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JUN 16 2022

Docket No.: 52-025

ND-22-0443
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 3
ITAAC Closure Notification on Completion of ITAAC 2.5.04.02.i [Index Number 557]

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 2.5.04.02.i [Index Number 557]. This ITAAC confirms the Data Display and Processing System (DDS) provides for the minimum inventory of displays, visual alerts and fixed position controls as identified in Combined License (COL) Appendix C Table 2.5.4-1. The closure process for this ITAAC is based on the guidance described in Nuclear Energy Institute (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,

Kelli Roberts for JMC

Jamie M. Coleman
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Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 3
Completion of ITAAC 2.5.04.02.i [Index Number 557]

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Southern Nuclear Operating Company
ND-22-0443
Enclosure

Vogtle Electric Generating Plant (VEGP) Unit 3
Completion of ITAAC 2.5.04.02.i [Index Number 557]

ITAAC Statement

Design Commitment

2. The DDS provides for the minimum inventory of displays, visual alerts, and fixed position controls, as identified in Table 2.5.4-1. 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 at the RSW. The controls listed with a "Yes" in the "Control" column are provided at the RSW.

Inspections/Tests/Analyses

i) An inspection will be performed for retrievability of plant parameters at the RSW.

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.

iii) An operational test of the as-built system will be performed using each RSW control.

Acceptance Criteria

i) The plant parameters listed in Table 2.5.4-1 with a "Yes" in the "Display" column can be retrieved at the RSW.

ii) The plant parameters listed in Table 2.5.4-1 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 logic and values.

iii) For each test of a control listed in Table 2.5.4-1 with a "Yes" in the "Control" column, an actuation signal is generated. Tests from the actuation signal to the actuated device(s) are performed as part of the system-related inspection, test, analysis and acceptance criteria.

ITAAC Determination Basis

Multiple ITAAC were performed to verify that the Data Display and Processing System (DDS) provides for the minimum inventory of displays, visual alerts, and fixed position controls, as identified in Combined License (COL) Appendix C Table 2.5.4-1 (Attachment A), 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 at the Remote Shutdown Workstation (RSW), and the controls listed with a "Yes" in the "Control" column are provided at the RSW. The subject ITAAC performed inspections on the displays in Attachment A to verify the listed plant parameters can be retrieved at the RSW, inspections and testing of the alerts in Attachment A to verify that the listed plant parameters are used to generate visual alerts that identify challenges to critical safety functions, and testing of the controls listed in Attachment A to verify the listed controls generate actuation signals.

The plant parameters listed in Table 2.5.4-1 with a "Yes" in the "Display" column can be retrieved at the RSW.

An inspection was performed to verify the retrievability of the plant parameters at the RSW. The inspection for retrievability confirmed that the plant parameters listed in Attachment A with a "Yes" in the "Display" column can be retrieved at the RSW.

The inspection was performed as described in Reference 1 and visually confirmed that when each of the plant parameters identified in Attachment A with a "Yes" in the "Display" column was recalled at the RSW, the recalled plant parameter appeared on a display monitor.

The inspection results are included in Reference 1 and confirmed that the plant parameters listed in Table 2.5.4-1 with a "Yes" in the "Display" column can be retrieved at the RSW.

The plant parameters listed in Table 2.5.4-1 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 logic and values.

Inspections and testing were performed to verify the retrievability of the visual alerts at the RSW. The inspections and testing confirmed that the 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 (CSF) and actuate in accordance with their logic and values.

This ITAAC was completed as a combination of:

- Protection and Safety Monitoring System (PMS) Factory Acceptance Test (FAT) – Functional testing of PMS inputs, outputs, logic, and function
- Site software installation and regression test – Hardware and software integration verification and testing of post system delivery changes.
- Preoperational Test of communication – Functional testing of the communication between the PMS output and the DDS input
- DDS FAT– Functional testing of DDS inputs, outputs, logic, and function
- Preoperational Test of the as-built RSW – Visual inspection and test of the visual alerts at the as-built RSW

The PMS FAT was performed in accordance with the PMS Software Program Manual, Test Plan and applicable Codes and Standards as documented in Reference 1. The DDS FAT was performed in accordance with PLS Test Plan as documented in Reference 1.

The logic that generates the visual alerts is contained in both the Qualified Data Processing System (QDPS) of the PMS and the Nuclear Applications Programs (NAPs) of the DDS and are tested as follows:

- Logic and values of visual alerts generated in the QDPS are verified in the PMS FAT
- Logic and values of visual alerts generated in the NAPs are verified in the DDS FAT

During the FAT, the plant 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. This testing was performed in accordance with FAT Test Procedure as described in Reference 1. The results of the PMS testing were documented in the FAT test reports as documented in Reference 1. The FAT results confirmed that the PMS inputs and outputs, logic and installed software functioned correctly to provide for the visual alerts, as identified in Attachment A.
Additional hardware and software installation and associated inspections and testing were performed on-site to verify that the cabinets are intact and functional in accordance with applicable Field Change Notification (FCN) AP1000 Vogtle Unit 3 PMS Initial Software Installation - Software Release 8.7.0.1, as described in Reference 1, which includes steps that confirm and document successful software load and further confirm the physical properties of the as-built PMS. Regression analyses (i.e., change evaluation) was performed post-delivery and installation for hardware changes and software changes, as described in Reference 1, to determine if additional testing was needed for the as-built system.

To provide communication between the PMS and DDS, the Maintenance and Test Panel (MTP) in a given PMS division provides an isolated (optical-to-electrical isolation) pathway from the intra-divisional communication bus to the Advant/Ovation Interface (AOI) Gateway associated with that division. Over the divisional AOI Gateway, the MTP transfers certain real-time data from the division's AF100 bus to the non-safety Real Time Data Network to support control and information system functions performed in non-safety systems, such as the DDS.
Preoperational testing as described in Reference 1 verified the AOI gateway by ensuring datapoints on PMS which were output to the DDS match those on the DDS.

During the DDS FAT, inputs to the DDS were simulated and adjusted to create applicable alert conditions and it was confirmed that the logic and functionality of the DDS supports the visual alerts. This testing was performed in accordance with FAT test procedures with the results of the testing documented in the FAT test reports as documented in Reference 1.

Preoperational testing was performed as described in Reference 1 to verify that when the applicable DDS input was simulated, each plant parameter listed in Attachment A with a "Yes" in the "Alert" column was used to generate visual alerts that identify challenges to CSF at the RSW. The testing described in Reference 1 forced the applicable DDS input parameter from an engineering workstation and visually confirmed that when each of the plant parameters identified in Attachment A with a "Yes" in the "Alert" column was used to generate visual alerts that identify challenges to CSF, the summoned plant visual alert appeared on a display monitor at the RSW.

The completed Unit 3 factory test results, FCN, regression test results, and preoperational test results described in Reference 1 confirmed that the plant parameters listed in Table 2.5.4-1 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 logic and values.

For each test of a control listed in Table 2.5.4-1 with a "Yes" in the "Control" column, an actuation signal is generated. Tests from the actuation signal to the actuated device(s) are performed as part of the system-related inspection, test, analysis and acceptance criteria.

An operational test of the as-built system was performed using each RSW control. The test confirmed that for each test of a control listed in Table 2.5.4-1 (Attachment A) with a "Yes" in the

"Control" column, an actuation signal is generated. Tests from the actuation signal to the actuated device(s) were performed as part of the system-related inspection, test, analysis and acceptance criteria.

This ITAAC was completed as a combination of:

- Factory Acceptance Test – Functional testing of the PMS control circuit
- Site software installation and regression test – Hardware and software integration verification and testing of post system delivery changes
- Component test – testing of the remote shutdown room switches, including their interface with PMS and full testing of the hydrogen igniter soft controls at the RSW

The FAT followed the guidance of NEI 08-01 Section 9.4 (Reference 2) for as-built tests performed at other than the final installed location. The FAT was performed in accordance with the PMS Software Program Manual, PMS Test Plan, and applicable Codes and Standards as described in Reference 1.

The FAT included testing of PMS inputs and outputs, logic, and functionality. During this test, the manual inputs to the PMS were simulated and it was confirmed that the actuation signals were generated for the minimum inventory of controls at the RSW identified in Attachment A. This testing was performed in accordance with the PMS FAT procedures with the results of the testing documented in the FAT test reports as documented in Reference 1.

Additional hardware and software installation and associated inspections and testing were performed on-site to verify that the cabinets are intact and functional in accordance with applicable FCN AP1000 Vogtle Unit 3 PMS Initial Software Installation - Software Release 8.7.0.1, as described in Reference 1, which includes steps that confirm and document successful software load and further confirm the physical properties of the as-built PMS. Regression analyses (i.e., change evaluation) was performed post-delivery and installation for hardware changes and software changes, as described in Reference 1, to determine if additional testing was needed for the as-built system.

Component testing of the dedicated RSW controls identified in Attachment A was performed as described in Reference 1 to test the RSW manual controls. Selected RSW manual controls were actuated, and PMS inputs were confirmed by visually inspecting the digital input light emitting diodes. The completed component testing confirmed that select RSW manual control actuations are received at the PMS.

For the containment hydrogen igniters, testing was performed as described in Reference 1 and verified the Hydrogen Control System (VLS) was available, then the containment hydrogen igniters were energized using soft controls from the RSW. Local voltage verification at the igniter control relays verified the hydrogen igniter soft controls generated an actuation signal and was documented in the test.

The completed Unit 3 FAT results, FCN, regression test results, component test results, and preoperational test results, as documented in Reference 1, confirmed that for each test of a control listed in Table 2.5.4-1 with a “Yes” in the “Control” column, an actuation signal was generated.

Reference 1 is available for NRC inspection as part of the Unit 3 ITAAC 2.5.04.02.i Completion Package (Reference 3).

ITAAC Finding Review

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of findings pertaining to the subject ITAAC and associated corrective actions. This review found there are no relevant ITAAC findings associated with this ITAAC. The ITAAC completion review is documented in the ITAAC Completion Package for ITAAC 2.5.04.02.i (Reference 3) and is available for NRC review.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.5.04.02.i was performed for VEGP Unit 3 and that the prescribed acceptance criteria were 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. SV3-DDS-ITR-800557, Rev 0, "Unit 3 Test Results of DDS displays, alerts and controls: ITAAC 2.5.04.02.i NRC Index Number: 557"
2. NEI 08-01, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52", Revision 5 - Corrected
3. 2.5.04.02.i-U3-CP-Rev0, ITAAC Completion Package

Attachment A
* Excerpt from COL Appendix C Table 2.5.4-1

Minimum Inventory of Controls, Displays, and Alerts at the RSW			
Description*	**Control***	**Display***	**Alert[(1)]***
Neutron Flux	-	Yes	Yes
Neutron Flux Doubling	-	No	Yes
Startup Rate	-	Yes	Yes
Reactor Coolant System (RCS) Pressure	-	Yes	Yes
Wide-range Hot Leg Temperature	-	Yes	No
Wide-range Cold Leg Temperature	-	Yes	Yes
RCS Cooldown Rate Compared to the Limit Based on RCS Pressure	-	Yes	Yes
Wide-range Cold Leg Temperature Compared to the Limit Based on RCS Pressure	-	Yes	Yes
Change of RCS Temperature by more than 5°F in the last 10 minutes	-	No	Yes
Containment Water Level	-	Yes	Yes
Containment Pressure	-	Yes	Yes
Pressurizer Water Level	-	Yes	Yes
Pressurizer Water Level Trend	-	Yes	No
Pressurizer Reference Leg Temperature	-	Yes	No
Reactor Vessel-Hot Leg Water Level	-	Yes	Yes
Pressurizer Pressure	-	Yes	No
Core Exit Temperature	-	Yes	Yes
RCS Subcooling	-	Yes	Yes
RCS Cold Overpressure Limit	-	Yes	Yes
In-containment Refueling Water Storage Tank (IRWST) Water Level	-	Yes	Yes
Passive Residual Heat Removal (PRHR) Flow	-	Yes	Yes
PRHR HX Outlet Temperature	-	Yes	Yes
PRHR HX Inlet Isolation and Control Valve Status	-	Yes	Yes
Passive Containment Cooling System (PCS) Storage Tank Water Level	-	Yes	No
PCS Cooling Flow	-	Yes	No
IRWST to Normal Residual Heat Removal System (RNS) Suction Valve Status	-	Yes	Yes
Remotely Operated Containment Isolation Valve Status	-	Yes	No
Containment Area High-range Radiation Level	-	Yes	Yes
Containment Pressure (Extended Range)	-	Yes	No
Core Makeup Tank (CMT) Level	-	Yes	No
Manual Reactor Trip (also initiates turbine trip)	Yes	-	-
Manual Safeguards Actuation	Yes	-	-
Manual CMT Actuation	Yes	-	-
Manual Automatic Depressurization System (ADS) Stages 1, 2, and 3 Actuation	Yes	-	-
Manual ADS Stage 4 Actuation	Yes	-	-
Manual PRHR Actuation	Yes	-	-

Attachment A
* Excerpt from COL Appendix C Table 2.5.4-1

Minimum Inventory of Controls, Displays, and Alerts at the RSW			
Description*	**Control***	**Display***	**Alert(1)***
Manual Containment Cooling Actuation	Yes	-	-
Manual IRWST Injection Actuation	Yes	-	-
Manual Containment Recirculation Actuation	Yes	-	-
Manual Containment Isolation	Yes	-	-
Manual Main Steam Line Isolation	Yes	-	-
Manual Feedwater Isolation	Yes	-	-
Manual Containment Hydrogen Igniter (Nonsafety-related)(2)	Yes	-	-
Manual Containment Vacuum Relief	Yes	-	-

Note: Dash (-) indicates not applicable.
1. These parameters are used to generate visual alerts that identify challenges to the critical safety functions. For the RSW, the visual alerts are embedded in the nonsafety-related displays as visual signals.
2. Containment hydrogen igniter control is provided as a "soft" control.