

OPEN ITEMS 16.4.8

09/16/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 16.4.8 – Emergency Core Cooling Systems Technical Specifications Branch

[Open Item 16-135-1818/51] This question is related to RAI 16-135-1818/51.

- In RAI 16-135-1818/51, the applicant was asked to justify identifying only 2 SI Pump Accumulator Makeup valves that require power lockout in SR 3.5.2.1. The DCD Chapter 6 also identifies the four SI Pump Full Flow Test Line stop valves as being normally closed with control power locked out. In its response letter February 4, 2009, the applicant stated:

“SR 3.5.2.1 addresses Safety Injection Pump Accumulator Makeup Valves (SIS-AOV-201 B and C). These valves are provided in the cross line between B and C safety injection trains, thereby misalignment of these valves could lead to simultaneous unavailability of two trains. Each of the Safety Injection Pump Full-flow Test line Stop Valves (SIS-MOV-024A, B, C and D) is provided in the associated independent train, and misalignment of these valves could not cause simultaneous unavailability of two or more trains ... the second sentence of

BASES for SR 3.5.2.1, "Misalignment of these valves could render its associated SIS train inoperable" will be corrected to "Misalignment of these valves could render two SIS trains inoperable."

The staff's review of the discussion on SR 3.5.2.1 in the STS found that operating experiences documented in the NRC Information Notice (IN) 87-01 are cited as the basis for this surveillance requirement. The staff believed MHI has mis-interpreted the safety implication of findings identified in IN 87-01. If misalignment of a valve could render any SIS train inoperable (an unanalyzed configuration), that valve should be listed in SR 3.5.2.1. This is an open item (OI 16-135-1818/51).

[Open Item 16-135-1818/53] This question is related to RAI 16-135-1818/53.

The APWR GTS, Section 3.5.2, contains operability requirements for the ECCS when the plant is in Mode 3 or above. Aside from the accumulators, the APWR ECCS design consists of only one SI subsystem in contrast to the three SI subsystems in Westinghouse PWR plants. The APWR ECCS operability requirements were formulated following the guidance from the Westinghouse STS with respect to equipment redundancy, potential loss of applicable safety function(s), and the relative importance role of each system component in the plant accident/safety analyses. During its review, however, the staff noted that the applicant did not include a surveillance requirement to verify the operability of ECCS valves which are manually activated during a design basis accident event. In RAI 16-53, the applicant was asked to justify this SR omission. In its response letter dated February 4, 2009, MHI stated that remote manual-operated valves

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are considered to have higher reliability than automatic valves. MHI also stated that, based on NUREG-1431, periodic actuation verification is not required for remote manual-operated valves. The staff finds this response unacceptable in that MHI does not provide any evaluation or justification for the statement that remote manual-operated valves are considered to have higher reliability than automatic valve. MHI should provide some basis for the assertion including addressing resolution of issues identified in GL 89-10 and GL 96-05. This is an open item (OI 16-135-1818/53).