

## US-APWRRRAIsPEm Resource

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**Sent:** Tuesday, June 12, 2012 2:22 PM  
**To:** us-apwr-rai@mhi.co.jp; US-APWRRRAIsPEm Resource  
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**Subject:** US-APWR Design Certification Application RAI 941-6465 (14.3.4, Tier 1, 2.4)  
**Attachments:** US-APWR DC RAI 941 CITB 6465.pdf; image001.jpg

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. MHI requests, and we grant, 60 days to respond to the RAI questions. The schedule will be adjusted accordingly.

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

Thank you,

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# REQUEST FOR ADDITIONAL INFORMATION 941-6465 REVISION 3

6/12/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 14.03.04 - Reactor Systems - Inspections, Tests, Analyses, and Acceptance Criteria  
Application Section: Tier 1 2.4

## QUESTIONS for ITAAC Branch (CITB)

14.03.04-43

In Tier 1 Table 2.4.1-2, ITAAC 14, the ITAAC lacks sufficient details/specificity to assure successful completion (e.g. required location of the specimen guides on the RV).

14.03.04-44

In Tier 1 Table 2.4.2-5, ITAAC 10.a.ii "Tests and analyses in accordance with ASME Code Section III of the pressurizer safety valves identified in Table 2.4.2-2 will be performed to confirm set pressure." It appears testing is sufficient, what is the analysis included in the ITA for?

14.03.04-45

Tier 1 Table 2.4.4-5, ITAAC 1 references Tier 1, Figure 2.4.4-1. This figure is not consistent with the SRP. Not all components specified in the SRP are included (e.g. ASME CL 2 seismic category 1 relief valves and HCV, important alarms and instrumentation, etc...).

14.03.04-46

Tier 1 Table 2.4.4-2 does not contain all required SSC's. See another RAI question shown below in regards to the inconsistency of Figure 2.4.4-1.

"Tier 1 Table 2.4.4-5, ITAAC 1 references Tier 1, Figure 2.4.4-1. This figure is not consistent with the SRP. Not all components specified in the SRP are included (e.g. ASME CL 2 seismic category 1 relief valves and HCV, important alarms and instrumentation, etc...)."

14.03.04-47

Tier 1 Table 2.4.4-3, as written the 4th row does not contain all required piping. Please correct.

## REQUEST FOR ADDITIONAL INFORMATION 941-6465 REVISION 3

14.03.04-48

Tier 1 Table 2.4.4-5, ITAAC 7.b.i.a, "An injection test **with low tank pressure** condition for each as-built accumulator will be conducted. The test will be initiated by opening isolation valve(s) in the piping being tested. Each as-built accumulator will be **partially filled with water** and **pressurized with nitrogen**. All valves in these lines will be open during the test. An analysis will be performed to determine the water volume injected." The ITA lacks specificity to ensure a successful test (e.g. low tank pressure, partially filled).

14.03.04-49

Tier 1 Table 2.4.4-5, ITAAC 7.b.i.a – "The water volume injected from each accumulator into reactor vessel at large flow rate (prior to flow switching to small flow rate) is  $\geq$  1326.8 ft<sup>3</sup>." The AC is not consistent with the Tier 2 information which specifies  $\geq$  1,342 ft<sup>3</sup>.

14.03.04-50

Tier 1 Table 2.4.4-5, ITAAC 7.b.i.b refers to Tier 1 Table 2.4.4-6, which contains formulas for accumulator resistance coefficients with an uncertainty factor. What constitutes the uncertainty (%)?

Also, for ITAAC 7.b.i.b, what are the conditions for the test? Is this a DAC?

14.03.04-51

Tier 1 Table 2.4.4-5, ITAAC 7.b.ii - The ITA lacks specificity to assure a successful test. What is the minimum flow rate? Is the RV filled and at ATM pressure or empty (i.e. is there any backpressure)? There is no AC specified for the design condition. Was there meant to be?

14.03.04-52

Tier 1 Table 2.4.4-5, ITAAC 7.b.iii.a – Performance of the ITAAC should be completed by a vendor test measuring the amount of water to fill it. How do you accurately account for the materials/components inside the accumulator?

14.03.04-53

Tier 1 Table 2.4.4-5, ITAAC 7.b.iii.b - Performance of the ITAAC should be by test measuring the amount of water to fill it. How do you account for the materials/components inside it?

## REQUEST FOR ADDITIONAL INFORMATION 941-6465 REVISION 3

14.03.04-54

Tier 1 Table 2.2.4-5, Should an ITAAC exist for the accumulator and N2 header relief valves?

14.03.04-55

Tier 1 Table 2.4.6-5, ITAAC 6.a - "The Class 1E equipment identified in Table 2.4.6-2 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." Table 2.4.6-2 appears to be inconsistent with Table 3D-2 in Tier 2 (e.g. Table 3D-2 identifies CVS-MOV-151 & 152 as being EQ for a harsh radiation environment yet Table 2.6.4-2 identifies them as not being Qual. for a Harsh Environment.

