



Prairie Island Nuclear Generating Plant
1717 Wakonade Drive East
Welch, MN 55089

January 20, 2016

L-PI-16-004
10 CFR 50.90
10 CFR 50.48(c)

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
Renewed License Nos. DPR-42 and DPR-60

License Amendment Request to Adopt NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactors – Response to Request for Additional Information (TAC Nos. ME9734 and ME9735)

References:

1. NSPM letter, J.P. Sorensen to NRC Document Control Desk, *License Amendment Request to Adopt NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactors*, L-PI-12-089, dated September 28, 2012, ADAMS Accession No. ML12278A405.
2. NSPM letter, S. Sharp to NRC Document Control Desk, *Supplement to License Amendment Request to Adopt NFPA 805 Performance Based Standard for Fire Protection for Light Water Reactors*, L-PI-14-045, dated April 30, 2014 (ADAMS Nos. ML14125A106 and ML14125A149).
3. NRC email, T. Beltz to S. Chesnutt, *Prairie Island Nuclear Generating Plant, Units 1 and 2 - NFPA 805 Requests for Additional Information and Response Timeline (TAC Nos. ME9734 and ME9735)*, dated March 30, 2015 (ADAMS Accession No. ML15089A157).
4. NSPM letter, K. Davison to NRC Document Control Desk, *License Amendment Request to Adopt NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactors – Response to Request for Additional Information*, L-PI-15-041, dated May 28, 2015 (ADAMS No. ML15153A018).
5. NSPM letter, K. Davison to NRC Document Control Desk, *License Amendment Request to Adopt NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactors – Response to Request for Additional Information – 90-Day Responses*, L-PI-15-052, dated June 19, 2015 (ADAMS No. ML15174A139).

6. NSPM letter, K. Davison to NRC Document Control Desk, *License Amendment Request to Adopt NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactors – Response to Final Request for Additional Information (PRA – Second Round)*, L-PI-15-059, dated October 22, 2015 (ADAMS No. ML15296A259).
7. NRC email, T. Beltz to A. Hazelhoff, *Prairie Island Nuclear Generating Plant – Requests for Additional Information (AFPB) re: LAR to Adopt NFPA 805 (TAC Nos. ME9734 and ME9735)*, dated January 8, 2016.

In Reference 1, the Northern States Power Company, a Minnesota Corporation (NSPM) doing business as Xcel Energy requested approval from the Nuclear Regulatory Commission (NRC) to transition the fire protection licensing basis for the Prairie Island Nuclear Generating Plant (PINGP) to 10 CFR 50.48(c), National Fire Protection Association Standard 805 (NFPA 805). Supplemental information was provided in letters dated November 8, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12314A144) and December 18, 2012 (ADAMS Accession No. ML12354A464).

In Reference 2, NSPM submitted a revised Fire Probabilistic Risk Assessment (PRA) in a supplement to the subject License Amendment Request (LAR). In Reference 3, the NRC staff provided requests for additional information (RAIs) regarding this request and also provided a timeline and due dates for submitting responses within 60, 90, or 120 days after an on-site Audit that was conducted March 23-25, 2015. NSPM letter dated May 28, 2015 (Reference 4) provided responses to the 60-day RAIs and one of the 90-day RAIs (Fire Protection Engineering RAI 03). NSPM letter dated June 19, 2015 (Reference 5) provided responses to the remaining 90-day RAIs.

NSPM letter dated October 22, 2015 (Reference 6) provided responses to second round RAIs and included an Attachment L request, "Approval Request 4 – Wiring Above Suspended Ceilings." In Reference 7, the NRC staff provided RAIs on this Attachment L request. Enclosure 1 to this letter provides NSPM's responses to these RAIs, which are due by January 29, 2016.

This letter is submitted in accordance with 10 CFR 50.90. The additional information provided in this letter does not impact the conclusions of the No Significant Hazards Evaluation or Environmental Considerations Evaluation presented in Reference 2.

In accordance with 10 CFR 50.91, NSPM is notifying the State of Minnesota of this additional information 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 Gene Eckholt at 651-267-1742.

Summary of Commitments

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

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

Executed on January 20, 2016.



Kevin Davison
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosure (1)

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

Response to Requests for Additional Information (RAIs)
Regarding the License Amendment Request to
Adopt National Fire Protection Association (NFPA) Standard 805
at Prairie Island Nuclear Generating Plant Units 1 and 2

NRC Request Fire Protection Engineering (FPE) RAI 07

In a letter dated October 22, 2015 (ADAMS Accession No. ML15296A259), the licensee submitted a new LAR Attachment L, Approval Request 4, which involved using a performance-based method to comply with NFPA 805 Section 3.3.5.1 for the installation of wiring above suspended ceilings in several areas of the plant.

- a. *In Part 1 of the approval request under safety margins and defense in depth, the licensee stated, "The introduction of the non-rated and non-enclosed wiring routed above these suspended ceilings does not impact fire protection defense-in-depth. The wiring located above the ceilings does not compromise administrative fire prevention controls, and does not challenge automatic fire detection and suppression functions, manual fire suppression functions, or post-fire safe shutdown capability."*

Please provide a technical basis how each of the three echelons of fire protection defense-in-depth is or is not impacted by the wiring above the suspended ceiling in each of the areas of the plant.

NSPM Response FPE RAI 07

- a. The technical basis for each of the three echelons of fire protection defense-in-depth is provided below.

Echelon 1 Preventing fires from starting (e.g., combustible/hot work controls)

The cables in the Fire Areas noted in Approval Request 4 are low voltage video/communication/data cables or low voltage power cable (below 480 VAC) which are not susceptible to self-ignition. Self-ignited cable fires are screened from consideration for all locations in the plant based on the evaluation documented in the Engineering Change Package 20695 (EC 20695) – Determination of Thermoplastic and Thermoset Cable Types at PINGP. The guidance in NUREG-1805 section 7.3, states that "It is common practice to consider only self-ignited cable fires to occur in power cable trays since they carry enough electrical energy for ignition. Control, instrumentation, data cables, etc. typically do not carry enough electrical energy for self-ignition." Additionally, with respect to low voltage power cables, EC 20695 determined that all plant routed thermoplastic cables, and cables with unknown jacket or insulation type were used exclusively in low energy applications (e.g., data, instrumentation, control, low voltage power, etc.); and therefore, based upon the results of the evaluation, and consistent with the guidance in NUREG/CR-6850 and NUREG-1805, it was concluded that no areas in the plant need to postulate self-ignited cable fires.

In addition, administrative controls such as combustible controls and hot work controls are not affected.

This preserves Defense-In-Depth (DID) Echelon 1.

Echelon 2 Detecting fires quickly and extinguishing those that occur, thereby limiting damage (e.g., fire detection systems, automatic fire suppression, manual fire suppression, pre-fire plans)

The following fire areas, which were identified in Approval Request 4, have portable fire extinguishers, hose stations, and pre-fire plans that are available for manual firefighting activities by the site fire brigade. This provides assurance that if a fire were to occur the damage from the fire would be limited.

- Fire Area 8 Lunch Room, Unit 1, 715' in Southeast corner
- Fire Area 8 Locker Room, Unit 2, 715' in Northwest corner
- Fire Area 83 SAS and Operations Lounge
- Fire Area 94 Computer Room

In addition, the SAS (Part of Fire Area 83) is continually manned providing early notification and the potential use of a fire extinguisher as early extinguishment prior to brigade arrival.

This preserves DID Echelon 2.

Echelon 3 Providing adequate level of fire protection for structures, systems and components important to safety so that a fire that is not promptly extinguished will not prevent essential plant safety functions from being performed (e.g., fire barriers, fire rated cable, success path remains free of fire damage, recovery actions)

The use of the non-plenum rated cables routed above the suspended ceilings does not prevent essential safety functions from being performed. The quantity of combustibles associated with the non-rated cabling is considered insignificant with regard to combustible loading in the affected areas. The non-plenum rated cabling does not compromise manual fire suppression functions, or the nuclear safety capability assessment. This does not impact the ability to achieve and maintain safe and stable conditions.

This preserves DID Echelon 3.

NRC Request FPE RAI 07

- b. *In Part 1 of the approval request, the licensee stated that plant procedures will be revised to ensure that future wiring installation above the suspended ceilings discussed in Part 1 will meet NFPA 805 Section 3.3.5.1, and added Implementation Item 68 in LAR Attachment S, Table S-3.*

Please clarify whether Implementation Item 68 will include the administrative control for all suspended ceilings, including the suspended ceiling described in Part 2 of the approval request.

NSPM Response FPE RAI 07

- b. Implementation Item 68 will include administrative controls for power block areas with suspended ceilings. An updated Attachment S will be provided with the final PRA RAI 03 submittal.

NRC Request FPE RAI 07

- c. *In Part 2 of the approval request, the licensee stated that Fire Area 8, Locker Room, Unit 1, 715' in the southeast corner has several cable trays with multiple types and voltages, ranging from free-air runs of low voltage data/communications and lighting cables to open trays containing 120 VAC [volts alternating current] and 4 kV [kilovolt] power cables above the suspended ceiling. In its discussion of safety margin and defense-in-depth, the licensee stated, "The introduction of the non-rated and non-enclosed wiring routed above the suspended ceiling in this fire area location does not impact fire protection defense-in-depth. The wiring located above the ceilings does not compromise administrative fire prevention controls, and does not challenge automatic fire detection and suppression functions, manual fire suppression functions, or post-fire safe shutdown capability." However, the licensee does not discuss the fire hazards associated with the 120 VAC and 4 kV power cables located in open trays and the basis for not challenging the fire protection systems.*

Please provide a clear technical basis for concluding that the fire hazards, including potential ignition sources, that are associated with the power cables above the suspended ceiling in Fire Area 8, Locker Room, Unit 1, 715' in the southeast corner, do not impact the three elements of defense-in-depth. Include with the technical basis a specific discussion on how each of the three echelons of fire protection defense-in-depth is or is not impacted by the wiring above the suspended ceiling in Fire Area 8, Locker Room, Unit 1, 715' in the southeast corner.

NSPM Response FPE RAI 07

- c. NSPM withdraws Part 2 of the Attachment L Request, "Approval Request 4 - Wiring Above Suspended Ceilings," submitted per letter dated October 22, 2015. Attachment S, Table S-2, will be revised to add a modification to bring Fire Area 8 Locker Room, Unit 1, 715' in the southeast corner into compliance with NFPA 805, Section 3.3.5.1. An updated Attachment S will be provided with the final PRA RAI 03 submittal.