
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

02/27/2013

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 853-6029 REVISION 3
SRP SECTION: 03.07.02 – Seismic System Analysis
APPLICATION SECTION: 3.7.2
DATE OF RAI ISSUE: 10/24/2011

QUESTION NO. 03.07.02-140:

In the second paragraph of Section 1.0 of MUAP-11006 (R0), the applicant states that “The models use complex damping formulation in ACS SASSI (Reference 2) to model the dissipation of energy due to material damping of the structural members and the soil.” In Section 2.0 of the report, it is stated that “The results of the soil-structure interaction (SSI) analyses performed on this model benchmark base reactions resulting from the FE model that serve for evaluation of seismic stability of the R/B complex.” Similarly, in Section 3.0, it is stated that “The models use complex damping formulation in ACS SASSI (Reference 2) to model the dissipation of energy due to material damping of the structural members and the soil.”

The models described in this report are all ANSYS models and the staff understands that all the ANSYS models were analyzed in the fixed-base condition. In particular, SASSI models were not utilized in this report (other than as a basis for benchmarking), SSI analyses were not conducted as part of the benchmarking of the LMSM, and complex damping does not appear to have been used in the ANSYS models. The applicant is requested to explain the relevance of the above statements to the benchmarking described in this report.

ANSWER:

A lumped mass stick model of the seismic category I structures is no longer used for the associated studies (Structure-Soil-Structure Interaction (SSSI) in Technical Report MUAP-11011 and embedment and water table in Technical Report MUAP-11007). Technical Report MUAP-11006 is withdrawn.

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.