RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

1/31/2013

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 850-6002 REVISION 3**
SRP SECTION:	**03.07.01 – Seismic Design Parameters**
APPLICATION SECTION:	**3.7.1**
DATE OF RAI ISSUE:	**10/21/11**

QUESTION NO. RAI 03.07.01-26:

In Subsection 5.1 of MUAP-10001(R3), "CSDRS Compatible Ground Motion Time Histories," the last sentence of the first paragraph (Page 5-1) states, "The time history motion plots of the ground acceleration, velocity, and displacement are shown together to demonstrate their non-stationary process."

The applicant did not provide any explanation as to how the time history motion plots of the ground acceleration, velocity, and displacement demonstrate the non-stationary process. The Applicant is requested to provide the required explanation.

ANSWER:

This answer revises and replaces the previous MHI answer that was transmitted by letter UAP-HF-11417 (ML11339A013).

Technical Report MUAP-10001, Rev. 3 has been superseded and its relevant information has been incorporated into Technical Report MUAP-10006, Rev. 3. The term "non-stationary process" refers to time histories with no cyclical or repeating patterns over their entire duration, and having a strong motion time duration of near maximum and nearly stationary power, preceded by an initial rise time and followed by a decay time. The term "non-stationary process" is not included in the time history descriptions in Technical Report MUAP-10006, Rev. 3.

The time histories documented in Technical Report MUAP-10006, Rev. 3, comply with SRP 3.7.1, Option 1, Approach 1 requirements as summarized in Sections 01.5.1 and Table 01.5.1.2-1 of the report. Figures 01.5.1.2-1, 01.5.1.2-2, and 01.5.1.2-3 of Technical Report MUAP-10006, Rev. 3, demonstrate this compliance in that variations associated with rise time duration, strong motion time duration, and decay time duration can be observed as well as any significant periodic or repeated patterns present within the time history plots. The plots of acceleration, velocity and displacement in time in Figures 01.5.1.2-1, 01.5.1.2-2, and 01.5.1.2-3 also can be observed to reflect their integration relationships. Figure 01.5.1.2-10 in Technical Report MUAP-10006, Rev. 3, shows the Arias Intensities of the design-basis time histories. The Arias Intensities in Figure 01.5.1.2-10 show an initial time interval of gradual energy buildup (rise time duration), followed by a ramp-up of rapid energy accumulation (strong motion time duration), and then followed by a gradual tapering of energy accumulation (decay time duration).

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.