



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 31, 2022

Mr. Christopher P. Domingos
Site Vice President
Northern States Power Company - Minnesota
Monticello Nuclear Generating Plant
2807 West County Road 75
Monticello, MN 55362

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT - ISSUANCE OF
AMENDMENT NO. 208 RE: RESIDUAL HEAT REMOVAL DRYWELL SPRAY
HEADER AND NOZZLE SURVEILLANCE FREQUENCY
(EPID L-2022-LLA-0041)

Dear Mr. Domingos:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 208 to Renewed Facility Operating License No. DPR-22 for the Monticello Nuclear Generating Plant. The amendment consists of changes to the technical specifications (TSs) in response to your application dated March 18, 2022.

The amendment revises TS 3.6.1.8, "Residual Heat Removal (RHR) Drywell Spray," to modify Surveillance Requirement 3.6.1.8.2 from a frequency of every 10 years to a frequency of following maintenance that could result in nozzle blockage.

A copy of the Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's monthly *Federal Register* notice.

Sincerely,

/RA/

Robert F. Kuntz, Senior Project Manager
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-263

Enclosure:

1. Amendment No. 208 to DPR-22
2. Safety Evaluation

cc: Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-263

MONTICELLO NUCLEAR GENERATING PLANT

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 208
Renewed License No. DPR-22

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Northern States Power Company (NSPM) dated March 18, 2022, 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 Renewed Facility Operating License No. DPR-22 is hereby amended to read as follows:

2. Technical Specifications

- The Technical Specifications contained in Appendix A, as revised through Amendment No. 208, are hereby incorporated in the license. NSPM shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Nancy L. Salgado, Chief
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License and Technical
Specifications

Date of Issuance: October 31, 2022

ATTACHMENT TO LICENSE AMENDMENT NO. 208
MONTICELLO NUCLEAR GENERATING PLANT
RENEWED FACILITY OPERATING LICENSE NO. DPR-22
DOCKET NO. 50-263

Renewed Facility Operating License

Replace the following page of the Renewed Facility Operating License with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

REMOVE
Page 3

INSERT
Page 3

Technical Specifications

Replace the following page of the Appendix A, Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

REMOVE
3.6.1.8-2

INSERT
3.6.1.8-2

2. Pursuant to the Act and 10 CFR Part 70, NSPM to receive, possess, and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operations, as described in the Final Safety Analysis Report, as supplemented and amended, and the licensee's filings dated August 16, 1974 (those portions dealing with handling of reactor fuel);
 3. Pursuant to the Act and 10 CFR Parts 30, 40 and 70, NSPM to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
 4. Pursuant to the Act and 10 CFR Parts 30, 40 and 70, NSPM to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
 5. Pursuant to the Act and 10 CFR Parts 30 and 70, NSPM to possess, but not separate, such byproduct and special nuclear material as may be produced by operation of the facility.
- C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission, now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
1. Maximum Power Level

NSPM is authorized to operate the facility at steady state reactor core power levels not in excess of 2004 megawatts (thermal).
 2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 208, are hereby incorporated in the license. NSPM shall operate the facility in accordance with the Technical Specifications.
 3. Physical Protection

NSPM shall implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	Verify each RHR drywell spray subsystem manual and power operated valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.8.2	Verify each drywell spray header and nozzle is unobstructed.	Following maintenance that could result in nozzle blockage
SR 3.6.1.8.3	Verify RHR drywell spray subsystem locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program



UNITED STATES
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 208

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-22

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

1.0 INTRODUCTION

By application dated March 18, 2022 (Agencywide Documents Access and Management System Accession No. ML22077A034), Northern States Power Company (the licensee) requested a change to the technical specifications (TSs) for Monticello Nuclear Generating Plant (Monticello).

The proposed amendment would modify the frequency of TS Surveillance Requirement (SR) 3.6.1.8.2 for drywell spray nozzles to an event-based frequency, specifically, it would change the frequency from "10 years" to a frequency of "Following maintenance that could result in nozzle blockage."

2.0 REGULATORY EVALUATION

2.1 System Description

The Monticello primary containment system, which employs a pressure suppression containment system (constructed of steel), houses the reactor primary vessel, the reactor coolant recirculation system loops, and other branch connections of the reactor primary system. The system consists of a drywell, a pressure suppression chamber (wetwell) that stores a large volume of water, a connecting vent system between the drywell and the chamber water pool, isolation valves, ventilating and cooling systems, and other service equipment.

Each of the two residual heat removal (RHR) drywell spray subsystems contains two pumps and one heat exchanger, which are manually initiated and independently controlled. The two subsystems perform the drywell spray function by circulating water from the suppression pool through the RHR heat exchangers and returning most of it to the associated drywell spray header. RHR service water, circulating through the tube side of the heat exchangers, exchanges heat with the suppression pool water and discharges this heat to the ultimate heat sink. Either RHR drywell spray subsystem is sufficient to condense the steam that may exist in the drywell during a postulated design basis accident (DBA).

The Monticello design includes keeping the section of piping between the two drywell spray isolation valves voided (part of containment spray function). The emergency operating procedures that manually initiate containment spray direct the RHR pump(s) to be started, the outboard valve opened, then the inboard valve opened.

2.2 Proposed Change

The proposed license amendment would revise the surveillance frequency for testing the drywell spray nozzles. Specifically, TS SR 3.6.1.8.2 frequency would be changed from “10 years” to “Following maintenance that could result in nozzle blockage.”

The amendment request states that the proposed change would eliminate unnecessary testing of the spray nozzles. The design of the RHR drywell spray subsystems and cleanliness controls used during maintenance activities ensure that line or nozzle blockage is unlikely. Performance of SR 3.6.1.8.2 at the current frequency has the potential to result in unwarranted occupational radiation exposure and increased outage costs without a commensurate increase in system reliability or performance. The proposed change would require that testing be performed based on activities or conditions that could potentially cause nozzle blockage.

2.3 Applicable Regulations

In section 50.36, “Technical specifications,” of title 10 of the *Code of Federal Regulations* (10 CFR), the U.S. Nuclear Regulatory Commission (NRC, the Commission) established its regulatory requirements related to the content of TSs. Pursuant to 10 CFR 50.36, TSs are required to include items in the following categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation; (3) SRs; (4) design features; and (5) administrative controls.

The regulation at 10 CFR 50.36(c)(3), “Surveillance requirements,” states that:

Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

3.0 TECHNICAL EVALUATION

For Monticello, in the event of a DBA, a minimum of one RHR drywell spray subsystem is required to mitigate the consequences of steam line breaks in the drywell and maintain the primary containment peak temperature below the design limits. To ensure that this requirement is met, two RHR drywell spray subsystems must be OPERABLE with power from two safety-related and independent power supplies.

The NRC staff reviewed industry experience for problems involving the containment spray system in accordance with NUREG-1366, “Improvements to Technical Specifications Surveillance Requirements,” issued December 1992, and found three cases, which all pertained to construction errors.

As stated in section 3.2 of the license amendment request (LAR), the current foreign material exclusion and control (FME) program at Monticello requires that any breaches of system boundaries during maintenance activities be appropriately protected from the intrusion of foreign

material. Industry experience has shown that nozzle blockage is unlikely since the nozzles are a passive design and the system is kept in a normally dry state.

As stated in section 3.1 of the LAR, the FME program, developed using industry guidance and operating experience documents, is in place to prevent the introduction of foreign material into the drywell spray system. When maintenance or repairs are performed on the drywell spray system or on other connected systems that could result in obstruction of the spray nozzles, the FME program ensures that system cleanliness is maintained. Program procedures include criteria for establishing FME areas, steps to take if FME control is lost, and guidance for foreign material retrieval. FME areas are clearly marked and material accountability is assured through logs and securing of loose items and tools. FME barriers and covers are used except when performing necessary operations. The FME controls require post maintenance verification of system cleanliness and freedom from foreign materials.

The NRC staff review of industry experience found that spray systems of similar design as the Monticello drywell spray system are highly reliable (i.e., not susceptible to plugging). Due to their location at the top of the containment, the introduction of foreign material from inside the piping to the nozzles is unlikely. The NRC staff also found that, in general, once tested after construction, containment spray nozzles have not been subject to blockage. Because maintenance that could introduce foreign material is the most likely cause of obstruction, flow testing or inspection following maintenance in which a breakdown of the FME program could result in nozzle blockage would suffice to verify the absence of nozzle blockage and the system's capability to perform its safety function.

For these reasons, the NRC staff considers the potential for nozzle obstruction to be very low and, therefore, the 10-year test frequency of SR 3.6.1.8.2 may be revised. Verifying that the nozzles are not obstructed following maintenance that could introduce foreign materials internal to the spray ring headers is an acceptable surveillance.

The NRC staff concludes that the proposal to revise the SR 3.6.1.8.2 frequency from "10 years" to "Following maintenance that could result in nozzle blockage" is acceptable, because the licensee maintains an effective FME program and will take steps to maintain the system dry in order to eliminate corrosion of the metal piping. Based on the above, the NRC staff finds that the revised SR 3.6.1.8.2 will continue to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting condition for operation will be met and that, therefore, 10 CFR 50.36(c)(3) continues to be satisfied.

The licensee provided TS bases changes that correspond to the proposed TS change. As stated in 10 CFR 50.36(a)(1), TS bases are not part of the TSs.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Minnesota State official was notified of the proposed issuance of the amendment on September 20, 2022. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 or changes SRs.

The NRC 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 the amendment involves no significant hazards consideration (87 FR 29883; May 17, 2022) and there has been no public comment on such finding. Accordingly, the 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 the amendment.

6.0 CONCLUSION

The Commission 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, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: N. Chen, NRR

Date of Issuance: October 31, 2022

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