
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

03/22/2013

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 909-6315 REVISION 3
SRP SECTION: 03.07.02 - SEISMIC SYSTEM ANALYSIS
APPLICATION SECTION: 3.7.2
DATE OF RAI ISSUE: 03/05/2012

QUESTION NO. 03.07.02-206:

In the response to RAI No. 766-5819, Revision 0, Question No. 03.07.02-47, the Applicant indicated that the values of the radius of central zone considered in the parametric study were 3.3 feet and 11.0 feet, and in general, the maximum displacements obtained using 3.3 feet is about 1 to 60 percent higher than the maximum displacements obtained using 11.0 feet. The staff considers that a study which considers only two values for a parameter is not a valid parametric study. Further, the Applicant did not provide the basis for selecting the values of 3.3 feet and 11.0 feet. The large difference shown in Figure 14 in MUAP-11002(R0) indicates that the response spectra have not converged for the two values considered.

The Applicant is requested to provide the technical rationale for choosing values for the radius of central zone of either 3.3 feet or 11.0 feet; otherwise, the Applicant is requested to consider a greater number of values for the radius of central zone in the parametric study to demonstrate convergence of the response quantities.

ANSWER:

This answer revises and replaces the previous MHI answer that was transmitted by letter UAP-HF-12124, dated June 5, 2012 (ML12158A478).

In the Technical Report MUAP-11002 Rev. 0 and Rev. 1 analyses, the SSI model contained two distinct mesh sizes; one for the T/B and Electrical Room structures and a finer mesh for the Essential Service Water pipe Tunnel (ESWPT). In the Technical Report MUAP-11002 Rev. 2 analysis, the Essential Service Water Pipe Tunnel was removed from the T/B complex SSI model because the structure has been included in the Reactor Building complex per Technical Report MUAP-10006 Rev. 3. As a result of removing the tunnel from the T/B complex model, the mesh size of the T/B complex finite element model is generally uniform and one radius of central zone can be used for the T/B complex SSI model. The issue related to multiple mesh sizes within the same SSI model and the two radiuses of central zone values is no longer applicable. The text referring to radius of central zone in Subsection 2.5 of Technical Report MUAP-11002 Rev. 2 has been removed.

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.