
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

1/31/2013

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 854-6088 REVISION 3
SRP SECTION: 03.07.02 – Seismic System Analysis
APPLICATION SECTION: 3.7.2
DATE OF RAI ISSUE: 10/24/11

QUESTION NO. RAI 03.07.02-152:

Section 3.1 of MUAP 11007(R0) indicates that the finite element meshes for the various buildings and sites are defined to provide adequate frequency transmission capability in the SSI calculations. In addition, the DC/COL-ISG-01, "Interim Staff Guidance on Seismic Issues Associated with High Frequency Ground Motion in Design Certification and Combined License Applications," guidelines indicate that the meshes used should have a minimum transmission frequency of 50 Hz. Specific finite element meshes are shown for the various buildings in the plots provided on pages 9-6 and 9-7. However, the frequency transmission capability of the building meshes embedded in the various profiles defined for the SSI calculations is not provided. Section 3.1 only indicates that the embedded system is checked to ensure that the mesh used will capture the critical frequency of response. For complicated problems with high frequency modes, specific cutoff frequencies for each building and each profile need to be identified, in conformance the DC/COL-ISG-01.

MUAP-10001(R3), Tables 4.3.1.2-1 and 4.4.1-2 provide the wave passage frequencies for the basemat FE mesh for the R/B Complex and PS/B respectively. The applicant is requested to confirm that the values included in MUAP-10001(R3), Tables 4.3.1.2-1 and 4.4.1-2 for the R/B complex and PS/B dynamic models, respectively, are valid for the MUAP-11007(R0) analyses. Also, provide the same information for the LMSMs of the R/B complex and the Aux Bldg.

ANSWER:

Technical Report MUAP-10001 has been superseded and the relevant information has been incorporated into Technical Report MUAP-10006, Rev 3. In addition the reactor building (R/B), prestressed concrete containment vessel (PCCV), containment internal structure, auxiliary building (A/B), east power source building (PS/B), west PS/B, and essential service water pipe chase have been consolidated as a single structure, identified as the R/B complex, supported on a common basemat. Table 03.3.5-2 of MUAP-10006 provides the wave passage frequencies for the model below the R/B complex. This table is analogous to Tables 4.3.1.2-1 and 4.4.1-2 in MUAP-10001, Rev. 3. The groundwater study in MUAP-11007, Rev.2 uses the same finite element model and the three soft soil profiles as MUAP-10006, Rev. 3. The adequacy of these wave passage frequencies is discussed in Section 3.3.5 of MUAP-10006.

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 the Technical/Topical Report.

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