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U S Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Prairie Island Nuclear Generating Plant Unit 1
Docket 50-282
License No. DPR-42

Supplement to License Amendment Request (LAR) to Revise Surveillance Requirement (SR) Footnote in Technical Specification (TS) 3.8.1, "AC Sources – Operating" (TAC No. ME5426)

By letter dated February 3, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110350055), Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), requested NRC review and approval of an amendment to the TS for the Prairie Island Nuclear Generating Plant (PINGP), Unit 1, to revise the TS 3.8.1, "AC Sources – Operating", SR 3.8.1.10 footnote requiring battery charger modifications. By letter dated March 4, 2011, ADAMS Accession No. ML110610475, NRC Staff requested additional information to support their review of Reference 1. The enclosure to this letter provides the responses to the NRC Staff requests for additional information (RAI). NSPM submits this supplement in accordance with the provisions of 10 CFR 50.90.

The supplemental information provided in this letter and enclosure does not impact the conclusions of the Determination of No Significant Hazards Consideration or Environmental Assessment presented in the February 3, 2011 (ADAMS Accession No. ML110350055) submittal.

In accordance with 10 CFR 50.91, NSPM is notifying the State of Minnesota of this LAR supplement by transmitting a copy of this letter and enclosure to the designated State Official.

If there are any questions or if additional information is needed, please contact Mr. Dale Vincent, P.E., at 651-388-1121.

Summary of Commitments

NSPM makes the following commitment in response to RAI 2:

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.

This letter contains no revisions to existing commitments

I declare under penalty of perjury that the foregoing is true and correct.

Executed on

 3/15/2011

Mark A. Schimmel
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosures (1)

cc: Administrator, Region III, USNRC
Project Manager, PINGP, USNRC
Resident Inspector, PINGP, USNRC
State of Minnesota

ENCLOSURE

Response to Requests for Additional Information (RAIs) for the License Amendment Request (LAR) to Revise the Surveillance Requirement (SR) Footnote in Technical Specification (TS) 3.8.1, "AC Sources – Operating" (TAC No. ME5426)

This enclosure provides responses from Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), to Nuclear Regulatory Commission (NRC) RAIs provided by letter dated March 4, 2011, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110610475) regarding the LAR to revise the TS 3.8.1, "AC Sources – Operating", SR 3.8.1.10 footnote requiring battery charger modifications for Prairie Island Nuclear Generating Plant (PINGP), Unit 1.

NRC RAI 1:

Provide a comparison of the major electrical parameters, including the minimum voltage requirement (drop-out and reset) of the alternating current (AC) input breaker/contactors, for the existing and proposed new battery chargers. Discuss in detail the electrical parameters for the proposed new charger that are different from the existing 12 Battery Charger and how these parameters were determined to be acceptable.

NSPM Response to RAI 1:

The battery chargers are each protected upstream by a 125 Amp molded case breaker and do not include a contactor/starter control feature. Therefore, there is no minimum AC voltage requirement for drop-out or reset.

The electrical parameter comparison for the chargers is provided in the following table:

Parameter	Existing Chargers (C&D)	New Chargers (Ametek SCI)
Input Voltage Rating	480VAC +/- 10%	480VAC +10%/-15%
Output Voltage Rating (Nominal)	125VDC +/- 0.5%	125VDC +/- 0.5%
Input Current at Maximum of Current Limit Setting Range	90A	109A
Current Output (Nominal)	300Amps	400Amps
Current Limit Setting	Current limit set to 315Amps	Current limit set to 315Amps

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Parameter	Existing Chargers (C&D)	New Chargers (Ametek SCI)
Silicon Controlled Rectifier (SCR) Firing Circuit (reflected harmonics)	12 Pulse	12 Pulse
Frequency	60 Hz, +/- 5%	60 Hz, +/- 5%
Input Device Withstand Rating	25,000A at 480VAC	25,000A at 480VAC
Output Device Withstand Rating	20,000A at 250VDC	30,000A at 250VDC
Efficiency @ 100% load and 480V	87%	93%
Maximum Float Voltage	140VDC	141VDC
Maximum Equalize Voltage	150VDC	150VDC
Current Limit Setting Range	100%-115% (300-345 ADC)	50%-115% (200-460 ADC)
Ambient Temperature Rating	0-50 °C	0-50°C
Relative Humidity Rating	Not Available	0-95% non-condensing

As shown in the table, the electrical performance characteristics of the new chargers meet or exceed those of the existing chargers.

The new chargers are being purchased with a 400 Amp capacity but will have the current limit set to 315 Amps as part of this modification which match the existing charger settings. In addition, efficiency will be improved. As a result, there will be no increase in AC system loading.

The acceptability of the charger sizing and characteristics will be evaluated and documented within the modification and also documented in a revision to the existing battery charger sizing calculations.

NRC RAI 2:

Discuss whether the description of the existing and new battery chargers will be provided in a future revision of the PINGP Updated Final Safety Analysis Report (UFSAR).

NSPM Response to RAI 2:

The PINGP Updated Safety Analysis Report (USAR) will be updated to include the description of the existing battery chargers and the relevant loading data for them in the load summary tables. The USAR changes will reflect the installation of the new battery chargers in conjunction with the respective Engineering Change (EC) and in the time sequence of each EC being installed and turned over to the plant Operations Department. These revisions will be processed in accordance with NSPM fleet engineering and site specific procedures applicable to USAR changes. These procedures provide the requirements for USAR revisions in conjunction with EC driven modifications. NSPM makes the following commitment with respect to updating the USAR for the Unit 1 battery chargers, "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."

NRC RAI 3:

Confirm that the proposed new battery charger can recharge its associated battery to the fully charged state within 24 hours while supplying its normal loads after a battery discharge to the bounding design basis event discharge state in accordance with PINGP UFSAR Section 8.5.3 and TS SR 3.8.4.2.

NSPM Response to RAI 3:

The proposed new battery chargers will have the same capacity as the existing chargers. Existing plant calculations show the existing chargers satisfy the USAR Section 8.5.3 and the TS SR 3.8.4.2 criteria. These calculations will be revised to reflect the new charger data with similar results expected. To demonstrate the new battery charger capability to perform this requirement, the EC Post Modification Test Plan requires performance of the applicable surveillance procedures which demonstrate compliance with TS SR 3.8.4.2.

NRC RAI 4:

Industry operating experience has shown that momentary overvoltage or undervoltage transients experienced during switching, fault or lightning-related perturbations can trigger a self-protecting lockout feature in battery chargers resulting in disabling the chargers. Provide details on the magnitude and duration of transient and sustained overvoltage/undervoltage conditions resulting from grid perturbations (or the emergency diesel generator system) that have been evaluated for operation of the proposed battery charger.

NSPM Response to RAI 4:

Grid stability studies and test data from performance of past Integrated Safety Injection (SI) Tests were reviewed to determine expected undervoltage/overvoltage events and transients. This review identified expected voltage transients either from offsite power or from the emergency diesel generators where voltage dips reached levels near 60% and voltage overshoots reached levels up to approximately 125% of nominal voltage at the emergency diesel generator terminals or 110% at the PINGP substation 345kV and 161kV buses. The duration of the voltage transients were less than 2.5 seconds.

During initial design, Ametek SCI was presented these design considerations and indicated that the chargers would not be disabled by these events or would restart automatically if they did shutdown. Preliminary informational testing was conducted on a similar Ametek SCI battery charger to observe battery charger operation during these expected voltage transients. These tests were conducted with varying load conditions, current limits setpoints, and voltage fluctuations at values and durations similar to or in excess of those anticipated as stated above. The testing showed that the charger continued to operate through overvoltage events. During undervoltage events, the charger shutoff when the voltage dipped to approximately 60% of nominal voltage and automatically restarted when voltage recovered to approximately 65% of nominal voltage.

Testing requirements for operation to the expected values and durations is included in the specified Factory Acceptance Testing to ensure acceptable battery charger performance under anticipated conditions.

NRC RAI 5:

TS SR 3.8.1.10 NOTE 3 states that the 12 Battery Charger is not required to be energized during performance of SR 3.8.1.10(c) until the completion of Unit 1 2011 refueling outage. The license amendment request proposes a footnote stating that the battery charger equipment will be modified during or prior to the Unit 1 2011 refueling outage. State why NOTE 3 was not modified to apply only until the new equipment has been installed and tested.

NSPM Response to RAI 5:

Due to TS operability issues, the proposed battery charger modification (replacement) cannot be performed until the Unit 1 2011 refueling outage commences. The schedule for the modification installation is dictated by the modification and outage schedules. After installation, post-modification testing and TS required SRs will be performed to assure that the replacement 12 Battery Charger is operable.

Emergency diesel generator D2 operability with the replacement 12 Battery Charger energized will be demonstrated when the Integrated SI Test, which satisfies SR 3.8.1.10

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test requirements, is performed. The integrated SI test is scheduled for performance late in the outage as dictated by the refueling outage schedule. After the integrated SI test is satisfactorily performed, D2 is operable with 12 Battery Charger energized and Note 3 is no longer necessary for the remainder of the outage. To clarify that Note 3 does not apply after performance of SR 3.8.1.10 following completion of the battery charger modification, Note 3 is proposed to be revised by the addition of "this SR during" to state, "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.*" Revised TS page 3.8-10 with this revised Note is provided in Attachments 1 and 2 to this Enclosure. This revised TS page supersedes the proposed TS page provided in the February 3, 2011 submittal (ADAMS Accession No. ML110350055).

Attachment 3 to this Enclosure provides Bases page B 3.8.1-22 revised to include this change. This Bases page is provided for information only.

ENCLOSURE, ATTACHMENT 1

Technical Specification Pages (Markup)

3.8.1-10

1 page follows

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.10 -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 3. 12 Battery Charger not required to be energized in SR 3.8.1.10(c) until completion of <u>this SR during Unit 1 2011 refueling outage.*</u> <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"> a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and energizes emergency loads in ≤ 60 seconds. 	<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 automatically ~~shed~~ assure the 12 Battery Charger is automatically powered from its normal bus and then automatically repower the charger from the bus within 60 seconds. Compliance with this SR will be demonstrated after implementation of the modification.

ENCLOSURE, ATTACHMENT 2

Technical Specification Pages (Retyped)

3.8.1-10

1 page follows

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.10 -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 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.* <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"> a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and energizes emergency loads in ≤ 60 seconds. 	<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.

ENCLOSURE, ATTACHMENT 3

Bases Pages (Markup)

B 3.8.1-22

1 page follows

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1.10

In the event of a DBA coincident with a loss of offsite power, the DGs are required to supply the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded.

This Surveillance demonstrates the DG operation during a loss of offsite power actuation test signal in conjunction with an SI actuation signal. In lieu of actual demonstration of connection and loading of emergency loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The Frequency of 24 months takes into consideration unit conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 24 months.

This SR is modified by ~~two~~three Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that the performance of the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Note 3 is provided to allow D2 DG to be OPERABLE without requiring the 12 Battery Charger to be energized until completion of this SR during the Unit 1 2011 refueling outage.

SR 3.8.1.11

This Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source. This test verifies DG starts on the loss of offsite power. Tests of other design features associated with loss of offsite power are satisfied by SR 3.8.1.10.