur with Commission recommendations on EA page 26.

WDNR--4 | 4. Reservoir and Canal Drawdowns

Concur with EA page 27.

WDNR--5 | 5. Backup Power Source

Concur with EA page 29.

WDNR--6 | 6. Drought Contingency Plan

We concur and support the Commission recommendation on EA page 19 that bypass channel flows never be allowed to drop below 9.0 cfs (or inflow if less) to protect water quality. This addition should be the #1 priority ahead of all those listed in our recommendation.

WDNR--7 | 7. Post-Operational Water Quality/Sediment Studies

Concur with EA page 18.

WDNR--8 | 8. Post-Operational Fish Stranding Evaluation

Concur with EA page 29.

WDNR--9 | 9. Fish Entrainment and Turbine Mortality

We concur provided the Commission recommendation on EA pages 31-32 is made clear that in addition to 1" trashracks at powerhouse and minimum flow unit intakes, the fish protection plan includes an evaluation of the need for fish exclusion devices at the canal headworks (gatehouse). If not, the Department requests Section 10(j) conflict resolution.

WDNR--10 | 10 Bald Eagle Management

Concur with EA page 36. In regards to licensees' recent canal relocation proposal, the Department does not expect adverse impacts to endangered, threatened or special concern species or other sensitive resources provided that the Bald Eagle Management Plan, as revised by FWS, is followed

RESPONSE TO COMMENTS

WDNR--3 Comment noted.

WDNR--4 Comment noted.

WDNR--5 Comment noted.

WDNR--6 Comment noted, and Wisconsin DNR's recommendation is revised in the FEA to address this concern.

WDNR--7 Comment noted.

WDNR--8 Comment noted.

WDNR--9 Wisconsin DNR clarified at the 10(j) meeting that a study was not needed, with the understanding that FERC staff recommend that one-inch trashracks be provided at the penstock intakes, bypass minimum flow turbine intake, and if so requested by the Wisconsin DNR in the future, at the power canal intake. We understand that trashracks at the power canal intake are not foreseen at this time.

WDNR--10 Comment noted.

Ms. Lois D. Cashell - December 3, 1996 5

WDNR--11 | 11. **Tailwater Recreation Warning System**

We concur provided the Commission recommendation on EA pages 52-53 is made clear that the warning system to be developed and implemented for tailwater areas includes the need for adequate advance warning measures in the bypass channel sections below the tainter gates and the overflow spillway (i.e., trip gate section).

WDNR--12 | 12. **Recreation Navigation Flow Releases**

We concur with EA pages 53-55. We support the proposed addition on EA page 55 for a 5 year reassessment of the continued need for these releases.

WDNR--13 | 13. **Recreation Facilities**

Partially addressed on EA pages 46-53, 64. On EA pages 48 and 64 the Commission disagrees, without reason provided, with our recommendation 13.d. for improved public access to the upper backwater. Though we haven't evaluated if this recommendation is outside the scope of Section 10(j), or perhaps that it more appropriately should be considered under Section 10 (a), we would appreciate some explanation as to why licensee would be required to develop other recommended facilities but not this one. Anticipating a possible answer that access to the upper backwater site is currently unavailable via other public or project lands, we know of no compelling reasons why licensee should not be required to acquire needed lands or rights to same for such access. The dam, levees, canal, etc. utilize public waters for project purposes. As such, consistent with the Federal Power Act and Amendments the project must balance power and non-power values. The canal and its backwaters are public waters created by the project. No readily useable public access to the upper backwater currently exists. We feel these waters should be made accessible, with suitable safety limits, for public use and enjoyment.

In any case, per our 11/6/96 telephone discussion with licensees' representative Mr. Andy Slyster, it was indicated that licensee has already made arrangements to secure rights for upper backwater access and development. We have not seen any documentation of this or indication that such rights would be permanent or the site perpetually maintained by license. Incorporation of this site, along with others, into the to-be-required recreation plan, would be an easy mechanism to require the upper backwater access be secured, developed, and maintained at least for the license term

Accordingly, we recommend the upper backwater access be required in the recreation plan. If not, we request additional discussion under whatever Commission conflict resolution mechanisms are available.

WDNR--11 Comment noted. Furthermore, in the Section 10(j) meeting, we stated that the details to the proposed alarm warning system for public safety would be coordinated primarily with the Commission's Chicago Regional Office. Furthermore, the recommended public safety measures would be contained in the required recreation plan.

WDNR--12 Comment noted.

WDNR--13 In the Section 10(j) meeting, the parties agreed that public access to the upper backwater area could be provided. Consequently, this additional recreation enhancement measure would be included in a required recreation plan. See revised text in section 8.b.1 and Table 3.

Ms. Lois D. Cashell - December 2, 1996 6

14. Land Management

Partially addressed on EA pages 12 and 34.

WDNR - 14a We could not find anywhere in the EA that licensee would be required to retain ownership of all project lands. We concur with the recommendation on EA page 34 that licensee develop and implement a land management plan. We will seek to incorporate project land ownership retention as part of that plan.

WDNR - 14b The EA addresses erosion control in several places (pages 34 and 43), but primarily on pages 12-13. Commission recommendations on page 13 are unclear if they apply only to canal repairs or if they also apply to other project repairs/renovation and to any other severely eroding shorelines on licensee - owned lands/shorelands, even those where no new construction is proposed (our recommendation 14.b.). If it is the Commissions intent to include all project severely eroding lands/shorelands in the erosion control plan, this should be clearly stated as a license condition. If not, the Department requests Section 10(j) conflict resolution.

WDNR--15 15. Macrophyte Survey

On EA pages 30-31 and 63 the Commission does not agree with our recommended three year post-licensing macrophyte survey. In its analysis the Commission failed to note the paucity of flowage macrophytes, and thus the absence of associated benefits to the aquatic system, may be related to historic hydropower managed lake levels and drawdowns. The purpose of the survey would be to evaluate if the license required water level range (target ± 0.25', part time allowance of ± 0.50', one year evaluation), would benefit macrophyte growth or if alternative water level controls (or other remedial measures) are necessary and should be proposed for a subsequently revised license condition(s). The 1991 pre-operational survey established a baseline condition. The follow-up survey will be used to evaluate project-induced impacts (+ or -) on the macrophyte community. In this respect, we feel the survey is a specific measure to provide project influence information necessary to protect aquatic fish and wildlife resources. We also see no appreciable difference from this study and post-licensing studies at other projects to document new project effects on fish entrainment or effectiveness studies at existing projects after fish exclusion devices are installed.

We'd also point out, as the Commission has demonstrated in its economic analysis on EA pages 57-61, that the annual value of power at the project exceeds the annual cost to generate power by $50,000. Even with annual $21,000 costs for other environmental enhancements recommended by the Commission (Table 3), the annual net benefit is still $29,000. The estimated one-time $600 cost of the macrophyte survey would reduce project revenues over a 30 year license term by less than 0.07 percent.

WDNR - 14a As discussed in the Section 10j meeting, transfer of project lands by the licensee, would be governed by the Commission's standard "3-page land use article", included in all licenses, and subject to certain environmental restrictions.

WDNR - 14b The staff's recommendation for applicant to prepare a soil erosion plan, applies to all project lands. See text revisions in section IV.C.1.b

WDNR--15 During 10(j) negotiations, Wisconsin DNR agreed to withdraw this recommendation and conduct the study itself. FERC staff clarified for Wisconsin DNR that our estimated cost of the study is on the order of $5,000, with an annualized cost of about $600.

Ms. Lois D. Cashell - December 2, 1996 7

Unless the Commission changes its position to require this survey as a license condition, we request Section 10(j) conflict resolution on this issue.

If so required, the Department would cooperate and provide technical assistance in the survey as we did in the 1991 survey.

WDNR - 16 | 16. Project Maintenance and/or Retirement Fund

This recommendation was rejected on EA pages 64-65. The EA points out that Howard Energy Company, partner to Midwest Hydraulic, has substantial financial assets. The Department would probably not be so concerned if the Hatfield Hydro Partnership, (Howard Energy and Midwest Hydraulic) were both license co-applicants. That was also the major concern expressed at the June 1996 public scoping meeting. Since MHC is sole applicant, if there were post-licensing problems at Hatfield there is no assurance we are aware of that: 1) Midwest Hydraulic has the financial resources to deal with the problem; or 2) that Howard Energy would be in any way liable for remediation and/or damage.

To avoid an impasse on this, we refer you back to statements made on behalf of Howard Energy by its representative, Mr. Greg Blanche, at the 6/3/96 scoping meeting. Mr. Blanche indicated, to alleviate public uneasiness regarding license financial responsibility, that after licensing the partners would consider seeking Commission approval to transfer the license from MHC to Hatfield Hydro Partnership.

Accordingly, absent a Commission required project maintenance/retirement fund, we recommend Midwest Hydraulic and Howard Energy, within no more than 180 days after license issuance, petition the Commission to become co-licensees. Justification for this recommendation is so that licensee can demonstrate its financial ability to operate and maintain the project throughout the license term.

If the Commission still is not moved to find ways to satisfy our concerns here, the Department requests a license condition be added that any future application to transfer the license shall include proof of service of a complete copy of the application to the Department. We have several reasons in support of this position.

The Department is concerned about the possibility that the applicant will decide to transfer the license to another party or retire the project should the economics of the project prove to be unfavorable. Uncertainty in the electric industry at this time increases the potential for costs to rise in the future, thus making this project uneconomical.

Change in the financial status of this project may lead the Licensee to dispose of the project. A potential purchaser may not be financially capable of operating and maintaining the project in compliance with the FERC license. The Department is concerned that the costs associated with eventual decommissioning of the project could be passed to the

WDNR - 16 Comment noted. As noted in the Section 10j meeting, staff recognizes that WDNR has approved the sale of the dam from Northern States Power to Hatfield Hydro Partnership (Hatfield), rather than Midwest Hydraulic Co (MHC). The approval is contingent upon Hatfield obtaining a license, which both Hatfield and MHC has agreed to do via a license transfer. Staff acknowledges such a "side agreement" exists, but the Commission cannot require such a transfer as a condition of the license.

Staff will recommend that the license include a condition stipulating that WDNR be served with a copy of any future license transfer application.

See text revisions under section on Project Decommissioning.

Ms. Lois D. Cashell - December 2, 1996

citizens of the state. Therefore, we want to make sure that we have ample opportunity to review any proposed transfer of license.

WDNR - other | Other Comments on the Draft EA

- We believe short-term, minor soiled erosion and sediment loss (EA page 13) or no appreciable adverse water quality impacts (EA page 16) would result from construction activities but only if improvements are appropriately designed (i.e., engineered) and erosion control plans are developed and implemented.
- The Hatfield Sanitary Districts' wastewater treatment plant has been operational since 1992 (EA pages 15, 17, and 26).
- On EA page 21, we know of no post-operational fish community assessments MHC proposes or the Department recommends. Such surveys are no longer necessary since a decision was made to conduct the 1996 IFIM study.
- EA pages 27 and 30 make conflicting statements regarding if the canal is more aesthetically pleasing when drained or after it is rewatered.
- EA page 61 refers to the location of the bypass channel minimum flow unit. Licensee is aware, as should be the Commission, of the Departments' strong preference that this unit be located so as the minimum flow is discharged to the dam tailwater pool immediately downstream of the trip gate section (as opposed to the channel below the tainter gate section). This is due to suitable pool depths here which provide productive fish habitat and established public fishing use. The rocky channel below the tainter gate section provides no such habitat or use demand even if the minimum flow were to be released there.

The Department appreciates the opportunity to provide comments on the draft EA and Commissions' interpretation as to the applicability of Section 10(j) of the Federal Power Act. Thank you, in advance, for consideration of our comments.

Sincerely,

Tom L[illegible]

Thomas A. L[illegible]
Environmental Impact Coordinator

c Dr. Jennifer Hill, Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, DC 20426
Mr. Andrew Slystra, Midwest Hydraulic Company, P O Box 1078, Holland, MI 49422
Mr Greg Blanche, Petrostar Energy, 13561 West Bayshore - Suite 3000, P O Box 2410, Traverse City, MI 49684

WDNR - other Comment noted.

See text revisions in section 6.a.

Re: Lois D. Cashell - December 2, 1994

Re. Cathy Carnes, USFWS - Green Bay Field Office, 1015 Challenger Court, Green Bay, WI 54311
Re. Angie Tornes, National Park Service, 310 W. Wisconsin Avenue, Room 900, Milwaukee, WI 53202
Re. Dorothy Hoehn, Hatfield Sportsmen Club, N-439 Arnold Creek Road, Merrillan, WI 54754
Mr. Robert Hess, Jackson County Parks and Forestry Department, Courthouse, 307 Main Street, Black River Falls, WI 54615
Mr. Tom Lister, 920 Fillmore Street, P O Box 370, Black River Falls, WI 54615
Mr. Bill Bost, 444 Main Street, Suite 312, LaCrosse, WI 54601
Mr. Mark Neil, Clark County Forest Administrator, Courthouse, Neillsville, WI 54456
Senator Russ Feingold, 517 E. Wisconsin Avenue, Room 408, Milwaukee, WI 53202 Attn: Jori Gabrielsen
Senator Herb Kohl, 14 W. Mifflin Street, Suite 312, Madison, WI 53703
Representative Steve Gunderson, Box 847, Black River Falls, WI 54615
Senator Rodney Moen, 31st Senate District, P O Box 7882, Madison, WI 53707-7882
Senator Brian Rude, 32nd Senate District, 115 5th Avenue South, Suite 414, LaCrosse, WI 54601 Attn: Cathy Granger
Representative Terry Musser, 97nd Assembly District, P O Box 8953, Madison, WI 53708
WD Review Team (A. Bornhardt, P. LaLiberte, B. Garman, E. Bourget, B. Sorge)
SRF Review Team (T. DeBroe (file), K. Jones, J. Talley)
B. Booth - HCD
J. Cole/B. Sturtevant - WE/6

ORIGINAL

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FEDERAL ENERGY
REGULATORY COMMISSION

718 S. Orchard St.
Madison, WI 53703
voice/fax 608-256-9260
3 Dec 1996

Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Dear Secretary Cashell:

We have recently reviewed the Draft Environmental Assessment for Hydroelectric Licensing of the Hatfield Hydro Project (FERC Project No. 10805) dated 28 Oct 1996. We would like to comment on the proposal to enhance whitewater boating opportunities on the river. We are particularly concerned with the opinion expressed by some at the public scoping meeting held on 5 June 1996 that whitewater recreational boating was not needed at the Hatfield Project.

HOC--1 In the past, boating was normally not possible in the 3-mile-long bypassed reach of the river below the Hatfield Dam. With the power plant currently not in operation, snow-melt in early spring can provide enough water for a truly exceptional whitewater boating experience. The Black River is 2 hours from Madison, Wisconsin. It is also the closest whitewater to the Chicago area. Currently the river has the most consistent high flows in spring during snow-melt, making it safe only to experienced boaters with specialized gear. The proposed release schedule will allow boating groups in the area to bring beginners to the river for instruction when water temperatures permit greater safety. Usage of the river by recreational boaters will definitely increase as the river is one of the best places in the area to instruct beginners.

HOC--2 The ability to assess water level in the bypassed reach both remotely and on site would be extremely useful. Having this information available on an "800" toll-free line 24-hours a day is an excellent idea. I would also like to suggest that information be made available on the World Wide Web. The USGS already provides river flow information through the Internet, making it easily accessible to whitewater boaters—several clubs and boat stores currently have Internet access. Please address correspondence to Thomas O'Keefe at the above address.

Sincerely,
Members of the Hoofer Outing Club:

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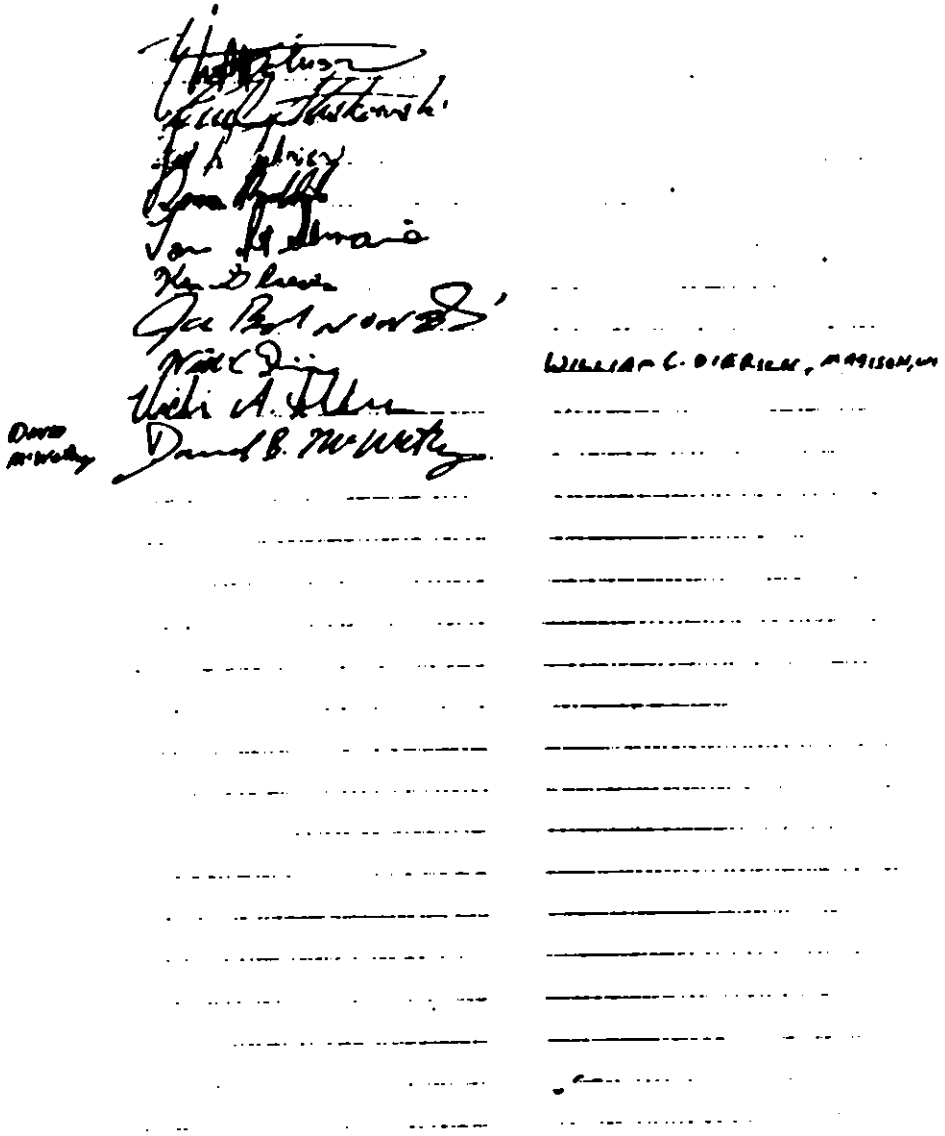
HOC--1 Comment noted.

HOC--2 Comment noted.



ORIGINAL

WISCONSIN SENATE PRESIDENT
SENATOR BRIAN D. RUDE

December 5, 1996

Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1-A
Washington, DC 20462

RE: Hatfield Hydro Project, FERC # 10805-002
Draft Environmental Assessment and Preliminary Determination

Dear Ms. Cashell:

Sen. Rude

I represent constituents in the 32nd Senate District, State of Wisconsin, who own property on Lake Arbutus. I have been closely following the transfer of ownership of the Hatfield Dam and have met on several occasions with property owners, the Wisconsin Department of Natural Resources and federal legislators and officials regarding a serious concern we all have involving the financial assets of Midwest Hydraulic.

I urge you to reconsider your rejection of a project maintenance and/or retirement fund which would assure property owners that the Hatfield Dam would be maintained in the event that Midwest Hydraulic was no longer able or willing to continue operations, OR

Require Midwest Hydraulic and Howard Energy to apply to the Commission within a designated amount of time after license issuance to become co-licensees. This would assure financial responsibility and alleviate the public's uneasiness regarding the future of the dam and the lake.

Thank you for the opportunity to comment.

Regards,

BRIAN D. RUDE
STATE SENATOR

BDR/CMD:co

9612130446

State Capitol, P.O. Box 7882, Madison, WI 53707-7882
(608) 266-2253 FAX: (608) 266-7038 Toll Free Hotline: 1-800-362-9472

Sen. Rude - Comment noted. Further, during the Section 10j meeting, staff stated it is willing to acknowledge that a "side agreement" between MMC and Hatfield Hydro Partnership to become co-licensees can exist outside the scope of the license, but that the Commission cannot include a license condition requiring a license transfer to a third party.

See text revisions under section on Project Decommissioning.

ORIGINAL

William M. Bast
444 Main Street Suite 212
La Crosse, WI 54601
(608) 782-7723 Fax (608)782-7711

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FEDERAL ENERGY
REGULATORY COMMISSION

December 11, 1996

Ms. Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street NE Room 1-A
Washington DC 20426

SUBJECT: Midwest Hydraulic Company, Inc.
Project No 10805-002 Comments on Draft Environmental Assessment

Dear Ms Cashell,

Bast - 1 This letter responds to the Draft Environmental Assessment (the "DEA") of the Federal Energy Regulatory Commission (the "Commission") dated October 29, 1996, concerning the application by Midwest Hydraulic Company ("MHC") for a license for the Hatfield Hydroelectric Project (the"Project"). The DEA contains many provisions relating to the protection and enhancement of environmental, recreational and other resources. However, the DEA contains no evidence that MHC has or will have the financial ability to comply with these provisions.

Bast - 2 By way of background, the Project facilities were owned and operated for many years by Northern States Power Company ("NSP"). They were transferred from NSP to Hatfield Hydro Partners ("HHP") under a contract which called for reversion of ownership to NSP if HHP does not receive a commission permit to operate the facility by a date specified (and subsequently extended).

In Wisconsin, ownership, operation and transfer of a dam are governed by a body of statutes and regulations. It is my understanding that the provision in the transfer contract providing for reversion to NSP was inserted at the insistence of the State as a condition of its approval of the transfer. The DEA makes no mention of, and therefore does not appear to be cognizant of the fact that the applicant (MHC) does not own the project facilities. On what basis will they operate the Project? Will they lease the facilities? If so, from whom? On what terms? Does this affect the economic analysis? Since HHP has not even applied for a permit will this mean the ownership of the Project facilities will revert to NSP because of the failure of HHP to obtain a Commission permit by the extended date specified in the contract of transfer?

While the above issues may be considered technical and not substantive, they indicate a lack of distinction in the DEA between HHP and MHC. In the section of the DEA responding to the Wisconsin DNR recommendation for a

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RESPONSE TO COMMENTS

Bast - 1 The costs of environmental measures, including recreation facilities and lost energy due to minimum flow requirements, are considered in the economic analysis for the project.

Bast - 2 Comment noted. Ownership of project facilities is not a prerequisite for license issuance. Licensee has 5 years to obtain all necessary property rights. Acquisition costs, if known, are usually included in any economic analysis. Further, during the Section 10j meeting, staff stated it is willing to acknowledge that a "side agreement" between MHC and Hatfield Hydro Partnership to become co-licensees can exist outside the scope of the license, but that the Commission cannot include a license condition requiring a license transfer to a third party. Additionally, Hatfield and MHC stated they would ask for an extension of time of the WDNR permit approval, if needed.

See text revisions under section on Project Decommissioning.

project maintenance and decommissioning fund, the DEA states "Howard Energy Company, MHC's partner, has substantial financial assets." While Howard Energy is a partner with MHC in HHP, it is MHC not Howard Energy or HHPthat is the license applicant. In that same section of the DEA it states "...the Commission [has] determined that a licensee is responsible for project decommissioning..." There is no evidence that Howard Energy has any financial interest in or commitment to the licensee MHC. Nor would the provisions of the license, including responsibility for decommissioning, be binding upon Howard Energy Company.

There is no evidence in the DEA that MHC has the financial resources to carry out its obligations under the license, including responsibility for decommissioning. Efforts to obtain financial information on MHC from public sources have been unsuccessful. Its net worth may be zero, negative or positive. There is certainly no evidence of sufficient resources to contend with a problem such as that resulting from the June 1995 flood.

The DEA states "There is nothing to suggest that MHC is not committed... to the project...MHC has already spent substantial monies ..." While we do not contend that MHC lacks commitment, there is no evidence to support the inference of the DEA that such commitment exists. The expenditure of money does not support that inference in the absence of knowledge concerning the source of the money or the terms under which it was obtained. Further, in assessing the need for provisions insuring financial responsibility, the issue is not, as stated in the DEA "the mere fact that one company has smaller financial assets than another .." it is whether the financial assets are adequate. Commitment is not the same as ability.

The purpose of these comments is not to seek to deny a license to MHC. Rather it is to seek to augment the terms of that license to insure that a financially capable party retains responsibility for facilities maintenance, safe operation and potential decommissioning. The DEA does not accomplish this objective:

- There is no evidence MHC is financially capable

- Howard Energy assets are not subject to the license conditions and obligations. In addition Howard Energy has the demonstrated ability to shield its assets from potential liabilities. According to reports by Dun & Bradstreet, Howard Energy has three subsidiaries involved in energy related activities. Two of these are reported to have negative networth and the third "Net worth unavailable."

The proposed recommendation in the DEA that MHC "demonstrate that it has sufficient resources to complete construction of the project" is inadequate. It is subsequent safe operation, maintenance compliance with permit requirements and potential decommissioning that must be assured.

The objectives of the commission as set forth in the DEA and the objectives of these comments could both be met by either:

1.Having ownership of the Project facilities revert to NSP under the reversion provisions of the transfer contract, and the issuance of a permit to operate the project to MHC under terms of access to the facilities which do not materially alter the economic analysis. It might be noted that NSP has recently offered for sale land adjoining or near the impoundment for aggregate proceeds which exceed the capital improvement estimate in the DEA); or

2. Having Howard Energy Company and its parent company Howard Publications, Inc. guarantee the obligations of the licensee including dam safety and decommissioning;

Thank you for your consideration.

William H. Best

WHB:jsb

CC: Wisconsin Dept of Natural Resources
Office of Senator Russell Feingold
Office of Senator Herb Kohl
State Senator Brian Rude
State Senator Rodney Moen

RESPONSE TO COMMENTS

ORIGINAL

[illegible]
[illegible] STREET, LA CROSSE, WI [illegible]
[illegible]

December 31, 1996

Ms. Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1-A
Washington, D.C. 20426

Re: Midwest Hydraulic Company, Inc.
Project No. 10805-002, WI, Comments on Draft Environmental Assessment

Dear Ms. Cashell:

This letter is in response to the "Draft Environmental Assessment" (DEA) that was issued by the Federal Energy Regulatory Commission (FERC) on October 28, 1996. The opportunity to provide feedback on the DEA is appreciated. My comments and concerns relating to the DEA are outlined below.

Ring - 1 | 1.) What is the compelling reason to grant a license to generate hydroelectric power prior to the repair work on the power canal? Since hydroelectricity cannot be produced until the power canal is fully repaired and operational, the issuance of a license to Midwest Hydraulic Company, Inc. (MHC) by FERC should not be granted until all of the repair work on the power canal is completed.

My concerns are not intended to prohibit the issuance of a license to Midwest Hydraulic Company, Inc. My primary concern is the continued existence of the Hatfield Dam and the continued safe generation of hydroelectric power.

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Ring - 1 An issued license is normally required before any construction work, including repair work, may begin. In this case, the Commission's Regional Office determined that, in the interest of public safety, the repair work should be done in an expeditious manner and was authorized under the Commission's safey regulations. The issuance of a license is not contingent upon completion of the repair work, as work on the power canal can be considered project development activities; it could be more efficient to perform repair work and development work concurrently.

ORIGINAL

December 26, 1996

Ms. Lois D. Cashell
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1-A
Washington, D.C. 20426

Re: Extension of DEA Comment Period - Project No. 10805-002

Dear Secretary Cashell:

As a property owner on Lake Arbutus in Hatfield, WI we have the following concerns:

Hoffman - 1 1. The financial stability of Hatfield Hydro Partners, Midwest Hydraulic Company and Howard Energy Company.

Hoffman - 2 2. If the Hatfield hydroelectric project gets a license to generate electrical power, Northern States Power should be still tied in with the responsibility of the dam upkeep as we the property owners bought our land as lake lots from them.

Hoffman - 3 3. Midwest Hydraulic should be responsible for providing some monies for public recreation on Lake Arbutus.

We feel that to be a successful project there must be enough financial backing to make it a success.

Yours truly,

David Hoffman

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RESPONSE TO COMMENTS

Hoffman - 1 See responses to WDNR - 16 and Bast - 2.

Hoffman - 2 The Commission does not have authority to require an entity, which is not a licensee for a particular project, to perform any actions for that project under a license issued to another party.

Hoffman - 3 The Licensee will be responsible for developing, implementing, and maintaining public access, recreation facilities, and public safety measures (as part of the required recreation plan to be filed under the license) for the project. The recreation plan would include development of recreation facilities and access at the gatehouse on Lake Arbutus, and would generally be funded by the Licensee. Please see text in section B.

inevitable that a class action lawsuit would be instituted for the value of the purchased lakebed lots plus the value of the improvements created on the property.

The DEA also stated that Howard Energy Company, Inc., MHC's partner, has substantial financial assets. Our concern is that the financial assets are contained within the parent company, Howard Publications, Inc., who is not a partner of the Hatfield Hydro Partnership and who has no binding legal or financial responsibilities to the Hatfield Hydroelectric Project.

I therefore respectfully request that a $1 million irrevocable letter of credit be required if the license is granted by FERC prior to the completion of all the repairs to the power canal. In lieu of the letter of credit, a personal guarantee of Howard Energy's parent company, Howard Publications, Inc., should be required to support the Hatfield Hydroelectric Project.

Ring - 4(4.) I want to also point out the fact that the applicant of the license to produce hydroelectricity, MHC, is not the owner of the Hatfield Dam. Since HHP are the owners of the dam, not MHC, it demonstrates to me that confusion exits within the DEA about who the owners/partners and license applicant are. The distinction between the two is of critical importance since it establishes who will

Ring - 4 See response to Bast - 2.

Ring - 2(2) At the time the Hatfield Dam was sold to the Hatfield Hydro Partnership (HHP), whose partners are comprised of Midwest Hydraulic Company, Inc. and Howard Energy Company, Inc., the State of Wisconsin required HHP to provide a $1.7 million letter of credit to assure that sufficient financial resources were available to perform the necessary maintenance and repairs to the power canal and dam that would allow hydroelectricity to be produced. Nothing has changed to eliminate the need for that requirement.

I recommend that the final environmental assessment require that this assurance of financial responsibility be provided by the company, MHC, to whom the license is granted. There is no evidence in the DEA that MHC has the financial resources to carry out its obligations under the license, including responsibility for decommissioning. Since no evidence exists to demonstrate that MHC has sufficient resources to deal with a problem like the one created by the June, 1993 flood, it seems reasonable that the license be granted conditioned upon MHC providing financial responsibility in the form of an irrevocable letter of credit in the amount of $1 million

Ring - 3(3.) It was stated in the DEA that if ownership of the dam was to revert to NSP, there is no assurance that NSP will continue to maintain the dam in the future. I would like to point out that NSP has developed and sold lots around Lake Arbutus which has generated several million dollars of income. Therefore, if NSP decided to request abandonment of the Hatfield Dam, in my opinion it is

RESPONSE TO COMMENTS

Ring - 2 Comment noted. Staff in the DEA has recommended that MHC be required to provide a financing plan to complete construction of the project. This could conceivably include activities related to bringing the project works up to the Commission's safety standards.

Ring - 3 Comment noted. See responses to WDNR - 16 and Bast - 2.

be financially responsible for the maintenance and operation of the dam.

The DEA states that FERC "will recommend that the Commission require MHC before the start of project construction to demonstrate that it has the resources to complete construction of the project." This could be accomplished by making the license contingent upon completion of all repairs to the power canal.

It appears to me that all governmental agencies , along with property owners on the lake, have the same interests, which are to ensure that the dam will be maintained in a safe and financially sound manner. Thank you for your time and consideration of my comments and recommendations. I have requested to be a participant in the January 13, 1997 conference call and commend you for soliciting additional input on this very important matter.

Sincerely,

Duane W. [illegible]

cc: Congressman-elect Ronald Kind
Office of Senator Herbert Kohl
Office of Senator Russell Feingold
George Meyer, DNR Secretary
Michael Cain, DNR Attorney
State Senator Brian Rude
State Senator Rod Moen
State Representative Terry Musser
State Representative DuWayne Johnsrud