
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

05/31/2013

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 766-5819 REVISION 3
SRP SECTION: 03.07.02 – Seismic System Analysis
APPLICATION SECTION: 3.7.2
DATE OF RAI ISSUE: 06/09/2011

QUESTION NO. RAI 03.07.02-40:

In MUAP-11002 (R0), Section 1.0 “Introduction” (page 7) the second paragraph states that “Also presented in this report are stress ratios for select T/B and Electrical Room steel members estimated using GT STRUDL and ACS SASSI based on the fixed-base condition, and results of a sliding and overturning analysis of the T/B and Electrical Room.” Further, in Section 2 of MUAP-11002 (R0), the second paragraph (page 9), the Applicant states that “This report provides allowable stress ratios for select T/B and Electrical Room steel members calculated using GT STRUDL and ACS SASSI based on the fixed base condition.”

The design of the steel structure is based on a fixed base condition for the T/B building. The report does not contain any specific numerical data to demonstrate that ignoring SSI effects results in conservative stress ratios. The Applicant is requested to state whether the SSI seismic analysis is based on the preliminary or the final design of the Turbine building structures and provide technical justification and supporting analysis to show that the fixed base analysis is conservative for determining stresses in the steel structures. Also, the Applicant is requested to provide the criteria used in selecting critical steel members in checking the stress ratios. In addition, the Applicant is requested to clarify what is meant by the term “allowable” in stating “allowable yield stress” for the structural steel material, ASTM A992/ASTM 572, Grade 50, cited in the first paragraph of Subsection 7.2 of MUAP-11002 (R0) (page 25).

ANSWER:

This answer revises and replaces the previous MHI answer that was transmitted by letter UAP-HF-11392, dated November 16, 2011 (ML11326A129).

The design of the T/B and Electrical Room has been modified in accordance with the Seismic Closure Plan (UAP-HF-13034, dated February 15, 2013, (ML13050A601)). The detailed description of the “Structural Integrity Evaluation Methodology” has been updated in Section 5.0 of Technical Report MUAP-11002, Rev. 2.

In MUAP-11002 (Rev. 2), the SSI effects are not ignored in the design steel structure because the structural integrity evaluation is based on the SSI analysis results not the fixed base results. Per Table 2.1-1, the T/B model referenced in MUAP-11002 (Rev. 2) reflects the final design with the revised roof height in the DCD, Revision 3 of 169.83 feet (169 feet 10 inches). Per MUAP-11002 (Rev. 2) Subsection 5.4, steel stress ratios are determined for all superstructure members. The statement regarding “allowable yield stress” has been removed from the MUAP-11002 (Rev.

2) report. Please also refer to the revised response of NRC RAI number 909-6315 question number 03.07.02-197.

Impact on DCD

There is no impact on the DCD.

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 a Technical/Topical Report.

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