

REQUEST FOR ADDITIONAL INFORMATION 668-5180 REVISION 2

11/29/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 19.01 - Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Application Section: 19

QUESTIONS for PRA and Severe Accidents Branch (SPRA)

19.01-9

On page 19.1-964 of the US-APWR DCD, Revision 2, Key Assumption 9, it states, "nitrogen will not be injected in the SG tubes to speed draining in the US-APWR design. The SG tubes will be filled with air during midloop operation". In response to RAI 19.01-3, MHI stated that the pressurizer vent valve, which is 3/4 inch in diameter, provides a sufficient path from preventing the RCS pressure to be negative compared to containment during RCS draining. The staff requests MHI to provide an analysis to show that RCS draining from pressurizer full to midloop conditions (assuming draining by CVCS and a RCS vent of 3/4 inch in diameter) can be performed in the timeframe that MHI assumed.

19.01-10

On page 19.1-963 of the DCD, Revision 2, Table 19.1-119, Key Insights and Assumptions, and in Section 5.4.7.2.3.6, of the DCD, it states, "Hydrogen peroxide addition is adopted instead of aeration because it decreases the duration of the mid-loop operation. As a result, the mid-loop operation is needed only to drain the SG primary side water while being able to maintain a high RCS water level for most of the oxidation operation". In US operating plants, often the duration of midloop is based on the time to install and remove SG nozzle dams to isolate the SGs to perform maintenance and testing. As the staff understands, MHI plans to use SG nozzle dams to isolate the SGs to perform maintenance and testing. The staff is requesting MHI to document in Section 5.4.7.2.3.6 and Table 19.1-119 of the DCD why hydrogen peroxide decreases the duration of midloop.

19.01-11

In Table 19.1-119, Key Insights and Assumptions, of the DCD, Revision 2, in assumption 4 on page 19.1-950, assumptions 6 and 7 on page 19.1-960, and assumption 7 on page 19.1-963, please update the disposition of these assumptions to include the new Technical Specification for automatic low pressure letdown line isolation, TS 3.4.8.