

REQUEST FOR ADDITIONAL INFORMATION 733-5650 REVISION 5

4/14/2011

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 07.01 - Instrumentation and Controls - Introduction

Application Section: 07-14 Branch Technical Position - Guidance on Software Reviews for Digital Computer-Based Instrumentation and Controls Systems

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

07.01-35

10 CFR 50, Appendix B, Criterion VII addresses control of purchased material, equipment, and services. Criterion VI, also of Appendix B, "Document Control," requires in part that "Measures shall be established to control the issuance of documents . . . which prescribe all activities affecting quality. " Branch Technical Position (BTP) 7-14 of the Standard Review Plan outlines such procedures for the application software. In particular, B.3.1.1.1, Management Characteristics of the Software Management Plan states that the methods by which subcontractors and suppliers will be managed should be described.

The Application Software Program Manual, MUAP-07017, Rev. 3, is inconsistent and does not properly address subcontractor control. Section 3.11.3.6, p.3.11-10, Subcontractor / Vendor Control, states "There are no products or configuration items to be acquired from subcontractors or vendor for the PSMS application software." This is in conflict with Section 3.9.7.12, p.3.9-9, which states "The subcontractor management plan is to comply with Section 3.1.5-11 of NUREG/CR-6101 and Section 4.3.12 of IEEE Std 1228-1994."

The staff requests MHI address the above inconsistency. MHI should include all software received from subcontractors including MELCO. In the case of the MELTAC Basic Software, MELCO is an approved subcontractor of the MHI US-APWR design. The MELTAC Basic Software should be under MHI's configuration control as a safety-related item. MHI should identify this in the Application SPM.

In Section 3.9.7.12, Subcontractor Management, the plan commits to comply with NUREG/CR 6101 and IEEE 1228 with regards to the Basic Software. The method of monitoring and evaluating the subcontractor's software safety plan has yet to be identified, as stipulated by these references, in the SPM. MHI should identify this in the Application SPM.

07.01-36

Criterion 1, "Quality Standards and Records," of Appendix A, "General Design Criteria for Nuclear Power Plants," of 10 CFR Part 50 requires, in part, that appropriate records of the design and testing of systems and components important to safety be maintained by or under the control of the nuclear power unit licensee throughout the life of the unit. Many of the criteria in Appendix B to 10 CFR Part 50 contain requirements closely

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related to the configuration management activity. Criterion III, "Design Control," of Appendix B requires measures for design documentation and identification and control of design interfaces. In Standard Review Plan (SRP) Branch Technical Position (BTP) 7-14, the methods are consistent with the previously cited General Design Criteria and the criteria for quality assurance programs of Appendix B as they apply to the maintenance of appropriate records of, and control of, software development activities relating to configuration management.

The Basic Software Program Manual, JEXU-1012-1132, Rev. 2, section 3.11.3.2.2, Purchased Software, first paragraph (on Page 139), makes statements concerning software that is purchased and software that is not purchased. In addition, Section 3.1.4.5, Tools for Development (on Page 24), identifies these same tools are under configuration control. Therefore, they are purchased and maintained under the Configuration Management Plan.

JEXU-1012-1132, section 3.11.3.2.2 (on Page 139) also makes a statement concerning software that is not purchased that conflicts with the statement discussed above.

Further, in MUAP-07004, Rev. 5, Appendix C. 1, the second paragraph on Page 131 is a general description of the purchase of a licensing agreement for software. If MELCO does not have to renew the license, intend to purchase updates, receive notifications of enhancements or, more importantly, receive notifications of problems with the original software, it should be stated as such in MUAP-07004, that "MELCO will not have any further contacts with the original licensor of the software. Therefore no supplier controls are necessary."

JEXU-1012-1132, section 3.3.4.2.6, Supplier Control (on Page 59), states that "No commercial software is included in the Basic Software. Therefore there are no supplier controls described in this SPM."

BTP 7-14 states: "The SCMP should include a description of the process used to maintain and track purchased items, such as software tools used to make the final product. A qualification procedure should be provided, and a method of tracking tool history, buglists, and errata sheets should enable the applicant/licensee to track which design outputs may be affected by discovered tool or purchased item deficiencies."

The staff requests MHI to address the inconsistencies discussed above, update the information to include BTP 7-14 criteria in these sections, and comprehensively review the remaining SPM sections as well as other submitted documents to address the issues discussed above.