

US-APWRRRAIsPEm Resource

From: Ciocco, Jeff
Sent: Tuesday, April 30, 2013 7:20 AM
To: us-apwr-rai@mhi.co.jp; US-APWRRRAIsPEm Resource
Cc: LaVera, Ronald; McCoppin, Michael; Otto, Ngola
Subject: US-APWR Design Certification Application RAI 1026-7095 (12.3)
Attachments: US-APWR DC RAI 1026 RPAC 7095.pdf

MHI,

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs. However, MHI requests and we grant 60 days to respond to the RAI. We will adjust the schedule accordingly.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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REQUEST FOR ADDITIONAL INFORMATION 1026-7095

Issue Date: 4/30/2013

Application Title: US-APWR Design Certification - Docket Number 52-021

Operating Company: Mitsubishi Heavy Industries

Docket No. 52-021

Review Section: 12.03-12.04 - Radiation Protection Design Features

Application Section: 12.3, 9.1.3, 9.1.4, 9.2.2, 9.2.6, 11

QUESTIONS

12.03-50

In RAI 578-4483 Question 12.03-12.04-37, the staff asked the applicant to provide information about the design features provided to minimize contamination of the facility and the environment, consistent with the guidance in RG 4.21 and the requirements of 10 CFR 20.1406. The applicant's response to RAI 578-4483 Question 12.03-12.04-37 Revision 2 dated August 30, 2012, stated in the RAI answer that when fluid is detected in a trench, the detection instrument initiates an alarm for operator actions. The applicant committed to changing the DCD to include the description of liquid alarms for leakage detection. Examples include proposed changes to DCD Subsection 10.4.11.2.1 "General Description", 9.1.3.2 "System Description," DCD Subsection 9.2.6.2.4 "Condensate Storage Tank." However, the applicant's proposed changes to the DCD do not indicate where the alarms provided for leakage detection instruments in trenches and other areas containing piping, annunciate so that plant operators may receive timely notification of the adverse condition.

Please revise and update the US-APWR DCD, to include information about where leakage detection instrumentation provided for minimizing contamination of the facility and environment consistent with 10 CFR 20.1406, alarms annunciate, or provide the specific alternative approaches used and the associated justification.

12.03-51

In RAI 578-4483 Question 12.03-12.04-37, the staff asked the applicant to provide information about the design features provided to minimize contamination of the facility and the environment, consistent with the guidance in RG 4.21 and the requirements of 10 CFR 20.1406. The applicant's response to RAI 578-4483 Question 12.03-12.04-37 Revision 2 dated August 30, 2012, stated in the RAI answer that if an alarm is acknowledged, and a new (subsequent) alarm from a different component is generated, the indications on the MCR panel will still flash for operator action. The applicant committed to changing DCD to Table 11.2-8 "Summary of Tank Indication, Level Annunciations, and Overflows," to indicate that the leak detection instruments for the floor drains sump and the equipment drains sump in the Auxiliary Building (A/B) alarm locally and also in the Main Control Room (MCR) through a representative alarm. However, the applicant's proposed change to the DCD does not state that alarms provided for leakage detection instruments will still flash when a new (subsequent) alarm from a different component is generated .

REQUEST FOR ADDITIONAL INFORMATION 1026-7095

Please revise and update the US-APWR DCD, to include information about the receipt and acknowledgement of alarms for leakage detection instruments, or provide the specific alternative approaches used and the associated justification.

12.03-52

In RAI 578-4483 Question 12.03-12.04-38, the staff asked the applicant to provide information about the design features provided to minimize contamination of the facility and the environment, consistent with the guidance in RG 4.21 and the requirements of 10 CFR 20.1406. The applicant's response to RAI 578-4483 Question 12.03-12.04-38 Revision 2 dated August 30, 2012, stated in the RAI answer that using single-walled carbon steel pipe in the trench facilitates additional radial cooling of the fluid and enables the use of high density polyethylene (HDPE) piping for underground burial, and that from the transition manhole the discharge piping is connected to a buried double-walled HDPE piping to an existing WWS discharge. From these statements in the applicant's answer, the staff could ascertain that the applicant intends to use HDPE in portions of the certified design. However, the applicant's proposed changes to the DCD do not describe the use of HDPE piping, nor do the applicant's proposed changes to the DCD describe the installation, testing and maintenance requirements for the use of HDPE piping in the portions of the US-APWR design with piping potentially containing radioactive material.

Please revise and update the US-APWR DCD, to include information, for systems potentially containing radioactive material, where HDPE piping is to be used, and the installation, testing and maintenance requirements and specifications, or provide the specific alternative approaches used and the associated justification.

12.03-53

In RAI 578-4483 Question 12.03-12.04-38, the staff asked the applicant to provide information about the design features provided to minimize contamination of the facility and the environment, consistent with the guidance in RG 4.21 and the requirements of 10 CFR 20.1406. The applicant's response to RAI 578-4483 Question 12.03-12.04-38 Revision 2 dated August 30, 2012, stated in the RAI answer that the design is supplemented by periodic hydrostatic or pressure testing of piping segments. However, based on the information contained within the applicant's response to RAI 578-4483 Question 12.03-12.04-38 and the US-APWR DCD Tier 2 Revision 3, it is not clear to the staff which segments of piping, and in particular those segments of piping that may be located below grade, are capable of being tested for leakage, because of the absence of isolation points and test connection indications on DCD figures. Examples include: proposed DCD Figure 9.1.4-4 "Outline of Refueling Water Storage System," shows an unrestricted discharge path between the containment isolation valves for the Containment Vessel Drain Tank (CVDT) pump discharge and the Refueling Water Storage Auxiliary Tank (RWSAT); proposed DCD Figure 9.1.4-4 "Outline of Refueling Water Storage System," shows an unrestricted flow path between the RWSAT and the Auxiliary Building Sump Tank; and lines to and from the condensate storage tank, including the Auxiliary Boiler Package, as shown on US-APWR DCD Tier 2 Revision 3 Figure 9.2.6-1 "Condensate Storage Facilities System Flow Diagram."

Please revise and update the US-APWR DCD, to include information regarding the design features provided to support hydrostatic or pressure testing of piping segments, as described in the RAI response, or provide the specific alternative approaches used and the associated

REQUEST FOR ADDITIONAL INFORMATION 1026-7095

justification.

12.03-54

On April 13, 2011, the applicant submitted proposed DCD changes in response to RAI 135-4206 Question 12.03-12.04-11, which committed to changing subsections of the US-APWR DCD Tier 2, such as Subsections 9.2.6.2.4 "Condensate Storage Tank," 10.4.8 "Steam Generator Blowdown System," and Table 12.3-8 "Regulatory Guide 4.21 Design Objectives and Applicable DCD Subsection Information for Minimizing Contamination and Generation of Radioactive Waste," to include additional information about design features provided to minimize contamination of the facility and the environment. In RAI 578-4483 Question 12.03-12.04-38, the staff asked the applicant to provide information about the design features provided to minimize contamination of the facility and the environment, consistent with the guidance in RG 4.21 and the requirements of 10 CFR 20.1406. The applicant's response to RAI 578-4483 Question 12.03-12.04-38 Revision 2 dated August 30, 2012, also committed to changing DCD Tier 2 Subsections 9.2.6.2.4, 10.4.8 and Table 12.3-8. However, the proposed changes to the DCD in the applicant's response to RAI 578-4483 Question 12.03-12.04-38 Revision 2 dated August 30, 2012 did not contain the changes committed in the response to response to RAI 135-4206 Question 12.03-12.04-11 dated April 13, 2011. While the staff has provided examples of discrepancies between the RAI responses dated April 13, 2011 and August 30, 2012, this does not represent an exhaustive comparison of the contents of RAI responses.

Please revise and update the US-APWR DCD, to include information committed to in the response to RAI 135-4206 Question 12.03-12.04-11 dated April 13, 2011, or provide the specific alternative approaches used and the associated justification.

12.03-55

On August 2, 2011, the applicant submitted proposed DCD changes in response to RAI 135-4206 Question 12.03-12.04-11, which committed to changing US-APWR DCD Tier 2 Subsection 9.2.6.2.4 "Condensate Storage Tank," and Table 12.3-8 "Regulatory Guide 4.21 Design Objectives and Applicable DCD Subsection Information for Minimizing Contamination and Generation of Radioactive Waste (Sheet 16 of 62)," to include additional information about design features of the Condensate Storage Tank (CST) provided to minimize contamination of the facility and the environment. In RAI 578-4483 Question 12.03-12.04-38, the staff asked the applicant to provide information about the design features provided to minimize contamination of the facility and the environment, consistent with the guidance in RG 4.21 and the requirements of 10 CFR 20.1406. The applicant's response to RAI 578-4483 Question 12.03-12.04-38 Revision 2 dated August 30, 2012, committed to changing DCD Tier 2 Subsection 9.2.6.2.4 "Condensate Storage Tank," to provide additional information about coatings in the trench to the CST. However, the proposed changes to the DCD in the applicant's response to RAI 578-4483 Question 12.03-12.04-38 Revision 2 dated August 30, 2012 did not contain the changes committed in the response to response to RAI 135-4206 Question 12.03-12.04-11 dated August 2, 2011.

Please revise and update the US-APWR DCD, to include information committed to in the response to RAI 135-4206 Question 12.03-12.04-11 dated August 2, 2011, or provide the

REQUEST FOR ADDITIONAL INFORMATION 1026-7095

specific alternative approaches used and the associated justification.

