

REQUEST FOR ADDITIONAL INFORMATION 615-4816 REVISION 2

8/13/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 06.05.01 - ESF Atmosphere Cleanup Systems

Application Section: DCD Section 9.4.6

QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

06.05.01-19

This is a follow-up question to RAI 558-4227, Revision 2 Question No. 06.05.01-9 (MHI Ref: UAP-HF-10150)

The staff notes that the applicant did not adequately address the staff's closing inquiry of Question No. 06.05.01-9 ... *"the staff asks on what basis is the containment purge isolation function associated with radiation monitors RMS-RE-40 and 41 not safety related."*

The applicant responded that:

"The non-safety containment radiation monitors are used to detect leakage into the containment atmosphere from the reactor coolant pressure boundary (RCPB). The monitor has a range capable of detecting less than 0.5 gpm leakage within one hour of response time. The containment isolation valves are closed to reduce the radioactive material leakage from RCPB to the environment through the containment purge system when RMS-RE-40 or 41 detects the leakage."

Based on this response, it appears the monitors are used to actuate a safety system (containment isolation system) and the monitors are credited with terminating a design basis event (*conditions of normal operation, including anticipated operational occurrences, design basis accidents, external events and natural phenomena for which the plant must be designed to ensure function*). As a result, the monitors appear meet the definition of safety-related (10 CFR 50.49). The staff again requests the applicant to explain why the monitors are not designated as safety-related. Specifically, describe if the monitors are credited to terminate an RCS leakage event. Additionally, explain how the applicable regulatory criteria (including dose criteria) are met for all design basis events if RMS-RE-40 and 41 fail to initiate the system response described in the RAI response.

The staff requests that the applicant amend the DCD, as the applicant's response to the above question warrants.

The staff also notes that the applicant's response to Question No. 06.05.01-9 explained the use of optical isolation of the non-safety related RMS-RE-40

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and RMS-RE-41 electrical inputs to the safety related ESFAS. Since this response was central to the staff's questioning of Question No. 06.05.01-9, the staff requests that the applicant amend the DCD to include this information. This will allow the staff to use this information in its final Safety Evaluation Report (SER).

Reference: MHI's 2nd Response to US-APWR DCD RAI No. 558-4227; MHI Ref: UAP-HF-10150; dated May 27, 2010; ML101530606.

06.05.01-20

The staff has reviewed the applicant's response to RAI No. 558-4277 Revision 2, Question 06.05.01-18. (MHI Ref: UAP-HF-10115).

The applicant committed to amend DCD subsection 14.2.12.4.11 D.1 "Ventilation Capability Test" as follows:

"Temperature conditions are maintained in the containment and ESF areas in accordance with Subsections 9.4.5, 9.4.6, and Table 9.4-1. It has been demonstrated through testing and analyses that the temperatures for these areas are being maintained within the design temperatures based on recorded environmental conditions."

The staff is concerned that the term 'based on recorded environmental conditions' lacks a precise meaning and could be misinterpreted. The staff requests that the applicant clarify the statement. The following would be one of many acceptable approaches.

"Temperature conditions are maintained in the containment and ESF areas in accordance with Subsections 9.4.5, 9.4.6, and Table 9.4-1. It has been demonstrated through testing and analyses that the temperatures for these areas are being maintained within the design temperatures based on the design basis environmental conditions and design basis heat loads."

Reference: MHI's 1st Response to US-APWR DCD RAI No. 558-4227; MHI Ref: UAP-HF-10115; dated April 22, 2010; ML101170172.