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

April 3, 2012

Vice President, Operations
Entergy Operations, Inc.
Waterford Steam Electric Station, Unit 3
17265 River Road
Killona, LA 70057-3093

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 – REGULATORY AUDIT IN SUPPORT OF LICENSE AMENDMENT REQUEST TO IMPLEMENT RISK-INFORMED, PERFORMANCE-BASED, FIRE PROTECTION PROGRAM AS ALLOWED BY 10 CFR 50.58(C) (TAC NO. ME7602)

Dear Sir or Madam:

By letter dated November 17, 2011, as supplemented by letter dated January 26, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML113220230 and ML12027A049, respectively), Entergy Operations Inc. (the licensee), requested the U.S. Nuclear Regulatory Commission (NRC) staff's approval of a license amendment request (LAR) to adopt National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, at the Waterford Steam Electric Station, Unit 3 (Waterford 3).

The NRC staff's review of the LAR has commenced in accordance with the Office of Nuclear Reactor Regulation's (NRR's) Office Instruction LIC-101, "License Amendment Review Procedures." The NRC staff has determined that a regulatory audit of the Waterford 3 LAR should be conducted in accordance with LIC-111, "Regulatory Audits," for the NRC staff to gain a better understanding of the licensee's calculations, proposed plant modifications, and other areas of the LAR. Enclosed is NRC staff's audit plan for your information.

The staff of the NRR's Fire Protection Branch and Probabilistic Risk Assessment Licensing Branch, and contractor personnel will conduct the audit. Other NRC staff members will also be present at the audit as observers.

If there are any questions, please contact me at (301) 415-1480, or e-mail kaly.kalyanam@nrc.gov.

Sincerely,

N. Kalyanam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure:
As stated

cc w/encl: Distribution via Listserv

WATERFORD STEAM ELECTRIC STATION, UNIT 3,

REGULATORY AUDIT IN SUPPORT OF THE LICENSE AMENDMENT REQUEST TO

IMPLEMENT THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805,

"PERFORMANCE-BASED STANDARD FOR FIRE PROTECTION FOR LIGHT WATER

REACTOR ELECTRIC GENERATING PLANTS," AS INCORPORATED INTO TITLE 10 OF

THE CODE OF FEDERAL REGULATIONS, PARAGRAPH 50.48(c) "FIRE PROTECTION"

DOCKET NO. 50-382

I. BACKGROUND

By letter dated November 17, 2011, as supplemented by letter dated January 26, 2012 (References 1 and 2), Entergy Operations Inc., the licensee for Waterford Steam Electric Station, Unit 3 (Waterford 3), submitted a license amendment request (LAR) to change its 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), paragraph 50.48(c), "National Fire Protection Association Standard NFPA 805."

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." The NRC staff has determined that a regulatory audit of the Waterford 3 LAR should be conducted in accordance with 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 NRC staff in efficiently conducting its review or gain insights on the licensee's processes or procedures. Information that the 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 recordkeeping requirements," 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 NRC staff's understanding of the LAR;
- Identify further information that is necessary for the licensee to submit for the NRC 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 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 (References 1 and 2) and the NUREG-0800, "Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 9.5.1.2, "Risk-Informed, Performance-Based (RI/PB) Fire Protection," December 2009 (Reference 3). References 4 through 6 provide additional information that will be used to support the audit.

III. REGULATORY AUDIT SCOPE OR METHOD

The NRC 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 which 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 audit may also include alternatives to compliance with NFPA 805 if any are indentified.

The NRC 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 an 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 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 scope may also include, as appropriate, selected plant modifications to confirm they have been appropriately characterized in the LAR. The NRC 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 NRC staff may also review the FPP quality assurance program, and sample fire models and fire model calculations. Walkdowns may be performed as necessary to observe features of the licensee's FPP and design elements of building with in 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 Waterford 3 LAR. At a minimum, a hard copy 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 significant 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 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 recovery action evaluations; 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 NRR and contractors from the Pacific Northwest National Laboratory and the Center for Nuclear Waste Regulatory Analysis. The NRR Division of Risk Assessment's (DRA's) Fire Protection Branch (AFPB) and the PRA Licensing Branch (APLA) staff, and contractor personnel knowledgeable in PRA, safe shutdown and circuits analysis, and fire protection engineering, will comprise the audit team. 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 W. 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 during the audit.

TABLE 1

AUDIT MILESTONES AND SCHEDULE

Audit Milestones and Schedule Relative to First Audit Day Onsite (05/07/12)		
Activity	**Time Frame**	**Comments**
Onsite Audit Kick-Off Meeting	May 5, 2012	Request licensee provides an NFPA 805 LAR overview presentation with important site specific information.
Onsite Escorted Tour	May 8, 2012	Tours of risk significant power block areas.
End of Day Summary Meeting	May 8-12, 2012	Meet with licensee to provide a summary of any significant findings and requests for additional assistance.
Provide Break-out Areas	May 8-12, 2012	Facilitate discussion between site and staff technical areas.
Onsite Audit Exit Meeting	May 11, 2012	Reviewers at licensee location for 5 days.
Audit Summary (see VIII)	June 11, 2012	To document the audit.

TABLE 2

PLANNED AUDIT TEAM COMPOSITION AND THEIR

ASSIGNED AREAS FOR REVIEW DURING 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	P. Mackin
III.2	Fundamental FPP and Design Elements	D. Andrukat	J. Robinson
III.3.1.2	Multiple spurious operation	T. Dinh	K. Bohlander
III.3.2	Fire area compliance	Team	Team
III.3.2	Engineering evaluations, Existing Engineering Equivalency Evaluations (EEEEs), previous approval	Team	Team
III.3.2.2	Operations guidance for fire modeling PB method	B. Metzger	M. Janssens, J. Huczek
III.3.2.2	Recovery Actions	Team	Team
III.3.3	Non-power operation	T. Dinh	H.Barrett
III.5.3-5.6	Risk assessments	Ray Gallucci / Dan O'Neal	
III.5.1	PRA technical adequacy	Ray Gallucci / Dan O'Neal	
III.5.2	Defense in depth (DID) and safety margins	Team	Team
III.6	Monitoring program	J. Robinson	P. Mackin
III.7.1-7.3	Documentation, Configuration Control, Quality	J. Robinson	P. Mackin
	Plant walk-downs	As needed	As needed

VI. LOGISTICS

This regulatory audit is planned to take place during the week of May 7, 2012, and last approximately 5 days. This date is 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 a.m., and an exit meeting will be held the final audit day at 8:30 a.m. to provide preliminary feedback to the licensee. The NRC audit leader should provide a daily progress update 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 supports escorted access to the plant protected area.

VII. SPECIAL REQUESTS

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

- Escorted access to fire areas within the protected area.
- Eight or more computers with internet access, access to the site portal, and printing capability.
- 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 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.

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 from 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 audit summary will be placed in Agencywide Documents Access and Management System (ADAMS).

IX. REFERENCES

1. Jacobs, D., Entergy Operations, Inc., letter to U.S. Nuclear Regulatory Commission, "License Amendment Request to Adopt NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Generating Plants (2001 Edition)," dated November 17, 2011 (ADAMS Accession No. ML113220230).

2. Jacobs, D., Entergy Operations, Inc., letter to U.S. Nuclear Regulatory Commission, "Supplemental Information in Support of the NRC Review of Waterford 3 License Amendment Request to Adopt NFPA 805," dated January 26, 2012 (ADAMS Accession No. ML12027A049).

3. U.S. Nuclear Regulatory Commission, NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 9.5.1.2, Revision 0, "Risk-Informed, Performance-Based Fire Protection Program," December 2009 (ADAMS Accession No. ML092590527).

4. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.205, Revision 1, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," December 2009 (ADAMS Accession No. ML092730314).

5. Nuclear Energy Institute, NEI 04-02, Revision 2, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)," April 2008 (ADAMS Accession No. ML081130188).

6. Nuclear Energy Institute, NEI 00-01, Revision 2, "Guidance for Post-Fire Safe Shutdown Analysis," May 2009 (ADAMS Accession No. ML091770265).

If there are any questions, please contact me at (301) 415-1480, or e-mail kaly.kalyanam@nrc.gov.

Sincerely,

/RA/

N. Kalyanam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

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DATE	4/2/12	4/2/12	3/22/12	3/22/12	4/3/12	4/3/12

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