
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. 03.07.02-195:

In Section 5.2 of MUAP-11002(R1), "Time History Analysis Methodology," the second paragraph (Page 41) states, "All three components of ground motion will be applied simultaneously and combined algebraically by GT STRUDL at each time step to obtain the combined response time history. The Newmark Beta implicit integration technique will be used for the time history analysis."

The Applicant is requested to address the following questions:

1. Is the model used in time history the coarse model or the fine model?
 2. What is the value for beta used in the Newmark Beta integration? In addition, the applicant is requested to provide technical details that show how the damping effect is considered in the direct integration.
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ANSWER:

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

- 1) There is no dynamic analysis performed in GTSTRUDL. Dynamic analysis of the T/B complex is performed in ACS SASSI as described in Technical Report MUAP-11002 Rev. 2, Subsection 4.3.
- 2) The Newmark Integration method is no longer used. Subsection 5.2 of MUAP-11002 Rev. 2 has been revised. See also the response to NRC RAI 909-6315 Question number. 03.07.02-196.

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.