

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 December 11, 1995

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, C and D. 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. Exhibit D contains a summary of the containment purge and vent valve leakage results.

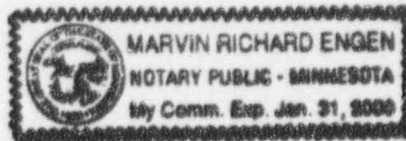
This letter contains no restricted or other defense information.

NORTHERN STATES POWER COMPANY

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

On this 11<sup>th</sup> day of December 1995 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.

Marvin R Engen  
Marvin R Engen  
Notary Public - Minnesota  
Sherburne County  
My Commission Expires January 31, 2000



## EXHIBIT A

### Monticello Nuclear Generating Plant

#### License Amendment Request Dated December 11, 1995

#### 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, the holders of Operating License DPR-22 hereby propose the following change:

#### Proposed Changes

Technical Specification 4.7.D.4 (found on page 171 of Appendix A of the facility operating license) specifies a surveillance requirement for the drywell and suppression chamber 18-inch purge and vent valves. The surveillance requirement states:

*The seat seals of the drywell and suppression chamber 18-inch purge and vent valves shall be replaced at least once every five years.*

Surveillance requirement 4.7.D.4 was established in the Monticello Technical Specifications by Amendment Number 64, dated May 10, 1989, to the Monticello facility operating license. Technical Specification changes incorporated by Amendment 64, in part, provided resolution to Multi-Plant Action B-24 (purge and vent valve operability) for the Monticello Nuclear Generating Plant. Replacement of the drywell and suppression chamber 18-inch purge and vent valve seat seals on a five year interval was provided as an alternative to the NRC Staff position requiring accelerated local leakage testing of containment purge and vent valves. This Staff position was in response to the poor performance demonstrated for similar butterfly valves with resilient seals in service throughout the nuclear industry.

This submittal proposes to delete surveillance requirement 4.7.D.4

#### Reason for Changes

Deletion of surveillance requirement 4.7.D.4 would result in a reduction in radiation exposure of 6 person-rem and eliminate the maintenance and engineering support resource associated with this activity without any compromise in the level of protection provided to the health and safety of the public.

By letter dated November 22, 1985; from David M Musolf to Director, Office of Nuclear Reactor Regulation; with subject, "Additional Information to Support Proposed Technical Specifications for Containment Vent and Purge Valves," Monticello demonstrated that the T-shaped seal valve design for the Monticello purge and vent valves is relatively free of the valve leakage problems experienced at other facilities. Valve leakage test data for the period 1970 to 1985 was provided in our November 22, 1985 letter to support the problem free performance of these valves. We have reviewed the maintenance history and the results of the leakage test program for the primary containment purge and vent valves for the period subsequent to 1985

to present. We have determined that the operational performance of these valves over the last ten years supports the removal of surveillance requirement 4.7.D.4.

The results of the leakage test program for the Primary Containment Purge and Vent Valves is provided in Exhibit D of this submittal. This data supports the conclusion that no significant improvement in valve leakage performance can be attributed to replacement of the valve's elastomer T-shaped seat seal. Furthermore, the results of leakage tests performed between the elastomer T-shaped seat seal replacement during the 1986 outage and the 1991 outage and subsequent to the 1991 outage indicate no adverse change in valve seat leakage performance.

Deletion of surveillance requirement 4.7.D.4 is also supported by the leakage test results provided in Exhibit D for valves AO-2379 and AO-2380. These valves are the Torus to Reactor Building Vacuum Breaker Isolation valves. They are 20-inch air operated butterfly valves of the same model and design as the Primary Containment Purge and Vent valves. The Torus to Reactor Building Vacuum Breaker Isolation valves employ the same T-shaped elastomer seat seal as the Primary containment Purge and Vent valves and are not subject to the 5 year seat seal replacement requirement. The T-shaped elastomer seat seals of these valves were replaced in 1986. During the nine years of service of the Torus to Reactor Building Vacuum Breaker Isolation valves, there has been no degradation of valve seat leakage attributed to a failure of the T-shaped elastomer seat seal.

As stated above, due to Monticello's operational experience with the Primary Containment Purge and Vent Valves, Monticello proposed in our November 22, 1985 letter the replacement of the T-shaped elastomer seat seal as an alternative to the NRC staff position requiring accelerated local leakage testing of containment purge and vent butterfly valves. Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program" (September 1995) modifies the earlier staff position requiring accelerated local leakage rate testing by stating the following:

*...the interval for Type C tests for...containment purge and vent valves in PWRs and BWRs, should be limited to 30 months...with consideration given to operating experience and safety significance.*

This submittal does not propose any change to the existing requirements contained in the Monticello Technical Specifications for the leak testing of the Primary Containment Purge and Vent valves per 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing For Water-Cooled Power Reactors."

The change is proposed as a cost beneficial licensing action in that the deletion of surveillance requirement 4.7.D.4 has the potential of improving safety by allowing licensee resources to be shifted from an activity that has a no effect on safety to those that more significantly enhance safety. It is estimated that a cost savings of approximately \$100,000 and a savings of 6 person-rem would be realized over the remaining life of the plant as a result of the proposed action.

## Safety Evaluation

Purging of the primary containment is accomplished by use of an exhaust fan discharging to a purge line which goes to both the drywell and suppression chamber. The 18-inch purge line has 3 air operated isolation valves (AO-2377, AO-2378, and AO-2381) which will close on a Group 2 Primary Containment Isolation signal. The primary containment may be vented to the standby gas treatment system or the Reactor Building exhaust plenum. Venting is via the vent lines from the drywell and the suppression chamber. Each vent line has two 18-inch air operated isolation valves (AO-2386, AO-2387, AO-2383 and AO-2896). The vent line isolation valves close on the same isolation signal as the valves on the purge lines. The 18-inch purge and vent valves fail closed, are normally closed during plant operation when the reactor is at a temperature greater than 212°F, and provide primary containment isolation during design basis accidents requiring primary containment isolation.

The 18-inch purge and vent valves are Fisher Controls Company-Continental Division, Type 9200, offset disc, T-shaped, butterfly valves; employing a replaceable T-shaped elastomer seat. The elastomer seat is pressure activated, providing a tight shutoff seal. The pneumatic supply for the seal pressure is provided by the Instrument Nitrogen system with a backup pneumatic supply from the safety grade Alternate Nitrogen system and installed accumulators. With the valve disc in the full closed position, the seal pressure is applied to the back of the elastomer ring giving the valve tight shutoff. Immediately upon an open signal, the seal pressure is released. After a short time delay the actuator is permitted to open the valve allowing the disc to leave the seat without any force being exerted on the valve disc by the elastomer ring. When the valve disc is brought from its open position to the full closed position, a time delay is also used for pressurizing the seal. The valve disc is allowed to become fully closed (completely in the seat) after a short time delay the seal pressure is applied to a chamber behind the T-shaped seal.

An evaluation of the operational performance of the 18-inch purge and vent valves has concluded that deletion of the Monticello Technical Specification surveillance requirement to perform a replacement of the T-shaped elastomer seat will have no adverse impact on the seat leakage performance of these primary containment isolation valves, and thus no adverse impact on the testing performed in accordance with 10 CFR 50, Appendix J. The operating experience of these valves has demonstrated that the testing performed in accordance with 10 CFR 50, Appendix J provides a high level of confidence in the ability of these valves to perform their safety function with respect to valve leak tightness.

The material of which the T-shaped elastomer seat is comprised of has been found to withstand normal and accident thermal exposures for the design life of the plant based on a thermal aging analysis. The Purge and Vent valve elastomer seat material will provide acceptable seat tightness when exposed to a total integrated radiation dose of  $10^7$  Rads based on information provided by the Electric Power Research Institute (EPRI) in technical report EPRI NP-2129, *Radiation Effects on Organic Material in Nuclear Plants*, November 1981; and limited testing performed by the valve vendor. The radiation dose of  $10^7$  Rads bounds the design basis accident dose which these valves would be exposed to. The radiation dose the valves would be exposed to during normal operations is insignificant when compared to the accident dose. Thus the radiation effects will not have an adverse impact on the elastomer seat material.



### 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.

An evaluation of the operational performance of the 18-inch purge and vent valves has concluded that deletion of the Monticello Technical Specification surveillance requirement 4.7.D.4 will have no adverse impact on the seat leakage performance of these primary containment isolation valves, no adverse impact on the testing performed in accordance with 10 CFR 50, Appendix J, and thus no adverse impact on the containment isolation function of these primary containment isolation valves. The material of which the T-shaped elastomer seat is comprised of has been found to withstand normal and accident thermal exposures for the design life of the plant based on a thermal aging analysis. Radiation effects will not have an adverse impact on the elastomer seat material. Therefore, this amendment will not cause a significant increase in the probability or consequences of an accident previously evaluated for the Monticello plant.

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

The proposed change to the Technical Specifications for the Primary Containment Purge and Vent valves does not alter the function of these components or their interrelationships with other systems. Therefore, this amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

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

The operating experience of these valves has demonstrated that the testing performed in accordance with 10 CFR 50, Appendix J provides a high level of confidence in the ability of these valves to perform their safety function with respect to valve leak tightness. The proposed amendment will 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.