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TOKYO, JAPAN

June 09, 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-09304

Subject: MHI's Responses to US-APWR DCD RAI No.351-2681

Reference: 1) "Request for Additional Information No. 351-2681 Revision 0, SRP Section: 09.02.06 – Condensate Storage Facilities, Application section:9.2.6," dated May 4, 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. 351-2681 Revision 0"

Enclosed is the response to RAI contained within Reference 1.

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,

Y. Ogata

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

Enclosure:

1. Responses to Request for Additional Information No. 351-2681 Revision 0

CC: J. A. Ciocco
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Docket No. 52-021
MHI Ref: UAP-HF-09304

Enclosure 1

UAP-HF-09304
Docket Number 52-021

Responses to Request for Additional Information
No. 351-2681 Revision 0

June 2009

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

06/09/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	NO. 351-2681
SRP SECTION:	09.02.06 – CONDENSATE STORAGE FACILITIES
APPLICATION SECTION:	9.2.6
DATE OF RAI ISSUE:	05/04/2009

QUESTION NO.: 09.02.06-2

RAI 9.2.6-2 Supplement 1

SRP 9.2.6 Section III, Item 3.E, which provides guidance for the review of condensate storage facilities (CFS) states the following in regards to the CSF design:

"The condensate storage tank overflow piping is connected to the radwaste system. The outdoor storage tank is designed in compliance with GDC 60 and the guidance of Regulatory Guide 1.143 and has a dike or retention basin capable of preventing runoff if a tank overflows or fails; for a non-safety-related storage facility, the need for a seismic Category I dike or retention basin is reviewed. As required by Regulatory Guide 1.143, high liquid level conditions actuate alarms both locally and in the control room." Mitsubishi's response to RAI 9.2.6-2 which was received by the staff in a letter dated February 5, 2009, only indicated that a dike is provided which is capable of preventing runoff if the tank overflows or fail, but does not address concerns related to radwaste system connection, the seismic design of the dike, and monitoring of the CSF (both level and radioactivity).

Provide a discussion that describes how the CSF complies with GDC 60, and SRP 9.2.6 Section III, Item 3.E. Identify how condensate storage overflow is directed to the radwaste system, how CSF is monitored for potential radioactivity, and weather or not the dike credited for preventing runoff is designed to Seismic category 1. Include this information in the DCD, provide a markup of the DCD change in your response, and state which DCD revision will contain the change.

ANSWER:

a) Response regarding the route of the condensate storage facilities (CSF) overflow piping to the radwaste system

SRP 9.2.6 Section III Item 3.E. states "The condensate storage tank overflow piping is connected to the radwaste system." It does not address the CSF overflow. The condensate

storage tank (CST) has a dike capable of retaining effluent and preventing runoff if the tank overflows or fails. The dike has a connecting port from which a temporary path can be established to direct any retained liquid to the turbine building sump. As the first paragraph of DCD Subsection 11.5.2.3.4 states "The turbine building (T/B) floor drain radiation monitor is a γ monitor;", the radiation monitor is to be installed in the T/B sump. As the second paragraph of DCD Subsection 11.5.2.3.4 states "Normally, the T/B floor drainage is not expected to be radioactive and the liquid is pumped to non-radioactive liquid waste treatment system for removal of potential oil contaminants. Detection of radiation above a predetermined setpoint activates an alarm in the MCR for operator actions and also activates the pump to pump the liquid to the LWMS for processing." Therefore, the CST overflow liquid to the T/B sump would be automatically routed to the radwaste system following detection of radioactivity.

b) Response on monitored for potential radioactivity

SRP 9.2.6 Section III Item 3.E identifies Regulatory Guide (RG) 1.143 Position C.1.2 as containing the regulatory guidance to meet relevant aspects of GDC 60. RG 1.143. Position C.1.2 specifically addresses provisions to monitor the CST liquid level and actuate alarms both locally and in the control room, but does not describe radiological monitoring of the CST. As the first paragraph of DCD Subsection 9.2.6.5.2 states "Level transmitter and associated signal processor units are provided to monitor and indicate water level in the storage tanks. The level in each storage tank is measured and indicated locally and in the MCR. High and low levels are alarmed in the MCR."

It is not expected that there would be significant radiation in the liquid from the CST:

1) It is expected that, for PWR, primary-to-secondary leakage, such as from a steam generator tube leak, would result in significant radiation.
2) There is no direct path between the condensate and the CST without first passing through the Main Condenser.
3) The radioactivity would be detected by radiation monitors, which are "Steam generator blowdown water radiation monitor", "High sensitivity main steam line monitor", "Condenser vacuum pump exhaust line radiation monitor" and "Liquid samples taken from SG blowdown sampling line", as described in the third paragraph of DCD Subsection 5.2.5.3.
4) Noble gas radioactivity in the condensate will not be significant for PWR.
5) In the CST overflow, a temporary path would be established to direct retained liquid to the T/B sump. As described in above (a), radiation monitor in the T/B sump detects whether the liquid is radioactive or not. Then, if radioactivity is detected, the liquid would be automatically routed to the radwaste system.

c) Response on seismic classification of the dike

SRP 9.2.6 Section III Item 3.E states "for a non-safety-related storage facility, the need for a seismic Category I dike or retention basin is reviewed." The dike installed around the CST is classified as non-safety-related. The CST is designed in compliance with RG 1.143, according to SRP Section III Item 3E. Because the dike is installed to prevent the release of radioactive liquid should the CST overflow or fail, MHI feels that the dike should also be designed in accordance with RG 1.143. Therefore, the dike credited for preventing runoff is not designed to seismic Category 1.

Impact on DCD

There is no impact on DCD.

Impact on COLA

There is no impact on COLA.

Impact on PRA

There is no impact on PRA.