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August 9, 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-12225

Subject: **MHI's Second Supplemental Response to US-APWR DCD RAI No. 773-5646 Revision 2 (SRP 19A)**

Reference: [1] "Request for Additional Information No. 773-5646 Revision 2, SRP Section: 19 – Probabilistic Risk Assessment and Severe Accident Evaluation Application Section: Appendix A," dated June 23, 2011 [ML111800462].
[2] "MHI's Responses to US-APWR DCD RAI No. 773-5646," UAP-HF-11268, dated August 22, 2011 [ML11236A255].
[3] "MHI's Supplemental Responses to US-APWR DCD RAI No. 773-5646 Revision 2 (SRP 19A)," UAP-HF-12056, dated March 2, 2012 [ML12066A083].

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Second Supplemental Response to Request for Additional Information No. 773-5646 Revision 2". This second supplemental response is submitted to reflect discussions from the July 11, 2012 telephone conference between MHI and the NRC.

Enclosed is the second supplemental response to Question 19-538 of the RAI contained within Reference 1. The initial response was provided in Reference 2 and a supplemental response was provided in Reference 3.

This response is being submitted in two versions. One version (Enclosure 1) includes certain information, designated pursuant to the Commission guidance as sensitive unclassified non-safeguards information, referred to as security-related information ("SRI"), that is to be withheld from public disclosure under 10 C.F.R. § 2.390. The information that is SRI is identified by brackets. The second version (Enclosure 2) omits the SRI and is suitable for public disclosure. In the public version, the SRI is replaced by the designation "[Security-Related Information - Withheld Under 10 CFR 2.390]."

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

D081
NRO

Sincerely,

Y. Ogata

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

Enclosure:

1. Second Supplemental Response to Request for Additional Information No. 773-5646 Revision 2 (SRI included version)

2. Second Supplemental Response to Request for Additional Information No. 773-5646 Revision 2 (SRI excluded version)

CC: J. A. Ciocco
J. Tapia

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Enclosure 2

UAP-HF-12225
Docket No. 52-021

Second Supplemental Response to Request for Additional Information
No. 773-5646 Revision 2

August 2012

(Security-Related Information excluded version)

SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

8/9/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No 52-021

RAI NO.:	**773-5646 REVISION 2**
SRP SECTION:	**19 – Probability Risk Assessment and Severe Accident Evaluation**
APPLICATION SECTION:	**Appendix A**
DATE OF RAI ISSUE:	**6/23/2011**

QUESTION NO.: 19-538

It is stated in Section 19A.1 of the U.S. APWR DCD, Revision 2 that the methodology used for assessing effects of aircraft impact is described in NEI 07-13, "Methodology for Performing Aircraft Impact Assessments for New Plant Designs," Revision 7 (NEI 07-13). Tables 3-4 and 3-5 of NEI 07-13 describe the guidelines for assessing the effects of an aircraft impact that could occur while the plant is shutdown and the reactor is being cooled via the shutdown cooling system. Contrary to the requirements of paragraph (b)(1) of 10 CFR 50.150, Section 19F.4 does not contain a description of design features nor functional capabilities relied upon to ensure that the assessment requirements in paragraph (a)(1) of 10 CFR 50.150 are met while the plant is shutdown and the reactor is being cooled via the shutdown cooling system. Please modify Section 19A.4 to include a description of (1) design features and/or functional capabilities relied upon to ensure that the assessment requirements in paragraph (a)(1) of 10 CFR 50.150 are met while the plant is shutdown and the reactor is being cooled via the shutdown cooling system, and (2) how these design features and/or functional capabilities meet the assessment requirements in paragraph (a)(1) of 10 CFR 50.150. Specifically, please describe how these key design features are capable of assuring core cooling following a beyond-design-basis aircraft impact event for a sufficient period of time to allow implementation of measures that will assure long term core cooling. The staff considers 24 hours to be a sufficient amount of time to implement mitigation measures for long-term core cooling. Please provide the staff with marked-up copy of Section 19A.4 that shows the required descriptions and include the descriptions in the next Revision of the DCD. If detailed descriptions of the subject design features are described in sections of the DCD other than 19A.4. Then, in section 19A.4, identify the features and the sections of the DCD containing the descriptions. Please, include descriptions of any success criteria in the U.S. APWR design PRA that are associated with the key design features.

SUPPLEMENTAL ANSWER:

This is a second supplemental response to the original response to Question No. 19-538 (provided in UAP-HF-11268, dated August 22, 2011). The last paragraph of Section 19A.4.4 will be revised to clarify the available alternate water sources to cool the charging pumps during plant shutdown.

The last paragraph of Section 19A.4.4 will be revised to read as follows:

[Security-Related Information - Withheld under 10 CFR 2.390]

Impact on DCD

See attached mark-up page 19A-6.

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 Topical / Technical Report

There is no impact on topical and technical reports.

Security-Related Information - Withheld Under 10 CFR 2.390

DCD_19-538 S01

DCD_19-538 S02

19A.5 Conclusions of Assessment

This assessment concludes that key design features and functional capabilities of the US-APWR ensure adequate protection of public health and safety in the event of an impact of a large commercial aircraft, as defined by the NRC. The postulated aircraft impacts would not impair the US-APWR's core cooling capability~~, containment integrity,~~ or spent fuel pit integrity. The assessment resulted in identification of key design features and functional capabilities described in Section 19A.4, changes to which are required to be controlled in accordance with 10 CFR 50.150(c). DCD_19-544

19A.6 References

19A-1 ~~Letter from D. Matthews, NRC to Dr C. K. Paulson, Mitsubishi Nuclear Energy Systems, Inc, Subject: "Approval of Mitsubishi Nuclear Energy Systems Safeguards Protection Program and Reviewing Official, and Transmittal of Beyond Design Basis, Large Commercial Aircraft Characteristics Specified by Commission," December 7, 2007.~~Deleted DCD_19-541