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SOUTHERN COMPANY

August 11, 2014

Docket Nos.: 50-348
50-364

NL-14-1106

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Joseph M. Farley Nuclear Plant
Response to Request for Additional Information Regarding License Amendment Request for Transition to 10 CFR 50.48(c) – NFPA 805 Performance Based Standard for Fire Protection for Light Water Reactor Generating Plants

Ladies and Gentlemen:

By letter dated September 25, 2012, the Southern Nuclear Operating Company (SNC) submitted a license amendment request (LAR) for Joseph M. Farley Units 1 and 2 (Ref. TAC NOS. ME9741 and ME9742). The proposed amendment requests the review and approval for adoption of a new fire protection licensing basis which complies with the requirements in Sections 50.48(a) and 50.48(c) to Title 10 to the Code of Federal Regulations (10 CFR), and the guidance in Regulatory Guide (RG) 1.205, Revision 1, *Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants.*

By letter dated December 12, 2012, the Nuclear Regulatory Commission (NRC) Staff requested supplemental information regarding the acceptance of the license amendment (Adams Accession No. ML12345A398). SNC provided the requested information by letter dated December 20, 2012. The NRC staff subsequently completed the acceptance review by letter dated January 24, 2013, (Adams Accession No. ML13022A158).

By letter dated July 8, 2013, the NRC Staff formally transmitted a request for additional information (RAI) related to the referenced license amendment. SNC's responses to these RAIs are being provided by three submittals. By letter dated September 16, 2013, SNC provided the first set of responses. By letter dated October 30, 2013, SNC provided the second set of responses and by letter dated November 12, 2013, SNC provided the remaining set of response.

By letter dated March 28, 2014, the NRC Staff formally transmitted the second round of requests for additional information related to the referenced license amendment request. By letter dated April 23, 2014, SNC provided the 30 day response to the second round of RAIs. By letter dated May 23, 2014, SNC provided the 60 day response to six of the eight remaining RAIs.

By letter dated July 3, 2014, SNC provided revised Attachments S, V, and W. The updated total plant, Fire PRA, and delta risk values were provided in the updated Attachments V and W. These attachments provided the response to PRA RAIs 06.a.01 and 35. The revised Attachment S reflects the updates associated with the RAI responses. Revisions to Attachments C and G will be provided in a separate submittal. Along with other revisions, a new modification item has been added to Attachment S for installation of the next generation Westinghouse shutdown seals for the reactor coolant pumps on both Unit 1 and Unit 2.

By letter dated July 11, 2014, the NRC staff transmitted additional RAIs related to the credit for the next generation of the Westinghouse Reactor Coolant Pump shutdown seals (RAI 35.01) and the composite analysis of the probabilistic risk analysis (RAI 36). During a teleconference held on August 1, 2014, it was agreed that the response to RAIs 16.a.02 and 35.01 would be provided by August 11, 2014 and the response to RAI 36 would be provided by August 29, 2014. The enclosure to this letter provides the responses to RAIs 16.a.02 and 35.01.

The No Significant Hazards Consideration determination provided in the original submittal is not altered by the RAI responses provided herein.

This letter contains no new NRC commitments. If you have any questions, please contact Ken McElroy at (205) 992-7369.

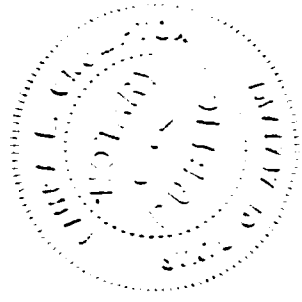
Mr. C. R. Pierce states he is Regulatory Affairs Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and, to the best of his knowledge and belief, the facts set forth in this letter are true and correct.

Respectfully submitted,

C. R. Pierce

C. R. Pierce
Regulatory Affairs Director

CRP/jkb/lac



Sworn to and subscribed before me this 11 *day of* August, *2014.*

Laura L. Crumpton
Notary Public

My commission expires: 10/8/2017

Enclosure 1: Response to Requests for Additional Information

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Ms. C. A. Gayheart, Vice President – Farley
Mr. B. L. Ivey, Vice President – Regulatory Affairs
Mr. T. E. Tynan, Vice President – Fleet Operations
Mr. B. J. Adams, Vice President – Engineering
Mr. R. R. Martin, Regulatory Manager - Farley
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U. S. Nuclear Regulatory Commission
Mr. V. M. McCree, Regional Administrator
Mr. S. A. Williams, NRR Project Manager - Farley
Mr. P. K. Niebaum, Senior Resident Inspector - Farley
Mr. K. E. Miller, Resident Inspector - Farley

Alabama Department of Public Health
Dr. D. E. Williamson, State Health Officer

Joseph M. Farley Nuclear Plant
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Regarding License Amendment Request for Transition to 10 CFR 50.48(c)
NFPA 805 Performance Based Standard for Fire Protection for Light Water Reactor Generating Plants

Enclosure 1
Response to Request for Additional Information

By letter dated July, 11, 2014, the NRC staff requested additional information (RAI) associated with the SNC license amendment request to transition Farley to fire protection licensing basis National Fire Protection Association (NFPA) Standard NFPA 805, *Performance Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition).*

Farley 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.

RESPONSE:

Implementation Item number 31 has been added to Attachment S, Table S-3, Implementation Items, regarding the need to evaluate the initial fire and to open the panel doors if the potential exists for damage/overheating in an adjacent panel for a fire originating in the Main Control Room. The revised Attachment S containing this implementation item was provided in SNC's letter NL-14-0927 dated July 3, 2014.

Farley 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 Seal (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.

RESPONSE:

a. Farley plans to install Westinghouse's redesigned SDS, referred to as Generation III, as a replacement for the previous SDSs, in Unit 2 during the 2014 Fall refueling outage followed by installation in Unit 1 in 2015. The Generation III seal addresses vulnerabilities identified in previous designs. The basis for the confidence in the Generation III seals being able to perform as designed is described in TR-FSE-14-1-P, Revision 1, "Use of Westinghouse SHIELD Passive Shutdown Seal for FLEX Strategies," dated March 2014. A copy of this report, containing the technical design information and testing evaluations as well as other technically pertinent information is available in ADAMS at Accession number ML14084A496 (Non-Public). The nonproprietary version of the technical report is available in ADAMS at Accession number ML14084A495. The report was reviewed by the NRC and was endorsed by letter to Westinghouse dated May 28, 2014. Therefore, consistent with the current state-of-the-practice PRA modeling, SNC will model the Generation III SDS in the Farley Fire PRA logic model using the leakage flow rates and failure probabilities in the Generation III consensus PRA model developed by Westinghouse for the Pressurized Water Reactor Owners Group (PWROG). This model is described in Topical Report (TR) PWROG-14001-P, Revision 1, "PRA Model for the Generation III Westinghouse Shutdown Seal," dated July 2014. The PWROG submitted this report to the NRC Staff for review on July 3, 2014, (ADAMS Accession Number ML14190A331). Additionally, based on the analysis results using a draft of the Farley Internal Events PRA, with credit for Generation III SDS modeled as described in PWROG-14001-P, Revision 1, the risk reduction benefit of the Generation III SDS in the Farley Fire PRA is expected to be consistent with analyses results with the previous SDS.

b. The credit that will be taken in the SNC internal events and fire PRA models is based on the detailed design information and full engagement of the SNC's pump experts in the design and conduct of successful test results. Credit is not based on plant operational experience with the upgraded SDS. These test results are provided in TR-FSE-14-1-P, Revision 1, "Use of Westinghouse SHIELD Passive Shutdown Seal for FLEX Strategies," dated March 2014. The report was reviewed by NRC and was endorsed by letter to Westinghouse on May 28, 2014. As explained in TR-FSE-14-1-P, Revision 1, the Generation III design addresses the deficiencies of the previous SDS designs while improving on their strengths. As a result there are substantial differences between the Generation III design and previous SDS designs. The Generation III SDS has been extensively tested in conditions more severe than RCS conditions expected during plant operations with successful results.

As stated in TR-FSE-14-1-P, Revision 1, these tests were completed in series such that all effects compounded onto one another. As a validation

of the severity of the tests, the test conditions used for the Generation III qualification resulted in failures of the previous SDS designs when tested under the same conditions. Based on the comprehensiveness of the tests, the test results, and SNC's engagement in the design and conduct of these tests, SNC is confident that the credit taken is reasonable and justified.

c. No other alternative is planned at this time.

d. Implementation item 32 was created and added to Table S-3. The implementation item states that following installation of the shutdown seal modification and the as-built installation details, additional refinements surrounding the modification may need to be incorporated into the Fire PRA model (the Fire PRA will verify the validity of the reported change-in-risk on as built conditions after the modification is completed). The revised Table S-3 containing this new item was provided as Attachment S in SNC's letter NL-14-0927, dated July 3, 2014.