

UNITED STATES NUCLEAR REGULATORY COMMISSION

NORTHERN STATES POWER COMPANY  
MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

REQUEST FOR AMENDMENT TO  
OPERATING LICENSE DPR-22

LICENSE AMENDMENT REQUEST DATED November 25, 1996

Northern States Power Company, a Minnesota corporation, requests authorization for changes to Appendix A of the Monticello Operating License as shown on the attachments labeled Exhibits A, B, and C. Exhibit A describes the proposed changes, describes the reasons for the changes, and contains a Safety Evaluation, a Determination of Significant Hazards Consideration and an Environmental Assessment. Exhibit B contains current Technical Specification pages marked up with the proposed changes. Exhibit C is a copy of the Monticello Technical Specifications incorporating the proposed changes

This letter contains no restricted or other defense information.

NORTHERN STATES POWER COMPANY

By William J. Hill  
William J Hill  
Plant Manager  
Monticello Nuclear Generating Plant

On this \_\_\_\_\_ day of \_\_\_\_\_ before me a notary public in and for said County, personally appeared William J Hill, Plant Manager, Monticello Nuclear Generating Plant, and being first duly sworn acknowledged that he is authorized to execute this document on 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.

\_\_\_\_\_  
Samuel I. Shirey  
Notary Public - Minnesota  
Sherburne County  
My Commission Expires January 31, 2000

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## EXHIBIT A

### MONTICELLO NUCLEAR GENERATING PLANT

License Amendment Request Dated November 25, 1996  
Safety Limit Minimum Critical Power Ratio.

Evaluation of Proposed Changes, to the Technical Specifications  
for Operating License DPR-22.

Pursuant to 10 CFR Part 50, Section 50.59 and 50.90, Northern States Power Company hereby propose the following changes to Appendix A, of the Monticello Technical Specifications:

#### Proposed Changes

A. Safety Limit Minimum Critical Power Ratio (SLMCPR)

In section 2.1.A on page 6, change "1.07" to "1.08" for two recirculation loop operation, and change "1.08" to "1.09" for single loop operation.

In the second sentence of Bases section 2.1 on page 10, replace " 1.07" with "***the values specified in Technical Specification 2.1.A***".

B. Operating Limit Minimum Critical Power Ratio (OLMCPR)

In section 3.11.C on page 213, Revise the first sentence of 3.11.C to read:

"The All MCPRs shall be greater than or equal to the MCPR operating limits provided in the Core Operating Limits Report

Delete the second sentence which currently reads:

"The OLMCPR limit for one recirculation loop operation is 0.01 higher than the comparable two loop value."

#### Reason for Changes

A. Safety Limit Minimum Critical Power Ratio (SLMCPR)

General Electric notified NSP via letter dated April 2, 1996 that fuel type generic Safety Limit Minimum Critical Power Ratios (SLMCPRs) as calculated by GESTAR II ("General Electric Standard Application for Reactor Fuel," NEDE-24011-P-A-11, and U.S. Supplement, NEDE-24011-P-A-11-US, November 17, 1995) may be non-conservative when applied to some actual core and fuel designs. The U. S. Nuclear Regulatory

Commission (USNRC) was informed of this condition in a telephone call on March 27, 1996, and was the subject of a 10 CFR Part 21 notification from General Electric Nuclear Energy (GENE) dated May 24, 1996.

GENE's calculation of the revised plant-specific SLMCPR value for Monticello's Cycle 18 is based upon USNRC approved methods ("General Electric Standard Application for Reactor Fuel," NEDE-24011-P-A-11, and U. S. Supplement, NEDE-24011-P-A-11-US, November 17, 1995) and interim implementing procedures. Revision 11 of GESTAR II requires that the SLMCPR be reconfirmed each cycle. This reconfirmation was performed using the interim implementing procedures discussed with GENE during their meetings with the NRC staff on April 17, 1996 and May 6 through 10, 1996. The implementing procedures incorporate cycle-specific parameters into the analysis which include: 1) the actual core loading, 2) conservative variations of projected control blade patterns, 3) the actual bundle parameters (e.g., local peaking), and 4) the full cycle exposure range. Any future changes to the interim procedures which have been reviewed and approved by the NRC, will be used by NSP in future SLMCPR determinations.

Results of the GE analysis for the Monticello plant determined that the maximum SLMCPR value is 1.08 for two loop operation. The impact on single loop operation continues to be 0.01 higher than the normal two loop operation SLMCPR.

B. Operating Limit Minimum Critical Power Ratio (OLMCPR)

The Operating Limit Minimum Critical Power Ratio (OLMCPR) is a core dependent limit that should be specified in the Core Operating Limits Report (COLR), not specifically stated in the body of the Technical Specifications as is currently done. This revised wording also makes the Monticello Technical Specification consistent with BWR/4 Improved Standard Technical Specification, (NUREG-1433) section 3.2.2.

## Safety Evaluation

A. Safety Limit Minimum Critical Power Ratio (SLMCPR)

The proposed change will revise Technical Specification Section 2.1.A to reflect the change in the SLMCPRs due to the plant specific evaluation performed by GENE for the Monticello Nuclear Generating Plant. The new SLMCPRs are calculated using NRC-approved methods ("General Electric Standard Application for Reactor Fuel," NEDE-24011-P-A-11, and U. S. Supplement, NEDE-24011-P-A-11-US, November 17, 1995) and interim implementing procedures as discussed during the GENE meetings with the NRC on April 17, 1996 and May 6 through 10, 1996. The SLMCPRs are set high enough to ensure that greater than 99.9% of all fuel rods in the core avoid transition boiling if the limit is not violated. The SLMCPRs incorporate margin for uncertainty in the core operating state and for uncertainties which are dependent on fuel type, including fuel bundle nuclear characteristics, critical power correlation, and manufacturing tolerances. These interim procedures have been revised to incorporate cycle-specific parameters which include: 1) the actual core loading, 2) conservative variations of projected control blade patterns, 3) the actual bundle parameters (e.g., local peaking), and 4) the full cycle

exposure range. The new SLMCPRs at the Monticello Nuclear Generating Plant are 1.08 for two loop operation, and 1.09 for single loop operation.

B. Operating Limit Minimum Critical Power Ratio (OLMCPR)

Current plant Technical Specifications establish the Operating Limit Minimum Critical Power Ratio (OLMCPR) for single recirculation loop operation as the two loop operation OLMCPR limit plus 0.01.

The most recent Monticello cycle specific analysis resulted in a calculated OLMCPR for one recirculation loop greater than the OLMCPR value currently specified by plant Technical Specifications. Because the larger CPR is more limiting, the COLR value was more restrictive than the Tech Spec value. Relocating the MCPR value to the COLR will eliminate the potential for this discrepancy in the future.

The single loop OLMCPR evaluation was performed using NSP methodology approved by the NRC as identified in Technical Specification 6.7.A.7.b. NSP methodology established OLMCPR such that integrity of the SLMCPR is maintained for the bounding analyzed transients. To ensure integrity of the SLMCPR, the COLR reflects the more restrictive OLMCPR, and because OLMCPR is a variable value determined by cycle specific core evaluations, the correct location is in the COLR which was revised to reflect the new values. In the Improved Standard Technical Specifications, the OLMCPR limit is also in the COLR.

### **Determination of Significant Hazards Considerations**

The proposed change to the Operating License has been evaluated to determine whether it constitutes a significant hazards consideration as required by 10 CFR Part 50, Section 50.91 using standards provided in Section 50.92. This analysis is provided below:

The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The basis of the MCPR Safety Limit calculation is to ensure that greater than 99.9% of all fuel rods in the core avoid transition boiling if the limit is not violated. The new SLMCPRs preserve the existing margin to transition boiling and fuel damage in the event of a postulated accident. The probability of fuel damage is not increased.

The derivation of the revised SLMCPRs for Monticello for incorporation into the Technical Specification, and its use to determine cycle-specific thermal limits, have been performed using NRC-approved methods as identified in Technical Specification 6.7.A.7.b. NSP methodology established OLMCPR such that integrity of the SLMCPR is maintained for the bounding analyzed transients. Additionally, GENE interim implementing procedures, which incorporate cycle-specific parameters, have been used. Based on the use of these calculations, the calculation of the revised SLMCPRs maintains the integrity of the safety limits and therefore cannot increase the probability or severity of an accident. The single loop OLMCPR evaluation was performed using NSP methodology approved by the NRC.

Relocating the OLMCPR value to the COLR establishes appropriate control on a core operating limit which may vary from cycle to cycle because it is cycle dependent. Since OLMCPR is developed using procedures approved in the Technical Specifications, placing the OLMCPR in the COLR cannot result in a change not controlled by the Technical Specifications.

The change does not affect failure modes of equipment, therefore, this amendment will not cause a significant increase in the probability or consequences of an accident previously evaluated.

The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

The MCPR Safety Limit is a Technical Specification numerical value, designed to ensure that fuel damage from transition boiling does not occur as a result of the limiting postulated accident. It cannot create the possibility of any new type of accident. The new SLMCPRs have been calculated using NRC-approved methods and the OLMCPR values are more conservative. Additionally, interim procedures, which incorporate cycle-specific parameters, have been used. Therefore, the proposed Technical Specification change does not create the possibility of a new or different kind of accident, from any accident previously evaluated.

The proposed amendment will not involve a significant reduction in the margin of safety.

The MCPR Safety Limit is a Technical Specification numerical value, designed to ensure that fuel damage from transition boiling does not occur as a result of the limiting postulated accident. Increasing the SLMCPR and OLMCPR values results in an increase in the margin of safety to fuel failure, and does not affect other plant systems. Therefore, the proposed Technical Specification change does not involve a significant reduction in the margin of safety.

## **Environmental Assessment**

Northern States Power has evaluated the proposed changes and determined that:

1. The change does not involve a significant hazards consideration.
2. The changes do not involve a significant change in the type or significant increase in the amounts of any effluent that may be released offsite, or
3. The changes do not involve a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed changes met the eligibility criterion for categorical exclusion set forth in 10 CFR Part 51, Section 51.22(b), an environmental assessment of the proposed changes is not required.