



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

October 21, 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: ADDITION OF A POWER FACTOR TO THE EMERGENCY DIESEL GENERATORS' 24-HOUR LOAD TEST (TAC NOS. MD7217 AND MD7218)

Dear Mr. Wadley:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 189 to Facility Operating License No. DPR-42 and Amendment No. 178 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 October 29, 2007, as supplemented by letters dated April 24 and June 13, 2008.

The amendments revise TS 3.8.1 "AC Sources – Operating" by revising Surveillance Requirement 3.8.1.9 to require that the emergency diesel generator 24-hour load test be performed at or below a power factor of 0.85.

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 Nos. 50-282 and 50-306

Enclosures:

1. Amendment No. 189 to DPR-42
2. Amendment No. 178 to DPR-60
3. Safety Evaluation

cc w/encls: Distribution via ListServ



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.189
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 October 29, 2007, as supplemented by letters dated April 24 and June 13, 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. 189 , 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: October 21, 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 178
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 October 29, 2007, as supplemented by letters dated April 24 and June 13, 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. 178 , 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: October 21, 2008

ATTACHMENT TO LICENSE AMENDMENT NOS. 189 AND 178

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

INSERT

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

DPR-42, License Page 3
DPR-60, License 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 a marginal line indicating the area of change.

REMOVE

INSERT

3.8.1-9

3.8.1-9

- (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. 189 , 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 purposes 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. 178 , 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 3.8.1.9 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.85. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. <p>-----</p> <p>Verify each DG operates for ≥ 24 hours:</p> <ol style="list-style-type: none"> a. For ≥ 2 hours loaded: <ul style="list-style-type: none"> Unit 1 ≥ 2832 kW, and ≤ 3000 kW Unit 2 ≥ 5562 kW, and ≤ 5940 kW; and b. For the remaining hours of the test loaded: <ul style="list-style-type: none"> Unit 1 ≥ 2475 kW, and Unit 2 ≥ 4860 kW; and c. Achieves steady state voltage ≥ 3740 V and ≤ 4580 V; and frequency ≥ 58.8 Hz and ≤ 61.2 Hz. 	<p>24 months</p>



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 189 TO FACILITY OPERATING LICENSE NO. DPR-42
AND AMENDMENT NO. 178 TO FACILITY OPERATION LICENSE NO. DPR-60
NORTHERN STATES POWER COMPANY*
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2
DOCKET NOS. 50-282 AND 50-306

1.0 INTRODUCTION

By application dated October 29, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML073020289), as supplemented by letters dated April 24, 2008 (ADAMS Accession No. ML081150606), and June 13, 2008 (ADAMS Accession No. ML081650451), the Nuclear Management Company, LLC* (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 modify the PINGP TS Surveillance Requirements (SRs) related to emergency diesel generator (EDG) testing. Specifically, the licensee proposed to modify SR 3.8.1.9 in TS 3.8.1, "AC (Alternating Current) Sources - Operating," to require testing the EDGs at a power factor ≤ 0.85 . This license amendment request (LAR) was submitted in response to a regulatory commitment delineated in the U.S. Nuclear Regulatory Commission (NRC) staff's letter to the licensee dated July 5, 2007 (ADAMS Accession No. ML071700568).

2.0 REGULATORY EVALUATION

The NRC staff used the following requirements, guidance, and documents during the review of the application:

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50 includes the NRC's requirement that TS shall be included by applicants for a license authorizing operation of a production or utilization facility. Section 50.36 (d) requires that TS 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 operations; (3) SRs; (4) design features; and (5) administrative controls. The proposed change to TS 3.8.1 concerns the third category associated with SRs.

* 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.

General Design Criterion (GDC) 17, "Electric Power Systems," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, requires, in part, that an onsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The onsite electric power supplies and the onsite electric distribution system shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure. In addition, this criterion requires provisions to minimize the probability of losing electric power from any of the remaining supplies as a result of the loss of power from the unit, the transmission network, or the onsite electric power supplies.

GDC 18, "Inspection and Testing of Electric Power Systems," requires that electric power systems important to safety shall be designed to permit appropriate periodic inspection and testing to demonstrate operability and functional performance.

The PINGP Updated Safety Analysis Report (USAR), Revision 29, Section 1.5, "General Design Criteria," states that PINGP was designed and constructed to comply with the licensee's understanding of the intent of Atomic Energy Commission (AEC) GDC for Nuclear Power Plant Construction Permits, as proposed on July 10, 1967. Since the construction of the plant was significantly completed prior to the issuance of the GDC of 10 CFR Part 50, Appendix A, the plant was not reanalyzed and the Final Safety Analysis Report (FSAR) was not revised to reflect these later criteria. However, the AEC Safety Evaluation Report acknowledged that the AEC staff assessed the plant, as described in the FSAR, against the Appendix A design criteria and "...are satisfied that the plant design generally conforms to the intent of these criteria."

PINGP USAR, Section 1.5, AEC GDC 24, "Emergency Power for Protection Systems," states that in the event of 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 diesel generators per unit, as described in Section 8 of the PINGP USAR. Any one diesel generator 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 diesel generators installed in the facility. Power to the ESF is assured even with the failure of a single active component in each system.

NRC Regulatory Guide (RG) 1.9, Revision 2, dated December 1979, "Selection, Design, and Qualification of Diesel-Generator Units Used as Standby (Onsite) Electric Power Systems at Nuclear Power Plants," described a method acceptable to the NRC staff for complying with the Commission's regulations with regard to design and testing of diesel generators.

AEC Safety Guide 9 (superseded by NRC RG 1.9), dated March 1971, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," described an acceptable basis for the selection of diesel generator sets of sufficient capacity and margin to implement GDC 17.

NUREG-1431, Volume 1, "Standard Technical Specifications Westinghouse Plants," Revision 3.1, and Volume 2, "Standard Technical Specifications Westinghouse Plants, Bases," Revision 3.1. NRC encourages licensees to upgrade their TSs consistent with the criteria in the policy statement and conforming, to the extent practical, to Revision 3 with incorporated Travelers to the improved Standard Technical Specifications (STS).

3.0 TECHNICAL EVALUATION

3.1 Design Considerations

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 busses to supply shutdown power in the event of loss of all other AC auxiliary power. The EDG arrangement provides adequate capacity to supply the ESF for the design-basis accident in one unit, assuming the failure of a single active component in the system. In the event of a Loss-of-Coolant Accident (LOCA) coincident with the Loss of Offsite Power (LOOP) event (LOOP/LOCA), emergency power is available from two EDGs dedicated to each unit.

The U1 EDGs, D1 and D2, are Fairbanks-Morse opposed piston EDGs which provide onsite standby power sources for the 4160 volt (V) safeguards busses 15 and 16. These EDGs are each rated at 2750 kW continuous (for 8760 hours), 0.8 power factor, 900 revolutions per minute, 4160 V, three phase, 60 Hertz (Hz), synchronous generators. The 1000-hour rating of each EDG is 3000 kW. The 30 minute rating of each unit is 3250 kW. The PINGP USAR, Section 8.4, states that the U1 EDGs were sized per AEC Safety Guide 9, Paragraph C-2, which requires the predicted load seen by an EDG not to exceed the smaller of either the 2000-hour rating or 90 percent of the 30-minute rating. The USAR states that the 2000-hour rating of the U1 EDGs is not known, but the 8760-hour rating of 2750 kW is conservatively assumed to be a bounding value. The 30-minute rating is 3250 kW, and 90 percent of the 30-minute rating is 2925 kW. The NRC staff notes that a conservative limit of 2750 kW is placed on the U1 EDG predicted loads.

The current revision of PINGP USAR Table 8.4-1 shows the maximum predicted sequence load during a LOOP/LOCA on the U1 EDG D2 is 2453 kW, and the maximum predicted short-term (0 - 5 minutes) steady state load during the same event is 2479 kW. Section 8.4.4 of the PINGP USAR states that the maximum predicted peak load for either U1 EDG during a Unit 2 Station Blackout (SBO) event is 2624 kW. The redundant U1 EDG D1 has a slightly smaller load.

The Unit 2 EDGs, D5 and D6, are two tandem-drive units manufactured by Societe Alsacienne de Constructions Mecaniques de Mulhouse, each rated at 5400 kW continuous (for 8760 hours), 0.8 power factor, 1200 rpm, 4160 V, 3-phase, 60 Hz. The PINGP USAR states that the U2 EDGs meet the requirements of RG 1.9, Revision 2. However, portions of the 1984 Edition of the Institute of Electrical and Electronics Engineers, Inc. Standard 387 were implemented in the factory testing instead of the 1977 revision. Table 8.4-2 of the PINGP USAR shows the maximum predicted sequence load during a LOOP/LOCA on a U2 EDG is 3609 kW, and the maximum predicted steady state load during the same event is 3481 kW. The maximum predicted load on the U2 EDGs during a U1 SBO is 3652 kW. Since the loading is within the continuous rating of the EDG, the guidance of RG 1.9, Revision 2, Paragraph C2 is satisfied.

The USAR also states that testing has proven that the loading capabilities required by RG 1.9, Revision 2, Paragraph C4 are also satisfied. In response to questions that were raised by NRC staff related to assumptions for intermittent loads operating at 50 percent capacity, additional clarification to the EDG loading calculations was provided by the licensee in letters dated April 24, 2008 (ADAMS Accession No. ML081150606) and June 13, 2008 (ADAMS Accession No. ML081650451). The licensee performed engineering calculation ENG-EE-021, "Diesel Generator Steady State Loading for an SI Event Concurrent with Loss of Offsite Power for D1, D2, D5, D6," to evaluate the worst-case loading on the EDGs. Portions of this calculation, submitted by the licensee as Attachment 1 to its letter dated April 24, 2008, show the maximum predicted loading on the EDGs as summarized in the following table:

TABLE 1

	EDG 15 (D1)		EDG 16 (D2)		EDG 25 (D5)		EDG 26 (D6)	
	kW Loading	Power Factor	kW Loading	Power Factor	kW Loading	Power Factor	kW Loading	Power Factor
0 - 5 Min	2395.89	0.870	2538.57	0.868	3722.54	0.870	3339.77	0.868
5 - 30 Min	2399.77	0.871	2454.32	0.870	3728.42	0.871	3336.28	0.868
30 - 60 Min	2381.02	0.870	2436.07	0.870	3717.82	0.870	3325.68	0.868
60 Min - 14 days	1228.42	0.854	1664.07	0.861	2586.82	0.861	2472.85	0.863
Proposed Testing 2 Hrs. at 103%-110%	≥2832 and ≤3000	≤0.850	≥2832 and ≤3000	≤0.850	≥5562 and ≤5940	≤0.850	≥5562 and ≤5940	≤0.850
Proposed Testing 22 Hrs.	≥2475	≤0.850	≥2475	≤0.850	≥4860	≤0.850	≥4860	≤0.850
EDG LIMIT	2750.00	0.800	2750.00	0.800	5400.00	0.800	5400.00	0.800

Note: The load values do not include cable and transformer losses, however intermittent loads are assumed at 100 percent.

In Enclosure 2 of its letter dated June 13, 2008, the licensee provided an evaluation of EDG loading if intermittent loads are considered at 100 percent of their rating including cable and transformer losses. This evaluation indicates that the predicted maximum sequenced load, which occurs during the 0 - 5 minute interval, is 2636.99 kW for EDG D2 and 3864.53 kW for EDG D5. The predicted loads on the redundant U1 EDG D1 and U2 EDG D6 are slightly less. The change in power factor, after inclusion of cable and transformer losses, is bounded by the proposed test limits.

The licensee's June 13, 2008, response stated that: (1) the EDG loading calculation provided as an attachment to the letter corresponds to a Large-Break Loss-of-Coolant Accident (LBLOCA) concurrent with LOOP event; (2) the LBLOCA coupled with LOOP is the limiting Design-Basis Accident (DBA) loading criteria for EDGs at PINGP; and (3) the assumption of using large loads such as pressurizer heaters at 50 percent of rated capacity is conservative, as the heaters will not be loaded on the EDG during a LBLOCA when the pressurizer is empty.

3.2 Evaluation

The licensee proposed to specify a power factor requirement in the EDG 24-hour load test which is consistent with the guidance provided in NUREG-1431, "Standard Technical Specifications [STS], Westinghouse Plants," Revision 3.1 (NUREG-1431), SR 3.8.1.14. Specifically, the existing SR 3.8.1.9 Note will become Note 1 and be revised to include "power factor" as a

variable for which a momentary transient outside the range does not invalidate the test. A new SR 3.8.1.9 Note 2 will be added which states:

“If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.85 . However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable.”

In a supplement to a previous LAR to extend a TS 3.8.1 completion time (ADAMS Accession No. ML071310108), the licensee committed to submit an LAR which proposes changes, consistent with the guidance in NUREG-1431, to Appendix A of the TS, that will require the 24-hour EDG load test (SR 3.8.1.9) to be performed at or below a specified power factor. The current TS SR for the 24-month test does not include any requirement for the test to be performed at a specific power factor. Therefore, the proposed change will make the TS SRs more restrictive than the current TS.

The power factor proposed in the LAR was determined from the licensee’s calculation for EDG steady state loading for a LBLOCA concurrent with a LOOP. The calculated loads (kW) and apparent power loads (kVA) on each bus were combined to determine the power factor which each EDG may experience following a DBA. The proposed power factor of 0.85 bounds the calculated power factor values for EDG loading summarized in Table 1.

The licensee had previously committed to adopt a specific power factor requirement for the 24-hour EDG test, as specified in NUREG-1431. Note 3 of NUREG-1431 allows the surveillance to be conducted at a power factor other than $\leq [0.9]$ (plant-specific value). These conditions occur when grid voltage is high, and the additional field excitation needed to get the power factor to $\leq [0.9]$ results in voltages on the emergency busses that are too high. Note 3 of NUREG-1431 allows that, under these conditions, the power factor should be maintained as close as practicable to $[0.9]$ while still maintaining acceptable voltage limits on the emergency busses. This provision may be invoked by the licensee when the EDG is operating in parallel with the grid and the plant auxiliary busses attain unacceptable voltages.

The licensee stated that the proposed change is consistent with the format and content guidance of NUREG-1431, SR 3.8.1.14, for testing EDGs at or below a specified power factor. NUREG-1431, SR 3.8.1.14 states, in part, under Note 1: “Momentary transients outside the load and power factor ranges do not invalidate this test.” The STS Bases for this note state, “Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the power factor limit will not invalidate the test.” The licensee’s proposed change appears to be consistent with these statements. Therefore, the NRC staff finds the proposed change reasonable and acceptable.

NUREG-1431, SR 3.8.1.14 states, in part, under Note 3: “If performed with DG synchronized with offsite power, it shall be performed at a power factor $\leq [0.9]$. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable.” The STS Bases for this note states:

Note 3 ensures that the DG is tested under load conditions that are as close to design basis conditions as possible. When synchronized with offsite power, testing should be performed at a power factor of $\leq [0.9]$. This power factor is representative of the actual

inductive loading a DG would see under design-basis accident conditions. Under certain conditions, however, Note 3 allows the Surveillance to be conducted [at] a power factor other than $\leq [0.9]$. These conditions occur when grid voltage is high, and the additional field excitation needed to get the power factor to $\leq [0.9]$ results in voltages on the emergency busses that are too high. Under these conditions, the power factor should be maintained as close as practicable to $[0.9]$ while still maintaining acceptable voltage limits on the emergency busses. In other circumstances, the grid voltage may be such that the DG excitation levels needed to obtain a power factor of $[0.9]$ may not cause unacceptable voltages on the emergency busses, but the excitation levels are in excess of those recommended for the DG. In such cases, the power factor shall be maintained close as practicable to $[0.9]$ without exceeding the DG excitation limits.

In its application, the licensee's stated that the provisions of this Note may be routinely invoked. The proposed power factor limits shall be maintained as close as practicable for the entire duration of the endurance and margin test. The licensee stated in its April 24, 2008, supplement, that additional guidance will be provided to the operators as part of implementation of this license amendment following approval, and that the EDG test procedures would be revised to include additional guidance for operators to increase the reactive power load if the voltage limits permit. The NRC staff finds this reasonable and therefore acceptable.

3.3 Summary

The NRC staff has reviewed the licensee's proposed TS changes and supporting documentation. Based on the evaluation discussed above, the staff determined that the proposed amendment to TS 3.8.1 is acceptable because the testing maintains compliance with AEC GDC 39 and is in general conformance with GDC 17 of 10 CFR Part 50, Appendix A. The proposed TS 3.8.1 change is based on the recommendations of NUREG-1431. The proposed TS changes will ensure that facility operation will be within analysis limits, and the limiting conditions for EDG operation will be verified.

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 (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: G. S. Matharu, NRR

Date: October 21, 2008

October 21, 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: ADDITION OF A POWER FACTOR TO THE EMERGENCY DIESEL GENERATORS' 24-HOUR LOAD TEST (TAC NOS. MD7217 AND MD7218)

Dear Mr. Wadley:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No.189 to Facility Operating License No. DPR-42 and Amendment No.178 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 October 29, 2007, as supplemented by letters dated April 24 and June 13, 2008.

The amendments revise TS 3.8.1 "AC Sources – Operating" by revising Surveillance Requirement 3.1.8.9 to require that the emergency diesel generator 24-hour load test be performed at or below a power factor of 0.85.

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:

1. Amendment No. 189 to DPR-42
2. Amendment No. 178 to DPR-60
3. Safety Evaluation

cc w/encls: Distribution via ListServ

DISTRIBUTION

PUBLIC	RidsAcrsAcnw_MailCTR Resource	RidsNrrDeEeeb Resource	RidsOgcRp Resource
LPL3-1 r/f	RidsRgn3MailCenter Resource	RidsNrrDirsltsb Resource	G. Matharu, NRR
G. Hill, OIS	RidsNrrLATHarris Resource	RidsNrrDorlDpr Resource	
GWaig, NRR	RidsNrrPMPrairieIsland Resource	RidsNrrLABTully Resource	

ADAMS ACCESSION: ML082490441 PKG: ML082490371 TS: ML082490373

OFFICE	NRR/LPL3-1/PM	NRR/LPL3-1/LA	NRR/DE/EEEB	NRR/DIRS/ITSB	OGC	NRR/LPL3-1/BC
NAME	TWengert <i>TW</i>	THarris <i>TH</i>	GWilson	RElliott	BMizuno*	LJames <i>LJ</i>
DATE	10/20/08	10/20/08	9/24/08	9/30/08	10/17/08	10/21/08

OFFICIAL RECORD COPY

*NLO w/comments