
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

1/31/2013

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 852-6003 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 03.07.02-123:

In Section 5.3 of MUAP-10001(R3), "Development of the R/B Complex Dynamic FE Model," Step 4 in the 2nd paragraph (Page 5-80) states: "Modifications are implemented as needed to make the model more consistent with the Detailed FE model."

The applicant is requested to describe the attributes or parameters that are compared, the criteria used, including its basis and justification, to ensure consistency between the Dynamic Model and the Detailed FE Model.

ANSWER:

Technical Report MUAP-10001 has been incorporated into Technical Report MUAP-10006, Rev. 3. The information presented in Section 5.3 of Technical Report MUAP-10001, Rev. 3 is now in Section 02.5.1.1 of Technical Report MUAP-10006, Rev. 3.

As described in Section 02.5.1.1 of Technical Report MUAP-10006, Rev. 3, the difference between the detailed and the dynamic finite Element (FE) models is that the dynamic FE models provide a simplified and less refined representation of the structures due to the smaller size of the model that is needed to efficiently compute SSI seismic response analyses. Dynamic FE model simplifications include adjusting wall and slab properties to account for small openings. Modeling simplifications are described in Section 02.5.1.1 of Technical Report MUAP-10006, Rev.3, beneath the list of seven steps for developing the R/B complex dynamic model.

Properties such as stiffness and mass are adjusted (per step 4 in Section 02.5.1.1) as necessary to ensure that the responses obtained from the dynamic model appropriately agree with the responses of the detailed model. The acceptability is confirmed via the validation process described in Section 02.4.1.2 and documented in Section 02.5.1.3 of Technical Report MUAP-10006, Rev. 3

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.