

  
**MITSUBISHI HEAVY INDUSTRIES, LTD.**  
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TOKYO, JAPAN

June 7, 2010

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-10162

**Subject:** MHI's Response to US-APWR DCD RAI No.587-4689 Revision 0

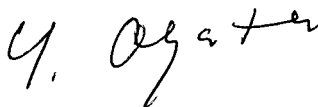
**Reference:** 1) "Request for Additional Information No.587-4689 Revision 0, SRP Section: 06.02.01.01.A – PWR Dry Containments, Including Subatmospheric Containments, Application Section: 06.02.01" dated May 10, 2010.

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. 587-4689 Revision 0."

Enclosed is the response to 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. 587-4689 Revision 0

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

Contact Information

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DOB /  
NRC

Enclosure 1

UAP-HF-10162  
Docket Number 52-021

Response to Request for Additional Information  
No. 587-4689 Revision 0

June 2010

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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06/7/2010

**US-APWR Design Certification**

**Mitsubishi Heavy Industries**

**Docket No.52-021**

**RAI NO.:** NO.587-4689 REVISION 0  
**SRP SECTION:** 06.02.01.01.A - PWR DRY CONTAINMENTS, INCLUDING  
SUBATMOSPHERIC CONTAINMENTS  
**APPLICATION SECTION:** 06.02.01  
**DATE OF RAI ISSUE:** 05/10/2010

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**QUESTION NO. : 06.02.01.01.A-1**

RAI 06.02.01-3 – Supplement: In the original RAI 06.02.01-3 the staff requested to provide the heat and mass transfer models between the containment pool (or RWSP) and the containment atmosphere. These models are not included in the original response. Please, provide the heat and mass transfer correlations used, including sufficient modeling details.

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**ANSWER:**

As described in the second paragraph of page 6-2-10 of the DCD (please see the abstract below), for containment peak pressure and temperature analysis, the effective area for heat and mass transfer between the containment pool (RWSP) and the containment atmosphere is assumed to be zero. Therefore, there is no heat and mass transfer between the pool and the atmosphere.

Abstract in DCD Revision 2 from page 6-2-9 to 6-2-10

"6.2.1.1.3.3 Containment Analysis Methodology

This section provides a summary of the methodology used to develop the containment analysis model for the US-APWR.

Containment Noding

...The liquid vapor interface area is used to calculate the heat and mass transfer between the vapor and the liquid phase. In the single volume containment model, it is set to zero to isolate the relatively cool water in the RWSP from the remainder of containment. This prevents the energy in the vapor phase from being transferred to the RWSP water resulting in higher peak containment temperature and pressure."

**Impact on DCD**

There is no impact on the DCD.

**Impact on COLA**

There is no impact on the DCD.

**Impact on PRA**

There is no impact on the PRA.

This completes MHI's response to the NRC's question.