

  
**MITSUBISHI HEAVY INDUSTRIES, LTD.**  
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TOKYO, JAPAN

February 5, 2009

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-09029

**Subject:** MHI's Responses to US-APWR DCD RAI No.157-1954

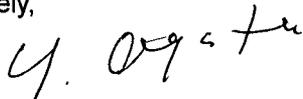
**Reference:** 1) "Request for Additional Information No. 157-1954 Revision 0, SRP Section: 09.02.06 – Condensate Storage Facilities (Demineralized Water, Condensate Storage, and Primary Makeup Water), Application section Tier 2 FSAR Section 9.2.6," dated January 15, 2009.

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. 157-1954 Revision 0"

Enclosed is the responses to 2 RAIs contained within Reference 0.

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,



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

Enclosure:

1. Responses to Request for Additional Information No. 157-1954 Revision 0

CC: J. A. Ciocco  
C. K. Paulson

Contact Information

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DOSI  
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Docket No. 52-021  
MHI Ref: UAP-HF-09029

Enclosure 1

UAP-HF-09029  
Docket Number 52-021

Responses to Request for Additional Information  
No. 157-1954 Revision 0

February 2009

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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02/ 05/2009

**US-APWR Design Certification  
Mitsubishi Heavy Industries  
Docket No. 52-021**

**RAI NO.:** NO. 157-1954  
**SRP SECTION:** 09.02.06 – Condensate Storage Facilities (Demineralized Water, Condensate Storage, and Primary Makeup Water)  
**APPLICATION SECTION:** Application Section: Tier 2 FSAR Section 9.2.6  
**DATE OF RAI ISSUE:** 01/15/2009

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**QUESTION NO.:** 09.02.06-1, RAI 9.2.6-1

GDC 2 establishes requirements with respect to the condensate storage facilities (CSF) design regarding protection against the effects of natural phenomena such as earthquakes, tornados, hurricanes and floods.

DCD Tier 2, Section 9.2.6.2, states that states that all system components meets design code requirements consistent with the component quality group and seismic design classification, and that provision is made for mitigating the environmental effects of system leakage or storage tank failure. However, details on the provisions made to mitigate environmental effects of system leakage and storage tank failures are not include in the DCD. Provide a discussion of the provisions and CSF design features to ensure adequate protection effects of natural phenomena and adherence to Position C.2 of Regulatory Guide 1.29, "Seismic Design Classification." Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

The primary makeup water tanks (PMWTs) and the condensate storage tank (CST) are Class 4, non-seismic tanks (DCD Table 3.2-2). The demineralized water storage tank (DWST) is Class 5, non-seismic tank (DCD Table 3.2-2). These tanks have no safety-related function and are located in the yard, outside of the safety-related buildings. Failure of their structural integrity would not impact the seismic category I SSCs or cause adverse interaction. The PMWTs and the CST will be provided with a dike to mitigate the environmental effects of system leakage or tank failure.

Remove the statement "*Provision is made for mitigating the environmental effects of system leakage or storage tank failure.*" at the end of the 5<sup>th</sup> paragraph of Subsection 9.2.6.2.

Add the following paragraph after the 5<sup>th</sup> paragraph of Subsection 9.2.6.2.

*"The DWST, CST, and the PMWTs are non-safety related and non-seismic (Section 3.2.). These tanks have no safety-related function and failure of their structural integrity would not impact the seismic category I SSCs or cause adverse system interaction. A dike is provided for the PMWTs and the CST for mitigating the environmental effects of system leakage or storage tank failure."*

## **Impact on DCD**

DCD Subsection 9.2.6.2 will be revised as follows:

### **9.2.6.2 System Description**

Main components of the CSF are located in the yard. The demineralized water system consists of one DWST, two 100% capacity demineralized water pumps, and associated valves, piping, and instrumentation.

The condensate storage and transfer system consists of one CST, two 100% capacity condensate transfer pumps, and associated valves, piping, and instrumentation.

The condensate transfer pump takes suction from the CST and discharges into the condenser hotwell. This operating mode is primarily used for the initial fill of the condensate system and subsequent makeup as required. During normal plant operation, condensate flows by vacuum drag/pressure differential from the CST to the condenser hotwell via a bypass line. The water level in the hotwell is automatically maintained by level control valves. A recirculation line from the condensate transfer pump to the CST is provided to ensure that the minimum flow through the pump is maintained during pump operation.

The primary makeup water system consists of two PMWTs, each of 140,000 gallon capacity, two 100% capacity primary makeup water pumps, and associated valves, piping, and instrumentation.

All system components meet design code requirements consistent with the component quality group and seismic design classification in provided in Section 3.2. ~~Provision is made for mitigating the environmental effects of system leakage or storage tank failure.~~

The DWST, CST, and the PMWTs are non-safety related and non-seismic (Section 3.2.). These tanks have no safety-related function and failure of their structural integrity would not impact the seismic category I SSCs or cause adverse system interaction. A dike is provided for the PMWTs and the CST for mitigating the environmental effects of system leakage or storage tank failure.

The CSF system is shown schematically in Figures 9.2.6-1, 9.2.6-2 and 9.2.6-3.

## **Impact on COLA**

There is no impact on COLA.

## **Impact on PRA**

There is no impact on PRA.

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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02/05/2009

**US-APWR Design Certification  
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Docket No. 52-021**

**RAI NO.:** NO. 157-1954  
**SRP SECTION:** 09.02.06 – Condensate Storage Facilities (Demineralized Water, Condensate Storage, and Primary Makeup Water)  
**APPLICATION SECTION:** Application Section: Tier 2 FSAR Section 9.2.6  
**DATE OF RAI ISSUE:** 01/15/2009

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**QUESTION NO.: 09.02.06-2, RAI 9.2.6-2**

According to SRP 9.2.6 Section III, Item 3.E, condensate tank overflow should be connected to the radwaste system. GDC 60 requires that a means be provided to control the release of radioactive materials in liquid effluents. However, the DCD does not appear to provide any discussion related to the routing of overflow from the CSF.

Provide a discussion that describes how the CSF complies with GDC 60, and SRP 9.2.6 Section III, Item 3.E. Include this information in the DCD and provide a markup in your response.

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**ANSWER:**

The condensate storage tank (CST) is located outdoor. In compliance with GDC 60, a dike is provided which is capable of preventing runoff if the tank overflows or fails.

Add to the end of the first paragraph of Subsection 9.2.6.2.4:

*“The CST overflow goes to a dike which is provided to control the release of chemicals and radioactive materials.”*

**Impact on DCD**

1<sup>st</sup> paragraph in DCD Subsection 9.2.6.2.4 will be revised as follows:

**9.2.6.2.4 Condensate Storage Tank**

The CST is the normal source of water for make up to certain plant systems including the main condenser. The CST is a source of water for supply to various locations such as areas near equipment that need water for maintenance and drain tanks. Makeup to the CST is provided from the DWST. The CST overflow goes to a dike which is provided to control the release of chemicals and radioactive materials.

**Impact on COLA**

There is no impact on COLA.

**Impact on PRA**

There is no impact on PRA.