

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

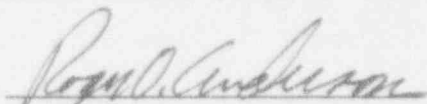
LICENSE AMENDMENT REQUEST DATED November 18, 1993

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. Exhibit D provided contains the Control Room Habitability Toxic chemical Study.

This letter contains no restricted or other defense information.

NORTHERN STATES POWER COMPANY

By



Roger O Anderson
Director

Licensing and Management Issues

On this 30 day of November 1993 before me a notary public in and for said County, personally appeared Roger O Anderson, Director Licensing and Management Issues, 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.

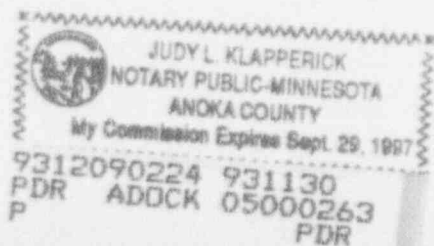
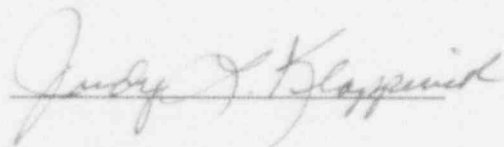


EXHIBIT A

Monticello Nuclear Generating Plant

License Amendment Request Dated November 18, 1993

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 changes:

1. Concerning Deletion of Requirements for the Chlorine Detection System

Proposed Changes

The Monticello Control Room Ventilation system is designed to maintain the habitability of the Main Control Room and provide automatic control room isolation during a chlorine toxic chemical release. Current Control Room Ventilation system design includes two chlorine detectors which automatically initiate the toxic chemical mode of operation for the Control Room Ventilation system. Monticello Technical Specifications sections 3.2.I.1, Table 3.2.9, Table 4.2.1, and 4.17.A.2 specify operability and surveillance requirements for the chlorine detection portion of the Control Room Ventilation System. The basis of these specifications is to ensure automatic isolation of the control room during a chlorine release resulting from a transportation accident on Interstate Highway 94 within five mile of the Monticello Nuclear Generating Plant. The following identifies proposed changes to the Monticello Technical Specifications to allow deletion of the chlorine detectors.

Delete Specification 3.2.I.1 which requires the limiting conditions for operation for the chlorine instrumentation listed in Table 3.2.9 to be met whenever the Control Room Ventilation system is required to be operable. Renumber specification 3.2.I.2 to 3.2.I.1 due to the deletion of specification 3.2.I.1. (Changes A identified in Exhibit B)

For Table 3.2.9, "Instrumentation for Control Room Habitability Protection", delete or revise the following pertaining to the chlorine detection function. (Changes B identified in Exhibit B)

Delete the "Chlorine" function and associated limiting conditions for operation.

Delete Note (2) of Table 3.2.9 which states: "all instrument channels are shared by both trip systems".

Delete from required condition A specified on Table 3.2.9 the words "at least one control room ventilation system subsystem in the isolation mode of operation for an inoperable chlorine detector or" and "for an inoperable radiation monitor".

Delete required condition B from Table 3.2.9 which states: "Within 24 hours reduce reactor water temperature to below 212°F and suspend core alterations, fuel handling and activities having the potential for draining the reactor vessel".

Revise required condition C to be identified as required condition B.

In Table 4.2.1, "Minimum Test and Calibration Frequency for Core Cooling, Rod Block and Isolation Instrumentation", delete the identified chlorine instrument channel and the associated test, calibration and sensor check frequency requirements under the "CONTROL ROOM HABITABILITY PROTECTION" section of the table (Change C identified in Exhibit B).

Delete from the Bases for Technical Specification Section 3.2 the discussion of the onsite and offsite toxic chemical hazards (page 69a of the Monticello Technical Specifications). Add a discussion of the results of the revised Control Room Habitability - Toxic Chemical Survey to the Bases for Technical Specification 3.17.A (page 229y of the Monticello Technical Specifications). (Changes D identified in Exhibit B)

Delete specification 4.17.A.2 which requires that at least once per 18 months to verify that the control room isolates on detection of chlorine and the note associated with specification 4.17.A.1. (Changes E identified in Exhibit B).

In the Bases for Technical Specification Section 3.17.A (page 229y of the Monticello Technical Specification), delete the words "from the control room or automatic action. Automatic action includes isolation on detection of chlorine" (Change F identified in Exhibit B).

Reason for Changes

Due to design changes at the Monticello Nuclear Generating Plant, chlorine is no longer stored onsite as a liquified gas and regulations requiring early warning of an onsite chlorine release do not apply. Monticello utilizes a Sodium Hypochlorite system to minimize the buildup of microbiological growth in systems serviced by the Circulating and Service Water systems. Sodium hypochlorite is not considered a toxic substance, and due to its physical properties it does not pose a risk to operators. NSP recognized that removal of onsite liquified gas chlorine storage may eliminate the need for the Control Room Ventilation chlorine detectors. A calculation was prepared in 1986 to determine if the detectors could be removed. The 1986 calculation concluded that Interstate 94 truck shipments of chlorine, using conservative deterministic models, posed a significant enough hazard to warrant the continued use of the detectors.

A new toxic chemical survey has been performed (Exhibit D, attached) which identified toxic chemicals in sufficient quantities stored onsite, stored in the vicinity of the site, or shipped near the plant at sufficient frequency to warrant further evaluation. Based on the study presented in Exhibit D, potential releases from all sources of toxic chemicals need not be considered in the design of the Monticello Nuclear Generating Plant and no special Control Room Ventilation chlorine detectors are required.

Safety Evaluation

The inclusion of the chlorine detectors in the Monticello Control Room Ventilation system was in response to NUREG-0737, Section III.D.3.4, "Control Room Habitability." NUREG-0737 required all licensees to re-evaluate control room habitability. This review for previously licensed plants, such as Monticello, was to focus on the effects of the accidental release of toxic gases and radioactive materials. The objective was to demonstrate that control room operators are adequately protected in the event of such accidents and that the plant could be safely shutdown. Previous analyses of control room habitability concluded that Interstate 94 truck shipments of chlorine, using conservative deterministic models, posed a significant enough hazard to warrant the continued use of the chlorine detectors.

A new toxic chemical survey has been performed for the Monticello Nuclear Generating Plant (Exhibit D, attached). Toxic chemicals were evaluated in accordance with applicable regulatory requirements. It was deterministically concluded that all chemicals stored onsite, stored in the vicinity of the site, or transported near the plant site, with the exception of chemical shipments by truck, do not pose a significant threat to control room operators. No early detection equipment is required for postulated chemical releases as sufficient time (at least two minutes) is available for the control room operators to don protective breathing equipment.

For the case of chemicals transported by truck, a probabilistic model was developed which accounts for the frequency of trucking accidents, hazardous material shipments, and various weather conditions to determine the likelihood of a trucking accident which results in a toxic chemical release. Calculated probabilities were compared to the criteria of Standard Review Plan, Section 2.2.3, and Regulatory Guide 1.70. Regulatory Guide 1.70, Section 2.2.3.1 states: "Design basis events external to the nuclear plant are defined as those accidents that have a probability of occurrence on the order of about 10^{-7} per year or greater and have potential consequences serious enough to affect the safety of the plant to the extent that Part 100 guidelines could be exceeded." The SRP indicates that offsite hazardous releases need not be considered if "a conservative calculation showing that the probability of occurrence of potential exposures in excess of the 10 CFR Part 100 guidelines is approximately 10^{-6} per year... This is acceptable if when combined with reasonable qualitative arguments, the realistic probability can be shown to be lower." The probability of a toxic chemical release from a trucking accident resulting

in control room operator incapacitation to the extent that Part 100 guidelines could be exceeded has been determined to be less than 3.78×10^{-8} per year. This probability was determined with a number of conservatisms in the analysis approach. Therefore, the acceptance criteria of both the Regulatory Guide and Standard Review Plan were demonstrated.

Based on the study presented in Exhibit D, potential releases from all sources of toxic chemicals need not be considered in the design of the Monticello Nuclear Generating Plant and no special Control Room Ventilation chlorine detectors are required. Postulated chemical releases have been shown to be such that incapacitation of the control room operators would not occur within allowed time frames for the donning of protective breathing equipment or, that the probability of a trucking transportation accident involving chlorine with the potential consequences of a radioactive release in excess of 10 CFR 100 guidelines is well below the level of concern as established in regulatory guidance.

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.

Postulated chemical releases of chlorine have been shown to be such that incapacitation of the control room operators would not occur within allowed time frames for the donning of protective breathing equipment, or that the probability of a chlorine trucking transportation accident which causes incapacitation of control room operators with potential consequences of a radioactive release in excess of 10 CFR 100 guidelines is well below the level of concern as established in regulatory guidance. 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 performance of a new toxic chemical analysis for the Monticello site has demonstrated that human detection may be relied upon to detect chlorine toxic chemical releases. Operator protection is established via the donning of protective breathing equipment. The capability to manually isolate the control room with dampers is retained. The ability of the operators to cope with a chlorine toxic gas hazard remains consistent with the protection measures available for other toxic chemicals stored onsite, stored in the vicinity of the site, or transported near the plant site. The proposed amendment will not create the possibility of a new or different kind of accident.

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

The performance of a new toxic chemical analysis for the Monticello site has demonstrated that incapacitation of the control room operators would not occur within allowed time frames for the donning of protective breathing equipment and that a postulated hazardous chemical release due to a trucking transportation accident involving chlorine is of a sufficiently low probability of occurrence that it need not be considered. The basis of the chlorine detectors and associated Technical Specifications is to provide protection against an accident scenario which has been demonstrated to be of extremely low probability (a trucking transportation accident involving chlorine within five miles of the plant), therefore removal of the chlorine detectors from the plant design and the associated Technical Specifications will not involve a significant reduction in the margin of safety.

2. Concerning the Limiting Conditions for Operation for the Control Room Ventilation System and Technical Specification Bases

Proposed Changes

The function of the Control Room Ventilation system is to maintain Main Control Room habitability by providing adequate cooling for personnel and control room equipment. The Control Room Ventilation system is designed with sufficient redundancy and separation such that the accident events for which the system is required will not preclude the system from performing its required functions. Monticello Technical Specification 3.17.A specifies limiting conditions for operation for the Control Room Ventilation system. Technical Specification 3.17.A.1 states that except as specified in the limiting conditions of specifications 3.17.A.2 and 3.17.A.3, both trains of the Control Room Ventilation system shall be operable at all times. The basis for specification 3.17.A.1 was to ensure that the Control Room Ventilation system provided a continuous sample flow to the chlorine detectors. The basis for the limiting conditions for operation is to ensure that an inoperable train of Control Room Ventilation is returned to service in a reasonable time with consideration given for the capability of the redundant train to perform system functions. We propose the following changes to Technical Specification 3.17.A.

Change specification 3.17.A.1 such that except as specified in the limiting conditions for operation, both trains of the Control Room Ventilation system would be required to be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F or during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having a potential for draining the reactor vessel (Change G identified in Exhibit B).

Technical Specification 3.17.A.2 specifies a limiting condition for

operation of seven days for one train of the Control Room Ventilation system to be inoperable. We propose to change Monticello Technical Specification 3.17.A.2 such that the limiting condition for operation would specify a time period of 30 days in which to restore an inoperable train to service. In addition we propose to change specification 3.17.A.2 to require immediate suspension of core alterations, irradiated fuel handling, or activities with potential for draining the reactor vessel if the operable train of Control Room Ventilation is not placed in operation and the 30 day time period is exceeded (Change H in Exhibit B). Similarly, we propose to change Monticello Technical Specification 3.17.A.3 such that the limiting condition for operation requires immediate suspension of the specified activities if both trains of Control Room Ventilation are inoperable and one train is not restored to operable status within 24 hours (Change I in Exhibit B).

The Bases for Technical Specification 3.17.A which discusses the Control Room Ventilation system performance capability for maintaining control room temperatures and humidity (page 229y of the Monticello Technical Specifications) specifies "the system is designed to maintain 50% relative humidity and a temperature or [sic] 78°F dry bulb in the summer and 72°F in the winter". We propose to change this bases statement such that it states: "The system is designed to maintain a nominal temperature of 78°F dry bulb and 50% nominal relative humidity in the main control room in the summer and a nominal temperature of 72°F in the winter." (Change J in Exhibit B).

Reason for Changes

The basis for specification 3.17.A.1 was to ensure that the Control Room Ventilation system provided a continuous sample flow to the chlorine detectors. However, as discussed previously, chlorine detection is no longer required. The proposed changes to the limiting conditions for operation specified in specification 3.17.A would make the Monticello Technical Specification for the Control Room Ventilation system consistent with NUREG-1433, "Standard Technical Specifications, General Electric Plant, BWR/4". In addition these changes would provide greater flexibility for the operation of the Control Room Ventilation system.

The wording of the Bases for the Control Room Ventilation system performance capability regarding control room temperatures and humidity could be interpreted such that the statement indicates the system maintains 50% relative humidity in the winter and summer months. A review of the design basis of the Control Room Ventilation system has determined that there is no requirement to maintain a minimum relative humidity environment in the control room and that the 50% value is a nominal maximum for the summer months (when a high relative humidity is likely). The proposed change corrects the Technical Specification Bases to be consistent with the original Control Room Ventilation system design.

Safety Evaluation

The Control Room Ventilation system is designed to maintain control room habitability by providing adequate cooling of personnel and control room equipment under both normal and accident conditions. The proposed changes to Technical Specification 3.17.A establish operability requirements consistent with the Standard Technical Specification for plants of Monticello's class.

The operability requirements as proposed for the revised specification 3.17.A.1 ensure that the Control Room Ventilation system is operable during plant conditions for which significant radioactive releases are postulated. The basis of requiring the Control Room Ventilation system to be operable at all times, was to ensure that chlorine detector instrumentation was also operable via a flow path in the Control Room Ventilation system providing a representative sample to the chlorine detectors. Chlorine detectors are no longer required and thus the operability of the Control Room Ventilation system in all modes of reactor operation is not necessary. Postulated chemical releases have been shown to be such that incapacitation of the control room operators would not occur within allowed time frames for the donning of protective breathing equipment or that the probability of a chlorine trucking transportation accident which causes incapacitation of control room operators with potential consequences of a radioactive release in excess of 10 CFR 100 guidelines is well below the level of concern as established in regulatory guidance.

The proposed changes to specification 3.17.A.2 ensure that both trains of the Control Room Ventilation system are restored to an operable status within a time frame which takes into consideration the low probability of an event occurring which would require Control Room Ventilation system function, the availability of the redundant Control Room Ventilation train and the capability of the safety related Emergency Filtration Train to pressurize the control room without the Control Room Ventilation system. If operability of both trains is not restored within the required time frame, actions are specified to ensure the plant is placed in a condition which minimizes the potential for the Control Room Ventilation system function to be required. The proposed changes to specification 3.17.A.3 ensure that prompt action is taken considering the safe operation of the plant and the importance of the required actions.

The proposed changes provide requirements to ensure the Control Room Ventilation system is capable of performing its required function or that actions are taken to minimize the potential for its function to be required consistent with plant design requirements and the regulatory guidance.

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 Control Room Ventilation system ensures that Main Control Room habitability is maintained such that personnel and equipment located in the control room can respond to mitigate the consequences of an accident. The system does not contribute to the probability of occurrence of any design basis accident. The operability requirements as proposed for the revised specification 3.17.A ensure that the Control Room Ventilation system is operable during plant conditions for which significant radioactive releases are postulated consistent with the Standard Technical Specification. The proposed changes ensure the Control Room Ventilation system is restored to an operable status or that actions are taken to minimize the importance of the system function within time frames which take into consideration the low probability of an event occurring which would require Control Room Ventilation system function. 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 changes to Technical Specifications 3.17.A do not alter the function of the Control Room Ventilation system or its interrelationships with other systems. The proposed changes provide requirements to ensure the Control Room Ventilation system is capable of performing its required function or that actions are taken to minimize the potential for its function being required consistent with regulatory guidance; 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 operability requirements as proposed for the revised specification 3.17.A ensure that the Control Room Ventilation system is operable during plant conditions for which significant radioactive releases are postulated. The performance of a new toxic chemical analysis for the Monticello site has demonstrated that a postulated hazardous chemical release due to a trucking transportation accident involving chlorine is of a sufficiently low probability of occurrence that it need not be considered. As the basis of the chlorine detectors and current operability requirements for the Control Room Ventilation system is to provide protection against an accident scenario which has been demonstrated to be of extremely low probability, the proposed revision to the Control Room Ventilation operability requirements will not involve a significant reduction in the margin of safety.

The proposed changes to Technical Specification 3.17.A ensure that both

trains of the Control Room Ventilation system are restored to an operable status within a time frame which takes into consideration the low probability of an event occurring requiring Control Room Ventilation system function, the availability of the redundant Control Room Ventilation train and the capability of the safety related Emergency Filtration Train to pressurize the control room without the Control Room Ventilation system. The proposed changes provide requirements to ensure the Control Room Ventilation system is capable of performing its required function or that actions are taken to minimize the potential for its function to be required consistent with regulatory guidance; therefore, the proposed change 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.