NRR-PMDAPEm Resource

From: Beltz, Terry
Sent: Friday, August 28, 2015 8:32 AM
To: amy.hazelhoff@xenuclear.com
Cc: Eckholt, Gene F. (Eugene.Eckholt@xenuclear.com); Murphy, Martin C.; Pelton, David; Rosenberg, Stacey; Fields, Leslie; Miller, Barry; Green, Kimberly
Subject: Prairie Island Nuclear Generating Plant - Final Requests for Additional Information (Second Round) from APLA re: LAR to Adopt NFPA 805 (TAC Nos. ME9734 and ME9735)

Dear Ms. Hazelhoff:

By letter dated September 28, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12278A405), Northern States Power Company, a Minnesota corporation (NSPM, the licensee), doing business as Xcel Energy, submitted a license amendment request (LAR) to transition its fire protection licensing basis at the Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2, from paragraph 50.48(b) of Title 10 of the *Code of Federal Regulations* (10 CFR) to 10 CFR 50.48(c), National Fire Protection Association Standard NFPA 805 (NFPA 805).

By letters dated November 8, 2012, and December 18, 2012 (ADAMS Accession Nos. ML12314A144 and ML12354A464, respectively), NSPM provided supplemental information in support of its application. By letter dated January 2, 2013 (ADAMS Accession No. ML13002A209), the NRC staff concluded that there was information in sufficient detail to enable the staff to being its technical review and make an independent assessment regarding the acceptability of the proposed LAR.

Subsequent to the acceptance of the application, the NSPM staff verbally informed the NRC staff that, in preparation for the NRC Audit of the PINGP NFPA 805 LAR, it had identified a number of issues associated with the Fire Probabilistic Risk Assessment (PRA) that was determined to affect the risk values identified in the September 28, 2012, application, and the December 18, 2012, supplemental letter.

By letter dated May 3, 2013 (ADAMS Accession No. ML13126A115), NSPM informed the NRC that a revision to the PRA was necessary and provided a commitment to provide a supplement to its NFPA 805 LAR with revised Fire PRA results by May 1, 2014. NSPM submitted its revised PRA in a supplement dated April 30, 2014 (ADAMS Accession Nos. ML14125A106 and ML14125A149).

The NRC staff conducted an onsite audit in support of its NFPA 805 review during the week of March 23, 2015. As a result of the audit, the staff identified revisions to the aforementioned pre-audit draft RAIs, and the proposed revisions and a response timeline were discussed with NSPM prior to conclusion of the onsite audit.

In an e-mail dated March 30, 2015 (ADAMS Accession No. ML15089A157), the NRC staff issued requests for additional information (RAIs), including a timeline and dates for providing 60-, 90-, and 120-day RAI responses.

In a letter dated May 28, 2015 (ADAMS Accession No. ML15153A018), NSPM provided its 60-day RAI responses.

In a letter dated June 19, 2015 (ADAMS Accession No. ML15174A139), NSPM provided its 90-day RAI responses.

In an e-mail to Mr. Sam Chesnutt dated August 10, 2015, I provided draft second-round RAIs from the PRA Licensing Branch of the Office of Nuclear Reactor Regulation. The draft RAIs were associated with information provided by the NSPM in its 60- and 90-day RAI response letters.

On August 26, 2015, a conference call was held between the NRC staff and NSPM to provide clarification of the draft PRA RAIs. During the conference call, it was determined that the draft PRA RAIs may made final.

The final second-round PRA RAIs are provided below. In a follow-up phone call on August 27, 2015, it was agreed that the NSPM would provide its response to the second-round PRA RAIs no later than October 23, 2015.

Please don't hesitate to contact me if you have any additional questions or concerns.

Sincerely,

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REQUESTS FOR ADDITIONAL INFORMATION (SECOND ROUND)

LICENSE AMENDMENT REQUEST (LAR) TO ADOPT

NATIONAL FIRE PROTECTION ASSOCIATION STANDARD (NFPA) 805

NORTHERN STATES POWER COMPANY – MINNESOTA (NSPM, THE LICENSEE)

PRAIRIE ISLAND NUCLEAR GENERATING PLANT (PINGP), UNITS 1 AND 2

DOCKET NOS. 50-282 AND 50-306

(TAC NOS. ME9734 AND ME9735)

Probabilistic Risk Assessment (PRA) RAI 01.d.01

The response to PRA RAI 01.d (in letter dated May 28, 2015) indicates that general transient fires and transient fires due to hot work are not postulated under the raised floor within the main control room (MCR), further clarifying that hot work in this location while the plant is in operation is unlikely and that fire propagation is unlikely due to suppression. However, the guidance in FAQ 12-0064, "Hot Work/Transient Fire Frequency Influence Factors," requires that transient fires, consisting of fire from transient combustibles and hot work, be assumed to occur in all areas of a plant unless precluded by design and/or operation (e.g., manholes are welded shut, space too small to allow personnel access under any conditions, very high radiation areas, etc.). Note also that in FAQ 12-0064, the likelihood of hot work and maintenance activities is addressed through the use of transient influencing factors. "Strictly controlled" areas, if appropriately justified, may be assigned a ranking of "very low," or in the case of hot work, "extremely low" if plant procedures prohibit hot work in the MCR during power operations.

Please demonstrate that either the guidance in FAQ 12-0064 is inapplicable to the area under the raised floor within the MCR or that transient fires in this area have an insignificant impact on risk results. Alternatively,

provide updated risk results as part of the integrated analysis requested in PRA RAI 03, addressing transient fires consistent with guidance in FAQ 12-0064.

PRA RAI 01.e.01

The responses to PRA RAIs 01.e and 12.e (in a letter dated June 19, 2015) indicate that the event tree model developed for main control board (MCB) panel scenarios is also applied to address 1) non-MCB electrical cabinet panel fires within the MCR, and 2) transient fires that may impact the MCB panels, respectively. However, this event tree model generates sequences (i.e., Sequences 1 and 2) in which fire damage is limited to only a single component within a panel. With regard to cabinet fires, Page 11-37 of NUREG/CR-6850, "EPRI-NRC/RES Fire PRA Methodology for Nuclear Power Facilities," indicates such detailed modeling "is beyond the capabilities of current state-of-the-art analytical tools." Additionally, with regard to transient fires, Section 11.5.2.8 provides alternative damage criteria for open and closed back panels, which seem not to have been applied here.

Please explain how the treatment of 1) non-MCB electrical cabinet panel fires within the MCR, and 2) transient fires that may impact MCB panels, is consistent with accepted methods. If this treatment is not consistent with accepted methods, justify the approach, or replace the current approach with an acceptable approach in the integrated analysis performed in response to PRA RAI 03.

PRA RAI 01.f.01

The responses to PRA RAIs 01.f and 01.d (in letter dated May 28, 2015) indicate that self-ignited cable fires are not postulated for "low energy" unqualified cables given that self-ignition does not "typically" occur for such cables. However, guidance in NUREG/CR-6850 states that "[s]elf[-]ignited cable fires should be postulated in rooms with unqualified cables only or a mix of qualified and unqualified cables." Additionally, neither NUREG/CR-6850 nor FAQ 13-0005, "Cable Fires Special Cases: Self-Ignited and Caused By Welding and Cutting," distinguish cabling by electrical energy or function (i.e., power versus instrumentation and control) in their treatments of self-ignition.

Please provide technical justification for excluding self-ignited cable fires for "low energy" unqualified cables external to conduit, or demonstrate that such fires have an insignificant impact on risk results. Alternatively, provide updated risk results as part of the integrated analysis requested in PRA RAI 03, addressing these fires consistent with accepted guidance in NUREG/CR-6850 and FAQ 13-0005.

PRA RAI 07.01

While the response to PRA RAI 07 (in letter dated June 19, 2015) states that the guidance in FAQ 13-0004, "Clarifications on Treatment of Sensitive Electronics," is "applicable," it is not clear that this or other accepted guidance associated with the treatment of sensitive electronics is applied to the fire PRA. In particular, the response:

- indicates that the fire PRA's treatment of sensitive electronics is only "primarily" based on FAQ 13-0004;
- fails to provide the requested explanation on how several specific configurations that fall outside FAQ 13-0004 guidance will be treated;
- does not appear to address the impact of ignition sources other than electrical cabinets (e.g., transients) on sensitive electronics;
- appears to rely, at least in part, on temperature thresholds (i.e., 95°C for the MCR and 200°C for the relay room) that are above those specified in Section H.2 of NUREG/CR-6850 for sensitive electronic equipment; and

- does not appear to be consistent with Appendix S of NUREG/CR-6850 (see PRA RAI 07.02).

Considering the above, please justify that the fire PRA's treatment of sensitive electronics is consistent with accepted methods. If this treatment is not consistent with accepted methods, then justify the approach or replace the current approach with an acceptable approach in the integrated analysis performed in response to PRA RAI 03.

PRA RAI 07.02

The response to PRA RAI 07 (in letter dated June 19, 2015) states that "adjacent cabinets in the same bank as the ignition source are failed at the time of the first cable tray failure above the ignition source, which fails sensitive electronics in the adjacent panel (i.e., fails any cables mapped to basic events in these cabinets)." However, the time at which the first cable tray above an ignited cabinet fails does not appear to be related to the time at which adjacent cabinets, including associated sensitive electronics, are impacted by fire. Additionally, this treatment of fire propagation to adjacent cabinets appears inconsistent with Appendix S to NUREG/CR-6850.

Please clarify the above statement and explain how it is consistent with accepted methods (e.g., Appendix S). If the approach is not consistent with accepted methods, then justify the approach or replace it with an acceptable approach in the integrated analysis approach in the integrated analysis performed in response to PRA RAI 03.

Hearing Identifier: NRR_PMDA
Email Number: 2348

Mail Envelope Properties (Terry.Beltz@nrc.gov20150828083200)

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