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TOKYO, JAPAN

June 8, 2010

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-10161

Subject: MHI's Responses to US-APWR DCD RAI No. 576-4603

Reference: [1] "Request for Additional Information No. 576-4603 Revision 0, SRP Section: 09.02.02 – REACOR AUXILIARY COOLING WATER SYSTEM – Design Certification and New License Applicants, Application Section: 9.2.2," dated April 26, 2010.

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. 576-4603 Revision 0".

Enclosed are the responses to questions 9.2.2-69 of the RAI (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,

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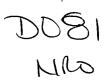
Yoshiki Ogata, General Manager- APWR Promoting Department Mitsubishi Heavy Industries, LTD.

Enclosure:

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

Contact Information

C. Keith Paulson, Senior Technical Manager Mitsubishi Nuclear Energy Systems, Inc. 300 Oxford Drive, Suite 301 Monroeville, PA 15146 E-mail: ck_paulson@mnes-us.com Telephone: (412) 373-6466



Docket No. 52-021 MHI Ref: UAP-HF-10161

Enclosure 1

UAP-HF-10161 Docket No. 52-021

Responses to Request for Additional Information No. 576-4603 Revision 0

June 2010

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

6/8/2010

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

RAI NO.: NO. 576-4603 REVISION 0

SRP SECTION: 09.02.02 – REACTOR AUXILIARY COOLING WATER SYSTEM

APPLICATION SECTION: 9.2.2

DATE OF RAI ISSUE: 4/26/2010

QUESTION NO.: 09.02.02-69

Sections 10 CFR 52.47(a)(6) and 10 CFR 20.1406 require applicants for standard plant design certifications to describe how facility design and procedures for operation will minimize contamination of the facility and the environment. In order for the staff to confirm compliance with these requirements, the design control document (DCD) needs to be revised to explain how the component cooling water system satisfies the requirements specified by 10 CFR 20.1406, "Minimization of Contamination."

As described in US-APWR DCD Tier 2 Section 9.2.2.2.1.3, "CCW Surge Tank," makeup water can be supplied from three sources; demineralized water (DWS), primary makeup water system (PMWS), and refueling water storage system (RWS). The PMWS and RWS may contain concentrations of tritium or levels of corrosion and fission product contamination. In addition, the component cooling water system (CCWS) is used to cool components containing reactor cooling system (RCS) fluid at pressures much higher than CCWS pressure, so leakage between the systems will be into the CCWS. Based on industry experience with shell and tube type heat exchangers, and to a greater degree plate type heat exchangers, some chronic leakage or anticipated operational occurrences related leakage of radioactive fluids into the CCW system may be expected during the operation of the plant. Some loads of the CCWS are located in the turbine building which include instrument air system (IAS) compressors/coolers. At other plants, these compressors/coolers are cooled by the turbine component cooling water system (TCCWS), which is typically not subject to radiological contamination.

Describe in the DCD the basis and assumptions which demonstrate that the use of CCWS instead of other available system such as TCCW to cool the IAS compressors (Section 9.3.1) satisfies the requirements in 10 CFR 20.1406.

ANSWER:

Normally closed valves NCS-VLV-062A/B, NCS-VLV-063A/B, NCS-VLV-064A/B and NCS-VLV-066A/B provide two valve isolation from PMWS and RWS. In the event that the in-leakage is through the RCP thermal barrier HX, the isolation valves on the RCP thermal barrier HX CCW return line are automatically closed by the high flow rate signal, thereby preventing CCWS contamination. Therefore, since the probability of contamination in CCWS is very low and the isolation valves are rapidly closed when the in-leakage occurs, contamination of CCWSwill be

minimal. In addition, the isolation valves between Reactor building and Turbine building (or Auxiliary building) can be closed manually when the contamination is detected by radiation monitors.

Two valve isolation from PMWS and RWS is shown in DCD Tier 2 Figure 9.2.2-1 (Sheet 1 of 9) and (Sheet 2 of 9). Leakage from Higher Pressure Components into CCWS is discussed in DCD Tier 2 Subsection 9.2.2.3.1.

Impact on DCD None

Impact on COLA None

Impact on PRA None