
AP1000 DCD Revision 18 Update

Summary of New Change Notices

May 20, 2010

Safety Brief

- Fire exit and re-grouping location
- Trip hazards
- Opening door hazard

Agenda

- Meeting Objectives
- Background
- Design Change Notice discussion

Meeting Objectives

- Conduct technical discussions on design change notices as submitted in recent letters (April 26, May 10 and May TBD)
- Identify commitments, actions and dates for closure

Background

- Important Milestones
 - All DCD Rev. 18 input submitted to NRC by July 30, 2010
 - Westinghouse submittal of DCD Rev. 18 by January, 2011
 - AP1000 Design Certification Amendment (Revision 18) by September, 2011
- Manage design change scope in accordance with ISG-11

Background...

- Recently submitted design changes
 - Letter dated April 26, 2010 – ISG-11 changes from Jan 20th letter (Change Notice #)
 - CN 1– PWS valve and piping materials
 - CN 5 – Containment girder and polar crane
 - CN6 – CCS relief valve sizing
 - CN 8 – Squib valve actuation time adjustments
 - CN 9 – CCS relief valve discharge headers
 - CN 14 – Fuel transfer tube code change
 - CN 55 – SFS valve position indications

Background...

- Letter dated May 10 – design changes necessary to support the AP1000 Licensing Finalization schedule
 - CN 58 – SG thermal hydraulic data
 - CN 59 – Ancillary DG starting current
 - CN 60 – Reactor trip for PRHR transient
 - CN 61 – Automatic rod withdrawal prohibit
 - CN 62 – RV Support System
 - CN 63 – DAS PRHR reactor/turbine trips
 - CN 65 – FWS/CVS isolation for SGTR event
- Letter dated no later than May 28
 - CN 64 – Post-DBA transmitter requirements
 - CN 66 – Gas intrusion (Generic Letter 2008-01)

CN58

Revision of AP1000 Steam Generator Thermal-Hydraulic Data Report



- CHANGE NOTICE DESCRIPTION

- An alternative calculation of the steam nozzle loss factor results in an increase in the value from 0.11 to 0.17. This results in a loss of 4-6 psi steam pressure and an increase in moisture content of 0.03%. Values in the thermal-hydraulic report are revised.

- CN58 DCD MARKUPS

CN59

Resizing Ancillary Diesel Generator for Starting Motor Current and Ancillary Diesel Fuel Oil Storage Tank Room Ventilation



- CHANGE NOTICE DESCRIPTION

- Upgrade the 35kW Ancillary Diesel Generator to 80kW. Revise the Temporary Electric Power Supply Room to place fuel tank one level down beneath grating.
- Extend exhaust ductwork to new fuel tank location. Duct the radiator exhaust to the outside through hurricane louvers, and provide recirculation bypass to control the room temperature.

- CN59 DCD MARKUPS (Security Related Information Withheld from Public)

CN60

Addition of Reactor Trip to Mitigate the Inadvertent PRHR Transient



- CHANGE NOTICE DESCRIPTION
 - A reactor trip will be generated to mitigate the inadvertent PRHR (Passive Residual Heat Removal) actuation transient following the inadvertent opening of one of the two PRHR HX discharge valves, V108A/B. The design change will use the existing close position indicator and add three class 1E valve position indicators to give a total of four closed signals per valve. This configuration is necessary for the “two of four” logic required for a reactor trip signal.
 - In-service testing of V108A/B has been changed from once every quarter to every cold shutdown.
- CN60 DCD MARKUPS

CN61

Implementation of P-17 for Rod Withdrawal Prohibit

- CHANGE NOTICE DESCRIPTION
 - The current design requires the rate of change in nuclear power (P-17) signal coincident with the Beacon Unavailable Signal to generate the automatic rod withdrawal prohibit. This change would remove the Beacon Unavailable Signal and the associated AND gate to enable an automatic rod withdrawal prohibit solely on the P-17 signal.
- CN61 DCD MARKUPS

CN62

Redesign of Reactor Vessel Support System



- CHANGE NOTICE DESCRIPTION
 - The reactor vessel support system has been redesigned. The four reactor vessel support legs, which support the vessel underneath the cold leg nozzles, are no longer bolted into embedded plates of the CA04 structural module. The supports are anchored directly to concrete via steel embedment plates, increasing the stiffness of the design.
- CN62 DCD MARKUPS

CN63

DAS PRHR Logic Change



- CHANGE NOTICE DESCRIPTION
 - A reactor trip and turbine trip are being added to the functional logic of DAS (Diverse Actuation System) high hot leg temperature automatic actuations. The trip will be initiated by 2 of 2 sensor output from the hot legs.
- CN63 DCD MARKUPS

CN65

FWS/CVS Isolation on SGS High Alarm

- CHANGE NOTICE DESCRIPTION
 - An “AND” logic is being added to the PMS (Protection and Safety Monitoring System) software to isolate the FWS (Main and Startup Feedwater System) and CVS (Chemical and Volume Control System) earlier in the SGTR (Steam Generator Tube Rupture) transient sequence in order to maintain the margin to steam generator overfill. The Steam Generator Narrow Range Level High coincident with Reactor Trip limiting setpoint is changed to 85% of narrow range level span.
- CN65 DCD MARKUPS

CN64

Changes to Post-DBA Transmitter Requirements

- CHANGE NOTICE DESCRIPTION
 - (1) Move 7 Containment Pressure Transmitters outside of containment via four new containment penetrations.
 - (2) Move 18 Category 1 PAMS (Post Accident Monitoring System) Transmitters above the maximum DBA flood level.
 - (3) Reduce Post-Accident Operability time for 18 Category 2 PAMS Transmitters from 4 months to 2 weeks.

- CN64 DCD MARKUPS

CN66

PXS Changes Due to Gas Accumulation

- CHANGE NOTICE DESCRIPTION

- Add 8 Class B/C one-inch manual maintenance valves in 6 PXS locations
 - 4 IRWST squib valve outlets (vents connect to CMT vents to RCDT)
 - 2 high points in one of the containment sump recirculation lines
- Add 4 IRWST squib valve outlet high point pipe stubs and redundant level switches (similar to CMT / PRHR inlet high point pipe stub configuration)
 - Add new IRWST Tech Spec OPERABILITY Surveillances / Actions
- Moved the accumulator discharge connection tee to be above the IRWST connection tee in the vertical portion of the DVI line
 - Would otherwise require 4 active high-point assessment vent valves
- Also included 20 required low-point assessment drain valves for PXS lines
 - 14 PXS / 5 RNS / 1 RCS manual 1-inch drain valves