RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

08/01/2013

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 1045-7141 REVISION 3**
SRP SECTION:	**03.08.05 – Foundations**
APPLICATION SECTION:	**3.8.5**
DATE OF RAI ISSUE:	**07/08/2013**

QUESTION NO. 03.08.05-67:

In its revised response to RAI 340-2004, Question 03.08.05-18, dated March 29, 2013, the applicant states that the values for the minimum factor of safety against overturning are listed in Table 1 of its response for the six soil profiles. The staff notices that the minimum value of the factor of safety against overturning listed in Table 1 is 1.25.

On April 3, 2013, the applicant submitted a markup of DCD Tier 2 Section 3.8 to provide updated information related to a seismic design change, which included a new Table 3.8.5-6, "Load Combinations and Calculated Minimum Factors of Safety for Stability of Seismic Category I and II Structures." In Table 3.8.5-6, the factor of safety against overturning is listed as 1.2, which differs from the RAI response. The applicant is requested to verify the accuracy of this value and list the correct value in the tables.

ANSWER:

The Minimum Factor of Safety for Stability is 1.25. The value was rounded down to 1.2 in Table 3.8.5-6. The Minimum Factor of Safety for Stability value will be revised to 1.25 as shown in Attachment 1.

Impact on DCD

DCD Table 3.8.5-6 will be revised as shown in Attachment 1.

Impact on R-COLA

There is no impact on the R-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.

Table 3.8.5-6 Load Combinations and Calculated(1) Minimum Factors of Safety for Stability of Seismic Category I and II Structures

MIC-03-03-00057

Building/ Structure	Load Combination	Overturning (FS_{ot})	~~Overturning~~ Sliding (FS_{sl})	~~Overturning~~ *Flotation* (FS_{fl})
R/B complex	$D + H + W$	>10	>10	N/A
	$D + H + E_{ss}$	1.25	See Note 2.	N/A
	$D + H + W_t$	>10	>10	N/A
	$D + F_b$	N/A	N/A	3.8
T/B	$D + H + W$	*[Later]*	*[Later]*	N/A
	$D + H + E_{ss}$	1.4	See Note 3.	N/A
	$D + H + W_t$	*[Later]*	*[Later]*	N/A
	$D + F_b$	N/A	N/A	1.9

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Note 1: Factors of safety reported in this table may show values which have been conservatively rounded down from calculated values.

Note 2: Sliding analyses documented in Technical Report MUAP-12002 (Reference 3.8-82) have determined that sliding occurs. The maximum 0.75 in. sliding displacement, which has been conservatively rounded up, is utilized in conjunction with other structural displacements for the design of attached structures, piping and/or equipment, and evaluation of gaps between structures.

Note 3: Sliding analyses documented in Technical Report MUAP-12002 (Reference 3.8-82) have determined that sliding displacements occurs. The maximum 0.20 in. sliding displacement, which has been conservatively rounded up, is utilized in conjunction with other structural displacements for the design of attached structures, piping and/or equipment, and gaps between structures.