US-APWR

DCD Impact Assessment and Licensing Information Submittal Plan on Resolution Plan for Seismic and Structural Analysis

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Contents

Causes of Impact from Seismic Resolution

1. Seismic analysis changes
   - Technical inputs, assumption, results and description will change
2. Drawing changes due to layout change
   - Base drawings will change
3. Detailed equipment layout changes
   - Some calculations and analysis will change

Seismic Analysis Changes

1. Based on RAI responses, the following description and figures will change:
   - Chapter 2: Table 2.0-1 will be revised for soil profiles description and data, bearing capacity demands, allowable settlements.
   - Chapter 3: Section 3.7, 3.8, Appendix 3H (LMSM for R/B-PCCV-CIS) and Appendix 3I (ISRS) have numerous updates regarding time history, generic profile.
   - Seismic Margin Analysis will be performed after seismic analysis to meet the RAI response commitment. RAI 761-5804
2. Related Technical Reports will be revised.

   (See Attachment 1 of Closure Plan Letter)

Drawing Changes Due to Layout Change

1. Most plot plan and layout drawings in several chapters will change.
2. Mainly the changes are caused by layout changes of the PS/B, structural rearrangement of the A/B, and thickness change of the basemat (sectional drawing);
   - PCCV including CIS has not been changed.
   - R/B has slightly changed to accommodate PS/B and A/B changes.
3. The changes mentioned above are implemented in base drawings, such as fire area, radiation zone, etc.

Equipment Layout Changes

1. HVAC System Design in Chapter 9
   - Enlargement of the PS/B and structural rearrangement of the A/B changes the cubicle size, and could affect the capacity of HVAC system.
   - The required capacity may be within the rated capacity.
2. Fire Hazard Analysis in Chapter 9 / Flooding Analysis in Chapter 3 / PRA in Chapter 19
   - Layout change of the PS/B made the floor area change, re-analyses are necessary.
   - The impact of the changes are expected to be negligible.
3. Aircraft Impact Analysis in Chapter 19
   - Change of building shape due to PS/B change may affect the AIA
   - The impact of the changes are expected to be negligible.

DCD Impact Summary

Impacted Category		Cause	Impacted Chapter
Seismic Analysis Changes	Seismic Analysis Structural Analysis Seismic Classification Seismic Margin Analysis	Seismic input change (soil profiles, bearing capacity, settlements) ISRS change (time history, generic profiles)	2, 3, 19
Drawing Changes	Layout drawings and others such as fire area, radiation zone	Layout change on PS/B, structural rearrangement on A/B, and thickness change of basemat (sectional drawing)	Tier 1, 1, 2, 3, 6, 8, 9, 11, 12
Equipment Layout Changes	HVAC system design Electrical load	Cubicle size change in PS/B HVAC capacity change	8, 9, 12
	Flooding / Fire Hazard Analysis PRA	Change of layout in the buildings (mainly PS/B)	3, 9, 19
	Aircraft Impact Analysis	Change of building shape due to PS/B change	19

DCD Mark-ups

1. Handout shows the potential changes required in the DCD Sections.
2. The DCD mark-ups with strikeouts for the clarification of changes including Sections 3.7 and 3.8 will be provided by August 2012.

Technical Reports Revision

1. Handout identifies the Technical Reports related to DCD Sections 3.7 and 3.8, and the reports which are required to be revised for the changes in seismic loading.
2. The calculation reports which support the Technical Reports will be available for audit up to April 2013.
3. The Technical Reports for DCD Sections 3.7 and 3.8 will be provided by July 2012.
4. The revised reports for the changes in seismic loading, such as stress analysis of sump strainer, fuel racks, and GTG will be provided in Phase 4.

Historical RAI Responses

- Issue Statement

  A subset of previously submitted RAI responses may no longer be applicable due to changes in methodologies, standard plant configuration, or new results

- Current Status / Resolution Proposal

  All previous Section 3.7 and 3.8 RAIs have been reviewed. Revised responses are being prepared as appropriate

- Submittal Deliverables
  - ✓ Tabular listing of affected RAI responses with Closure Plan submittal
  - ✓ Revised or Supplemental RAIs as defined in Closure Plan

Historical RAI Responses

A. No Material Effect

A1. The RAI question is no longer applicable because its subject is no longer used by the DCD or its design documents (e.g., lumped-mass-stick-model usage for PCCV static analysis)

A2. DCD changes do not alter the response or associated mark-ups, or they alter a response that was superseded by a subsequent response, or they alter mark-ups in a manner unrelated to the response.

B. Editorial Changes Only

C. Material Effect – Response Revision Required

Results of RAI Response Review

	No Change Required			Changed	
Subsection	**A1**	**A2**	**B**	**C**	**Total**
2.5	0	0	1	2	**3**
3.4.2	0	0	0	2	**2**
3.7.1	5	7	2	24	**38**
3.7.2	20	18	2	96	**136**
3.7.3	0	24	0	1	**25**
3.7.4	0	1	0	3	**4**
3.8.1	1	12	0	14	**27**
3.8.3	0	24	1	10	**35**
3.8.4	3	34	0	12	**49**
3.8.5	8	`10	2	21	**41**
TOTAL	**37**	**130**	**8**	**185**	**360**

Conclusions

- Impact from seismic resolution plan on licensing information such as DCD, Technical Reports and historical RAI response was assessed.
- Seismic input changes cause changes in technical contents in DCD Sections 3.7 and 3.8.
- A number of drawing changes are required based upon new layout.
- Re-evaluation items in sections other than 3.7 and 3.8 are mainly due to PS/B changes.
- DCD mark-ups, Technical Reports to be revised / developed and historical RAI responses to be amended will be provided according to the schedule.