NRR-PMDAPEm Resource

From: Beltz, Terry
Sent: Friday, August 28, 2015 8:51 AM
To: amy.hazelhoff@xenuclear.com
Cc: Eckholt, Gene F. (Eugene.Eckholt@xenuclear.com); Murphy, Martin C.; Pelton, David; Klein, Alex; Miller, Barry; Green, Kimberly
Subject: Prairie Island Nuclear Generating Plant - Final Requests for Additional Information (Fire Modeling - Second Round) 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.

In an e-mail to Mr. Sam Chesnutt dated August 25, 2015, I provided draft second-round Fire Modeling (FM) RAIs from the Fire Protection Branch of the Office of Nuclear Reactor Regulation.

In a phone call on August 27, 2015, NSPM indicated that the draft second-round draft FM RAIs were understood and could be made final. The final second-round FM RAIs are provided below. In the phone call, it was agreed that NSPM would provide its response to the second-round PRA RAIs no later than October 23, 2015.

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

Sincerely,

TERRY A. BELTZ, SENIOR PROJECT MANAGER
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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)

Fire Modeling (FM) RAI 01.g.01

NFPA 805, Section 2.4.3.3, states, in part, that the probabilistic risk assessment (PRA) approach, methods, and data shall be acceptable to the NRC. License Amendment Request (LAR) Section 4.5.1.2, "Fire PRA," states, in part, that fire modeling was performed as part of the Fire PRA development.

In a letter dated June 19, 2015 (ADAMS Accession No. ML15174A139), the licensee responded to FM RAI 01.g and explained that a 10-foot x 10-foot zone of influence (ZOI) was used for fixed ignition source fires and small oil fires, but not for complex fire scenarios such as large oil fires and propagating fires.

Please identify the fire zones and areas outside of the turbine building where "large" oil fires were considered, i.e., oil fires with a ZOI that is larger than the generic 10-foot ZOI assumed for "small" oil fires, and explain how the ZOI for these large oil fires was determined.

FM RAI 01.i.01

NFPA 805, Section 2.4.3.3, states, in part, that the PRA approach, methods, and data shall be acceptable to the NRC. LAR Section 4.5.1.2, "Fire PRA," states, in part, that fire modeling was performed as part of the Fire PRA development.

In a letter dated June 19, 2015 (ADAMS Accession No. ML15174A139), the licensee responded to FM RAI 01.i and explained that a 15-minute detection time is currently assumed in the detection/suppression event tree, and that this time is based on the example described in Appendix P of NUREG/CR-6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities," Volume 2: "Detailed Methodology."

Please provide the technical basis for the assumed detection delay of 15 minutes in compartments without a detection system and without a fire watch, and confirm that there are no outlying fire areas or zones where a 15-minute delay cannot be justified or a longer delay is appropriate.

FM RAI 04.c.01

NFPA 805, Section 2.7.3.3 states that acceptable engineering methods and numerical models shall only be used for applications to the extent these methods have been subject to verification and validation. These engineering methods shall only be applied within the scope, limitations, and assumptions prescribed for that method.

LAR Section 4.7.3 states that engineering methods and numerical models used in support of compliance with 10 CFR 50.48(c) were used, and were used appropriately, as required by Section 2.7.3.3 of NFPA 805.

In a letter dated May 28, 2015 (ADAMS Accession No. ML15153A018), the licensee responded to FM RAI 04.c and stated that fires in which the room is substantially taller than the flame height will allow greater entrainment into the plume, resulting in more rapid descent of the smoke layer. This indicates that having a taller ceiling would be conservative on grounds of higher level of entrainment and faster descent of the smoke layer. The main control room (MCR) abandonment time, however, not only depends on the height of the smoke layer but also on the optical density of the smoke layer. A higher rate of air entrainment will cause the smoke layer to descend faster, but will also dilute the smoke concentration resulting in lower optical density.

Please confirm that MCR abandonment in all scenarios for which the flame height ratio falls outside the validated range in NUREG-1824, “Verification and Validation of Selected Fire Models for Nuclear Power Plant Applications,” is due to visibility.

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Mail Envelope Properties (Terry.Beltz@nrc.gov20150828085000)

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