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52-026

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ND-18-0175  
10 CFR 52.99(c)(3)

U.S. Nuclear Regulatory Commission  
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Southern Nuclear Operating Company  
Vogtle Electric Generating Plant Unit 3 and Unit 4  
Notice of Uncompleted ITAAC 225-days Prior to Initial Fuel Load  
Item 2.2.02.05a.i [Index Number 126]

Ladies and Gentlemen:

Pursuant to 10 CFR 52.99(c)(3), Southern Nuclear Operating Company hereby notifies the NRC that as of February 15, 2018, Vogtle Electric Generating Plant (VEGP) Unit 3 and Unit 4 Uncompleted Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.2.02.05a.i [Index Number 126] has not been completed greater than 225-days prior to initial fuel load. The Enclosure describes the plan for completing this ITAAC. Southern Nuclear Operating Company will, at a later date, provide additional notifications for ITAAC that have not been completed 225-days prior to initial fuel load.

This notification is informed by 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. In accordance with NEI 08-01, this notification includes ITAAC for which required inspections, tests, or analyses have not been performed or have been only partially completed. All ITAAC will be fully completed and all Section 52.99(c)(1) ITAAC Closure Notifications will be submitted to NRC to support the Commission finding that all acceptance criteria are met prior to plant operation, as required by 10 CFR 52.103(g).

This letter contains no new NRC regulatory commitments.

If there are any questions, please contact Tom Petrak at 706-848-1575.

Respectfully submitted,

Michael J. Yox  
Regulatory Affairs Director Vogtle 3 & 4

U.S. Nuclear Regulatory Commission

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Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 3 and Unit 4  
Completion Plan for Uncompleted ITAAC 2.2.02.05a.i [Index Number 126]

MJY/PGL/amw

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**Southern Nuclear Operating Company  
ND-18-0175  
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 3 and Unit 4  
Completion Plan for Uncompleted ITAAC 2.2.02.05a.i [Index Number 126]**

### **ITAAC Statement**

#### **Design Commitment:**

5.a) The seismic Category I components identified in Table 2.2.2-1 can withstand seismic design basis loads without loss of safety function.

6.a) The Class 1E components identified in Table 2.2.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

#### **Inspections, Tests, Analyses:**

i) Inspection will be performed to verify that the seismic Category I components and valves identified in Table 2.2.2-1 are located on the Nuclear Island.

ii) Type tests, analyses, or a combination of type tests and analyses of seismic Category I components will be performed.

iii) Inspection will be performed for the existence of a report verifying that the as-built components including anchorage are seismically bounded by the tested or analyzed conditions.

i) Type tests or a combination of type tests and analyses will be performed on Class 1E components located in a harsh environment.

ii) Inspection will be performed of the as-built Class 1E components and the associated wiring, cables, and terminations located in a harsh environment.

#### **Acceptance Criteria:**

i) The seismic Category I components identified in Table 2.2.2-1 are located on the Nuclear Island.

ii) A report exists and concludes that the seismic Category I components can withstand seismic design basis loads without loss of safety function.

iii) The report exists and concludes that the as-built components including anchorage are seismically bounded by the tested or analyzed conditions.

i) A report exists and concludes that the Class 1E components identified in Table 2.2.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ii) A report exists and concludes that the as-built Class 1E components and the associated wiring, cables, and terminations identified in Table 2.2.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

### **ITAAC Completion Description**

This ITAAC requires that inspections, tests, and analyses be performed and documented to ensure the Passive Containment Cooling System (PCS) components identified as seismic Category I or Class 1E in the Combined License (COL) Appendix C, Table 2.2.2-1 (the Table) are designed and constructed in accordance with applicable requirements.

**i) The seismic Category I components identified in Table 2.2.2-1 are located on the Nuclear Island.**

To assure that seismic Category I components can withstand seismic design basis loads without loss of safety function, all of the components in the Table are designed to be located on the seismic Category I Nuclear Island. In accordance with Equipment Qualification (EQ) Walkdown ITAAC Guideline (Reference 1), an inspection is conducted of the PCS to confirm the satisfactory installation of the seismically qualified components. The inspection includes verification of component make/model/serial number and verification of component location (Building, Elevation, Room). The EQ As-Built Reconciliation Reports (EQRR) (Reference 2) identified in Attachment A document the results of the inspection and conclude that the seismic Category I components are located on the Nuclear Island.

**ii) A report exists and concludes that the seismic Category I components can withstand seismic design basis loads without loss of safety function.**

Seismic Category I components in the Table require type tests and/or analyses to demonstrate structural integrity and operability. Structural integrity of the seismic Category I valves, as well as other passive seismic Category I mechanical components, is demonstrated by analysis in accordance with American Society of Mechanical Engineers (ASME) Code Section III (Reference 3). Functionality of the subset of active safety-related valves under seismic loads is determined using the guidance of ASME QME-1-2007 (Reference 4). Structural integrity of the passive containment cooling water storage tank (PCCWST) is demonstrated by analysis. Structural integrity of the water distribution bucket and water distribution weirs is demonstrated by analysis in accordance with ANSI/AISC N690-1994 (Reference 5).

Safety-related (Class 1E) electrical components in the Table are seismically qualified by type testing combined with analysis in accordance with Institute of Electrical and Electronics Engineers (IEEE) Standard 344-1987 (Reference 6). These components include safety-related (Class 1E) field sensors and the safety-related active valve accessories such as electric actuators, position switches, pilot solenoid valves and electrical connector assemblies. The specific qualification method (i.e., type testing, analysis, or combination) used for each component in the Table is identified in Attachment A. Additional information about the methods used to qualify AP1000 safety-related components is provided in the Updated Final Safety Analysis Report (UFSAR) Appendix 3D (Reference 7). The EQ Reports (Reference 8) identified in Attachment A contain applicable test reports and associated documentation and conclude that the seismic Category I components can withstand seismic design basis loads without loss of safety function.

**iii) The report exists and concludes that the as-built components including anchorage are seismically bounded by the tested or analyzed conditions.**

An inspection (Reference 1) is conducted to confirm the satisfactory installation of the

seismically qualified components in the Table. The inspection verifies the component make/model/serial number, as-designed component mounting orientation, anchorage and clearances, and electrical and other interfaces. The documentation of installed configuration of seismically qualified components includes photographs and/or sketches/drawings of component/mounting/interfaces.

As part of the seismic qualification program, consideration is given to the definition of the clearances needed around the component mounted in the plant, to permit the component to move during a postulated seismic event without causing impact between adjacent pieces of safety-related components. This is done as part of seismic testing by measuring the maximum dynamic relative displacement of the top and bottom of the components. EQ Reports (Reference 8) identify the component mounting employed for qualification and establish interface requirements for assuring that subsequent in-plant installation does not degrade the established qualification. Interface requirements are defined based on the test configuration and other design requirements.

Attachment A identifies the EQRR (Reference 2) completed to verify that the as-built seismic Category I components listed in the Table, including anchorage, are seismically bounded by the tested or analyzed conditions, IEEE Standard 344-1987 (Reference 6), and NRC Regulatory Guide (RG) 1.100 (Reference 9).

i) A report exists and concludes that the Class 1E components identified in Table 2.2.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

The harsh environment Class 1E components in the Table are qualified by type testing and/or analyses. Class 1E electrical component type testing is performed in accordance with IEEE Standard 323-1974 (Reference 10) and RG 1.89 (Reference 11), to meet the requirements of 10 CFR 50.49. Type testing of safety-related components meets the requirements of 10 CFR Part 50, Appendix A, General Design Criterion 4. Attachment A identifies the EQ program and specific qualification method for each safety-related mechanical or Class 1E electrical component located in a harsh environment. Additional information about the methods used to qualify AP1000 safety-related components is provided in the UFSAR Appendix 3D (Reference 7). EQ Reports (Reference 8) identified in Attachment A contain applicable test reports and associated documentation and conclude that the components can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ii) A report exists and concludes that the as-built Class 1E components and the associated wiring, cables, and terminations identified in Table 2.2.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

An inspection (Reference 1) is conducted of the PCS to confirm the satisfactory installation of the Class 1E components in the Table. The inspection verifies the component location, make/model/serial number, as-designed component mounting, wiring, cables, and terminations, and confirms that the environmental conditions for the zone (Attachment A) in which the component is mounted are bounded by the tested or analyzed conditions. It also documents the installed configuration with photographs and/or sketches/drawings of component mounting and connections. The EQRR (Reference 2) identified in Attachment A document this



inspection, and conclude that the as-built harsh environment Class 1E component and the associated wiring, cables, and terminations are bounded by the qualified configuration and IEEE Standard 323-1974 (Reference 10).

Together, these reports (References 2 and 8) provide evidence that the ITAAC Acceptance Criteria requirements are met:

- The seismic Category I components identified in Table 2.2.2-1 are located on the Nuclear Island;
- A report exists and concludes that the seismic Category I components can withstand seismic design basis loads without loss of safety function;
- The report exists and concludes that the as-built components including anchorage are seismically bounded by the tested or analyzed conditions;
- A report exists and concludes that the Class 1E components identified in Table 2.2.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function; and
- A report exists and concludes that the as-built Class 1E components and the associated wiring, cables, and terminations identified in Table 2.2.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

References 2 and 8 are available for NRC inspection as part of the Unit 3 and Unit 4 ITAAC 2.2.02.05a.i Completion Packages (References 12 and 13, respectively).

### **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, which included now consolidated ITAAC Indexes 127, 128, 131 and 132, found the following relevant ITAAC findings associated with this ITAAC:

- 1) Notice of Nonconformance 99900404/2012-201-04 (Closed)
- 2) Notice of Nonconformance 99901412/2012-201-02 (Closed)

Before submission of the ITAAC Closure Notification (ICN), corrective actions will be completed for relevant ITAAC findings.

### **References (available for NRC inspection)**

1. ND-xx-xx-001, "EQ Walkdown ITAAC Guideline"
2. EQ As-Built Reconciliation Reports (EQRR) as identified in Attachment A for Units 3 and 4

3. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section III, "Rules for Construction of Nuclear Power Plant Components," 1998 Edition, 2000 Addenda
4. ASME QME-1-2007, "Qualification of Active Mechanical Equipment Used in Nuclear Power Plants," The American Society of Mechanical Engineers, June 2007
5. ANSI/AISC N690-1994, "American National Standard Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities"
6. IEEE Standard 344-1987, "IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations"
7. Vogtle 3&4 Updated Final Safety Analysis Report Appendix 3D, "Methodology for Qualifying AP1000 Safety-Related Electrical and Mechanical Equipment"
8. Equipment Qualification (EQ) Reports as identified in Attachment A
9. Regulatory Guide 1.100, Rev. 2, "Seismic Qualification of Electric and Mechanical Equipment for Nuclear Power Plants"
10. IEEE Standard 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations"
11. Regulatory Guide 1.89, Rev 1, "Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants"
12. 2.2.02.05a.i-U3-CP-Rev X, "Completion Package for Unit 3 ITAAC 2.2.02.05a.i [Index Number 126]"
13. 2.2.02.05a.i-U4-CP-Rev X, "Completion Package for Unit 4 ITAAC 2.2.02.05a.i [Index Number 126]"
14. NEI 08-01, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52"

**Attachment A**

**System: Passive Containment Cooling System (PCS)**

<b>Component Name <sup>+</sup></b>	<b>Tag No. <sup>+</sup></b>	<b>Seismic Cat. I <sup>+</sup></b>	<b>Class 1E/Qual. for Harsh Envir. <sup>+ 3</sup></b>	<b>Envir. Zone <sup>1</sup></b>	<b>Envir Qual Program <sup>2</sup></b>	<b>Type of Qual.</b>	<b>EQ Reports (Reference 8)</b>	<b>As-Built EQRR (Reference 2) <sup>4</sup></b>
PCCWST	PCS-MT-01	Yes	-	N/A	N/A	Analysis	APP-XXX-XXX-XXX	2.2.02.05a.i-U3-EQRR-PCDXXX
Water Distribution Bucket	PCS-MT-03	Yes	-	N/A	N/A	Analysis	APP-MT05-S3C-002	2.2.02.05a.i-U3-EQRR-PCDXXX
Water Distribution Wiers ( <i>sic</i> )	PCS-MT-04	Yes	-	N/A	N/A	Analysis	APP-MT05-S3C-002	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Isolation Valve	PCS-PL-V001A	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV11-VBR-004 / APP-PV11-VBR-003	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Isolation Valve	PCS-PL-V001B	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV11-VBR-004 / APP-PV11-VBR-003	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Isolation Valve MOV	PCS-PL-V001C	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV01-VBR-012 / APP-PV01-VBR-011	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Isolation Block MOV	PCS-PL-V002A	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV01-VBR-012 / APP-PV01-VBR-011	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Isolation Block MOV	PCS-PL-V002B	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV01-VBR-012 / APP-PV01-VBR-011	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Isolation Block MOV	PCS-PL-V002C	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV01-VBR-012 / APP-PV01-VBR-011	2.2.02.05a.i-U3-EQRR-PCDXXX
PCS Recirculation Return Isolation Valve	PCS-PL-V023	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX

Component Name <sup>+</sup>	Tag No. <sup>+</sup>	Seismic Cat. I <sup>+</sup>	Class 1E/ Qual. for Harsh Envir. <sup>+ 3</sup>	Envir. Zone <sup>1</sup>	Envir Qual Program <sup>2</sup>	Type of Qual.	EQ Reports (Reference 8)	As-Built EQRR (Reference 2) <sup>4</sup>
PCCWST Supply to Fire Protection System Isolation Valve	PCS-PL-V005	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX
PCS Makeup to SFS Isolation Valve	PCS-PL-V009	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX
Water Makeup Isolation Valve	PCS-PL-V044	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX
Water Bucket Makeup Line Drain Valve	PCS-PL-V015	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX
Water Bucket Makeup Line Isolation Valve	PCS-PL-V020	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Long-Term Makeup Line Check Valve	PCS-PL-V039	Yes	-/No	N/A	N/A	Analysis	APP-PV03-VBR-014 / APP-PV03-VBR-013	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Long-Term Makeup Drain Isolation	PCS-PL-V042	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX
PCS Discharge to SFS Pool Isolation Valve	PCS-PL-V045	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX
Recirc Header Discharge to PCCWST Isolation Valve	PCS-PL-V046	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Drain Isolation Valve	PCS-PL-V049	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX

Component Name <sup>+</sup>	Tag No. <sup>+</sup>	Seismic Cat. I <sup>+</sup>	Class 1E/ Qual. for Harsh Envir. <sup>+ 3</sup>	Envir. Zone <sup>1</sup>	Envir Qual Program <sup>2</sup>	Type of Qual.	EQ Reports (Reference 8)	As-Built EQRR (Reference 2) <sup>4</sup>
Recirc Header Discharge to SFS Pool Isolation Valve	PCS-PL-V050	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Discharge to SFS Pool Isolation Valve	PCS-PL-V051	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U3-EQRR-PCDXXX
PCS Water Delivery Flow Sensor	PCS-001	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX
PCS Water Delivery Flow Sensor	PCS-002	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX
PCS Water Delivery Flow Sensor	PCS-003	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX
PCS Water Delivery Flow Sensor	PCS-004	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX
Containment Pressure Sensor	PCS-005	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX
Containment Pressure Sensor	PCS-006	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX
Containment Pressure Sensor	PCS-007	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX
Containment Pressure Sensor	PCS-008	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX
PCCWST Water Level Sensor	PCS-010	Yes	Yes/No	N/A	N/A	Type Testing	APP-JE52-VBR-002 / APP-JE52-VBR-001	2.2.02.05a.i-U3-EQRR-PCDXXX

Component Name <sup>+</sup>	Tag No. <sup>+</sup>	Seismic Cat. I <sup>+</sup>	Class 1E/ Qual. for Harsh Envir. <sup>+3</sup>	Envir. Zone <sup>1</sup>	Envir Qual Program <sup>2</sup>	Type of Qual.	EQ Reports (Reference 8)	As-Built EQRR (Reference 2) <sup>4</sup>
PCCWST Water Level Sensor	PCS-011	Yes	Yes/No	N/A	N/A	Type Testing	APP-JE52-VBR-002 / APP-JE52-VBR-001	2.2.02.05a.i-U3-EQRR-PCDXXX
High-range Containment Pressure Sensor	PCS-012	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX
High-range Containment Pressure Sensor	PCS-013	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX
High-range Containment Pressure Sensor	PCS-014	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U3-EQRR-PCDXXX

Notes:

+ Excerpt from COL Appendix C Table 2.2.2-1

1. See Table 3D.5-1 of UFSAR
2. E = Electrical Equipment Program (limit switch and the motor operator, squib operator, solenoid operator)  
\* = Harsh Environment
3. Dash (-) indicates not applicable
4. The Unit 4 As-Built EQRR are numbered "2.2.02.05a.i-U4-EQRR-PCDXXX"