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Southern Nuclear Operating Company  
Vogtle Electric Generating Plant Unit 3  
ITAAC Closure Notification on Completion of ITAAC 2.3.02.05.i [Index Number 291]

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 2.3.02.05.i [Index Number 291] to demonstrate that the Chemical and Volume Control System (CVS) equipment identified as seismic Category I or Class 1E in the Combined License (COL) Appendix C, Table 2.3.2-1 is designed and constructed in accordance with applicable requirements.

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 Kelli Roberts at 706-848-6991.

Respectfully submitted,

A handwritten signature in blue ink that reads "Michael J. Yox".

Michael J. Yox  
Regulatory Affairs Director Vogtle 3 & 4

Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 3  
Completion of ITAAC 2.3.02.05.i [Index Number 291]

MJY/BSZ/sfr

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**Southern Nuclear Operating Company  
ND-21-1022  
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 3  
Completion of ITAAC 2.3.02.05.i [Index Number 291]**

## **ITAAC Statement**

### **Design Commitment**

5. The seismic Category I equipment identified in Table 2.3.2-1 can withstand seismic design basis loads without loss of safety function.

6.a) The Class 1E equipment identified in Table 2.3.2-1 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 equipment identified in Table 2.3.2-1 is located on the Nuclear Island.

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

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

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

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

### **Acceptance Criteria**

i) The seismic Category I equipment identified in Table 2.3.2-1 is located on the Nuclear Island.

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

iii) A report exists and concludes that the as-built equipment including anchorage is seismically bounded by the tested or analyzed conditions.

i) A report exists and concludes that the Class 1E equipment identified in Table 2.3.2-1 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 equipment and the associated wiring, cables, and terminations identified in Table 2.3.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

### **ITAAC Determination Basis**

This ITAAC requires that inspections, tests, and analyses be performed and documented to ensure the Chemical and Volume Control System (CVS) equipment identified as seismic Category I or Class 1E in the Combined License (COL) Appendix C, Table 2.3.2-1 (the Table) is designed and constructed in accordance with applicable requirements.

**i) The seismic Category I equipment identified in Table 2.3.2-1 is located on the Nuclear Island.**

To assure that seismic Category I equipment can withstand seismic design basis loads without loss of safety function, all the equipment in the Table is designed to be located on the seismic Category I Nuclear Island. In accordance with Equipment Qualification (EQ) ITAAC As-built Walkdown Guideline and the EQ ITAAC As-built Installation Documentation Guideline (References 1 and 2), an inspection was conducted of the CVS to confirm the satisfactory installation of the seismically qualified equipment. The inspection includes verification of equipment make/model/serial number and verification of equipment location (Building, Elevation, Room). The EQ As-Built Reconciliation Report (EQRR) (Reference 3) identified in Attachment A documents the results of the inspection and concludes that the seismic Category I equipment is located on the Nuclear Island.

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

Seismic Category I equipment in the Table requires type tests and/or analyses to demonstrate structural integrity and operability. Structural integrity of the seismic Category I valves is demonstrated by analysis in accordance with American Society of Mechanical Engineers (ASME) Code Section III (Reference 4). Functionality of the subset of active safety-related valves under seismic loads is determined using the guidance of ASME QME-1-2007 (Reference 5).

Safety-related (Class 1E) electrical equipment in the Table is seismically qualified by type testing combined with analysis in accordance with Institute of Electrical and Electronics Engineers (IEEE) Standard 344-1987 (Reference 6). This equipment includes 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 piece of equipment in the Table is identified in Attachment A. Additional information about the methods used to qualify AP1000 safety-related equipment 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 equipment can withstand seismic design basis loads without loss of safety function.

**iii) A report exists and concludes that the as-built equipment including anchorage is seismically bounded by the tested or analyzed conditions.**

An inspection (References 1 and 2) was conducted to confirm the satisfactory installation of the seismically qualified equipment in the Table. The inspection verifies the equipment make/model/serial number, as-designed equipment mounting orientation, anchorage and clearances, and electrical and other interfaces. The documentation of installed configuration of

seismically qualified equipment includes photographs and/or sketches/drawings of equipment/mounting/interfaces.

As part of the seismic qualification program, consideration was given to the definition of the clearances needed around the equipment mounted in the plant to permit the equipment to move during a postulated seismic event without causing impact between adjacent pieces of safety-related equipment. When required, seismic testing measuring the maximum dynamic relative displacement of the top and bottom of the equipment was performed. EQ Reports (Reference 8) identify the equipment 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 3) completed to verify that the as-built seismic Category I equipment 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 equipment identified in Table 2.3.2-1 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 equipment in the Table is qualified by type testing and/or analyses. Class 1E electrical equipment type testing was 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 equipment 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 piece of safety-related mechanical equipment located in a harsh environment. Additional information about the methods used to qualify AP1000 safety-related equipment 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 equipment 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 equipment and the associated wiring, cables, and terminations identified in Table 2.3.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

An inspection (References 1 and 2) was conducted of the CVS to confirm the satisfactory installation of the Class 1E equipment in the Table. The inspection verified the equipment location, make/model/serial number, as-designed equipment mounting, wiring, cables, and terminations, and confirms that the environmental conditions for the zone (Attachment A) in which the equipment is mounted are bounded by the tested and/or analyzed conditions. It also documented the installed configuration with photographs or sketches/drawings of equipment mounting and connections. The EQRR (Reference 3) identified in Attachment A documents this inspection and concludes that the as-built harsh environment Class 1E equipment and the associated wiring, cables, and terminations are bounded by the qualified configuration and IEEE Standard 323-1974 (Reference 10).

Together, these reports (References 3 and 8) provide evidence that the ITAAC Acceptance Criteria requirements are met:

- The seismic Category I equipment identified in Table 2.3.2-1 is located on the Nuclear Island;
- A report exists and concludes that the seismic Category I equipment can withstand seismic design basis dynamic loads without loss of safety function;
- A report exists and concludes that the as-built equipment including anchorage is seismically bounded by the tested or analyzed conditions;
- A report exists and concludes that the Class 1E equipment identified in Table 2.3.2-1 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 equipment and the associated wiring, cables, and terminations identified in Table 2.3.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

References 3 and 8 are available for NRC inspection as part of the Unit 3 ITAAC 2.3.02.05.i Completion Package (Reference 12).

### **ITAAC Finding Review**

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 292, 293, 294 and 295, found the following relevant ITAAC findings associated with this ITAAC:

- 1) Notice of Nonconformance (NON) 99901412/2012-201-02 (Closed)

### **ITAAC Completion Statement**

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.3.02.05.i 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 the approved plant programs and procedures.

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

1. ND-RA-001-014, EQ ITAAC As-built Walkdown Guideline, Version 3.1
2. ND-RA-001-016, EQ ITAAC As-built Installation Documentation Guideline, Version 1.0



3. EQ As-Built Reconciliation Reports (EQRR) as identified in Attachment A for Unit 3
4. 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 with 2000 Addenda
5. ASME QME-1-2007, "Qualification of Active Mechanical Equipment Used in Nuclear Power Plants," The American Society of Mechanical Engineers, June 2007
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. 2.3.02.05.i-U3-CP-Rev0, ITAAC Completion Package

**Attachment A**

System: Chemical and Volume Control System (CVS)

Equipment Name +	Tag No. +	Seismic Cat. I +	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	As-Built EQRR
RCS Purification Motor-operated Isolation Valve	CVS-PL-V001	Yes	Yes/Yes	1	M * E S	Type Testing & Analysis	SV3-PV01-VBR-012 / SV3-PV01-VBR-011	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
RCS Purification Motor-operated Isolation Valve	CVS-PL-V002	Yes	Yes/Yes	1	M * E S	Type Testing & Analysis	SV3-PV01-VBR-012 / SV3-PV01-VBR-011	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
RCS Purification Motor-operated Isolation Valve	CVS-PL-V003	Yes	Yes/Yes	1	M * E S	Type Testing & Analysis	SV3-PV01-VBR-014 / SV3-PV01-VBR-013	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Resin Flush Line Containment Isolation Valve	CVS-PL-V040	Yes	- / -	NA	NA	Type Testing & Analysis	SV3-PV10-VBR-008 / SV3-PV10-VBR-007	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Resin Flush Line Containment Isolation Valve	CVS-PL-V041	Yes	- / -	NA	NA	Type Testing & Analysis	SV3-PV10-VBR-008 / SV3-PV10-VBR-007	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Demineralizer Resin Flush Line Containment Isolation Thermal Relief Valve	CVS-PL-V042	Yes	- / -	NA	NA	Type Testing & Analysis	SV3-PV16-VBR-002 / SV3-PV16-VBR-001	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Letdown Containment Isolation Valve	CVS-PL-V045	Yes	Yes/Yes	1	M * E S	Type Testing & Analysis	SV3-PV14-VBR-002 / SV3-PV14-VBR-001	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Letdown Containment Isolation Valve	CVS-PL-V047	Yes	Yes/No	NA	NA	Type Testing & Analysis	SV3-PV14-VBR-002 / SV3-PV14-VBR-001	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Letdown Line Containment Isolation Thermal Relief Valve	CVS-PL-V058	Yes	- / -	NA	NA	Type Testing & Analysis	SV3-PV16-VBR-002 / SV3-PV16-VBR-001	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Makeup Return Line Bypass Check Valve	CVS-PL-V067	Yes	- / -	NA	NA	Type Testing & Analysis	SV3-PV02-VBR-012 / SV3-PV02-VBR-011	2.3.02.05.i-U3-EQRR-PCD001-Rev 0

Equipment Name +	Tag No. +	Seismic Cat. I +	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	As-Built EQRR
CVS Purification Return Line Pressure Boundary Check Valve	CVS-PL-V080	Yes	- / -	NA	NA	Analysis	SV3-PV03-VBR-014 / SV3-PV03-VBR-013	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Purification Return Line Pressure Boundary Isolation Check Valve	CVS-PL-V081	Yes	- / -	NA	NA	Type Testing & Analysis	SV3-PV14-VBR-190002 / SV3-PV14-VBR-190001	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Purification Return Line Pressure Boundary Check Valve	CVS-PL-V082	Yes	- / -	NA	NA	Analysis	SV3-PV03-VBR-014 / SV3-PV03-VBR-013	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Auxiliary Pressurizer Spray Line Pressure Boundary Valve	CVS-PL-V084	Yes	Yes/Yes	1	M * E S	Type Testing & Analysis	SV3-PV14-VBR-002 / SV3-PV14-VBR-001	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Auxiliary Pressurizer Spray Line Pressure Boundary Check Valve	CVS-PL-V085	Yes	- / -	NA	NA	Analysis	SV3-PV02-VBR-012 / SV3-PV02-VBR-011	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Makeup Line Containment Isolation Motor-operated Valve	CVS-PL-V090	Yes	Yes/No	NA	NA	Type Testing & Analysis	SV3-PV01-VBR-012 / SV3-PV01-VBR-011	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Makeup Line Containment Isolation Motor-operated Valve	CVS-PL-V091	Yes	Yes/Yes	1	M * E S	Type Testing & Analysis	SV3-PV01-VBR-012 / SV3-PV01-VBR-011	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Zinc Injection Containment Isolation Valve ORC	CVS-PL-V092	Yes	Yes/Yes	10	M * E S	Type Testing & Analysis	SV3-PV14-VBR-002 / SV3-PV14-VBR-001	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Zinc Injection Containment Isolation Valve IRC	CVS-PL-V094	Yes	Yes / Yes	1	M * E S	Type Testing & Analysis	SV3-PV14-VBR-002 / SV3-PV14-VBR-001	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Zinc Addition Line Ctmt Isol Thermal Relief Valve	CVS-PL-V098	Yes	- / -	NA	NA	Type Testing & Analysis	SV3-PV16-VBR-002 / SV3-PV16-VBR-001	2.3.02.05.i-U3-EQRR-PCD001-Rev 0

Equipment Name +	Tag No. +	Seismic Cat. I +	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	As-Built EQRR
CVS Makeup Line Containment Isolation Thermal Relief Valve	CVS-PL-V100	Yes	- / -	NA	NA	Analysis	SV3-PV02-VBR-012 / SV3-PV02-VBR-011	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Demineralized Water Isolation Valve	CVS-PL-V136A	Yes	Yes/No	NA	NA	Type Testing & Analysis	SV3-PV11-VBR-004 / SV3-PV11-VBR-003	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Demineralized Water Isolation Valve	CVS-PL-V136B	Yes	Yes/No	NA	NA	Type Testing & Analysis	SV3-PV11-VBR-004 / SV3-PV11-VBR-003	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Hydrogen Injection Containment Isolation Check Valve IRC	CVS-PL-V217	Yes	- / -	NA	NA	Analysis	SV3-PV02-VBR-017 / SV3-PV02-VBR-018	2.3.02.05.i-U3-EQRR-PCD001-Rev 0
CVS Hydrogen Injection Containment Isolation Valve ORC	CVS-PL-V219	Yes	Yes/Yes	10	M * E S	Type Testing & Analysis	SV3-PV14-VBR-002 / SV3-PV14-VBR-001	2.3.02.05.i-U3-EQRR-PCD001-Rev 0

Notes:

+ Excerpt from COL Appendix C Table 2.3.2-1

1. See Table 3D.5-1 of UFSAR
2. E - Electrical Equipment Program (limit switch and the motor operator, squib operator, solenoid operator)  
 M - Mechanical Equipment Program (valve)  
 S = Qualified for submergence or operation with spray  
 \* - Harsh Environment
3. Dash (-) indicates not applicable