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DEC 17 2010

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10 CFR 50.90

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

Prairie Island Nuclear Generating Plant Units 1 and 2
Dockets 50-282 and 50-306
License Nos. DPR-42 and DPR-60

Response to Request for Additional Information RE: License Amendment Request to Adopt the Alternative Source Term Methodology (TAC NOS. ME2609 and ME2610)

References:

1. Xcel Energy Letter to US NRC, "License Amendment Request (LAR) to Adopt the Alternative Source Term Methodology," dated October 27, 2009 (ADAMS Accession No. ML093160583).
2. US NRC Letter to Xcel Energy, "Prairie Island Nuclear Generating Plant, Units 1 and 2 – Requests for Additional Information RE: License Amendment Request to Adopt the Alternative Source Term Methodology (TAC Nos. ME2609 and ME2610)," dated March 26, 2010 (ADAMS Accession No. ML100820298).
3. Xcel Energy Letter to US NRC, "Response to Requests for Additional Information RE: License Amendment Request to Adopt the Alternative Source Term Methodology (TAC Nos. ME2609 and ME2610)," dated May 25, 2010 (ADAMS Accession No. ML101460064).
4. US NRC Email to Xcel Energy, "Prairie Island – Draft RAI for Alternative Source Term LAR (SRXB and SCVB)," dated September 21, 2010.

In Reference 1, the Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, hereby requested an amendment to the Technical Specifications (TS) for Prairie Island Nuclear Generating Plant (PINGP). The proposed amendment requested to adopt the Alternative Source Term (AST) methodology, in addition to TS changes supported by the AST design basis accident radiological consequence analyses.

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In Reference 2, the Nuclear Regulatory Commission (NRC) Staff requested additional information to support their review of Reference 1. In Reference 3, NSPM provided the responses to the Reactor Systems Branch request for additional information (RAI). In Reference 4, the NRC sent follow-up questions via electronic mail. Enclosure 1 to this letter provides a response to one of the NRC Staff RAIs, specifically, a response to the Containment and Ventilation Systems Branch (SCVB) RAI, SCVB-1.

NSPM submits this supplement in accordance with the provisions of 10 CFR 50.90.

The supplemental information provided in this letter does not impact the conclusions of the Determination of No Significant Hazards Consideration and Environmental Assessment presented in the October 27, 2009 submittal as supplemented on April 29, 2010, May 25, 2010, June 23, 2010, and August 12, 2010.

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 to the designated State Official.

If there are any questions or if additional information is needed, please contact Ms. Amy Hazelhoff, at 269-370-7445.

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on DEC 17 2010

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

Enclosure

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

Enclosure 1

Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI)

CONTAINMENT AND VENTILATION SYSTEMS BRANCH (SCVB)

NRC RAI - SCVB-1

Calculation No. GEN-PI-079, "Post-LOCA EAB, LPZ, and CR Doses - AST" (Attachment 6 to Enclosure to the October 27, 2009 application), assumes a specific Shield Building leakage rate as shown in Table 2 (Page 64 of 257 of the calculation). This leakage rate helps determine the recirculation and holdup time of any source term leaking into the Shield Building annulus.

Describe the periodic verification performed to assure that the Shield Building leakage rate remains within the values assumed in the accident analyses.

Northern States Power Company, a Minnesota corporation (NSPM) Response

SCVB-1 RAI

The Shield Building leakage rates shown in Table 2, of Calculation No. GEN-PI-079, "Post-LOCA EAB, LPZ and CR Doses – AST," are not specifically used in the calculation. Section 5.0 in Calculation No. GEN-PI-079 describes the design inputs that are used in the calculation. As shown in Section 5.0, the key inputs related to the Shield Building are as follows:

- Design Input 5.3.2.3, Identified as L_1, shows leakage from Containment to the Shield Building. Figure 2 provides a schematic of the Containment leakage paths. As shown on Figure 2, leakage from Containment to the Shield Building is modeled as bypassing the Shield Building and being released directly to the environment during the first 22 minutes following initiation of the accident. After 22 minutes, this leakage is modeled as released to the Shield Building. 22 minutes is consistent with Design Input 5.3.2.6, for the time of initiation of Shield Building recirculation.

- Design Input 5.3.2.8 shows that a Shield Building exhaust rate of 2000 cfm is used in the analysis. This is applicable after the initial 22 minutes. Table 2 indicates that the exhaust flow rate after 20 minutes is 1000 cfm. Note that the 22 minutes is used to be conservative relative to the 20 minutes in Table 2. As described in the Reference column for Design Input 5.3.2.8, the Shield Building exhaust flow rate in Table 2 is doubled to simulate 50% mixing in the Shield Building after 22 minutes.

As described above, the capability for the Shield Building Ventilation System (SBVS) to collect and filter containment leakage is credited in the analysis. In order to perform this function, the SBVS must be capable of producing and maintaining a negative pressure in the Shield Building Annulus. Inleakage can affect the ability to produce and maintain a negative pressure in the Shield Building Annulus. The inleakage rate can also affect the SBVS exhaust flow rate.

Periodic verification of the Shield Building integrity is performed per Technical Specification Surveillance Requirements (SR). Specifically, the capability for the Shield Building Ventilation

System to produce and maintain a negative pressure in the Shield Building Annulus is verified monthly per Technical Specification SR 3.6.10.2. The Bases for SR 3.6.10.2 states:

> "The SBVS produces a negative pressure to prevent leakage from the building. SR 3.6.10.2 verifies that the shield building can be rapidly drawn down to -2.00 inch water gauge and maintains a pressure equal to or more negative than -1.82 inches of water gauge in the annulus after the recirculation dampers open and equilibrium is established. Equilibrium negative pressure equal to or more negative than -1.82 inches water gauge is that predicted for non-accident conditions and leakage equal to 75% of the maximum allowable shield building inleakage (Reference 2). Establishment of this pressure is confirmed by SR 3.6.10.2, which demonstrates that the shield building can be drawn down to a pressure equal to or more negative than -2.0 inches of water gauge in the annulus using one SBVS train."

Reference 2 in the Bases for SR 3.6.10.2 is, "Report to the United States Nuclear Regulatory Commission Division of Operating Reactors – Prairie Island Containment Systems Special Analyses," dated April 9, 1976. A curve is provided in SR 3.6.10.2 Bases Reference 2, which predicts the pressure in the Shield Building Annulus with 75% of the maximum allowable shield building inleakage. As described in the Bases for SR 3.6.10.2, this curve is used to determine the acceptance criteria for the associated Surveillance Procedures. The associated Surveillance Procedures confirm that the following acceptance criteria are satisfied:

- Peak differential pressure between the Shield Building Annulus and the Auxiliary Building is greater than (more negative) 2.0" H_2O. At 2.0" H_2O, the SBVS recirculation damper opens.

- Equilibrium differential pressure between Shield Building Annulus and Turbine Building is maintained greater than (more negative) or equal to 1.82" H_2O.

The equilibrium differential pressure value of 1.82" H_2O corresponds to the equilibrium value predicted in Reference 2, cited in the Bases for SR 3.6.10.2. During the surveillance testing the equilibrium differential pressure would be affected by the inleakage rate. If the inleakage were higher than 75% of the maximum allowable shield building inleakage, the differential pressure would correspondingly be less than 1.82" H_2O (i.e., less negative pressure condition).

This approach of using the drawdown testing to confirm Shield Building leak tightness was confirmed in NRC Safety Evaluation (SE) for License Amendments 62 and 56, dated February 23, 1983 (ADAMS Accession No. ML022180360) which concludes (page 10 of the SE) that drawdown performance testing provides assurance that the leakage rate requirements are met.

Therefore, through demonstration of the ability to produce and maintain a negative pressure in the Shield Building Annulus, adequate testing is performed to assure that leakage requirements are periodically verified.