
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

1/31/2013

**US-APWR Design Certification
Mitsubishi Heavy Industries
Docket No. 52-021**

RAI NO.: NO. 212-1950 REVISION 1
SRP SECTION: 03.07.02 – Seismic System Analysis
APPLICATION SECTION: 3.7.2
DATE OF RAI ISSUE: 02/25/09

QUESTION NO. RAI 03.07.02-01 (03.07.02-17):

Model properties and seismic analysis results for lumped mass stick models are presented in Appendix 3H of the DCD. Dynamic responses from the lumped mass stick and finite element distributed mass models have been compared. However, it is not clear what data are being presented, how the data are being used, what acceptance criteria apply for the comparisons, and what conclusions are drawn. For example, in subsection 3H.3 of the appendix it is stated that comparison is made with responses obtained from the frequency domain time history analysis of the fixed base detailed finite element model. Provide the details and technical basis of the frequency domain time history analysis method. SRP Subsections 3.7.2.II.1 and 3.7.2.II.3 contain guidelines for determining if lumped mass models have sufficient degrees of freedom to properly capture the dynamic response of the structure of interest and if acceptable modeling procedures are employed. Describe how the lumped mass and distributed mass models meet the guidelines in the SRP Subsection 3.7.2.II.3C. Provide a clear explanation of the purpose of the Appendix 3H, data presented therein, conclusions drawn, and the technical basis for the conclusions.

ANSWER:

This answer revises and replaces the previous MHI answer that was transmitted by letter UAP-HF-09188 (ML091320443).

A lumped mass stick model is no longer used in the soil-structure interaction (SSI) evaluation of the Standard Plant. The design basis SSI analysis is performed with ACS SASSI and is based on an embedded dynamic finite element model as described in Technical Report MUAP-10006, Rev. 3. The reactor coolant loop subsystem is modeled using a lumped mass stick model and is coupled with the containment internal structure for input into the ACS SASSI dynamic analyses as described in Technical Report MUAP-10006, Rev. 3.

DCD Appendix 3H has been deleted.

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.