

# REQUEST FOR ADDITIONAL INFORMATION 737-5705 REVISION 3

4/20/2011

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 06.03 - Emergency Core Cooling System  
Application Section: DCD Chap 6.3

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

06.03-100

RAIs on MHI Document 4BS-UAP-10005 (Rev 3)," NPSH Calculation for SI and CS/RHR Pumps" which was presented at the 4/7/11 audit.

1. Section 3.0 of 4BS-UAP-10005 (page 2 of 11) states that water level used in the available NPSH calculation includes a 5% uncertainty. It is unclear if the NPSH calculation uses the reported 7'-7" RWSP water level or a value 5% lower, and if the value also includes an additional uncertainty based on isometric drawings. Clarify the RWSP water level used in the calculation, include the value determined from the water hold-up evaluation and the uncertainties added to that value to account for isometric drawings (as appropriate) and the additional conservatism.

06.03-101

RAIs on MHI Document 4BS-UAP-10005 (Rev 3)," NPSH Calculation for SI and CS/RHR Pumps" which was presented at the 4/7/11 audit.

Editorial corrections,

- a. Revise Section 1.0 to state that this calculation "will be" used to determine NPSH margin once all effects of required NPSH are determined and the "as-built" configuration is accounted for (piping layout and valve head losses).
- b. Section 2.0. The 29'-11" does not equal the 29.7 ft given in Section 6.0; clarify and include the uncertainties added to that value to account for isometric drawings (as appropriate) and the additional conservatism.
- c. Section 3.0. Revise number 7 to describe how deaeration and NSPH-required are to be handled.
- d. Section 4.0. The definition of Hp states that it is at the pump suction and the sump surface. These are two different elevations and hence pressures. Revise the definition to the correct reference location.