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Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 3
ITAAC Closure Notification on Completion of ITAAC 2.2.03.09a.ii [Index Number 202]

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 2.2.03.09a.ii [Index Number 202] for verifying that the combined total flow area of the water inlets is not less than 6 ft^2, that the combined total flow area of the steam outlet(s) is not less than 12 ft^2, and that a report exists and concludes that the minimum flow area between the vessel insulation and reactor vessel for the flow path that vents steam is not less than 12 ft^2 considering the maximum deflection of the vessel insulation with a static pressure of 12.95 ft of water. 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 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
Completion of ITAAC 2.2.03.09a.ii [Index Number 202]

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Southern Nuclear Operating Company
ND-19-0891
Enclosure

Vogtle Electric Generating Plant (VEGP) Unit 3
Completion of ITAAC 2.2.03.09a.ii [Index No. 202]

ITAAC Statement

Design Commitment:

9.a) The PXS provides a function to cool the outside of the reactor vessel during a severe accident.

Inspections,Tests, Analyses:

ii) Inspections of the as-built reactor vessel insulation will be performed.

Acceptance Criteria

ii) The combined total flow area of the water inlets is not less than 6 ft^2. The combined total flow area of the steam outlet(s) is not less than 12 ft^2. A report exists and concludes that the minimum flow area between the vessel insulation and reactor vessel for the flow path that vents steam is not less than 12 ft^2 considering the maximum deflection of the vessel insulation with a static pressure of 12.95 ft of water.

ITAAC Determination Basis

Multiple ITAAC are performed to demonstrate that the Passive Core Cooling System (PXS) provides a function to cool the outside of the reactor vessel during a severe accident. This ITAAC required inspections of the as-built reactor vessel insulation be performed to verify that the combined total flow area of the water inlets is not less than 6 ft^2, that the combined total flow area of the steam outlet(s) is not less than 12 ft^2, and that a report exists and concludes that the minimum flow area between the vessel insulation and reactor vessel for the flow path that vents steam is not less than 12 ft^2 considering the maximum deflection of the vessel insulation with a static pressure of 12.95 ft of water.

Following fabrication, vendor and site personnel performed inspections to measure the inner diameter of the Unit 3 reactor vessel insulation (RVI) and outer diameter of the reactor pressure vessel (RPV). The measurements of the RPV outer diameter were performed onsite prior to installation in accordance with NEI-08-01, Section 9.5 "As-built Inspections" due to the impracticality of performing these measurements once the RPV was in its final installed location. Measurements of the RVI inner diameter were taken in its final location and the as-built centerline location of the RPV post installation was established for reference. The as-built RPV centerline location was compared to the common reference point used to measure the as-built RVI inner diameter to ensure the accuracy of the calculated as built minimum flow area.

Additional inspections were performed of the RVI components, including water inlets, upper neutron shielding blocks, and steam outlets, following placement in their final location The as-built measurements of the RPV and the RVI were recorded and used to calculate the total flow area of the water inlets ($\geq$ 6 ft^2), steam outlets ($\geq$ 12 ft^2), and the bounding minimum flow area in the annulus region that vents steam between the RPV and the RVI ($\geq$ 12 ft^2). The calculated as-built flow areas are documented in Reference 1 and were verified to meet the acceptance criteria.

The maximum deflection of the RVI components with a static pressure of 12.95 ft of water was determined based upon the methodology described in subsection 5.3.5 of the Updated Final Safety Analysis Report (UFSAR)(Reference 2). A structural analysis was performed to determine the amount of deflection in the RVI components (Reference 3). The bounding load acting on the RVI components is derived based on the static pressure of 12.95 ft of water, and the dynamic oscillating pressure caused by the boiling of water between the reactor vessel and RVI. In addition, a thermal analysis was performed to determine the expansion in the reactor vessel outer diameter and reduction of the RVI inner diameter (Reference 3). Together, these analyses demonstrate that the combined total flow area of the water inlets is equal to or greater than 6 ft^2, the combined total flow area of the steam outlet(s) is equal to or greater than 12 ft^2, and the minimum flow area between the vessel insulation and reactor vessel for the flow path that vents steam is equal to or greater than 12 ft^2 considering the maximum deflection of the vessel insulation with a static pressure of 12.95 ft of water.

The inspections and engineering analyses reports are documented in the Unit 3 Principal Closure Document (Reference 1) and the results are shown in Attachment A, which show the ITAAC acceptance criteria was met.

Reference 1-3 are available for NRC inspection as part of the Unit 3 ITAAC 2.2.03.09a.ii Completion Package (Reference 4).

ITAAC Finding Review

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. The ITAAC completion review is documented in the ITAAC Completion Package for ITAAC 2.2.03.09a.ii (Reference 4) and is available for NRC review.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.2.03.09a.ii 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 approved plant programs and procedures.

References (available for NRC inspection)

1. SV3-MN20-GLC-001 Rev. 0, "As-Built AP1000 Reactor Vessel Cavity Area Calculation (ITAAC #202 Closure) for Vogtle Unit 3"
2. UFSAR Subsection 5.3.5, "Reactor Vessel Insulation"
3. APP-MN20-Z0R-002 Rev. 2, "AP100 Reactor Vessel Insulation Design Report"
4. 2.2.03.09a.ii-U3-CP-Rev0, Completion Package

Attachment A

As-built Flow area for the RVI water inlets, RVI steam outlets and flow path between RPV and RVI that vents steam

Location	Unit 3 as-built flow area (ft^2)	Acceptance criteria
Water Inlets	8.96	not less than 6 ft^2
Steam outlets	12.59	not less than 12 ft^2
Flow path between RPV and RVI that vents steam	15.27* (min) – 15.64* (max)	not less than 12 ft^2*

* Considering the maximum deflection of the vessel insulation with a static pressure of 12.95 ft of water