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April 13, 2023

Docket No.: 52-026

ND-23-0294
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 4
ITAAC Closure Notification on Completion of ITAAC 2.1.02.11a.ii [Index Number 47]

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 2.1.02.11a.ii [Index Number 47] for verifing the following items: safety-related displays identified in Table 2.1.2-1 can be retrieved in the Main Control Room (MCR), controls exist in the MCR to cause the valves identified in Table 2.1.2-1 to perform active functions, valves having Protection and Safety Monitoring System (PMS) control perform active safety function after receiving a signal from the PMS, certain valves open within the required response time, and upon loss of motive power, required valves assume the indicated loss of motive power position. 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 Kelli Roberts at 706-848-6991.

Respectfully submitted,

Jamie M. Coleman
Regulatory Affairs Director Vogtle 3 & 4

Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 2.1.02.11a.ii [Index Number 47]

JMC/CWM/sfr

cc: Regional Administrator, Region ll
Director, Office of Nuclear Reactor Regulation (NRR)
Director, Vogtle Project Office NRR
Senior Resident Inspector – Vogtle 3 & 4

Southern Nuclear Operating Company
ND-23-0294
Enclosure

Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 2.1.02.11a.ii [Index Number 47]

ITAAC Statement

Design Commitment

10. Safety-related displays identified in Table 2.1.2-1 can be retrieved in the MCR.

11.a) Controls exist in the MCR to cause the remotely operated valves identified in Table 2.1.2-1 to perform active functions.

11.b) The valves identified in Table 2.1.2-1 as having PMS control perform an active safety function after receiving a signal from the PMS.

12.b) After loss of motive power, the remotely operated valves identified in Table 2.1.2-1 assume the indicated loss of motive power position.

Inspections/Tests/Analyses

Inspection will be performed for retrievability of the safety-related displays in the MCR.

ii) Stroke testing will be performed on the other remotely operated valves listed in Table 2.1.2-1 using controls in the MCR.

ii) Testing will be performed on the other remotely operated valves identified in Table 2.1.2-1 using real or simulated signals into the PMS.

iii) Testing will be performed to demonstrate that remotely operated RCS valves RCS-V001A/B, V002A/B, V003A/B, V011A/B, V012A/B, V013A/B open within the required response times.

Testing of the remotely operated valves will be performed under the conditions of loss of motive power.

Acceptance Criteria

Safety-related displays identified in Table 2.1.2-1 can be retrieved in the MCR.

ii) Controls in the MCR operate to cause the remotely operated valves (other than squib valves) to perform active functions.

ii) The other remotely operated valves identified in Table 2.1.2-1 as having PMS control perform the active function identified in the table after receiving a signal from PMS.

iii) These valves open within the following times after receipt of an actuation signal:

V001A/B	≤ 48 sec
V002A/B, V003A/B	≤120 sec
V011A/B	≤ 30 sec
V012A/B, V013A/B	≤ 60 sec

Upon loss of motive power, each remotely operated valve identified in Table 2.1.2-1 assumes the indicated loss of motive power position.

ITAAC Determination Basis

Multiple ITAAC were performed to verify that controls exist in the Main Control Room (MCR) to cause the remotely operated valves identified in Table 2.1.2-1 to perform active functions and the valves identified in Table 2.1.2-1 as having Protection and Safety Monitoring System (PMS) control perform an active safety function after receiving a signal from the PMS. The subject ITAAC requires stroke testing on these remotely operated valves using controls in the MCR, testing on these remotely operated valves using real or simulated signals into the PMS, and response time testing on RCS-V001A/B, V002A/B, V003A/B, V011A/B, V012A/B, and V013A/B. Additionally, inspections and tests were performed to demonstrate that safety-related displays identified in Table 2.1.2-1 were retrieved in the MCR and that after the loss of motive power, the remotely operated valves identified in Table 2.1.2-1 assumed the indicated loss of motive power position.

Safety-related displays identified in Table 2.1.2-1 can be retrieved in the MCR.

Inspections performed in accordance with the Unit 4 component test package work order listed in SV4-RCS-ITR-802047 (Reference 1) visually confirmed that when each of the displays of the plant parameter identified in Attachment A was summoned using the MCR PMS Visual Display Units (VDUs), the expected display appeared on the PMS VDU.

The completed inspection results confirmed that safety-related displays identified in Table 2.1.2-1 were retrieved in the Unit 4 MCR.

ii) Controls in the MCR operate to cause the remotely operated valves (other than squib valves) to perform active functions.

ITAAC 2.1.02.11a.ii item 11a.ii was completed as a combination of:

- Factory Acceptance Test – Functional testing of PMS soft controls to the Component Interface Module (CIM) output
- Site software installation and regression test – Hardware and software integration verification and testing of post system delivery changes
- Component testing – Testing from the CIM to the remotely operated valves

The Factory Acceptance Testing (FAT) followed the guidance of NEI 08-01 (Reference 2) Section 9.4 for the as-built tests to be performed at other than the final installed location. The FAT was performed in accordance with the Software Program Manual for Common Q Systems WCAP-16096 (Reference 3), AP1000 Protection and Safety Monitoring System Test Plan (Reference 4), AP1000 Protection and Safety Monitoring System Qualified Data Processing System Channel Integration Test Procedure (Reference 5), and applicable Codes and Standards described in Vogtle 3 and 4 UFSAR Chapter 7.

Testing performed in accordance with FAT procedure SV4-PMS-T1P-009 (Reference 5) verified the logic and functionality from the PMS soft controls through to the Component Interface Module (CIM) outputs for the remotely operated valves identified in Attachment B. The results of the testing were documented in SV4-PMS-T2R-009 (Reference 6).

Additional hardware and software installation and associated inspections and testing were performed on-site to verify that the cabinets were intact and functional in accordance with Field Change Notifications (FCNs) AP1000 Vogtle Unit 4 PMS Software Installation - Software Release 9.0.0.1 (Reference 7) and PMS Software Installation - Software Release 9.0.0.4 (Reference 8). These FCNs were implemented by work orders listed in ITAAC Technical Report SV4-PMS-Cabinet Software Loading-001 (Reference 10), and B-GEN-ITPCI-001 (Reference 9). SV4-PMS Cabinet Software Loading-001 (Reference 10) summarizes the software loading. SV4-PMS Cabinet Diagnostic Testing -001 (Reference 14) documents the performance of diagnostic testing, using individual WOs for each cabinet, and verified the diagnostics were satisfactory for each cabinet. References 10 and 14 include steps that confirm and document successful software load and further confirm the physical properties of the as-built PMS. A regression analysis (i.e., change evaluation) was performed for software changes (Reference 11) to determine if additional testing was needed for the as-built system.

Testing from the CIM to the remotely operated valves identified in Attachment B was performed in accordance with Unit 4 component test packages listed in SV4-RCS-ITR-800047 (Reference 12). Each valve was stroked to its active function from the PMS Maintenance and Test Panel (MTP) which actuated the CIM and proper valve position indication was verified locally and in the MCR.

The completed Unit 4 FAT (References 3 through 6), software installation (Reference 10), regression test results (Reference 11), cabinet diagnostics (Reference 14), and component test results (Reference 12) confirmed that controls in Unit 4 MCR operated to cause the remotely operated valves identified in Table 2.1.2-1 to perform active functions.

ii) The other remotely operated valves identified in Table 2.1.2-1 as having PMS control perform the active function identified in the table after receiving a signal from PMS.

Testing was performed in accordance with Unit 4 component test packages listed in SV4-RCS-ITR-800047 (Reference 12). These component test packages confirm that the remotely operated valves other than squib valves performed the active function identified in Attachment C after a signal is input to the PMS.

Referenced work packages listed in Reference 12 established initial conditions with each valve verified locally and in the MCR to be in the required position. An actuation signal was generated by PMS using the PMS Maintenance and Test Panel (MTP) to generate a signal to cause the valves in Attachment C to transfer to the active function position and each valve was verified locally and in the MCR.

The completed test results (Reference 12) confirmed the remotely operated valves other than squib valves perform the active function identified in the table after a signal is input to the PMS for Unit 4.

iii) These valves open within the following times after receipt of an actuation signal:

V001A/B	≤ 48 sec
V002A/B, V003A/B	≤120 sec
V011A/B	≤ 30 sec

V012A/B, V013A/B ≤ 60 sec

Testing was performed in accordance with Unit 4 component test packages listed in SV4-RCS-ITR-800047 (Reference 12). These component test packages confirm that remotely operated RCS valves RCS-V001A/B opened within 48 seconds, V002A/B and V003A/B opened within 120 seconds, V011A/B opened within 30 seconds, and V012A/B and V013A/B opened within 60 seconds after receipt of an actuation signal.

Referenced work packages listed in Reference 12 established initial conditions with each valve verified locally and in the MCR to be in the closed position and a digital trend was established to time the valve actuation. An actuation signal was generated by PMS using the PMS Maintenance and Test Panel (MTP) to generate a signal to cause the valves in Attachment D to transfer open and each valve was verified locally and in the MCR.

The completed test results (Reference 12) confirmed that remotely operated RCS valves RCS-V001A/B opened within 48 seconds, V002A/B and V003A/B opened within 120 seconds, V011A/B opened within 30 seconds, and V012A/B and V013A/B opened within 60 seconds after receipt of an actuation signal for Unit 4 and the test results were documented in Attachment D.

Upon loss of motive power, each remotely operated valve identified in Table 2.1.2-1 assumes the indicated loss of motive power position.

Testing was performed in accordance with Unit 4 component test work packages listed in SV4-RCS-ITR-801047 (Reference 13) to verify that each remotely operated valve identified in Attachment E assumed the indicated loss of motive power position upon a loss of motive power.

Testing was performed on the Motor-Operated Valves (MOVs) listed in Attachment E by verifying each MOV locally to be in the Closed position. Each MOV was stroked Open by using the valve control circuit to de-energize the contactors, which removed motive power from the valve when the Open position was reached. This loss of power caused by the valve control circuit demonstrated the MOV failed “As-Is” (Open) when motive power was removed. Actual valve position was verified locally. Each MOV was also stroked Closed by using the valve control circuit to de-energize the contactors, which removed motive power from the valve when the Closed position was reached. This loss of power caused by the valve control circuit demonstrated that each MOV failed “As-Is” (Closed) when motive power was removed. Actual valve position was verified locally.

Testing on the solenoid operated valves was performed by placing the valves in a position opposite their loss of motive power position (Open) and opening the power supply to their solenoid. This caused the solenoid to de-energize which closed the valve. The valves were verified in the MCR to transfer to their loss of motive power position.

The motive power for the squib valves is a single-use explosive device powered by Direct Current (DC) Power. By design, this configuration results in the squib valves maintaining their as-is position upon a loss of motive power, as power is required to ignite the explosive device which repositions the valve. As a result, no loss of motive power testing was required for the squib valves. Functional testing of the squib valve actuation circuits was performed by other ITAAC.

The completed test results (Reference 13) confirmed that after loss of motive power, each remotely operated valve identified in Table 2.1.2-1 assumed the indicated loss of motive power position for Unit 4.

References 1 through 14 are available for NRC inspection as part of Unit 4 ITAAC Completion Package (Reference 15).

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 completion review is documented in the ITAAC Completion Package for ITAAC 2.1.02.11a.ii (Reference 15) and is available for NRC review.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.1.02.11a.ii was performed for VEGP Unit 4 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. SV4-RCS-ITR-802047, “Unit 4 Reactor Coolant System Safety-Related Displays Verification: ITAAC 2.1.02.11a.ii Item 10 NRC Index Number: 47”
2. NEI 08-01, Rev. 5 Corrected, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52"
3. WCAP-16096, Rev. 4, “Software Program Manual for Common Q Systems”
4. APP-PMS-T5-001, Rev. 5 ,“AP1000 Protection and Safety Monitoring System Test Plan”
5. SV4-PMS-T1P-009, Rev. 0, “AP1000 Protection and Safety Monitoring System Integrated Logic Processor Component Logic Channel Integration Test Procedure”
6. SV4-PMS-T2R-009, Rev. 2, “AP1000 Protection and Safety Monitoring System Integrated Logic Processor Component Logic Channel Integration Test Report”
7. SV4-GW-GCW-740, “AP1000 Vogtle 4 PMS Software Installation - Software Release 9.0.0.1”
8. SV4-GW-GCW-848, “AP1000 Vogtle 4 PMS Software Installation - Software Release 9.0.0.4”
9. B-GEN-ITPCI-001, Rev. 4, “PMS CABINETS”
10. SV4-PMS Cabinet Software Loading-001, Rev. 0, “Unit 4 Software Loading for PMS Cabinets for Multiple ITAACs: ITAAC 2.1.02.11a.ii [NRC Index No. 47], ITAAC 2.5.02.06a.ii [NRC Index No. 530], ITAAC 2.5.02.08a.ii [NRC Index No. 540], ITAAC 2.5.02.08b.ii [NRC Index No. 543], ITAAC 2.5.02.09d [NRC Index No. 548], ITAAC 2.5.04.02.i [NRC Index No. 557]”
11. SV4-PMS-T2R-050, Rev. 1, "Vogtle AP1000 Protection and Safety Monitoring System Fuel Load Regression Test Report"
12. SV4-RCS-ITR-800047, Rev. 0, “Unit 4 Recorded Results of Remotely Operated RCS Valves Controlled by PMS Listed in Table 2.1.2-1 Perform Active Safety Function: ITAAC 2.1.02.11a.ii Item 11.a) and 11.b) NRC Index Number: 47”
13. SV4-RCS-ITR-801047, Rev. 0, “Unit 4 Recorded Results of Remotely Operated RCS Valves Response to Loss of Motive Power: ITAAC 2.1.02.11a.ii Item 12.b) NRC Index Number: 47”

14. SV4-PMS Cabinet Diagnostic Testing -001, “Unit 4 PMS Cabinet Diagnostic Testing for Multiple ITAACs: ITAAC 2.1.02.11a.ii [NRC Index No. 47], ITAAC 2.5.02.06a.ii [NRC Index No. 530], ITAAC 2.5.02.08a.ii [NRC Index No. 540], ITAAC 2.5.02.08b.ii [NRC Index No. 543], ITAAC 2.5.02.09d [NRC Index No. 548], ITAAC 2.5.04.02.i [NRC Index No. 557]”
15. 2.1.02.11a.ii-U4-CP-Rev0, ITAAC Completion Package

Attachment A

*Excerpt from COL Appendix C Table 2.1.2-1

Equipment Name*	Tag No.*	Safety-Related Display*
First-stage ADS Motor-operated Valve (MOV)	RCS-PL-V001A	Yes (Valve Position)
First-stage ADS MOV	RCS-PL-V001B	Yes (Valve Position)
Second-stage ADS MOV	RCS-PL-V002A	Yes (Valve Position)
Second-stage ADS MOV	RCS-PL-V002B	Yes (Valve Position)
Third-stage ADS MOV	RCS-PL-V003A	Yes (Valve Position)
Third-stage ADS MOV	RCS-PL-V003B	Yes (Valve Position)
Fourth-stage ADS Squib Valve	RCS-PL-V004A	Yes (Valve Position)
Fourth-stage ADS Squib Valve	RCS-PL-V004B	Yes (Valve Position)
Fourth-stage ADS Squib Valve	RCS-PL-V004C	Yes (Valve Position)
Fourth-stage ADS Squib Valve	RCS-PL-V004D	Yes (Valve Position)
First-stage ADS Isolation MOV	RCS-PL-V011A	Yes (Valve Position)
First-stage ADS Isolation MOV	RCS-PL-V011B	Yes (Valve Position)
Second-stage ADS Isolation MOV	RCS-PL-V012A	Yes (Valve Position)
Second-stage ADS Isolation MOV	RCS-PL-V012B	Yes (Valve Position)
Third-stage ADS Isolation MOV	RCS-PL-V013A	Yes (Valve Position)
Third-stage ADS Isolation MOV	RCS-PL-V013B	Yes (Valve Position)
Fourth-stage ADS MOV	RCS-PL-V014A	Yes (Valve Position)
Fourth-stage ADS MOV	RCS-PL-V014B	Yes (Valve Position)
Fourth-stage ADS MOV	RCS-PL-V014C	Yes (Valve Position)
Fourth-stage ADS MOV	RCS-PL-V014D	Yes (Valve Position)
Reactor Vessel Head Vent Valve	RCS-PL-V150A	Yes (Valve Position)
Reactor Vessel Head Vent Valve	RCS-PL-V150B	Yes (Valve Position)
Reactor Vessel Head Vent Valve	RCS-PL-V150C	Yes (Valve Position)
Reactor Vessel Head Vent Valve	RCS-PL-V150D	Yes (Valve Position)
RCS Hot Leg 1 Flow Sensor	RCS-101A	Yes
RCS Hot Leg 1 Flow Sensor	RCS-101B	Yes
RCS Hot Leg 1 Flow Sensor	RCS-101C	Yes
RCS Hot Leg 1 Flow Sensor	RCS-101D	Yes
RCS Hot Leg 2 Flow Sensor	RCS-102A	Yes
RCS Hot Leg 2 Flow Sensor	RCS-102B	Yes
RCS Hot Leg 2 Flow Sensor	RCS-102C	Yes
RCS Hot Leg 2 Flow Sensor	RCS-102D	Yes
RCS Cold Leg 1A Dual Range Temperature Sensor	RCS-125A	Yes (Wide Range)
RCS Cold Leg 2A Dual Range Temperature Sensor	RCS-125B	Yes (Wide Range)
RCS Cold Leg 1B Dual Range Temperature Sensor	RCS-125C	Yes (Wide Range)
RCS Cold Leg 2B Dual Range Temperature Sensor	RCS-125D	Yes (Wide Range)
RCS Hot Leg 1 Wide Range Temperature Sensor	RCS-135A	Yes
RCS Hot Leg 2 Wide Range Temperature Sensor	RCS-135B	Yes
RCS Wide Range Pressure Sensor	RCS-140A	Yes
RCS Wide Range Pressure Sensor	RCS-140B	Yes
RCS Wide Range Pressure Sensor	RCS-140C	Yes
RCS Wide Range Pressure Sensor	RCS-140D	Yes

Attachment A

*Excerpt from COL Appendix C Table 2.1.2-1

Equipment Name*	Tag No.*	Safety-Related Display*
RCS Hot Leg 1 Level Sensor	RCS-160A	Yes
RCS Hot Leg 2 Level Sensor	RCS-160B	Yes
Passive Residual Heat Removal (PRHR) Return Line Temperature Sensor	RCS-161	Yes
Pressurizer Pressure Sensor	RCS-191A	Yes
Pressurizer Pressure Sensor	RCS-191B	Yes
Pressurizer Pressure Sensor	RCS-191C	Yes
Pressurizer Pressure Sensor	RCS-191D	Yes
Pressurizer Level Reference Leg Temperature Sensor	RCS-193A	Yes
Pressurizer Level Reference Leg Temperature Sensor	RCS-193B	Yes
Pressurizer Level Reference Leg Temperature Sensor	RCS-193C	Yes
Pressurizer Level Reference Leg Temperature Sensor	RCS-193D	Yes
Pressurizer Level Sensor	RCS-195A	Yes
Pressurizer Level Sensor	RCS-195B	Yes
Pressurizer Level Sensor	RCS-195C	Yes
Pressurizer Level Sensor	RCS-195D	Yes
RCP 1A Bearing Water Temperature Sensor	RCS-211A	Yes
RCP 1A Bearing Water Temperature Sensor	RCS-211B	Yes
RCP 1A Bearing Water Temperature Sensor	RCS-211C	Yes
RCP 1A Bearing Water Temperature Sensor	RCS-211D	Yes
RCP 1B Bearing Water Temperature Sensor	RCS-212A	Yes
RCP 1B Bearing Water Temperature Sensor	RCS-212B	Yes
RCP 1B Bearing Water Temperature Sensor	RCS-212C	Yes
RCP 1B Bearing Water Temperature Sensor	RCS-212D	Yes
RCP 2A Bearing Water Temperature Sensor	RCS-213A	Yes
RCP 2A Bearing Water Temperature Sensor	RCS-213B	Yes
RCP 2A Bearing Water Temperature Sensor	RCS-213C	Yes
RCP 2A Bearing Water Temperature Sensor	RCS-213D	Yes
RCP 2B Bearing Water Temperature Sensor	RCS-214A	Yes
RCP 2B Bearing Water Temperature Sensor	RCS-214B	Yes
RCP 2B Bearing Water Temperature Sensor	RCS-214C	Yes
RCP 2B Bearing Water Temperature Sensor	RCS-214D	Yes
RCP 1A Pump Speed Sensor	RCS-281	Yes
RCP 1B Pump Speed Sensor	RCS-282	Yes
RCP 2A Pump Speed Sensor	RCS-283	Yes
RCP 2B Pump Speed Sensor	RCS-284	Yes

Attachment B

*Excerpt from COL Appendix C Table 2.1.2-1

Equipment Name*	Tag No.*	Active Function*
First-stage ADS Motor-operated Valve (MOV)	RCS-PL-V001A	Transfer Open
First-stage ADS MOV	RCS-PL-V001B	Transfer Open
Second-stage ADS MOV	RCS-PL-V002A	Transfer Open
Second-stage ADS MOV	RCS-PL-V002B	Transfer Open
Third-stage ADS MOV	RCS-PL-V003A	Transfer Open
Third-stage ADS MOV	RCS-PL-V003B	Transfer Open
First-stage ADS Isolation MOV	RCS-PL-V011A	Transfer Open
First-stage ADS Isolation MOV	RCS-PL-V011B	Transfer Open
Second-stage ADS Isolation MOV	RCS-PL-V012A	Transfer Open
Second-stage ADS Isolation MOV	RCS-PL-V012B	Transfer Open
Third-stage ADS Isolation MOV	RCS-PL-V013A	Transfer Open
Third-stage ADS Isolation MOV	RCS-PL-V013B	Transfer Open
Reactor Vessel Head Vent Valve	RCS-PL-V150A	Transfer Closed/ Transfer Open
Reactor Vessel Head Vent Valve	RCS-PL-V150B	Transfer Closed/ Transfer Open
Reactor Vessel Head Vent Valve	RCS-PL-V150C	Transfer Closed/ Transfer Open
Reactor Vessel Head Vent Valve	RCS-PL-V150D	Transfer Closed/ Transfer Open

Attachment C

*Excerpt from COL Appendix C Table 2.1.2-1

Equipment Name*	Tag No.*	Control PMS/ DAS*	Active Function*
First-stage ADS Motor-operated Valve (MOV)	RCS-PL-V001A	Yes/Yes	Transfer Open
First-stage ADS MOV	RCS-PL-V001B	Yes/Yes	Transfer Open
Second-stage ADS MOV	RCS-PL-V002A	Yes/Yes	Transfer Open
Second-stage ADS MOV	RCS-PL-V002B	Yes/Yes	Transfer Open
Third-stage ADS MOV	RCS-PL-V003A	Yes/Yes	Transfer Open
Third-stage ADS MOV	RCS-PL-V003B	Yes/Yes	Transfer Open
First-stage ADS Isolation MOV	RCS-PL-V011A	Yes/Yes	Transfer Open
First-stage ADS Isolation MOV	RCS-PL-V011B	Yes/Yes	Transfer Open
Second-stage ADS Isolation MOV	RCS-PL-V012A	Yes/Yes	Transfer Open
Second-stage ADS Isolation MOV	RCS-PL-V012B	Yes/Yes	Transfer Open
Third-stage ADS Isolation MOV	RCS-PL-V013A	Yes/Yes	Transfer Open
Third-stage ADS Isolation MOV	RCS-PL-V013B	Yes/Yes	Transfer Open
Reactor Vessel Head Vent Valve	RCS-PL-V150A	Yes/No	Transfer Closed/ Transfer Open
Reactor Vessel Head Vent Valve	RCS-PL-V150B	Yes/No	Transfer Closed/ Transfer Open
Reactor Vessel Head Vent Valve	RCS-PL-V150C	Yes/No	Transfer Closed/ Transfer Open
Reactor Vessel Head Vent Valve	RCS-PL-V150D	Yes/No	Transfer Closed/ Transfer Open

Attachment D

*Excerpt from COL Appendix C Table 2.1.2-1

Equipment Name*	Tag No.*	Opening Time**
First-stage ADS Motor-operated Valve (MOV)	RCS-PL-V001A	26 sec
First-stage ADS MOV	RCS-PL-V001B	29 sec
Second-stage ADS MOV	RCS-PL-V002A	56 sec
Second-stage ADS MOV	RCS-PL-V002B	57 sec
Third-stage ADS MOV	RCS-PL-V003A	61 sec
Third-stage ADS MOV	RCS-PL-V003B	60 sec
First-stage ADS Isolation MOV	RCS-PL-V011A	15 sec
First-stage ADS Isolation MOV	RCS-PL-V011B	18 sec
Second-stage ADS Isolation MOV	RCS-PL-V012A	27 sec
Second-stage ADS Isolation MOV	RCS-PL-V012B	27 sec
Third-stage ADS Isolation MOV	RCS-PL-V013A	27 sec
Third-stage ADS Isolation MOV	RCS-PL-V013B	27 sec

** rounded up to be consistent with the significant figures in COL Appendix C

Attachment E

*Excerpt from COL Appendix C Table 2.1.2-1

Equipment Name*	Tag No.*	Loss of Motive Power Position*
First-stage ADS Motor-operated Valve (MOV)	RCS-PL-V001A	As Is
First-stage ADS MOV	RCS-PL-V001B	As Is
Second-stage ADS MOV	RCS-PL-V002A	As Is
Second-stage ADS MOV	RCS-PL-V002B	As Is
Third-stage ADS MOV	RCS-PL-V003A	As Is
Third-stage ADS MOV	RCS-PL-V003B	As Is
Fourth-stage ADS Squib Valve	RCS-PL-V004A	As Is
Fourth-stage ADS Squib Valve	RCS-PL-V004B	As Is
Fourth-stage ADS Squib Valve	RCS-PL-V004C	As Is
Fourth-stage ADS Squib Valve	RCS-PL-V004D	As Is
First-stage ADS Isolation MOV	RCS-PL-V011A	As Is
First-stage ADS Isolation MOV	RCS-PL-V011B	As Is
Second-stage ADS Isolation MOV	RCS-PL-V012A	As Is
Second-stage ADS Isolation MOV	RCS-PL-V012B	As Is
Third-stage ADS Isolation MOV	RCS-PL-V013A	As Is
Third-stage ADS Isolation MOV	RCS-PL-V013B	As Is
Fourth-stage ADS MOV	RCS-PL-V014A	As Is
Fourth-stage ADS MOV	RCS-PL-V014B	As Is
Fourth-stage ADS MOV	RCS-PL-V014C	As Is
Fourth-stage ADS MOV	RCS-PL-V014D	As Is
Reactor Vessel Head Vent Valve	RCS-PL-V150A	Closed
Reactor Vessel Head Vent Valve	RCS-PL-V150B	Closed
Reactor Vessel Head Vent Valve	RCS-PL-V150C	Closed
Reactor Vessel Head Vent Valve	RCS-PL-V150D	Closed