



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

October 13, 2016

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

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1 - ISSUANCE OF  
AMENDMENT RE: ONE-TIME EXTENSION OF TECHNICAL SPECIFICATION  
SURVEILLANCE REQUIREMENT 3.8.4.3. "DC SOURCES - OPERATING"  
(CAC NO. MF7572)

Dear Mr. Northard:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 218 to Renewed Facility Operating License No. DPR-42 for the Prairie Island Nuclear Generating Plant, Unit 1. The amendment consists of changes to the Technical Specifications in response to your application dated April 7, 2016.

The amendment revises Technical Specification (TS) Surveillance Requirement (SR) 3.8.4.3 to allow a one-time extension of the TS SR frequency to account for the effects of rescheduling the next refueling outage (1R30).

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 black ink, appearing to be "R. Kutz", written over a large, stylized, abstract graphic element that resembles a signature or a logo.

Robert F. Kutz, Senior Project Manager  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-282

Enclosures:

1. Amendment No. 218 to DPR-42
2. Safety Evaluation

cc w/encl: Distribution via Listserv



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

NORTHERN STATES POWER COMPANY - MINNESOTA

DOCKET NO. 50-282

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 218  
License No. DPR-42

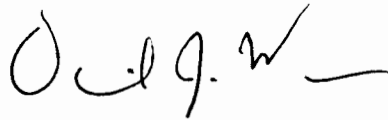
1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Northern States Power Company, a Minnesota Corporation (NSPM, the licensee), dated April 7, 2016, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (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-42 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 218, are hereby incorporated in the renewed operating 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 7 days.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'D. J. Wrona', with a long horizontal flourish extending to the right.

David J. Wrona, Chief  
Plant Licensing Branch III-1  
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 13, 2016

ATTACHMENT TO LICENSE AMENDMENT NO. 218

RENEWED FACILITY OPERATING LICENSE NO. DPR-42

DOCKET NO. 50-282

Replace the following page of the Renewed Facility Operating License No. DPR-42 with the attached revised page. The changed area is identified by a marginal line.

REMOVE

INSERT

Page 3

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

INSERT

3.8.4-3

3.8.4-3

- (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 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 renewed operating 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 1677 megawatts thermal.
  - (2) Technical Specifications  
The Technical Specifications contained in Appendix A, as revised through Amendment No. 218, are hereby incorporated in the renewed operating 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

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	7 days
SR 3.8.4.2 Verify each battery charger supplies $\geq 250$ amps at greater than or equal to the minimum established float voltage for $\geq 4$ hours.  <u>OR</u>  Verify each battery charger can recharge the battery to the fully charged state within 24 hours while supplying the demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.	24 months
SR 3.8.4.3 -----NOTES----- 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.3.  2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.  -----  Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	24 months*

\*During Unit 1 Cycle 29 only, the maximum allowed surveillance test interval shall not exceed 25 months.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 218 TO RENEWED FACILITY

OPERATING LICENSE NO. DPR-42

NORTHERN STATES POWER COMPANY - MINNESOTA

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1

DOCKET NO. 50-282

1.0 INTRODUCTION

By application dated April 7, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16098A093), Northern States Power Company, a Minnesota Corporation (NSPM, the licensee), requested changes to the technical specifications (TSs) for Prairie Island Nuclear Generating Plant (PINGP), Unit 1.

The proposed changes would revise TS Surveillance Requirement (SR) 3.8.4.3 to allow a one-time extension of the TS SR frequency by one month to account for the effects of rescheduling the next refueling outage (1R30).

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36(b), requires that “[e]ach license authorizing operation of a production or utilization facility of a type described in § 50.21 or § 50.22 will include technical specifications. The technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to § 50.34. The Commission may include such additional technical specifications as the Commission finds appropriate.”

10 CFR 50.36(c) requires that “Technical specifications will include items in the following categories: . . . (3) *Surveillance requirements*. 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.”

10 CFR 50.63, “Loss of all alternating current power,” requires that each light-water-cooled nuclear power plant must be able to withstand for a specified duration and recover from a station blackout (SBO) as defined in Section 50.2.

As stated in the PINGP Updated Safety Analysis Report (USAR), Section 1.2, the licensing basis conforms to the Atomic Energy Commission’s (AEC’s) proposed general design criteria as

published in the *Federal Register* July 11, 1967 (ADAMS Accession No. ML043310029). Since the construction of the plant was significantly completed prior to the issuance of the February 20, 1971, 10 CFR Appendix A general design criteria, the plant was not reanalyzed and the Final Safety Analysis Report (FSAR) was not revised to reflect these later criteria. On September 28, 1972, the AEC issued a safety evaluation report entitled "Safety Evaluation of the Prairie Island Nuclear Generating Plant Units 1 & 2." Section 3.1 of the AEC safety evaluation report stated that the AEC staff assessed the plant as described in the FSAR against the 10 CFR Appendix A design criteria and noted that the plant design generally conforms to the intent of these criteria.

General design criterion (GDC) 17, "Electrical power systems," states, in part, that "[a]n onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure."

GDC 18, "Inspection and testing of electric power systems," states that "[e]lectric power systems important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features, such as wiring, insulation, connections, and switchboards, to assess the continuity of the systems and the condition of their components. The systems shall be designed with a capability to test periodically (1) the operability and functional performance of the components of the systems, such as onsite power sources, relays, switches, and buses, and (2) the operability of the systems as a whole and, under conditions as close to design as practical, the full operation sequence that brings the systems into operation, including operation of applicable portions of the protection system, and the transfer of power among the nuclear power unit, the offsite power system, and the onsite power system."

### 3.0 TECHNICAL EVALUATION

#### 3.1 System Description

PINGP, Units 1 and 2, have four safeguards batteries, one per 125 volts direct current (VDC) subsystem. For PINGP Unit 1, the safeguard batteries are "11" and "12." The batteries are flooded/vented lead acid storage batteries. Each battery consists of 58 cells with a nominal rated capacity of 1800 amperes-hours at an 8-hour discharge rate. One battery charger is in service for each battery so that the batteries are always fully charged.

Each battery is sized to carry expected shutdown loads for a period of one hour following a plant trip and loss of alternating current (AC) battery charger. The minimum terminal voltage is required to operate all necessary components during a design basis event.



Per USAR Section 8.4.4, PINGP is classified as a four hour plant (four hour SBO duration) based on criteria contained in Nuclear Management and Resources Council (NUMARC)-8700 "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors," which is endorsed for use by the NRC staff in Regulatory Guide (RG) 1.155, "Station Blackout," dated August 1988 (ADAMS Accession No. ML003740034). The license amendment request (LAR) stated that PINGP has demonstrated that alternate alternating current (AAC) from the non-SBO unit's emergency diesel generator is available and the interconnecting bus ties can be manually closed within 10 minutes of the realization that an SBO condition exists to provide power to the required loads on the SBO unit. The LAR stated that the safeguard 125 VDC battery on the SBO unit will provide direct current (DC) power to support actions on the SBO unit for aligning the AAC source to the SBO unit during the 10 minute timeframe and will power the one division of safeguard battery chargers. Therefore, in accordance with RG 1.155 and NUMARC-8700, section 7.1.2, no coping assessment is required.

### 3.2 Description of Proposed Change

SR 3.8.4.3 and the 24-month frequency were added as a new SR during the PINGP TS conversion to STS consistent with NUREG-1431. The amendment approving the conversion of the PINGP TSs to STS was issued July 26, 2002 (ADAMS Accession No. ML022070661). The proposed change would, for one time only, extend the surveillance test interval by 1 month. The plant configuration for performing the "11" and "12" battery capacity tests in accordance with TS SR 3.8.4.3 is Mode 5 due to the duration of the test relative to the Required Action with one battery inoperable in Modes 1, 2, 3, and 4.

Unit 1 experienced multiple shutdowns of varying duration during the current operating cycle. Therefore, the next outage was rescheduled from mid-September 2016 to mid-October 2016.

Extension of the surveillance is proposed to be accomplished by adding an asterisk after the existing frequency and adding a footnote that reads: "During Unit 1 Cycle 29 only, the maximum allowed surveillance test interval shall not exceed 25 months." The NRC staff added a comma after "only" to clarify the note and the licensee confirmed via email on October 11, 2016 that the addition of the comma is consistent with the intent of the proposed change.

### 3.3 U.S. Nuclear Regulatory Commission (NRC or Commission) Staff Evaluation

In the April 7, 2016, LAR, the licensee stated that the "11" battery surveillance test was last completed on October 14, 2014, and would therefore be required to be performed again by October 14, 2016. The licensee also stated that an extension to the TS SR 3.8.4.3 frequency is necessary due to the rescheduling of the 1R30 refueling outage, because the surveillance cannot be performed when the plant is online and will be required before the plant reaches Mode 5 during the scheduled 1R30 refueling outage.

The LAR also stated that each battery has been sized to carry expected shutdown loads following a plant trip and a loss of AC battery charging power for a period of 1 hour without battery terminal voltage falling below the required minimum.

The "11" battery capacity test is performed during each refueling outage under Surveillance Procedure (SP) 1098, "11 Battery Refueling Outage Discharge Test." The purpose of this SP is to isolate, test, restore and recharge the "11" battery. Per the LAR, the battery discharge results were evaluated by the licensee in accordance with IEEE Std. 450-1995. The NRC staff reviewed IEEE Std. 450-1995, Section 6, "Procedure for Battery Tests," and determined that the test procedure for determining the battery capacity is the same as IEEE Std. 450-2010, which was endorsed by RG 1.129, "Maintenance, Testing, and Replacement of Vented Lead-Acid Storage Batteries for Nuclear Power Plants," Revision 3, dated March 2013 (ADAMS Accession No. ML13170A112). Therefore, the NRC staff finds licensee's method of determining the battery capacity by evaluating the battery discharge results is acceptable. The licensee stated that the "11" battery was replaced in 2012 and SR 3.8.4.3 battery capacity test performed in 2012 and 2014 indicated a battery capacity of 105.2 percent and 99.5 percent, respectively. Therefore, the staff determined that if the one month extension request is approved, battery "11" is not expected to drop below its minimum capacity required per SR 3.8.6.6 of 80 percent, before the discharge test is completed.

In addition, the LAR stated that the weekly testing shows no degradation or trend of degradation of "11" battery terminal voltage and is greater than or equal to the minimum established float voltage (SR 3.8.4.1). The most recent system health report for the PINGP, Unit 1, DC distribution system shows no items that are degrading the health or capacity of the "11" battery.

The NRC staff has concluded that the change proposed to the TS SR is for a short duration, and it will not affect the ability of the "11" battery to perform its required function as described in GDCs 17 and 18. Therefore, independence, redundancy, capacity and testability of the PINGP, Unit 1, DC power sources will be maintained during the 1 month extension.

The NRC staff concludes that the proposed change to SR 3.8.4.3 will have minimal impact on the battery capacity. Because the proposed change is for a short duration, the one-time extension of the surveillance frequency will not affect the ability of the "11" battery to perform its required function. The NRC staff determined that battery "11" will not drop below the required minimum capacity before the discharge test is completed in accordance with a one month extension. Also, the proposed addition of the footnote to SR 3.8.4.2 will assure that requirements of 10 CFR 50.36(c)(3) are met. Therefore, the NRC staff finds the proposed change acceptable.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Minnesota State official was notified on September 8, 2016, of the proposed issuance of the amendment. The State official had no comments.

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes the 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 (81 FR 40360; dated June 21, 2016). 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: Hari Kodali, NRR

Date of issuance: October 13, 2016

October 13, 2016

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

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1 - ISSUANCE OF AMENDMENT RE: ONE-TIME EXTENSION FOR TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENT 3.8.4.3. "DC SOURCES - OPERATING" (CAC NO. MF7572)

Dear Mr. Northard:

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Sincerely,  
**/RA/**  
Robert F. Kuntz, Senior Project Manager  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-282

Enclosures:  
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**ADAMS Accession No.: ML16256A514**

**\*-via email**

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NAME	RKuntz	SRohrer	JZimmerman*	AKlein*	MYoung	DWrona	RKuntz
DATE	9/13/16	9/13/16	9/16/16	9/27/16	10/11/16	10/13/16	10/13/16

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