

UNITED STATES OF AMERICA 61 FERC ¶ 61,066
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: James J. Hoecker, Chairman;
Vicky A. Bailey, William L. Massey,
Linda Breathitt, and Curt Hébert, Jr.

Wolverine Power Corporation) Project Nos. 2785-002,
008 and 009

ORDER ON REHEARING AND AMENDING LICENSE ORDER

(Issued October 16, 1998)

On December 1, 1987, the Acting Director, Office of Hydropower Licensing (Director), issued an original license to Wolverine Power Corporation (Wolverine) for the continued operation and maintenance of the 3.3-megawatt (MW) Sanford Water Power Project No. 2785, located on the Tittabawassee River in Midland County, Michigan. 11/ Requests for rehearing of the license order were filed by Wolverine, Dow Chemical Company, and the City of Midland, Michigan. 12/ On January 28, 1988, the

1/ 41 FERC ¶ 62,192. In 1976, 55 FPC 673, the Commission determined that the Tittabawassee River is a navigable waterway of the United States and that therefore Wolverine's four projects are required to be licensed. See Section 23(b)(1) of the Federal Power Act, 16 U.S.C. § 817(1).

2/ The pleadings were filed as appeals of staff action. See 18 C.F.R. § 385.1902 (1987) (converting pending appeals to rehearing requests). Wolverine accepted the Sanford license, while appealing certain of its provisions. Rehearing request at 3.

With their appeals, Midland and Dow also filed motions for late intervention and requests for extensions of time to supplement their appeals. These motions and requests have been granted. See Commission Secretary notice (unreported) and Commission staff letter to Midland, both dated September 1, 1988; and Commission order 45 FERC ¶ 61,310 (1988). Midland and Dow timely filed their appeals on October 31, 1988, and January 27, 1989, respectively.

The State of Michigan and the Michigan Department of Natural Resources (Michigan DNR) (referred to jointly as Michigan)

Commission stayed certain of the license articles pending action on three related Wolverine projects. 13/ This order acts on the rehearing requests, 14/ amends the license, and lifts the stay.

BACKGROUND

The Sanford Project is one of four existing, adjacent hydroelectric projects on the Tittabawassee River in Midland and Gladwin Counties, Michigan. Beginning furthest downstream, the projects are: the 3.3-megawatt (MW) Sanford Project No. 2785, the 4.8-MW Edenville Project No. 10808, the 1.2-MW Smallwood Project No. 10810, and the 1.2-MW Secord Project No. 10809.

jointly filed a late motion to intervene in the proceeding, which was granted by Commission Secretary notice dated April 25, 1990 (unreported).

3/ 42 FERC ¶ 61,192. The Commission stayed license Articles 401 (run-of-river operations), 402 (gaging), and 404 (recreational development, including reservoir elevation level schedules). Consequently, Wolverine's arguments on rehearing regarding the timing of compliance with Articles 402 and 404 are moot.

4/ Because on rehearing we are amending Sanford's mode of operation from what was required in the 1987 license order, a number of the rehearing arguments appear to be moot.

The 1987 Sanford license order was based on a 1987 Environmental Assessment (EA) of the Sanford Project. 15/ However, because the four projects are hydraulically and hydrologically interrelated, Commission staff has subsequently prepared a Multiple Project Environmental Assessment (MEA) that evaluates the impacts of all four projects on the environmental resources of the area. 16/ We have reviewed the non-final 1987 Sanford license in light of the MEA, and are amending the license as necessary to update our findings pursuant to the applicable public interest standards. 17/ We are concurrently issuing to Wolverine original licenses for the Edenville, Smallwood, and Secord Projects.

The license order for the Edenville Project No. 10808 addresses certain issues pertinent to all four projects, notably -operational modes, reservoir levels and fluctuations (including winter drawdowns), endangered species, and wildlife resources, and we incorporate those discussions by reference herein.

5/ The 1987 EA is published at 41 FERC at pp. 63,407-13.

6/ The 131-page (plus appendices) MEA was issued on August 14, 1998. Dow asserts that the Commission should have prepared an Environmental Impact Statement (EIS). The National Environmental Policy Act requires an EIS to be prepared whenever a federal agency is considering a major federal action significantly affecting the quality of the human environment. See 42 U.S.C. § 4332(2)(c). The Council on Environmental Quality's regulations implementing NEPA provide that an agency may prepare an environmental assessment in order to determine whether an EIS must be prepared. 42 U.S.C. § 1501.3-.4. In this proceeding, both the 1987 EA and the 1998 MEA made a finding of no significant impact (FONSI), and thereby discharged the Commission's NEPA responsibilities.

7/ See the equal consideration standard of FPA Section 4(e), 16 U.S.C. § 797(e), and the comprehensive development standard of FPA Section 10(a)(1), 16 U.S.C. § 803(a)(1). We are amending the Sanford license to include articles on erosion control, maintenance of water quality standards for dissolved oxygen and temperature, reservoir elevations and fluctuation limits, bald eagles, nuisance aquatic plants, and cultural resources. The MEA and the Project No. 10808 license order provide background information and support for these articles.

DISCUSSION

A. Mode of Operation

Wolverine has been operating the Sanford Project in a peaking mode since 1925. There is no minimum flow, and when the project is not operating the river below the dam receives only leakage flows of between 30 and 60 cubic feet per second (cfs).

The 1987 license required Wolverine to change project operation to a run-of-river mode, 18/ but this requirement was stayed pending rehearing. 19/

8/ Run-of-river is defined as instantaneous inflow equal to instantaneous outflow from the reservoir.

9/ See n. 3, supra.

Wolverine's 1983 license application proposed a minimum flow of 120 cfs, 110/ whereas Michigan DNR and the U.S. Fish and Wildlife Service (FWS) recommended that the project be operated in a run-of-river mode, in order to reduce the 5.4-foot daily fluctuations in the project tailwater, increase the fishery forage base, improve spawning habitat, and assist fish passage past the downstream Dow Chemical dam. 111/ The 1987 EA concluded that, while a 120-cfs minimum flow would increase somewhat the amount of downstream aquatic habitat over that available under peaking operations, run-of-river operation would provide a much greater overall benefit to the fishery resources. It also concluded that such operation would not result in a net change in overall project generation; on-peak generation would however decrease by 1,200,000 kilowatt hours (kWh). 112/

The 1998 MEA compared the amount of effective fish habitat provided by current flows, various minimum flows, and run-of-river conditions. The analysis shows that, as year-round minimum flows increase, enhancement to fish habitat increases. However, the incremental benefit of increasing minimum flows diminishes as the minimum flows increase. 113/ Operating the projects in a run-of-river mode would provide the greatest predicted fishery habitat. Using run-of-river results as the benchmark, the MEA calculated that the 120-cfs minimum flow at Sanford (proposed by Wolverine) would provide effective habitat of an average of 50 percent of the benchmark, while a 210-cfs minimum flow would provide an average of 68 percent of the benchmark. 114/

10/ Flows 0.25 mile below Sanford Dam would be 130 cfs, due to flows from a tributary.

11/ The Dow Chemical Company maintains a small impoundment about 12 miles downstream of Sanford. The minimum flow amendments we adopt today will increase the daily hours during which fish may successfully pass over this dam, which is the first barrier for fish migration upstream from Saginaw Bay.

12/ See the Safety and Design Assessment for the Sanford Project, 41 FERC at pp. 63,412-13. Corrections to this analysis are contained in the MEA.

13/ See MEA at 31, Figure 3.

14/ See MEA at 28-29, Table 2.

Current operation of the Sanford Project results in average annual energy generation of 9,210,000 kWh, worth about \$445,600. 115/ A change to run-of-river operation would reduce the average annual energy by about 2,058,872 kWh, or by a value of about \$145,500, which, together with an additional \$8,600 in annual O&M expense, would result in an annual cost of about \$154,100, making the net worth \$291,500, which is a 35 percent reduction from peaking mode. 116/ The annual lost energy cost of a year-round minimum instream flow of 210 cfs would be \$89,300 (a 20 percent reduction from current peaking operations).

The primary migratory game fish species of concern are walleye, white bass, smallmouth bass, and chinook salmon. 117/ The MEA therefore examined the energy generation cost of providing higher minimum flows from Sanford during the walleye spawning season, March 15 through April 30. It concluded that a 650-cfs minimum flow during this period would provide six times the habitat available under current peaking conditions, and 97 percent of the habitat available under run-of-river operations. 118/ The cost of a 650-cfs minimum flow instead of a 210-cfs flow during this period would average an additional \$5,500 annually. 119/ A minimum flow requirement of 650 cfs from March 15 through April 30 and 210 cfs the rest of the year would

15/ The description of the economic analysis, per Mead Paper Corp., 72 FERC ¶ 61,027 (1995), is set forth in the MEA at 103-04. Briefly, we used current costs only (except for major capital investments) to compare the cost of the project under various alternatives with the cost of a likely source of alternative power. Costs were annualized over 30 years, and a 10 percent discount rate was used. Net benefit is defined as the difference between the power value of project generation and the cost of owning and operating the project, including costs of amortized capital, O&M, and insurance. Power values were calculated using 53.7 mills/kWh for on-peak energy and 32.6 mills/kWh for off-peak energy, based on alternative combined-cycle combustion turbine generation and include both energy and capacity value.

16/ See MEA at 96, Table 16.

17/ Id. at 24-25, and 27.

18/ Id. at 28-32.

19/ Id. at 96, Table 16.

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result in a loss of about 950,000 kWh per year of energy generation. Under this regime, the project's annual power value would be \$363,000, its annual costs would be about \$97,000, and its annual net benefit would be about \$266,000. 120/

20/ Id. at 78-97.

In light of all of the above, we conclude that the agencies' recommendations for run-of-river operations are inconsistent with our balancing of beneficial public uses of the waterway under Sections 4(e) and 10(a)(1) of the FPA, 121/ in that they would significantly reduce the power value of the project but would not obtain concomitant environmental gains over and above the MEA-recommended flow regime. We are accordingly amending the Sanford Project license to require a minimum flow of 210 cfs, except for the period of walleye spawning, when the minimum flow will be 650 cfs.

In its comments on the Draft MEA, Wolverine expressed concern that any continuous instream flow requirement from the Sanford Project would cause winter gate-icing, affecting operations and potentially causing dam safety concerns. Because some form of outlet works modification may be necessary, and because installation of a low-flow turbine to capture the hydroelectric potential of the instream flow releases may prove feasible, we will give Wolverine six months to file a plan that identifies an appropriate release system, and an additional six months to construct or modify facilities once approved by the Commission. 122/

B. Impact on Downstream Effluent Discharges

21/ Id. at 111-16. The Section 10(j) meeting for the Secord, Smallwood, and Edenville Projects, held on August 9, 1994, included discussion of minimum flows at the Sanford Project.

22/ See amended Article 401.

Dow Chemical Company (Dow) operates a manufacturing plant, located about seven miles downstream from the Sanford Dam in the City of Midland, that discharges treated wastewater into the Tittabawassee River pursuant to an NPDES permit. 123/ Dow states that its plant depends on the Sanford Project's weekly peaking operation to comply with the discharge requirements of its NPDES permit. Whenever streamflow past its plant is below 300 cfs, Dow holds its treated effluent in a pond until flow releases from Sanford increase the streamflow to a level sufficient to meet the dilution requirements in Dow's NPDES permit. Dow asserts that a change in Sanford operation from peaking to run of river would reduce the amount Dow could discharge by from 10 to 15 percent, causing its holding pond to fill up and its plant operations to be curtailed, with concomitant socioeconomic impacts. 124/

The MEA examined Dow's submittals regarding the effect of Sanford operations on Dow's ability to discharge effluent. First, the MEA noted that the adverse effects on Dow's discharges of operating Sanford in a run-of-river mode were overstated, due to an earlier state error in estimating low-flow frequency. 125/ Second, if there is any need to change how Dow discharges effluents from its Midland plant in light of either a run-of-river or minimum-flow operation at Sanford, 126/ it will be to release lower concentrations over a longer time period. 127/ The

23/ National Pollutant Discharge Elimination System (NPDES) permits are issued by states pursuant to Section 402 of the Clean Water Act. Dow treats and discharges wastewater not only from its manufacturing plant in Midland but also, under contract, from three landfills, a benzene cleanup in Auburn, Michigan, and groundwater from the sites of regional brine spills. Rehearing request at 9-10; City of Midland's rehearing request at 19.

24/ Dow's rehearing request at 12.

25/ See MEA at 71-73.

26/ In comments on the draft MEA, Midland and Dow objected to the minimum flow recommendation for Sanford, but provided no data or analysis to demonstrate negative impacts on the discharges authorized by their NPDES permits.

27/ See Dow's rehearing request at 11-12 (conceding that under neither peaking mode nor run-of-river mode would the total dissolved solids concentration limits of the NPDES permit be exceeded); and Comment #27 in the Responsiveness Summary attached to the July 21, 1997 NPDES permit issued to Dow by

same is true for the City of Midland's NPDES-permitted discharges from its wastewater treatment facility below Sanford.

We conclude, based on the record in this proceeding, that implementation of the MEA-recommended operating regime for the Sanford Project will not have a significant adverse impact on the ability of Dow and the City of Midland to comply with their existing NPDES permits.

C. Flood Mitigation and Control

The City of Midland notes that it frequently experiences flooding, and is concerned that, without the ameliorative effect of Sanford's peaking operation, flood damage will increase, necessitating new flood control and mitigation measures.^{128/} To demonstrate the Sanford Project's flood control benefits, Midland filed with the Commission the U.S. Army Corps of Engineers (Corps) flood study for the City.^{129/}

Michigan Department of Environmental Quality.

^{28/} Rehearing request at 17.

^{29/} See Final Environmental Impact Statement (EIS), Flood Control on the Tittabawassee River at Midland, Michigan ("flood study"), prepared by U.S. Army Corps of Engineers (1980).

While we understand Midland's concern, there is no evidence that changes to Sanford's operational mode will have much effect on flooding patterns. The maximum usable storage 130/ for all four of Wolverine's hydroelectric plants on the Tittabawassee is about 18,000 acre-feet, which is only about one-tenth of the amount the Corps' flood study determined is required for meaningful flood control at Midland. 131/ **Moreover, to use even** the Sanford Project's 15,000 acre-feet for flood control, Sanford would have to increase reservoir and flow fluctuations, at the expense of the environmental and recreational values that the participants in the license proceeding seek to foster.

D. Dead Tree Removal

License Article 203 is a standard article which requires Wolverine to remove "all trees along the periphery of the project reservoir[] which may die during operations of the project." Wolverine argues that under this article it need remove only those trees that die as a direct result of project operation. Wolverine misreads the article: there is no predicate that the trees must die as a result of project operation. However, we note that we have interpreted this provision as requiring the removal of only those dead trees that pose a hazard to project operations, public safety, or navigation. 132/

E. License Term and Annual Charges

30/ Storage that can be regulated by means of the dam's gate structures.

31/ See Corps' flood study at 41.

32/ See, e.g., Wisconsin Electric Power Company, 76 FERC ¶ 61,183 at p. 62,021 (1996) (order on rehearing). Article 20 of the Wisconsin Electric license is published at 54 FPC 1817, 1823 (1975) (Form L-3), incorporated by reference, 72 FERC ¶ 62,190 at p. 64,520, ordering para. D (1995) (license order).

The 1987 Sanford license was backdated to 1962 and given a 20-year prospective term, pursuant to the license term policy then in effect for projects that were required to have been licensed years earlier. In 1992, we adopted a new policy for these projects, 133/ no longer backdating the licenses, and tracking our policy when issuing original licenses for new projects at existing non-federal dams: 30, 40, or 50 year terms, depending on the level of new construction, redevelopment, or environmental mitigation and enhancement. 134/ It is, however, also our policy to "coordinate the expiration dates of licenses to the maximum extent possible, to maximize future consideration of cumulative impacts . . . in contemporaneous proceedings at relicensing." 135/ We use our discretion to apply these two policies flexibly in a manner that makes sense according to the facts of each case. 136/ Here, in order to facilitate the Commission's future coordinated treatment of the hydrologically-related Sanford, Edenville, Secord, and Smallwood Projects, we are modifying the term of Sanford's license so that it will expire at the same time as the three upstream projects (September 30, 2028).

It is the Commission's long-standing policy that the owner of an existing project which should have been licensed earlier but was not, should not, by receipt of a license at a later date, be placed in a more favorable position, at least with respect to annual charges, than a project owner who filed an received a license in a timely manner. 137/ Accordingly, license Article 201 requires the Wolverine to pay a sum representing the annual administrative charges that would have been collected, had the Sanford Project been licensed when the project owner first should have sought and obtained a license. Under both prior and current policy, the Sanford Project, which is a pre-1935 project on a navigable water, would be assessed "in lieu" charges as of April 1, 1962. 138/

33/ City of Danville, Va., 58 FERC ¶ 61,318 at pp. 62,020-21.

34/ Id. The "environmental measures" element was added in 1994. See Consumers Power Co., 68 FERC ¶ 61,077 at p. 61,384.

35/ See 18 C.F.R. § 2.23.

36/ See, e.g., Consolidated Papers, Inc., 83 FERC ¶ 61,279 at p. 62,158 (1998).

37/ City of Danville, 58 FERC at p. 62,017.

38/ Id. at pp. 62,019-21.

On rehearing, Wolverine argues that it should be assessed "in lieu" charges for Sanford only back to February 1976, which is when the Commission issued its order requiring Sanford and the three upstream projects to be licensed. ^{139/} However, Wolverine's rehearing request reflects no awareness of the Commission's above-described policy, and gives no reason for why Sanford should not be bound by that policy, nor do we perceive any. Alternatively, Wolverine asks that it be required to pay "in lieu" charges at the rates in effect during the years in question. That is what Article 201 provides.

F. Effective-Date Issues

Noting that the December 1, 1987 order issuing the Sanford Project a license backdated the license's effective date to April 1, 1962, Wolverine asks for clarification that December 1987, not April 1962, is the effective date with respect to obligations under two license articles.

License Article 202 tracks Section 10(d) of the FPA in requiring Wolverine, after the first twenty years of licensed operation, to establish and maintain amortization reserves. ^{140/} By this rehearing order, we are revising the effective date of the Sanford license to its issuance date, December 1, 1987. In any event, we confirm Wolverine's understanding of the effective date of Article 202.

License Article 405 addresses the kinds of approval needed for certain types of non-project use, occupancy, or conveyance of project lands. Wolverine seeks clarification that the requirements of Article 405 are prospective from December 1987 only. Wolverine is correct in the sense that the license does not hold it accountable for pre-December 1987 approvals and regulation of non-project uses on project lands and waters, or past conveyances of land. However, this is not to say that Wolverine might not be required to file for Commission approval a

^{39/} See n. 1, supra. Wolverine has paid the "in lieu" portion of its annual charge assessment under protest. Accordingly, its payment has been placed in a suspense account pending resolution of the rehearing request.

^{40/} See 16 U.S.C. § 803(d). The amortization reserve is an obligation to reduce the licensee's cost base in case, e.g., its property should be taken over by the United States upon expiration of its license.

land use plan to govern future approvals and regulations, or to acquire for inclusion in the project boundary lands that the Commission might determine, after notice and opportunity for hearing, are necessary for project purposes.

The Commission orders:

(A) The requests for rehearing filed in this proceeding by Wolverine Power Corporation, Dow Chemical Company, and the City of Midland, Michigan, are granted to the extent provided in this order, and in all other respects are denied.

(B) The January 29, 1988 stay of Articles 401, 402 and 404 of the license issued on December 1, 1987, for the Sanford Project No. 2785 is lifted, effective as of the date of this order.

(C) The first sentence of Ordering Paragraph (A) of the license issued to Project No. 2785 on December 1, 1987, is amended to read as follows:

This license is issued to Wolverine Power Corporation (Licensee) for a term effective December 1, 1987, and expiring on September 30, 2028, to operate and maintain the Sanford Water Power Project.

(D) License Article 401 is amended to read as follows:

Article 401. The Licensee shall release from the Sanford Water Power Project into the Tittabawassee River a minimum flow of 210 cubic feet per second, as measured immediately downstream of the project, for the protection and enhancement of fish and wildlife resources, riparian vegetation, aesthetic resources and water quality in the Tittabawassee River. The Licensee shall release 650 cubic feet per second during the walleye spawning season from March 15 through April 30 each year.

These flows may be temporarily modified if required by operating emergencies beyond the control of the Licensee, and for short periods upon agreement between the Licensee, the Michigan Department of Natural Resources, and the U.S. Fish and Wildlife Service. If the flow is so modified, the Licensee

shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Within six months from the date of issuance of this order, the Licensee shall file for Commission approval a plan to evaluate and identify an appropriate continuous release system at Sanford Dam.

The Licensee shall prepare the continuous release system plan after consultation with the Michigan Department of Natural Resources and U.S. Geological Survey. The Licensee shall allow a minimum of 30 days for the consulted agencies to comment and make recommendations on the plans before filing them with the Commission. The Licensee shall include with its filings documentation of such consultation including copies of the comments and recommendations on the proposed plans during consultation. Further, the Licensee shall identify in its filings how the comments or recommendations are accommodated by the proposed plans. 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 reasonable changes in the plans. Upon Commission approval, the Licensee shall implement the plan and construct or modify the facilities as approved by the Commission within six months.

(E) The first sentence in License Article 402 is revised by changing the reference to article 404 to 411.

(F) Article 404 is revised to read as follows:

Article 404. Within one year of the date of issuance of this order, the Licensee shall file for Commission approval a recreation plan for the Sanford Project. The Commission reserves the right to make changes to the plan.

The plan shall be prepared in consultation with the Michigan Department of Natural Resources and shall include the following:

- (1) Development of public access to the reservoir and to the downstream Tittabawassee River;

- (2) The short- and long-term need for recreational facilities and a timetable for their construction;
- (3) Installation of signs that identify all recreational facilities and access at the project;
- (4) Functional design drawings, costs for the improvements to, or construction of, recreation facilities; and
- (5) A schedule for completing construction of the required facilities within three years of issuance of this order.

The Licensee shall include with the plan documentation of agency consultation, copies of comments and recommendations on the completed plan, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of thirty 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.

(G) The following Articles are added to the license issued for the Sanford Project No. 2785:

Article 406. Within six months of the date of issuance of this order, the Licensee shall file for Commission approval a plan for erosion control in order to minimize shoreline erosion and bank instability occurring in the project reservoir and the river area downstream from the project dam and tailrace. Erosion control measures in the plan shall adhere to the most recent version of the Michigan Department of Transportation standards, and shall be designed to allow pedestrian access while providing long-term stability.

The plan shall include at a minimum:

- (1) a summary description of existing erosion control measures;
- (2) a description of measures to monitor shoreline erosion and bank instability caused by project operations;

- (3) descriptions, functional design drawings, and topographic map locations of proposed new and enhanced control measures;
- (4) a description of how the control measures will allow pedestrian access while providing long-term stability;
- (5) identification of the Michigan Department of Transportation standards used, and description of how the pertinent standards would be adhered to;
- (6) an implementation schedule;
- (7) provisions for the Licensee's periodic review and revision of the plan; and
- (8) provisions to provide the results of its monitoring program to the Michigan Department of Natural Resources, other agencies, and property owners upon request.

The Licensee shall prepare the plan after consultation with the Michigan Department of Natural Resources and the U.S. Natural Resources Conservation Service. The Licensee shall include with the plan, documentation of consultation, copies of comments and recommendations on the completed plan, and a specific description of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

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

Article 407. The Licensee must implement all reasonable and prudent measures to ensure that the following water quality standards are met whenever

inflows to the projects are greater than or equal to the 95-percent exceedance inflow:

- (1) Dissolved oxygen (DO) concentrations in the project's tailwaters not less than 5 milligrams per liter (mg/l) at all times; and
- (2) monthly average temperatures downstream from the project no greater than:

January	-----	42°F
February	-----	41°F
March	-----	53°F
April	-----	67°F
May	-----	78°F
June	-----	85°F
July, August	-	86°F
September	----	80°F
October	-----	69°F
November	-----	56°F
December	-----	44°F

These monthly average temperatures may be exceeded for short periods when natural water temperatures measured upstream of the project exceed the ninetieth percentile occurrence of water temperatures (i.e., the monthly average temperatures cited in item No. 2 minus 5°F).

Within six months of the date of issuance of this order, the Licensee shall file for Commission approval a plan to monitor, and mitigate if necessary, dissolved oxygen (DO) and temperature levels of the Tittabawassee River downstream from the Sanford Project. The plan shall include provisions for: (1) monitoring of DO and temperature downstream from Sanford Dam with the sensor locations and monitoring frequency determined in consultation with the Michigan Department of Natural Resources (Michigan DNR) and the U.S. Fish and Wildlife Service (FWS); and (2) a description of operating procedures developed in consultation with Michigan DNR and FWS to alleviate water quality conditions which deviate from the above limits.

The Licensee shall prepare the plan after consultation with the Michigan Department of Natural

Resources and the U.S. Fish and Wildlife Service. The monitoring plan shall include a schedule for:

- (1) implementation of the program within twenty-four months from the date of issuance of this order;
- (2) consultation with the Michigan Department of Natural Resources and the U.S. Fish and Wildlife Service 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, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of thirty 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 408. Within one year of the date of issuance of this order, the Licensee shall file for Commission approval a Bald Eagle Management Plan to protect the federally listed as threatened bald eagle (Haliaeetus leucocephalus) and its habitat. The plan shall be developed in consultation with the U.S. Fish and Wildlife Service and the Michigan Department of Natural Resources, and include, but not be limited to the following:

- (1) The results of a winter and breeding season survey of bald eagles and a bald eagle habitat assessment of project lands and waters, including descriptive and mapped identification of existing and potential future eagle perching, roosting, nesting, and foraging habitat areas;
- (2) A proposed protocol and an implementation schedule for an ongoing bald eagle monitoring program;

- (3) Specific measures to maintain and protect existing and potential eagle habitat areas on project lands and waters, including an implementation schedule;
- (4) Specific measures to maintain and protect bald eagle perch and roost trees on Licensee-owned project lands, including an implementation schedule; and
- (5) Procedures for notifying the Commission if potential adverse affects to eagles or their habitats arise as a result of project operation or activities on project lands or waters.

The Licensee shall include in the plan documentation of consultation, copies of agency comments and recommendations on the completed plan, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of thirty 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.

Article 409. Within six months of the date of issuance of this order, the Licensee shall, in consultation with the Michigan Department of Natural Resources, file for Commission approval a plan to monitor purple loosestrife and Eurasian watermilfoil in project waters. The Commission reserves the right to require changes to the plan.

The plan shall include, but not be limited to:

- (1) a description of the monitoring method;
- (2) a monitoring schedule;
- (3) a schedule for providing the monitoring results to Michigan DNR;
- (4) documentation of agency consultation, including copies of comments and recommendations on the completed plan; and
- (5) specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of thirty 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.

If at any time during the period of license, the Michigan Department of Natural Resources demonstrates that purple loosestrife or Eurasian watermilfoil is significantly affecting fish and wildlife populations at the project and that control measures are needed, and the Commission agrees with those determinations, the Commission may require the Licensee to cooperate with Michigan DNR and to undertake reasonable measures to control or eliminate the weeds in project waters.

Article 410. The Licensee, before starting any land-clearing or land-disturbing activities within the project boundary, including recreation developments at the project, shall consult with the State Historic Preservation Officer.

If the Licensee discovers previously unidentified archeological or historic properties during the course of constructing or developing project works or other facilities at the project, the Licensee shall stop all land-clearing and land-disturbing activities in the vicinity of the properties and consult with the State Historic Preservation Officer.

In these instances, the Licensee shall file for Commission approval a cultural resource management plan (plan) prepared by a qualified cultural resource specialist after having consulted with the State Historic Preservation Officer. The plan shall include the following items: (1) a description of each discovered property indicating whether it is listed on or eligible to be listed on the National Register of Historic Places; (2) a description of the potential effect on each discovered property; (3) proposed measures for avoiding or mitigating effects; (4) documentation of the nature and extent of consultation; and (5) a schedule for mitigating effects and conducting additional studies.

The Licensee shall include with the 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 are accommodated by the plan. The Licensee shall allow a minimum of thirty 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 site-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 411. The Licensee shall operate the Sanford Project so that the project reservoir elevation does not fluctuate more than 0.4 foot below or 0.3 foot above the normal pool elevation of 625.0 feet National Geodetic Vertical Datum (NGVD), except during the winter drawdown. The Licensee shall begin the winter drawdown after December 15, and shall complete the winter drawdown by January 15 of each year. The Licensee shall complete the refill of the reservoir, thus ending the winter drawdown period, prior to the surface water temperature of the reservoir reaching 39°F. During the winter drawdown, the Licensee shall operate the Sanford Project so that the reservoir level does not fall below 622.0 feet NGVD, and so that the daily fluctuation in reservoir elevation does not exceed 0.7 foot. Management of reservoir fluctuations is required within sixty days of installation of reservoir level gages required by Article 402.

The required reservoir elevation may be temporarily modified if required by operating emergencies beyond the control of the Licensee, and for short periods for project maintenance purposes, upon mutual agreement between the Licensee and the Michigan Department of Natural Resources. If the reservoir level fluctuation is so modified, the Licensee shall notify the Commission as soon as possible, but no later than ten days after each such incident.

(H) The Commission's Chief Financial Officer is directed to release the payment made under protest in this proceeding, consistent with the findings in this order.

By the Commission.

Project No. 2785-002 et al. -23-

(S E A L)

David P. Boergers,
Secretary.