

UNITED STATES NUCLEAR REGULATORY COMMISSION

NORTHERN STATES POWER COMPANY
MONTICELLO NUCLEAR GENERATING PLANT

Docket No. 50-263

REQUEST FOR AMENDMENT TO
OPERATING LICENSE NO. DPR-22

(License Amendment Request Dated August 16, 1978)

Northern States Power Company, a Minnesota corporation, requests authorization for changes to the Technical Specifications as shown on the attachments labeled Exhibit A, Exhibit B, and Exhibit C. Exhibit A describes the proposed changes along with reasons for the change. Exhibit B is a set of Technical Specification pages incorporating the proposed changes. Exhibit C is a safety evaluation supporting the changes.

This request contains no restricted or other defense information.

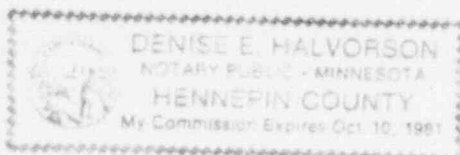
NORTHERN STATES POWER COMPANY

By L. J. Wachter
L J Wachter

Vice President, Power Production &
System Operation

On this 16th day of August, 1978, before me a notary public in and for said County, personally appeared L J Wachter, Vice President, Power Production & System Operation, and first being duly sworn acknowledged that he is authorized to execute this document in behalf of Northern States Power Company, that he knows the contents thereof and that to the best of his knowledge, information and belief, the statements made in it are true and that it is not interposed for delay.

Denise E. Halvorson



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EXHIBIT A

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

LICENSE AMENDMENT REQUEST
DATED August 16, 1978

PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS

Pursuant to 10CFR50, the holders of Provisional Operating License DPR-22 hereby propose the following changes to the Appendix A Technical Specifications.

PROPOSED CHANGES

1. Increase the allowable setpoint for the safety/relief valves from 1080 psig to 1108 psig.
2. Revise the minimum Operating MCPR Limit for both 8x8 and 8x8E fuel to 1.33.
3. Revise the Bases to be consistent with the changes proposed in (1) and (2) above.

REASON FOR CHANGES

For a number of years Northern States Power Company has been directly involved in improving the reliability of the eight safety/relief valves installed at the Monticello Nuclear Generating Plant. A number of equipment modifications and procedural changes have been made to greatly reduce the probability that a valve will fail to open when required. One continuing problem, however, is the tendency for these valves to leak excessively during normal operation. At other facilities, spurious opening or failure to reclose have been problems. While excessive leakage or spurious opening is not a serious safety problem, it does reduce availability by requiring the plant to go to cold shutdown for safety/relief valve replacement or repairs.

General Electric has determined that leakage and the probability of a spontaneous valve opening or failure to reclose is strongly influenced by the safety/relief valve simmer margin. Simmer margin is defined as the pressure difference between the valve setpoint and the normal system operating pressure. General Electric recommends increasing valve simmer margin to the maximum permitted by safety analyses. We propose in this License Amendment Request to increase the simmer margin by 28 psi and believe that this increase will significantly improve the performance of our valves.

EXHIBIT A

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We are able to increase safety/relief valve setpoint because of the large amount of excess relief capacity installed at Monticello. Monticello was originally designed with four safety valves discharging directly into the drywell atmosphere and four safety/relief valves with exhaust piping to the suppression pool. In 1974, all safety valves were replaced with safety/relief valves of the same type as those originally installed. This significantly increased the installed relief capacity in two ways (references 1 and 2). First, each safety/relief valve provided a greater flow rate than the spring safety valve it replaced. Second, because the setpoints of the safety/relief valves are substantially lower than safety valve setpoints, the modified system provided an earlier negative void reactivity feedback which aided in reducing transient pressure during limiting pressurization events. The NRC Staff gave credit for the valve capacity but required additional time to evaluate analytical models before allowing credit for the latter phenomenon. An interim Technical Specification was issued (page 3 of the safety evaluation attached to reference 2) which required seven safety/relief valves to be operable even though the transient analyses showed that only six valves were necessary. The practice over the four intervening years has been to license similar BWR's using the same analytical models for the number of operable safety/relief valves assumed in the transient analyses. The Monticello Technical Specifications were never revised to remove the interim conservatism imposed by the Staff. Rather than seek a reduction from seven to six operable safety/relief valves at this time, we prefer to take credit for the seventh safety/relief valve which permits a 28 psi increase in the setpoints of all valves while maintaining an acceptable transient peak vessel pressure.

Reload 6 is scheduled for the 1978 Autumn refueling outage. In addition to the safety evaluation based on the currently authorized safety/relief valve setpoint of 1080 psig (reference 4), additional transient analyses have been performed to justify an increase in setpoint to 1108 psig. The results of this analysis are presented in Exhibit C.

As noted in Exhibit C, in the analysis of the turbine trip without bypass, it was found that the change in critical power ratio caused by the increased safety/relief valve setpoint is insignificant (0.002 delta CPR). This change affects the roundoff to two significant decimal places (the conventional roundoff adopted), therefore the MCPR Operating Limit is increased by 0.01 over the limit reported in reference (4).

EXHIBIT A

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SAFETY EVALUATION

The safety evaluation for Reload 6 was submitted for NRC review on August 10, 1978 (reference 4). Increases in the maximum allowable safety/relief valve setpoint only affect those events which result in valve self-actuation. The limiting events which have been reanalyzed are the most severe pressurization transient (turbine trip with failure of the bypass valve), vessel overpressure protection analysis (closure of all main steam isolation valves with indirect scram from high neutron flux), and the loss-of-coolant accident (small break). In addition, the capability of the RCIC and HPCI systems were evaluated for the higher safety/relief valve setpoints. Refer to Exhibit C for the results of these analyses. A safety/relief valve setpoint of 1108 psig for all eight valves is clearly acceptable.

A stress analysis of all four main steam lines and all eight safety/relief valve discharge lines was completed and submitted to the NRC for review when additional safety/relief valves were added (reference 1). Increasing the valve setpoint from 1080 to 1108 psig will result in a steam flow increase at setpoint pressure of less than three percent. Conservative assumptions were used in deriving the transient loads for the stress analysis reported in reference (1) making it valid for the increased valve setpoints. We will re-evaluate the torus discharge piping (including newly installed T-quenchers) for the 1108 psig setpoint using recent Monticello T-quencher test data.

All safety/relief valve discharge lines, main steam piping loads, and T-quenchers will be re-evaluated for the Mark I Containment Long Term Program loads and for the effects of the increased setpoints. This analysis will be initiated later this year when the discharge line loads model is available from General Electric. This reanalysis will allow for further increases in safety/relief valve simmer margin which may be justified in the future.

References

1. Letter from L O Mayer, NSP, to J F O'Leary, USAEC, dated January 23, 1974, "Permanent Plant Changes to Accommodate Equilibrium Core Scram Reactivity Characteristics," with data dated March 19, 1974.
2. Letter from K R Goller, USAEC, to L O Mayer, NSP, dated May 14, 1974, Amendment No. 3 to DPR-22.
3. Letter from L O Mayer, NSP, to Director, NRR, USNRC "License Amendment Request dated March 21, 1978."
4. Letter from L O Mayer, NSP, to Director, NRR, USNRC, dated August 10, 1978, "Supplement No. 1 to License Amendment Request March 21, 1978."

EXHIBIT B

LICENSE AMENDMENT REQUEST
DATED AUGUST 16, 1975

This exhibit consists of the following pages revised to incorporate all of the proposed Technical Specification changes:

23
25
26
119
134
189D*
189G*

*Revisions proposed in Supplement No. 1 to License Amendment Request dated March 21, 1978 are also shown on these pages. This supplement was submitted for NRC review on August 10, 1978.