

May 18, 2010

MEMORANDUM TO: Gloria Kulesa, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

THRU: Donnie Harrison, Chief **/RA/**
PRA Licensing Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation

FROM: Alexander Klein, Chief **/RA by D. Frumkin for**
Fire Protection Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation

SUBJECT: AUDIT PLAN – TECHNICAL ADEQUACY OF THE OCONEE
NUCLEAR PLANT'S LICENSE AMENDMENT REQUEST FOR
THE TRANSITION TO 10CFR50.48(C) (TAC NOS. ME3844,
ME3845, ME3846)

By letter dated April 14, 2010, Duke Energy Carolinas, LLC (licensee) submitted a license amendment request (LAR) to adopt a new fire protection program licensing basis which complies with the requirements in Title of the *Code of Federal Regulations* Part 50.48(a), 10 CFR 50.48(c), and the guidance in Regulatory Guide 1.205, Revision 1, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants." A primary component in the request is the performance-based, risk-informed evaluation and results.

The U. S. Nuclear Regulatory Commission staff has reviewed the LAR and has concluded that an audit of the licensee is required to support the completion of the staff review of the LAR per the enclosed audit plan.

Docket No's: 50-269, 50-270, 50-287

Enclosure:
As stated

CONTACT: Paul Lain
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Audit of the Technical Adequacy of Oconee Nuclear Plant's Probabilistic Risk Assessment Evaluations Relied Upon to Support its Request to Transition to 10CFR50.48(c)

Background

By letter dated April 14, 2010, Duke Energy Carolinas, LLC (licensee) submitted a license amendment request (LAR) to adopt a new fire protection program licensing basis which complies with the requirements in Title of the *Code of Federal Regulations* (10 CFR) 50.48(a), 10 CFR 50.48(c), and the guidance in Regulatory Guide (RG) 1.205, Revision 1, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants." A primary component in the request is the risk-informed evaluation and results. The licensee has completed a fire PRA and used this probabilistic risk assessment (PRA) to demonstrate that any change in risk associated with the adoption of the new requirements is acceptable.

A conference call was held with the licensee on May 12, 2010, where most of the issues to be covered by the audit were briefly discussed.

The PRA Licensing Branch (APLA) has concluded that a regulatory audit of the PRA at the licensee's site would allow the staff to:

- Gain a better understanding of the detailed calculations used by the licensee to demonstrate compliance with the risk informed criteria,
- Identify additional information that might be needed to document the staff's conclusions regarding the adequacy, or lack of adequacy, of the risk assessments to support the submittal, and
- Establish an understanding of potential concerns to inform future regulatory actions associated with adoption of the new fire protection program licensing basis.

Regulatory Basis

The audit will be conducted to clarify the acceptability of the licensee risk-informed evaluations based on the following regulatory documents.

10 CFR 50.48(c) incorporates by reference, with some exceptions, National Fire Protection Association (NFPA-805), "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants." NFPA-805 describes the methodology for applying performance-based requirements, fundamental fire protection program design and elements, determination of fire protection systems and features, and fire protection during decommissioning and permanent shutdown. The performance based requirements allow the use of risk assessment.

Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," describes an acceptable risk assessment method for the licensee and the U. S. Nuclear Regulatory Commission (NRC) staff to use in assessing the nature and impact of changes to a plant's licensing basis.

ENCLOSURE

RG 1.205 describes methods the staff considers acceptable for use in implementing a performance-based risk-informed program that meets the requirements of 10 CFR 50.48(c).

RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," describes an acceptable approach for defining the technical adequacy of an acceptable risk assessment.

Regulatory Audit Methodology

NRC staff will audit the quantitative and qualitative risk assessments.

The audit of the quantitative risk assessments will begin with the results of the risk assessments reported in Tables W-2, W-3, and W-4 in the LAR. The methods used by the licensee to develop these results will be clarified by tracing selected results back through the risk assessment, including auditing the changes to the PRA logic models and the possible sensitivity of important logic models to observations of the PRA reviews.

The risk modeling used to model the Protected Service Water (PSW) and incorporate the PSW into the risk results will be discussed.

The audit of the qualitative risk assessments will be performed by exploring some selected entries in the Table B-3 which the licensee indicated that a detailed quantitative risk assessment was not necessary. The qualitative risk assessment also includes defense-in-depth and safety margin evaluations as described in RG 1.174 and used by the licensee to support the resolution of a number of variation from deterministic requirements and/or proposed facility modifications.

As needed, the audit team will participate in conference calls with other NRC staff and contractors to facilitate the clarification of other issues.

Information and Other Material Necessary for the Regulatory Audit

The licensee should provide access to licensee's PRA, all the reviews of the PRA, and all evaluations done to support the licensee's conclusion that any change in risk associated with the adoption of the new requirements is acceptable. The licensee's current PRA logic models and computer manipulation programs should be available.

The licensee should make available PRA personnel that are familiar with the PRA models and the associated computer system so that the PRA models can be explored during the audit.

The licensee should make available personnel that are familiar with the risk assessment performed to support the transition.

Team Assignments

Paul Lain, NFPA 805 Program Manager, Team Leader
Stephen Dinsmore, Senior Reliability and Risk Analyst, will conduct the risk assessment portions of the audit.

Logistics

The audit will be performed during May 19, 2010 and May 20, 2010, beginning about 8:30 am and ending about 5 pm each day. The second day may be shortened or eliminated if not needed.

Deliverable

Request for additional information identified during the audit will be provided as preliminary request at the audit exit meeting and formally within one month of completion of the audit.

Any conclusion regarding the acceptability of the risk assessment will be incorporated in the staff's safety evaluation report of the LAR.