MITSUBISHI HEAVY INDUSTRIES, LTD.
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TOKYO, JAPAN

June 27, 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-12179

Subject: MHI's Amended Response to US-APWR DCD RAI No. 764-5805 Revision 3 (SRP 19)

References:
1) "Request for Additional Information No. 764-5805 Revision 3, SRP Section: 19 – Probabilistic Risk Assessment and Severe Accident Evaluation, Application Section: SRP Chapter 19," dated June 6, 2011.
2) Letter MHI Ref: UAP-HF-11219 from Y. Ogata to U.S. NRC, "MHI's Responses to US-APWR DCD RAI No. 764-5805 Revision 3 (SRP 19.0)", dated July 15, 2011.
3) Letter MHI Ref: UAP-HF-11300 from Y. Ogata to U.S. NRC, "MHI's Responses to US-APWR DCD RAI No. 764-5805 Revision 3 (SRP 19)", dated September 8, 2011.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") the document entitled "Amended Response to Request for Additional Information No. 764-5805 Revision 3 (SRP 19)".

Enclosed is the amended response to Question 19-531 contained within Reference 1. Responses to other questions contained within Reference 1 have previously been submitted to the NRC in References 2 and 3.

Please contact Mr. Joseph Tapia, General Manager of Licensing Department, 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,
Director - APWR Promoting Department
Mitsubishi Heavy Industries, LTD.

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NRO

Enclosure:

1. Amended Response to Request for Additional Information No. 764-5805 Revision 3 (SRP 19)

CC: J. A. Ciocco
J. Tapia

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Enclosure 1

UAP-HF- 12179
Docket No. 52-021

Amended Response to Request for Additional Information
No. 764-5805 Revision 3 (SRP 19)

June 2012

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

6/27/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No.52-021

RAI NO.: **NO. 764-5805 REVISION 0**

SRP SECTION: **19 – Probabilistic Risk Assessment and Severe Accident Evaluation**

APPLICATION SECTION: 19.2.4.2

DATE OF RAI ISSUE: 6/6/2011

QUESTION NO.: 19-531

Staff notes that in SER Section 6.2.5 there is a concern (RAI-449) regarding the potential for hydrogen accumulation within the RWSP. The applicant, in response to RAI 19-449, described several additional analyses on the RWSP sub-compartment. These analyses indicated that hydrogen concentrations greater than 10% by volume may occur. A staff scoping calculation of a hydrogen detonation scenario within the RWSP sub-compartment indicates that a high level of reflected pressure could occur on the adjacent PCCV wall.

Based on the above, staff requests the applicant to perform a structural calculation to demonstrate that the containment structural integrity requirements of 10 CFR 50.44 (c)(5) are satisfied. The applicant's analysis method should be consistent with the methods described in RG 1.216 and account for dynamic effects and material nonlinearities.

ANSWER:

The RWSP hydrogen accumulation concern is resolved by providing DC-powered hydrogen igniters as described in the response to RAI 871-6121 Question 19-560. This design modification will significantly improve the ability to control hydrogen during an SBO and loss of AAC, which conforms to the related regulatory requirements, regulatory guides, and the NRC safety goals.

The challenge to the containment structural integrity caused by the hydrogen detonation scenario within the RWSP is mitigated by this design modification. Accordingly, it is not necessary to perform a detailed evaluation of hydrogen detonation in the RWSP.

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 Technical/Topical Report.