



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

July 12, 2012

Mr. James E. Molden  
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, UNITS 1 AND 2 –  
SUPPLEMENTAL INFORMATION NEEDED FOR ACCEPTANCE OF  
REQUESTED LICENSING ACTION RE: EMERGENCY DIESEL GENERATOR  
VOLTAGE LIMITS AMENDMENT REQUEST (TAC NOS. ME8700 AND  
ME8701)

Dear Mr. Molden:

By letter dated May 15, 2012, Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, submitted a license amendment request for the Prairie Island Nuclear Generating Plant, Units 1 and 2. The proposed amendment would lower the steady state voltage limit in certain Surveillance Requirements in Technical Specification 3.8.1. The purpose of this letter is to provide the results of the U.S. Nuclear Regulatory Commission (NRC) staff's acceptance review of this amendment request. The acceptance review was performed to determine if there is sufficient technical information in scope and depth to allow the NRC staff to complete its detailed technical review. The acceptance review is also intended to identify whether the application has any readily apparent information insufficiencies in its characterization of the regulatory requirements or the licensing basis of the plant.

Consistent with Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), an amendment to the license (including the technical specifications) must fully describe the changes requested, and following as far as applicable, the form prescribed for original applications. Section 50.34 of 10 CFR addresses the content of technical information required. This section stipulates that the submittal address the design and operating characteristics, unusual or novel design features, and principal safety considerations.

The NRC staff has reviewed your application and has concluded that additional information delineated in the enclosure to this letter is necessary to enable the staff to make an independent assessment regarding the acceptability of the proposed amendment in terms of regulatory requirements and the protection of public health and safety and the environment.

In order to make the application complete, the NRC staff requests that NSPM supplement the application to address the information requested in the enclosure by August 10, 2012. This will enable the NRC staff to begin its detailed technical review. If the information responsive to the NRC staff's request is not received by the above date, the application will not be accepted for review pursuant to 10 CFR 2.101, and the NRC will cease its review activities associated with the application. If the application is subsequently accepted for review, you will be advised of

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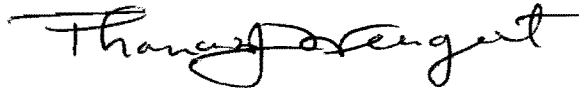
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any further information needed to support the staff's detailed technical review by separate correspondence.

The information requested and associated time frame in this letter were discussed with Mr. Dale Vincent of your staff on June 28, 2012.

If you have any questions, please contact me at (301) 415-4037.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas J. Wengert". The signature is fluid and cursive, with the first name "Thomas" and last name "Wengert" clearly distinguishable.

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

Enclosure:  
As stated

cc w/encl: Distribution via Listserv

SUPPLEMENTAL INFORMATION REQUIRED FOR AMENDMENT REQUEST CONCERNING  
EMERGENCY DIESEL GENERATOR VOLTAGE LIMITS  
NORTHERN STATES POWER COMPANY - MINNESOTA  
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2  
DOCKET NOS. 50-282 AND 50-306

By letter dated May 15, 2012 (Agencywide Documents Access and Management System Accession No. ML12137A825), Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy, submitted a license amendment request (LAR) for the Prairie Island Nuclear Generating Plant, Units 1 and 2. The proposed amendment would lower the steady state voltage limit in certain Surveillance Requirements (SRs) in Technical Specification (TS) 3.8.1. The Nuclear Regulatory Commission (NRC) staff has reviewed this request and has determined that the following supplemental information is required prior to accepting the application for review.

Background

The LAR proposes revising TS 3.8.1, "AC Sources - Operating" to change the minimum voltage acceptance criterion for the emergency diesel generator (EDG) surveillance testing for the lower steady state voltage limit in TS 3.8.1 SRs 3.8.1.2, 3.8.1.6 and 3.8.1.9, from 3740 Volts – alternating current (VAC) to 4027 VAC. The LAR states that the minimum voltage limits specified in the SRs are non-conservative but are administratively controlled in an acceptable range to ensure operation of safety related equipment.

As an example, the proposed SR 3.8.1.6 would state:

Verify each DG starts from standby condition and achieves:

- a. In  $\leq 10$  seconds, voltage  $\geq 4027$  V and frequency  $\geq 58.8$  Hz; and
- b. Steady state voltage  $\geq 4027$  V and  $\leq 4580$  V, and frequency  $\geq 58.8$  Hz and  $\leq 61.2$  Hz.

SR 3.8.1.2, SR 3.8.1.6, and SR 3.8.1.9 also have an upper voltage value and a frequency component that can affect equipment performance. The relationships among frequency, voltage, and equipment performance are such that changes to one of these parameters must be evaluated in the context of the other parameters. In addition, since the voltage and frequency requirements are specified together and include high and low limits, any changes must be evaluated within the context of the other requirements.

Supplemental Information Requested

In order to understand the adequacy of all the proposed parameters in SRs 3.8.1.2, 3.8.1.6, and 3.8.1.9 for equipment operability, the NRC staff requests the following supplemental information:

Enclosure

1. The upper end of allowable voltage for steady state operation (4580 V) is not changed. Verify that voltage spikes observed during full load rejection testing at given power factor and initial voltage of 4580 V will not adversely impact the EDG or any other safety related equipment.
2. The typical nominal rating of equipment used in 4160 V system is 4000 V +/-10%. Verify that extended operation of the EDGs at 4580 V will not adversely impact the reliable operation of safety related equipment. Validate that protective relaying set points have been evaluated for higher load currents.
3. TS SR 3.8.1.9 has EDG load testing requirements. The torque speed curves of induction motors are dependent on system frequency. Verify that EDG testing envelopes the EDG loading at the onset of an event when the pumps may be operating at run-out conditions and during steady state conditions with the EDG operating at the allowable extremes of voltage and frequency.
4. Provide details on how the minimum frequency of  $\geq 58.8$  Hertz (Hz) and steady state frequency values  $\geq 58.8$  Hz and  $\leq 61.2$  Hz are used to determine safeguards equipment operational requirements during design basis accident calculations.
  - a) Provide details on performance capabilities of accident mitigation equipment (pumps, motors, valves, etc.) when the EDG is operating at the lower end of the allowable voltage and frequency bands during design basis events.
  - b) Verify that motor operated valve performance is not adversely impacted (accident analyses) at the lower end of the TS allowable frequency coupled with the frequency/voltage variations observed during the EDG loading sequence.

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any further information needed to support the staff's detailed technical review by separate correspondence.

The information requested and associated time frame in this letter were discussed with Mr. Dale Vincent of your staff on June 28, 2012.

If you have any questions, please contact me at (301) 415-4037.

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

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As stated

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