**MITSUBISHI HEAVY INDUSTRIES, LTD.**
**16-5, KONAN 2-CHOME, MINATO-KU**
**TOKYO, JAPAN**

February 21, 2013

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Jeffrey A. Ciocco

Docket No. 52-021
MHI Ref: UAP-HF-13036

**Subject: MHI's Response to US-APWR DCD RAI No.984-6951(SRP 19A)**

**References:** 1) "Request for Additional Information No. 984-6951, SRP Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation Application Section: 19A US-APWR Beyond Design Basis Impact Assessment," dated (January 8, 2013).

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "MHI's Responses to US-APWR DCD RAI No.984-6951."

Enclosed is the response to the RAI contained within Reference 1.

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. Enclosure 2 omits the SRI and is suitable for public disclosure. In the public version of the DCD, the SRI is replaced by the designation "[Security-Related Information - Withheld Under 10 CFR 2.390]".

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 submittal. His contact information is below.

Sincerely,

Y. Ogata

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

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NRO

Enclosures:

1. MHI's Responses to US-APWR DCD RAI No.984-6951 (Security-Related Information Included version)

2. MHI's Responses to US-APWR DCD RAI No.984-6951 (Security-Related Information Excluded version)

CC: J. A. Ciocco
J. Tapia

Contact Information
Joseph Tapia, General Manager of Licensing Department
Mitsubishi Nuclear Energy Systems, Inc.
1001 19th Street North, Suite 710
Arlington, VA 22209
E-mail: joseph_tapia@mnes-us.com
Telephone: (703) 908-8055

# Enclosure 2

UAP-HF-13036
Docket No. 52-021

MHI's Responses to US-APWR DCD RAI No.984-6951

February 2013

(Security-Related Information Excluded)

## RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

**02/21/2013**

**US-APWR Design Certification**

**Mitsubishi Heavy Industries**

**Docket No 52-021**

| | |
|---|---|
| **RAI NO.:** | **No. 984-6951** |
| **SRP SECTION:** | **19 – Probability Risk Assessment and Severe Accident Evaluation** |
| **APPLICATION SECTION:** | **Section 19A US-APWR Beyond Design Basis Aircraft Impact Assessment** |
| **DATE OF RAI ISSUE:** | **1/8/2013** |

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**QUESTION NO.:** 19-581

Follow-up to RAI 5646 (Question 19-537):

In US-APWR DCD Tier 2, Revision 3, Section 19A.4.4, "Core Cooling Features," the applicant described several key primary design features such as emergency core cooling, emergency feedwater, residual heat removal, gas turbine generator, and component cooling water related to core cooling. The applicant's responses to RAI 5646 (Question 19-537) expanded this list to include additional key design features such as main steam depressurization valves, charging pump, and non-essential chilled water; however, this response appears to be incomplete in that certain key support features were omitted.

In accordance with 10 CFR 50.150 (a), the applicant is requested to provide a complete description in the US-APWR Tier 2 DCD 19A.4.4 of all the systems related to key design features to support core cooling and describe how all these features are protected. This may include (but not limited to) alternating current (AC) and direct current (DC) safety related electrical buses (switchgear and breakers), the main control room, main control room habitability and ventilation, equipment ventilation – heating, ventilation, and cooling (HVAC), chiller systems, water sources, and storage tanks, etc.

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**ANSWER:**

The response to RAI 773-5646 (Ref. UAP-HF-11268 dated August 22, 2011) revised Subsection 19A.4.3 to state that at least one division of safety-related equipment within the R/B and the east and west PS/Bs is available to provide core cooling following the impact of a large commercial aircraft. To provide additional clarification with regard to support systems, this statement will be revised to include the mention of necessary support systems such as cooling water, the electrical power supply and distribution

system and the instrument and control system. The last sentence of Subsection 19A.4.3 will be revised as follows:

"These key design features ensure at least one complete division of safety-related mechanical ECCS equipment and necessary support systems to include cooling water, electrical power supply and distribution, and instrument and control within the R/B and east and west PS/Bs is available to provide core cooling following the impact of a large commercial aircraft."

The response to RAI 773-5646 also modified Subsection 19A.4.4, "Core Cooling Features," to identify the gas turbine generator system and the safety-related instrumentation and control system as key supporting systems. For clarification, these statements will be revised as follows:

The term "gas turbine generator system" will be replaced with the "Class 1E electrical power supply and distribution system" to include all support systems and the statement referring to the safety-related instrumentation and control system will be revised to include the physical separation between the MCR and the RSC to reflect the credit for physical separation.

**Impact on DCD**

See attached changes to DCD Pages 19A-4 and 19A-5.

**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 Reports**

There is no impact on the technical Report.

DCD_19-543

DCD_19-543

DCD_19-534

(SRI)

### 19A.4.3 Fire Barriers and Fire Protection Features

DCD_19-535

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### 19A.4.4 Core Cooling Features

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(SRI)

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(SRI)