

NOVEMBER 2 1979

Docket Nos. 50-282  
and 50-306

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

Dear Mr. Mayer:

The Commission has issued the enclosed Amendment No. 40 to Facility Operating License No. DPR-42 and Amendment No. 34 to Facility Operating License No. DPR-60 for the Prairie Island Nuclear Generating Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated October 30, 1979.

These amendments change the Technical Specifications, Appendix B to the licenses, to permit the addition of a special chlorination program for the circulating water system which is necessary to destroy the parasitic amoeba discovered in this system. Please provide six copies of your report on the results of this program to the Minnesota Pollution Control Agency. During our review of your proposals for these amendments, we found that certain changes were necessary to meet our requirements. Your staff agreed to these changes and they have been incorporated in these amendments.

The amendments do not involve significant new safety information of a type not considered by a previous Commission safety review of the facility. They do not involve a significant increase in the probability or consequences of an accident, do not involve a significant decrease in a safety margin, and therefore do not involve a significant hazards consideration. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action.

*CPZ*  
*Ben 11/2/79*  
*ccp*

OFFICE  
SURNAME  
DATE

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Mr. L. O. Mayer  
Northern States Power Company

- 2 -

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

Sincerely,

Original Signed By  
A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Enclosures:

1. Amendment No. 40 to DPR-42
2. Amendment No. 34 to DPR-60
3. Environmental Impact Appraisal
4. Notice of Issuance and Negative Declaration

cc: w/enclosures  
See next page

Distribution

Docket Files 50-282 I&E (5)  
and 50-306

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

November 2, 1979

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and 50-306

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Nuclear Support Services  
Northern States Power Company  
414 Nicollet Mall - 8th Floor  
Minneapolis, Minnesota 55401

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Mr. L. O. Mayer  
Northern States Power Company

- 2 -

November 2, 1979

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

Sincerely,



A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Enclosures:

1. Amendment No. 40 to DPR-42
2. Amendment No. 32 to DPR-60
3. Environmental Impact Appraisal
4. Notice of Issuance and  
Negative Declaration

cc: w/enclosures  
See next page

Mr. L. O. Mayer  
Northern States Power Company

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November 2, 1979

cc: Gerald Charnoff, Esquire  
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Ms. Terry Hoffman  
Executive Director  
Minnesota Pollution Control Agency  
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U. S. Nuclear Regulatory Commission  
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Goodhue County Board of Commissioner  
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Madison, Wisconsin 53702

Director, Technical Assessment Division  
Office of Radiation Programs (AW-459)  
U. S. Environmental Protection Agency  
Crystal Mall #2  
Arlington, Virginia 20460

U. S. Environmental Protection Agency  
Federal Activities Branch  
Region V Office  
ATTN: EIS COORDINATOR  
230 South Dearborn Street  
Chicago, Illinois 60604



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. 40  
License No. DPR-42

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Northern States Power Company (the licensee) dated October 30, 1979, complies 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.

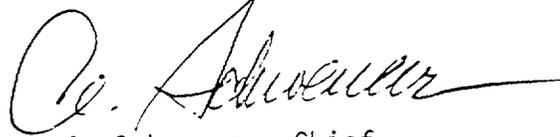
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-42 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 40, 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



A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: November 2, 1979



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. 34  
License No. DPR-60

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Northern States Power Company (the licensee) dated October 30, 1979, complies 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.

~~CONFIDENTIAL~~

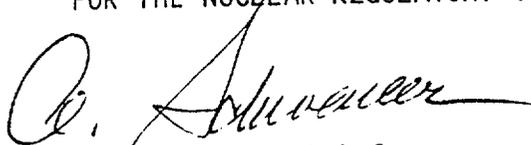
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-60 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 34, 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



A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: November 2, 1979

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 40 TO FACILITY OPERATING LICENSE NO. DPR-42

AMENDMENT NO. 34 TO FACILITY OPERATING LICENSE NO. DPR-60

DOCKET NOS. 50-282 AND 50-306

Revise Appendix B as follows:

Remove Page

B-6

Insert Page

B-6

Specification: The cooling water system shall be chlorinated for not more than a total of 2 hours per day. During chlorination periods, the total residual chlorine concentration at the outfall of the circulating water system shall not exceed 0.05 ppm. If chlorine treatment of the cooling water system is 30 minutes or less per day, the total residual chlorine concentration at the outfall shall not exceed 0.1 ppm. Corrective action will be taken if the protection condition is exceeded. If chlorination of other systems is necessary, the same standards apply.\*

Basis: The circulating water system condensers are cleaned mechanically. Normally only the cooling water system is chlorinated. The protection conditions of this specification will provide protection of the aquatic biota in the receiving waters.

#### 2.4.2 Corrosion Inhibitors and pH Control Agents

Objective: To avoid a significant deterioration in the river's water quality, by limiting the discharge of certain chemicals from the plant.

Specification: The amount of certain chemicals discharged to the river shall not exceed the following cumulative annual amounts as follows:

ammonia	3,300 lb/yr.
hydrazine	2,800 lb/yr.
morpholine-	700 lb/yr.
cyclohexylamine	

These chemicals are discharged at the outfall. No other corrosion inhibitors shall be discharged. While remaining within the above annual limits, daily blowdown discharge may vary as operations require, but under no conditions exceed a maximum of 30 pounds per day of ammonia at the outfall, with proportionately lower amounts of the other chemicals specified above. If the stated daily or annual protection conditions are exceeded, corrective action will be taken.

Basis: The only release of corrosion-inhibitor chemicals in plant operation is from the all volatile water chemistry treatment (AVT) required for the steam-generator secondary water treatment system. During normal full power operation, the steam generator blowdown flow is normally maintained at 120 gpm (total for both units).

\*A special chlorination treatment of the circulating water system, similar to that described in Exhibit C of the Licensee's amendment request letter dated October 30, 1979, is permissible for the purpose of destroying parasitic amoeba. This treatment is to be completed by December 31, 1979.



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

ENVIRONMENTAL IMPACT APPRAISAL BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 40 TO FACILITY OPERATING LICENSE NO. DPR-42

AND AMENDMENT NO. 34 TO FACILITY OPERATING LICENSE NO. DPR-60

NORTHERN STATES POWER COMPANY

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-282 AND 50-306

Introduction

By letter dated October 30, 1979, the Northern States Power Company (the licensee) requested an amendment to Facility Operating License Nos. DPR-42 and DPR-60 for the Prairie Island Nuclear Generating Plant, Unit Nos. 1 and 2. This amendment would change the Technical Specifications, Appendix B to the licenses, to permit a special chlorination program for the circulating water system to destroy the parasitic amoeba which have been discovered in this system.

During our review of the licensee proposals for these amendments, we found that certain changes were necessary to meet our requirements. The licensee staff agreed to these changes and they have been incorporated in these amendments.

Discussion

The licensee proposes to conduct a special chlorination program (up to twice a year) to destroy Naeglaria fowleri, a parasitic protozoan that causes primary amoebic meningoencephalitis. Although the Minnesota Department of Health does not consider the existence of the amoeba to present a public health threat, the presence of the organism in the cooling towers and circulating water system does present an occupational health concern. As a precaution, plant personnel have been instructed to wear rubber gloves when touching plant circulating water and wear respirators when working in the area of the cooling towers.

Literature references and recommendations by Dr. Richard Tyndall of the University of Tennessee indicate that exposure to chlorine at a concentration of 2 mg/l (measured as free chlorine) for a period of six hours should be effective to destroy both the amoeba and its encysted form. Use of chlorine for a period of six hours necessitates a change to the ETS, as the present chlorine specification limits the total time of chlorination to two hours each day.

The treatment plan proposed by the licensee and which has been reviewed and approved by the Minnesota Pollution Control Agency (MPCA) will consist of two phases:

- I. Phase 1 will occur during helper cycle operation and will be limited to chlorination of the cooling towers with subsequent dechlorination to less than the lower limit of detection ( $<0.05$  mg/l) with sodium sulfite prior to discharge. This treatment is designed to prevent large amounts of biological material removed from the cooling towers from entering the plant intake systems. Since it is impossible to predict the amount of material the dechlorination will remove, the length of time for Phase 1 cannot be stated in advance. It is anticipated that three to four hours should be sufficient.
- II. Phase 2 will occur during closed cycle operation with chlorination of the circulating water system for six hours at 2 mg/l free chlorine. Dechlorination will again be effected with sodium sulfite as it was in Phase 1.

### Evaluation

To aid in the effectiveness of the chlorination treatment, a biodispersant, Nalco 7348 (which presently is being used in the cooling water system with the approval of MPCA), will also be utilized during both phases. Chlorine concentration in the circulating water system and discharge will also be extensively monitored during chlorination of both phases.

The transition from present (closed-cycle) operation to helper cycle to be used in Phase 1 requires a gradual reduction in recirculation canal temperature to prevent cold shock to fish residing in the discharge canal. For the months of October through April, a 50F drop per 24 hours is allowed by the ETS. Thus, for the anticipated  $\Delta T$  of about 150F, three days will be required to reach helper cycle operation. To prevent thermal shock, the same transition period is required to bring the system back from helper cycle to closed cycle prior to initiation of Phase 2. Thus, about three days will be required after Phase 1 before beginning Phase 2 treatment.

Because chlorine at concentrations of 2 mg/l are expected to be lethal to fish, attempts will be made to remove fish from the cooling water return canal prior to commencement of operation. At present, the licensee plans to add copper sulfate at a concentration of 0.3 mg/l as a fish dispersant. Fish in the canal are expected to sense the copper sulfate and actively seek areas free from the chemical. Thus, it is felt that the fish will leave the canal via the discharge structure. The application of copper sulfate will be conducted by the licensee's biologists in conjunction with Minnesota Department of Natural Resources personnel. Seining and electroshocking may be employed as well, in an attempt to capture and reintroduce the fish outside the circulating water system.

In spite of these extensive efforts, there is still a potential for some fish mortality at the intake and in the circulating water system during this treatment. In order to document such impacts that may occur, an impingement survey will be conducted. Additionally, any impacts associated with the chlorinated

cooling tower drift will be assessed. Also, after completion of the chlorination treatment program, samples will be taken from the circulating water system to determine the effectiveness of the program eradicating Naeglaria fowleri.

Based on the above discussion and evaluation, we conclude that no significant environmental impact is expected to occur from the chlorination treatment program to destroy the amoeba Naeglaria fowleri. No temperature limits are expected to be violated and because sodium sulfite will be used to reduce free chlorine concentrations to below 0.05 mg/l prior to discharge, no chlorine concentration limits will be exceeded. Therefore, we find the licensee's proposal to be acceptable for the first such chlorination program. Any subsequent treatment may be modified according to the results of the first treatment.

Results of (1) the impingement monitoring conducted during the treatment program, (2) the assessment of chlorinated cooling tower drift, and (3) the chlorine monitoring data collected during the study should be provided by the licensee for NRC review. The results of the samples for Naeglaria fowleri in the circulating water system should also be reported at the conclusion of the chlorination program.

#### Conclusion and Basis for Negative Declaration

On the basis of the foregoing analysis, it is concluded that there will be no environmental impact attributable to the proposed actions other than has already been predicted and described in the Commission's FES for Prairie Island Nuclear Generating Plant, Unit Nos. 1 and 2. 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: November 2, 1979

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NOS. 50-282 AND 50-306NORTHERN STATES POWER COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY  
OPERATING LICENSE AND NEGATIVE DECLARATION

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 40 to Facility Operating License No. DPR-42, and Amendment No. 34 to Facility Operating License No. DPR-60 issued to Northern States Power Company (the licensee), which revised Technical Specifications for operation of Prairie Island Nuclear Generating Plant, Unit Nos. 1 and 2 (the facilities) located in Goodhue County, Minnesota. The amendments are effective as of the date of issuance.

The amendments permit the addition of a special chlorination program for the circulating water system which is necessary to destroy the parasitic amoeba discovered in this system.

The application for the amendments complies 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.

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The Commission has prepared an Environmental Impact Appraisal for the revised Technical Specifications and has concluded that an environmental impact statement for this particular action is not warranted because there will be no environmental impact attributable to the action other than that which has already been predicted and described in the Commission's Final Environmental Statement for the facility dated May 1973.

For further details with respect to this action, see (1) the application for amendments dated October 30, 1979, (2) Amendment Nos. 40 and 34 to License Nos. DPR-42 and DPR-60, and (3) the Commission's related 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, 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 2nd day of November, 1979.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors