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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-09317

Subject: MHI's Response to US-APWR DCD RAI No.376-2849 Revision 1

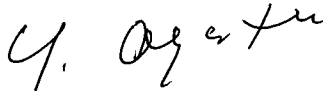
References: 1) "Request for Additional Information No.376-2849 Revision 1, SRP Section: 06.02.04 – Containment Isolation System, Application Section: 6.2.4" dated May 29, 2009.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Response to Request for Additional Information No.376-2849 Revision 1".

Enclosed is the response to one RAI contained within Reference 1.

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

Sincerely,



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

Enclosure:

1. Response to Request for Additional Information No. 376-2849, Revision 1

CC: J. A. Ciocco
C. K. Paulson

Contact Information

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Docket No. 52-021
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Enclosure 1

UAP-HF-09317
Docket Number 52-021

Responses to Request for Additional Information No. 376-2849,
Revision 1

June, 2009

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

06/16/2009

**US-APWR Design Certification
Mitsubishi Heavy Industries
Docket No. 52-021**

RAI NO.: NO.376-2849 REVISION 1
SRP SECTION: 06.02.04 – Containment Isolation System
APPLICATION SECTION: 6.2.4
DATE OF RAI ISSUE: 05/29/2009

QUESTION NO. : 06.02.04-50

Clarify use of Low Volume Purge System for cooling or heating containment.

Section B 3.6.3 of Chapter 16 of Revision 1 of the US-APWR DCD states in the 'Background' Section of the 'Bases' that:

"The Low Volume Purge System operates to:

- a. Supply outside air into the containment for ventilation and cooling or heating
- b. Reduce the concentration of noble gases within containment prior to and during personnel access and
- c. Equalize internal and external pressures."

While parts b and c of this statement are consistent with similar statements found in the 'Bases' Sections of NUREG-1431, "Standard Technical Specification Westinghouse Plants," and NUREG-1430, "Standard Technical Specifications Babcock and Wilcox Plants," part a of the statement is novel and appears to contradict acceptance criterion # 2 of Branch Technical Position (BTP) 6-4 which states that "The purge system should not be relied on for temperature and humidity control within the containment."

Part a of the above statement also seems to differ with Surveillance Requirement 3.6.3.2 in Chapter 16 of Revision 1 of the DCD which states: "Verify each 8 inch low volume purge valve is closed, except when the 8 inch containment low volume purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open."

Similarly, Tier 2 Table 9.4-1, "Area Design Temperature and Relative Humidity", indicates that the maximum containment temperature under normal conditions will be *approximately* 120°F ("~120°F"). It also indicates that "the containment purge system" is credited as a containment HVAC service system, annotated with the following footnote:

"(b) 1% exceedance dry bulb and wet bulb temperature of site ambient temperature condition (See Chapter 2)"

- 1) Clarify if the Low Volume Purge System of the US-APWR is meant to be used for containment cooling or heating, and if so, under what conditions it is meant to be used for these purposes. Also, if the Low Volume Purge System is to be used for containment cooling or heating, justify such use in light of acceptance criterion # 2 of BTP 6-4.
 - 2) Clarify why the maximum containment temperature under normal conditions is provided as an approximate value in Table 9.4.1.
 - 3) If the Low Volume Purge System is not meant to be used for containment cooling or heating, during normal conditions, clarify Table 9.4.1 to so indicate.
 - 4) Clarify if containment ambient air temperature was used as an input condition in Design Basis or Beyond Design Basis Accident analyses. If so, please include this air temperature as a key assumption in Tier 2 chapter 14.3 revised tables, and include ITAAC sufficient to verify that the Containment Fan Cooler System will be sized to ensure that containment ambient air temperature will not exceed 120°F during normal conditions, without the need to use other sources of containment air cooling. Alternatively, provide explanation why containment ambient air temperature was not chosen as a key design feature to be verified by ITAAC.
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ANSWER:

- 1) The Low Volume Purge System of the US-APWR is not used for containment cooling or heating. So, Section B 3.6.3 of Chapter 16 of DCD will be revised to remove the description of part a in the "Bases".
- 2) The indication of Tier 2 Table 9.4-1, ~120°F, means that the maximum containment temperature is below 120°F. However, this indication is not consistent with ones of other area maximum temperature. So, this description will be revised to remove the confusing.
- 3) See answer to question 2).
- 4) DCD Tier 2 Table 14.3-1 will be revised to include the containment air temperature as key design features. This change has been included in the response to Question 14.03.11-29 RAI 14.03.11-19, RAI No.222-1933 Revision 1 transmitted by UAP-HF-09198 dated 04/23/2009. ITAAC for containment fan cooler system has also addressed in the response to Question 14.03.07-6, RAI 14.3.7.3-3, RAI No.54 Revision 0 transmitted by UAP-HF-08184 dated 09/19/2008.

Impact on DCD

Section B 3.6.3 of Chapter 16 of DCD will be revised as follows:

Low Volume Purge System (8 inch purge valves)

The Low Volume Purge System operates to:

- a. ~~Supply outside air into the containment for ventilation and cooling or heating~~
- ab. Reduce the concentration of noble gases within containment prior to and during personnel access and
- be. Equalize internal and external pressures.

The indication of containment maximum temperature during normal condition in Table 9.4-1 of Chapter 9 of DCD will be revised as follows:

≈120°F (delete "≈")

Impact on COLA

There is impact on the COLA to incorporate the DCD Tier 2 Chapter 16 change.

Impact on PRA

There is no impact on the PRA.