

US-APWRRRAIsPEm Resource

From: Ciocco, Jeff
Sent: Tuesday, June 19, 2012 1:45 PM
To: us-apwr-rai@mhi.co.jp; US-APWRRRAIsPEm Resource
Cc: Welch, Christopher; Kowal, Mark; Hamzehee, Hossein
Subject: US-APWR Design Certification Application RAI 945-6452 (14.3, Tier 1)
Attachments: US-APWR DC RAI 945 CITB 6452.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 945-6452 REVISION 3

6/19/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 14.03 - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: 14.3 and Tier1

QUESTIONS for ITAAC Branch (CITB)

14.03-3

Generic comment.

The term "preoperational conditions" is not a defined term in Tier 1 and is used in a number of ITAAC. Define the term "preoperational conditions" in the Tier 1 definitions or specify the applicable preoperational conditions when used in the ITAAC.

14.03-4

Generic comment.

Numerous ITAAC verify the "Class 1E equipment identified in Table XXX, is powered from its respective Class 1E division." The acceptance criteria for these ITAAC should state: The simulated test signal exists only at the as-built Class 1E equipment identified in Table XXX under test.

14.03-5

Generic comment.

Numerous ITAAC verify – "Controls are provided in the MCR to open and close the remotely operated valves identified in Table XXX."

The ITAAC lacks specificity. What controls in the MCR are to be verified? Specifically, are the components to be operated from the operator's console, any other console, by the S-VDU, or non-safety VDU? Must each station be tested or just one? Provide specificity as to which controls in the MCR are to be used. This also applies to the ITAAC for starting and stopping pumps.

14.03-6

Generic comment.

Numerous ITAAC verify that "Alarms and displays identified in Table XXX are provided in the MCR."

This ITAAC lacks specificity. Information is displayed in the MCR at several locations on various safety and operational video display units (S-VDU, VDU), on the Large Panel Display (LDP) and the Alarm VDU. Is this ITAAC meant to verify the information is retrievable on each display unit, the Safety VDUs, or the Alarm VDU. Should the LDP also be checked? Please specify the types of alarms (i.e. hi P, lo P, etc.).

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14.03-7

Generic comment.

Numerous ITAAC verify that "Controls are provided in the RSC to open and close the remotely operated valves identified in Table XXX."

The ITAAC lacks specificity. What controls in the RSC are to be verified? Specifically, are the components to be operated from the operator's console, any other console, by the S-VDU, or non-safety VDU? Must each station be tested or just one? Provide specificity as to which controls in the RSC are to be used. This also applies to the ITAAC for starting and stopping pumps.

14.03-8

Generic comment.

Numerous ITAAC verify that "Alarms and displays identified in Table XXX are provided in the RSC."

The ITAAC lacks specificity. Information is displayed in the RSC at several locations on various safety and operational video display units (S-VDU, VDU), on the Large Panel Display (LDP) and the Alarm VDU. Is this ITAAC meant to verify the information is retrievable on each display unit, the Safety VDUs, or the Alarm VDU. Should the LDP also be checked? Also, please specify the types of alarms(i.e. hi P, lo P, etc.).

14.03-9

Generic comment.

Numerous ITAAC verify - "The piping identified in Table XXX as designed for LBB meets LBB criteria, or an evaluation is performed of the protection from the dynamic effects of a rupture of the line."

The ITAAC is not clear as written, and implies the piping designed for LBB does not have to meet the LBB requirements. Clearly separate the two piping categories: a) piping designated for LBB and b) piping not designed for LBB, and their associated ITA and the AC. Inspection and analysis should appear in the ITA for the non LBB piping

14.03-10

Generic comment.

Numerous ITAAC verify - "Each mechanical division of the XXXX (Divisions A, B, C, & D) is physically separated from the other divisions, with the exception of inside the containment so as not to preclude accomplishment of the safety function."

What is the basis for excluding inside containment? This does not appear to be consistent with Tier 2 Chapter 3 section 3.6.1, which states: "Safety-related SSCs are protected from postulated piping failure in fluid systems inside and outside PCCV." This may also apply to other stated exceptions in similarly worded ITAAC.

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The ITAAC (DC/ITA/AC) lacks specificity. It does not specify the reason(s) for the separation (i.e. fire, missiles, pipe whip, etc.) which affects the AC. This comment applies to other similarly worded ITAAC.

14.03-11

Generic comment.

The scope of I&C logic testing within Tier 1 section 2.5 is not clearly defined in terms of the extent to which the output must be carried out, i.e. are the controlled components required to be manipulated for each test (i.e. breakers trip open, MOVs cycle, pumps start or stop, etc...). ITAAC in each system verify PSMS actuates the required pumps and valves using simulated signals. Based on the principal of overlapping testing, it would appear logic testing in section 2.5 would not require carrying out actuation of the controlled components with some exceptions (e.g. the reactor trip breakers). Clearly define the extent the I&C logic testing in section 2.5 must be carried out.

14.03-12

Generic comment.

I&C logic tests in Tier 1 section 2.5 do not consistently specify the use of simulated test signals. Ensure use of test signals is specified where their use is anticipated / desired.

14.03-13

Generic comment.

Several examples were identified where conflicts existed as to the EQ for harsh environmental conditions for components in the TIER 1 DCD equipment tables with the information provided in Tier 2, Appendix 3D.

One example is: "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 2.4.6-2 identifies them as not being qualified for a harsh environment.)

