MITSUBISHI HEAVY INDUSTRIES, LTD.
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TOKYO, JAPAN

July 17, 2012

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-12205

Subject: **MHI's Response to US-APWR DCD RAI No. 949-6537 Revision 1 (SRP 06.03)**

Reference: [1] "Request for Additional Information No. 949-6537 Revision 1, SRP Section: 06.03 – Emergency Core Cooling System –Application Section: 6.3," dated June 28, 2012 (ML12180A229).

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. 949-6537 Revision 1 (SRP 06.03)".

Enclosed is the response to Questions 06.03-109 and 06.03-110 contained within Reference 1.

Please contact Mr. Joseph Tapia, General Manager of Licensing Department, Mitsubishi Nuclear Energy Systems, Inc. if the NRC has questions concerning any aspect of this submittal. His contact information is provided below.

Sincerely,

Y. Ogata

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

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NRO

Enclosures:

1. Response to Request for Additional Information No. 949-6537 Revision 1 (SRP 06.03)

CC: J. A. Ciocco
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Enclosure 1

UAP-HF-12205
Docket No. 52-021

Response to Request for Additional Information No. 949-6537
Revision 1 (SRP 06.03)

July 2012

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

7/17/2012

US-APWR Design Certification

Mitsubishi Heavy Industries, Ltd.

Docket No. 52-021

RAI NO.:	**NO. 949-6537 REVISION 1**
SRP SECTION:	**06.03 – Emergency Core Cooling System**
APPLICATION SECTION:	**6.3**
DATE OF RAI ISSUE:	**6/28 /2012**

QUESTION NO. : 06.03-109

During the April 16-17, 2012 audit of the documents supporting the GSI-191 analysis for US-APWR, the staff reviewed the document 4CS-UAP-20120009 Rev. 0, which supports the cold leg break test source term time delay. The staff noted that in Appendix C, the applicant states that the RWSP water level is calculated by decreasing the water level velocity. This does not agree with other statements throughout the document and would be non-conservative. Confirm that the water velocity is not minimized in the time delay calculations and correct the supporting documentation as necessary.

ANSWER:

As the NRC indicated, the wording in the document reviewed during the audit was incorrect. For the calculation of T2, MHI conservatively assumed a lower RWSP water level at a certain time to obtain a faster flow velocity approaching the sump strainer.

MHI revise the technical document 4CS-UAP-20120009 to correct the wording.

Impact on DCD

There is no impact on the DCD.

Impact on R-COLA

There is no impact on the R-COLA.

Impact on S-COLA

There is no impact on the S-COLA.

Impact on PRA

There is no impact on the PRA.

Impact on Technical/Topical Report

There is no impact on the Technical/Topical Report.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

7/17/2012

US-APWR Design Certification

Mitsubishi Heavy Industries, Ltd.

Docket No. 52-021

RAI NO.:	**NO. 949-6537 REVISION 1**
SRP SECTION:	**06.03 – Emergency Core Cooling System**
APPLICATION SECTION:	**6.3**
DATE OF RAI ISSUE:	**6/28 /2012**

QUESTION NO. : 06.03-110

During the April 16-17, 2012 audit of the documents supporting the GSI-191 analysis for US-APWR, the staff reviewed the document 4CS-UAP-20120009 (R0), which supports the cold leg break test source term time delay. Figure 2 of Appendix C (page 107 of 4CS-UAP-20120009) lists a value of 117 inches, but does not describe how this value was calculated. Explain the origin of the 117 inches value.

ANSWER:

Although, the method of calculating the 117 in. was described in page 9 of the audited technical document 4CS-UAP-20120009 Rev.0, it was not referenced from Appendix C. Therefore, MHI revised the technical document to refer to the 117 in. calculation from Appendix C. See below for the calculation basis of the 117 in. value for reference.

<u>Calculation Basis of the 117 inches</u>

117 in. is the water depth of the RWSP when the first debris reaches the sump strainer. The time associated with the first debris reaching sump strainer is T1 plus T2. During this period, the RWSP is suctioned by the SI and CS pumps and the water level will be lowered. The water depth of 117 inches was calculated considering maximum SI and CS pump flow rate. Since the T2 value and water depth (117 in.) calculations cross reference each other (i.e., T2 calculation uses water depth and water depth calculation also uses the T2 value), the numerical value was iteratively determined.

Impact on DCD

There is no impact on the DCD.

Impact on R-COLA

There is no impact on the R-COLA.

Impact on S-COLA

There is no impact on the S-COLA.

Impact on PRA

There is no impact on the PRA.

Impact on Technical/Topical Report

There is no impact on the Technical/Topical Report.