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## RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

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1/31/2013

### US-APWR Design Certification

### Mitsubishi Heavy Industries

Docket No. 52-021

**RAI NO.:** NO. 852-6003 REVISION 3  
**SRP SECTION:** 03.07.02 – Seismic System Analysis  
**APPLICATION SECTION:** 3.7.2  
**DATE OF RAI ISSUE:** 10/24/11

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#### QUESTION NO. RAI 03.07.02-130:

In Figure 5.3.3.2.1-3 of MUAP-10001(R3), "CIS 1g Static Analysis Results – NS Direction (X) at Reactor Vessel (Uncracked Analyses)," (Page 5-128) and Figure 5.3.3.2.1-4, "CIS 1g Static Analysis Results – EW Direction (Y) at Reactor Vessel (Uncracked Analyses)," (Page 5-129) the curves shown in these figures have negative slopes.

The applicant is requested to provide an explanation for why the deflection curves have negative slopes. A similar trend is also observed for the curves presented in Figure 5.3.3.2.1-11 (Page 5-136) and Figure 5.3.3.2.1-12 (Page 5-137).

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#### ANSWER:

Technical Report MUAP-10001, Rev. 3 has been superseded and its relevant information has been incorporated into Technical Report MUAP-10006, Rev. 3.

Figures 02.5.1.3.3.1-5, 02.5.1.3.3.1-6, 02.5.1.3.3.1-14, and 02.5.1.3.3.1-15 of Technical Report MUAP-10006 Rev. 3 show the horizontal (NS and EW, respectively) displacements of the reactor vessel due to a 1 g horizontal load, for the uncracked and cracked analysis conditions. Figures 02.5.1.2.2-1 and 02.5.1.2.2-2 show the modeling of the reactor vessel support points. The reactor vessel is supported from/at support points located approximately at EL. 40', and the approximate center of the horizontal mass of the Reactor Vessel is at EL. 36'. The center of horizontal mass is located about 4 ft below the supports. This results in larger deflection below the support elevation than above the support elevation due to greater 1g horizontal loads acting at locations below the supports. Therefore the deflection curves from horizontal 1g analysis have a negative slope.

#### 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.

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This completes MHI's response to the NRC's question.