

---

---

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

---

---

1/31/2013

**US-APWR Design Certification**

**Mitsubishi Heavy Industries**

**Docket No. 52-021**

**RAI NO.:** NO. 643-4967 REVISION 1  
**SRP SECTION:** 03.07.01 – Seismic Design Parameters  
**APPLICATION SECTION:** 3.7.1  
**DATE OF RAI ISSUE:** 10/04/10

---

**QUESTION NO. RAI 03.07.01-07 (03.07.01-13):**

This request for additional information (RAI) is necessary for the staff to determine if the application meets the requirements of 10 CFR Part 50, Appendix A, General Design Criteria 2; 10 CFR Part 50 Appendix S; and 10 CFR Part 100; as well as the guidance in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis for Nuclear Power Plants," Chapter 3.7.1, "Seismic Design Parameters."

Section 4.2.1, "Selection of Profiles," of MHI's Topical Report, MUAP-10001, Revision 1, "Seismic Design Bases of the US-APWR Standard Plant," states that the profiles adopted for the development of CSDRS consistent strain compatible properties include 270 m/s, 560 m/s, 900 m/s, and 2,032 m/s and that three depths of soil/rock profiles above the hard or soft rock foundations are considered: 100 ft, 200 ft, and 500 ft. The report also stated that due to the stiffness of the 2,032 m/s firm rock profile, only a 100 ft deep profile reflects realistic site conditions and represents a residual soil over weathered rock and underlain by hard rock. However, in Tables 5.2-1, "Final Profile Categories," and 5.2-2, "Magnitudes, Distances, and Median Peak Accelerations," of the report, the applicant did not present all the profile cases considered. Thus, the staff requests that the applicant provide a technical basis for not analyzing all cases.

Reference: USAPWR Seismic Design Report MUAP-10001, rev 1; dated May 13, 2010; ML101400073

---

**ANSWER:**

This answer revises and replaces the previous MHI answer that was transmitted by letter UAP-HF-10308 (ML103200405).

The content of Technical Report MUAP-10001 has been superseded and relevant information has been incorporated into Technical Report MUAP-10006, Rev. 3.

The US-APWR seismic response analysis currently uses six generic subgrade profiles, developed to cover a wide range of site conditions from soft soil to hard rock that may exist across the central and eastern United States. These six generic profiles provide sufficient diversity to allow the development of a standardized design that can be constructed at a large

number of candidate plant sites.

The development and implementation of the soil profiles as described in Technical Report MUAP-10006, Rev. 3, Sections 01.3.2, 01.4.2, and 01.5.2 meet the guidelines of SRP 3.7.1.II.3 by providing a detailed description of the supporting media used in the analysis and design of seismic category I structures. This information is summarized in DCD Section 3.7.1.3.

**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.