MITSUBISHI HEAVY INDUSTRIES, LTD.
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TOKYO, JAPAN

September 14, 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-10251

Subject: MHI's Response to US-APWR DCD RAI No. 617-4843 Revision 4

Reference: 1) "Request for Additional Information No. 617-4843 Revision 4, SRP Section: 05.04.07 – Residual Heat Removal (RHR) System – Application Section: 5.4.7" dated August 13, 2010.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Responses to Request for Additional Information No. 617-4843 Revision 4."

Enclosed is the response to Question 05.04.07-13 that is 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,

Y. Ogata

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

Enclosure:

1. Response to Request for Additional Information No. 617-4843 Revision 4

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-10251
Docket No. 52-021

Responses to Request for Additional Information No. 617-4843
Revision 4

September 2010

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

09/14/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 617-4843 REVISION 4**
SRP SECTION:	**05.04.07- RESIDUAL HEAT REMOVAL (RHR) SYSTEM**
APPLICATION SECTION:	**5.4.7**
DATE OF RAI ISSUE:	**8/13/2010**

QUESTION NO.: 05.04.07-13

The response to RAI 548-4331, question 05.04.07-12, regarding boron mixing under natural circulation conditions indicated that Section 14.2.12.2.3.9 will be updated to include additional information describing the natural circulation test. It is indicated in several places that RCS boron concentration will be determined at "multiple primary liquid sampling points." How many sampling points will be used in the test? Also, in Item D of updated Section 14.2.12.2.3.9 given in the response, the method by which acceptance is determined is not discussed and a numerical value is not given. Provide the evaluation method to be used to determine adequate boron mixing has been achieved as well as a numerical value that will be used to determine acceptance.

Reference: MHI's Responses to US-APWR DCD RAI No. 548-4331; MHI Ref: UAP-HF-10095; dated April 6, 2010; ML101020019.

ANSWER:

Two sampling points are planned to measure RCS boron concentration. B-loop and C-loop hot leg sampling lines are used for the natural circulation test. These sampling lines are described in DCD Section 9.3.2.

The evaluation method for boron mixing is to confirm significant increase of boron concentration (at least 500 ppm) and difference between both two sampling points can be no greater than 40ppm.

Impact on DCD

There is no impact on the DCD.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.