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TOKYO, JAPAN

May 20, 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-09256

Subject: MHI's Response to US-APWR DCD RAI No. 325-2424 REVISION 0

Reference: 1) "Request for Additional Information 325-2424 Revision 0, SRP Section: 09.03.02 - Process and Post-Accident Sampling Systems, Application Section: 9.3.2" dates April 8, 2009.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Response to Request for Additional Information No. 325-2424 Revision 0."

Enclosed is the response to the 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. Response to Request for Additional Information No. 325-2424 Revision 0

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

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Docket No. 52-021
MHI Ref: UAP-HF-09256

Enclosure 1

UAP-HF-09256
Docket Number 52-021

Response to Request for Additional Information
No. 325-2424 Revision 0

May 2009

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

5/19/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 325-2424 REVISION 0**
SRP Section:	**09.03.02 – Process and Post-Accident Sampling Systems**
APPLICATION SECTION:	**9.3.2**
DATE OF RAI ISSUE:	**4/8/2009**

QUESTION NO. : RAI 09.03.02-9

Staff review of DCD Tier 2 (Rev 1), Section 9.3.2 indicates insufficient information is provided in regards to maintaining personnel exposures to radiation As Low As is Reasonably Achievable (ALARA) in the design of the process and post-accident sampling systems for compliance with 10 CFR 20.1101(b) and conformance with RG 8.8 and SRP 9.3.2. Section 9.3.2 states the design of the process and post-accident sampling system adheres to the ALARA principle during both normal and post-accident conditions. However, conformance with RG 8.8 used to meet compliance with 10 CFR 20.1101(b) in SRP 9.3.2 is not described. Table 1.9.2-9 of Section 1.9 in the DCD shows conformance with SRP 9.3.2 with no exceptions. Please address the following items and revise the DCD to include this information, or justify their exclusion.

1. In Section 9.3.2, describe conformance with RG 8.8 in the design of the process and post-accident sampling systems. Include in the description engineering controls and operational procedures that are used to maintain exposures ALARA for compliance with 10 CFR 20.1101(b).

2. In Table 1.9.1-4 of Section 1.9, update the applicable information in the RG 8.8 "Status" and "Corresponding Chapter/Section/Subsection" columns for Section 9.3.2.

ANSWER:

1. The Process and Post-Accident Sampling Systems design adheres to the as-low-as-reasonable-achievable (ALARA) principle during both normal and post-accident conditions. The specific ALARA design features per SRP 9.3.2, are proper return of sample streams to the process line or waste treatment system (Acceptance Criterion 3.D.), and passive flow restrictions or isolation valves to control radioactive leakage (Acceptance Criterion 3.F.) Details on the ALARA design of the radioactive sampling system are broken down by subsystem.

   Primary Liquid Sampling System (PLSS)

   As described in section 9.3.2.2.1, primary coolant purge flows are discharged to the CVCS Volume Control Tank or Hold-up Tanks and the sample sink drain, which may be contaminated, is routed to the waste holdup tank. Also, the sampling rack is located behind a concrete wall which provides radiation shielding to minimize radiation exposure to the plant

operating staff and Valves on the grab sampling panel have long handles extending out of the enclosure to plant operating staff. These features meet with RG 8.8 guidelines and SRP 9.3.2 Acceptance Criterion 3.D. Furthermore, sample line use 3/8 inch stainless steel tubing flow restricting orifices to prevent excessive reactor coolant loss as described in section 9.3.2.1. These features are applied for PLSS and PASS liquid sampling and comply with the guidelines of RG 8.8 and SRP 9.3.2 Acceptance Criterion 3.F.

Primary Gaseous Sampling System (PGSS)
As described in Section 9.3.2.2.2, residual dew condensation liquid collected in the gas sample vessel of the PGSS is routed to the holdup tanks and the purged gas is routed back to the containment atmosphere so that samples are properly returned to the system of origin and required waste treatment system. The gas sampling station of the PGSS has manual-operated valves with extended handle to minimize radiation exposure to the plant operating staff. These features meet with RG 8.8 guidelines and SRP 9.3.2 Acceptance Criterion 3.D.

Post-Accident Sampling (PASS)
As described in section 9.3.2.2.3, the PASS liquid sampling lines include a sample hood which is enclosed with a shielded material that provides radiation shielding to minimize radiation exposure, a sample sink and the sample pressure vessel and the hood has an extended handle to manually collect samples and protect the operator from radiation exposure. Also, the post-accident liquid purge flow is routed back to the containment sump and its drain is routed to the waste holdup tank. These features ensure that, even post-accident, maintain personnel exposure ALARA and meet with RG 8.8 guidelines and SRP Acceptance Criterion 3.D.
The PASS liquid sampling lines use inlet piping of PLSS which meets RG 8.8 guidelines and SRP 9.3.2 Acceptance criterion 3.F. The PASS gaseous sampling line is the same one used in the PGSS, and therefore the same features apply, meeting RG 8.8 requirements and SRP 9.3.2.

2. DCD Table 1.9.1-4 will be revised to include Section 9.3.2 in the "Corresponding Chapter/Section/Subsection" column.

Impact on DCD

The following changes will be made to the Tier 2 DCD, Table 1.9.1-4(sheet 1 of 4):

Chapter 1(Section 1.9.1,Table 1.9.1-4(sheet 1 of 4)

Add Section 9.3.2 to "Status" and "Corresponding Chapter/Section/Subsection" column in DCD Table 1.9.1-4 (sheet 1 of 4) for RG 8.8.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

This completes MHI's response to the NRC's question.