

July 1, 2023

Docket No.: 52-026

ND-23-0500
10 CFR 52.99(c)(1)

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

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 4
ITAAC Closure Notification on Completion of ITAAC 3.3.00.07d.ii.a [Index Number 800]

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 4 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 3.3.00.07d.ii.a [Index Number 800]. This ITAAC verified that physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables inside containment. 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 is 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.

This letter contains no new NRC regulatory commitments.

If there are any questions, please contact Kelli Roberts at 706-848-6991.

Respectfully submitted,



Jamie M. Coleman
Regulatory Affairs Director Vogtle 3 & 4

Enclosure 1: Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 3.3.00.07d.ii.a [Index Number 800]

JMC/CSS/sfr

U.S. Nuclear Regulatory Commission

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cc: Regional Administrator, Region II
Director, Office of Nuclear Reactor Regulation (NRR)
Director, Vogtle Project Office NRR
Senior Resident Inspector – Vogtle 3 & 4

**Southern Nuclear Operating Company
ND-23-0500
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 3.3.00.07d.ii.a [Index Number 800]**

ITAAC Statement

Design Commitment:

7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.

7.a) Class 1E electrical cables, communication cables associated with only one division, and raceways that route the Class 1E electrical cables and the communication cables are identified according to applicable color-coded Class 1E divisions.

7.b) Class 1E divisional electrical cables and communication cables associated with only one division are routed in their respective divisional raceways.

Inspections, Tests, Analyses:

Inspections of the as-built raceways that route Class 1E cables will be performed to confirm that the separation between raceways that route Class 1E cables of different divisions, and between raceways that route Class 1E cables and raceways that route non-Class 1E cables is consistent with the following:

ii.a) Within other plant areas (hazard areas), the minimum separation is defined by one of the following:

- 1) The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet.
- 2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables $\leq 2/0$ AWG. This minimum vertical separation is 3 inches for the configuration with a conduit above and crossing the open tray at an angle equal to or greater than 45 degrees.
- 3) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches between a conduit and an open configuration for low-voltage power cables greater than 2/0 AWG but not greater than 750 kcmil. The vertical separation is 3 inches if a conduit is above and crossing an open tray at an angle equal to or greater than 45 degrees.
- 4) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch.
- 5) For configurations involving an enclosed raceway and an open raceway with low-voltage power cables, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.
- 6) For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.

7) The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch for configurations with a non-safety conduit and a free air safety cable with low-voltage power cables and below.

iii) Where minimum separation distances are not maintained, the circuits are run in enclosed raceways or barriers are provided.

iv) Separation distances less than those specified above and not run in enclosed raceways or provided with barriers are based on analysis.

v) Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is considered as associated circuits and subject to Class 1E requirements.

Inspections of the as-built Class 1E cables and the as-built raceways that route the Class 1E cables will be conducted.

Inspections of the as-built Class 1E divisional cables and the as-built raceways that route the Class 1E cables will be conducted.

Acceptance Criteria:

Results of the inspection will confirm that the separation between raceways that route Class 1E cables of different divisions, and between raceways that route Class 1E cables and raceways that route non-Class 1E cables is consistent with the following:

ii.a) Within other plant areas inside containment (hazard areas), the separation meets one of the following:

1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more.

2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables $\leq 2/0$ AWG. This minimum vertical separation may be reduced to 3 inches for the configuration with a conduit above and crossing the open tray at an angle equal to or greater than 45 degrees.

3) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches between a conduit and an open configuration for low-voltage power cables greater than 2/0 AWG but not greater than 750 kcmil. The vertical separation may be reduced to 3 inches if a conduit is above and crossing an open tray at an angle equal to or greater than 45 degrees.

4) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch.

5) For configurations that involve an enclosed raceway and an open raceway with low-voltage power cables, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.

6) For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.

7) The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch for configurations with a non-safety conduit and a free air safety cable with low-voltage power cables and below.

iii.a) Where minimum separation distances are not met inside containment, the circuits are run in enclosed raceways or barriers are provided.

iv.a) For areas inside containment, a report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.

v.a) For areas inside containment, non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.

a) Class 1E electrical cables, and communication cables associated with only one division, and the raceways that route these cables inside containment are identified by the appropriate color code.

a) Class 1E electrical cables and communication cables inside containment associated with only one division are routed in raceways assigned to the same division. There are no other safety division electrical cables in a raceway assigned to a different division.

ITAAC Determination Basis

Multiple ITAAC are performed to ensure that:

- Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables,
- Class 1E electrical cables, communication cables associated with only one division, and raceways that route the Class 1E electrical cables and the communication cables are identified according to applicable color-coded Class 1E divisions, and
- Class 1E divisional electrical cables and communication cables associated with only one division are routed in their respective divisional raceways.

This ITAAC requires inspections of the Class 1E cables and as-built raceways that route Class 1E cables inside containment to confirm that:

- Physical separation between raceways that route Class 1E cables of different divisions and between raceways that route Class 1E cables and raceways that route non-Class 1E cables meet the specified separation criteria,
- Cables and raceways associated with only one division are identified by the appropriate color code, and
- Divisional cables are routed in raceways assigned to the same division and that there are no other safety division electrical cables in a raceway assigned to a different division.

Class 1E cables, raceways that route Class 1E cables and non-Class 1E cables, and barriers are all designed to meet the specified Acceptance Criteria in accordance with APP-GW-E1-001 (Reference 1). Class 1E electrical cables, raceways that route Class 1E cables and non-Class 1E cables, and barriers are installed in accordance with design drawings, installation specifications issued for construction, and work package requirements. Completed raceway installation, in-progress and completed cable installation, completed cable terminations, and completed barriers are inspected to ensure the installation specifications are satisfied. Inspections are performed in accordance with the Quality Verification Program 26139-000-4MP-T81C-N7101 (Reference 2), the Westinghouse Quality Management System, QMS-A (Reference 8), or the Quality Control Inspection Program, ND-EN-VNP-020 (Reference 3). The completed inspection records document:

- The satisfactory separation between raceways that route Class 1E cables of different divisions, and between raceways that route Class 1E cables and raceways that route non-Class 1E cables,
- The satisfactory color coding of the Class 1E electrical cables, communication cables associated with only one division, and raceways, and
- The satisfactory routing of the Class 1E electrical cables and communication cables associated with only one division in raceways assigned to the same division and that there are no other safety division electrical cables in a raceway assigned to a different division.

The ITAAC Technical Report (Reference 4) identifies the inspections performed and confirms the following:

- The separation between raceways that route Class 1E cables of different divisions, and between raceways that route Class 1E cables and raceways that route non-Class 1E cables is consistent with the following:
 - Within other plant areas inside containment (hazard areas), the separation meets one of acceptance criteria ii.a.1 through ii.a.7.
 - Where minimum separation distances are not maintained inside containment, the circuits are run in enclosed raceways or barriers are provided.
 - For areas inside containment, a report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.
 - Analyses performed in accordance with standard IEEE 384-1981 are documented in References 5, 6, and 9 which demonstrate acceptability of lesser separation distances. These reports specifically conclude the following instances of lesser separation distances do not impact the ability of Class 1E circuits to perform their safety related functions: Fiber Optic Linear Heat Detection Cables, Service Level Z Instrumentation Cables, allowances based on service level, configuration, and fault vs. target circuit classification (Class 1E vs. non-Class 1E), and reduced separation distance for reactor coolant pump bearing water temperature sensing channels.

- For areas inside containment, non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.
 - As documented in Reference 5, the following associated circuits are installed in this area: Incore Instrument Thimble Assemblies at the Class 1E Core Exit Thermocouple from the Non-Class 1E Signal Processing System.
- Class 1E electrical cables, and communication cables associated with only one division, and the raceways that route these cables inside containment are identified by the appropriate color code.
- Class 1E electrical cables and communication cables inside containment associated with only one division are routed in raceways assigned to the same division. There are no other safety division electrical cables in a raceway assigned to a different division.

References 4, 5, 6, and 9 are available for NRC inspection as part of the Unit 4 ITAAC 3.3.00.07d.ii.a Completion Package (Reference 7).

List of ITAAC Findings

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all ITAAC findings and associated corrective actions. This review determined that one such finding, listed below, has been identified:

- a. Cable/Raceway Separation Nonconformances in the Containment associated with ITAAC 800 – Five nonconforming conditions were identified that did not meet ITAAC 800 for cable/raceway separation. To address these concerns, the following corrective actions were taken: three conditions were re-worked, inspected, and verified compliant, and two conditions were analyzed for reduced spatial distancing.

The corrective actions for this finding have been completed. The ITAAC completion review is documented in the ITAAC Completion Package for ITAAC 3.3.00.07d.ii.a (Reference 7) and is available for NRC review.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 3.3.00.07d.ii.a was performed for VEGP Unit 4 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. APP-GW-E1-001, Electrical Systems Design Criteria
2. 26139-000-4MP-T81C-N7101, Bechtel Construction Quality Verification Program
3. ND-EN-VNP-020, Quality Control Inspection Program
4. SV4-1100-ITR-800800, "Unit 4 Containment Electrical Report for ITAAC 800"
5. APP-GW-E0R-006, "IEEE 384 Design Compliance Description"
6. APP-FSAR-GEF-234, "Update IEEE 384-1981 Exceptions for Revised Cable and Raceway Minimum Separation Distances (NL-1491)"
7. 3.3.00.07d.ii.a-U4-CP-Rev0, ITAAC Completion Package
8. QMS-A, Westinghouse Quality Management System
9. SV4-1120-GEF-000024, "IEEE 384 Lessor Separation Distance for RCS-JE-TE213B/214B (ESR 50177350)"