

**REQUEST FOR ADDITIONAL INFORMATION 688-5273 REVISION 2**

1/31/2011

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 07.07 - Control Systems

Application Section: Section 07.07 - Control Systems

QUESTIONS for Instrumentation, Controls and Electrical Engineering 2 (ESBWR/ABWR Projects)  
(ICE2)

07.07-30

On Table 7.1-2, "Regulatory Requirements Applicability Matrix," of Tier 2 of the US-APWR DCD, 10 CFR 50.55a(a)(1) is not addressed under PCMS or DAS. 10 CFR 50.55a(a)(1) states that "*Structures, systems, and components must be designed, fabricated, erected, constructed, tested, and inspected to quality standards commensurate with the importance of the safety function to be performed*". In the SRP Chapters for 7.7 (Control Systems) and 7.8 (Diverse Instrumentation and Control Systems), 10 CFR 50.55a(a)(1) is part of the acceptance criteria.

The staff requests MHI to include 10 CFR 50.55a(a)(1) in Table 7.1-2 of the DCD, to fully address how US-APWR complies with the requirement.

07.07-31

In the response to RAI 240-2045, question 07.07-11, MHI stated that "...conformance with RG 1.180, which is only for safety systems, is not required for the PCMS." But RG 1.180 (page 1.180-5, 2nd paragraph) also states that "*While non-safety-related systems are not part of the regulatory guidance being developed, control of EMI/RFI from these systems is necessary to ensure that safety-related I&C systems can continue to perform properly in the nuclear power plant environment. When feasible, the emissions from non-safety-related systems should be held to the same levels as safety-related systems.*"

The staff requests MHI to demonstrate how the US-APWR design is in conformance with RG 1.180 in relation to the PCMS and how the emissions from nonsafety-related systems do not affect the safety systems.

Reference: MHI's Responses to US-APWR DCD RAI No.230-2028, No.227-2020, No.238-2030, No.228-2021, and No.231-2037, Revision 0; MHI Ref: UAP-HF-09196; dated April 28, 2009; ML091250290.

07.07-32

In subsection 7.7.2.6, "Use of Digital Systems," of the US-APWR DCD, it states that "*The PCMS and PSMS utilize the same basic software. In addition, the PCMS*

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*application software is developed using a structured process similar to that applied to development of the PSMS application software.*” Similarly, in subsection 5.1.8 of MUAP-07004 (Revision 5), “Safety I&C System Description and Design Process,” it states that “*The MELTAC platform that is applied to the PCMS is essentially the same as the MELTAC platform applied to the PSMS.*”

In the Abstract of MUAP-07005 (Revision 6), “Safety System Digital Platform - MELTAC -,” it states that “*the MELTAC Platform has been developed using a rigorous safety related design process that ensures suitable hardware and software quality and reliability for critical applications such as the Reactor Protection System or Engineered Safety Features Actuation System.*” SRP Section 7.7, “Control Systems;” under the section “Review Procedures,” states that “*To minimize the potential for control system failures that could challenge safety systems, control system software should be developed using a structured process similar to that applied to safety system software. Elements of the review process may be tailored to account for the lower safety significance of control system software. Refer to SRP Appendix 7.0-A and SRP Appendix 7.1-D for guidance on digital system review.*” Please clarify what exactly are the differences between the MELTAC platform for the PCMS compared to that of the PSMS?

Also, identify which functions in the PCMS are important to safety, if any? If so, what are the additional requirements, and the process, beyond the non-safety (software and hardware) PCMS which will be applied? Ensure that the function discussed in MUAP-07004 (Revision 5), “Safety I&C System Description and Design Process,” Appendix A, section A.6.3 is included in your response.