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10 CFR 52.99(c)(1)

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 3
ITAAC Closure Notification on
Completion of ITAAC 2.1.01.07.iii [Index Number 10]

Ladies and Gentlemen:

In accordance with 10 CFR 52.99(c)(1), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of Vogtle Electric Generating Plant (VEGP) Unit 3 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.1.01.07.iii [Index Number 10] for verifying that the calculated effective neutron multiplication factor for the new and spent fuel storage racks meets the requirements of 10 CFR 50.68 limits during design basis seismic events. The closure process for this ITAAC is based on the guidance described in NEI 08-01, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52," which was endorsed by the NRC in Regulatory Guide 1.215.

This letter contains no new NRC regulatory commitments. Southern Nuclear Operating Company (SNC) requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact David Woods at 706-848-6903.

Respectfully submitted,

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Regulatory Affairs Director Vogtle 3&4
MJY/BH/amm

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**Southern Nuclear Operating Company
ND-16-1006
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 3
Completion of ITAAC 2.1.01.07.iii [Index Number 10]**

ITAAC Statement

Design Commitment:

7. The new and spent fuel storage racks maintain the effective neutron multiplication factor required by 10 CFR 50.68 limits during normal operation, design basis seismic events, and design basis dropped spent fuel assembly accidents over the spent fuel storage racks.

Inspections, Tests, Analyses:

- iii) Seismic analysis of the new and spent fuel storage racks will be performed.

Acceptance Criteria:

- iii) A report exists and concludes that the new and spent fuel racks can withstand seismic design basis dynamic loads and maintain the calculated effective neutron multiplication factor required by 10 CFR 50.68⁽¹⁾ limits.

Note:

1. The requirements of 10 CFR 50.68 are summarized as follows:
 - For new fuel storage racks:
 - The effective neutron multiplication factor (K-effective) must not exceed 0.95 when flooded with unborated water and
 - K-effective must not exceed 0.98 with optimum moderator conditions.
 - For spent fuel storage racks:
 - If methodology does not take credit for soluble boron:
 - K-effective must not exceed 0.95 when flooded with unborated water.
 - Or if methodology takes credit for soluble boron:
 - K-effective must not exceed 0.95 when flooded with borated water and
 - K-effective must remain below 1.0 when flooded with unborated water.

ITAAC Determination Basis

Multiple Inspections Tests, Analyses and Acceptance Criteria (ITAAC) are used to verify the new and spent fuel storage racks maintain the effective neutron multiplication factor required by 10 CFR 50.68 limits during normal operation, design basis seismic events, and design basis dropped spent fuel assembly accidents over the spent fuel storage racks. This ITAAC requires that a seismic analysis be performed and a report exist that concludes the new and spent fuel racks can withstand seismic design basis dynamic loads and maintain the calculated effective neutron multiplication factor required by 10 CFR 50.68 limits.

The requirements of 10 CFR 50.68 are summarized as follows:

- For new fuel storage racks:
 - The effective neutron multiplication factor (K-effective) must not exceed 0.95 when flooded with unborated water and
 - K-effective must not exceed 0.98 with optimum moderator conditions.

- For spent fuel storage racks:
 - If methodology does not take credit for soluble boron:
 - K-effective must not exceed 0.95 when flooded with unborated water.
 - Or if methodology takes credit for soluble boron:
 - K-effective must not exceed 0.95 when flooded with borated water and
 - K-effective must remain below 1.0 when flooded with unborated water.

The AP1000 new and spent fuel storage racks are designed as Seismic Category 1 equipment. The seismic/structural analyses for the AP1000 new and spent fuel storage racks have been performed in accordance with American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section III (Reference 1). Seismic loads were established using the AP1000 Safe Shutdown Earthquake floor response spectra.

The criticality analyses for the AP1000 new fuel storage rack and spent fuel storage racks have been conducted to comply with the requirements of 10 CFR 50.68. The analyses employ the KENO version V.a model for the new fuel storage rack, and Monte Carlo N-Particle Transport Code (MCNP) version 4A, for the spent fuel storage racks. Each analysis evaluated a three dimensional model of the fuel storage racks filled with a maximum 5.0 weight-percent U-235 Westinghouse AP1000 17x17 fuel assemblies. The new fuel storage rack is modeled inside a concrete vault optimally moderated and fully flooded with unborated water. The spent fuel storage racks are modeled inside a pool fully flooded with borated and unborated water.

The results as documented in the structural/seismic analyses for the new fuel storage rack (Reference 2) and the spent fuel storage rack (Reference 3) demonstrate the racks meet the requirements for structural integrity under seismic loads since stress conditions have a safety factor greater than 1.0 and are within the ASME allowable limits.

The results as documented in the criticality analysis for the new fuel storage rack (Reference 4) and the criticality analysis for the spent fuel storage racks (Reference 5) demonstrate the maximum K-effective value for the new storage rack is 0.9205, and the spent fuel storage racks is 0.9207 (with borated water) and 0.9950 (with unborated water) which meet the ITAAC acceptance criteria.

ITAAC Finding Review

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all ITAAC findings pertaining to the subject ITAAC and associated corrective actions. This review found that there are no relevant ITAAC findings associated with this ITAAC. The ITAAC completion review document number is included in the Vogtle Unit 3 ITAAC Completion Package for ITAAC 2.1.01.07.iii (Reference 6) and available for NRC inspection.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.1.01.07.iii was performed for VEGP Unit 3 and that the prescribed acceptance criteria are met.

Systems, structures, and components verified as part of this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

References (available for NRC inspection)

1. ASME Boiler and Pressure Vessel Code Section III, 1998 Edition with 2000 Addenda.
2. APP-GW-GLR-026, Rev 5, New Fuel Storage Rack Structural/Seismic Analysis
3. APP-GW-GLR-033, Rev 5, Spent Fuel Storage Racks Structural/Seismic Analysis
4. APP-GW-GLR-030, Rev. 0, New Fuel Storage Rack Criticality Analysis
5. APP-GW-GLR-029, Rev. 4, AP1000 Spent Fuel Storage Racks Criticality Analysis
6. SVP_SV0_003953, Attachment 1, Submittal of Inspections, Test, Analyses and Acceptance Criteria (ITAAC) Completion Package for Unit 3 ITAAC 2.1.01.07.iii (COL Index Number 10) (Spent Fuel Storage Racks Structural/Seismic Analysis)