

REQUEST FOR ADDITIONAL INFORMATION 721-5535 REVISION 2

3/21/2011

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 09.01.04 - Light Load Handling System (Related to Refueling)
Application Section: 9.1.4

QUESTIONS for Balance of Plant Branch 1 (SBPA)

09.01.04-22

Follow Up to RAI 9.1.4-21:

The staff requested Mitsubishi Heavy Industries, LTD (MHI) to address operating experience considerations associated with refueling cavity seals in Request for Additional Information (RAI) 09.01.04-16 dated December 15, 2009, and supplemental RAI 09.01.04-21 dated September 17, 2010. Based on a review of MHI's supplemental response to RAI 9.1.4-21, in a letter dated October 21, 2010, the staff determined that the DCD markup provided in the RAI response did not include the necessary level of detail. Consequently, the following information is needed:

1. Descriptive information of the permanent cavity seal (PCS) provided in RAI response 09.01.04-16 and supplemental response 09.01.04-21, in addition to the figure for illustrative purposes, should be added to Tier 2 of the DCD. This information should include:
 - a. functional description of the seal
 - b. material and codes/standards used
 - c. justification for how the seal is protected from dropped loads
 - d. description of the leak detection system
 - e. any level alarms that would alert an operator of a pool draindown, including alarm location
 - f. description of the safe location where fuel in transit can quickly be placed
2. The NRC staff feels that the proposed information in Section 9.1.4.2.2.2 concerning procedures is thorough and complete, however the requirement for the COL applicant to develop these procedures should also be included in the DCD as a COL information item.
3. The response to RAI 09.01.04-16 indicated that in the event of low refueling cavity water level, makeup water can be provided to the refueling cavity from the refueling water storage pit (RWSP) or refueling water storage auxiliary tank (RWSAT) via the refueling water recirculation pump. Since the RWSP is used to initially fill the refueling cavity, it was not clear to the staff how much water remained in the RWSP to provide the makeup capability following a decrease in refueling cavity water level. Provide additional information in the DCD to describe this makeup capability and to justify the amount of water available from the RWSP and RWSAT during refueling operations when the reactor cavity is full.
4. The response to RAI 09.01.04-21 provided a drawing that included the leakage detection design. From the information contained in the drawing and

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description in the RAI response, it was not clear to the staff that all of the expected leakage would be directed into the leakage detection pipe. Additional information regarding the leakage detection design is needed in the DCD, including assurance that all leakage from the PCS will enter the leakage detection pipe.