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

July 11, 2014

Mr. C. R. Pierce
Regulatory Affairs Director
Southern Nuclear Operating Co., Inc.
P.O. Box 1295, Bin 038
Birmingham, AL 35201-1295

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NOS. 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST TO ADOPT NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805 (TAC NOS. ME9741 AND ME9742)

Dear Mr. Pierce:

By letter dated September 25, 2012 (Agencywide Documents Access and Management System Accession No. ML12279A235), the Southern Nuclear Operating Company, Inc. (SNC, the licensee) submitted a license amendment request (LAR) for Joseph M. Farley Nuclear Plant, Unit Nos. 1 and 2. The LAR would permit transition of the fire protection licensing basis from Title 10 of the *Code of Federal Regulations*, Section 50.48(b), to 10 CFR 50.48(c), "National Fire Protection Association Standard NFPA 805."

The Nuclear Regulatory Commission staff has determined that additional information is needed as discussed in the Enclosure. We request that SNC respond within 30 days of the date of this letter. Please note that the NRC staff's review is continuing and further requests for information may be developed.

Sincerely,

Shawn Williams

Shawn Williams, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

JOSEPH M. FARLEY NUCLEAR PLANT

LICENSE AMENDMENT REQUEST TO ADOPT

NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805

PERFORMANCE-BASED STANDARD FOR FIRE PROTECTION FOR LIGHT WATER

REACTOR GENERATING PLANTS

DOCKET NOS. 50-348 AND 50-364

By letter dated September 25, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12279A235), as supplemented by letter dated October 30, 2013 (ADAMS Accession No. ML13305A105), Southern Nuclear Company (SNC) requested an amendment to the Technical Specifications for the Joseph M. Farley Nuclear Plant (Farley). Specifically, the requested change would allow the licensee to adopt National Fire Protection Association Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Generating Plants."

Section 2.4.3.3 of NFPA 805 states that the Probabilistic Risk Assessment approach, methods, and data shall be acceptable to the NRC. Section 2.4.4.1 of NFPA-805 further states that the change in public health risk arising from transition from the current fire protection program to an NFPA-805 based program, and all future plant changes to the program, shall be acceptable to the NRC. RG 1.174 provides quantitative guidelines on core damage frequency, large early release frequency, and identifies acceptable changes to these frequencies that result from proposed changes to the plant's licensing basis and describes a general framework to determine the acceptability of risk-informed changes. The U.S. Nuclear Regulatory Commission (NRC) staff has identified additional information that is required to fully characterize the risk estimates.

PRA RAI 16.a.02

In a letter dated May 23, 2014, (ADAMS Accession No. ML14147A368) the licensee responded to PRA 16.a.01 citing planned enhancement of operations guidance for controlling fires in the main control board (MCB) panels prior to the assumed damage time of 10 minutes for sensitive electronics. Describe if there is an implementation item to Attachment S that addresses the development and implementation of this procedure. If not, describe the method that will be used to ensure development of the procedure.

PRA RAI 35.01

In the submittal dated September 25, 2012, a reference to the Fire PRA Logic Model (App. B on page B-1) states that Farley Unit 1 installed the new Westinghouse Shutdown Shield (SDS) in fall 2010. The internal events PRA, upon which the Fire PRA is based, takes credit for the SDS (failure probability of 0.0271/demand), limiting the leakage rate to 2 gpm where the faces of the

SDS seal components remain in contact. The assumed leakage rate is increased to 19 gpm if the SDS actuates but the pump shaft continues to rotate if not tripped in a timely manner. Finally, if the SDS does not actuate at all, "existing" seal model leakage rates are applied as stated in WCAP-15603, Rev. 1-A, (Non-Proprietary) "WOG 2000 Reactor Coolant Pump Seal Leakage Model for Westinghouse PWRs" (MUMP-6074) (ADAMS Accession No. ML032040132). Based on the July 26, 2013, Part 21 issuance by Westinghouse concerning defects with the SDS performance, discuss if there have been any new developments regarding the status of the SDS performance. If the licensee is still planning to take credit for an upgraded SDS:

a. Provide relevant information from technical design documents, testing evaluations, draft topical reports, etc., that support the incorporation and quantification of the SDS performance in the Farley Fire PRA model. As appropriate, justify any assumptions for new risk reduction credit or retention of credit previously assumed in and consistent with Final Safety Evaluation For Pressurized Water Reactor Owners Group Topical Report WCAP-17100-P/Np, Revision 1, "PRA Model For The Westinghouse Shut Down Seal," PA-RMSC-0499 (ADAMS Accession No. ML110880526), or other NRC endorsed technical bases.

b. If the credit is dependent upon plant operational experience with the upgraded SDS, discuss to what extent credit can and will be taken prior to installation/upgrade and completion of any required operational duration necessary to justify such credit.

c. If an alternative to the SDS is planned, provide the analogous information to the above for the alternative.

d. Describe if there is an implementation item to Table S-3 that will identify when a confirmatory evaluation of the achieved NFPA-805 transition risk and changes in risk (that includes when the installed and tested seals) will be completed. Include what change in risk guidance will be used to determine any required actions, and what actions will be required to complement this new implementation item. If there is no new implementation item, describe the method that will be used to report the confirmatory evaluation activities listed above.

PRA RAI 36

Provide the results of a composite analysis that shows the integrated impact on the fire risk (core damage frequency (CDF), larger early release frequency (LERF), change in (Δ)CDF, ΔLERF) after replacing all the identified methods and weaknesses. As the review process is concluded, additional changes to replace any method or weakness still under review may be required. In this composite analysis, for those cases where the individual issues have a synergistic impact on the results, a simultaneous analysis must be performed, specifically for those items listed below.

For cases where no synergy exists, a one-at-a-time analysis may be done. If the impact on the change in risk from transition is negligible, a quantitative evaluation is unnecessary.

a. The results from the analysis for PRA RAI 35.01 above.

b. In the LAR submittal dated September 12, 2012, and the LAR supplement dated December 20, 2012, sensitivities related to the electrical cabinet fire severity method (Section V.2.1) and use of control power transformer (CPT) (Section V.2.3; also response to PRA RAI 08.a).

c. In the letter dated September 16, 2013 (ADAMS Accession No. ML14038A019) containing the following RAI responses:

- PRA RAI 01.a – Removal of credit for very early warning fire detection systems (VEWFDS) in the MCR (also PRA RAI 01.01),
- PRA RAI 15.a – Revised seismic CDF based on 2008 United States Geological Survey (USGS) data, and
- PRA RAI 28.k – Validity of current ignition bin 15 fire frequencies.

d. In the letter dated November 12, 2013 (ADAMS Accession No. ML13318A027) containing the following RAI responses:

- PRA RAI 17.d – turbine building collapse, and
- PRA RAI 33.c – Revised main control room (MCR) abandonment analysis (also RAI PRA 33.c.01). (incorporates PRA RAI 07.e - Use of 0.1 CCDP for MCR abandonment)

e. Fire Modeling (FM) RAI responses from letters dated September 16, 2013 (ADAMS Accession ML14038A017 and ML14038A019), October 30, 2013 (ADAMS Accession No. ML13305A105), November 12, 2013 (ADAMS Accession No. ML13318A027), and April 23, 2014 (ADAMS Accession No. ML14114A550):

- FM RAI 01.b – Use of FAQ 08-0052 Recommended or Shorter Fire Growth Rates for MCR Abandonment Analysis,
- FM RAI 01.c – Use of Society of Fire Protection Engineers (SFPE) Handbook Heats of Combustion for Teflon and Tefzel in MCR Abandonment Analysis,
- FM RAI 01.d – Update of MCR Abandonment Analysis for Wall and Corner Effects for Transient Fires,
- FM RAI 01.h – Development of new zone of influence (ZOI) Tables for Generic Fire Modeling Treatments,
- FM RAI 01.i – Use of New hot gas layer (HGL) Tables in Generic Fire Modeling Treatments Involving Secondary Combustibles, and
- FM RAI 08 – Assumption of Instantaneous Peak heat release rates (HRR) for Fires in Medium Voltage switchgear (SWGR) following a high energy arcing fault.

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Sincerely,

/RA/

Shawn Williams, Senior Project Manager
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ADAMS Accession No.: ML14176A070

OFFICE	LPL2-1/PM	LPL2-1/LA	LPL2-1/BC	LPL2-1/PM
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