

**Zeleznock, Karen**

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**From:** Chawla, Mahesh  
**Sent:** Monday, June 03, 2013 4:25 PM  
**To:** Smith, Keith E  
**Cc:** GUSTAFSON, OTTO W; Amy Hazelhoff; Wall, Scott; Fields, Leslie; Lain, Paul; Robinson, Jay; Klein, Alex  
**Subject:** Palisades NFPA 805 Regulatory Audit Plan - MF0382  
**Attachments:** Palisades NFPA 805 Regulatory Audit Plan.docx

Mr. Smith,

The purpose of this email is to confirm the plan for upcoming NFPA 805 Regulatory Audit, which will take place at the Palisades Nuclear Plant in the Palisades Training Building Classroom H, 27780 Blue Star Highway, Covert MI, 49090, during the week of June 24, 2013. The Nuclear Regulatory Commission's Office of Nuclear Reactor Regulation (NRR), Division of Risk Assessment staff will be conducting an audit of the Palisades Nuclear Plant (PNP) license amendment request (LAR) to change its fire protection program to one based on the National Fire Protection Association (NFPA) standard NFPA 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*, Part 50, Section 50.48(c), "Fire Protection." This memorandum provides the enclosed regulatory audit plan based on the PNP LAR submitted December 12, 2012. NRR staff from the Fire Protection Branch, the Probabilistic Risk Assessment Licensing Branch, and the Operator Licensing Branch; along with NRC's Contractors from the Pacific Northwest National Laboratories and the Center for Nuclear Waste Regulatory Analysis will perform the audit. Other NRC staff may also be present as observers.

Please provide the necessary support and access as requested in the attached document. In case of any questions or concerns, please do not hesitate to contact myself @ 301-415-8371 or Leslie Fields @ 301-415-1186.

Thanks

Mac Chawla  
NRR Project Manager

PALISADES NUCLEAR PLANT REGULATORY AUDIT IN SUPPORT OF THE LICENSE AMENDMENT REQUEST TO IMPLEMENT A RISK-INFORMED, PERFORMANCE-BASED FIRE PROTECTION PROGRAM AS ALLOWED BY TITLE 10 OF THE CODE OF FEDERAL REGULATIONS PARAGRAPH 50.48(C) "FIRE PROTECTION" (TAC NO. MF0382)

I. BACKGROUND

The Palisades Nuclear Plant (PNP) has submitted a license amendment request (LAR) (Reference 1) 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), "Fire Protection."

The 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." The NRC staff has determined that a Regulatory Audit of the PNP LAR should be conducted in accordance with 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 licensee 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 and/or 10 CFR 54.37 that, 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; this will result in requests for additional information (RAIs);
- Verify that the licensee's planned process for self-approval of fire protection program (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 or procedures that the licensee committed to as part of NFPA 805 implementation.

## II. REGULATORY AUDIT BASIS

The basis of this audit is the licensee's LAR (Reference 1) and the NRC's Standard Review Plan (SRP) Section 9.5.1.2, "Risk-Informed, Performance-Based (RI/PB) Fire Protection" (Reference 2). References 3 through 7 provide additional information that will be used to support the audit.

## III. REGULATORY AUDIT SCOPE OR METHOD

The staff 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 staff 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 staff 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 sampling 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 audit may also include alternatives to compliance with NFPA 805 if any are identified.

The staff 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 staff 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 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 and fire PRA models to support self-approval of risk-informed change evaluation after transition is completed.

The 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. Also, the scope may include, as appropriate, selected plant modifications to confirm they have been appropriately characterized in the LAR. The staff 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 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 fire PRA methods and model, and other relevant documentation as necessary. The staff may also review the FPP quality assurance program, and sample fire models and fire model calculations. Plant walkdowns may be performed as necessary to observe features of the licensee's FPP and design elements of building within the power block.

#### IV. 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 PNP LAR. At a minimum, a hardcopy and electronic copy of the following documentation should be available to the audit team:

- Calculational models and supporting documentation for PRA models used in support of the LAR, including peer review history and resolution of peer review findings;
- Calculational models and supporting documentation for fire models used in support of the LAR;
- Procedures that have been modified or developed to transition to NFPA 805;
- 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;
- Plant layout and design drawings of FPP and safe shutdown features; and,

- Other documents, which the licensee deems as necessary to support the NRC staff's audit, outlined under audit activities.

## V. TEAM ASSIGNMENTS

The audit will be conducted by NRC staff from the Office of Nuclear Reactor Regulation (NRR); Division of Risk Assessment (DRA); Fire Protection Branch (AFPB) and the PRA Licensing Branch (APLA) staff knowledgeable in PRA; safe shutdown and circuit analysis, and fire protection engineering. Contractors from the Pacific Northwest National Laboratories and from the Center for Nuclear Waste Regulatory Analysis 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 NRC Technical Lead will be Paul Lain. The 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.

Audit Milestones and Schedule Relative to First Audit Day Onsite		
Activity	Time Frame	Comments
Technical Presentations via GoTo Meetings	6/18/13 – 6/20/13	NRC will host GoTo meeting sessions for up to 3 days, as needed, the week prior to the audit. Licensee is requested to provide overview presentations with important site specific information.
Onsite Audit Kick-Off Meeting	6/24/13	NRC will conduct a brief introduction and scope of the audit.
Onsite Escorted Tour	6/25 & 26/13	Tours of risk significant power block areas. 2 <sup>nd</sup> day if needed
End of Day Summary Briefing	6/25/13-6/27/13	Meet with licensee to provide a summary of any significant findings and requests for additional assistance.
Provide Break-out Areas	6/24/13-6/27/13	Facilitate discussion between site and staff in different technical areas. Reviewers may need break-out areas the first four days.
Onsite Audit Exit Meeting	6/28/13	NRC will conduct a brief conclusion of the audit.
Audit Summary (see VIII)	8/1/13	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	R. Fosdick
III.2	Fundamental FPP and Design Elements	A. Pearson	R. Layton
III.3.1.2	Multiple Spurious Operation	B. Litkett	R. Layton
III.3.2	Fire Area Compliance	Team	Team
III.3.2	Engineering Evaluations, Previous Approval	Team	Team
III.3.2.2	Fire Modeling	B. Metzger	J. Huzcek, D. Basu
III.3.2.2	Recovery Actions	Team	Team

Regulatory Audit Team and Assignments			
SRP 9.5.1.2 Section	Audit Plan Review Areas	Lead	Support
III.3.3	Non-Power Operations (NPOs)	Team	Team
III.5.3-5.6	Fire Risk Assessments	D. O'Neal, R. Gallucci	J. DeJesus, G. Coles, W. Ivans
III.5.1	PRA Technical Adequacy	D. O'Neal, R. Gallucci	J. DeJesus, G. Coles, W. Ivans
III.5.2	DID and Safety Margins	Team	Team
III.6	Monitoring Program	J. Robinson	R. Fosdick
III.7.1-7.3	Documentation, Configuration Control, & Quality	J. Robinson	R. Fosdick
	Plant Walkdowns	As needed	As needed

## VI. LOGISTICS

This regulatory audit is planned for the week of June 24, 2013, and last approximately 5 days. We will reserve a few days the week before, June 18-20, to review technical presentations and general topics that can be conducted via GoTo Meeting. These dates 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 9:30 AM and an exit meeting will be held the final audit day at 8:00 AM to provide preliminary feedback to the licensee. The NRC audit leader will provide daily progress to licensee personnel on the second, third, and fourth 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.

## VII. SPECIAL REQUESTS

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

- Escorted access to fire areas within the protected area.
- Two printers and six computers with internet access, access to the site portal, and printing capability. Wired and/or wireless internet access.
- Private conference room(s) to support document review, breakout sessions, and audit team meetings.
- Access to the FPP documentation, including but not limited to: plant drawings depicting fire area boundaries, the Fire Hazards Analysis, Safe Shutdown Analysis, and the internal events PRA and fire PRA.
- Access to licensee personnel knowledgeable in FPP, fire modeling; safe shutdown and circuit analysis; fire PRA and internal events PRA, non-power operations, radiological

release analysis, and the NFPA 805 fire protection design-basis document.

## VIII. 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. Since this audit will likely result in formal RAIs for the licensee regarding the LAR, the summary itself is expected to be an internal memorandum from the audit team leader to the responsible supervisors. The summary will be placed in Agencywide Documents Access and Management System (ADAMS) to document the audit.

## IX. REFERENCES

1. Letter from Anthony J. Vitale, Palisades Nuclear Plant to the U.S. Nuclear Regulatory Commission, "Transition to 10 CFR 50.48(c) – NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Generating Plants (2001 Edition)," December 12, 2012 (ADAMS accession no. ML12348A455)
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 Code of Federal Regulations, Part 50, Section 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, Rev. 1, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," 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, April 2008 (ADAMS accession no. ML081130188)
7. Nuclear Energy Institute, NEI 00-01, Guidance for Post-Fire Safe Shutdown Analysis, Revision 2, May 2009 (ADAMS accession no. ML091770265)