

**From:** Dawnmathews Kalathiveettil  
**Sent:** Tuesday, August 22, 2023 9:35 PM  
**To:** Joyce, Ryan M.  
**Subject:** REQUEST FOR ADDITIONAL INFORMATION - Farley, Units 1&2, Emergency TS 3.6.5 LAR (EPID: L-2023-LLA-0116)

**Importance:** High

Ryan,

By letter dated August 22, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23234A151), the Southern Nuclear Operating Company, Inc. (SNC, the licensee) submitted a license amendment request (LAR) for Joseph M. Farley Nuclear Plant (Farley), Units 1 and 2. The proposed amendment would revise the Farley, Units 1 and 2, Technical Specification (TS) 3.6.5, "Containment Air Temperature" on a one-time, temporary basis.

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

On August 22, 2023, the NRC staff discussed the draft request for additional information (RAI) questions with SNC to ensure 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. The NRC staff is requesting that SNC would provide the RAI response commensurate with the emergency situation.

If you have any questions, you can contact me at 301-415-5905.

Sincerely,  
Dawnmathews Kalathiveettil

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### **REQUEST FOR ADDITIONAL INFORMATION (RAIs)**

By letter dated August 22, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23234A151), the Southern Nuclear Operating Company, Inc. (SNC, the licensee) submitted a license amendment request (LAR) for Joseph M. Farley Nuclear Plant (Farley), Units 1 and 2. The proposed amendment would revise the Farley, Units 1 and 2, Technical Specification (TS) 3.6.5, "Containment Air Temperature" on a one-time, temporary basis. Specifically, the proposed amendment would temporarily revise the operating license, Appendix A Limiting Condition for Operation (LCO) 3.6.5, limit on containment average air temperature from 120° F to 122° F effective until 0600 hours on September 9, 2023.

### **Regulatory Requirements**

10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Appendix A, "General Design Criteria [GDC] for Nuclear Power Plants," includes the following GDCs applicable to the licensee's LAR:

- GDC 4, "Environmental and dynamic effects design bases," states, in part, that structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents.
- GDC 16, "Containment Design" requires, in part, that reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.
- GDC 38, "Containment Heat Removal " requires, in part, that a system to remove heat from the reactor containment shall be provided. The system safety function shall be to reduce rapidly, consistent with the functioning of other associated systems, the containment pressure and temperature following any loss-of-coolant accident and maintain them at acceptably low levels.
- GDC 50, "Containment Design Basis" requires, in part, that the reactor containment structure, including access openings, penetrations, and the containment heat removal system shall be designed so that the containment structure and its internal compartment can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature conditions resulting from a design basis LOCA.

Farley, Unit 1, Final Safety Analysis Report, Section 3.11, "Environmental Design of Mechanical and Electrical equipment," states in part, that the original specifications for safety-related electrical equipment which is subject to a post DBA harsh environment and required to function during and subsequent to a DBA required qualification to IEEE 323-1971[, "IEEE Trial-Use Standard: General Guide for Qualifying Class I Electric Equipment for Nuclear Power Generating Stations."] Subsequently, the Farley Nuclear Plant Environmental Qualification (EQ) Program was implemented to comply with the requirements of NRC Inspection and Enforcement Bulletin (IEB) 79-01B ["Environmental Qualification of Class IE Equipment,"] NUREG-0588, Revision 1, Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment, and 10 CFR 50.49.

10 CFR Part 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, non-safety-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. 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.

IEB 79-01B required the licensee to perform a detailed review of the environmental qualification of Class 1E electrical equipment to ensure that the equipment will function under (i.e., during and following) postulated accident conditions.

NUREG-0588, Revision 1, Category II requirements, which supplement the recommendations of and apply to equipment qualified in accordance with IEEE Std. 323-1971, apply to nuclear power plants for which the construction permit safety evaluation report was issued prior to July 1, 1974.

Regulatory Guide 1.89, Revision 1, describes a method acceptable to the NRC staff for complying with 10 CFR 50.49 with regard to qualification of electric equipment important to safety for service in nuclear powerplants to ensure that the equipment can perform its safety function during and after a design-basis accident.

Section 3.11 of NUREG-800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," provides guidance on EQ of mechanical and electrical equipment for complying with 10 CFR 50.49.

NUMARC-8700, "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors," dated November 1987 notes that temperatures up to 120 degrees Fahrenheit (F) would likely not adversely affect operability of mechanical and electrical equipment and instrumentation for a short period of time (i.e., 4 hours). Based on this, 120 degrees F has generally been considered the threshold for electrical equipment long-term functionality.

### **Nuclear Systems Performance Branch (SNSB)**

#### **SNSB - RAI 1:**

In section 3.0, sub-section '*Instrument Uncertainty*' of the enclosure to the LAR, the licensee states that the instrument uncertainty calculation demonstrates sufficient margin to the safety analysis initial condition of 127 °F. Based on the proposed updated Containment Air Temperature limit update to 122 °F, please describe how do the existing containment maximum temperatures analyses for the LOCA and MSLB, which currently assume an initial bulk containment temperature of 127°F, remain bounding?

#### **SNSB - RAI 2:**

In section 3.0, sub-section '*Sufficient Safety Margins are Maintained*' of the enclosure to the LAR, the licensee states that the LOCA analysis assumes an accumulator liquid temperature of 120 °F and a Refueling Water Storage Tank (RWST) initial temperature of 110 °F. The licensee further states that the 2°F increase to the accumulator liquid can be more than offset by assuming the RWST initial temperature of 100°F. Please provide details on the administrative controls that will be put in place to ensure the RWST initial temperature limit is not exceeded.

#### **SNSB - RAI 3:**

Table 6.2-3 of the FSAR for Farley Units 1 and 2 states the Service Water (SW) temperature at 95°F as the initial condition for the analysis. In section 3, sub-section '*Service Water and Ultimate Heat Sink Evaluation*' of the LAR, the licensee states that the small increase in containment temperature at the start of the event represents an insignificant effect compared to the magnitude of decay heat from both units. However, there is no discussion present on how the SW temperature change due to higher outside temperatures will impact the Containment Air Temperature limit value. Please provide historical data for the SW temperature and any potential adverse impact on the Containment Air Temperature limit due to higher outside temperatures.

**SNSB - RAI 4:**

Please verify that the requirement of assurance of equipment operability and containment integrity, as required by GL 96-06, will be met during operating with higher Containment Air Temperature limit.

**Long Term Operations and Modernization Branch (ELTB)**

**ELTB - RAI 5:**

In the emergency license amendment request (LAR), under 'Equipment Qualification Evaluation,' the licensee states, " A temporary 2°F increase in the containment average air temperature is bounded by the existing equipment qualification (EQ) analyses, due to conservatism and margins in the existing test programs and calculations. Thus an increase from 120°F to 122°F for the containment average temperature limit will have no impact on the qualification status or qualified lives of existing equipment located in containment in the EQ Program scope."

- a. The licensee did not identify any of the above requirements in the emergency LAR; therefore, it is unclear to the staff which requirements the licensee is implying are being met in the evaluation provided in the section titled 'Equipment Qualification Evaluation.' Provide clarification on the applicable regulatory requirements for this evaluation. The licensee should also list these regulatory requirements in the 'Applicable Regulatory Requirements/Criteria' section of the emergency LAR. The staff notes that there is a significant difference in regulatory meaning between the terms 'equipment qualification' and 'environmental qualification'.
- b. Are there any non-environmentally qualified electric equipment important to safety within containment that is expected to perform a design function under normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents (e.g., equipment important to safety that is in a mild environment as defined in 10 CFR 50.49)? If so, please identify the equipment and provide a justification for the capability of the equipment to continue to perform its design function under the proposed increase in average temperature.

Best Regards,

**Dawnmathews T. Kalathiveettil**

Project Manager

Plant Licensing Branch (LPL 2-1)

DORL - O8 C02

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