

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-306

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2

RENEWED FACILITY OPERATING LICENSE

Renewed Operating License No. DPR-60

1. The Atomic Energy Commission (the Commission) having found that:
  - A. The application to renew Facility Operating License No. DPR-60 by Northern States Power Company (NSPM) 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 and that all required notifications to other agencies or bodies have been duly made;
  - B. Construction of the Prairie Island Nuclear Generating Plant, Unit 2 (the facility), has been substantially completed in conformity with Provisional Construction Permit No. CPPR-46, as amended, the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
  - C. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
  - D. There is reasonable assurance: (i) that the activities authorized by this renewed operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;
  - E. NSPM is technically and financially qualified to engage in the activities authorized by this renewed operating license in accordance with the rules and regulations of the Commission;
  - F. NSPM has satisfied the applicable provisions of 10 CFR Part 140, Financial Protection Requirements and Indemnity Agreements", of the Commission's regulations;
  - G. The issuance of this renewed operating license will not be inimical to the common defense and security or to the health and safety of the public;
  - H. After weighing the environmental, economic, technical, and other benefits of the facility against environmental costs and considering available alternatives, the issuance of Renewed Facility Operating License No. DPR-60 is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements of said 10 CFR Part 51 have been satisfied;

Renewed Operating License No. DPR-60

- I. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this renewed operating license will be in accordance with the Commission's regulations in 10 CFR Parts 30, 40 and 70, including 10 CFR Sections 30.33, 40.32, 70.23 and 70.31; and
  - J. Actions have been identified and have been or will be taken with respect to (1) managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21(a)(1); and (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21(c), such that there is reasonable assurance that the activities authorized by this renewed operating license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3, for the facility, and that any changes made to the facility's current licensing basis in order to comply with 10 CFR 54.29(a) are in accordance with the Act and the Commission's regulations.
2. Renewed Facility Operating License No. DPR-60 is hereby issued to read as follows:
    - A. This license applies to the Prairie Island Nuclear Generating Plant, Unit 2, a pressurized water nuclear reactor and associated equipment (the facility), owned by the Northern States Power Company<sup>1</sup> (NSPM). The facility is located in Goodhue County, Minnesota, and is described in the "Final Safety Analysis Report" as supplemented and amended (Amendments 1 through 38) and the Environmental Report as supplemented and amended (Supplements 1 and 2).
    - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:
      - (1) Pursuant to Section 104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," NSPM to possess, use, and operate the facility at the designated location in Goodhue County, Minnesota, in accordance with the procedures and limitations set forth in this renewed operating license;
      - (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 operation, as described in the Final Safety Analysis Report, as supplemented and amended as of May 11, 1976.

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<sup>1</sup> Northern States Power Company, was incorporated in Minnesota as a wholly owned subsidiary of Xcel Energy, Inc. effective August 18, 2000. This renewed operating license reflects the Commission's consent per 10 CFR Part 50, Section 50.80 to the license transfer approved by Order dated May 12, 2000.

- (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 purposes 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. 231, 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

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," submitted by letters dated October 18, 2006 and January 10, 2007, and as supplemented by letters dated March 18 and June 2, 2011, and approved by NRC Safety Evaluation dated August 16, 2011.

NSPM shall fully implement and maintain in effect all provisions of the Commission-approved Northern States Power Company - Minnesota (NSPM) Cyber Security Plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The NSPM CSP was approved by License Amendment No. 189 and supplemented by License Amendment No. 200.

(4) Fire Protection

NSPM shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated September 28, 2012 (and supplements dated November 8, 2012, December 18, 2012, May 3, 2013, October 17, 2013, April 30, 2014, May 28, 2015, June 19, 2015, October 6, 2015, October 22, 2015, January 20, 2016, May 24, 2016, August 17, 2016, December 14, 2016, and March 6, 2017), and as approved in the safety evaluation dated August 8, 2017. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition, or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

(a) Risk-Informed Changes that May Be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

1. Prior NRC review and approval is not required for changes that clearly result in a decrease in risk. The proposed change must also be consistent with the defense-in-depth philosophy and must

maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

2. Prior NRC review and approval is not required for individual changes that result in a risk increase less than  $1 \times 10^{-7}$ /year (yr) for CDF and less than  $1 \times 10^{-8}$ /yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

(b) Other Changes that May be Made Without Prior NRC Approval

1. Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program

Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to an NFPA 805, Chapter 3, element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3, elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

- "Fire Alarm and Detection Systems" (Section 3.8);
- "Automatic and Manual Water-Based Fire Suppression Systems" (Section 3.9);
- "Gaseous Fire Suppression Systems" (Section 3.10); and
- "Passive Fire Protection Features" (Section 3.11).

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

2. Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC safety evaluation dated August 8, 2017, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

(c) Transition License Conditions

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by 2. and 3. below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in 2.C.(4)(b)2.
2. The licensee shall implement the modifications to its facility, as described in Attachment S, Table S-2, "Plant Modifications Committed," in Northern States Power - Minnesota letter L-PI-16-090, dated December 14, 2016, to complete the transition to full compliance with 10 CFR 50.48(c), before the end of the second full operating cycle for each unit after approval of the LAR. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.
3. The licensee shall implement the items listed in Attachment S, Table S-3, "Implementation Items," of Northern States Power - Minnesota letter L-PI-16-090, dated December 14, 2016, within 12 months after NRC approval, with the exception of Implementation Item 20, 66, and 70 which are associated with modifications and will be completed 180 days after modifications are complete.

(5) Additional Conditions

The Additional Conditions contained in Appendix B, as revised through Amendment No. 204, are hereby incorporated into this license. NSPM shall operate the facility in accordance with the Additional Conditions.

(6) Mitigation Strategy License Condition

Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

- (a) Fire fighting response strategy with the following elements:
    - 1. Pre-defined coordinated fire response strategy and guidance
    - 2. Assessment of mutual aid fire fighting assets
    - 3. Designated staging areas for equipment and materials
    - 4. Command and control
    - 5. Training of response personnel
  
  - (b) Operations to mitigate fuel damage considering the following:
    - 1. Protection and use of personnel assets
    - 2. Communications
    - 3. Minimizing fire spread
    - 4. Procedures for implementing integrated fire response strategy
    - 5. Identification of readily-available pre-staged equipment
    - 6. Training on integrated fire response strategy
    - 7. Spent fuel pool mitigation measures
  
  - (c) Actions to minimize release to include consideration of:
    - 1. Water spray scrubbing
    - 2. Dose to onsite responders
- (7) Upon implementation of Amendment No. 184 adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air in-leakage as required by SR 3.7.10.5, in accordance with TS 5.5.16.c (i), the assessment of CRE habitability as required by TS 5.5.16.c (ii), and assessing the CRE boundary as required by Specification 5.5.16.d, shall be considered met. Following implementation:
- (a) The first performance of SR 3.7.10.5, in accordance with Specification 5.5.16.c (i), shall be within the specified frequency of 6 years, plus the 18 month allowance of SR 3.0.2, as measured from December 3, 2004, the date of the most recent successful tracer gas test, as stated in the December 18, 2006 letter in response to Generic Letter 2003-01, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years.
  
  - (b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.16.c (ii), shall be 3 years, plus the 9 month allowance of SR 3.0.2, as measured from December 3, 2004, the date of the most recent successful tracer gas test, as stated in the December 18, 2006 letter in response to Generic Letter 2003-01, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

(8) License Renewal License Conditions

- (a) The licensee may make changes to the programs and activities described in the USAR supplement, submitted pursuant to 10 CFR 54.21(d), as revised during the license renewal application review process, provided the licensee evaluates such changes pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.
- (b) Appendix A of "Safety Evaluation Report Related to the License Renewal of Prairie Island Nuclear Generating Plant, Units 1 and 2," dated October 16, 2009, and supplemented on April 15, 2011, and the licensee's USAR supplement submitted pursuant to 10 CFR 54.21(d) describe certain future programs and activities to be completed before the period of extended operation. The licensee shall complete these activities no later than October 29, 2014, and shall notify the NRC in writing when implementation of these activities is complete.
- (c) All capsules in the reactor vessel that are removed and tested must meet the test procedures and reporting requirements of American Society for Testing and Materials (ASTM) E 185-82 to the extent practicable for the configuration of the specimens in the capsule. Any changes to the capsule withdrawal schedule, including spare capsules, must be approved by the NRC prior to implementation. All capsules placed in storage must be maintained for future insertion. Any changes to storage requirements must be approved by the NRC.

(9) Adoption of 10 CFR 50.69, "Risk-informed categorization and treatment of structures, systems, and components for nuclear power plants"

NSPM is approved to implement 10 CFR 50.69 using the approaches for categorization of Risk Informed Safety Class (RISC)-1, RISC-2, RISC-3, and RISC-4 structures, systems, and components (SSCs) using: Probabilistic Risk Assessment (PRA) models to evaluate risk associated with internal events, including internal flooding and internal fire, with the shutdown safety assessment process to assess shutdown risk; the Arkansas Nuclear One, Unit 2 (ANO-2) passive categorization method to assess passive component risk for Class 2 and Class 3 SSCs and their associated supports; and the results of non-PRA evaluations that are based on the IPEEE Screening Assessment for External Hazards, i.e., seismic margin analysis (SMA) to evaluate seismic risk, and a screening of other external hazards (e.g., external flooding and high winds) updated using the external hazard screening significance criteria identified in ASME/ANS PRA Standard RA-Sa-2009, as endorsed in RG 1.200, Revision 2; as specified in PINGP License Amendment No. 218 dated November 12, 2019.

Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization approach specified above (e.g., change from a seismic margins approach to a seismic probabilistic risk assessment approach).



NSPM will complete the implementation items listed in Attachment 1 of NSPM's letter to the NRC dated August 5, 2019, prior to implementation of 10 CFR 50.69.

NSPM shall ensure that the fire PRA model used for the 10 CFR 50.69 SSC categorization reflects the as-built, as-operated plant using the same fire PRA model used to support NFPA 805 implementation for both PINGP units prior to implementation of 10 CFR 50.69.

- D. This renewed operating license is effective as of the date of issuance and shall expire at midnight October 29, 2034.

FOR THE NUCLEAR REGULATORY COMMISSION

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Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation

Attachments:

1. Appendix A - Technical Specifications
2. Appendix B - Additional Conditions

Date of Issuance: June 27, 2011

## Appendix A: Technical Specifications

Prairie Island 2 uses the same Appendix A as Prairie island 1. Please refer to Prairie Island 1 for Appendix A (ML053040350).

APPENDIX BADDITIONAL CONDITIONSFACILITY OPERATING LICENSE NO. DPR-60

Northern States Power Company (NSPM) shall comply with the following conditions on the schedules noted below:

<u>Amendment Number</u>	<u>Additional Condition</u>	<u>Implementation Date</u>
120	1. NSPM will provide a licensed operator in the control room on an interim basis for the dedicated purpose of identifying an earthquake which results in a decreasing safeguards cooling water bay level. This operator will be in addition to the normal NSPM administrative control room staffing requirements and will be provided until License Condition 2 is satisfied.	Prior to Unit 2 entering Mode 2  Completed - See Amendment No. 131
120	2. NSPM will submit dynamic finite element analyses of the intake canal banks by July 1, 1997 for NRC review. By December 31, 1998, NSPM will complete, as required, additional analyses or physical modifications which provide the basis for extending the time for operator post-seismic cooling water load management and eliminating the dedicated operator specified in License Condition 1.	July 1, 1997, and December 31, 1998, as stated in Condition 2.  Completed - See Amendment No. 131.
120	3. Based on the results of License Condition 2, NSPM will revise the Updated Safety Analysis Report to incorporate the changes into the plant design bases. These changes will be included in the next scheduled revision of the Updated Safety Analysis Report following completion of License Condition 2 activities.	At the next USAR update following completion of Condition 2, but no later than June 1, 1999.
122	4. Prairie Island will assure that heavy loads do not present a potential for damaging irradiated fuel through use of: 1) a single-failure-proof crane with rigging and procedures which implement Prairie Island commitments to NUREG-0612; or 2) spent fuel pool covers with their implementing plant procedures for installation and use.	This is effective immediately upon issuance of the amendment.
125	5. NSPM will assure that during the implementation of steam generator repairs utilizing the voltage-based repair criteria, the total calculated primary to secondary side leakage from the faulted steam generator, under main steam line break conditions (outside containment and upstream of the main steam isolation valves), will not exceed 1.42 gallons per minute (based on a reactor coolant system temperature of 578°F).	This is effective immediately upon issuance of the amendment.

APPENDIX B

ADDITIONAL CONDITIONS

FACILITY OPERATING LICENSE NO. DPR-60

<u>Amendment Number</u>	<u>Additional Condition</u>	<u>Implementation Date</u>
136	6. Relocate current Technical Specification 3.1.E, Maximum Reactor Oxygen, Chloride, and Fluoride Concentration, Technical Specification 5.1 flood shutdown requirements to the USAR.	By September 1, 1999.
132	7. Relocate current Technical Specification 4.6.A.1.c, Diesel Fuel Oil Testing, requirements to the Diesel Fuel Oil Testing Program.	By September 1, 1999.

APPENDIX B

ADDITIONAL CONDITIONS

FACILITY OPERATING LICENSE NO. DPR-60

<u>Amendment Number</u>	<u>Additional Conditions</u>	<u>Implementation Date</u>
149	<p>The schedule for performing Surveillance Requirements (SRs) that are new or revised in Amendment No. 149 shall be as follows:</p> <p>For SRs that are new in this amendment, the first performance is due at the end of the first surveillance interval, which begins on the date of implementation of this amendment.</p> <p>For SRs that existed prior to this amendment, whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after implementation of this amendment.</p> <p>For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance is due at the end of the surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment.</p> <p>For SRs that existed prior to this amendment, whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to the implementation of this amendment.</p>	October 31, 2002
149	<p>The licensee is authorized to relocate certain Technical Specification requirements previously included in Appendix A to licensee-controlled documents, as described in Table LR, "Less Restrictive Changes – Relocated Details," and Table R, "Relocated Specifications," attached to the NRC staff's safety evaluation dated July 26, 2002. Those requirements shall be relocated to the appropriate documents no later than October 31, 2002.</p>	October 31, 2002
204	<p>The Alternative Source Term License Amendments 206/193, with the exception of Implementation Requirement 4. (1) for Steam Generator Water Level – Narrow Range Instruments, will be implemented within 90 days after installation of the Unit 2 Replacement Steam Generators (RSGs).</p>	Effective immediately upon issuance of the amendment