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

March 28, 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 NO. 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 by April 23, 2014, for all RAIs except PRA RAI 06.a.01 and PRA RAI 35 which are due on May 23, 2014. Please note that the 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: As stated

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 (TSs) 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." The U.S. Nuclear Regulatory Commission (NRC) staff has determined that additional information is necessary to complete its review.

Safe Shutdown Analysis (SSA) Request for Additional Information (RAI) 10.01

In a letter dated October 30, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13305A105), the licensee responded to SSA RAI 10 and indicated that no recovery actions (RAs) were omitted from license amendment request (LAR) Attachment G, and that the correlation of RAs to variances from deterministic requirements (VFDRs) were provided in LAR Attachment G, Table G-1, of the LAR supplement dated December 20, 2012 (ADAMS Accession No. ML12359A050).

However, the NRC staff is providing the following examples of inconsistences between LAR Attachment C, Table C-1 and LAR Attachment G, Table G-1; with the LAR supplement and the RAI responses:

a. The LAR Attachment G, Table G-1 submitted on December 20, 2012, is missing many fire areas compared to the original LAR Attachment G, Table G-1 provided in September, 2012 (e.g., most of U2-040, U2 2-040, U2 2-041, U2 2-075, and U2 2-076... up to U2-2-021).
b. Components identified in the new LAR Attachment G, Table G-1 do not correspond to VFDRs in LAR Attachment C, Table C-1 (e.g., Q1P16V0530 and Q1P16V0593).
c. Components corresponding to VFDRs in the LAR Attachment C, Table C-1 are not identified in the new LAR Attachment G, Table G-1 (e.g., VFDRs: U1-044-PCS-040 and U1-1-040-PCS-186), and there are potential duplicate VFDRs (e.g., U1-1-040-PCS-145 & 146, U1-044-PCS-127 & 128 and U2-044-PCS-079 & 155)

d. A partial LAR Attachment G, Table G-1 was submitted with the RAI responses on November 12, 2013 (ADAMS Accession No. ML13318A027), which includes LAR pages G-9 through G-26. This table has corrections and multiple entries needing to be removed as duplicates. However, this LAR Attachment G, Table G-1 still includes several components (e.g., OP-RECOV-XXXX) that are not in LAR Attachment C, Table C-1.

Provide LAR Attachment G, Table G-1 and LAR Attachment C, Table C-1 that are up-to-date and correlate accordingly.

Fire Modeling (FM) RAI 01.02

In a letter dated November 12, 2013 (ADAMS Accession No. ML13318A027), the licensee responded to FM RAI 01.m and stated:

> "In certain areas of the plant the physical location is such that there is insufficient space for placement of a transient fire that would be equivalent to that of the 317 kW transient fire as described in NUREG/CR-6850. For example, a hallway that may be approximately 3 feet wide would not physically allow a 317 kW fire as defined in the Generic Fire Treatments, Supplement 3. The diameter of 317 kW fire is 1.1 meters (3.6 feet). A fire of 69 kW would be associated with a fire diameter of approximately 1.5 feet which is the largest obstruction that is expected to be located in a walkway without obstructing access. Therefore, the lower heat release rate is used as a more appropriate fire size for the reduced space configuration."

Provide the following information for the: "certain areas of the plant the physical location is such that there is insufficient space for placement of a transient fire..." discussed above:

a. A list of the physical locations where a 69 kW transient fire was postulated based on space limitations.

b. Technical justification for each location why a 317 kW transient fire with physical dimensions that fit within the space could not be postulated.

c. A discussion of whether the Generic Fire Modeling Treatments (GFMTs) address transient configurations that are small enough to fit within the space (e.g., a hallway) without obstructing access, and that could generate a heat release rate (HRR) higher than 69 kW.

d. If as a result of the response to items 2 or 3 above, locations are identified where a transient fire HRR of higher than 69 kW should have been postulated, provide a quantitative assessment of the effect of the higher HRR on plant risk (core damage frequency (CDF), delta (Δ) CDF, large early release frequency (LERF), and Δ LERF).

FM RAI 01.03

In a letter dated November 12, 2013 (ADAMS Accession No. ML13318A027), the licensee responded to FM RAI 01.p and stated:

> "The transformers cited in the RAI are filled with Dow Corning 561 Transformer Fluid, which is a dimethyl silicone insulating material for power transformers that has a substantially reduced fire hazard potential than mineral oil insulating materials. The fluid has a Heat Release Rate (HRR) of 140 kW/m2 per ASTME 1354-90, which is approximately 11 times less than that of mineral oil. Based on the burning and ignition characteristics of the Dow Corning 561 Transformer Fluid observed in the pool fire tests (i.e., it is difficult to ignite, it produces short flame heights, and it self-extinguishes), the transformers containing silicone are considered to be similar to a dry transformer ignition source rather than a mineral oil filled transformer."

Sections of NUREG/CR-6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities" (such as Chapter 8, Table 8-1 ID 23b, Chapter 11, Table 11-1), indicate that the severity factor of a motor fire can be used to characterize a dry transformer. However, depending on the area of the spill, the HRR due to a pool fire from these transformers could be larger than a standalone motor fire.

a. Describe and provide technical justification for the HRR and assumed fire source area that were used to characterize transformers filled with the Dow Corning 561 Transformer Fluid.
b. Explain how this may impact the plant risk, if the developed fire grows larger than what was originally assumed (i.e., area greater than 0.5 m2 for the stated HRR per unit area).

FM RAI 01.06

In a letter dated September 16, 2013 (ADAMS Accession No. ML14038A019), the licensee responded to FM RAI 01.e and stated:

> "The sensitivity analysis...is not directly used in the FPRA. The sensitivity analysis...provides an indication of the parameters selections that could lead to significant variations in the results with the intent that adjustments to the baseline scenarios be made on a case-by-case basis. The current FPRA uses only the baseline scenarios and therefore does not directly incorporate the insights provided in the sensitivity analysis of ..." In addition, the licensee stated that, "A baseline fire scenario is considered to be conservatively biased if the total probability of control room abandonment is maximized for the baseline fire scenario. A baseline fire scenario is considered insensitive if the change in the total probability of control room abandonment remains less than fifteen percent. A baseline fire scenario is considered to be non-conservatively biased if the change in the total probability of control room abandonment exceeds fifteen percent."

Provide technical justification for this 15% limit criterion and explain how it was determined (as opposed to a lower value, such as 5% or 10%).

FM RAI 01.07

FM RAI 01.l requested the licensee to assure that non-cable intervening combustibles were not missed and to provide information on how intervening combustibles were identified and

accounted for in the fire modeling analyses and the FREs. In a letter dated November 12, 2013 (ADAMS Accession No. ML13318A027), the licensee responded to FM RAI 01.l and explained that during additional walkdowns, non-cable intervening combustibles have been identified, and that the quantities of the combustibles (primarily insulation materials) is limited and does not impact the current scenario quantification. The licensee further stated that it is anticipated that the balance of walkdowns will yield similar results and that the results from the balance of the intervening combustible walkdowns will be assessed upon completion and the impact will be incorporated into the analysis in conjunction with the impact of the secondary cable combustibles addressed under probabilistic risk assessment (PRA) RAI 17.b.

The staff has reviewed the licensees responses to PRA RAI 17b and also FM RAI 1.h (which was referenced in the licensees response to PRA RAI 17b) and concluded that additional information is required to complete the review. Provide a list of the fire scenarios with non-cable intervening combustibles and explain how the contribution of non-cable intervening combustibles was accounted for in the zone of influence (ZOI) and hot gas layer (HGL) calculations. Also discuss the impact on plant risk (CFD, Δ CDF, LERF and Δ LERF) of the fire scenarios that involve the non-cable intervening combustibles that were identified in those walkdowns.

FM RAI 02.01

In letter dated November 12, 2013 (ADAMS Accession No. ML13318A027), the licensee responded to FM RAI 02.f and stated:

> "This approach is supported by the in-process Fire PRA Frequently Asked Questions (FAQ 13-0004, "Clarifications Regarding Treatment of Sensitive Electronics.") Walkdowns to identify sensitive electronics components which are located outside of a panel enclosure are in progress. Sensitive electronics credited for post fire shutdown which are located outside of a panel enclosure will be evaluated with respect to potential damage by ignition sources in its vicinity using the NUREG/CR-6850 Appendix H criteria for solid-state control components."

Fire PRA Frequently Asked Question (FAQ) 13-0004, which has now been issued, provides a few limitations to applying this methodology:

a. FAQ-13-0004 states cable damage thresholds can be used for temperature sensitive equipment inside cabinets provided that (i) the sensitive electronic component is not mounted on the surface of the cabinet (front or back wall/door) where it would be directly exposed to the convective and/or radiant energy of an exposure fire, and (ii) the presence of louvers or other typical ventilation means do not invalidate the guidance provided. Describe the limitations that were considered in the determination of damage condition for sensitive electronic equipment enclosed in cabinets and explain whether they are in accordance with the FAQ or some other method.

b. The conclusions of the Fire Dynamic Simulator (FDS) analysis in FAQ-13-0004 are based on radiant heat flux exposure to the cabinet. Therefore, the 65°C temperature damage criterion must still be assessed for other types of fire exposures to the enclosed

sensitive electronics. Describe what temperature damage criterion was assessed and whether it is in accordance with the FAQ or some other method.

FM RAI 02.02

In letter dated November 12, 2013 (ADAMS Accession No. ML13318A027), the licensee responded to FM RAI 02.g and stated:

> "Sensitive electronics are typically not located outside of panel enclosures as well as enclosures which protect the electronic modules from the impact of external environments such as dust. As noted in the response to RAI FM 02(f), walkdowns to identify sensitive electronics are being performed to identify electronic components mounted outside of panel enclosures. Such components relied upon for post fire shutdown will be further evaluated, as discussed in RAI FM 02.f, to ensure their availability post fire."

Provide the results of the additional walkdowns and confirm that the findings, if any, have been incorporated into the FM and PRA analysis.

FM RAI 07

National Fire Protection Association Standard 805 (NFPA 805), "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, Section 2.4.3.3, on acceptability states: "The PSA approach, methods, and data shall be acceptable to the AHJ." The staff has noted the utilization of a number of accepted tools and methods in the analyses for transition such as the Consolidated Model of Fire Growth and Smoke Transport (CFAST) and GFMTs approach.

a. Identify any fire modeling tools and methods that have been used in the development of the NFPA 805 LAR that are not already documented in the LAR and where their use or application is documented. Examples might include a methodology (empirical correlations and algebraic models) used to convert damage times for targets in Appendix H of NUREG/CR-6850 to percent damage as a function of heat flux and time or supplements to the GFMTs - Empirical Correlations and Algebraic Models.
b. For any tool or method identified in "a." above, provide the Verification and Validation (V&V) basis if not already explicitly provided in the LAR (for example in LAR Attachment J).

FM RAI 08

Explain how high energy arcing fault (HEAF) initiated fires were addressed in the HGL and Multi Compartment Analysis (MCA) and provide technical justification for the approach that was used to calculate HGL development timing. More specifically, confirm if the guidance provided in NUREG/CR-6850, pages 11-19, fourth bullet regarding the fire growth, and the guidance provided on page M-13, sixth bullet regarding delay to cable tray ignition was followed. Also, considering the energetic nature of the HEAF event, provide justification for the HRR used in the HGL calculations for electrical cabinet fires following a HEAF event.

FM RAI 09

In a letter dated November 12, 2013 (ADAMS Accession No. ML13318A027), the licensee responded to FM RAI 01.h and stated:

> "In lieu of demonstrating which scenarios are conservative and which require further analysis, new ZOI tables have been developed that are applicable to ignition source-cable tray configurations at Farley." In addition, the licensee stated that "The method used to develop the ZOI dimensions includes the vertical cable tray stack propagation model described in NUREG/CR-6850, Appendix R, the FLASH-CAT calculation method described in NUREG/CR-7010, Volume 1, and the radiant heat flux calculation methodology described in the GFMT document."

Describe the methodology used in the revised analysis to determine the ignition time of the first cable tray above an ignition source. If it was assumed that the lowest cable tray in a stack located above an ignition source will not ignite unless the tray is located below the flame tip of the ignition source fire, provide technical justification for this assumption and provide the results of a sensitivity analysis to demonstrate that the conservatism of the ZOI and HGL calculations for fires that involve cable trays as secondary combustibles is not adversely affected by the ignition criterion that was used (compared to the ignition criteria in NUREG/CR-6850 and NUREG/CR-7010, "Cable Heat Release, Ignition, and Spread in Tray Installations During Fire").

FM RAI 10

In letter dated November 12, 2013 (ADAMS Accession No. ML13318A027), the licensee responded to PRA RAI 20.c and stated:

> "The approach discussed in Assumption 7 of the Sensitivity Analysis uses the data provided in NUREG/CR-6850 Appendix H for time to damage as a function of heat flux to define an accrual of damage based on the time at each heat flux. The value is taken from the fire model at a given distance and correlates that to a fraction of the accrued damage by dividing the time at the heat flux by the time at that heat flux required to cause damage to the cable. Cable damage occurs when the accrued damage equals 1.0. This approach uses the same principles that are applied to equipment qualification of safety related equipment including cables for post-accident environments, such as inside containment LOCA conditions. The potential for some non-conservatism arises from the data specified in Appendix H where no damage is accrued regardless of the time exposure when the heat flux is just below the damage heat flux. To eliminate this potential non-conservatism, the analysis is being updated to assume a bounding damage accrual during the time period prior to the cable reaching the critical heat flux."

The methodology assumes that the "damage rate" at a specified heat flux as the reciprocal of the failure time in Tables H-7 (for thermoset cable targets) and H-8 (for thermoplastic cable targets) of NUREG/CR-6850. There does not appear to be a physical basis for this assumption. Provide evidence of the validation of the methodology as a whole, and the damage rate assumption in particular.

PRA RAI 01.01

LAR Attachment V, Table V.2-2, provides the results of the electrical cabinet fire severity sensitivity analysis for Unit 1, also indicating similar results for Unit 2. There, the base CDF rose from 5.24E-5/y to 7.05E-5/y, an increase of 1.81E-5/y. For Δ CDF, the base value rose from 8.80E-6/y to 1.03E-5/y, an increase of 1.50E-6/y. The analogous results for LERF and Δ LERF were as follows: (1) a LERF increase of 2.59E-6/y from 1.26E-6/y to 3.85E-6/y; (2) a Δ LERF increase of 9.90E-8/y from 4.14E-7/y to 5.13E-7/y. Subsequently, the LAR was supplemented by a sensitivity analysis which included the effect of removing credit for very early warning fire detection system (VEWFDS) in the main control room (MCR) in addition to the electrical cabinet fire severity adjustment. The results were as follows: (1) CDF now rose only 1.41E-5/y (vs. the previous 1.81E-5/y); (2) Δ CDF now rose only 1.18E-6/y (vs. the previous 1.50E-6/y); (3) LERF now rose more by 6.28E-6/y (vs. the previous 2.59E-6/y); (4) Δ LERF now rose more by 2.88E-7/y (vs. the previous 9.90E-8/y).

In a letter dated September 16, 2013 (ADAMS Accession No. ML14038A019), as justification for the smaller increase for CDF and Δ CDF with credit for both VEWFDS and electrical cabinet severity adjustment removed, the licensee indicated via Table 1 that, in addition to removing credit for VEWFDS in the MCR, the following additional refinements were now included: (1) refined main control board (MCB) fire scenarios (via App. L of NUREG/CR-6850); (2) more realistic probabilities for HGLs; (3) refined circuit analysis for selected fire scenarios; (4) correction to anomalies in fire ignition frequencies for selected fire scenarios. As a result, the CDF and Δ CDF increase for removing both VEWFDS and electrical cabinet factor credit were actually less than prior to removal of the VEWFDS credit alone. While the licensee's explanation is sound for these metrics, it remains unclear as to why the LERF and Δ LERF increases do not display the same trend as CDF and ΔCDF. If the CDF and Δ CDF showed a smaller increase with the additional refinements, why did not the LERF and Δ LERF as well? Explain why the increases in LERF and Δ LERF after removal of the VEWFDS credit and addition of the four refinements trended upward vs. the downward trend for the CDF and Δ CDF increases.

PRA RAI 06.a.01

In a letter dated November 12, 2013 (ADAMS Accession No. ML13318A027) the licensee responded to PRA RAI 06(a) and stated that section V.2.2 of the LAR provides the details of the sensitivity analysis related to the bins that have an alpha that is less than or equal to one. Indicate if the acceptance guidelines of Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk- Informed Decisions on Plant-Specific Changes to the Licensing Basis," may be exceeded when this sensitivity study for those bins with an alpha less than or equal to 1 is applied to the integrated study of PRA RAI 35 (see below). If these guidelines may be exceeded, provide a description of fire protection or other measures that can be taken to provide additional defense in depth (DID) (see FAQ 08-0048).

PRA RAI 16.a.01

In a letter dated October 30, 2013 (ADAMS Accession No. ML13305A105), the licensee responded to PRA RAI 16.a and partially addressed some of the criteria for assuming damage within MCR panels to be limited to the initiating panel, namely the presence of no openings and a double wall with an air gap. However, Appendix S of NUREG/CR-6850 also states that there be no sensitive electrical equipment in the adjacent cabinet (or else such equipment to have already been "qualified" above 82C), even with the double wall with air gap. Otherwise damage to such equipment should be postulated. Explain whether these additional criteria are met or not. If the latter, explain how damage is modeled or, if not, the basis for assuming no damage. (Also see PRA RAI 33.a.01.)

PRA RAI 21.a.01

In a letter dated September 16, 2013 (ADAMS Accession No. ML14038A019), the licensee responded to PRA RAI 21.a and confirmed that the three severity factors, 5.02E-4, 4.84E-4 and 0.00158, do not derive from Figure L-1 in NUREG/CR-6850 but are specifically calculated based on the type of ignition source, scenario location and abandonment time for the MCR abandonment analysis. The three severity factors correspond to the abandonment probabilities for transient ignition sources, equipment room fixed ignition sources and MCR fixed ignition sources, respectively. Provide a discussion of the derivation of these factors, including their bases, e.g., as given in Section 13.2.1 of the Farley Scenario Development Report, PRA-BC-11-014, and Section 6 of Units 1 and 2 Control Room Abandonment Times at the Joseph M. Farley Nuclear Plant, Rev. 0.

PRA RAI 29.01

In a letter dated September 16, 2013 (ADAMS Accession No. ML14038A019), the licensee responded to PRA RAI 29 and indicated that 22 supporting requirements (SRs) fail to meet Capability Category (CC) II, 17 more than the staff was able to determine by review of LAR Attachment V, Table V-1. The licensee response refers to dispositions in LAR Attachment V, Table V-1, which, while indicating how the licensee addressed the related findings and observations (F&Os), do not specifically explain why failing to meet CC-II is acceptable for transition under NFPA 805. Provide Table V-2 which explains the rationale for acceptability of less than CC-II satisfaction for all 22 SRs.

PRA RAI 33.a.01

In a letter dated October 30, 2013 (ADAMS Accession No. ML13305A105), the licensee responded to PRA RAI 33.a and referenced PRA RAI 16.a. However, neither of the responses to PRA RAI 16.a or PRA RAI 33 discussed the timing for detection and manual suppression prior to fire spread to adjacent cabinets. Furthermore, the response to PRA RAI 33.a indicates that all MCB panels are physically open to one another. Discuss the basis for assuming rapid enough detection and manual suppression prior to fire spread into the adjacent cabinet. (See also PRA RAI 16.a.01.)

PRA RAI 33.c.01

In a letter dated November 12, 2013 (ADAMS Accession No. ML13318A027), the licensee responded to PRA RAI 33.c and indicated an intent to revise its MCR abandonment calculation as follows:

> "The CCDP for the abandonment scenario is based on failure of all actions in the control room. [A] conservative basis was used for determining the abandonment CCDP based on the calculated CCDP associated with panel damage and failure of the MCR actions. The intent of this criteria is to ensure that the abandonment CCDP is an appropriate bounding value given that, shutting down the plant from outside the control room has an inherently higher risk associated with it."

These criteria are presented as (1) using conditional core damage probability (CCDP) = 0.1 if FRANC calculates a CCDP < 0.001, (2) using CCDP = 0.2 if FRANC calculates a CCDP between 0.001 and 0.1, and (3) using 1.0 if FRANC calculates a CCDP > 0.1. These FRANC-calculated CCDPs are based on both MCB panel damage and failure of human actions in the MCR. Clarify how these human actions were quantified, including any detrimental effects (increased failure probabilities) due to fire effects in the MCR. If screening or other bounding values were used, specify their bases, e.g., screening/scoping approach from NUREG-1921, "Fire Human Reliability Analysis Guidelines" (or equivalent).

PRA RAI 35

Section 2.4.3.3 of the NFPA 805 standard incorporated by reference into 10 CFR 50.48(c) states that the PSA approach, methods, and data shall be acceptable to the AHJ, which is the NRC. Regulatory Guide (RG) 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," identifies NUREG/CR-6850 as documenting a methodology for conducting a Fire PRA (FPRA) and endorses, with exceptions and clarifications, NEI 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)," Rev. 2, as providing methods acceptable to the staff for adopting a fire protection program consistent with NFPA 805. RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," describes a peer review process utilizing an associated ASME/ANS standard (currently ASME/ANS-RA-Sa-2009, "Addenda to ASME/ANS RA-S-2008, Standard for Levei1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications") as one acceptable approach for determining the technical adequacy of the PRA once acceptable consensus approaches or models have been established. In a letter dated July 12, 2006 to NEI (ADAMS Accession No. ML061660105), the NRC established the ongoing FAQ process where official agency positions regarding acceptable methods can be documented until they can be included in revisions to RG 1.205 or NEI 04-02.

Section 2.4.4.1 of NFPA 805 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 AHJ, which is the NRC. RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," provides quantitative guidelines on CDF and LERF 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.

As stated on page B-1 of Appendix B of PRA-BC-F-11-004, "Fire PRA Logic Model," the new Westinghouse Shutdown Shield (SDS) was installed in fall 2010. The internal events PRA (IEPRA), upon which the FPRA is based, takes credit for the SDS (failure rate 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" (Westinghouse Owners Group (WOG) 2000 or Rhodes Model) seal model leakage rates are applied. Given the July 26, 2013, 10 CFR Part 21 notification by Westinghouse concerning defects with the SDS performance, provide a sensitivity evaluation that removes all credit for the SDS package, including both probability and consequences as appropriate. Provide revised estimates of CDF, LERF, Δ CDF and Δ LERF, including non-fire hazards for CDF and LERF, as a result of removal of this credit. Should this result in any changes to conclusions regarding the transition satisfying RG 1.174 risk/Δ risk guidelines, address any changes that will be made to accommodate this.

When performing this analysis, include the composite effect from all previous re-evaluations, including any synergistic effects, specifically including the following:

a. From the LAR and the December 20, 2012 LAR Supplement, 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).

b. From the RAI Responses dated September 16, 2013 (ADAMS Accession No. ML14038A019):
   i. PRA RAI 01.a – Removal of credit for VEWFDS in the MCR (also PRA RAI 01.01)
   ii. PRA RAI 15.a – Revised seismic CDF based on 2008 USGS data
   iii. PRA RAI 28.k – Validity of current Ignition Bin 15 fire frequencies

c. From the RAI Responses dated November 12, 2013 (ADAMS Accession No. ML13318A027):
   i. PRA RAI 07.e – Use of 0.1 CCDP for MCR Abandonment
   ii. PRA RAI 17.d – Turbine Building Collapse
   iii. PRA RAI 33.c – Revised MCR Abandonment analysis (also RAI PRA 33.c.01)

March 28, 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 NO. ME9741 AND ME9742)

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Sincerely,

/RA/

Shawn Williams, Senior Project Manager
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Docket Nos. 50-348 and 50-364

Enclosure: As stated

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ADAMS Accession No.: ML14073A053

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