

May 5, 2023

NL-23-0360

Docket Nos.: 50-424  
50-425U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555-0001

Vogtle Electric Generating Plant – Units 1 and 2  
Supplement to  
License Amendment Request and Exemptions to Allow  
Use of Lead Test Assemblies for Accident-Tolerant Fuel

By letter dated June 30, 2022, Southern Nuclear Operating Company (SNC) submitted a license amendment request (LAR) and exemptions to allow for the use of lead test assemblies (LTAs) to demonstrate operating characteristics for accident-tolerant fuel (ATF). On August 1, 2022, the U.S. Nuclear Regulatory Commission (NRC) staff notified SNC that requests for additional information (RAIs) were necessary early in their review. By letter dated September 13, 2022, SNC responded to the RAIs. In December 2022, NRC staff conducted an audit and requested additional information. By letter dated January 20, 2023, SNC responded to the audit with a Supplement to the LAR. By emails and teleconference on April 27-28, 2023, SNC and the NRC staff discussed two clarifications of the ATF submittal. In response, SNC submits the following Supplement.

First, enclosure 1 provides clarifying details to the technical specification (TS) 4.2.1 mark-up that align with Section 3.4 of the LAR Technical Evaluation. The revised mark-up clarifies that the LTAs are permitted to be placed in limiting core locations (under steady-state and transient conditions) with the exception that the LTAs will be placed in core locations that have been shown to be non-limiting with respect to the rod ejection analysis. Enclosure 1 revises the TS 4.2.1 mark-up submitted on September 13, 2022 in response to RAIs (SNC NL-22-0609; NRC ML22256A198). A clean TS page is also included.

Second, SNC clarifies that the request for exemption to 10 CFR 50.46 and Appendix K is only applicable for Unit 2. The LAR and the request for exemption for 10 CFR 50.68 are applicable to both Unit 1 and Unit 2 as both Units share the new fuel storage area.

The conclusions of the No Significant Hazards Consideration Determination Analysis and Environmental Consideration contained in the LAR have been reviewed and are unaffected by this Supplement.

This letter contains no NRC commitments.

In accordance with 10 CFR 50.91, SNC is notifying the state of Georgia of this license amendment RAI response by transmitting a copy of this letter to the designated state official.

If you have any questions, please contact Ryan Joyce at 205.992.6468.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 5, 2023.

A handwritten signature in black ink, appearing to read "R. Keith Brown". The signature is written in a cursive style with a horizontal line at the end.

R. Keith Brown  
Regulatory Affairs Director  
Southern Nuclear Operating Company

efb/cbg

Enclosure 1: Revision to Markup of TS 4.2.1 in NL-22-0609

cc: Regional Administrator, Region II  
NRR Project Manager – Vogtle 1&2  
Senior Resident Inspector – Vogtle 1&2  
State of Georgia Environmental Protection Division  
RType: CVC7000

**Vogtle Electric Generating Plant – Units 1 and 2  
Supplement to  
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**ENCLOSURE 1**

**Revision to Markup of TS 4.2.1 in NL-22-0609**

## 4.0 DESIGN FEATURES

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### 4.1 Site

#### 4.1.1 Site and Exclusion Area Boundaries (EAB)

The VEGP site and EAB consist of approximately 3,169 acres in eastern Georgia on the west side of the Savannah River about 26 miles southeast of Augusta, Georgia, and 15 miles east-northeast of Waynesboro, Georgia, in Burke County, Georgia. The nearest point to the EAB from the VEGP Reactors is the near bank of the Savannah River. Reactor 1 is approximately 3600 feet from the EAB and Reactor 2 is approximately 3900 feet from the EAB.

#### 4.1.2 Low Population Zone (LPZ)

The LPZ is that area falling within a 2-mile radius from the midpoint between the containment buildings.

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### 4.2 Reactor Core

#### 4.2.1 Fuel Assemblies

The reactor shall contain 193 fuel assemblies. Each assembly shall consist of a matrix of Zircaloy, ZIRLO<sup>®</sup>, or Optimized ZIRLO<sup>™</sup> clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO<sub>2</sub>) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies ([LTAs](#)) that have not completed representative testing may be placed in nonlimiting core regions. [In addition, LTAs 7ST1, 7ST2, 7ST3, and 7ST4, which contain fuel rods that include advanced coated cladding features, doped or standard fuel material, and up to four fuel rods with a maximum nominal U-235 enrichment of 6.0 weight percent, are permitted to be placed in limiting core regions for up to two cycles of operation without completion of representative testing. These LTAs cannot be placed in core regions that have been shown to be limiting with respect to the control rod ejection analysis.](#)

#### 4.2.2 Control Rod Assemblies

The reactor core shall contain 53 control rod assemblies. The control material shall be silver-indium-cadmium, or hafnium metal as approved by the NRC.

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