

May 31, 1988

Dockets Nos. 50-282 and
50-306

Mr. D. M. Musolf, Manager
Nuclear Support Services
Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

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Dear Mr. Musolf:

SUBJECT: AMENDMENTS NOS. 83 AND 76 TO FACILITY OPERATING LICENSES NOS. DPR-42
AND DPR-60: HIGH FLUX, POWER RANGE (LOW SETPOINT) (TACS NOS. 66865
AND 66866)

The Commission has issued the enclosed Amendments Nos. 83 and 76 to Facility Operating Licenses Nos. DPR-42 and DPR-60 for the Prairie Island Nuclear Generating Plant, Units, Nos. 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated November 3, 1987.

The amendments change the high flux, power range (low setpoint) in Specification 2.3.A.1.b from equal to or less than 25% of rated power to equal to or less than 40% of rated power.

Copies of our related Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

original signed by

Dominic C. DiIanni, Project Manager
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects

Enclosures:

1. Amendment No. 83 to License No. DPR-42
2. Amendment No. 76 to License No. DPR-60
3. Safety Evaluation
4. Notice of Issuance

cc w/enclosures:
See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
May 31, 1988

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50-306

Mr. D. M. Musolf, Manager
Nuclear Support Services
Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

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Copies of our related Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

A handwritten signature in cursive script that reads "Dominic C. DiIanni".

Dominic C. DiIanni, Project Manager
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects

Enclosures:

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License No. DPR-42
2. Amendment No. 76 to
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cc w/enclosures:
See next page

Mr. D. M. Musolf
Northern States Power Company

Prairie Island Nuclear Generating
Plant

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Red Wing, Minnesota 55066



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. 83
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 November 3, 1987, 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:

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Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 83, 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



Daniel R. Muller, Acting Director
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 31, 1988



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. 76
License No. DPR-60

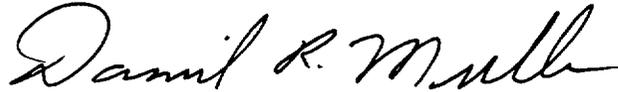
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Northern States Power Company (the licensee) dated November 3, 1987, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules 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-60 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 76, 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



Daniel R. Muller, Acting Director
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 31, 1988

ATTACHMENT TO LICENSE AMENDMENTS NOS. 83 AND 76
FACILITY OPERATING LICENSES NOS. DPR-42 AND DPR-60
DOCKETS NOS. 50-282 AND 50-306

Revise Appendix A Technical Specifications by removing the page identified below and inserting the attached page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

REMOVE

TS.2.3-1

INSERT

TS.2.3-1

2.3 LIMITING SAFETY SYSTEM SETTINGS, PROTECTIVE INSTRUMENTATION

Applicability

Applies to trip settings for instruments monitoring reactor power and reactor coolant pressure, temperature, flow, and pressurizer level.

Objective

To provide for automatic protective action in the event that the principal process variables approach a safety limit.

Specification

A. Protective instrumentation settings for reactor trip shall be as follows:

1. Startup protection

- a. High flux, intermediate range (high set point) - current equivalent to $\leq 40\%$ of full power.
- b. High flux, power range (low set point) - $\leq 40\%$ of rated power.
- c. High flux, source range - neutron flux $\leq 10^6$ counts/second

2. Core protection

- a. High flux, power range (high set point) - $\leq 108\%$ of rated power.
- b. High pressurizer pressure - ≤ 2385 psig.
- c. Low pressurizer pressure - ≥ 1815 psig.
- d. Overtemperature ΔT

$$\Delta T_t \leq \Delta T_o [K_1 - K_2 (T - T^{\sim}) \left(\frac{1+t_1 s}{1+t_2 s} \right) + K_3 (P - P^{\sim}) - f (\Delta I)]$$

where

ΔT_o	=	Indicated ΔT at rated power
T_o	=	Average temperature, °F
T^{\sim}	=	567.3°F
P	=	Pressurizer pressure, psig
P^{\sim}	=	psig 2235
K_1	\leq	1.11
K_2	=	0.0090
K_3	=	0.000566
t_1	=	30 sec
t_2	=	4 sec



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENTS NOS. 83 AND 76 TO

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

NORTHERN STATES POWER COMPANY

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

DOCKETS NOS. 50-282 AND 50-306

1.0 INTRODUCTION

By letter dated November 3, 1987, Northern States Power Company (NSP or the licensee) requested changes to the Technical Specifications appended to Facility Operating Licenses Nos. DPR-42 and DPR-60 for the Prairie Island Nuclear Generating Plant, Units Nos. 1 and 2. The proposed modifications would change the high flux, power range (low setpoint) in Specification 2.3.A.1.b to read "... $\leq 40\%$ of rated power" rather than "... $\leq 25\%$ of rated power". This change is due to a larger than expected error in predicting radial neutron leakage at low power (rodded) core conditions found during Unit 1 Cycle 12 physics tests. Based on these tests, the high flux, power range low setpoint would have tripped the reactor at an actual power of about 33%, 8% above the current Technical Specification setpoint of 25%. The licensee has, therefore, proposed to change the Technical Specification limit to an actual power of 40% while maintaining the trip setpoint at a nominal setting of 25% of indicated power.

2.0 EVALUATION

There are only two events analyzed in the Prairie Island Final Safety Analysis Report (FSAR) which use the high flux, power range low setpoint: the uncontrolled rod cluster control assembly (RCCA) withdrawal from a subcritical position and the RCCA ejection. The licensee has reanalyzed both events to verify that the NRC staff's acceptance criteria for these events as given in Standard Review Plan Sections 15.4.1 and 15.4.8 are met with the proposed high flux, power range low setpoint change to $\leq 40\%$ of rated power.

The licensee has presented the reanalyses of these events in NSPNAD-8725, "Analysis of the Revised Low Setpoint for High Flux, Power Range," dated October 1987. For the uncontrolled RCCA withdrawal event from a subcritical condition, the results show that the primary and secondary pressures do not exceed the system design pressure and that the fuel cladding integrity is maintained since the peak clad temperature remains below even the nominal full power value. For the RCCA ejection event initiated from hot zero power conditions, the results indicate that the average hot spot fuel enthalpy remains well below the acceptance criterion of 280 calories per gram, and the maximum reactor coolant system pressure is well below the pressure that will cause stresses to exceed the emergency condition stress limit of 120% of design pressure (2500 psia).

These two events were reanalyzed using assumptions and methodology which have been approved by the NRC. The reanalyses considered both the Westinghouse optimized fuel assemblies (OFA) and the Advanced Nuclear Fuels (TOPROD) fuel assemblies which are the fuel types used at Prairie Island. Based on this, and on the fact that the reanalyses meet the NRC acceptance criteria for these events, the NRC staff concludes the proposed change of the Technical Specification limit to an actual power of 40% has been properly analyzed and that those events affected by the limit change are conservatively bounded by the safety reanalyses.

On this basis, the proposed change to Prairie Island's Technical Specification dealing with the high flux, power range low setpoint is found acceptable. By changing the Technical Specification limit to an actual power of 40%, the trip setpoint can remain at a nominal setting of 25% of indicated power without causing a Technical Specification violation.

3.0 ENVIRONMENTAL CONSIDERATION

An Environmental Assessment and Finding of No Significant Impact has been issued for these amendments (53 FR 19831, May 31, 1988).

4.0 CONCLUSION

We have concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) 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.

Principal Contributor: L. Kopp

Dated: May 31, 1988

UNITED STATES NUCLEAR REGULATORY COMMISSIONNORTHERN STATES POWER COMPANYDOCKETS NOS. 50-282 AND 50-306NOTICE OF ISSUANCE OF AMENDMENTS TOFACILITY OPERATING LICENSES

The United States Nuclear Regulatory Commission (the Commission) has issued Amendments Nos. 83 and 76 to Facility Operating Licenses Nos. DPR-42 and DPR-60, issued to the Northern States Power Company (the licensee), which revised the Technical Specifications (TSs) for operation of the Prairie Island Nuclear Generating Plant, Units Nos. 1 and 2, located in Goodhue County, Minnesota. The amendments are effective as of the date of issuance.

The amendments change the high flux, power range (low setpoint) in Specification 2.3.A.1.b from equal to or less than 25% of rated power to equal to or less than 40% of rated power.

The application for the amendment 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.

Notice of Consideration of Issuance of Amendments to Facility Operating Licenses and Opportunity for Hearing in connection with this action was published in the FEDERAL REGISTER on March 25, 1988 (53 FR 9832). No request for hearing or petition to intervene was filed following this notice.

Also in connection with this action, the Commission prepared an

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Environmental Assessment and Finding of No Significant Impact which was published in the FEDERAL REGISTER on May 31, 1988, at 53 FR 19831.

For further details with respect to this action, see (1) the application for amendments dated November 3, 1987, (2) Amendments Nos. 83 and 76 to Licenses Nos. DPR-42 and DPR-60, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. 20555, and at the Minneapolis Public Library, Technology and Science Department, 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 Reactor Projects - III, IV, V, and Special Projects.

Dated at Rockville, Maryland, this 31st day of May 1988.

FOR THE NUCLEAR REGULATORY COMMISSION



Dominic C. DiIanni, Project Manager
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects