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Docket Nos: ~~50-282~~
50-306

MAR 11 1977

Northern States Power Company
ATTN: Mr. L. O. Mayer, Manager
Nuclear Support Services
414 Nicollet Mall - 8th Floor
Minneapolis, Minnesota 55401

Gentlemen:

In partial response to your requests dated June 25, 1976 and September 23, 1976, the Commission has issued the enclosed Amendment Nos. 18 and 12 to Facility Operating License Nos. DPR-42 and DPR-60 for the Prairie Island Nuclear Generating Plant Unit Nos. 1 and 2, respectively.

The amendments consistsof changes in the Environmental Technical Specifications contained in Appendix B to the licenses relating to thermal, fish impingement, special studies, the administrative sections of the specifications, and other minor wording changes for clarification. During our review of your proposed requests, we found that certain changes were necessary for clarification. Your staff has agreed to these changes and they have been incorporated.

That portion of your June 25, 1976 request relating to closed cycle operation and chemicals is still under review and will be completed at a later date. The information you provided in your June 25 request regarding cooling tower repair work is also still under review.

Copies of the related Safety Evaluation and Environmental Impact Appraisal and the Notice of Issuance and Negative Declaration also are enclosed.

Sincerely,
Original Signed by:
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosures and cc:
See next page

OFFICE	DOR:ORB #2	DOR:ORB #2	OELD REIS	DOR:ORB #2	DOR:LEB/OT	DSE:AD/ET
SURNAME	MGrotenhuis:rm	RMDiggs		DLZiemann	BGrimes	MErnst
DATE	2/10/77	2/10/77	2/3/77	3/11/77	2/25/77	2/25/77

Form AEC-318 (Rev. 9-53) AECM 0240

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 11, 1977

Docket Nos. 50-282
50-306

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ATTN: Mr. L. O. Mayer, Manager
Nuclear Support Services
414 Nicollet Mall - 8th Floor
Minneapolis, Minnesota 55401

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Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosures and cc:
See next page

Enclosures:
1. Amendment No. 18 to License No. DPR-42
2. Amendment No. 12 to License No. DPR-60
3. Safety Evaluation and Environmental Impact Appraisal
4. Notice and Negative Declaration

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9/23/76:
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ATTN: Secretary & Executive
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Minneapolis, Minnesota 55440

Chairman, Public Service Commission
of Wisconsin
Hill Farms State Office Building
Madison, Wisconsin 53702

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-282

PRAIRIE ISLAND NUCLEAR GENERATING PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 18
License No. DPR-42

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Northern States Power Company (the licensee) dated June 25 and September 23, 1976, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. DPR-42 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 18, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 11, 1977

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-306

PRAIRIE ISLAND NUCLEAR GENERATING PLANT UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 12
License No. DPR-60

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Northern States Power Company (the licensee) dated June 25 and September 23, 1976, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. DPR-60 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 12, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 11, 1977

ATTACHMENT TO LICENSE AMENDMENT NOS. 18 AND 12

FACILITY OPERATING LICENSE NOS. DPR-42 AND DPR-60

DOCKET NOS. 50-282 AND 50-306

Replace the following pages of the Technical Specifications contained in Appendix B of the above-indicated licenses with the attached pages bearing the same numbers, except as otherwise indicated. The changed areas on the revised pages are reflected by a marginal line.

Remove	Insert
B-i	B-i
B-ii	B-ii
B-1	B-1
-	B-1A (new page)
B-2	B-2
B-3	B-3
B-4	B-4
B-5	B-5
B-9	B-9
B-10	B-10
B-11	B-11
B-12	B-12
B-19	B-19
B-22	B-22
B-23	B-23
B-24	B-24
B-25	B-25
B-26	B-26
B-27	B-27
B-28	B-28
Figure 3.1.2-1	Figure 3.1.2-1

APPENDIX B

TABLE OF CONTENTS

		PAGE
1.0	DEFINITIONS	B-1
2.0	PROTECTION CONDITIONS	B-2
2.1	Closed Cycle Operation	B-2
2.2	Thermal	B-2
2.2.1	Maximum Discharge Temperature	B-2
2.2.2	Rate of Temperature Change	B-3
2.2.3	Maximum Change in Temperature (ΔT) Across the Condenser	B-3
2.3	(Deleted)	B-4
2.4	Chemical	B-5
2.4.1	Chlorine	B-5
2.4.2	Corrosion Inhibitors	B-6
2.4.3	pH	B-7
2.4.4	Other Chemicals	B-8
3.0	MONITORING REQUIREMENTS	B-9
3.1	Closed Cycle Operation	B-9
3.2	Thermal	B-9
3.2.1	Maximum Discharge Temperature	B-9
3.2.2	Rate of Temperature Change	B-11
3.2.3	Maximum Change in Temperature (ΔT) Across the Condenser	B-11
3.3	Fish Impingement	B-12
3.4	Chemicals	B-12
3.4.1	Chlorine	B-12
3.4.2	Corrosion Inhibitors	B-13
3.4.3	pH	B-14
3.4.4	Other Chemicals	B-14
4.0	ENVIRONMENTAL SURVEILLANCE AND SPECIAL STUDIES	B-14A
4.1	Biological	B-14A
4.1.1	Aquatic	B-14A
4.1.2	Terrestrial	B-21
4.2	Physical	B-21
4.2.1	Thermal Plume Mapping	B-21
4.2.2	Dredging	B-22
4.2.3	(Deleted)	B-22
4.2.4	Noise	B-23
4.2.5	Erosion	B-23
5.0	ADMINISTRATIVE	B-24
5.1	Organization, Review and Audit	B-24
5.1.1	Organization	B-24
5.1.2	Review and Audit	B-24
5.2	(Deleted)	B-25
5.3	Operating Procedures	B-25
5.3.1	Preparation of Procedures	B-25
5.3.2	Procedure Review	B-25
5.4	Reporting Requirements	B-26
5.4.1	Routine Reports	B-26
5.4.2	Non-Routine Reports	B-26

LIST OF FIGURES

Fig. 3.1.2-1	Site Layout
Fig. 4.1.1-1	Phytoplankton Sample Locations
Fig. 4.1.1-2	Periphyton Sampling Locations
Fig. 4.1.1-3	Zooplankton, Benthic, Macroinvertebrate and Water Chemistry Sampling Locations
Fig. 4.1.1-4	Qualitative Macroinvertebrate Study Sampling Locations

1.0 DEFINITIONS

A. Onsite: Any area included within NSP owned property that is continguous with the plant structure.

B. Offsite: All properties or areas not considered onsite by the above definition.

C. Discharge Canal: That portion of Truttman's Slough starting at the outfall and extending East and Southeast to the temperature detectors located at Barney's Point (Figure 3.1.2-1).

D. Point of Discharge: Downstream end of the discharge canal. (Figure 3.1.2-1)

E. Outfall: The shoreline location where effluent water flows into Truttman's Slough as indicated on Figure 3.1.2-1.

F. Ambient River Water Temperature: The temperature of the river water flowing into the plant intake unaffected by heat discharged from the plant.

G. Environmental Event: Exceeding a protection condition.

H. Protection Conditions: The quantitative specifications as found in Section TS B-2.0.

I. Closed Cycle Operation: The circulating water system's normal operating mode in which cooled water is returned from the plant's cooling towers to the plant's intake by way of the recirculation canal. During this operating mode, cooling towers will be operating.

J. Other than closed cycle operation: Contingency modes of circulating water system operation: open cycle (no towers, no recycle), helper cycle (condenser circulating water flow directed to towers and thence to river), and partial recycle (blowdown flow in excess of 150 cfs).

K. Daily average: The average of periodic readings during a calendar day beginning at 0000 hours and terminating at 2400 hours.

L. Week: A calendar period commencing on Sunday and extending through the following Saturday.

M. Month: Each of the twelve calendar periods designated as January, February, March, April, May, June, July, August, September, October, November or December.

N. Year: The calendar period commencing on January 1 and extending through December 31.

O. Total Residual Chlorine. The total amount of free and combined chlorine without regard to type present.

1.0 Definitions (Continued)

P. Circulating Water System: That water conveyance system consisting of pumps, piping and valves, which draws water from the screenhouse bays, and directs this water through the main condensers and then to the discharge basin structures (Figure 3.1.2-1). From this point the water is either pumped to the cooling towers or, under open cycle operation (no towers), the water is released to the river.

Q. Cooling Water System: That water conveyance system, consisting of pumps, piping and valves, which draws water from the screenhouse bays and supplies this water to its major elements, the heat exchangers for safeguards and other plant equipment and then discharges into the circulating water system piping downstream of the condenser outlet.

2.0 PROTECTION CONDITIONS

2.1 Closed Cycle Operation

Objective: To minimize the impact on the aquatic biota by limiting the water appropriation and the heat release to the river.

Specification: The plant cooling water system will be operated in the closed cycle mode to the maximum extent practicable. Appropriation of river water is restricted to makeup for evaporative losses and a maximum daily average blowdown of 150 cfs. Operation of the plant in other than closed cycle mode shall constitute an environmental event for reporting purposes.

Operation in the open cycle mode is permitted during the winter when extremely cold conditions might preclude operation of the mechanical draft cooling towers. Operation in the open cycle mode is permitted for those test programs described in section four of these specifications. Protection conditions unique to the open cycle mode are applicable, without exception, during such periods of adverse cooling tower operating conditions or testing.

Basis: The plant is provided with cooling towers with sufficient capacity to dissipate a major fraction of the heat rejected in the condensers. Operation in the closed cycle mode greatly reduces entrainment of aquatic biota compared to open cycle. Most of the heat is discharged directly to the air rather than to the river as an intermediary. Consequently, the impact on the aquatic biota in the receiving water may be substantially less.

2.2 Thermal

2.2.1 Maximum Discharge Temperature

Objective: Limit the maximum temperature of the discharge water to protect the indigenous aquatic biota.

Specification: The daily average circulating water temperature shall not exceed the ambient river water temperature by more than 5°F at the point of discharge to the river for river temperatures greater than 45°F, but in no case shall the

effluent temperature exceed 90°F for the daily average at the point of discharge to the river. During periods of cold weather when the daily average ambient river water temperature is less than 45°F, the daily average discharge temperature shall not exceed 50°F at the point of discharge to the river. Each hour during the 24-hour daily averaging period (protection condition), the average temperature rise is computer-calculated. Corrective action to prevent exceeding the protection condition shall be initiated when this hourly temperature rise exceeds 5°F unless such action would jeopardize Northern States Power Company's ability to meet the demand on its system either internally or by purchase.

Basis: The maximum discharge temperatures developed for the protection condition are consistent with the thermal basis used for the environmental impact analysis as found in the Final Environmental Statement published May, 1973 by the USAEC, Directorate of Licensing.

2.2.2 Rate of Temperature Change

Objective: To limit the rate of temperature decrease for the protection of fish in the discharge canal during scheduled reductions in power in the months of October through April.

Specification: During the months of October through April, the rate of temperature decrease, due to scheduled reductions in power of 15% or greater, shall not exceed 5°F per hour at the outfall. If the rate of temperature decrease should exceed the protection condition, corrective action shall be taken promptly to lower the rate of temperature reduction. This specification does not apply to emergency shutdown procedures.

Basis: Average river water temperature data indicate that ambient water temperatures below the lower tolerance limit for the indigenous fish in Mississippi River Pool #3 occur only during the period of late October thru late March. During the rest of the year, the temperatures will be in the range where the fish may acclimate readily to ambient temperatures without detrimental effect. Furthermore, under normal closed cycle operation, the thermal discharge will be limited, thus providing a small area of affected water, further reducing the possibility of cold shock.

2.2.3 Maximum Change in Temperature (ΔT) Across the Condenser

Objective: To reduce possible entrainment loss by limiting the ΔT across the common inlet and outlet of the condensers during open cycle operation.

Specification: During open cycle operation, the ΔT across the condenser shall not exceed $35^{o}F$ for more than 48 hours.

Basis: The plant will normally operate in the closed cycle mode as outlined in TS B-2.1. The overall environmental effect of thermal shock due to high condenser temperatures is relatively low since a smaller amount of water is appropriated from the river during closed cycle operations. The probability of open cycle operation is greater during the winter months. At this time the density of entrained organisms is relatively low. This protection condition will provide a reasonable period of time for the repair of a defective pump.

2.3 (Deleted)

2.4 Chemical

2.4.1 Chlorine

Objective: Limit the amount of total residual chlorine at the outfall for protection of the biota.

3.0 MONITORING REQUIREMENTS

3.1 Closed Cycle Operation

Objective: To monitor circulating water system operation and blowdown flow.

Specification: The blowdown or discharge flow rate shall be monitored for closed cycle and other than closed cycle operation.

Basis: The positions of the discharge flow gates are calibrated for various blowdown flow rates. Usually the blowdown flow is held constant at 150 cfs, but whenever it becomes necessary to increase the flow rate beyond 150 cfs, each blowdown flow rate change will be logged to establish the daily average blowdown flow rate which also will be logged. Blowdown flow rate will be logged once per day when the average blowdown flow is 150 cfs or less.

3.2 Thermal

3.2.1 Maximum Discharge Temperature

Objective: To monitor the intake and discharge temperatures and the corresponding ΔT's to assure that the discharge temperature protection conditions are not exceeded.

Specification: The ambient river water temperature shall be measured by a minimum of two temperature detectors located upstream of the barrier wall (Figure 3.1.2-1). The discharge temperature shall be measured by a minimum of two temperature detectors located at the end of the discharge canal. The locations of the detectors and functioning of the temperature monitoring system shall be established and verified annually thereafter to assure that monitoring results are representative of flow-weighted average temperatures and temperature differences for various modes of operation.

Basis: The ambient intake temperatures are measured by eight resistance temperature detectors (RTD's) connected to the plant computer. Four RTD's are mounted at each sampling location as shown in Figure 3.1.2-1. The RTD's are spaced two (2) feet apart from elevation 672.5 to 666.5 on each sampling pile assembly. Each RTD is scanned every minute by the computer. A five-minute average of the eight RTD measurements is calculated. Every hour the average of the eight RTD's is computed for an hourly average ambient river water temperature. If the computer is not functioning for more than one hour, at least two RTD measurements will be recorded and used to calculate the hourly average ambient river water temperature.

The discharge temperature is measured at the end of the discharge canal by a group of five (5) sampling locations spaced equal distances apart. Each sampling location consists of four RTD's spaced from just beneath the surface to the bottom regardless of river elevation. All 20 RTD's are connected to the plant computer. Each RTD is individually weighted for flow. Every minute, each RTD is scanned by the computer. A five-minute average of the 20 RTD measurements is calculated. The five minute averages are used to calculate the hourly average discharge temperature. If the computer is not functioning for more than one hour, at least two RTD measurements will be recorded and used to calculate the hourly average discharge water temperature.

The hourly average rise in discharge temperature above ambient river temperature is calculated by subtracting the ambient river temperature from the discharge temperature. An upper alarm limit of 5°F and a realarm of 5.2°F are established for this parameter. With this calculated hourly rise, the computer can be programmed to display each hour a cumulative average for the period beginning at 0000 hours each day. This cumulative average temperature rise will print out at 2400 hours each day as the daily average to determine compliance with the protection condition of Specification TS B-2.2.1.

Each hourly average discharge temperature is compared to the 90°F (50°F for cold weather) upper limit which if reached causes an alarm.

The computer program automatically filters out data from malfunctioning RTD's. The RTD's are accurate to within 0.5°F.

3.2.2 Rate of Temperature Change

Objective: To measure the rate of temperature decrease at the outfall during the months of October through April.

Specification: The rate of temperature decrease at the outfall shall be measured during scheduled reductions in power of 15% or greater during wintertime operation. This specification does not apply to emergency shutdown or testing conditions.

Basis: Decreases in plant power levels of 15% or less are not expected to cause any appreciable effect on the fish resident in the discharge canal. However, sudden decreases of larger magnitude may induce cold shock.

3.2.3 Maximum Change in Temperature (ΔT) Across the Condenser

Objective: To monitor the ΔT across the condenser to insure that the ΔT does not exceed the protection condition specification.

Specification: The ΔT across the condenser shall be monitored once per day during open cycle operation.

During the open cycle operation the change in temperature across the condenser shall be recorded once in every 24-hour period by the plant computer. If the computer is not functioning for more than a 24-hour period, the ΔT shall be calculated by the plant's staff.

Basis: Automatically monitoring the change in temperature across the condenser by the plant computer, with the plant staff acting as a backup system when the computer is inoperable, will provide sufficient information to make the needed adjustments, if any, to assure that the temperature change does not exceed the protection condition.

3.3 Fish Impingement

Objective: To determine by number, size and species, fish loss in the traveling screens of the intake structure.

Specification: The contents of the traveling screen trash basket shall be removed at least once per seven-day period and all fish lost shall be counted and identified and reported in the Annual Environmental Monitoring and Ecological Studies Program report.

Basis: The determination of the species and number of the fish actually lost will provide the staff with the data necessary to determine after an appropiate period of time whether environmental protection will be needed to protect the fish population in Sturgeon Lake and in the Mississippi River.

3.4 Chemical

3.4.1 Chlorine

Objective: To ensure that the amount of residual chlorine discharged does not exceed protection condition 2.4.1 by monitoring the amount of total residual chlorine discharge at the outfall.

Specification: The chlorine injection feed rate will be regulated and a limit on the rate set so that the total residual chlorine discharged at the outfall does not exceed the protection conditions. Once each month, during a chlorination cycle, a sample will be taken at the outfall and analyzed for total residual chlorine.

Basis: During normal power operation, the service water system will be chlorinated to control marine growth in the system. Curves for chlorine concentrations will be developed as functions of chlorine feed rates and concentration at the outfall. After these curves are developed, a test will be conducted to ensure that the total residual chlorine concentration at the outfall does not exceed 0.05 ppm. The test will consist of analyzing samples taken at the outfall five minutes after the start of chlorine injection and again at ten and fifteen minutes after the start. If the total residual chlorine concentration at the outfall in any of these samples is found to be greater than 0.05 ppm, the feed rate will be reduced until with repetition of this procedure the concentration is less than or equal to 0.05 ppm. Once the feed rates in relation to

g. Aquatic Plants

Submerged aquatic plants are not common in the study area and no extensive study is presently being conducted. Areas with aquatic plant growth such as Sturgeon Lake and the downstream backwater wildlife refuge are surveyed qualitatively to determine species present and their estimated bed area.

B. Impingement of Fish, and Entrainment of Phytoplankton and Zooplankton

Objective: To determine the daily and seasonal variations in species, weight, size and numbers of all life stages of fish entrapped, to identify and count any other impinged vertebrates and macro-invertebrates, and to record the species and quantity of plankton entrained and lost due to the operation of the plant.

Specification: Entrainment and impingement studies will be continued on a scheduled basis for two years after the beginning of commercial operation of Unit 2 of the plant. The progress and results of these studies will be included in the Annual Environmental Monitoring and Ecological Studies Program Report.

Data collected during plant operation will be compared with appropriate control station data, thereby providing information to help determine the effect of the plant upon the impinged and entrained biota, and the impact, if any, on their respective populations in the Mississippi River system.

Basis:

1. Fish impingement

a. Presently the plant is designed to collect all impinged fishes in the circulating water trash basket. Alternate methods of handling these fishes are currently being examined. All fishes collected in the sampling program will be counted,

Specification: Temperature surveys will be made to study the specific area of the river influenced by the heated water as it flows into Truttman's slough and the river if significant operation in modes other than closed-cycle becomes necessary. These surveys will be conducted under various climatic and river flow conditions that prevail. Selected isotherms in the range from ambient to the discharge temperature will be plotted. These surveys will continue until the 3-dimensional pattern of the heated water is determined over a range of flow rates and ambient temperatures for the operating modes actually employed.

For these surveys sample transects will be established across the river from just upstream of the plant intake and downstream to Lock and Dam No. 3. Sampling points spaced equally along each transect will be used. Temperatures will be taken at several intervals from the surface to the bottom. Instrumentation will be accurate to within 0.5°F.

Basis: Adverse weather conditions have required the plant to operate in modes other than closed cycle for extended periods. This specification will provide the thermal plume data necessary to assess the environmental impact.

4.2.2 **Dredging**

Objective: To determine the effect of maintenance dredging on the aquatic environment.

Specification: A study of the effects on the water quality and aquatic biota will include an estimate of the benthic macroinvertebrate community and measurement of water quality parameters.

Basis: Any maintenance dredging work in the approach and/or discharge canals will conform to applicable Federal, State, or local regulations at the time of dredging.

4.2.3 (Deleted)

4.2.4 Noise

Objective: To determine the sound levels in the onsite and offsite environment.

Specification: To study the noise impact of the operation of the Prairie Island Plant on the onsite and offsite environment.

Basis: A sound survey was completed in 1972 to quantify the construction noise levels. A survey will be completed during plant operation (both units) to quantify the operational sound levels. If these operational levels are acceptable to the AEC, the surveys will be terminated.

4.2.5 Erosion

Objective: To determine 1) the amount of erosion on the slopes adjacent to the river and the plant's circulating water system canals, and 2) the amount of erosion and deposition within and adjacent to dredged river approaches leading to and from the plant's circulating system canals.

Specification: Twice per year the onsite property will be surveyed for areas of erosion, and once per year the dredged offsite channel bottoms and boundaries will be sounded for significant contour changes, for comparison with topographical data of prior years. Onsite surveys will include photographs of the areas inspected, and, if significant erosion is apparent, the area will be regraded and covered with sufficient vegetation, rip-rap, or construction substrate (i.e., asphalt, gravel) to prevent further erosion. Correction of offsite plant-related problems, if evident, will be made after consulting with the applicable Federal, State and local authorities.

Basis: Erosion control is a fundamental environmental consideration. Of concern is the harm to all aquatic biota caused by movement and suspension of river bed materials, and by periodic dredging.

5.0 ADMINISTRATIVE

5.1 Organization, Review and Audit

5.1.1 Organization

A. The Plant Manager has the onsite responsibility for the operation of the facility and to assure that the plant operating limits in the Appendix B protection conditions are not exceeded. During periods when the Plant Manager is unavailable he will delegate this responsibility to other qualified supervisory personnel.

B. The Radiation Protection Supervisor in the plant organization has responsibility for the onsite chemical measurements related to plant releases at discharge to the environment.

C. The Administrator-Environmental Sciences of the Environmental and Governmental Activities Department has the general office responsibility for the initiation and execution of the environmental surveillance and special studies which have been described in these Appendix B Technical Specifications. The Administrator-Environmental Sciences has the responsibility for directing the sampling programs and assignments for special environmental studies by independent consultants.

5.1.2 Review and Audit

A. The Plant Manager will have the responsibility for providing the appropriate review of those plant operations covered under Appendix B protection conditions.

B. The Administrator-Environmental Sciences shall have the responsibility of providing for appropriate review of the results of the environmental surveillance and special studies programs detailed in Appendix B.

C. The Nuclear Support Services Department shall be responsible for periodic audits of compliance with Appendix B requirements by comparing:

1. Conformance of plant operations with the appropriate Appendix B protection conditions and monitoring requirements.

2. Conformance of the environmental surveillance and special studies programs with the appropriate Appendix B protection conditions.

5.2 (Deleted)

5.3 Operating Procedures

5.3.1 Preparation of Procedures

Written procedures for the conduct of operations, monitoring, surveillance, and special studies covered in Appendix B Technical Specifications shall be prepared and approved prior to commercial operation by the responsible individuals as referenced in TS B-5.1.1. The following is a list of the major areas requiring procedures:

1. Control of release of chemicals in circulating water discharge.

2. Control of the flow of discharge waters to remain within the allowable rate of change, discharge, temperatures, and velocities.

3. Sampling methods, frequencies and locations.

4. Calibration procedures and accuracies for various instruments used in measuring and analyzing the samples which are required by these specifications.

5.3.2 Procedure Review

A. All procedures required by these Technical Specifications shall be reviewed and approved prior to their implementation by a supervisor designated by the Plant Manager or Administrator-Environmental Sciences in accordance with the division of responsibility provided for in TS B-5.1.1.

B. Temporary changes in procedures which do not change the intent of the original procedure may be made provided such temporary changes are approved by a member of the management staff for the responsible group and an individual with technical knowledge in the area covered by the procedure. Such changes should be documented and subsequently reviewed in accordance with TS B-5.3.2.A.

5.4 Reporting Requirement

5.4.1 Routine Reports

An Annual Environmental Monitoring and Ecological Studies Program Report covering the year's operations and surveillance monitoring shall be submitted by July 1 of the subsequent year.

5.4.2 Non-Routine Reports

A. Environmental Event Reports

Within 30 days following the occurrence of an Environmental Event, a written report shall be furnished to the NRC. The report shall describe the event, analyze and evaluate the environmental impact, determine the cause, and outline corrective measures taken or planned to prevent repetitions of the event.

B. Changes to the Plant or Procedures

1. A written report shall be submitted to the Nuclear Regulatory Commission in the event of changes in the plant or procedures which may increase the environmental impact as evaluated in

the Final Environmental Statement. This report shall include an evaluation of the environmental impact, if any, which would result from the changes.

2. Minor changes may be made in the monitoring and sampling procedures and analytical techniques referenced in this Technical Specification when weather or conditions affect sample availability or the use of specified techniques. These changes shall be noted in the Annual Environmental Monitoring and Ecological Studies Program Report.

3. Changes or additions made at the request of Federal, State, or local authorities to permits or certificates for the protection of the environment shall be reported as referenced in TS B-5.4.2.B.1. This report shall include an evaluation of the environmental impact, if any, which would result from the change.

4. Requests for changes to Appendix B Environmental Technical Specifications shall be submitted to the Nuclear Regulatory Commission. An evaluation of the environmental impact, if any, which would result from such changes shall be included.

C. Special Reports - Special Reports shall be submitted in writing to the Nuclear Regulatory Commission. Special reports shall be submitted as noted below.

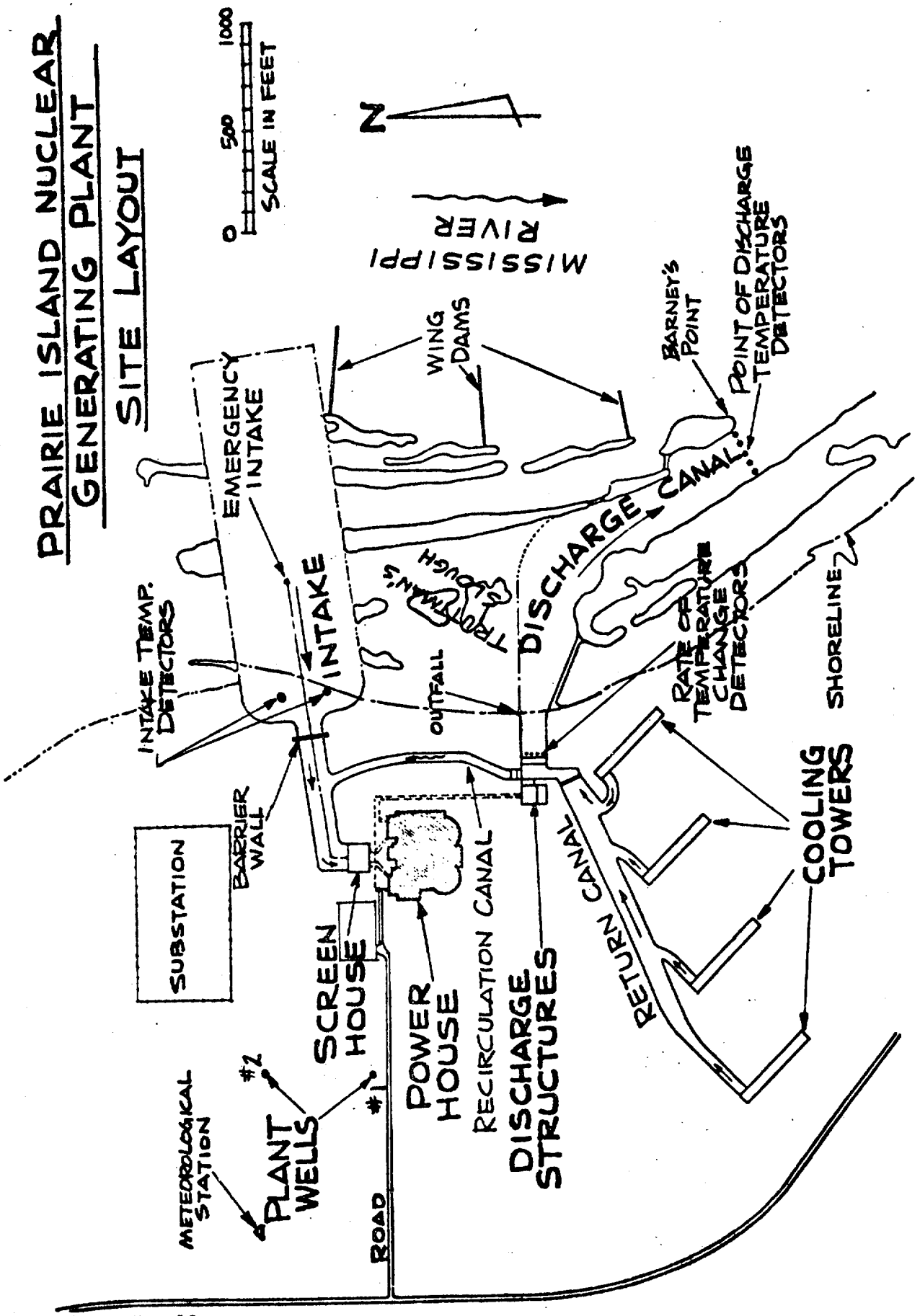
1. If harmful effects or evidence of irreversible damage are detected during the course of the monitoring program specified in Environmental Technical Specifications Sections TS 3.0 and 4.0, the licensee will provide an analysis of the problem and a proposed course of action to alleviate the problem.

2. Meteorological monitoring shall be used to evaluate the mathematical model upon which many of the licensee's predictions concerning the level of ground-level fog are based; the licensee shall monitor the incidence and effect of ground-level fog in and around the area of the town of Diamond Bluff, Wisconsin, and Wisconsin County Highway E; and finally, the licensee shall monitor the incidence and effect of ground-level fog and ice on local road and rail traffic adjacent to the plant and give appropriate cautionary alert to the traveling public through the use of necessary traffic signs. The results of the monitoring required herein shall be reported to the staff annually for a 3-year period following commencement of two-unit operation, so that the staff may evaluate the information and take whatever action it deems appropriate.

3.

4. The licensee, at the time the facility becomes operational, shall obtain estimates of the population size of species representative of the game, rough, and forage fishes in the area that may be affected by entrainment (tag and recapture techniques will permit an assessment as to whether or not the same population is being monitored its size and extent, and the rates of movement into and out of the area being monitored). The effects of entrainment on these game, rough, and forage fish populations shall then be determined on a quantitative basis, with the results being reported to the Regulatory staff. If, in its judgment, the staff determines that destruction of a significant quantity of fish is occurring, it shall require the licensee to take such corrective action as the staff may deem appropriate. The study required herein shall be completed within a 3-year period following commencement of two unit operation.

FIG.3.1.2-1



DPR-42 - Amendment No. 18
DPR-60 - Amendment No. 12

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION AND ENVIRONMENTAL IMPACT APPRAISAL BY THE OFFICE OF NUCLEAR REACTOR REGULATION SUPPORTING AMENDMENTS 18 AND 12 TO FACILITY OPERATING LICENSE NOS. DPR-42 AND -60 NORTHERN STATES POWER COMPANY PRAIRIE ISLAND NUCLEAR GENERATING PLANT UNIT NOS. 1 AND 2

INTRODUCTION

By letters dated June 25 and September 23, 1976, the Northern States Power Company (the licensee) proposed to amend the Environmental Technical Specifications contained in Appendix B to Facility License Nos. DPR-42 and DPR-60 for the Prairie Island Nuclear Generating Plant Unit Nos. 1 and 2 (PINGP). The proposed changes involve the following items:

1.	Thermal	(Sections 2.2.1, 2.2.2, 2.2.3, 3.2.1, 3.2.2, 3.2.3)
2.	Fish Impingement	(Sections 2.3 and 3.3)
3.	Special Studies	(Sections 4.2.1 and 4.2.3)
4.	Administrative	(Sections 5.1 - 5.4)
5.	Closed Cycle Operation	(Sections 2.1 and 3.1)
6.	Chemicals	(Sections 2.4 and 3.4)

Those changes in the June 25, 1976 request were submitted in response to our letter dated May 18, 1976 and a report dated January 8, 1976, of the NRC inspection of PINGP conducted on December 9-12, 1975. In addition, minor wording changes are being incorporated for clarification and updating of certain sections of the Technical Specifications.

Items 5 and 6 above are still under review and will be the subject of a later evaluation, except for the clarification of minor areas under item 5. During our review of the proposed requests, we found that certain modifications to the proposals were necessary. These modifications were discussed with the licensee's staff, and they have agreed with the modifications.

DISCUSSION

1. Thermal (Sections 2.2.1, 2.2.2, 2.2.3, 3.2.1, 3.2.2, 3.2.3)

Several minor changes were proposed in Specifications 2.2.1, 2.2.2, 2.2.3, 3.2.1, 3.2.2 and 3.2.3. These specifications have not led to any environmental event reports and the changes are proposed only for the purpose of clarity and therefore are acceptable.

2. Fish Impingement (Sections 2.3, 3.3)

Exceeding this protection condition resulted in numerous environmental event reports in 1975 and 1976. The actual number of such required reports is not clear because the reporting condition has been written in a manner subject to interpretation.

The original intent of the condition was to require that any large numbers of fish impinged be specially reported. Without independent technical data as a basis, the number chosen (with help from the Minnesota Department of Natural Resources) was one fisherman's creel daily allowance averaged over one week. Prompt reporting (i.e., within 24 hours) was required only when this number was exceeded twice in a three week period. Prompt reporting was required to assure that if extremely large impingements occurred during the initial years of operation that the staff would be alerted and would have the data necessary to take action, if required.

A redundant statement requiring similar reporting of impingement of twice the Minnesota Department of Natural Resources fisherman's daily creel limit was also placed in this section.

The proposed technical specification change deletes the prompt reporting requirements for fish impingement and removes the redundant impingement limit and its reporting requirement. Fish impingement data will, however, still be reported in the annual reports under Specification 3.3.

It was originally planned to review the prompt reporting requirement after some period long enough for the data to present a regular pattern. The operating data for 1974 and 1975 is sufficient to support the proposed amendment to the reporting requirement.

3. Special Studies (Sections 4.2.1 and 4.2.3)

Section 4.2.1 Thermal Plume Mapping has been modified to delete the thermal plume requirement that has been completed and to clarify the future requirements of this section in regard to the need for thermal plume mapping in the helper mode of operation. Section 4.2.3 Cooling Tower Fog and Icing has been deleted because the study has been completed.

4. Administrative (Sections 5.1 - 5.4)

Proposed changes to Section 5 were requested to reflect the latest organization changes by the licensee and to delineate the corresponding responsibility changes. In addition changes were requested to simplify and update reporting requirements and other miscellaneous clarifications.

5. Closed Cycle Operation (Sections 2.1 and 3.1)

Our evaluation of this area cannot be completed until we obtain additional information from the licensee. However, certain clarifications were considered necessary for the interim period. In Section 2.1 the definition of open cycle was corrected to account for the possibility of operation in the helper cycle mode and the requirement of winter operation of the cooling towers was reworded to clarify the intent. Section 3.1 was also reworded to account for the corrected definition of open cycle operation.

I. SAFETY EVALUATION

The proposed changes to the Technical Specifications involve the thermal limits, fish impingement, special studies and administrative sections. In addition, there are a few minor wording changes for clarity in other sections of the Technical Specifications. Based on our review, we have concluded that these amendments do not involve significant new safety information of a type not considered by a previous Commission safety review of PINGP.

Safety Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

II. ENVIRONMENTAL IMPACT APPRAISAL

1. Thermal (Sections 2.2.1, 2.2.2, 2.2.3, 3.2.1, 3.2.2, 3.2.3)

The proposed changes requested by the licensee have been reviewed by the NRC staff. We agree that the proposed changes are clarifications of the average process and do not change the intent of the Technical Specification. There would be no significant environmental impact brought about by operation with the proposed changes.

2. Fish Impingement (Sections 2.3 and 3.3)

The proposed changes remove Specification 2.3 which requires 24 hour notification of the NRC should weekly impingement rates exceed a certain level.

Fishes that were impinged at Prairie Island have been collected one to three times per week from the trash baskets. All fishes except Gizzard shad were individually counted. When the numbers of Gizzard shad were high, a subsampling procedure was used; and identification of species, numbers, length, and physical condition of the impinged fish was made. Thorough discussions of the impingement at Prairie Island appear in the licensee's annual reports for 1974 and 1975. In 1974 the total number of fishes impinged was 146,063 and in 1975 the total number was 93,466. In both of these years the majority of the species impinged was Gizzard shad making up 94% of the number during 1974 and 75% during 1975. Gizzard shad, a forage species in their early months of life, become an undesirable "trash" fish once they reach adulthood, thus the yearly impingement rate of important adult species is much smaller than the total yearly rate. Besides Gizzard shad there are other species which are of small importance being impinged. When these and the Gizzard shad are subtracted out of the total, the average number of game fish impinged per hour was 0.6 and 1.8 for 1974 and 1975, respectively. This is a small number, as a few anglers could easily impact the game species at that rate.

The data collected over the last two years indicate that the impingement rate is somewhat less than that expected for a facility at this location. On the basis that the impingement rate is not significantly larger than would be expected, a prompt reporting requirement is not considered necessary, therefore the proposed change is acceptable. The cumulative annual impingement counts will continue to be made, and after two more years of impingement and far-field fish monitoring data have been collected, the staff will review the data to determine if impingement is causing an unacceptable impact on fish populations and if corrective action is necessary.

3. Special Studies (Sections 4.2.1 and 4.2.3)

Specification 4.2.1 required that thermal plume mapping be done on the area of the river influenced by the heated water for each operational mode under the various climatic and river flow rate conditions that prevail during the year. In actuality, the licensee carried out thermal plume mapping studies only under closed cycle operating conditions. During June through September of 1976 unusual climatic and river flow rate conditions forced the licensee to operate the plant in a partial helper

cycle mode with high flow rates close to that required for once-through or complete helper cycle operation. The present specification would be changed to require thermal plume mapping if the situation arises where helper cycle operation or open cycle operation is required. If in the future these conditions do not occur, further thermal plume mapping is not required. Because this change does not affect operation of the plant, no additional environmental impact will occur because of it.

Specification 4.2.3 required that cooling tower fog and icing studies be made to determine the area of influence that the cooling tower plume has on the onsite and offsite areas. These studies were begun in 1974, continued through 1975, and are reported in the 1975 annual environmental report. We have reviewed the results of these studies, and they confirm that the environmental impact resulting from the cooling tower fog plumes is not significant and is within the predictions described in the FES. Therefore, the requirements for these studies may be deleted. This action involves no increased environmental impact.

4. Administrative (Sections 5.1 - 5.4)

   We have evaluated the change proposed by the licensee and conclude that it consists of the necessary clarification and updating. The proposed request does not change the intent of the Technical Specifications and reflects recent regulatory guidance, such as Regulatory Guide 4.8, which has been issued since the most recent change in Appendix B.

5. The clarifications made in Sections 2.1 and 3.1 do not affect the operation of the plant, therefore, there will be no additional environmental impact because of the changes in these sections.

Environmental Conclusion

On the basis of the foregoing analysis, it is concluded that there will be no significant environmental impact attributable to the proposed action. Having made this conclusion, the Commission has further concluded that no environmental impact statement for the proposed action need be prepared and that a negative declaration to this effect is appropriate.

Date: March 11, 1977

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-282 AND 50-306

NORTHERN STATES POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES

AND NEGATIVE DECLARATION

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment Nos. 18 and 12 to Facility Operating License Nos. DPR-42 and DPR-60, issued to the Northern States Power Company (the licensee), which revised Technical Specifications for operation of Unit Nos. 1 and 2 of the Prairie Island Nuclear Generating Plant (the facilities) located in Goodhue County, Minnesota. The amendments are effective as of their date of issuance.

The amendments changed those sections of the Environmental Technical Specifications contained in Appendix B to the licenses relating to thermal, fish impingement, special studies, and administrative activities. In addition, minor wording changes were included for clarification.

The applications for the amendments comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

The Commission has prepared an environmental impact appraisal for the proposed changes on the above subject and has concluded that an environmental impact statement for this particular action is not warranted because there will be no significant environmental impact attributable to the action.

For further details with respect to this action, see (1) the applications for amendments dated June 25 and September 23, 1976, (2) Amendment Nos. 18 and 12 to License Nos. DPR-42 and DPR-60, respectively, and (3) the Commission's concurrently issued related Safety Evaluation and Environmental Impact Appraisal. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at The Environmental Conservation Library of the Minneapolis Public Library, 300 Nicollet Mall, Minneapolis, Minnesota 55401. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 11th day of March, 1977.

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors