REQUEST FOR ADDITIONAL INFORMATION 569-4433 REVISION 0

4/13/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 03.09.04 - Control Rod Drive Systems
Application Section: 3.9.4

QUESTIONS for Engineering Mechanics Branch 1 (AP1000/EPR Projects) (EMB1)

03.09.04-2

During its review of the US-APWR DCD, Chapter 3, NRC staff has determined that the adequacy of seismic qualification of the Control Rod Drive Mechanism (CRDM) for US-APWR standard design may not be adequate. GDC 2 of Appendix A to 10 CFR Part 50 states that structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, combined with appropriate effects of normal and accident conditions, without loss of capability to perform their safety functions. Section 3.9.4.2.2 describes how the CRDM pressure boundary components, such as CRDM latch housing and CRDM rod travel housing are designed and qualified to meet the ASME Code requirements. However, as stated in sections 3.9.4.2.3 and 3.9.4.2.4, the CRDM non-pressure boundary components, including the latch assembly and coil stack assembly are not explicitly qualified for seismic events. The potential for not working properly such as jamming of the latch mechanism or malfunction of the coils due to seismic events may prevent the control rods from dropping as designed. The applicant is requested to provide a justification to explain why the latch mechanism and coil stack assembly do not need to be seismically qualified to comply with GDC 2, or to revise the seismic classifications of the CRDM components to ensure adequate seismic qualification for the safety functions of the Control Rod Drive System.