

REQUEST FOR ADDITIONAL INFORMATION 495-3980 REVISION 1

12/1/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 03.07.02 - Seismic System Analysis

Application Section: SRP 3.7.2

QUESTIONS for Structural Engineering Branch 1 (AP1000/EPR Projects) (SEB1)

03.07.02-2

This Request for Additional Information (RAI) was prepared based on Revision 1 of the DCD prior to the submission of Revision 2.

In the response to RAIs 3.7.2-9 and 3.7.2-10, the applicant has stated that coupled RCL-R/B-PCCV-CIS model provides a better representation than the uncoupled model of this structure and that the coupled model forms the basis for design. The applicant also states in the response to RAI 3.7.2-9 that the ISRS presented in Appendix 3I of Revision 1 of the DCD that are obtained from the coupled model will be replaced with the ISRS from the coupled model. Are the ISRS from the uncoupled model going to be presented in Revision 2 of the DCD or does the applicant propose a straightforward replacement with the ISRS from the coupled model? If the applicant proposes a straight replacement, then RAI 3.7.2-10 becomes obsolete. If not, and if the applicant would like to draw conclusions based on comparisons between the ISRS from the coupled and uncoupled models, the applicant should provide frequency-by-frequency plots of the ratios of the coupled and uncoupled spectral curves so that the differences in each of the curves can be readily quantified and evaluated.

Reference: MHI response to RAI 212-1950, MHI Ref: UAP-HF-09113, ML090930727, dated 3/30/2009.

03.07.02-3

In the responses to RAIs 3.7.2-6 and 3.7.2-16, the applicant states that detailed descriptions of the seismic models of the T/B, A/B, and AC/B will be provided in separate technical reports. To complete the evaluation of the seismic models, the staff will need to review these reports. When will these reports be made available to the NRC staff?

References:

MHI response to RAI 212-1950, MHI Ref: UAP-HF-09113, ML090930727, dated 3/30/2009

MHI response to RAI 212-1950, MHI Ref: UAP-HF-09188, ML091320443, dated 5/7/2009

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03.07.02-4

In the response to RAI 3.7.2-21, the applicant justifies not considering soil layering and the location of the water table in the SSI analysis of the standard plant by referring to the site-specific commitment to confirm the conservatism of the SSI analysis of the standard plant in the COLA. The applicant points out that this commitment is addressed by COL Items 3.7(2), 3.7(20), 3.7(22), and 3.7(25).

In contrast, the response to RAI 3.7.2-25 states that site-specific SSI analysis of the PS/Bs, A/B, and T/B is not required unless dictated by structure-to-structure interaction considerations. If site-specific SSI analyses are not performed for all of the seismic category (SC)-I and SC-II structures, how does the applicant intend to satisfy the requirements of COL Items 3.7(20) and 3.7(22), and how will the applicant confirm the conservatism of each of the site-independent SSI analyses?

Also, the table shown in response to RAI 3.7.2-25 indicates in several places that the method of site-specific SSI analysis for some structures will be determined by the COL applicant. Describe the possible methods for site-specific SSI analysis.

Reference: MHI response to RAI 212-1950, MHI Ref: UAP-HF-09113, ML090930727, dated 3/30/2009.

03.07.02-5

It is stated in Tier 1, Section 3.1 of the DCD Rev. 1, that the PSFSVs and the ESWPT are part of the US-APWR standard plant. In contrast, it is stated in Tier 2, Section 3.7.1.1 of the DCD Rev. 1, that the PSFSVs and ESWPT are not part of the standard plant.

The regulatory requirements for seismic design and analysis for the DCD depend on whether a structure is part of the standard plant or is a site-specific structure. Accordingly, the applicant should clarify whether the PSFSVs and ESWPT are part of the standard plant, or are site-specific structures. The applicant should also describe how the Tier 1 and Tier 2 of the DCD will be modified to be consistent on this issue.