
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

1/31/2013

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 776-5851 REVISION 3
SRP SECTION: 03.07.02 – Seismic Systems Analysis
APPLICATION SECTION: 3.7.2
DATE OF RAI ISSUE: 06/15/11

QUESTION NO. RAI 03.07.02-84:

In Subsection 5.1.3 of MUAP -11001 (R0), the Applicant stated that to simplify the calculations, the groundwater level is conservatively taken as at grade level for determination of hydrostatic pressure.

However, the Applicant did not address the effect of water table on the SSI seismic analysis of the A/B. The applicant is requested to include the effects of water table in seismic analyses or provide the technical bases including supporting analyses for neglecting the effects of the high water table on the seismic design and analyses for the A/B.

ANSWER:

This answer revises and replaces the previous MHI answer that was transmitted by letter UAP-HF-11281 (ML11243A163).

Technical Report MUAP-11001, Rev. 0, is superseded by Technical Report MUAP-10006, Rev. 3. The reactor building (R/B), prestressed concrete containment vessel (PCCV), containment internal structure (CIS), east power source building (PS/B), west PS/B, auxiliary building (A/B), and essential service water pipe chase (ESWPC) are now structurally integrated and supported on a common basemat to form the R/B complex. Technical Report MUAP-10006, Rev. 3, presents the information relevant to the A/B as well as the other buildings that make up the R/B complex.

The site-independent soil-structure (SSI) analyses of R/B complex are performed on generic soil profiles that represent dynamic properties of candidate sites with saturated soil. Section 01.5.2 of MUAP-10006, Rev. 3, indicates that the groundwater level is taken at plant grade level for the SSI analyses. A study of the effects of water table fluctuations on the standard design of the R/B complex is documented in Technical Report MUAP-11007, Rev. 2. Results of this evaluation/study show that the water table fluctuations have minor effects on the seismic response of the R/B complex, and that use of saturated soil profiles as a site-independent analysis parameter will result in an adequate standard plant design that envelopes the seismic demands at a large number of candidate sites.

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.