REQUEST FOR ADDITIONAL INFORMATION 576-4603 REVISION 0

4/26/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 09.02.02 - Reactor Auxiliary Cooling Water Systems
Application Section: 9.2.2

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

09.02.02-69

Sections 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 component cooling water system satisfies the requirements specified by 10 CFR 20.1406, “Minimization of Contamination.”

As described in US-APWR DCD Tier 2 Section 9.2.2.2.1.3, “CCW Surge Tank,” makeup water can be supplied from three sources; demineralized water (DWS), primary makeup water system (PMWS), and refueling water storage system (RWS). The PMWS and RWS may contain concentrations of tritium or levels of corrosion and fission product contamination. In addition, the component cooling water system (CCWS) is used to cool components containing reactor cooling system (RCS) fluid at pressures much higher than CCWS pressure, so leakage between the systems will be into the CCWS. Based on industry experience with shell and tube type heat exchangers, and to a greater degree plate type heat exchangers, some chronic leakage or anticipated operational occurrences related leakage of radioactive fluids into the CCW system may be expected during the operation of the plant. Some loads of the CCWS are located in the turbine building which include instrument air system (IAS) compressors/coolers. At other plants, these compressors/coolers are cooled by the turbine component cooling water system (TCCWS), which is typically not subject to radiological contamination.

Describe in the DCD the basis and assumptions which demonstrate that the use of CCWS instead of other available system such as TCCW to cool the IAS compressors (Section 9.3.1) satisfies the requirements in 10 CFR 20.1406.