

June 30, 1994

Mr. Roger O. Anderson, Director
Licensing and Management Issues
Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

Dear Mr. Anderson:

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT - ISSUANCE OF AMENDMENT RE:
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR) SPECIFICATION
AND MINIMUM CRITICAL POWER RATIO MCPR) BASES REVISIONS (TAC NO.
M88676)

The Commission has issued the enclosed Amendment No. 88 to Facility Operating License No. DPR-22 for the Monticello Nuclear Generating Plant. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated January 4, 1994, and supplemented March 28, 1994.

The amendment modifies Section 3.11, Reactor Fuel Assemblies, by removing information concerning the analytical method to determine APLHGR and adding a reference to the Core Operating Limits Report (COLR). In Section 6.7, Reporting Requirements, the listing of approved analytical methods for developing the COLR is revised and the specific version of the analytical methods used to develop the report is identified. In addition, the Bases for Section 3.11 concerning the calculational methodology for MCPR is revised.

As a condition of our approval of this amendment, Northern States Power has committed to identify the revision number of the approved analytical methods used to determine core operating limits in all subsequent issues of the Monticello COLR.

A copy of our related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by John Hickman

Beth A. Wetzel, Acting Project Manager
Project Directorate III-1
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 88 to DPR-22
- 2. Safety Evaluation

cc w/enclosures:
See next page

OFFICE	LA:PD31	(A)PM:PD31	SRXB	OGD	PD:PD31
NAME	CJamerson	BWetzel:gll	TCollins	M Young	LMarsh
DATE	06/9/94	06/16/94	06/16/94	06/27/94	06/30/94

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Mr. Roger O. Anderson, Director
Northern States Power Company

Monticello Nuclear Generating Plant

cc:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-263

MONTICELLO NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 88
License No. DPR-22

1. The Nuclear Regulatory Commission (the Commission) has found that:
 2. A. The application for amendment by Northern States Power Company (the licensee) dated January 4, 1994, supplemented March 28, 1994, 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-22 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. 88 , 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 issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


for

Ledyard B. Marsh, Director
Project Directorate III-1
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 30, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 88

FACILITY OPERATING LICENSE NO. DPR-22

DOCKET NO. 50-263

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

REMOVE

211
217
249b

INSERT

211
217
249b

3.0 LIMITING CONDITIONS FOR OPERATION

3.11 REACTOR FUEL ASSEMBLIES

Applicability

The Limiting Conditions for Operation associated with the fuel rods apply to those parameters which monitor the fuel rod operating conditions.

Objective

The objective of the Limiting Conditions for Operation is to assure the performance of the fuel rods.

Specifications

A. Average Planar Linear Heat Generation Rate (APLHGR)

During two recirculation loop operation, the APLHGR for each type of fuel as a function of average planar exposure shall not exceed the applicable limiting values specified in the Core Operating Limits Report. When hand calculations are required, the APLHGR for each type of fuel as a function of average planar exposure shall not exceed the limiting value for the most limiting lattice (excluding natural uranium) provided in the Core Operating Limits Report.

During one recirculation loop power operation, the APLHGR limiting condition for operation for each type of fuel shall not exceed the above values multiplied by 0.85.

If at any time during power operation, it is determined that the APLHGR limiting condition for operation is being exceeded, action shall be initiated within 15 minutes to restore operation to within the prescribed limits. Surveillance and corresponding action shall continue until reactor operation is within the prescribed limits. If the APLHGR is not returned to within the prescribed limits within two hours, reduce thermal power to less than 25% within the next four hours.

3.11/4.11

4.0 SURVEILLANCE REQUIREMENTS

4.11 REACTOR FUEL ASSEMBLIES

Applicability

The Surveillance Requirements apply to the parameters which monitor the fuel rod operating conditions.

Objective

The objective of the Surveillance Requirements is to specify the type and frequency of surveillance to be applied to the fuel rods.

Specifications

A. Average Planar Linear Heat Generation Rate (APLHGR)

The APLHGR for each type of fuel as a function of average planar exposure shall be determined daily during reactor operation at $\geq 25\%$ rated thermal power.

Bases Continued:

MCPR Limit is determined from the analysis of transients discussed in Bases Sections 2.1 and 2.3. By maintaining an operating MCPR above these limits, the Safety Limit (T.S. 2.1.A) is maintained in the event of the most limiting abnormal operational transient.

At less than 100% of rated flow and power the required MCPR is the larger value of the MCPR_r and MCPR_e at the existing core flow and power state. The required MCPR is a function of flow in order to protect the core from inadvertent core flow increases such that the 99.9% MCPR limit requirement can be assured.

Flow runout events are analyzed with the purpose of establishing a flow dependent MCPR limit that would prevent the Safety Limit CPR from being reached during a flow runout. A flow runout event is a slow flow and power increase which is not terminated by a scram, but which stabilizes at a new core power corresponding to the maximum possible core flow. Initial conditions for the transient are set such that the limiting CPR is near the Safety Limit. MCPR values are determined from the resulting change in CPR when core flow is increased to a possible maximum. Several combinations of initial power, flow, and exposure are analyzed to cover the range of operability defined by the power/flow map. The calculated flow dependent MCPR limit (MCPR_f) for a given core flow is provided in the Core Operating Limits Report.

For operation above 45% of rated thermal power, the core power dependent MCPR operating limit is the rated MCPR limit, MCPR(100), multiplied by the factor, provided in the Core Operating Limits Report. For operation below 45% of rated thermal power (turbine control valve fast closure and turbine stop valve closure scrams can be bypassed) MCPR limits are provided in the Core Operating Limits Report. This protects the core from plant transients other than core flow increase, including a localized event such as rod withdrawal error.

7. Core Operating Limits Report

- a. Core operating limits shall be established and documented in the Core Operating Limits Report before each reload cycle or any remaining part of a reload cycle for the following:

Rod Block Monitor Operability Requirements
(Specification 3.2.C.2a)

Rod Block Monitor Upscale Trip Settings
(Table 3.2.3, Item 4.a)

Maximum Average Planar Linear Heat Generation Rate Limits
(Specification 3.11.A)

Linear Heat Generation Ratio Limits
(Specification 3.11.B)

Minimum Critical Power Ratio Limits
(Specification 3.11.C)

Power to Flow Map
(Bases 2.3.A)

- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel" (the approved version at the time the reload analyses are performed)

NSPNAD-8608-A, "Reload Safety Evaluation Methods for Application to the Monticello Nuclear Generating Plant" (the approved version at the time the reload analyses are performed)

NSPNAD-8609-A, "Qualification of Reactor Physics Methods for Application to Monticello" (the approved version at the time the reload analyses are performed)

ANF-91-0481(P)(A), "Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors-EXEM BWR Evaluation Model," Siemens Power Corporation (the approved version at the time the reload analyses are performed)

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, transient analysis limits and accident analysis limits) of the safety analysis are met.
- d. The Core Operating Limits Report, including any mid-cycle revisions or supplements, shall be supplied upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 88 TO FACILITY OPERATING LICENSE NO. DPR-22

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

1.0 INTRODUCTION

By letter dated January 4, 1994, as supplemented March 28, 1994, Northern States Power Company requested changes to the Technical Specifications (TS) for the Monticello Nuclear Generating Plant. These proposed changes would modify Section 3.11, Reactor Fuel Assemblies, by removing information concerning the analytical method to determine average planar linear heat generation rate (APLHGR) and adding a reference to the Core Operating Limits Report (COLR). Also, in Section 6.7, Reporting Requirements, the listing of approved analytical methods for developing the COLR was revised. The Bases for Section 3.11 concerning the calculational methodology for minimum critical power ratio (MCPR) was also revised. The March 28, 1994, submittal incorporates an improvement in the wording for Section 6.7 concerning the identification of the approved analytical methods used to develop the COLR and was within the scope of the March 2, 1994, Federal Register notice and did not affect the initial no significant hazards consideration determination.

2.0 EVALUATION

The APLHGR is a measure of the average linear heat generation rate of all the fuel rods in a fuel assembly at any axial location. APLHGR limits are based on two phenomena: emergency core cooling system (ECCS) peak clad temperature and thermal-mechanical limits. The APLHGR limit ensures that calculated ECCS peak clad temperatures at rated conditions conform to 10 CFR 50.46. The APLHGR limit also ensures that fuel thermal-mechanical limits are met by limiting peak fuel pin power below that at which cladding cracking due to plastic strain or transient condition center line melting would occur.

The analytical methods used to determine the APLHGR are specified in both Sections 3.11A and 6.7.A.7 of the current TS. The licensee proposed removal of the statement about the analytical methods used to determine the APLHGR from Section 3.11A. This change is acceptable because there is no need for this duplication in Sections 3.11A and 6.7.A.7.

Section 6.7 would be modified to include the methodology used by Siemens Power Corporation. This change is acceptable because the methodology has previously been approved by the NRC and will assure that values of cycle-specific parameters are within the acceptance criteria for safe operation. The final change, a change to the bases concerning MCPR, revises the description of the MCPR calculation methodology to be consistent with that currently being used and is therefore acceptable.

3.0 TECHNICAL SPECIFICATION CHANGES

Section 3.11 - The change eliminates the reference to the analytical methodology used to calculate the MPLHGR limits and adds a statement that the limiting values are specified in the COLR.

Section 6.7 - The change adds the Siemens Power Corporation approved topical to the list of documents approved and changes all documents from "the latest approved version" to "the approved version at the time the reload analyses are performed."

Bases - The change revises the section to be consistent with current analysis.

3.1 Summary

Based on the staff evaluation in Section 2.0 above, the staff concludes that the proposed TS changes are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Minnesota State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (59 FR 10011). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The staff has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: M. Chatterton

Date: June 30, 1994

DATED: June 30, 1994

AMENDMENT NO. 88 TO FACILITY OPERATING LICENSE NO. DPR-22-MONTICELLO

Docket File
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