

**REQUEST FOR ADDITIONAL INFORMATION NO. 159-1955 REVISION 0**

1/21/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 01 - Introduction and Interfaces

Application Section: Section 10.4.4 - Turbine Bypass System

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

01-2

Request for Additional Information

US APWR RAI 10.4.4-1:

In FSAR Tier 2 Section 10.4.4.1.2 "Non-safety Power Generation Design Bases," the US APWR DCD states that the TBS is designed to bypass steam to the main condenser during plant shutdown to facilitate a manually controlled cooldown of the RCS to the point where the residual heat removal system can be placed in service for further cooldown. Also, the DCD states that The TBS has the capacity to bypass 68% of the main steam flow to the main condenser at full power, and is designed to sustain a 100% load rejection, without generating a reactor trip, and without requiring actuation of the MSRVs, MSSVs, or pressurizer safety valve. The DCD further states that the TBS is designed to follow a rapid turbine load reduction greater than 10% but less than 100% with a reactor trip. This conforms to the GDC 34 requirements as related to its capability to support the RHR function for shutting down the plant during normal plant operation.

Further, as related to GDC 34 requirement, Item 2, Section III, "Review Procedures" of SRP Section 10.4.4, "Turbine Bypass System," recommends to verify the relation between the TBS and MSRV capacity in terms of percentage of main steam flow, the maximum reactor power step change the system is designed to accommodate without a reactor or turbine trip, and the maximum electric load step change the reactor is designed to accommodate without reactor control rod motion or steam bypassing. However, the DCD does not address this feature as recommended in the SRP guidance. Therefore, in a request for additional information (RAI) 10.4.4-1, the staff requests the applicant to provide further information as related to the TBS capacity for the maximum step change requirements in terms of percentage of the main steam conforming to the above SRP guidance as related to the GDC 34 requirement.