Simulated ITAAC Closure and Verification Demonstration

NRO Public Workshop

December 09, 2010

Mahmoud Jardaneh, PE
NRO/DCIP/CTSB/CIT

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Scope

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Six ITAAC selected from AP1000 design
  - ITAAC 2.1.02.07a.i, RCS Harsh Environment Type Test
  - ITAAC 2.2.01.04a.ii, Containment System Impact Testing
  - ITAAC 2.2.02.01, Passive Containment Cooling Functional Arrangement
  - ITAAC 2.2.03.08c.i, Injection Line Flow Resistance Testing and Analysis
  - ITAAC 2.6.03.08, DC System Fault Current Analysis
  - ITAAC 3.7.01, Design Reliability Assurance Program

- Four Stages
  - ITAAC Performance and NRC Assessment
  - ITAAC Closure Verification
  - Exercise Workshop
  - Lessons Learned

Milestones Update

United States Nuclear Regulatory Commission
Protecting People and the Environment

- ~~7/29/10 Public Meeting – Kickoff~~
- ~~8/19/10 Public Meeting – Progress Update~~
- ~~9/14/10 Simulated Inspection at Vogtle 3&4~~
- ~~9/22/10 Simulated Inspection at Westinghouse HQ~~
- ~~10/07/10 Public Meeting – Progress Update~~
- ~~10/27/10 Region II issues Integrated Inspection Report~~
- ~~11/03/10 Public Meeting – D-RAP ITAAC~~
- ~~11/10/10 Closed Meeting – Surge in ITAAC evaluation~~
- ~~11/11/10 Westinghouse/Southern submit ICL to NRC~~
- 12/09/10 Public Meeting – Progress Update
- 1/17/11 NRC Completes ITAAC Closure Verification
- 1/27/11 Public Meeting – Demonstration Workshop
- 3/31/11 Public Meeting – Lessons Learned

Stage 2

- Objectives for Stage 2
  - Demonstrate the infrastructure that will be used for ITAAC closure verification
  - Demonstrate the communication paths for ITAAC closure letters (ICLs) and additional inspection requests
  - Evaluate the surge in ICL submittals expected in the last year of construction
  - Simulate the issuance of a *Federal Register* Notice (FRN)
- Progress for Stage 2
  - 9 simulated ICLs have been submitted
  - ICLs are being evaluated
  - Issued Technical Assistance Request (TAR) to Region II CCI for additional inspection
  - FRN template and checklist are being developed
  - Evaluated the surge in ICL submittals

ICL Review Approach

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Learning Experience for NRC and Industry
- 22 ICL examples including the generic template in Appendix D of NEI 08-01 were used
- Reviewed independently and then discussed in a group setting with OGC and some members with significant construction experience

ICL Review – Initial Feedback

- Organize IDB to match the ITA
- List the ITAAC closure package table of contents in the references instead of simply listing “ITAAC closure package”
- Include the applicable pre-op tests, drawings, etc. in the reference list
- When larger ITAAC is divided into multiple ITAAC, appropriate notification/documentation in the ICL will aid in ITAAC closure
- References did not match between ICL contents and reference lists

ITAAC 2.1.02.07a.i (10E)

- NEI 08-01 Template: D-1
- Acceptance Review: **Accepted**
- Closure Verification Review: **Not Verified**
  - Many test descriptions reside in App. 3D of AP1000, but which tests were used?
  - App 3D should be listed in the references
  - Equipment qualification reports should be included in references

ITAAC 2.2.01.04a.ii (6F)

- NEI 08-01 Template: D-7
- Acceptance Review: **Accepted**
- Closure Verification Review: **Verified**

ITAAC 2.2.02.01 (14A)

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- NEI 08-01 Template: D-18
- Acceptance Review: **Not Accepted**
  - ICL did not list the walk down procedure in the reference list
  - Detailed check lists and observations are not referenced as indicated on D-18 template
- Closure Verification: **Not Verified**
  - The referenced table and figure in the IDB did not list or show all the sensors and valves as required in the acceptance criteria
  - The IDB did not indicate that each component is in its proper functional or logical (for I&C) relation to the system

ITAAC 2.2.03.08c.i-01 (6D)

- NEI 08-01 Template: D-1
- Acceptance Review: **Not Accepted**
  - A performance test and a calculation were performed, but not referenced
- Closure Verification Review: **Not Verified**
  - Letter refers to flow loss instead of head loss
  - Test methodology is not sufficiently detailed
  - Staff could not determine if the value of uncertainty adjustment for the flow resistance calculation was appropriate for test conditions

ITAAC 2.2.03.08c.i-02 (06D)

- NEI 08-01 Template: D-1
- Acceptance Review: **Not Accepted**
  - Missing information - requires detailed test statement on accumulator for the “sub-ITA”
- Closure Verification Review: **Not Verified**
  - Insufficient Information - ICL needs to reference pre-op testing if applicable or provide sufficient details on the “performance test” and associated QA and controls

ITAAC 2.2.03.08c.i-03 (06D)

- NEI 08-01 Template: D-1
- Acceptance Review: **Accepted**
- Closure Verification Review: **Not Verified**
  - Insufficient Information - ICL needs to reference pre-op testing if applicable or provide sufficient details on the “performance test” and associated QA and controls

ITAAC 2.2.03.08c.i-04 (06D)

- NEI 08-01 Template: D-13
- Acceptance Review: **Accepted**
- Closure Verification Review: **Not Verified**
  - IDB should call out how the elements of the ITA coincide with the actual SSCs tested (temp. water supply, which valves were opened, etc.)
  - Level of detail is insufficient. Contrary to template, IDB did not call out valve numbers, drain numbers, specific reports, and the actual pre-operational test

ITAAC 2.6.03.08 (08F)

- NEI 08-01 Template: D-1
- Acceptance Review: **Accepted**
- Closure Verification Review: **Verified**

ITAAC 3.7.00.01 (16F)

- NEI 08-01 Template: D-10
- Acceptance Review: **Not Accepted**
  - References are missing
  - Headings are not consistent with template
- Closure Verification Review: **Verified**

Summary

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Industry should assess comments to discuss in detail on January 27
- Refer to NEI 08-01 templates when drafting ICLs
- Consider NRO project managers who will review the ICLs
- ICL must stand alone to inform the public

ICL ML Numbers

- 2.1.02.07a.i ML103190452
- 2.2.01.04a.ii ML103190443
- 2.2.02.01 ML103190445
- 2.2.03.08c.i-01 ML103190442
- 2.2.03.08c.i-02 ML103190446
- 2.2.03.08c.i-03 ML103190477
- 2.2.03.08c.i-04 ML103190448
- 2.6.03.08 ML103190450
- 3.7.00.01 ML103190451