

REQUEST FOR ADDITIONAL INFORMATION 735-5723 REVISION 0

4/20/2011

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 09.01.03 - Spent Fuel Pool Cooling and Cleanup System
Application Section: 9.1.3

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

09.01.03-7

The spent fuel pit cooling and purification system (SFPCS) is required to be designed in accordance with General Design Criteria (GDC) 2, "Design Basis for Protection Against Natural Phenomena," and GDC 4, "Environmental and Dynamic Effects Design Bases." To comply with GDC 2 requirements, Standard Review Plan (SRP), Section 9.1.3, "Spent Fuel Pool Cooling and Cleanup System," specifies that Position C.1 and C.2 of Regulatory Guide 1.29, "Seismic Design Classification" must be satisfied. Position C.2 specifies that the design of non-safety-related SSCs would be acceptable if their failures do not adversely affect the control room occupants or safety-related SSCs to perform their safety-related functions. To meet GDC 4 requirements, SSCs important to safety must be designed to accommodate the dynamic effects resulting from pipe whip, missiles, and discharging fluids.

USAPWR Design Certification Document (DCD) Rev 3, Section 9.1.3.2.1.7, "Valves," states that manual valves are used to isolate the safety-related cooling portion of the SFPCS from the non-safety-related purifications portion, in case any leaks or failures occur on the non-safety portion. The DCD does not address how these valves would provide isolation of the safety-related portion of the SFPCS from the non-safety related portion to comply with GDC2 and GDC4 requirements upon a seismic event or an internally generated missile event. If such an event led to a failure of the non-safety related portion of the SFPCS while both loops of SFPCS are in operation, without automatic closure of the isolation valves, the SFPCS pumps could continue to feed the break and eventually lead to their tripping from loss of flow, resulting in the loss of SFPCS function.

Therefore, the applicant is requested to provide additional information in Tier 2, Section 9.1.3 of the DCD to address how presumed failures of non-safety-related portions of the SFPCS due to a seismic event or an internally generated missile event do not adversely affect the safety-related portion of the SFPCS, pursuant to the requirements of GDC 2 and GDC 4.