RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

02/27/2013

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:	**10/24/2011**

QUESTION NO. 03.07.02-156:

Section 3.4.1 in MUAP 11007 (R0) states that "The LMSM will be employed for the embedment evaluation and the sliding and overturning stability evaluation." Section 3.4.2 indicates that the dynamic FE model of the R/B complex will be used in the water table evaluations. According to MUAP-10001(R3), the dynamic FE model is the design-basis RB complex model for SSI analysis. The applicant is requested to explain why the LMSM (and not the dynamic FE model) will be used for the embedment evaluation and the sliding and overturning stability evaluation.

ANSWER:

The lumped mass stick model methodology described in Technical Report MUAP-11007 Rev. 0 is not used in Technical Report MUAP-11007 Rev. 2, which is limited to a study of the impact of groundwater on the Soil-Structure Interaction (SSI) analysis. The SSI analysis of the US-APWR is performed using an embedded dynamic Finite Element (FE) model of the Reactor Building (R/B) complex. The overturning and stability analysis for DCD Section 3.8.5 is also performed using the FE model of the R/B complex.

Stability evaluations of the R/B complex that were discussed in Rev. 0 of Technical Report MUAP-11007 have been removed from this report. Overturning and bearing pressure evaluations, addressed in the DCD Section 3.8.5, use the same FE model as the SSI analysis. Sliding, addressed in Technical Report MUAP-12002 Rev. 1, uses the R/B complex FE model for analysis and a simplified stick model to screen the soil/structure/time history combinations in order to identify the governing cases for full FE model analysis.

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.