REQUEST FOR ADDITIONAL INFORMATION 567-4326 REVISION 0

3/30/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 09.02.02 - Reactor Auxiliary Cooling Water Systems
Application Section: 9.2.8

QUESTIONS for Balance of Plant Branch 1 (AP1000/EPR Projects) (SBPA)

09.02.02-46

Follow-up to RAI 09.02.02-1

General Design Criteria (GDC) 60 requires nuclear power unit designs to include means to control the release of radioactive materials in gaseous and liquid effluents produced during normal reactor operation, including anticipated operational occurrences. Means must also be provided for monitoring effluent discharge paths and the plant environs for radioactivity that may be released in accordance with GDC 64 requirements. Additionally, 10 CFR 52.47(a)(6) and 10 CFR 20.1406 require applicants for standard plant design certifications to describe how facility design and procedures for operation will minimize contamination of the facility and the environment. In order for the staff to confirm compliance with these requirements, the design control document (DCD) needs to be revised to explain how the turbine component cooling water system satisfies the requirements specified by 10 CFR 20.1406, “Minimization of Contamination.”

Based on the staff’s review of the applicant’s response to RAI 09.02.02-1, that following items should be addressed:

- Since the TCS standpipe makeup water from the condensate storage tank (CST) is a potentially contaminated water source in the event of a primary-to-secondary system leakage, describe why this is an acceptable water source under the guidance of 10 CFR 20.1406. Industry Operating Experience shows that low levels of tritium will be present in the secondary system. Testing has shown that hydrogen (including deuterium and tritium) does permeate through metals such as nickel. In addition, several plant studies of SG corrosion demonstrated that hydrogen permeated through the SG tubing. A survey of plants indicated very similar tritium concentrations in secondary systems with typical values in the range of 5×10^{-6} to 5×10^{-5} µCi/cc consistent with primary system tritium concentration, SG tube areas, and the amount of SG blowdown recovery.

- Describe why other non-contaminated water sources are not preferred for the TSC standpipe makeup. For example, the demineralized water storage tank should not be contaminated which is shown on Figure 9.2.6-1, “Condensate Storage Facilities System Flow Diagram.

Reference: MHI's Responses to US-APWR DCD RAI No. 252-1968; MHI Ref: UAP-HF-09110; dated March 30, 2009; ML090930719.