REQUEST FOR ADDITIONAL INFORMATION 826-6014 REVISION 3

9/7/2011

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 Containment Cooling

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

06.05.01-21

Follow-up RAI

This is a follow-up RAI to RAI No. 73-943, Question No. 06.05.01-1 RAI 6.5.1-18 and RAI No. 558-4227, Question No. 06.05.01-14.
From the review of Revision 3 of the DCD, the staff determined that subsection 9.4.6.5.3 had been amended consistent with the response to Question No. 06.05.01-14. In contrast, the requisite change to subsection 14.2.12.1.66 did not appear in Revision 3 of the DCD.
In particular, DCD Subsection 14.2.12.1.66, C.2 was not revised per the following.
"2. Simulate low airflow and high vibration signals and verify alarm annunciation."
Based on this, the staff finds the applicant's response to RAI No. 558-4227, Question No. 06.05.01-14 as incomplete. The staff requests that the applicant revise subsection 14.2.12.1.66 consistent with their commitment of RAI No. 558-4227, Question No. 06.05.01-14.

06.05.01-22

Follow-up RAI

This is a follow-up RAI question to RAI 73-943 Question No. 06.05.01-1 RAI 6.5.1-17 and RAI No. 558-4227, Question No. 06.05.01-15.
The applicant responded to Question No. 06.05.01-15 (ML101170172) with a commitment to implement changes that add line Item 3 to Tier 1 ITAAC Table 2.7.5.3-1 and add relevant fire damper information to Tier 1 subsection 2.7.5.3.1.1. The staff found both of these changes as acceptable since these changes are consistent with the SRP guidance on ITAAC and meet the requirements for ITAAC.
The staff notes that Revision 3 of the DCD significantly changed the format of Tier 1. As part of this format change, Revision 3 of the Tier 1 ITAAC eliminated Subsection 2.7.5.3.1.1, "Containment Purge System - Design Description" under "Key Design Features". The staff finds this approach acceptable if the ITAAC of Table 2.7.5.3-1 is sufficiently comprehensive and well defined. The staff verified that DCD Revision 3 Tier 1 Table 2.7.5.3-1 "Containment Ventilation System Inspections, Tests, Analyses, and Acceptance Criteria" contains line Item 3 pertaining to fire damper testing and analyses. Item 3 reads that dampers in the ductwork of the containment purge system that penetrates the fire barriers are "type tested" and analyzed to ensure that the dampers will operate to protect safe

shutdown capability. The staff notes that the ITAAC as written fails to demonstrate that the "as-built" fire dampers will fully close under system design flow rates. The staff notes that "type testing" consists of factory sample population testing. The staff is concerned that too many things can go wrong in the entire population of dampers, after the fire dampers are factory assembled. In particular, during shipping, during construction site storage; during component work site job staging; and during the actual installation (i.e. wrong or poor quality installation) to rely on the current words in Rev 3 of the ITAAC which fails to verify/demonstrate that the "as-built" dampers will fully close when required to close to preserve the plant's safe shutdown capability.
The staff requests that the applicant revise the fire damper testing line Items contained in Tier 1 Table 2.7.5.1-3 "Main Control Room ITAAC", HVAC System Table 2.7.5.2-3 "Engineered Safety Features Ventilation System ITAAC" and Table 2.7.5.4-3 "Auxiliary Building Ventilation System ITAAC" and Table 2.7.5.3-1 "Containment Ventilation System ITAAC" to verify full closure of the dampers during full flow testing of the "as-built" fire dampers.