

August 26, 1987

Docket No. 50-263

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

Dear Mr. Musolf:

The Commission has issued the enclosed Amendment No. 49 to Facility Operating License No. DPR-22 for the Monticello Nuclear Generating Plant. This amendment is in response to your application dated February 4, 1987.

The amendment changes the Rod Block Monitor (RBM) upscale setpoints in Table 3.2.3 of the Monticello Technical Specifications in accordance with the General Electric calculation extending the minimum critical power ratio (MCPR) considered for the rod withdrawal error at power event. The associated bases have also been changed to reflect the increased MCPR.

A copy of our related Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely,

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Dino C. Scaletti, Project Manager
Project Directorate III-3
Division of Reactor Projects

Enclosures:

1. Amendment No. 49 to License No. DPR-22
2. Safety Evaluation

cc w/enclosures:
See next page

Office: LA/PDIII-3
Surname: PKreutzer
Date: 08/13/87

PM/PDIII-3
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TRD for
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08/13/87

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8/24/87

Mr. D. M. Musolf
Northern States Power Company

Monticello Nuclear Generating Plant

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

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-263

MONTICELLO NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 49
License No. DPR-22

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Northern States Power Company (the licensee) dated February 4, 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-22 is hereby amended to read as follows:

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(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 49, 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



David L. Wigginton, Acting Director
Project Directorate III-3
Division of Reactor Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 26, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 49

FACILITY OPERATING LICENSE NO. DPR-22

DOCKET NO. 50-263

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

REMOVE

57
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INSERT

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TABLE 3.2.3 - Continued
Instrumentation That Initiates Rod Block

Function	Trip Settings	Reactor Modes in Which Function Must be Operable or Operating and Allowable Bypass Conditions**			Total No. of Instrument Channels per Trip System	Min. No. of Operable or Operating Instrument Channels per Trip System	Required Conditions*
		Refuel	Startup	Run			
4. <u>REM</u>							
a. Upscale (power referenced), (Note 8)		See Section 3.2.C.2			1	See Section 3.2.C.2 (note 5)	See Section 3.2.C.2
1. Low Trip							
Setpoint	$\leq 120/125$ of full scale						
(LTSP)							
2. Intermediate							
Setpoint	$\leq 115/125$ of full scale						
(ITSP)							
3. High Trip							
Setpoint	$\leq 110/125$ of full scale						
(HTSP)							
b. Downscale	$\geq 94/125$ of full scale	See Section 3.2.C.2			1	See Section 3.2.C.2 (note 5)	See Section 3.2.C.2
5. <u>Scram Discharge Volume</u>							
Water Level - High							
a. East	≤ 40 gal		X	X	1	1 (note 6)	B and D, or A
b. West	≤ 40 gal		X	X	1	1 (note 6)	B and D, or A

Amendment No. 28, 49

Bases Continued:

- 3.2 The HPCI and/or RCIC high flow and temperature instrumentation is provided to detect a break in the HPCI and/or RCIC piping. Tripping of this instrumentation results in actuation of HPCI and/or RCIC isolation valves; i.e., Group 4 and/or Group 5 valves. The trip settings of 200°F and 150% of HPCI and 300% of RCIC design flows and valve closure times are such that the core will not be uncovered and fission product release will not exceed 10 CFR 100 guidelines.

The instrumentation which initiates ECCS action is arranged in a dual bus system. As for other vital instrumentation arranged in this fashion the Specification preserves the effectiveness of the system even during periods when maintenance or testing is being performed.

The control rod block functions are provided to prevent excessive control rod withdrawal so that MCPR remains above the Safety Limit (T.S.2.1.A). The trip logic for this function is 1 out of n; e.g., any trip on one of the six APRM's, eight IRM's, or four SRM's will result in a rod block. The minimum instrument channel requirements for the IRM and RBM may be reduced by one for a short period of time to allow for maintenance, testing, or calibration. See Section 7.3 FSAR.

The APRM rod block trip is referenced to flow and prevents operation significantly above the licensing basis power level especially during operation at reduced flow. The APRM provides gross core protection; i.e., limits the gross core power increase from withdrawal of control rods in the normal withdrawal sequence. The operator will set the APRM rod block trip settings no greater than that stated in Table 3.2.3. However, the actual setpoint can be as much as 3% greater than that stated in Table 3.2.3 for recirculation driving flows less than 50% of design and 2% greater than that shown for recirculation driving flows greater than 50% of design due to the deviations discussed on page 39.

The RBM provides local protection of the core; i.e., the prevention of critical power in a local region of the core, for a single rod withdrawal error from a limiting control rod pattern. The trip point is referenced to power. This power signal is provided by the APRMs. A statistical analysis of many single control rod withdrawal errors has been performed and at the 95/95 level the results show that with the specified trip settings, rod withdrawal is blocked at MCPRs greater than the Safety Limit, thus allowing adequate margin. This analysis assumes a steady state MCPR of 1.30 prior to the postulated rod withdrawal error. The RBM functions are required when core thermal power is greater than 30% and a Limiting Control Rod Pattern exists. When both RBM channels are operating either channel will assure required withdrawal blocks occur even assuming a single failure of one channel. With one RBM channel inoperable for no more than 24 hours, testing of the RBM prior to withdrawal of control rods assures that improper control rod withdrawal will be blocked (Reference 1). Requiring at least half of the normal LPRM inputs to be operable assures that the RBM response will be adequate to protect against rod withdrawal errors, as shown by a statistical failure analysis.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 49 TO FACILITY OPERATING LICENSE NO. DPR-22

NORTHERN STATES POWER COMPANY
MONTICELLO NUCLEAR GENERATING PLANT
DOCKET NO. 50-263

1.0 INTRODUCTION

By application dated February 4, 1987, Northern States Power Company (NSP) proposed changes to the Technical Specifications (TS) for the Monticello Nuclear Generating Plant. The proposed changes are to the Rod Block Monitor (RBM) setpoints given in TS Table 3.2.3. The justification for the change is based on General Electric (GE) calculations extending for Monticello the range of initial Minimum Critical Power Ratio (MCPR) conditions considered for the Rod Withdrawal Error (RWE) at power event and the corresponding RBM setpoints required for appropriate protection.

2.0 DISCUSSION AND EVALUATION

In 1984, NSP elected to implement the GE-supplied ARTS (Average Power Range Monitor, Rod Block Monitor and Technical Specification) improvement program for Monticello. This program includes changes to the RBM system which provides the required protection for the RWE at power event. The ARTS program, and in particular the RBM system, was described in a GE topical report for Monticello (Ref. 1) which was a part of the Monticello ARTS submittal. It describes the new RBN approach and methodology and the results of calculations which were done to determine the setpoints for the system. These descriptions, methods and results were approved along with the remainder of the program in the staff review of ARTS for Monticello.

The Monticello RBM (analytical, allowable and nominal) setpoints presented in Reference 1 were calculated with the assumption that the full power operating limit MCPR (OLMCPR) and thus the initial condition for the RWE were 1.2.0. These calculated setpoints (including, where relevant, the instrumentation uncertainty components) along with other parameters relevant to the RBM operation were presented in Table 4-5 to include setpoints for OLMCPR of 1.25, 1.30 and 1.35. Other parameter values of Table 4-5 remain the same as in the original report. This expanded table is included in the NSP submittal. The setpoints are higher for the larger OLMCPR values since there is a larger margin to the safety limit MCPR for the RWE event. These additional setpoints have been developed using previously approved methodology and the results are reasonable and acceptable.

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Since for Monticello the rated OLMCPR are generally above 1.30 (1.36 for the current cycle), NSP has proposed to modify the RBM TS giving the setpoints; i.e., Table 3.2.3, Items 4.a.1, 2 and 3, and the corresponding Bases 3.2. The change is based on the OLMCPR of 1.30 and this is stated in the revised Bases 3.2. The low, intermediate and high (power level region) trip setpoints are changed to 120, 115 and 110, respectively. These setpoints are conservative for the chosen MCPR. (Table 4-5 nominal setpoint values are 121.1, 116.1 and 111.3 for operation with the RBM filter.) These are reasonable TS changes, based on approved GE methods and results, and they are acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

4.0 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; and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 REFERENCES

1. NEDC-30492-P, April 1984, "Average Power Range Monitor, Rod Block Monitor, and Technical Specification Improvement (ARTS) Program for Monticello."

Principal Contributor: H. Richings

Dated: August 26, 1987