

## US-APWRRRAIsPEm Resource

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**From:** Ciocco, Jeff  
**Sent:** Thursday, May 09, 2013 10:18 AM  
**To:** us-apwr-rai@mhi.co.jp; US-APWRRRAIsPEm Resource  
**Cc:** Strnisha, James; Terao, David; Galvin, Dennis; Lee, Samuel  
**Subject:** US-APWR Design Certification Application RAI 1031-7108 (3.11)  
**Attachments:** US-APWR DC RAI 1031 CIB 7108.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 1031-7108

Issue Date: 5/9/2013

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

Operating Company: Mitsubishi Heavy Industries

Docket No. 52-021

Review Section: 03.11 - Environmental Qualification of Mechanical and Electrical Equipment  
Application Section:

### QUESTIONS

03.11-62

This is a supplement to RAI 901-6257, Question 3.11-55 that requested additional information regarding the environmental qualification of mechanical equipment for the US-APWR reactor plant design. By letter dated April 10, 2012, the applicant provided additional information describing the US-APWR equipment qualification program in regard to the environmental qualification of electrical equipment, qualification of non-active mechanical equipment for structural integrity (i.e., ASME Section III components), and functional qualification of active mechanical equipment in accordance with RG 1.100 Revision 3. Staff does not consider the April 10, 2012 response to fully address the US-APWR methodology and ITAAC for verification for the environmental qualification of non-metallic components (e.g., seals, gaskets, lubricants, fluids for hydraulic systems, and diaphragms) of mechanical equipment located in harsh environments. The environmental qualification of non-metallic components of mechanical equipment as described in US-APWR Chapter 3.11 addresses specific qualification attributes such as thermal aging, radiation aging, and mechanical wear aging to determine the qualified life of non-metallic components located in a harsh environment.

ASME QME-1-2007, Appendix QR-B as endorsed by RG 1.100 revision 3 is a staff approved methodology for the environmental qualification of non-metallic components of mechanical equipment such as pumps, valves and dynamic restraints. By response to RAI 901-6257, Question 3.11-51, dated April 10, 2012, the applicant stated that MUAP-08015 Section 6.2.3, "Qualification of Important to Safety Mechanical Equipment," will be revised to state that "non-metallic components of mechanical equipment located in a harsh environment are qualified in accordance with ASME QME-1-2007, Appendix QR-B as endorsed by RG 1.100 revision 3." However, US-APWR Tier 1 tables do not contain ITAAC verification for non-metallic components of mechanical equipment located in a harsh environment. For example, the Design Commitment for ITAAC 9.a in Table 2.4.2-5, "Reactor Coolant System Inspections, Tests, Analyses, and Acceptance Criteria," in US-APWR DCD Tier 1 states "Class 1E equipment identified in Table 2.4.2-2, as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function." This ITAAC is specific to Class 1E electrical equipment and does not address non-metallic components of mechanical equipment. Therefore, staff requests the applicant to provide ITAAC verification in the applicable Tier 1 tables for the environmental qualification of non-metallic components of mechanical equipment located in a harsh environment.

