Southern Nuclear
Operating Company, Inc.
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U.S. Nuclear Regulatory Commission
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Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Response to Request for Additional Information Related to
Request for License Amendment and Exemption:
Compressed and Instrument Air System High Pressure Air Subsystem Changes (LAR-14-009S)

Ladies and Gentlemen:

By letter dated August 14, 2014, Southern Nuclear Operating Company (SNC) submitted a request for a license amendment and exemption (LAR-14-009, SNC correspondence ND-14-1228). This LAR requested changes to the Updated Final Safety Analysis Report (UFSAR) in the form of departures from the incorporated plant-specific Design Control Document (DCD) Tier 2 information, and involved changes to related plant-specific Tier 1 information, with corresponding changes to the associated COL Appendix C information to remove a supply line from the Compressed and Instrument Air System to the main generator breaker package. The Nuclear Regulatory Commission (NRC) staff issued Request for Additional Information (RAI) Letter No. 1, also referred to as electronic RAI (eRAI) 7769, via electronic mail dated December 2, 2014 [ADAMS Accession No. ML14336A703]. Enclosure 4 to this letter provides the response to RAI Letter No. 1. Enclosures 1, 2, and 3 were provided with the original submittal of the LAR.

The supplemental information provided in this letter does not impact the scope or conclusions of the technical evaluation, regulatory evaluation (including the significant hazards consideration determination), or environmental considerations of the original LAR or exemption request. This letter contains no regulatory commitments.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia of this LAR supplement by transmitting a copy of this letter and enclosure to the designated State Official.

Should you have any questions, please contact Mr. Jason Redd at (205) 992-6435.

Mr. Wesley A. Sparkman states that: he is a Licensing Manager of Southern Nuclear Operating Company; he 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.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Wesley A. Sparkman

WAS/SSS/ljs

*Sworn to and subscribed before me this* 16th *day of* January, *2015*

*Notary Public:* Deborah Anne Gavorka

*My commission expires:* October 24, 2016

Enclosure: 4) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Response to NRC Request for Additional Information Letter No. 1 Related to LAR-14-009

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**Southern Nuclear Operating Company**

**Vogtle Electric Generating Plant Units 3 and 4**

**ND-15-0073**

**Enclosure 4**

# Response to NRC Request for Additional Information Letter No. 1 Related to LAR-14-009

**(This enclosure contains three pages including this cover page)**

**eRAI Tracking No. 7769**

**Question 1:**

In Enclosure1, Section 2 of the license amendment request (LAR), the licensee stated that the generator circuit breaker (GCB) is capable of carrying and interrupting the normal load current and interrupting the maximum available root mean square (RMS) symmetrical and asymmetrical fault current produced by the main generator or the sum of the bolted three-phase fault currents associated with the plant motor house loads and the switchyard. However, the staff could not find supporting information that demonstrates the capacity and capability of the GCB.

Please provide a detailed summary of the evaluation, including applicable supporting technical references, that shows that the SF6 gas type GCB ratings and capabilities are consistent with the conditions as defined in Institute of Electrical and Electronics Engineers Standard C37.013, "Standard for AC High Voltage Generator Circuit Breakers Rated on a Symmetrical Current Basis," and meet the performance tests and capabilities as stated in NUREG-0800, Section 8.2, Appendix A.

**Response to Question 1:**

The GCB is designed and tested in accordance with Institute of Electrical and Electronics Engineers Standard C37.013. Detailed information regarding the design and ratings of the GCB may be found in the design specifications for the GCB. Supporting calculations also exist for determining the required ratings of the GCB. The ratings verified by the calculation include the required voltage and continuous current ratings, required symmetrical short circuit current interrupting capability, required asymmetrical short circuit current interrupting capability and required close-latching capability. Both the design specification and supporting calculations can be made available for NRC review. No change in compliance to NUREG-0800 is made with the change from an implied air-blast technology breaker to a sulfur hexafluoride (SF6) technology breaker. The breaker must meet all technical load carrying, load make/break, and fault interrupt requirements independent of implementing technology.

**Question 2:**

In Enclosure 1, Section 2 of the LAR, the licensee stated that changing from an air-blast to a SF6 gas type GCB does not adversely affect any GCB function.

Please describe the functional and operational requirements, including surveillance and maintenance, that are in place to ensure that the SF6 type GCB and its support systems will perform their intended design functions.

**Response to Question 2:**

The licensee is changing the GCB from an air-blast type breaker to a SF6 type breaker. The new breaker is an ABB Generator Circuit-Breaker System HEC 9 and uses SF6 gas to insulate and quench arcs during operation versus using compressed air to extinguish the arc. The GCB performs the functions listed below. A change in the arc extinguishing medium does not adversely affect these functions.

- Carries the full load current of the generator and ensures the required insulation level at all times
- Connects the synchronized generator with the step-up transformer
- Separates the electrical connection between the generator and step-up transformer
- Interrupts load currents up to the full load current of the generator
- Interrupts transformer-fed short-circuit currents
- Interrupts generator-fed short-circuit currents

Along with the change in the arc extinguishing medium, there are also changes in maintenance strategies associated with the different technology. There are no Technical Specification or Technical Requirements Manual surveillance requirements associated with the GCB. Development of the maintenance strategies is a part of the SNC Equipment Reliability Program. Currently the maintenance strategies have not been determined; however, they will be established consistent with the vendor recommendations listed in the owner's manual. Available industry best practices will also be considered for inclusion. SF6 gas will be handled in accordance with Southern Company's policy and procedures for use and handling of SF6 gas.