AP1000 Design Control Document REV17 Submittal Overview

September 17, 2008

AP1000

Westinghouse

Introduction

- **Safety first!**
  - Emergency Exits
  - Evacuation Meeting Point
  - Trip Hazards and General Situational Awareness

- **Introduction**
  - Office Procedures Change
  - Sign-in Sheet
  - Acknowledge Telecom
  - Amenities (Refreshments and Lunch for $5)

- **Meeting Purpose** - Pre-submittal Meeting on the Update to the Amended Certified Design
  - DCD Rev. 17

- **NRC Introductory Remarks**

AGENDA

- 9:00 Opening Remarks R Sisk
  - Safety, Introductions and Purpose
- 9:10 DCD Rev. 17 Overview R Sisk
  - General Approach – RAI, TR , Color Code
- 9:20 Tier 1 Review D Lindgren
  - ITAAC
- 9:50 Tier 2 Chapter 1, 11 and 12 D Lindgren/S Adams
- 10:20 Break
- 10:30 Tier 2 Chapter 2, 7 & 16 D Lindgren/B Seelman/D Behnke
- 11:15 Tier 2 Chapter 3, 6 & 8 D Lindgren/B Seelman
- 12:00 Lunch (available at a nominal cost or from café down stairs)
- 12:45 Tier 2 Chapter 4, 15 & 17 D Behnke/S Adams
- 1:30 Tier 2 Chapter 5, 9, 10 &13 D Lindgren/ S Adams
- 2:00 Tier 2 Chapter 14, 18 &19 S Adams/B Seelman
- 3:00 Wrap
- 3:15 Adjourn R Sisk

DCD Rev.17 Overview

- Why an update?
  - Westinghouse is providing an update to the amended certified design to incorporate changes made to the design since the amendment was submitted.
  - Changes were a result of:
    - NRC Requirements (RAIs, Regulations…etc.)
    - Enhancing Standardization
    - Design Maturity (Vendor Supplier Requirements)
    - Correction of Errors
- Why Now?
  - To minimize impact on the NRC Review Schedule
  - Address the unknown!

DCD Rev.17 Overview (cont)

- DCD Rev 17 incorporates those changes identified since the submittal of DCD Rev 16. This includes those changes previously submitted to the NRC as:
  - Technical Reports (incl. TR134 Rev 0-5)
  - Responses to Requests for Additional Information (RAIs)
  - Impact Reports
  - Editorial (correct inconsistencies, name changes…etc.)

- Reviewer Aide: Color Copy of DCD Rev.17:
  - Black Text – Rev 15 (Certified Design)
  - Blue Text – Rev 16 & TR 134 Rev 0-4
  - Green Text – TR 134 Rev 5
  - Red Text – New changes since TR 134
  - Change Roadmap

Tier 1 Chapter 1, and 2

- DCD Intro
  - Piping DAC Removal
- Chapter 1
  - As-Built Definition
  - High Frequency Seismic
- Chapter 2
  - Conforming Changes to Tier 2 Changes
  - Design finalization
  - Nomenclature
  - Valve Changes (IST Program, Active valve determination, Added valves, Valve stroke time changes
  - dc Voltage Change
  - Physical Security Change
  - Single Failure Proof Crane
  - PMS DAC Removal

Tier 1 Chapter 3, 4, and 5

- Chapter 3
  - Human Factors – Completion of DAC Items
  - Spilt up Building ITAAC
  - Building Configuration Changes.
- Chapter 5
  - High Frequency
  - Lateral Variability
  - X\Q Changes

Tier 2 Chapter 1

- Chapter 1 Summary
  - Chapter 1 is mostly a roll-up of information in other Chapters.
  - Building Configuration Changes
  - Update of Material Referenced – RAI Responses

Tier 2 Chapter 11

- This chapter covers Radioactive Waste Management
- Change Summary
  - No new TRs
  - New RAI Responses impacting DCD
    - Compliance with RG 1.143 and 10 CFR 71
    - Compliance with 10 CFR 50 App.I and 10 CFR 20.1301
  - Other changes
    - Gaseous Waste System Detailed Design
    - Gaseous Waste Adsorption Coefficient (NUREG-0017)
    - Radiation Monitoring – enhanced performance
- 11.2.5.2 – COL Information Item revised in response to RAI
- No DAC associated with Ch.11

Tier 2 Chapter 12

- This Chapter discusses Radiation Protection
- Change Summary
  - New TR
    - IHP DCD Impact Document
  - New RAI Responses
    - Monitor Tanks
    - Spent Fuel Pool Capacity
  - Other Changes
    - Primarily Figure changes associated with various Layout changes
- No Changes to COL Information Items in Ch.12
- No DAC associated with Ch.12

Tier 2 Chapter 2

- Chapter 2 Summary
  - High Frequency RAI Responses
  - Other Seismic and Structural RAI responses
  - X/Q changes
  - Wetbulb Temperature Changes.

Review Of Chapter 7
Instrumentation and Controls

- Design Progress – Substantial Completion of S/W Life Cycle Design Phases
  - DAC Closure and Removal for DAS and PMS

- DAC Closure and Removal
  - Diverse Actuation System (DAS)
    - Design Requirements Phase Complete
    - System Definition Phase Complete
      - » Functional Diagrams in DCD
      - » Functional Requirements Specified
  - Protection and Safety Monitoring (PMS)
    - Conceptual (Design Requirements) Phase Complete
      - » Documents Complete
    - System Definition Phase Complete
      - » Design documented in DCD
      - » Functional Requirements are Specified
      - » 10 of 12 Documents Ready for NRC Review

Review Of Chapter 7
Instrumentation and Controls (cont.)

- Design Progress – Substantial Completion of S/W Life Cycle Design Phases
  - Cyber Security Implementation (AP1000 Strategy for Compliance)
- COLA Information items - IBR

Review Of Chapter 16 Technical Specifications

- TRs
  - Resolve technical bracketed items in the generic tech specs of the AP1000 DCD, and document activities required for COL Information Item 16.1-1
- Design Changes
  - Relax ADS valve stroke time requirements
  - Change of DC System Voltage from 125 VDC to 250 VDC
  - Gray Rod Swap and Operational Requirements Consistent with use of the OPDMS
- Changes to COLA Information items
  - None

Tier 2 Chapter 3

- Clarify Seismic Design of Structures
- Clarify and Add New components to Classification Table
- Updated Waterproofing information
- Updated COL Information Requirements of Wind and Tornado
- Updated LBB and Break Hazard info
  - Deleted hot water heating system
  - Revised requirements for future Pipe Break Hazard analysis
  - Incorporated material changes.

Tier 2 Chapter 3

- Updated figures for structural info.
- Updated Critical Structure info
- Inservice Testing and Valve Qualification Changes
- Valve updates
- Critical Piping Design Methods And Criteria
- Updated Table 3.11-1 for component changes
- Updated information on critical sections including Shield Building Roof info.
- Updated information on High frequency seisimic

Tier 2 Chapter 6

- Update coating options
- Updated Containment Isolation Valve
- Updated Recirculation Screen info
- Updated Control Room Ventilation Information and Control Room Dose.

Review Of Chapter 8
Electric Power

- Design Changes to Accommodate Plant Improvements

- Design Changes:
  - Changed HP of CRDM Fans from 40hp to 75hp – Incorporating Toshiba design
  - Added load for Instrument Air Compressor - Increase capacity of compressor and receiver tanks – reduce spurious alarms
  - Revised electrical feed from medium voltage to low voltage – meet chiller mfg requirement
  - Increased IDS system voltage to 250VDC – permitted reduction of cable size & raceway size
  - Added EDS5 Battery, Charger, and Switchgear to increase degree of margin

- No Changes to COLA Information items

Review Of Chapter 4
Reactor

- RAIs
  - Restore Tier 2 asterisks and brackets.
- Design Changes:
  - IHP Reduce number Of Penetrations
- Changes to COLA Information items
  - None

Review Of Chapter 15 Accident Analyses

- Design Changes
  - Use of ASTRUM
  - Revision of Dose Analysis to be consistent with NRC direction
  - Enhanced isolation of Control room and actuation of habitability system
  - Relax ADS valve stroke time requirements
  - Provide Figures for entrainment study (non-limiting) DEDVI LOCA
- Changes to COLA Information items
  - None

Tier 2 Chapter 17

- Quality Assurance
- Change Summary
  - D-RAP SSC List
- There are no Changes to COL Information Items in Ch.17
- There is no DAC associated with Ch.17

Tier 2 Chapter 5

- Update Materials
- Update minor component design values

Tier 2 Chapter 9

- This Chapter discusses Auxiliary Systems
- Change Summary
  - Fuel Storage Rack Re-analyses
  - RAI Responses impacting Ch.9
  - Other changes Fuel Handling Machine Design Changes for Enhanced Operating Capability
- There are two Changes to COLA Information Items in Ch.9
  - RAIs (Load Handling Systems and Metamic Coupon Monitoring)
- There is no DAC associated with Ch.9

Tier 2 Chapter 10

- This Chapter discusses Steam and Power Conversion
- Change Summary
  - TR impacting Ch.10
  - RAIs impacting Ch.10
  - Other changes
    - Toshiba Turbine Design Impacts
    - Ovation Control
- Changes to COL Information Items
  - RAI response for Section 10.4.12.1
- There is no DAC associated with Ch.10

Tier 2 Chapter 13

- This Chapter discusses Conduct of Operations
- Change Summary
  - RAI impacting Ch.13
  - Other change
- Changes to COLA Information Items
  - Section 13.5.1 RAI Response (Writer's Guidelines)
- There is no DAC associated with Ch.13

Tier 2 Chapter 14

- Initial Test Program
- TRs impacting Ch.14
- RAIs impacting Ch.14
  - DAS Diversity Clarification (as covered in Ch.7)
- There are 13 Other changes
  - Impacts from WGS Design Changes, Rx Trip Reset Function Clarification, CWS Chemical Treatment Relocation
- Changes to COLA Information Items
  - Section 14.4.3 RAI Response (Startup Administration Manual)
- There is no DAC associated with Ch.13

Review Of Chapter 18
Human Factors Engineering

- HFE Conceptual Design Certified
  - Design process continues (Figure 18.2-3)
  - Substantial Completion of Design Phases
  - Documentation: 3 Complete; 4 Near Completion

- Change Summary
  - DAC
    - 4 of 5 Closed and Removed:
      - Implementation Plan
      - Task Analysis
      - HSI Design
      - HFE Program V&V
    - V&V Execution (ITAAC)

- Changes to COLA Information items: Fully addressed

Tier 2 Chapter 19

- This Chapter discusses PRA
- Change Summary
  - RAIs impacting Ch.19
    - Addition of PRA-based risk insights
  - Addition of App.19F regarding Aircraft Impact
  - Clarification of Intentionally Left Blank Sections
- Changes to COLA Information Items
  - Section 19.59.10.5 (Thermal Lag Assessment per TR68)