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January 30, 2017  
NND-17-0010  
10 CFR 52.99(c)(1)

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

Subject: Virgil C. Summer Nuclear Station (VCSNS) Unit 3  
Combined License No. NPF-94  
Docket Number 52-028  
ITAAC Closure Notification on Completion of ITAAC 2.5.02.07e [Index No. 538]

Attachments: (1) References

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) in accordance with 10 CFR 52.99(c)(1) of the completion of Virgil C. Summer Nuclear Station (VCSNS) Unit 3 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.5.02.07e for verifying a report exists and concludes that isolation devices prevent credible faults from propagating into the Protection and Safety Monitoring System (PMS). The closure process for this ITAAC is based on the guidance described in NEI 08-01 (Reference 1), which was endorsed by the NRC in Regulatory Guide 1.215.

### **ITAAC Statement**

#### **Design Commitment:**

7.e) *The PMS receives signals from non-safety equipment that provides interlocks for PMS test functions through isolation devices.*

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

*Type tests, analyses, or a combination of type tests and analyses of the isolation devices will be performed.*

#### **Acceptance Criteria:**

*A report exists and concludes that the isolation devices prevent credible faults from propagating into the PMS.*

### **ITAAC Determination Basis**

Type testing and analysis of isolation devices were performed to verify devices prevent credible faults from propagating into the PMS from non-safety equipment that provides interlocks for PMS test functions. The type testing, governed by IEEE 384-1981 (Reference 2), was performed on isolation barrier components (relay isolation) to qualify the barrier components and the barrier component protection utilized in the isolation barrier assemblies.

The testing demonstrated that the most severe credible faults injected into the non-Class 1E side of the isolation barrier did not degrade the intended safety function. This was accomplished by completing the prescribed tests under conditions where the non-Class 1E side of the isolation barrier is exposed to credible faults in the form of 580 VAC 65kA and 300 VDC 40kA for differential faults and 580 VAC 50A and 300 VDC 50A for common-mode, while the Class 1E side of the isolation barrier was monitored for perturbations.

As electrical surges have been identified as credible faults, the isolation devices were subjected to  $\pm 2$  kVDC surge (combination wave),  $\pm 2$  kVDC surge (ring wave), and  $\pm 2$  kVDC surge (Electrical Fast Transient). Surge testing was performed in accordance with International Electrotechnical Commission (IEC) Standard IEC 61000-4 (Reference 3).

The results of the tests and analysis are documented in the AP1000 Protection and Safety Monitoring System Isolation Summary Report (Reference 4) and conclude the isolation devices prevent credible faults from propagating into the PMS.

### **ITAAC Finding Review**

In accordance with plant procedures for ITAAC completion, SCE&G performed a review of all findings pertaining to the subject ITAAC and associated corrective actions. This review found one (1) notice of nonconformance associated with this ITAAC:

1. 99900404/2015-204-01

The corrective actions for this finding have been completed. This review is documented in the completion package for ITAAC 2.5.02.07e (Reference 5), which is available for NRC inspection.

### **ITAAC Completion Statement**

Based on the above information, SCE&G hereby notifies the NRC that ITAAC 2.5.02.07e was performed for VCSNS Unit 3 and that the prescribed acceptance criteria are met.

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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.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99(e)(1).

If there are any questions, please contact Ryder Thompson at (803) 941-9812.

Sincerely,



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**Attachment 1**

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

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52.
2. IEEE Std. 384-1981, IEEE Standard Criteria for Independence of Class 1E Equipment and Circuits
3. IEC Std. 61000-4, Electromagnetic Compatibility (EMC) – Part 4 Testing and Measurement Techniques
4. APP-PMS-VBR-015, AP1000 Protection and Safety Monitoring System Isolation Summary Report for Use in the AP1000 Plant
5. ITAAC 2.5.02.07e Completion Package