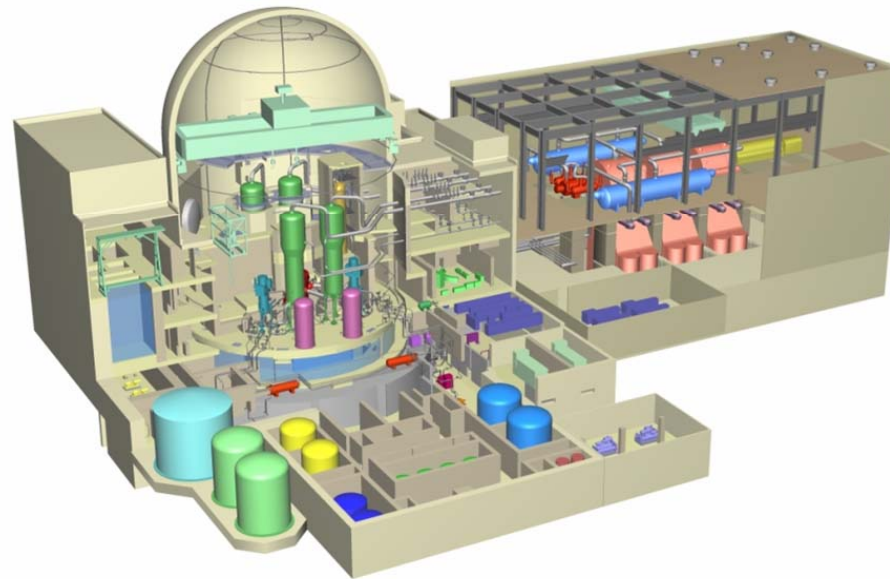


US-APWR ITAAC Enhancement



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Mitsubishi Nuclear Energy Systems



Introduction

- ❖ Background
- ❖ Tier 1 Enhancement Project Description
- ❖ Project Process Description
- ❖ Project Results
- ❖ NRC Interaction
- ❖ Conclusion

Background



- ❖ Beginning with RIS 2008-05
(February, 2008) NRC expressed concern over
 - ITAAC Format and Content
 - ITAAC Nomenclature and Language
 - ITAAC Inspection Focus Logic and Practicality
 - ITAAC Standardization and Consistency
- ❖ Concerns reiterated in 12/17/2009
Presentation to Industry

Background



- ❖ Further re-enforced by RIS 2008-05 Rev 1 (September 2010)
- ❖ NRC Staff worked with industry through this time to improve ITAAC
- ❖ The US-APWR DCWG took advantage of Dominion experience with another vendor and initiated the Tier 1 Enhancement project

Objectives of Enhancement Project



- ❖ Incorporate recent NRC guidance into existing ITAAC and Tier 1 design descriptions using engineering judgment and considering recent industry experience
- ❖ Facilitate the NRC's "Inspection Focus, Logic, and Practicality" review effort of ITAAC in the DCD review process
- ❖ Facilitate ITAAC completion, inspection, and closure effort
- ❖ Minimize potential impacts on construction and operations

Tier 1 Enhancement Project



- ❖ Tier 1 enhancement project began in June, 2010
- ❖ Core Team of experienced licensing engineers provided project oversight
- ❖ Multi-discipline teams of licensing, engineering, and construction personnel from MHI/MNES, Dominion, and Luminant
- ❖ DCD Revision 2 and RAI responses were reviewed
- ❖ Review based on
 - RIS 2008-05 (Rev. 1)
 - 12/17/09 NRC Presentation
 - SRP 14.3
 - Industry Experience

Tier 1 Enhancement Project



- ❖ Standardized review approach was used
 - Five technical review teams assembled
 - Systems
 - I&C
 - Structural
 - Electrical
 - Mechanical
 - Team Leads were Core Team members to help ensure consistency of reviews
 - Review process instructions provided
 - Detailed checklist developed
 - Results from other vendors considered

ITAAC Review Checklist



ITAAC reviews were performed using a checklist with review items similar to these examples

Regulatory Guidance

DCD Tier 1 Review Checklist Examples	
Review Item	Source
Confirm that each ITAAC does not use unquantifiable, subjective, or generic terms, such as “sufficient,” “appropriate,” or “adequate.”	NRC 12/17/09 Slide 3, Bullet 1; RIS 2008-05 Rev. 1 (pg 4)
Confirm that each ITAAC references a quantitative attribute or standard to be verified.	NRC 12/17/09 Slide 3, Bullet 2; RIS 2008-05 Rev. 1 (pg 3)
Confirm that the Tier 1 information is consistent with the corresponding Tier 2 information	NRC 12/17/09 Slide 4; RIS 2008-05 Rev. 1 (pg 7)
Confirm that each ITAAC associates the defined term, “Inspection,” “Test,” or “Analysis,” with the correct activity needed to validate the Acceptance Criteria.	NRC 12/17/09 Slide 5; RIS 2008-05 Rev. 1 (pg 5)
Confirm that each ITAAC verifies the intent of the Design Commitment.	NRC 12/17/09 Slide 6; RIS 2008-05 Rev. 1 (pg 5)
Confirm that each ITAAC does not use the conjunction, “and/or” as it is never appropriate.	RIS 2008-05 Rev. 1 (pg 3)
Confirm that ITAAC requires direct inspection of construction as it occurs, rather than review of post construction records.	RIS 2008-05 Rev. 1 (pg 4)

Enhancement Review Products



- ❖ Redline/strikeout of DCD Tier 1 sections
 - Consistent wording for “generic” ITAAC (e.g., seismic, ASME Code, equipment qualification)
- ❖ “Basis” document to accompany each Tier 1 Section change package that:
 - Provides a “roadmap” for changes to the Design Descriptions and ITAAC
 - Provides an explanation/basis for the changes
 - Identifies changes that alter RAI responses previously submitted by MHI

Tier 1 Enhancement Benefits



- ❖ Benefits gained through the enhancement project include:
 - Consistent wording for “generic” ITAAC (e.g., seismic, ASME Code, equipment qualification)
 - Improved consistency between ITAAC Design Commitments and Acceptance Criteria
 - Inspections, Test, and Analyses (ITA) more clearly confirm Design Commitments (DC)
 - Improved clarity of ITAAC language
 - Improved inspectability of ITAAC closure

NRC Interactions



- ❖ DCWG Meeting – 11/3/2010
 - Formally introduced the Tier 1 enhancement project
- ❖ Subsequent public meetings to discuss Tier 1 section changes
 - Provided opportunity for discussion of draft section changes
- ❖ MHI/MNES response to NRC comments and questions on draft section markups
 - All NRC questions and comments are captured and tracked to ensure a response is provided

Conclusion



- ❖ Tier 1 enhancement project resulted in improved quality of Tier 1
 - More consistent and appropriate ITAAC content
 - Eliminated unnecessary content in Tier 1
- ❖ Provided an effective public platform for MHI/MNES and NRC interaction
- ❖ Facilitated a more efficient staff review of the US-APWR DCD