

August 10, 2018

Docket Nos.: 52-025
52-026

ND-18-1040
10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

**Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Supplement to the Request for License Amendment:
Technical Specification Changes to Support Operability During Mode 5
Vacuum Fill Operations (LAR-18-009S1)**

Ladies and Gentlemen:

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) requested an amendment to the combined licenses (COLs) for Vogtle Electric Generating Plant (VEGP) Units 3 and 4 (License Numbers NPF-91 and NPF-92, respectively) by SNC letter ND-18-0374 (LAR-18-009), dated April 13, 2018 [ADAMS Accession Number ML181031A252]. The requested amendment proposed changes to COL Appendix A, Technical Specifications (TS), and departures from the Updated Final Safety Analysis Report (UFSAR) (which includes the plant-specific DCD Tier 2 information) with changes which conform with the requested TS changes.

This letter supplements LAR-18-009 to respond to the NRC Staff Request for Additional Information (RAI), which was transmitted to SNC on July 3, 2018 [ADAMS Accession Number ML18192C078].

There are no changes to Enclosures 1, 2, or 3, which were included in the original submittal of LAR-18-009, as a result of this supplement.

Enclosure 4 of this letter provides the SNC response to the RAI.

The information provided in this License Amendment Request (LAR) supplement does not impact the scope, technical content, or conclusions of the Significant Hazards Consideration Determination or the Environmental Considerations of the original LAR-18-009 provided in Enclosures 1 and 2 of SNC letter ND-18-0374.

This letter contains no regulatory commitments. This letter has been reviewed and determined not to contain security-related information.

SNC requests NRC staff approval of the LAR by October 12, 2018. Approval by this date will allow sufficient time to implement licensing basis changes necessary to support procedure development in relation to conducting the necessary operator training to support plant operations.

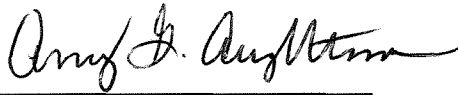
SNC expects to implement this proposed amendment within 30 days of approval of the requested changes.

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 its enclosures to the designated State Official.

Should you have any questions, please contact Mr. Wesley Sparkman at (205) 992-5061.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 10th of August 2018.

Respectfully submitted,



Amy Aughtman
Licensing Manager, Regulatory Affairs
Southern Nuclear Operating Company

Enclosures 1) through 3) Previously submitted with the original LAR, LAR-18-009

- 4) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 –
Supplement to the Request for License Amendment Regarding
Technical Specification Changes to Support Operability During
Mode 5 Vacuum Fill Operations (LAR-18-009S1)

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Southern Nuclear Operating Company

ND-18-1040

Enclosure 4

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

**Supplement to the Request for License Amendment Regarding
Technical Specification Changes to Support Operability During Mode 5
Vacuum Fill Operations
(LAR-18-009S1)**

(This Enclosure consists of 3 pages, including this cover page)

The NRC requested the following information regarding LAR-18-009 in a request for additional information (RAI) dated July 3, 2018. The RAI is available in NRC ADAMS under Accession Number ML18192C078.

RAI Question

10 CFR Part 50, Appendix A, General Design Criterion (GDC) 34, "Residual heat removal", requires the plant design to provide a system to remove residual heat. The safety system function shall be to transfer fission product decay heat and other residual heat from the reactor core at a rate such that specified acceptable fuel design limits and the design conditions of the reactor coolant pressure boundary are not exceeded.

License Amendment Request (LAR) 18-009 states "In MODE 5, vacuum fill configuration, the PRHR HX is not credited in the safety analysis to remove decay heat. If decay heat removal by the RNS is lost during vacuum fill, the heat removal function is provided by the vent path through the ADS valves and the injection flow path from the IRWST with containment closure capability provided."

NRC staff is seeking clarification regarding the referenced safety analysis in order to establish a finding that the supporting safety analysis is acceptable.

Specifically, NRC staff documented their examination of APP-SSAR-GEF-088, Revision 0, "Small Break LOCA (SBLOCA), Loss of Normal Residual Heat Removal System (RNS) Cooling, and Long Term Core Cooling Mass and Energy Release Assessment of Outstanding Design Debt," Attachment D, "Shutdown Loss-of-RNS Debt Assessment Evaluation," in an audit summary associated with LAR 17-027, "Reactor Coolant System Vacuum Fill and ITAAC for Containment Floodup" (ML18074A142) and needs to confirm whether this same analysis is supporting LAR 18-009. Accordingly, NRC staff requests that the licensee (1) confirm that Attachment D of APP-SSAR-GEF-088 is the safety analysis that is referenced in LAR 18-009, and (2) provide a brief summary of the supporting safety analysis describing the evaluation model, input parameters and initial conditions (including which equipment is operable and credited for event mitigation), and the analysis conclusions.

SNC RAI Response

- (1) The loss of Normal Residual Heat Removal System (RNS) cooling safety analysis cited in License Amendment Request (LAR)-18-009 is Appendix D of APP-SSAR-GEF-088, which is the same analysis that was audited by the NRC Staff in review of LAR-17-027.
- (2) This analysis is performed using the NOTRUMP code, which is consistent with the approved loss of RNS analysis presented in UFSAR Subsections 19E.4.8.2 and 19E.4.8.3. This code is also used for UFSAR Chapter 15 small break loss of coolant accident (LOCA) analyses. The analysis was performed using the small break LOCA model with conditions and equipment tailored to the MODE 5 scenario. Conservatively, the decay heat modeled for the MODE 5 vacuum refill configuration analysis was the 10 CFR 50 Appendix K decay heat, which is also used in the small break LOCA model. For additional conservatism, the decay heat for the MODE 5 vacuum refill configuration analysis was initialized at 24 hours post shutdown even though the equipment availability represents the greater than 28-hour post shutdown configuration with additional conservatisms outlined below. The simulation was modeled with Reactor Coolant System (RCS) conditions reflective of pressurizer full

conditions with temperatures representative of RCS open. This set of conditions maintained the challenging Automatic Depressurization System (ADS) Stages 1, 2, and 3 venting scenario that exists for the RCS open case and did not further reduce RCS temperatures.

The analysis equipment availability and the equipment credited in the simulation is:

- Accumulators – Isolated and not credited
- Core Makeup Tanks – Not credited
- Passive Residual Heat Removal – Not credited
- In-Containment Refueling Water Storage Tank – One flow path operable and credited
- ADS Stages 1, 2, and 3 – One of each ADS Stages 1, 2, and 3 common to one inlet header operable, but only one ADS Stage 2 flow path is credited ^[1]
- ADS Stage 4 – Three flow paths operable, but only two flow paths are credited, assuming single failure of one ADS Stage 4 flow path ^[1]

^[1] In addition to assuming the single failure scenario of a loss of one available ADS Stage 4 flow path, the analysis assumes an additional failure by assuming the loss of both of the available ADS Stage 1 and ADS Stage 3 flow paths.

As discussed in the analysis, the event is successfully mitigated using the assumed credited equipment with the two-phase mixture level being maintained above the top of the active fuel.