



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

April 29, 2011

Mr. Mark A. Schimmel  
Site Vice President  
Prairie Island Nuclear Generating Plant  
Northern States Power Company - Minnesota  
1717 Wakonade Drive East  
Welch, MN 55089-9642

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1 - ISSUANCE OF  
AMENDMENT RE: REVISION TO SURVEILLANCE REQUIREMENT FOOTNOTE  
IN TECHNICAL SPECIFICATION 3.8.1, "AC SOURCES – OPERATING"  
(TAC NO. ME5426)

Dear Mr. Schimmel:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No.200 to 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 February 3, 2011 (Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML110350055), as supplemented by letter dated March 15, 2011 (ADAMS Accession No. ML110750198).

The amendment revises the Technical Specification 3.8.1, "AC Sources – Operating", Surveillance Requirement 3.8.1.10 footnote requiring battery charger modifications.

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 read "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 No. 50-282

Enclosures:

1. Amendment No. 200 to DPR-42
2. Safety Evaluation

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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 FACILITY OPERATING LICENSE

Amendment No. 200  
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 February 3, 2011, as supplemented by letter dated March 15, 2011, 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:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 200 , 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 15 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert J. Pascarelli, 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: April 29, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 200

FACILITY OPERATING LICENSE NO. DPR-42

DOCKET NO. 50-282

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

REMOVE

INSERT

3.8.1-10

3.8.1-10

- (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 1677 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 200, 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
<p>SR 3.8.1.10 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. All DG starts may be preceded by an engine prelube period.</li> <li>2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4.</li> <li>3. 12 Battery Charger not required to be energized in SR 3.8.1.10(c) until completion of this SR during Unit 1 2011 refueling outage.*</li> </ol> <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated safety injection actuation signal:</p> <ol style="list-style-type: none"> <li>a. De-energization of emergency buses;</li> <li>b. Load shedding from emergency buses; and</li> <li>c. DG auto-starts from standby condition and energizes emergency loads in <math>\leq 60</math> seconds.</li> </ol>	<p>24 months</p>
<p>SR 3.8.1.11 -----NOTE-----</p> <p>All DG starts may be preceded by an engine prelube period.</p> <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal that the DG auto-starts from standby condition.</p>	<p>24 months</p>

\*A modification will be installed during or prior to the Unit 1 2011 refueling outage to assure the 12 Battery Charger is automatically powered from its normal bus within 60 seconds. Compliance with this SR will be demonstrated after implementation of the modification.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 200 TO 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 to the U.S. Nuclear Regulatory Commission (NRC) dated February 3, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110350055), the Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (NSPM, the licensee), requested an amendment to Facility Operating License No. DPR-42 for Prairie Island Nuclear Generating Plant (PINGP) Unit 1 and Appendix A, Technical Specifications (TS), of the Facility Operating License. The proposed change would revise a footnote in TS 3.8.1, "AC Sources – Operating," Surveillance Requirement (SR) 3.8.1.10 related to a battery charger modification. The licensee provided supplemental information in a letter dated March 15, 2011 (ADAMS Accession No. ML110750198).

The supplemental letter contained clarifying information, did not change the scope of the application, and did not change the NRC staff's initial proposed finding of no significant hazards consideration published in the *Federal Register* on February 22, 2011 (76 FR 9827).

In October 2010, NSPM determined that PINGP Unit 1 emergency diesel generator (EDG) D2 was inoperable due to incorrect alignment of the 12 Battery Charger during the performance of a surveillance procedure (SP) to demonstrate the requirements of SR 3.8.1.10 are met. The purpose of this SR is to verify: a) de-energization of emergency buses; b) load shedding from emergency buses; and c) EDG auto-starts from a standby condition and energizes loads in less than or equal to 60 seconds on an actual or simulated loss of offsite power (LOOP) signal in conjunction with an actual or simulated safety injection (SI) actuation signal.

The NRC subsequently reviewed and approved an exigent license amendment request for PINGP Unit 1 (ADAMS Accession No. ML102910206), which allowed the D2 EDG to be considered operable without the 12 Battery Charger included in performance of SR 3.8.1.10. The previous license amendment request added a footnote to SR 3.8.1.10, which specified installation of the 12 Battery Charger modifications to "automatically shed" the battery charger from its normal bus and "then automatically repower" the charger from its normal bus. The existing SR 3.8.1.10 footnote requires testing of the PINGP Unit 1 D2 EDG following installation of the 12 Battery Charger modifications during the Unit 1 Spring 2011 refueling outage.

Enclosure

During discussions with the licensee, the NRC staff had expressed concerns about the manual operation of the 12 Battery Charger as it was not consistent with the original design. The NRC staff also questioned the operability of D2 EDG due to the manual control of the charger during an SI and LOOP event, and the adequacy of the SP, as written, to meet the SR 3.8.1.10 requirements for verification of load sequencing every 24 months. In its license amendment request, the licensee stated that the guidance for manual control of the 12 Battery Charger was incorporated into its procedures to address lockup of the 12 Battery Charger due to low input voltage during SP performance in the late 1990's and was not identified until recent pre-initiation and restoration checks for the integrated SI test.

In its October 2010 submittal, the licensee subsequently requested a TS amendment to install a modification to restore automatic operation of the 12 Battery Charger by automatically shedding the charger from its normal bus and then automatically repowering the charger within 60 seconds during or prior to the PINGP Unit 1 2011 refueling outage to resolve this issue. This TS amendment was approved by NRC in License Amendment No. 198 (ADAMS Accession No. ML102910206) for PINGP Unit 1.

In its February 3, 2011, license amendment request, the licensee requested an additional TS change to modify the footnote, stating the following:

While performing the engineering associated with the modifications required by the footnote, NSPM identified different battery charger modifications that are technologically superior to those considered when the footnote was added to the TS. These different battery charger modifications meet the intent of the footnote, that is, they assure that D2 and its associated 12 Battery Charger will perform their required safety functions, however, the modifications do not meet the letter of current footnote wording.

The licensee submitted this license amendment request for approval to meet the TS requirements and allow the D2 EDG to be tested with the different battery charger modifications.

## 2.0 REGULATORY EVALUATION

The following NRC requirements are applicable to the staff's review of the licensee's amendment request:

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 includes the NRC's requirement that TSs shall be included by applicants for a license authorizing operation of a production or utilization facility. Section 50.36(c) of 10 CFR requires that TSs include items in five specific categories related to station operation. These categories are: (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 proposed change to TS 3.8.1 concerns the third category, SRs. The PINGP Updated Safety Analysis Report (USAR), Revision 31, Section 1.5, "General Design Criteria," states that the PINGP was designed and constructed to comply with the licensee's understanding of the intent of the Atomic Energy Commission's (AEC) General Design Criteria (GDC) for Nuclear Power Plant Construction Permits, as proposed on July 10, 1967.



PINGP USAR, Section 1.5, AEC GDC 24, "Emergency Power for Protection Systems," states that in the event of the loss of all offsite power, sufficient alternate sources of power shall be provided to permit the required functioning of the protection systems. The facility is supplied with normal, reserve and emergency power to provide for the required functioning of protection systems. In the event of a reactor and turbine trip, emergency power is supplied by two EDGs per unit, as described in Section 8 of the PINGP USAR. Any one EDG is capable of supplying the emergency power requirements for that unit.

PINGP USAR, Section 1.5, AEC GDC 39, "Emergency Power for Engineered Safety Features [ESF]," states that alternate power systems shall be provided and designed with adequate independency, redundancy, capacity, and testability to permit the functioning required of the ESF. As a minimum, the onsite power system and the offsite power system shall each, independently, provide this capacity assuming a failure of a single active component in each power system. Reliability of electric power supply is insured through two independent connections to the system grid, and a redundant source of emergency power from four EDGs installed in the facility. Power to the ESF is assured even with the failure of a single active component in each system.

AEC Safety Guide 9, dated March 1971, "Selection of Diesel Generator Set Capacity for Standby Power Supplies" (subsequently superseded by NRC Regulatory Guide (RG) 1.9, "Application and Testing of Safety-Related Diesel Generators in Nuclear Power Plants"), described an acceptable basis for the selection of EDG sets of sufficient capacity and margin to implement GDC 17 when PINGP Unit 1 received its operating license in 1974.

RG 1.108, "Periodic Testing of Diesel Units Used As On-site Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, described a method acceptable to the NRC staff for complying with the Commission's regulations with regard to periodic testing of diesel electric power units to ensure that the diesel electric power systems will meet their availability requirements. This RG has been withdrawn and the recommendations have been incorporated into RG 1.9, Revision 3, and subsequent revisions.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Description of the PINGP Unit 1 Electrical Power System

The PINGP USAR, Section 8.1, states that, to satisfy AEC GDC 24 and 39, independent alternate power systems are provided with adequate capacity and testability to supply the required ESF and protection systems. Two EDG sets dedicated to each unit are connected to the safeguards buses to supply shutdown power in the event of loss of all other AC auxiliary power. In the event of a Loss-of-Coolant Accident coincident with a LOOP event, emergency power is available from two EDGs dedicated to each unit.

Section 8.5 of the PINGP USAR contains a description of the Safeguards 125 volt (V) direct current (DC) power system. The Safeguards 125 V DC Electrical Power System for each PINGP unit consists of two independent and redundant safety related DC electrical power subsystems (Train A and Train B). Subsystems 11 and 12 of the 125 V DC serve PINGP Unit 1 and 125 V DC Subsystems 21 and 22 serve PINGP Unit 2. Each subsystem consists of one 125 V DC battery, battery charger, and associated distribution equipment. The 125 V DC

Systems supply instrumentation, control, and motive power to safety related equipment. Redundant safety related equipment is divided between the two DC subsystems associated with each PINGP Unit, such that loss of one DC subsystem does not affect redundant circuits.

### 3.2 Evaluation

TS SR 3.8.1.10 footnote currently states:

“\*A modification will be installed during or prior to the Unit 1 2011 refueling outage to automatically shed the 12 Battery Charger from its normal bus and then to automatically repower the charger from the bus within 60 seconds. Compliance with this SR will be demonstrated after implementation of the modification.”

The proposed TS SR 3.8.1.10 footnote states:

“\*A modification will be installed during or prior to the Unit 1 2011 refueling outage to assure the 12 Battery Charger is automatically powered from its normal bus within 60 seconds. Compliance with this SR will be demonstrated after implementation of the modification.”

The purpose of the proposed TS SR 3.8.1.10 footnote is to require the installation of a battery charger modification to assure the 12 Battery Charger performs its safety function in accordance with the original design. The original design required the 12 Battery Charger to remain connected to the bus upon LOOP and reenergize when the EDG repowers the bus during an SI and LOOP event.

In addition, the purpose of this TS amendment is also to allow sufficient time for the licensee to prepare and install a modification to restore automatic function of the 12 Battery Charger. However, due to low voltage input at the input breaker, the previously proposed battery charger still needed to be automatically shed from the bus to avoid battery charger lockup and then needed to be automatically reenergized within 60 seconds when the voltage level returned to normal. In its license amendment request dated February 3, 2011, the licensee stated that, during the course of pursuing the battery charger modification, they identified and evaluated an alternate option for the modification that assures the battery charger will perform its safety functions through automatic controls in accordance with the original design intent. The licensee stated that the alternate option includes the use of a battery charger, manufactured by a different manufacturer, that will not result in lockup of the charger due to low voltage input. As such, the licensee is requesting a change to the TS SR 3.8.1.10 footnote to allow the battery charger to perform its safety functions through automatic controls in accordance with the original design intent without manual actions and without shedding the battery charger from its bus. Based on its review of the license amendment request and supplemental information, the NRC staff finds that the proposed TS change would ensure that the new battery charger is capable of automatically shutting off during a low voltage input condition and restarting automatically when the voltage returns to levels above the pickup voltage. The staff also finds that the proposed TS change will ensure that the 12 Battery Charger remains connected to the bus upon an SI and LOOP, and reenergizes automatically when the D2 EDG repowers the bus during an SI and LOOP event.

Furthermore, the licensee provided a regulatory commitment in its letter dated March 15, 2011, to revise and update the PINGP USAR to include the description of the existing and new PINGP Unit 1 battery chargers, as applicable, within 6 months following completion of the PINGP Unit 1 2011 refueling outage.

The NRC staff reviewed the information provided in the license amendment request and the supplemental letter dated March 15, 2011, and finds that the proposed change to the TS SR 3.8.1.10 footnote will restore the original design intent of the 12 Battery Charger to perform its safety functions with automatic controls and without requiring unnecessary shedding from its bus. Furthermore, the NRC staff finds that the proposed change meets the PINGP AEC GDC 24 since the amendment continues to ensure that sufficient alternate sources of power will be provided to permit the required functioning of the protection system. The NRC staff also finds that the proposed change meets the AEC GDC 39 since the amendment continues to ensure that the independent alternate power systems are provided with adequate capacity and testability to supply the required ESFs and protection systems. The NRC staff verified that the change will be consistent with the guidance in RG 1.108 and RG 1.9, Revision 2 and requirements in AEC Safety Guide 9 regarding periodic testing of diesel units. Based on this information, the staff finds the proposed change acceptable.

Based on the evaluation discussed above and the licensee's regulatory commitment, the NRC staff determined that the proposed change satisfies 10 CFR 50.36(c)3, meets the intent of PINGP AEC GDCs 24 and 39, and is consistent with the guidance provided in RG 1.108, dated August 1977, AEC Safety Guide 9, and RG 1.9, Revision 2. Therefore, the staff finds the proposed change acceptable.

#### 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 or changes the surveillance requirements. The 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 (76 FR 9827). 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.

## 7.0 LICENSEE COMMITMENT

The licensee made the following regulatory commitment in its March 15, 2011, supplemental letter.

The Updated Safety Analysis Report will be updated to include the description of existing and new Unit 1 battery chargers, as applicable, within 6 months following completion of the Unit 1 2011 refueling outage.

Principal Contributor: P. Sahay, NRR

Date: April 29, 2011

Mr. Mark A. Schimmel  
Site Vice President  
Prairie Island Nuclear Generating Plant  
Northern States Power Company - Minnesota  
1717 Wakonade Drive East  
Welch, MN 55089-9642

April 29, 2011

**SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1 - ISSUANCE OF AMENDMENT RE: REVISION TO SURVEILLANCE REQUIREMENT FOOTNOTE IN TECHNICAL SPECIFICATION 3.8.1, "AC SOURCES – OPERATING" (TAC NO. ME5426)**

Dear Mr. Schimmel:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 200 to 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 February 3, 2011 (Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML110350055), as supplemented by letter dated March 15, 2011 (ADAMS Accession No. ML110750198).

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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 No. 50-282

Enclosures:

1. Amendment No. 200 to DPR-42
2. Safety Evaluation

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ADAMS Accession No.: ML111020551

\*SE Memo dated 04/21/11

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