

From: Lamb, John
Sent: Monday, November 15, 2021 2:18 PM
To: Lowery, Ken G.
Subject: REQUEST FOR ADDITIONAL INFORMATION - Vogtle, Units 1 and 2, TS 3.7.2 LAR (EPID: L-2021-LLA-0178)

Importance: High

Ken,

By letter dated September 30, 2021 (Agencywide Documents Access and Management System Accession No. ML21274A073), to the U.S. Nuclear Regulatory Commission (NRC), Southern Nuclear Operating Company (SNC, the licensee) submitted a license amendment request (LAR) for Vogtle Electric Generating Plant (Vogtle), Units 1 and 2. The proposed amendment would revise the Vogtle, Units 1 and 2, Technical Specification (TS) 3.7.2 "Main Steam Isolation Valves (MSIVs)". The TS Limiting Condition for Operation (LCO) currently requires two MSIV systems per main steam line be operable in Mode 1, and Modes 2 and 3 with exceptions. The licensee proposes to change TS 3.7.2, LCO, to require four MSIVs and their associated actuators and associated bypass valves be operable in Mode 1, and Modes 2 and 3 with exceptions.

To complete its review of the inspection, the U.S. Nuclear Regulatory Commission (NRC) staff requests the below additional information.

On November 12, 2021, the NRC staff provided draft request for additional information (RAI) questions to SNC to make sure that the RAIs are understandable, the regulatory basis is clear, to ensure there is no proprietary information, and to determine if the information was previously docketed. On November 15, 2021, a clarifying call was held and SNC stated that it would provide the RAI response within 60 days of the date of this email.

If you have any questions, you can contact me at 301-415-3100.

Sincerely,

John

REQUEST FOR ADDITIONAL INFORMATION (RAIs)

By letter dated September 30, 2021 (Agencywide Documents Access and Management System Accession No. ML21274A073), to the U.S. Nuclear Regulatory Commission (NRC), Southern Nuclear Operating Company (SNC, the licensee) submitted a license amendment request (LAR) for Vogtle Electric Generating Plant (Vogtle), Units 1 and 2. The proposed amendment would revise the Vogtle, Units 1 and 2, Technical Specification (TS) 3.7.2 "Main Steam Isolation Valves (MSIVs)". The TS Limiting Condition for Operation (LCO) currently requires two MSIV systems per main steam line be operable in Mode 1, and Modes 2 and 3 with exceptions. The licensee proposes to change TS 3.7.2, LCO, to require four MSIVs and their associated

actuators and associated bypass valves be operable in Mode 1, and Modes 2 and 3 with exceptions.

To complete its review of the inspection, the U.S. Nuclear Regulatory Commission (NRC) staff requests the below additional information.

Regulatory Requirements

The regulation Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix A, General Design Criteria (GDC) 16- *Containment design*, which states in part that the reactor containment and associated systems shall be provided to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

The regulation 10 CFR 50.49, "Environmental qualification of electric equipment important to safety for nuclear power plants," requires, in part, licensees to establish a program for qualifying the electric equipment important to safety. The electric equipment under the scope of this section includes safety-related equipment, Nonsafety-related electric equipment whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions specified by the safety-related equipment, and Certain post-accident monitoring equipment. The equipment should remain functional during and following design basis events to ensure the integrity of the reactor coolant pressure boundary, The capability to shut down the reactor and maintain it in a safe shutdown condition, or the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures. 10 CFR 50.49(e)(1) requires the time-dependent temperature and pressure at the location of the electric equipment important to safety must be established for the most severe design basis accident during or following which this equipment is required to remain functional. 10 CFR 50.49(e)(2) requires that humidity during design basis accidents must be considered. 10 CFR 50.49(e)(3) requires the composition of chemicals used must be at least as severe as that resulting from the most limiting mode of plant operation (e.g., containment spray, emergency core cooling, or recirculation from containment sump). If the composition of the chemical spray can be affected by equipment malfunctions, the most severe chemical spray environment that results from a single failure in the spray system must be assumed. 10 CFR 50.49(e)(4) requires that the radiation environment must be based on the type of radiation, the total dose expected during normal operation over the installed life of the equipment, and the radiation environment associated with the most severe design basis accident during or following which the equipment is required to remain functional, including the radiation resulting from recirculating fluids for equipment located near the recirculating lines and including dose-rate effects. 10 CFR 50.49(c) states that requirements for (1) dynamic and seismic qualification of electric equipment important to safety, (2) protection of electric equipment important to safety against other natural phenomena and external events, and (3) environmental qualification of electric equipment important to safety located in a mild environment are not included within the scope of this section.

SNSB-RAI 1

In Section 3.3 of the LAR, under the title "Safety Analyses", the licensee has identified main steam line break (MSLB) containment pressure and temperature response analysis is potentially impacted by the proposed change. In the same section, under the title "MSLB Containment Pressure and Temperature Response", the licensee states that there is an adverse impact on the containment pressure and temperature response due to the reverse flow

from the steam header into the containment. In the current configuration, this did not need to be considered as there was no credible single failure that cause the reverse flow to occur.

Based on the proposed TS change, the licensee has revised the MSLB containment pressure and temperature response analysis, which shows the containment peak pressure increased from its current value of 36.5 pounds per square inch gauge (psig) to 39 psig, and the peak vapor temperature increased from its current value of 303°F to 309°F.

For the revised MSLB analysis, provide **changes** in the following items with justification if conservatism is reduced, or state if there is no change in these items from the current analysis:

- (a) Methodology, computer codes used for mass and energy (M&E) release and containment response.
- (b) Assumptions listed in Final Safety Analysis Report (FSAR) Tables 6.2.1-2 and 6.2.2-3
- (c) Containment structural heat sinks listed in FSAR Table 6.2.1-4
- (d) Thermophysical properties of containment heat sinks in FSAR Table 6.2.1-5
- (e) Design inputs in FSAR Table 6.2.1-64
- (f) Sequence of events listed in FSAR tables 6.2.1-66 and 6.2.1-67 for the most limiting cases for peak pressure (FSAR Table 6.2.1-65 case 16) and peak temperature (FSAR Table 6.2.1-65 case 13).
- (g) Sub-compartment steam line break M&E release (FSAR Section 6.2.1.4) and differential pressure response.

ELTB – RAI-2

The licensee stated the following on page E-16 of the LAR:

Environmental Qualification of Equipment

As described above, the containment pressure and temperature are changed slightly due to additional mass and energy released into the containment following a MSLB. These changes are compared to the environmental qualification bounding curves for the containment vapor region to determine the updated post-accident parameters. The updated parameters are compared to the tested values for all equipment inside containment to determine impacts to qualification. This review has determined that there are no impacts to the environmental qualification of equipment inside containment.

- a. Based on the limited information provided in the LAR on the effects of the proposed changes, provide further details of your assessment on the impact the proposed changes have on the environmental qualification of electrical equipment. Specifically, in accordance with the regulatory requirements cited above, address the following environmental qualification (EQ) parameters: Temperature, Pressure, Radiation, Humidity, and Chemical Spray and explain how electrical equipment will remain qualified, with margins maintained, ensuring continued compliance with 10 CFR 50.49.

- b. Clarify whether any areas changed from mild to harsh, because of the proposed changes.
- c. Discuss the impact of the proposed change on nonsafety-related electric equipment whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions specified in subparagraphs (b)(1) (i) (A) through (C) of paragraph (b)(1) of 10 CFR 50.49 by the safety-related equipment.

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Created By: John.Lamb@nrc.gov

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