Simulated ITAAC Closure and Verification Demonstration Project

August 19, 2010

Westinghouse

Simulated ITAAC Closure and Verification Demonstration

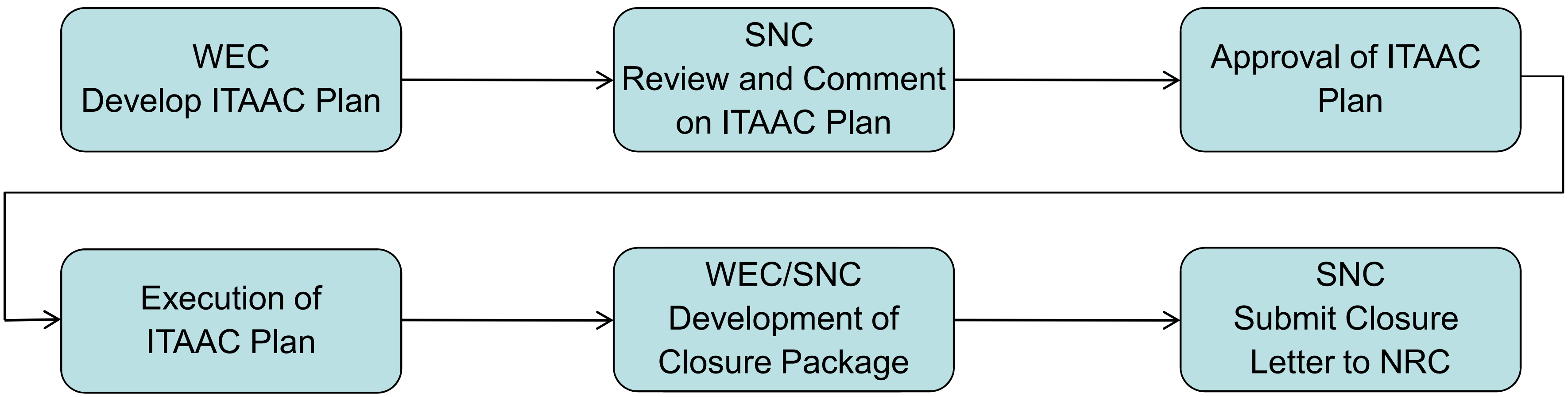
SOUTHERN COMPANY

Agenda

- Southern Company (Paulo Albuquerque)
  - SNC review of ITAAC Plans
  - Current Status
  - Proposed Project Timeline
  - Upcoming Activities
- Westinghouse (Thomas Ray)
  - Review of 6 ITAACs
  - Level of Detail in Demonstration and Closure Letter

SNC Review of ITAAC Plans

- ITAAC Plans



Current ITAAC Plan Status

- ITAAC (2.1 02.07a.i) – Reactor Coolant System (RCS) Harsh Environment Type Test – Complete
- ITAAC (2.2 01.04a.ii) – Impact Testing on containment IAW ASME Section III – Complete
- ITAAC (2.2 02.01) – Passive Containment Cooling (PCS) Functional Arrangement – In WEC development
- ITAAC (2.2 03.08c.i) – Injection Line Flow Resistance Testing and Analysis – In WEC development
- ITAAC (2.6 03.08) – DC System Fault Current Analysis – In WEC Development
- ITAAC (3.7 00.01) – Design Reliability Assurance – In WEC Development

Project Timeline

• NRC Region II Site Inspection (For limited ITAAC Information)	September 8th – 9th, 2010
• Simulated Inspection of Closure Packages – (Cranberry, PA)	September 22rd -23rd, 2010
• Public Meeting – Update on project progress	October 7th, 2010
• Submit ITAAC Closure Letter to NRC	October 29th, 2010
• NRC to Publish Federal Register Notice	November 15th, 2010
• Public Meeting – Workshop to summarize exercise	December 16th, 2010
• Public Meeting – Lessons Learned	February 28th, 2010

Upcoming Activities

- SNC will host a site inspection for limited ITAAC information on September 8th and 9th, 2010 to NRC Region II. This inspection will occur at Vogtle 3&4 construction site.
- Westinghouse/SNC will host a Simulated Inspection in Cranberry on September 22nd and 23rd with the objective of having NRC Headquarters and Region II SME's to attend for the technical review of documentation included in the Closure Packages.
- A Public Meeting will be held on October 7th to share the results of those efforts

ITAAC Demonstration Project

- Thomas Ray - Westinghouse

Objectives

- Gain insights into the readiness of both the industry ITAAC closure process and the NRC ITAAC closure verification process.
- Test aspects of the construction assessment and enforcement programs.
- Evaluate the surge in ITAAC closure submittals during the last year of construction for any insights.
- Review level of detail to be provided as part of the demonstration.

DCD Rev. 18 ITAAC selected for the Exercise

- AP1000 ITAAC (2.1 02.07a.i) – Reactor Coolant System (RCS) Harsh Environment Type Test
- AP1000 ITAAC (2.2 01.04a.ii) – Impact Testing on containment IAW ASME Section III
- AP1000 ITAAC (2.2 02.01) – Passive Containment Cooling (PCS) Functional Arrangement
- AP1000 ITAAC (2.2 03.08c.i) – Injection Line Flow Resistance Testing and Analysis
- AP1000 ITAAC (2.6 03.08) – DC System Fault Current Analysis
- AP1000 ITAAC (3.7 00.01) – Design Reliability Assurance

ITAAC (2.1 02.07a.i) – Reactor Coolant System (RCS) Harsh Environment Type Test

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
7.a) The Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	i) Type tests, analyses, or a combination of type tests and analyses will be performed on Class 1E equipment located in a harsh environment.	i) A report exists and concludes that the Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ITAAC (2.1 02.07a.i) – Reactor Coolant System (RCS) Harsh Environment Type Test – cont.

- Background on ITAAC:
  ~ 90 components in Table 2.1.2-1 that will be qualified for Harsh Environment
- What we will have as part of demonstration:
  - Plan for how the ITAAC will be resolved and what would be in the final closure package.
  - Example Equipment Qualification Documentation Packages (mock-ups as needed) for 1 or two components.
  - Closure Letter highlighting completion of all components.

ITAAC (2.2 01.04a.ii) – Impact Testing on containment IAW ASME Section III

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
4.a) The components identified in Table 2.2.1-1 as ASME Code Section III retain their pressure boundary integrity at their design pressure.	ii) Impact testing will be performed on the containment and pressure-retaining penetration materials in accordance with the ASME Code Section III, Subsection NE, to confirm the fracture toughness of the materials.	ii) A report exists and concludes that the containment and pressure-retaining penetration materials conform with fracture toughness requirements of the ASME Code Section III.

ITAAC (2.2 01.04a.ii) – Impact Testing on containment IAW ASME Section III – cont.

- Background on ITAAC:
  - ITAAC covers many tests that will occur during forging of the containment shell components.
- What we will have as part of demonstration:
  - Plan for how the ITAAC will be resolved and what would be in the final closure package.
  - Example Testing documents.
  - Closure Letter highlighting completion of entire ITAAC.

ITAAC (2.2 02.01) – Passive Containment Cooling (PCS) Functional Arrangement

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The functional arrangement of the PCS is as described in the Design Description of this Section 2.2.2.	Inspection of the as-built system will be performed.	The as-built PCS conforms to the functional arrangement as described in the Design Description of this Section 2.2.2.

ITAAC (2.2 02.01) – Passive Containment Cooling (PCS) Functional Arrangement – cont.

- Background on ITAAC:
  - AP1000 functional arrangement ITAAC focuses on inspection that the system is in place.
- What we will have as part of demonstration:
  - Plan for how the ITAAC will be resolved and what would be in the final closure package.
  - Example walkdown documentation.
  - Closure Letter highlighting completion of entire activity.

ITAAC (2.2 03.08c.i) – Injection Line Flow Resistance Testing and Analysis

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	i) A low-pressure injection test and analysis for each CMT, each accumulator, each IRWST injection line, and each containment recirculation line will be conducted. Each test is initiated by opening isolation valve(s) in the line being tested. Test fixtures may be used to simulate squib valves.	i) The injection line flow resistance from each source is as follows:
	CMTs: Each CMT will be initially filled with water. All valves in these lines will be open during the test.	CMTs: The calculated flow resistance between each CMT and the reactor vessel is ≥ 1.81 x 10-5 ft/gpm2 and ≤ 2.25 x 10-5 ft/gpm2.
	Accumulators: Each accumulator will be partially filled with water and pressurized with nitrogen. All valves in these lines will be open during the test. Sufficient flow will be provided to fully open the check valves.	Accumulators: The calculated flow resistance between each accumulator and the reactor vessel is ≥ 1.47 x 10-5 ft/gpm2 and ≤ 1.83 x 10-5 ft/gpm2.

ITAAC (2.2 03.08c.i) – Injection Line Flow Resistance Testing and Analysis – cont.

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	i) A low-pressure injection test and analysis for each CMT, each accumulator, each IRWST injection line, and each containment recirculation line will be conducted. Each test is initiated by opening isolation valve(s) in the line being tested. Test fixtures may be used to simulate squib valves. IRWST Injection: The IRWST will be partially filled with water. All valves in these lines will be open during the test. Sufficient flow will be provided to fully open the check valves. Containment Recirculation: A temporary water supply will be connected to the recirculation lines. All valves in these lines will be open during the test. Sufficient flow will be provided to fully open the check valves.	i) The injection line flow resistance from each source is as follows: IRWST Injection: The calculated flow resistance for each IRWST injection line between the IRWST and the reactor vessel is: Line A: ≥ 5.53 x 10-6 ft/gpm2 and ≤ 9.20 x 10-6 ft/gpm2 and Line B: ≥ 6.21 x 10-6 ft/gpm2 and ≤ 1.03 x 10-5 ft/gpm2. Containment Recirculation: The calculated flow resistance for each containment recirculation line between the containment and the reactor vessel is: Line A: ≤ 1.11 x 10-5 ft/gpm2 and Line B: ≤ 1.04 x 10-5 ft/gpm2.

ITAAC (2.2 03.08c.i) – Injection Line Flow Resistance Testing and Analysis – cont.

- Background on ITAAC:
  - Westinghouse has split this ITAAC into four separate closure letters.
    - CMT, Accumulator, IRWST Injection, and Containment Recirculation Line
- What we will have as part of demonstration:
  - Plan for how the ITAAC will be resolved and what would be in the final closure package.
  - Example analysis/calculation that will be used to complete the analysis part of the ITAAC.
  - Plan for how the testing part of the ITAAC will be completed on-site.
  - Closure Letter highlighting completion of all activities.

ITAAC (2.6 03.08) – DC System Fault Current Analysis

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
8. Circuit breakers and fuses in IDS battery, battery charger, dc distribution panel, and MCC circuits are rated to interrupt fault currents.	Analyses for the as-built IDS dc electrical distribution system to determine fault currents will be performed.	Analyses for the as-built IDS dc electrical distribution system exist and conclude that the analyzed fault currents do not exceed the interrupt capacity of circuit breakers and fuses in the battery, battery charger, dc distribution panel, and MCC circuits, as determined by their nameplate ratings.

ITAAC (2.6 03.08) – DC System Fault Current Analysis – cont.

- Background on ITAAC:
  - This is an analysis ITAAC rather than an inspection ITAAC and the analysis will be done early during design phase.
- What we will have as part of demonstration:
  - Plan for how the ITAAC will be resolved and what would be in the final closure package.
  - Example Analysis for the DC System Fault Current.
  - Closure Letter highlighting completion of all components.

ITAAC (3.7 00.01) – Design Reliability Assurance

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The D-RAP ensures that the design of SSCs within the scope of the reliability assurance program (Table 3.7-1) is consistent with the risk insights and key assumptions (e.g., SSC design, reliability, and availability).	An analysis will confirm that the design of RAP SSCs identified in Table 3.7-1 has been completed in accordance with applicable D-RAP activities.	An analysis report documents that safety-related SSCs identified in Table 3.7-1 have been designed in accordance with a 10 CFR 50 Appendix B quality program. An analysis report documents that non-safety-related SSCs identified in Table 3.7-1 have been designed in accordance with a program that satisfies quality assurance requirements for SSCs important to investment protection.

ITAAC (3.7 00.01) – Design Reliability Assurance – cont.

- Background on ITAAC:
  - This ITAAC has changed in wording since DCD Rev. 17 and the wording provided will be in DCD Rev. 18.
  - There are a large number of components for various systems.
- What we will have as part of demonstration:
  - Plan for how the ITAAC will be resolved and what would be in the final closure package.
  - Example of what will be included in the analysis for a system and the components in that system.
  - Closure Letter highlighting completion of all components and the systems.

Questions/Comments