

REQUEST FOR ADDITIONAL INFORMATION 650-5093 REVISION 0

10/15/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 03.11 - Environmental Qualification of Mechanical and Electrical Equipment
Application Section: 3.11

QUESTIONS for Electrical Engineering Branch (EEB)

03.11-39

In supplemental response to RAI Question 03.11-19, MHI proposed that Technical Report MUAP-08015, R1, Section 3.1.1, "10 CFR 50.49 Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants," be revised by adding, "An alternate methodology to qualifying equipment in harsh environments is to use commercial dedication methodologies to meet the 10 CFR 50.49 requirements for harsh electrical equipment environment qualification. This qualification method uses commercial grade dedication when the supplier lacks a 10 CFR 50, Appendix B QA program..." This is contrary to the staff position that qualifying equipment in harsh environments can't use commercial dedication methodologies to meet the 10 CFR 50.49 requirements. During the latest teleconference with MHI, the staff cited EPRI TR-102260, "Supplemental Guidance for the Application of EPRI report NP-5652 on the Utilization of Commercial Grade Items," which states that "Equipment Qualification is a part of the design process covered under 10 CFR Part 50, Appendix B, Criterion III which demonstrates either through the testing of a prototype, by engineering analysis of a prototype, or by historical performance demonstration of an item of the same design." On this basis, qualifying equipment in harsh environments is not allowed to use commercial dedication methods to meet the 10 CFR 50.49 requirements. However, EPRI commercial dedication method was conditionally approved by the NRC for satisfying 10 CFR Part 50, Appendix B. Revise Technical Report MUAP-08015, R1 where it is applicable (e.g., Sections 3.1.1, 3.7, Figure 7.1-EQ flow diagram).

03.11-40

In response to RAI No. 511-3739, Question 03.11-21, regarding the ITAAC table center columns, "Inspection, Testing, Analyses" (ITA) of DCD Tier 1, Sections 2.4, 2.5, 2.6, and 2.7, MHI stated that the ITA of the above sections will be revised to read, "Type tests, analysis, or a combination of type tests and analyses will be performed" to use wording consistent with 10 CFR 50.49(f)." Since the above ITA statement wording can be interpreted as "analyses alone," it is not acceptable as written.

In its supplemental response, MHI stated that "This wording is consistent with other vendor's design certification applications and the wording is intended to address 50.49 f (3) for electrical components as well as seismic qualification methodologies." However, 10 CFR 50.49(f)(3) does not allow analysis alone, but only in conjunction with operating experience under "similar" (meaning harsh environment) conditions. 10 CFR 50.49(f)(4)

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further identifies “analysis in combination with partial type test data that supports the analytical assumptions and conclusions,” as a method to environmentally qualify electrical equipment. Thus, analysis alone is not acceptable for electrical equipment important to safety required to be environmentally qualified under 10 CFR 50.49(f). Revise all wording in the US-APWR DCD, Tier 2 and in all ITAAC tables in US-APWR DCD, Tier 1 to be consistent with 10 CFR 50.49(f), or provide justification why the proposed ITA statements are acceptable for environmental qualification.

References:

MHI's Responses to US-APWR DCD RAI No. 511-3739; MHI Ref: UAP-HF-10028; February 2, 2010; ML100360835.

MHI's Supplemental Responses to US-APWR DCD RAI No. 511-3739; MHI Ref: UAP-HF-10179; June 25, 2010; ML101790460.