



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

November 6, 2008

Mr. Michael D. Wadley
Site Vice President
Prairie Island Nuclear Generating Plant
Northern States Power - Minnesota
1717 Wakonade Drive East
Welch, MN 55089

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: LICENSE AMENDMENT TO REVISE CONTAINMENT SPRAY NOZZLE SURVEILLANCE REQUIREMENTS (TAC NOS. MD7362 AND MD7363)

Dear Mr. Wadley:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 190 to Facility Operating License No. DPR-42 and Amendment No. 179 to Facility Operating License No. DPR-60 for the Prairie Island Nuclear Generating Plant, Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated November 19, 2007, as supplemented by letter dated May 7, 2008.

The amendments replace the current fixed Frequency for testing the containment spray nozzles in Surveillance Requirement 3.6.5.8 with a maintenance or event based Frequency.

A copy of our related safety evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in cursive script, reading "Thomas J. Wengert".

Thomas J. Wengert, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-282 and 50-306

Enclosures:

1. Amendment No. 190 to DPR-42
2. Amendment No. 179 to DPR-60
3. Safety Evaluation

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

NORTHERN STATES POWER COMPANY*

DOCKET NO. 50-282

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 190
License No. DPR-42

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Nuclear Management Company, LLC* (the licensee), dated November 19, 2007, as supplemented by letter dated May 7, 2008, 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 Facility Operating License No. DPR-42 is hereby amended to read as follows:

* On September 22, 2008, Nuclear Management Company, LLC (NMC), transferred its operating authority to Northern States Power Company, a Minnesota Corporation (NSPM). By letter dated September 3, 2008, NSPM stated that it would assume responsibility for actions and commitments submitted by NMC.

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 190 , 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 the date of its issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Lois M. James, Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility Operating License
and Technical Specifications

Date of Issuance: November 6, 2008



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

NORTHERN STATES POWER COMPANY*

DOCKET NO. 50-306

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 179
License No. DPR-60

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Nuclear Management Company, LLC* (the licensee), dated November 19, 2007, as supplemented by letter dated May 7, 2008, 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 Facility Operating License No. DPR-60 is hereby amended to read as follows:

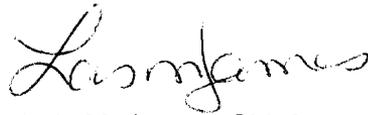
* On September 22, 2008, Nuclear Management Company, LLC (NMC), transferred its operating authority to Northern States Power Company, a Minnesota Corporation (NSPM). By letter dated September 3, 2008, NSPM stated that it would assume responsibility for actions and commitments submitted by NMC.

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 179 , 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 the date of its issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Lois M. James, Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility Operating License
and Technical Specifications

Date of Issuance: November 6, 2008

ATTACHMENT TO LICENSE AMENDMENT NOS. 190 AND 179

FACILITY OPERATING LICENSE NOS. DPR-42 AND DPR-60

DOCKET NOS. 50-282 AND 50-306

Replace the following pages of the Facility Operating License No. DPR-42 and DPR-60 with the attached revised pages. The changed areas are identified by a marginal line.

REMOVE

DPR-42, License Page 3
DPR-60, License Page 3

INSERT

DPR-42, License Page 3
DPR-60, License Page 3

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.6.5-4

INSERT

3.6.5-4

- (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 and equipment calibration or associated with radioactive apparatus or components;
- (5) Pursuant to the Act and 10 CFR Parts 30 and 70, NSPM to possess but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility;
- (6) Pursuant to the Act and 10 CFR Parts 30 and 70, NSPM to transfer byproduct materials from other job sites owned by NSPM for the purpose of volume reduction and decontamination.

C. This amended license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; 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 1650 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 190 , are hereby incorporated in the license. NSPM shall operate the facility in accordance with the Technical Specifications.

(3) Physical Protection

NSPM shall fully 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 Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Prairie Island Nuclear Generating Plant Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Independent Spent Fuel Storage Installation Security Program," Revision 1, submitted by letters dated October 18, 2006, and January 10, 2007.

- (5) Pursuant to the Act and 10 CFR Parts 30 and 70, NSPM to possess but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility;
 - (6) Pursuant to the Act and 10 CFR Parts 30 and 70, NSPM to transfer byproduct materials from other job sites owned by NSPM for the purpose of volume reduction and decontamination.
- C. This amended license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; 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 1650 megawatts thermal.
 - (2) Technical Specifications
The Technical Specifications contained in Appendix A, as revised through Amendment No. 179 , are hereby incorporated in the license. NSPM shall operate the facility in accordance with the Technical Specifications.
 - (3) Physical Protection
NSPM shall fully 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 Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Prairie Island Nuclear Generating Plant Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Independent Spent Fuel Storage Installation Security Program," Revision 1, submitted by letters dated October 18, 2006, and January 10, 2007.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.5.7 Verify each containment cooling train starts automatically on an actual or simulated actuation signal.	24 months
SR 3.6.5.8 Verify each spray nozzle is unobstructed.	Following maintenance which could result in nozzle blockage



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 190 TO FACILITY OPERATING LICENSE NO. DPR-42
AND AMENDMENT NO. 179 TO FACILITY OPERATION LICENSE NO. DPR-60
NORTHERN STATES POWER COMPANY¹
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2
DOCKET NOS. 50-282 AND 50-306

1.0 INTRODUCTION

By application dated November 19, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML073240086), as supplemented by letter dated May 7, 2008 (ADAMS Accession No. ML081290287), Nuclear Management Company, LLC¹ (the licensee), requested changes to the Technical Specifications (TSs) for the Prairie Island Nuclear Generating Plant, Units 1 and 2 (PINGP). The proposed changes would revise the testing frequency of the containment spray (CS) nozzles as specified in TS Surveillance Requirement (SR) 3.6.5.8. Specifically, the testing frequency for the CS nozzles is revised from 10 years to "following maintenance which could result in nozzle blockage."

The PINGP CS system consists of two trains each consisting of a CS pump, spray headers with associated power supplies, piping and valves. Attached to the spray headers are SPRACO Type 1713 nozzles. The nozzles are connected to four 360-degree ring headers with two ring headers per train and 84 nozzles per train (42 on each ring header). The nozzles have 3/8-inch diameter orifices. The licensee stated that these nozzles are not subject to clogging by particles less than 1/4-inch in maximum dimension. Either train provides adequate coverage of the containment volume. The PINGP Updated Safety Analysis Report, Section 6.4, provides additional information on the CS system.

Currently, PINGP TS SR 3.6.5.8 requires verification every 10 years that each CS nozzle is unobstructed. The licensee performs this verification by blowing smoke or air through the nozzles.

The proposed revision to SR 3.6.5.8 requires verification that each spray nozzle is unobstructed following maintenance that could result in nozzle blockage. Testing of the containment spray nozzles would not be required following CS system maintenance activities which successfully comply with the licensee's foreign material exclusion program.

¹ On September 22, 2008, Nuclear Management Company, LLC (NMC), transferred its operating authority to Northern States Power Company, a Minnesota Corporation (NSPM). By letter dated September 3, 2008, NSPM stated that it would assume responsibility for actions and commitments submitted by NMC.

2.0 REGULATORY EVALUATION

The initial PINGP construction permit was issued by the U.S. Atomic Energy Commission (AEC) in June 1968. This is prior to the date specified in SECY 92-223² as the date for compliance with the General Design Criteria (GDC) of 10 CFR Part 50 Appendix A. The enclosure to the licensee's November 19, 2007, application states that PINGP was designed and constructed to comply with Northern States Power Company's understanding of the intent of the AEC GDC for Nuclear Power Plant Construction Permits, as proposed on July 10, 1967.

The applicable GDC for this change are Criterion 38, Reliability and Testability of Engineered Safety Features, and Criterion 60, Testing of Containment Spray Systems.

Criterion 38 states, in part, that all engineered safety features shall be designed to provide high functional reliability and ready testability. Revising the TSs so that flow testing of the CS nozzles is contingent on loss of foreign material controls does not reduce the reliability of the CS system since loss of foreign material control is the only identified mechanism by which blockage of spray nozzles could occur.

Criterion 60 states that a capability shall be provided to test periodically the delivery capability of the containment spray system at a position as close to the spray nozzles as is practical. This change does not affect the flow testing of pumps, only verification that the spray nozzles are not clogged. Although periodic nozzle flow testing will not be required when this change is implemented, reasonable assurance is still provided that the spray nozzles can perform their safety function.

3.0 TECHNICAL EVALUATION

The CS system piping that may be in contact with borated water is made of austenitic stainless steel, which is resistant to corrosion.

The licensee stated that the spray lines within the containment may be filled with borated water up to the 770-foot elevation, which is below the elevation at which water would enter the spray headers and nozzles (880-foot elevation). This assures that the spray nozzles remain dry during normal plant operation.

Due to their location at the top of the containment, introduction of foreign material exterior to the headers is unlikely. Because maintenance that could introduce foreign material is the most likely cause for obstruction, testing or inspection following such maintenance would suffice to verify the system's capability to perform its safety function. Therefore, the 10-year test frequency is unnecessary. Verifying that the nozzles are not obstructed following maintenance that could introduce foreign materials internal to the spray ring headers (due, for example, to a loss of foreign material control) is more appropriate. The TS bases, provided for informational purposes by the licensee in its November 19, 2007 letter, discuss options including visual inspection of affected portions of the system, air or smoke tests, and draining and flushing of the system.

² Memorandum for James M. Taylor, Executive Director for Operations, from Samuel J. Chilk, Secretary, Resolution of Deviations Identified During the Systematic Evaluation Program, SECY 92-223, September 18, 1992.

Review of industry experience indicates that CS systems of similar design are highly reliable and are not subject to plugging after post-construction testing.

3.1 Prairie Island Experience

PINGP Unit 1 CS nozzle air flow tests were conducted in 1978, 1982, 1988, 1992 and 2001, as required by the TSs. These tests confirmed that the nozzles were not plugged. The licensee did state that there were "anecdotal accounts" of an inadvertent CS pump actuation in 1974 during the Unit 1 startup activities. However, the licensee states that the pump was secured before the containment was sprayed down. Subsequently, the system was flushed, cleaned, and tested to verify that it was free of obstructions. Subsequent nozzle flow testing verified that the nozzles remained free of obstructions.

The licensee also reports that, since the last nozzle flow test on Unit 1, foreign material exclusion (FME) program controls were lost on Unit 1 during modifications on the system. The licensee describes this event and the corrective actions taken as a result of this event in a May 7, 2008, letter to the Nuclear Regulatory Commission (NRC). During a 2004 refueling outage, foreign material was introduced into the system as a result of in-place machining of some of the system's valves. The foreign material was discovered when a check valve in the system failed a local leak rate test. The licensee subsequently strengthened the foreign material exclusion program. Among other changes, pipe dams and temporary covers are considered during operations such as grinding, valve lapping or filing. In 2005, the same valve machining did not cause an FME problem.

The licensee will designate the CS system as a system for which Very High foreign material control requirements will be applied. The licensee's May 7, 2008, letter describes the requirements for Very High foreign material control.

3.2 Industry Experience and Failure Mechanisms

An NRC staff review of industry experience using the NRC's Sequence Coding and Search System for Licensee Event Reports indicates that spray systems of similar design are highly reliable (i.e., not susceptible to plugging). The staff found that, with a few exceptions, once successfully tested after construction, CS nozzles have not been subject to blockage. There have been several exceptions.

In the case of one pressurized-water reactor (PWR) that is no longer operating, a chemical added to the inner surface of a spray system pipe to eliminate a corrosion problem detached and the loose material blocked some spray nozzles. Spray piping in currently operating PWRs, and in particular, that at PINGP is corrosion resistant; therefore, this failure mechanism is not applicable to PINGP.

The licensee for another PWR found debris, identified as construction debris, in the spray nozzle headers. The fraction of blockage was not significant and the sprays remained functional. The debris was found by visual observation, not by an air flow test.

Other problems have been identified in CS and fire protection systems in which water leakage resulted in corrosion and partial blockage. As discussed above, the PINGP design effectively

precludes this condition since the piping, spray ring headers, and nozzles are of corrosion-resistant stainless steel, thereby precluding the formation of significant corrosion products.

3.3 Summary

The NRC staff finds the licensee's proposed change to TS SR 3.6.5.8 to be acceptable based on industry experience, experience at PINGP, and the designation of the CS system as a system for which the foreign material controls are designated Very High.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes the requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. 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 and there has been no public comment on such finding (72 FR 71713). 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) 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: R. Lobel, NRR

Date: November 6, 2008

November 6, 2008

Mr. Michael D. Wadley
Site Vice President
Prairie Island Nuclear Generating Plant
Northern States Power - Minnesota
1717 Wakonade Drive East
Welch, MN 55089

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: LICENSE AMENDMENT TO REVISE CONTAINMENT SPRAY NOZZLE SURVEILLANCE REQUIREMENTS (TAC NOS. MD7362 AND MD7363)

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A copy of our related safety evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely, /RA/

Thomas J. Wengert, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-282 and 50-306

Enclosures:

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* SE transmitted by memo of 9/8/08