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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 2.5.02.08a.ii [Index Number 540]

Ladies and Gentlemen:

Pursuant to 10 CFR 52.99(c)(3), Southern Nuclear Operating Company hereby notifies the NRC that as of September 16, 2019, Vogtle Electric Generating Plant (VEGP) Unit 3 and Unit 4 Uncompleted Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.5.02.08a.ii [Index Number 540] 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.

Southern Nuclear Operating Company (SNC) previously submitted Notice of Uncompleted ITAAC 225-days Prior to Initial Fuel Load for Item 2.5.02.08a.ii [Index Number 540] ND-17-1362 [ML17244A076], dated Aug. 24, 2017. This resubmittal supersedes ND-17-1362 in its entirety.

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

Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 3 and Unit 4
Completion Plan for Uncompleted ITAAC 2.5.02.08a.ii [Index Number 540]

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**Southern Nuclear Operating Company
ND-19-1104
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 3 and Unit 4
Completion Plan for Uncompleted ITAAC 2.5.02.08a.ii [Index Number 540]**

ITAAC Statement

Design Commitment

8.a) The PMS provides for the minimum inventory of displays, visual alerts, and fixed position controls, as identified in Table 2.5.2-5. The plant parameters listed with a "Yes" in the "Display" column and visual alerts listed with a "Yes" in the "Alert" column can be retrieved in the MCR. The fixed position controls listed with a "Yes" in the "Control" column are provided in the MCR.

Inspections/Tests/Analyses

ii) An inspection and test will be performed to verify that the plant parameters are used to generate visual alerts that identify challenges to critical safety functions.

Acceptance Criteria

ii) The plant parameters listed in Table 2.5.2-5 with a "Yes" in the "Alert" column are used to generate visual alerts that identify challenges to critical safety functions. The visual alerts actuate in accordance with their correct logic and values.

ITAAC Completion Description

Inspection and testing are performed to verify that the Protection and Safety Monitoring System (PMS) provides visual alerts as identified in Table 2.5.2-5 (Attachment A). The inspection and testing confirm that the plant parameters listed with a "Yes" in the "Alert" column are used to generate visual alerts that identify challenges to critical safety functions and that these visual alerts actuate in accordance with their correct logic and values.

ITAAC 2.5.02.08a.ii is completed by:

- Factory Acceptance Testing – Channel Integration Test and System Integration Test for visual alerts that identify challenges to critical safety functions.
- Site software installation and regression test – Hardware and software integration verification and testing of post system delivery changes.

The Factory Acceptance Testing (FAT) follows the guidance of NEI 08-01 (Reference 14) Section 9.4 for the as-built tests to be performed at other than the final installed location. The FAT was performed in accordance with the Software Program Manual for Common Q Systems WCAP-16096 (Reference 1), AP1000 Protection and Safety Monitoring System Test Plan (Reference 2), AP1000 Protection and Safety Monitoring System Qualified Data Processing System Channel Integration Test Procedure (Reference 3), and applicable Codes and Standards described in Vogtle 3 and 4 UFSAR Section 7.2. Test results are documented in AP1000 Protection and Safety Monitoring System Qualified Data Processing System Channel Integration Test Report (Reference 4) and AP1000 Protection and Safety Monitoring System System Integration Test Integrated System Validation Test Report (References 5 and 6).

FAT (References 4, 5, and 6) verifies the functionality of the AP1000 PMS prior to shipment to the site and includes Channel Integration Testing (CIT) and System Integration Testing (SIT) of

PMS. The CIT is used to isolate the PMS to a single division in order to facilitate performance of the Reactor Trip, Engineered Safety Features, Integrated Logic Processor Component Logic, Qualified Data Processing System (QDPS), Nuclear Instrumentation System, Input/Output Channel Accuracy, Cabinet Indications and Status, and Plant Control System Hardware Interface functionality. The CIT confirms the functionality of all intra-cabinet and intra-division cabling and communication. The SIT confirms system-level performance and the functionality of all inter-cabinet and inter-division cabling and communication via the Time Response, Maintenance and Test Panel Displays and Safety Panel Displays, and Abnormal Conditions testing.

Reference 4 documents the results of the CIT using the AP1000 PMS QDPS test function with software installed to test PMS channels. References 5 and 6 document the results of the SIT performed on the AP1000 PMS SIT Integrated System Validation function with software installed. The overall SIT Integrated System Validation test verified that the integration of the released application software with the production hardware meets all applicable requirements associated with AP1000 PMS SIT Integrated System Validation functions.

The FAT results demonstrate proper integration of PMS cabinets within a channel and their interconnections, correct hardware and software integration, and appropriate communications within and between PMS cabinets to verify applicable plant parameters generate visual alerts that identify challenges to critical safety functions for the correct logic and values. The FAT results confirm that the PMS inputs and outputs, logic and functions with software installed function correctly to provide for the visual alerts, as identified in Attachment A.

During the test, the process parameters were simulated and adjusted to create applicable alert conditions, PMS outputs were monitored, and it was confirmed that the visual alerts actuate in accordance with their correct logic and values. Attachment B provides a listing of test cases used to verify correct visual alerts.

Additional hardware and software installation and associated inspections and testing are performed on-site to verify that the cabinets are intact and functional in accordance with Units 3 and 4 for applicable Field Change Notifications (FCNs) AP1000 Vogtle Unit 3 PMS Initial Software Installation - Software Release 8.7.0.1 and AP1000 Vogtle Unit 4 PMS Initial Software Installation - Software Release 8.7.0.1 (References 7 and 8). References 7 and 8 include steps that confirm and document successful software load and further confirm the physical properties of the as-built PMS. A regression analysis (i.e., change evaluation) is performed post-delivery and installation for hardware changes (references 9 and 10) and software changes (Reference 11) to determine if additional testing is needed for the as-built system.

The completed Unit 3 and Unit 4 FAT (References 4, 5, and 6), FCNs (References 7 and 8) and regression test results (References 9, 10, and 11) confirm that PMS plant parameters listed in Attachment A with a "Yes" in the "Alert" column are used to generate visual alerts that identify challenges to critical safety functions. These results also confirm that visual alerts actuate in accordance with their correct logic and values.

References 1 through 11 are available for NRC inspection as part of the ITAAC 2.5.02.08a.ii Unit 3 and 4 Completion Packages (References 12 and 13).

List of ITAAC Findings

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all findings pertaining to the subject ITAAC and associated corrective actions. This review found there are no relevant ITAAC findings associated with this ITAAC.

References (available for NRC inspection)

1. WCAP-16096 "Software Program Manual for Common Q Systems" Revision 4A
2. APP-PMS-T5-001, Rev. 5, "AP1000 Protection and Safety Monitoring System Test Plan"
3. APP-PMS-T1P-010, Rev. 4, "AP1000 Protection and Safety Monitoring System Qualified Data Processing System Channel Integration Test Procedure"
4. APP-PMS-T2R-010 "AP1000 Protection and Safety Monitoring System Qualified Data Processing System Channel Integration Test Report," Rev. 0.
5. SV3-PMS-T2R-150-R0 "AP1000 Protection and Safety Monitoring System System Integration Test Integrated System Validation Test Report"
6. SV4-PMS-T2R-150-R0 "AP1000 Protection and Safety Monitoring System System Integration Test Integrated System Validation Test Report"
7. SV3-GW-GCW-300, Field Change Notice "AP1000 Vogtle Unit 3 PMS Initial Software Installation - Software Release 8.7.0.1" (WO SCNXXXXXX)
8. SV4-GW-GCW-300, Field Change Notice "AP1000 Vogtle Unit 3 PMS Initial Software Installation - Software Release 8.7.0.1" (WO SCNYYYYYY)
9. GIC-AP1000-HEDS-19-001, Rev. 0 "Regression Testing Analysis for Vogtle Unit 3 Protection and Safety Monitoring System (PMS) Baseline 8.2 to 8.4 Hardware Modifications Performed at Site" (Unit 3)
10. GIC-AP1000-HEDS-19-001, Rev. 0 "Regression Testing Analysis for Vogtle Unit 4 Protection and Safety Monitoring System (PMS) Baseline 8.2 to 8.4 Hardware Modifications Performed at Site" (Unit 4)
11. APP-PMS-T2R-050, AP1000 Protection and Safety Monitoring System Channel Integration Test Integrated System Validation Test Report
12. ITAAC 2.5.02.08a.ii-U3-CP-Rev0, ITAAC Completion Package
13. ITAAC 2.5.02.08a.ii-U4-CP-Rev0, ITAAC Completion Package
14. NEI 08-01, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52"

Attachment A

*** Excerpt from COL Appendix C Table 2.5.2-5**

*Description	*Alert⁽¹⁾
Neutron Flux	Yes
Neutron Flux Doubling	Yes
Startup Rate	Yes
Reactor Coolant System (RCS) Pressure	Yes
Wide-range Cold Leg Temperature	Yes
RCS Cooldown Rate Compared to the Limit Based on RCS Pressure	Yes
Wide-range Cold Leg Temperature Compared to the Limit Based on RCS Pressure	Yes
Change of RCS Temperature by more than 5°F in the last 10 minutes	Yes
Containment Water Level	Yes
Containment Pressure	Yes
Pressurizer Water Level	Yes
Reactor Vessel-Hot Leg Water Level	Yes
Core Exit Temperature	Yes

1. These parameters are used to generate visual alerts that identify challenges to the critical safety functions. For the main control room, the visual alerts are embedded in the safety-related displays as visual signals.

Attachment A (continued)

*Description	*Alert⁽¹⁾
RCS Subcooling	Yes
RCS Cold Overpressure Limit	Yes
IRWST Water Level	Yes
PRHR Flow	Yes
PRHR HX Outlet Temperature	Yes
PRHR HX Inlet Isolation and Control Valve Status	Yes
IRWST to Normal Residual Heat Removal System (RNS) Suction Valve Status	Yes
Containment Area High-range Radiation Level	Yes

1. These parameters are used to generate visual alerts that identify challenges to the critical safety functions. For the main control room, the visual alerts are embedded in the safety-related displays as visual signals.

Attachment B
Factory Acceptance Test - Test Cases

Description	Test Report	Test Case
Neutron Flux	APP-PMS-T2R-010	TPS04-13 Step 9
Neutron Flux Doubling	APP-PMS-T2R-010	TPS04-27.2: Step 2
Startup Rate	APP-PMS-T2R-010	TPS04-13 Step 1
Reactor Coolant System (RCS) Pressure	APP-PMS-T2R-010	TPS04-14: Step 15
Wide-range Cold Leg Temperature	APP-PMS-T2R-010	TPS04-14: Step 5
RCS Cooldown Rate Compared to the Limit Based on RCS Pressure	APP-PMS-T2R-010	TPS04-34: Step 6
Wide-range Cold Leg Temperature Compared to the Limit Based on RCS Pressure	APP-PMS-T2R-010	TPS04-35, Step 26
Change of RCS Temperature by more than 5°F in the last 10 minutes	APP-PMS-T2R-010	TPS04-15.2, Step 24
Containment Water Level	APP-PMS-T2R-010	TPS04-22, Step 13
Containment Pressure	APP-PMS-T2R-010	TPS04-22, Step 8
Pressurizer Water Level	APP-PMS-T2R-010	TPS04-28, Step 12
Reactor Vessel-Hot Leg Water Level	APP-PMS-T2R-010	TPS04-15.2, Step 24
Core Exit Temperature	APP-PMS-T2R-010	TPS04-29, Step 7
RCS Subcooling	APP-PMS-T2R-010	TPS04-29, Step 2
RCS Cold Overpressure Limit	APP-PMS-T2R-010	TPS04-34, Step 6
IRWST Water Level	APP-PMS-T2R-010	TPS04-16, Step 7
PRHR Flow	APP-PMS-T2R-010	TPS04-21, Step 8
PRHR Outlet Temperature	APP-PMS-T2R-010	TPS04-17, Step 4
PRHR HX Inlet Isolation and Control Valve Status	APP-PMS-T2R-010	TPS04-23
IRWST to Normal Residual Heat Removal System (RNS) Suction Valve Status	APP-PMS-T2R-010	TPS04-19, Step 3
Containment Area High-range Radiation Level	APP-PMS-T2R-010	TPS04-18.1, Step 7