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U.S. Nuclear Regulatory Commission  
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Southern Nuclear Operating Company  
Vogtle Electric Generating Plant Unit 4  
ITAAC Closure Notification on Completion of ITAAC 2.2.03.08c.xiv [Index Number 199]

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 4 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.2.03.08c.xiv [Index Number 199] for verifying that the aluminum surfaces of the Nuclear Instrumentation System excor detectors are encased in a watertight stainless steel or titanium housing. 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 Tom Petrak at 706-848-1575.

Respectfully submitted,

Michael J. Yox  
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Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 4  
Completion of ITAAC 2.2.03.08c.xiv [Index Number 199]

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**Southern Nuclear Operating Company  
ND-18-0842  
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 4  
Completion of ITAAC 2.2.03.08c.xiv [Index Number 199]**

### **ITAAC Statement**

#### **Design Commitment:**

8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.

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

xiv) Inspection will be conducted of the excore (source range, intermediate range, and power range) detectors.

#### **Acceptance Criteria:**

xiv) A report exists and concludes that the aluminum surfaces of the excore detectors are encased in a watertight stainless steel or titanium housing.

### **ITAAC Determination Basis**

Multiple Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) are performed to demonstrate that the Passive Core Cooling System (PXS) provides Reactor Coolant System (RCS) makeup, boration, and safety injection during design basis events. The subject ITAAC requires inspections of the excore (source range, intermediate range, and power range) detectors to verify aluminum surfaces of the excore detectors are encased in a watertight stainless steel or titanium housing.

The Nuclear Instrumentation System (NIS) excore source range, intermediate range, and power range detectors' technical manual material specifications were visually inspected to verify that the aluminum surfaces of the excore detectors are encased in a stainless steel or titanium housing. The inspection concluded that all the NIS excore detectors' aluminum surfaces are encased in titanium housing.

Additionally, helium leak rate testing was performed by the vendor on each of the excore source range, intermediate range, and power range detectors to demonstrate that the excore detectors are encased in a watertight housing. Correlations were then made between gaseous helium leakage and equivalent liquid water leakage based on the viscosity and surface tension differences between the two fluids. The correlations accounted for design basis accident pressure and temperature and considered the makeup of reactor coolant fluid compared to liquid water. The correlations showed that a helium leak rate of  $\leq 1 \times 10^{-8}$  standard cubic centimeters per second (std cc/sec), the vendor test acceptance criteria, would result in no liquid water leakage into the housing. Inspection of the vendor helium leak rate test results showed that all excore detector leakage rates were  $\leq 7.1 \times 10^{-9}$  std cc/sec, concluding that the excore detectors are encased in watertight housing.

The results of the inspections are documented in the NIS Excore Detector Inspection Report, (Reference 1). The results of the inspections conclude that the aluminum surfaces of the excore detectors are encased in a watertight stainless steel or titanium housing.

**ITAAC Finding Review**

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all ITAAC findings pertaining to the subject ITAAC and associated corrective actions. This review found that there are no relevant ITAAC findings associated with this ITAAC. The ITAAC finding review is included in the Vogtle Unit 4 ITAAC Completion Package for ITAAC 2.2.03.08c.xiv (Reference 2) and available for NRC inspection.

**ITAAC Completion Statement**

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.2.03.08c.xiv was performed for Vogtle Unit 4 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. 2.2.03.08c.xiv-U4-SumRep-Rev 0, "NIS Excore Detector Unit 4 ITAAC 2.2.03.08c.xiv Inspection Report"
2. 2.2.03.08c.xiv-U4-CP-Rev0, ITAAC Completion Package