



November 4, 2016  
NND-16-0460  
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 2  
Combined License No. NPF-93  
Docket Number 52-027  
ITAAC Closure Notification on Completion of ITAAC 2.1.02.12a.iv [Index  
No. 56]

Attachments: 1. References  
2. Equipment Qualification ITAAC Compliance Table

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 2 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.1.02.12a.iv for verifying that each squib valve changes position as indicated in Table 2.1.2-1 under design conditions. The References supporting ITAAC completion are identified in Attachment 1. 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:**

*12.a) The automatic depressurization valves identified in Table 2.1.2-1 perform an active safety-related function to change position as indicated in the table.*

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

*iv) Tests or type tests of squib valves will be performed that demonstrate the capability of the valve to operate under its design conditions.*

#### **Acceptance Criteria:**

*iv) A test report exists and concludes that each squib valve changes position as indicated in Table 2.1.2-1 under design conditions.*

### **ITAAC Determination Basis**

Multiple ITAAC are performed to demonstrate that the automatic depressurization squib valves identified in Table 2.1.2-1 (see Attachment 2) perform an active safety-related function to change position as indicated in the table. The subject ITAAC requires tests or type tests of squib valves to be performed to demonstrate the capability of the valve to operate under its design conditions.

The functional qualification program for the AP1000 squib valves was developed based on American Society of Mechanical Engineers (ASME) QME-1-2007, "Qualification of Active Mechanical Equipment Used in Nuclear Power Plants" (Reference 2). The qualification was based on the ASME QME-1-2007 requirements for power operated valve assemblies.

Functional qualification was performed under the design conditions identified in the design specification for the valves (Reference 3) to demonstrate that each squib valve is qualified to perform its designated function when used in its intended service. In accordance with ASME QME-1-2007, qualification is substantiated by demonstrating the relationship between the service requirements and the type-testing and analysis that was conducted as part of this qualification program.

Type-testing was performed, including natural frequency determination, sealing capability testing, functional operation, and flow characteristics, for the ranges of pressure, temperature and flow for each valve. In accordance with ASME QME-1-2007, the functional qualification process for these valves also included valve internal inspections, actuator inspection and testing, orientation requirements, leakage limitations, diagnostic data collection and analysis methods, static and dynamic flow diagnostic testing, and thermal binding evaluations.

The results of the qualification are documented in the Equipment Qualification Data Package (Reference 4) and Equipment Qualification Summary Report (Reference 5). These reports summarize the test methodology and ASME QME-1-2007 functional qualification that demonstrate that each squib valve changes position as indicated in Table 2.1.2-1 under design conditions.

### **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 two (2) closed notice of nonconformances (NONS) associated with this ITAAC:

1. 99900080/2012-201-01
2. 99900080/2013-201-01

The corrective actions for the findings have been completed and the findings are closed. This review is documented in the completion package for ITAAC 2.1.02.12a.iv (Reference 6), which is available for NRC inspection.

**ITAAC Completion Statement**

Based on the above information, SCE&G hereby notifies the NRC that ITAAC 2.1.02.12a.iv was performed for VCSNS Unit 2 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.

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,



April R. Rice  
Manager  
Nuclear Licensing  
New Nuclear Deployment

RT/AR/hz

- c. Document Control Desk  
Catharine Haney – Region II Regional Administrator  
Tomy Nazario – Senior Resident  
Patrick Heher - NRC  
Thomas R. Fredette – NRC  
Billy Gleaves – NRC  
James Reece – NRC  
Marion Cherry – Santee Cooper  
Stephen A. Byrne – SCE&G  
Jeffrey B. Archie – SCE&G  
Ronald A. Jones – SCE&G  
Alan Torres – SCE&G  
Ryder Thompson – SCE&G  
Nick Kellenberger – SCE&G  
April Rice – SCE&G  
Justin Bouknight – SCE&G  
Alvis J. Bynum – SCE&G  
Kyle Young – SCE&G  
Cynthia Lanier – SCE&G  
Kathryn M. Sutton – Morgan Lewis  
Carl Churchman – Westinghouse  
William Macecevic – Westinghouse  
Brian McIntyre – Westinghouse  
Brian J. Bedford – Westinghouse  
Curtis Castell – WECTEC  
Chuck Baucom – WECTEC  
Peter Leroy – WECTEC  
Jeff Hawkins - Fluor  
[vcsummeremail@westinghouse.com](mailto:vcsummeremail@westinghouse.com)  
[vcsummer2&3project@westinghouse.com](mailto:vcsummer2&3project@westinghouse.com)  
[DCRM-EDMS@SCANA.COM](mailto:DCRM-EDMS@SCANA.COM)

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

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52.
2. American Society of Mechanical Engineers (ASME) QME-1-2007, "Qualification of Active Mechanical Equipment Used in Nuclear Power Plants"
3. APP-PV70-Z0-001, Squib (Pyrotechnic Actuated) Valves, ASME Boiler and Pressure Vessel Code, Section III Class 1
4. APP-PV70-VBR-005, Equipment Qualification Data Package for 14" Squib Valves for Use in the AP1000 Plant
5. APP-PV70-VBR-004, Equipment Qualification Summary Report for 14" Squib Valves for Use in the AP1000 Plant
6. ITAAC 2.1.02.12a.iv Completion Package

Attachment 2

EQUIPMENT QUALIFICATION ITAAC COMPLIANCE MATRIX FOR SQUIB VALVES IN TABLE 2.1.2-1

SYSTEM: REACTOR COOLANT SYSTEM

<b>Equipment Name</b>	<b>Tag No.</b>	<b>Active Function</b>	<b>EQ Summary Report Number</b>	<b>EQ Data Package Number</b>
Fourth-stage ADS Squib Valve	RCS-PL-V004A	Transfer Open	APP-PV70-VBR-004	APP-PV70-VBR-005
Fourth-stage ADS Squib Valve	RCS-PL-V004B	Transfer Open	APP-PV70-VBR-004	APP-PV70-VBR-005
Fourth-stage ADS Squib Valve	RCS-PL-V004C	Transfer Open	APP-PV70-VBR-004	APP-PV70-VBR-005
Fourth-stage ADS Squib Valve	RCS-PL-V004D	Transfer Open	APP-PV70-VBR-004	APP-PV70-VBR-005