REQUEST FOR ADDITIONAL INFORMATION 897-6280 REVISION 3

1/30/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 05-04 Branch Technical Position - Design Requirements of the Residual Heat Removal System
Application Section: DCD 5.4.7

QUESTIONS for Reactor System, Nuclear Performance and Code Review (SRSB)

05-04 Branch Technical Position-1

In DCD Section 5.4.7.2.3.6, “Mid-loop and Drain Down Operations” the RCS water level should be maintained higher than 0.33 feet above the loop center with an RHR flow of 1,550 to 2650 gpm. The staff has the following questions:

1. Is the 0.33 feet above the loop center the minimum value including uncertainties?
2. What controls or systems are in place to ensure the minimum mid-loop level is not violated?
3. What tests and/or analyses, at the most limiting RHR flow rate and mid-loop water level, have been performed to ensure that air entrainment and potential vortexing do not challenge the RHR pump safety functions? Describe how the tests and/or analyses are applicable to the US-APWR RHR inlet design.