



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 25, 2015

Mr. Kevin K. Davison
Site Vice President
Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota
1717 Wakonade Drive East
Welch, MN 55089

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 –
REGULATORY AUDIT IN SUPPORT OF LICENSE AMENDMENT REQUEST
TO IMPLEMENT THE NATIONAL FIRE PROTECTION ASSOCIATION
STANDARD 805, "PERFORMANCE-BASED STANDARD FOR LIGHT WATER
REACTOR ELECTRIC GENERATING PLANTS," AS INCORPORATED INTO
TITLE 10 OF THE *CODE OF FEDERAL REGULATIONS*, PARAGRAPH
50.48(c) (TAC NOS. MF9734 AND MF9735)

Dear Mr. Davison:

On April 30, 2014, Northern States Power Company - Minnesota (NSPM, the licensee), doing business as Xcel Energy, Inc., submitted a license amendment request (LAR) to change its fire protection program to one based on the National Fire Protection Association (NFPA) standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, as incorporated into Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.48(c), for the Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2.

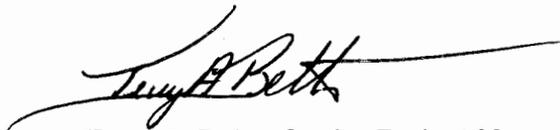
The U.S. Nuclear Regulatory Commission staff will be conducting an on-site audit from the PINGP Site Administration Building, Conference Room 2F, located in Welch, Minnesota, during the week of March 23, 2015. The purpose of the audit is to 1) gain a better understanding of the detailed calculations, analyses and bases underlying the NFPA 805 LAR and confirm the staff's understanding of the LAR; 2) identify further information that is necessary for the licensee to submit for the NRC staff to reach a licensing or regulatory decision; 3) discuss requests for additional information; 4) verify that NSPM's planned process for self-approval of fire protection program changes will meet the proposed NFPA 805 license condition and quality requirements; 5) establish an understanding of proposed plant modifications necessary to implement NFPA 805; and 6) verify the implementation of processes or procedures that the licensee committed to as part of NFPA 805 implementation.

K. Davison

- 2 -

If you have any questions, please contact me at 301-415-3049 or by e-mail at Terry.Beltz@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Terry A. Beltz", with a long horizontal flourish extending to the right.

Terry A. Beltz, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-282 and 50-306

Enclosure:
Audit Plan

cc w/encl: Distribution via Listserv

AUDIT PLAN

MARCH 23 - 26, 2015

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2

DOCKET NOS. 50-282 AND 50-306

(TAC NOS. MF9734 AND MF9735)

1.0 BACKGROUND

On April 30, 2014, Northern States Power Company – Minnesota, doing business as Xcel Energy, Inc., submitted a license amendment request (LAR) (Reference 1) to change fire protection program (FPP) to one based on the National Fire Protection Association (NFPA) standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, as incorporated into Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.48(c), for the Prairie Island Nuclear Generating Plant, Units 1 and 2 (Prairie Island).

The U.S. Nuclear Regulatory Commission (NRC) staff's review of the LAR has commenced in accordance with the Office of Nuclear Reactor Regulation's (NRR) Office Instruction LIC-101, "License Amendment Review Procedures" (LAR). The NRC staff has determined that a regulatory audit of the Prairie Island LAR should be conducted in accordance with the NRR Office Instruction LIC-111, "Regulatory Audits," for the staff to gain a better understanding of the licensee's calculations, proposed plant modifications, and other aspects of the LAR.

A regulatory audit is a planned, license or regulation-related activity that includes the examination and evaluation of primarily non-docketed information. A regulatory audit is conducted with the intent to gain understanding, to verify information, and/or to identify information that will require docketing to support the basis of the licensing or regulatory decision. Performing a regulatory audit of the licensee's information is expected to assist the staff in efficiently conducting its review or gain insights on the licensee's processes or procedures. Information that the NRC staff relies upon to make the safety determination must be submitted on the docket. However, there may be supporting information retained as records under 10 CFR 50.71 maintenance of records, making of reports and/or 10 CFR 54.37 additional records and record-keeping requirements, which although not required to be submitted as part of the licensing action, would help the staff better understand the licensee's submitted information.

The objectives of this regulatory audit are to:

- Gain a better understanding of the detailed calculations, analyses and bases underlying the NFPA 805 LAR and confirm the staff's understanding of the LAR;
- Identify further information that is necessary for the licensee to submit for the staff to reach a licensing or regulatory decision; discuss requests for additional information (RAIs);

Enclosure

- Verify that the licensee's planned process for self-approval of FPP changes will meet the proposed NFPA 805 license condition and quality requirements;
- Establish an understanding of proposed plant modifications necessary to implement NFPA 805; and,
- Verify the implementation of processes and/or procedures that the licensee committed to as part of NFPA 805 implementation.

2.0 REGULATORY AUDIT BASIS

The basis of this audit is the licensee's LAR and NUREG-0800 Standard Review Plan (SRP) Section 9.5.1.2, "Risk-Informed, Performance-Based Fire Protection" (RI/PB FPP) (Reference 2). References 3 through 7 provide additional information that will be used to support the audit.

3.0 REGULATORY AUDIT SCOPE OR METHOD

The audit team will review the licensee's NFPA 805 transition as proposed in the LAR. Key to this effort is the licensee's RI/PB FPP. The team will review the fundamental FPP elements and minimum design requirements. A sample of fire protection engineering evaluations may be selected for review. In addition, the team will review, as necessary, the regulatory basis, references, licensing actions, existing engineering equivalency evaluations, and issues that the licensee has deemed "previously approved."

The scope of the review of nuclear safety performance criteria may include both at-power and non-power operational modes, and may require a sample of procedures and other documentation. The compliance by fire area review will, as necessary, include multiple spurious operations, the transition of operator manual actions to recovery actions (RAs), fire protection engineering evaluations, and NFPA 805 deterministic requirements. The team may also include alternatives to compliance with NFPA 805, if any are identified.

The audit team may review a sample of fire risk assessments and plant change evaluations for one or more fire areas, the evaluation of the additional risk of RAs, the licensee's process for self-approving post-transition FPP changes, cumulative risk and combined changes, as well as uncertainty and sensitivity analyses. The review may also include licensee risk-informed evaluations to ensure that defense-in-depth and safety margins have been evaluated.

The audit team will also review the licensee's assessment of the technical adequacy of the probabilistic risk assessment (PRA) model used for any risk evaluations required to transition to a RI/PB FPP, including resolution of peer review findings and licensee self-assessments. This effort may include auditing a sample of logic models and calculations in the fire PRA (FPRA) model as well as the Internal Events PRA model. The review will include, as necessary, the licensee's process that has or will be implemented to maintain the quality of the Internal Events PRA and FPRA models to support self-approval of risk-informed change evaluation after transition is completed.

The audit scope may also include the licensee's NFPA 805 monitoring program which is to establish and monitor acceptable levels of availability, reliability, and performance of fire protection systems and features relied upon for NFPA 805 compliance.

The audit scope may also include, as appropriate, selected plant modifications to confirm they have been appropriately characterized in the LAR. The team may review the process for controlling compensatory measures to confirm their adequacy while they remain in effect until the modifications are completed.

In addition, the audit team may review program documentation, configuration control, and the FPP quality assurance program. The FPP design basis document may be reviewed, as well as other documentation of fire hazards identification and nuclear safety capability assessments. The review may include configuration control of the FPP design basis document, the FPRA methods and model, and other relevant documentation as necessary. The team may also review the FPP quality assurance program, and sample fire models and fire modeling calculations. Plant walkdowns may be performed as necessary to observe features of the licensee's FPP and design elements of buildings within the power block.

4.0 INFORMATION AND OTHER MATERIAL NECESSARY FOR THE AUDIT

The NRC audit team will require access to licensee personnel knowledgeable regarding the technical aspects of the Prairie Island NFPA 805 LAR. At a minimum, a hardcopy and electronic copy of the following documentation should be available to the audit team:

- Calculation models and supporting documentation for PRA models used in support of the LAR, including peer review history and resolution of peer review significant findings;
- Calculation models and supporting documentation for fire models used in support of the LAR;
- Procedures that have been modified or developed to transition to the NFPA 805 licensing basis;
- Procedures that have been modified or developed to maintain the NFPA 805 licensing basis after transition is completed;
- Documentation of changes made to PRA models in support of change analysis;
- Documentation about PRA configuration control and procedures to support self-approval of risk-informed plant changes after transition;
- Documentation of plant modifications or operational changes identified, screened, and considered (or planned for) during the licensee's transition to NFPA 805;

- Calculations and evaluations used to transition to NFPA 805 such as plant change evaluations, engineering equivalency evaluations, and RA evaluations; and,
- Other documents, which the licensee deems as necessary to support the NRC staff's audit team, outlined under audit activities.

5.0 TEAM ASSIGNMENTS

The audit will be conducted by NRC staff from the Office of Nuclear Reactor Regulation's (NRR) Division of Risk Assessment (DRA), including the Fire Protection Branch (AFPB) and the PRA Licensing Branch (APLA) staff. The audit team is comprised of personnel knowledgeable in PRA, safe shutdown and circuit analysis, and fire protection engineering. Contractors from the Pacific Northwest National Laboratory and the Center for Nuclear Waste Regulatory Analysis Southwest Research Institute may be utilized to augment the technical audit team members. NRC staff from other organizations may be assigned to the team as appropriate and others may participate as observers. Observers at the audit may include NRR program managers and various regional inspectors.

The NRC Audit Team Leader will be Leslie Fields, and the Technical Leads will be Harold Barrett for fire protection and Todd Hilsmeier for PRA. The audit team leader will conduct daily briefings on the status of the review and coordinate audit activities while on site. The tables below show (1) audit milestones and schedule, and (2) planned audit team composition and their assigned areas for review during the audit.

Audit Milestones and Schedule		
Activity	Time Frame	Comments
RAI Clarification Call	03/16/15 or later	Teleconference to provide clarification of draft RAIs.
Onsite Audit Kick-Off Meeting	03/23/15	NRC will present a brief team introduction and discuss the scope of the audit. The licensee should introduce team members and give logistics for the week. Additionally, the licensee should be prepared to give a virtual tour of the protected area in the plant.
Onsite Escorted Tour	03/23/15	Tours of risk significant power block areas. A second day of tours will be requested, if needed.
End of Day Summary Briefing	03/24/15 - 03/26/15	Meet with licensee to provide a summary of any significant findings and requests for additional assistance.
Provide Break-out Areas	03/23/15 - 03/26/15	Facilitate discussion between site and staff technical areas.
Onsite Audit Exit Meeting	03/26/15	NRC staff will hold a brief exit meeting with licensee staff to conclude audit activities.
Audit Summary (see Section 8.0)	05/30/15	To document the audit.

Regulatory Audit Team and Assignments			
SRP 9.5.1.2 Section	Audit Plan Review Areas	Lead	Support
III.1.2	Modifications	Team	Team
III.1.3	Licensee Self-Approval	J. Robinson	Team
III.2	Fundamental FPP and Design Elements	B. Metzger	F. DePeralta
III.3.1.2	Multiple Spurious Operation	T. Dinh	F. DePeralta
III.3.2	Engineering Evaluations, Previous Approval	Team	Team
III.3.2.2	Operations Guidance for Fire Modeling Point Beach Method	B. Metzger	M. Janssens
III.3.2.2	Recovery Actions	Team	Team
III.3.3	Non-power Operation	T. Dinh	F. DePeralta
III.5.3 - 5.6	Risk Assessments	T. Hilsmeier	W. Ivans
III.5.1	PRA Technical Adequacy	T. Hilsmeier	W. Ivans
III.5.2	Defense in Depth and Safety Margins	Team	Team
III.6	Monitoring Program	J. Robinson	Team
III.7.1-7.3	Documentation, Configuration Control, Quality	J. Robinson	Team
	Plant Walk-downs	L Fields	As needed

6.0 LOGISTICS

This regulatory audit is planned for the week of March 23, 2015, and will last approximately four days. We will schedule a conference call one to two weeks prior to discuss the details of the Generic Audit Plan. The dates in the milestone chart are subject to change based on mutual agreement between the licensee and the NRC. An entrance meeting for this audit will be held on the first day at 9:15 a.m. and an exit meeting will be held the final audit day at 4:30 p.m. or a mutually agreed upon time to conclude the audit activities. The NRC audit team leader will provide daily progress to licensee personnel on the second and third day of the audit.

The audit will take place at a location agreed upon by the licensee and NRC audit leader where (1) the necessary reference material and (2) appropriate analysts will be available to support the review. Because the audit scope includes NRC staff walkdowns of selected fire areas in the power block, the regulatory audit must be conducted in a location that allows for travel to the plant's protected area for escorted access. Visitor access will be requested for the entire audit team. We recommend that security paperwork and processing be handled upon arrival on the first day of the audit week.

7.0 SPECIAL REQUESTS

The regulatory audit team will require the following to support the regulatory audit:

- Visitor access will be needed for all team members participating in the plant tour.
- Two printers and two computers with internet access, access to the site portal, and printing

- Two printers and two computers with internet access, access to the site portal, and printing capability. Wired or wireless internet access.
- Four private conference rooms (preferably outside the protected area) with conference calling capability should be made available. The main NRC conference room should be set up for 15-18 NRC staff and contractors. An additional conference room should be able to accommodate up to 20 people for PRA technical discussions, and two more rooms should be arranged for up to ten people for FPE/SSA and FM technical discussions.
- Access to the FPP documentation including, but not limited to, plant drawings depicting fire area boundaries, the Fire Hazards Analysis, Safe Shutdown Analysis, FPRA Fire Models, and the internal events PRA and FPRA.
- Access to licensee personnel knowledgeable in the FPP, fire modeling; safe shutdown and circuit analysis; FPRA and internal events PRA; non-power operations; radiological release analysis; and the NFPA 805 fire protection design-basis document.

8.0 DELIVERABLES

A regulatory audit summary will be issued within approximately 30 days of the completion of the audit. The summary will use the guidance of NRR Office Instruction LIC-111 for content. Draft RAIs will likely be sent prior to the audit. Formal RAIs will be sent separately to the licensee from NRR's Division of Operator Licensing after the audit. The audit summary will be placed in the NRC's Agencywide Documents Access and Management System (ADAMS).

9.0 REFERENCES

1. Letter from Scott M. Sharp, NSPM, to the U.S. NRC Document Control Desk, "Supplement to License Amendment Request to Adopt NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactors," dated April 30, 2014 (ADAMS Accession Nos. ML14125A106, ML14125A149 and ML14125A193 (Non-Publicly Available)).
2. U.S. NRC, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, NUREG-0800, Section 9.5.1.2. "Risk-Informed, Performance-Based Fire Protection Program" (ADAMS Accession No. ML092590527).
3. Title 10 of the *Code of Federal Regulations*, Part 50, Section 50.48 (10 CFR 50.48), "Fire protection."
4. NFPA 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Stations," 2001 Edition.
5. Regulatory Guide 1.205, Revision 1, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," dated December 2009 (ADAMS Accession No. ML092730314).

6. Nuclear Energy Institute (NEI) 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)," Revision 2, dated April 2008 (ADAMS Accession No. ML081130188).
7. NEI 00-01, "Guidance for Post-Fire Safe Shutdown Analysis," Revision 2, dated May 2009 (ADAMS Accession No. ML091770265).

K. Davison

- 2 -

If you have any questions, please contact me at 301-415-3049 or by e-mail at Terry.Beltz@nrc.gov.

Sincerely,

/RA/

Terry A. Beltz, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-282 and 50-306

Enclosure:
Audit Plan

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ADAMS Accession No: ML15054A002

*** via memorandum dated February 18, 2015**

OFFICE	DORL/LPL3-1/PM	DORL/LPL3-1/LA	DRA/AFP/BC *
NAME	TBeltz	MHenderson	AKlein
DATE	02/23/2015	02/24/2015	02/18/2015
OFFICE	DRA/APLA/BC *	DORL/LPL3-1/BC	DORL/LPL3-1/PM
NAME	HHamzehee	DPelton	TBeltz
DATE	02/18/2015	02/25/2015	02/25/2015

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