
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

1/31/2013

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 660-5134 REVISION 2
SRP SECTION: 03.07.02 – Seismic System Analysis
APPLICATION SECTION: 3.7.2
DATE OF RAI ISSUE: 11/15/10

QUESTION NO. RAI 03.07.02-27 (03.07.02-54):

This request for additional information (RAI) is necessary for the staff to determine if the application meets the requirements of 10 CFR Part 50, Appendix A, General Design Criteria 2; 10 CFR Part 50 Appendix S; and 10 CFR Part 100; as well as the guidance in NUREG-0800, 'Standard Review Plan for the Review of Safety Analysis for Nuclear Power Plants,' Chapter 3.7.2, "Seismic System Analysis."

Tables 3-3A through 3-3H of MHI's Topical Report, MUAP-10006 (R0), show depths to the top of the half-space layer that range from 72.3 feet (Table 3-3E) to 660 feet (Tables 3-3G and 3-3H). The staff requests that the applicant describe the criteria used for selecting the lower boundaries of the SSI models as shown in Tables 3-3A through 3-3H.

ANSWER:

This answer revises and replaces the previous MHI answer that was transmitted by letter UAP-HF-10355 (ML110040071).

Tables 3-3A through 3-3H showing subgrade properties used as input for the soil-structure interaction (SSI) analyses are now replaced by Tables 03.3.1-1 through 03.3.1-7, containing similar information, in Part 3 of Technical Report MUAP-10006, Rev. 3. Subgrade properties and the lower boundaries of the models for the reactor building (R/B) complex that are presented in the tables, have been changed in order to address the revised configuration of the combined foundation and changes in the methodology for SSI analyses from consideration of a surface mounted foundation to an embedded foundation.

As discussed in Section 03.3.1 of Technical Report MUAP-10006, Rev. 3, the lower boundaries of the SSI models are established at depths below the foundation level that are at least twice the largest base dimension of the reconfigured R/B complex foundation. Per the guidelines of SRP 3.7.2, the selections of the model depths are verified by a parametric study documented in Appendix 3-D of Technical Report MUAP-10006, Rev. 3. The parametric study is performed for the 270-500 soil profile, in which the depth is increased by approximately 36% beyond the fixed layer depth used in the design-basis SSI analyses. The results of the parametric study confirm the adequacy of the SSI models' lower boundaries by demonstrating that the layering depths chosen for the SSI models are not a limiting parameter with respect to the SSI response.

Impact on DCD

There is no impact on the DCD.

Impact on R-COLA

There is no impact on the R-COLA.

Impact on S-COLA

There is no impact on the S-COLA.

Impact on PRA

There is no impact on the PRA.

Impact on Technical/Topical Report

There is no impact on a Technical/Topical Report

This completes MHI's response to the NRC's question.