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TOKYO, JAPAN

June 16, 2009

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Mr. Jeffrey A. Ciocco

Docket No. 52-021
MHI Ref: UAP-HF-09319

Subject: **Amended MHI's Response to US-APWR DCD RAI No. 136-1819 Revision 0 Question No. 16-18**

Reference: 1) "REQUEST FOR ADDITIONAL INFORMATION NO. 136-1819 REVISION 0, SRP Section: 16 - Technical Specifications Application Section: TS Section 3.6, QUESTIONS for Technical Specification Branch (CTSB)" dated December 22, 2008.
2) Letter MHI Ref: UAP-HF-09032 from Y. Ogata (MHI) to U.S. NRC, "MHI's Responses to US-APWR DCD RAI No.136-1819 Revision 0," dated February 4, 2009.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document as listed in Enclosure.

Enclosed is the amended response to Question No. 16-60 of the RAIs contained within Reference 1. The initial response was contained in those submitted with Reference 2.

The RAI response contained in this amended version involves the additional application of the Surveillance Frequency Control Program to one of Surveillance Requirements in US-APWR Technical Specifications. This amendment is consistent with TSTF-425, which will soon be available as a part of the Consolidated Line Item Improvement Process and hence raises no additional technical issue.

Please contact Dr. C. Keith Paulson, Senior Technical Manager, Mitsubishi Nuclear Energy Systems, Inc. if the NRC has questions concerning any aspect of the submittal. His contact information is below.

Sincerely,

Y. Ogata

Yoshiki Ogata,
General Manager- APWR Promoting Department
Mitsubishi Heavy Industries, LTD.

Enclosure:

D081
NRO

1. "Amended Response to Question No.16-60 of Request for Additional Information No. 136-1819 Revision 0"

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Docket No. 52-021
MHI Ref: UAP-HF-09319

Enclosure 1

UAP-HF-09319
Docket No. 52-021

Amended Response to Question No.16-60 of Request for Additional Information No.136-1819 Revision 0

June 2009

6/16/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. 136-1819 REVISION 0

SRP SECTION: 16 - TECHNICAL SPECIFICATIONS

APPLICATION SECTION: TS SECTION 3.6

DATE OF RAI ISSUE: 12/22/2008

QUESTION NO.: 16-60

TS 3.6.3, Containment Isolation Valves.

Justify not including TS requirements and associated discussions in the TS bases regarding the use of resilent seals in APWR containment purge isolation valves.

APWR TS 3.6.3 and the associated bases omitted all requirements as shown in the Westinghouse STS regarding resilent seals being used in the containment purge isolation valves (e.g., STS SR 3.6.3.7 and STS 3.6.3 Condition E). In addition, APWR FSAR Section 9.4.6, Containment Ventilation System, does not provide relevant information to indicate whether resilent seals are or are not being used in the design of APWR containment purge isolation valves.

This information is needed to ensure completeness of APWR TS requirements.

ANSWER:

The DCD Chapter 16, TS 3.6.3 and related BASES will be revised to be consistent with STS, NUREG-1431. This will leave the possibility of the using resilient seals in the containment purge isolation valves.

Impact on DCD

The DCD Chapter 16, TS 3.6.3 will be revised as follows:

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Only applicable to penetration flow paths with two containment isolation valves. ----------	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve	4 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
One or more penetration flow paths with one containment isolation valve inoperable for reasons other than Condition D.	secured. AND A.2 ----------NOTES---------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ----------NOTE---------- Only applicable to penetration flow paths with two containment isolation valves. ---------- One or more penetration flow paths with two containment isolation valves inoperable for reasons other than Condition D.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more penetration flow paths with one or more high volume purge valves not within purge valve leakage limits.	D.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	24 hours
	AND	
	D.2 ----------NOTES---------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
	AND	
	D.3 Perform SR 3.6.3.6 for the resilient seal purge valves closed to comply with Required Action D.1.	Once per 92 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~E~~D. Required Action and associated Completion Time not met.	~~E~~D.1	Be in MODE 3.	6 hours
	AND		
	~~E~~D.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Verify each 36 inch high volume purge valve is sealed closed, except for one high volume purge valve in a penetration flow path while in Condition D of this LCO.	[31 days OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.6	Perform leakage rate testing for 36 inch high volume purge valves with resilient seals.	[184 days OR In accordance with the Surveillance Frequency Control Program] AND Within 92 days after opening the valve

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.~~7~~6	Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	[24 months OR In accordance with the Surveillance Frequency Control Program]

The DCD Chapter 16, TS 3.6.3 BASES will be revised as follows:

BASES

ACTIONS (continued)

D.1, D.2 and D.3

In the event one or more containment high volume purge valves in one or more penetration flow paths are not within the high volume purge valve leakage limits, purge valve leakage must be restored to within limits, or the affected penetration flow path must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, closed manual valve, or blind flange. A high volume purge valve with resilient seals utilized to satisfy Required Action D.1 must have been demonstrated to meet the leakage requirements of SR 3.6.3.6. The specified Completion Time is reasonable, considering that one high volume purge valve remains closed so that a gross breach of containment does not exist.

In accordance with Required Action D.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification that those isolation devices outside containment capable of being mispositioned are in the correct position. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

For the containment high volume purge valve with resilient seal that is isolated in accordance with Required Action D.1, SR 3.6.3.6 must be performed at least once every 92 days. This assures that degradation of the resilient seal is detected and confirms that the leakage rate of the

containment high volume purge valve does not increase during the time the penetration is isolated. The normal Frequency for SR 3.6.3.6, 184 days, is based on an NRC initiative, Generic Issue B-20 (Ref. 4). Since more reliance is placed on a single valve while in this Condition, it is prudent to perform the SR more often. Therefore, a Frequency of once per 92 days was chosen and has been shown to be acceptable based on operating experience.

Required Action D.2 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned.

BASES

ACTIONS (continued)

E.1 and E.2 ~~D.1 and D.2~~

If the Required Actions and associated Completion Times are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.1

Each 36 inch containment high volume purge valve is required to be verified sealed closed. This Surveillance is designed to ensure that a gross breach of containment is not caused by an inadvertent or spurious opening of a containment high volume purge valve. Detailed analysis conducted for similar plant design of the purge valves failed to conclusively demonstrate their ability to close during a LOCA in time to limit offsite doses. Therefore, these valves are required to be in the sealed closed position during MODES 1, 2, 3, and 4. A containment high volume purge valve that is sealed closed must have motive power to the valve operator removed. This can be accomplished by de-energizing the source of electric power or by removing the air supply to the valve operator. In this application, the term "sealed" has no connotation of leak tightness. [The Frequency of 31 days is a result of an NRC initiative, Generic Issue B-24 (Ref. 54), related to containment purge valve use during plant operations. In the event purge valve leakage requires entry into Condition DE, the Surveillance permits opening one purge valve in a penetration flow path to perform repairs. OR The Surveillance Frequency is based on operating experience, equipment

reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.6

For containment purge valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J, Option B, is required to ensure OPERABILITY. Operating experience has demonstrated that this type of seal has the potential to degrade in a shorter time period than do other seal types. [Based on this observation and the importance of maintaining this penetration leak tight (due to the direct path between containment and the environment), a Frequency of 184 days was established as part of the NRC resolution of Generic Issue B-20, "Containment Leakage Due to Seal Deterioration" (Ref. 4). OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

Additionally, this SR must be performed within 92 days after opening the valve. The 92 day Frequency was chosen recognizing that cycling the valve could introduce additional seal degradation (beyond that occurring to a valve that has not been opened). Thus, decreasing the interval is a prudent measure after a valve has been opened.

SR 3.6.3.7 ~~SR 3.6.3.6~~

Automatic containment isolation valves close on a containment isolation signal to prevent leakage of radioactive material from containment following a DBA. This SR ensures that each automatic containment isolation valve will actuate to its isolation position on a containment isolation signal. This surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

REFERENCES

4. Generic Issue B-20, "Containment Leakage Due to Seal Deterioration."

54. Generic Issue B-24.

Impact on COLA

There is impact on the COLA to incorporate the DCD change.

Impact on PRA

There is no impact on the PRA.