


MITSUBISHI HEAVY INDUSTRIES, LTD.
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April 17, 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-09176

Subject: MHI's Responses to US-APWR DCD RAI No.233-2115 Revision 0

Reference: 1) "REQUEST FOR ADDITIONAL INFORMATION NO. 233-2115 REVISION 0, SRP Section: 06.06 - Inservice Inspection and Testing of Class 2 and 3 Components Application Section: Section 6.6.2, QUESTIONS for Component Integrity, Performance, and Testing Branch 1 (AP1000/EPR Projects)" dated February 26, 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.233-2115 Revision 0."

Enclosed is the response to Question 06.06-2 that is 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.233 Revision 0

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

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Contact Information

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Enclosure 1

UAP-HF-09176
Docket No. 52-021

Responses to Request for Additional Information No.233-2115
Revision 0

April 2009

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

4/16/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO.233-2115 REVISION 0
SRP Section: "6.6 – Inservice Inspection and Testing of Class 2 and 3 Components"
APPLICATION SECTION: 6.6.2
DATE OF RAI ISSUE: 2/26/2009

QUESTION NO. : 06.06-2

US-APWR DCD, Section 6.6.2 states that the physical arrangement of ASME Code Class 2 and 3 components is designed to allow personnel and equipment access "to the extent practical" to perform the required inservice examinations specified by the ASME Code, Section XI and mandatory appendices. The DCD also states that removable hangers are provided, "as necessary and practical," to facilitate inservice inspection. In addition, Section 6.6.3 states, "To the maximum extent possible, sufficient radial clearances are provided around pipe or component welds requiring volumetric or surface examination for inservice inspection."

However, the US-APWR DCD states that the piping arrangement allows for adequate separation of piping welds so that space is available to perform inservice inspection, and modules fabricated offsite are designed and engineered to provide access for inservice inspection and maintenance activities. The staff finds that the phrases, "to the extent practical," "as necessary and practical," and "to the maximum extent possible," may not represent an essentially complete design and are inconsistent with a design that enables the performance of PSI/ISI examinations by eliminating impractical examinations due to design, geometry, or materials of construction. The regulations in 10 CFR 50.55a(g)(3)(i) and (3)(ii) require that for a boiling or pressurized water-cooled nuclear power facility whose construction permit under this part, or design certification, design approval, combined license, or manufacturing license under part 52 of this chapter, was issued on or after July 1, 1974, components (including supports) classified as Class 1, 2, and 3 must be designed and be provided with access to enable the performance of inservice examination and must meet the preservice examination requirements set forth in the editions and addenda of Section XI of the ASME Code incorporated by reference. Please remove the statements "to the extent practical," "to the maximum extent possible," and "as necessary and practical," in discussing how the US-APWR design eliminates interferences due to design, geometry, or materials of construction in order to enable the performance of the PSI/ISI examinations required by the ASME Code, Section XI. If specific plant design conditions exist that result in ASME Code, Section XI ISI requirements to be impractical to perform, those specific conditions must be described in detail and the reasons should be provided to the staff justifying why the design, geometry, or materials of construction cannot be changed to accommodate such examination requirements.

ANSWER:

ASME Code Class 2 and 3 components are designed to provide access for the examinations required by ASME Section XI and mandatory appendices

As stated in the DCD Subsection 6.6.2, US-APWR design activities include consideration of accessibility for inspection of Class 2 and 3 components. ASME Class 2 and 3 components and welds requiring ISI have design features that provide accessibility for inspection, including clearance for personnel, weld joint simplicity, elimination of geometrical interferences, and proper weld surface preparation. . Inspection of ASME Code Class 2 and 3 components will not be limited due to insufficient radial clearances or inadequate separation of welds. Modules fabricated offsite are designed to accommodate inspection of ASME Code Class 2 and 3 components consistent with ASME Section XI.

The exact number of welds is still under development at this time, but for each type of weld, the accessibility requirements of ASME Code Section XI are applied to the design of these welds. Austenitic stainless steel piping welds are designed for two-sided access wherever possible. Due to their geometry a limited number of circumferential weld locations such as branch piping connections, valve connections and elbow connections may not be accessible for two sided ultrasonic examination. Cases where two sided ultrasonic examination is difficult will be evaluated on a case-by-case basis to establish effective inspection methods. Smaller or specially configured ultrasonic transducers, if there is the applicable method, may be applied. For a limited number of austenitic stainless steel welds where two sided access is difficult or not possible an inspection procedure that complies with the performance demonstration requirements of ASME Section XI Appendix VIII and 10 CFR 50.55a(b)(2)(xvi)(B) and 10 CFR 50.55a(b)(2)(xv)(A)(2) will be provided. The phrase "to the extent practical," "as necessary and practical," and "to the maximum extent possible," will be removed from the DCD Subsection 6.6.2 and 6.6.3, and the following statement will be added:

For a limited number of austenitic welds where two sided access for UT examinations is difficult or not possible, an inspection method that complies with the performance demonstration requirements of ASME Section XI Appendix VIII and 10 CFR 50.55a(b)(2)(xvi)(B) and 10 CFR 50.55a(b)(2)(xv)(A)(2) will be provided.

Impact on DCD

The DCD will be modified as stated.

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.