

ENCLOSURE 4

AP1000 Design Control Document Amended Design –
Section 3.8 – Design of Category I Structures Presentation (November 17, 2010) – (Non-Proprietary)

AP1000 Design Control Document Amended Design

Section 3.8 Design of Category I Structures

Section 3.8 Overview

- Steel Containment
- Concrete and Steel Internal Structures
- Other Category I Structures
- Foundations

Section 3.8 Changes from DCD Rev. 15

- Enhanced Shield Building
 - Discussed separately
- Extended the AP1000 structure design to sites ranging from soft soils to hard rock
- Critical Section Design Updated
 - Soil cases
 - Design finalization
- Settlement evaluation during construction
 - Include construction sequence limits

Section 3.8 Open Items

- Items have been resolved with the NRC and the DCD changes included in the DCD Revision 18
 - 20 Open Items have been identified in SER for DCD Chapter 3.8
 - 1 additional RAI
 - 2 placeholder items for NRC action

Section 3.8.2 – Steel Containment

Open Items

- OI-RAI-TR09-08 – Provide details regarding temperature and external pressure loads of containment
- RAI-SRP3.8.2-SPCV-01 – Explain assumptions used in evaluation to determine containment external pressure
- Resolution:
 - Met with NRC to explain analysis
 - Provided analysis for audit
 - Design change to include vacuum relief system
 - Load combination table in the DCD is updated

Section 3.8.3 – Concrete and Steel Internal Structures Open Items

- OI-SRP3.8.3-SEB1-04 – Describe how the loads from the module can be properly transferred from the module to the embedded bars in the base concrete
- Resolution:
 - Design change has been made to use mechanical connectors



Section 3.8.4 – Other Category I Structures Open Items

- OI-TR85-SEB1-27 – Explain and justify the AP1000 implementation of 100/40/40 method for combination of the three direction seismic loading
- Resolution:
 - Provided a comparison of the calculated reinforcement demand with the 100/40/40 combination technique to the ASCE 4-98 100/40/40 combination technique
 - Westinghouse design deemed acceptable



Section 3.8.5 – Basemat Open Items

- OI-TR85-SEB1-10 – Request to make TR-09, TR-57, and TR-85 Tier 2* or provide acceptable alternative
- Resolution:
 - Information has been added to TR-09, TR-85, and TR-115 and is included in DCD Rev. 18
 - TR-57 was withdrawn because the information is included in DCD Section 3.8 and appendices

Section 3.8.5 – Basemat Open Items

- OI-TR85-SEB1-32 – Justify the assumption of uniform soil spring beneath the basemat
- Resolution:
 - Comparison of the maximum reactions of the Nuclear Island for various soil and analysis methods was completed
 - Comparison between equivalent static and dynamic time history analyses was completed
 - Both linear and nonlinear models compared
 - Comparison demonstrates that the assumption is acceptable

Questions?

