NRR-DRMAPEm Resource

From: Williams, Shawn
Sent: Thursday, June 27, 2019 7:36 AM
To: MOORE, MICHAEL S
Cc: DALICK, SARA BETH ; JUSTIN.BOUKNIGHT@scana.com
Subject: Virgil C. Summer Nuclear Station, Unit No. 1 – Request for Additional Information RE: LAR-16-01490 NFPA-805 Program Revisions (EPID No. L-2018-LLA-0233)
Attachments: Summer NFPA 805 followup Question.docx

Dear Mr. Moore,

By letter dated August 29, 2018, as supplemented by letters dated April 29, 2019, and May 22, 2019, South Carolina Electric & Gas Company submitted a license amendment request for the Virgil C. Summer Nuclear Station, Unit 1, to make changes to its approved fire protection program under 10 CFR 50.48(c), including changes to plant modifications, use of performance-based alternatives to the requirements of NFPA 805, Chapter 3, and several clarifications and editorial corrections.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the submittal and supplements, and determined that additional information is needed to complete its review as discussed in the attachment. Please note that the NRC staff's review is continuing and further requests for information may be developed.

If you have any questions, please contact me at 301-415-1009 or Shawn.Williams@nrc.gov.

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

Docket No.: 50-395

Enclosure: Request for Additional Information

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REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST TO REVISE

NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805

FIRE PROTECTION PROGRAM

VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-395

By letter dated August 29, 2018 (Agencywide Document Access and Management System (ADAMS) Package Accession No. ML18242A657), and supplemented by letters dated April 29, 2019 (ADAMS Accession No. ML19119A365) and May 22, 2019 (ADAMS Accession No. ML19150A696), South Carolina Electric and Gas (SCE&G) submitted a license amendment request (LAR) for the Virgil C. Summer Nuclear Station, Unit 1 (VCSNS), to make changes to its approved fire protection program (FPP) under 10 CFR 50.48(c). In its LAR, the licensee proposed to make several changes to its FPP including changes to plant modifications, use of performance-based alternatives to the requirements of NFPA 805, Chapter 3, and several clarifications and editorial corrections.

The U.S. Nuclear Regulatory Commission (NRC) staff identified the below follow-up question based on the information in the supplement dated May 22, 2019.

Follow-up Question PRA RAI 03:

Section 2.4.3.3 of NFPA 805 states that the probabilistic risk assessment (PRA) 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.

In the letter dated May 22, 2019, the licensee responded to PRA Request for Additional Information (RAI) 03 and stated, in part:

> The longer the seals can withstand loss of seal cooling, the more time is available for operators to trip the RCPs [reactor coolant pumps], and the lower the failure probability of that action. Dynamic loss-of-seal-cooling tests of N-9000 RCP seals have shown that RCPs can operate in excess of 60 minutes with no measurable change in seal leakage. … The Human Reliability Analysis (HRA) that supports the 2018 VCSNS FPRA [fire PRA] models a 60-minute system time window for the operator action to trip RCPs. The 60-minute system time window is retained in the current FPRA.

In the safety evaluation associated with Amendment No. 199, dated February 11, 2015 (ADAMS Accession No. ML14287A289), the NRC staff found acceptable the licensee's N-9000 RCP seal failure model applied in the FPRA, which is based on the RCP seal failure model and associated failure probabilities used in WCAP-16175-A, "Model for Failure of RCP Seals Given Loss of Seal Cooling in CE NSSS Plants" (ADAMS Accession No. ML071130383). WCAP-16175-A indicates that the N-9000 RCP seals have been designed to survive 30 minutes of

continued RCP operation without RCP seal cooling. Also, the response to RAI 1.15.1 documented in WCAP-16175-A states, "[a]s data for RCP seal operation without seal cooling for 1 hour is not available, this event will be redefined to require tripping the RCP within 20 minutes." Therefore, it appears that the licensee's use of a 60-minute system time window for operator action to trip RCPs in the FPRA to support the LAR dated August 29, 2018 is not consistent with that used in the NRC-accepted RCP seal model (i.e., FPRA RCP seal failure model accepted in the safety evaluation associated with Amendment No. 199, which is based on WCAP-16175-A). Also, the basis for using the 60-minute system time window provided in the response to PRA RAI 03 is unclear to the NRC staff.

(i) Provide the technical basis for use of a 60-minute system time window for operator action to trip RCPs without seal cooling for the N-9000 RCP seals installed at VCSNS. If results of any tests or performance data are used to support this basis, discuss these results and data, including how this information is used to substantiate the 60-minute system time window and is applicable for the VCSNS RCP seal design and operating conditions that can affect seal performance. Also discuss the sensitivity of the risk results to the system time window for operator action to trip RCPs (e.g., compare the total risk and change-in-risk of using a 60-minute system time window with that used in the FPRA RCP seal failure model accepted in the safety evaluation associated with Amendment No. 199). OR

(ii) Alternatively to part (i), provide updated risk results in Table PRA RAI 03-1 of letter dated May 22, 2019 that uses the system time window for operator action to trip RCPs based on the FPRA RCP seal failure model accepted in the safety evaluation associated with Amendment No. 199, and discuss how the updated risk results align with the risk acceptance guidelines of Regulatory Guide 1.205. Propose a mechanism that ensures an NRC-accepted RCP seal failure model is used in the FPRA for self-approval of post-transition changes.REQ