

# REQUEST FOR ADDITIONAL INFORMATION 722-5597 REVISION 5

3/21/2011

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 07.01 - Instrumentation and Controls - Introduction  
Application Section: 07.01 - Instrumentation and Controls - Introduction

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

07.01-29

Title 10 CFR 52.47(a)(2) requires, in part, that the application for a design certification contain a final safety analysis report (FSAR) that includes, "A description and analysis of the structures, systems, and components (SSCs) of the facility, with emphasis upon performance requirements, the bases, with technical justification therefor, upon which these requirements have been established, and the evaluations required to show that safety functions will be accomplished." NRC staff guidance in Chapter 7 of Standard Review Plan (SRP) specifically states that the design basis should not contain contradictory requirements and the information provided should have one and only one interpretation (e.g., unambiguous). The language in technical reports, in support of the application-specific US-APWR design approval, should be evaluated and enhanced. There are a number of cases the technical reports use terms, such as *typical*, *similar to*, *in general and equivalent*, that are not specific enough to judge applicability to the US-APWR design certification.

For example, there are 43 instances of "typical" descriptions of design features in MUAP-07004. Some do not provide, if or where, the specificity of the feature can be found in Chapter 7 of the US-APWR DCD. Examples would be: hardwired functions on the operator console, non-safety related functions of the PSMS, duplication of controllers for MSI valves, and priority logic.

There are 29 instances of "typical" descriptions of design features in MUAP-07005. Some do not provide, if or where, the specificity is described for the feature in Chapter 7 of the DCD. An example is: Types of inter-divisional communication between safety and non-safety.

The use of the phrase "in general" causes confusion when prefaced to statements such as: "no manual controlled actions in the plant safety analysis" or "complete plant process systems are assigned to one controller" but for US-APWR this is not the case and those cases are specifically identified. Also, configurations are identified that may or may not be applicable to US-APWR. Example from MUAP-07005, section 4.3.2: "The Control Network can also be used to communicate non-safety related data between different divisions including the non-safety system. **This may be between multiple Controllers in different divisions. Or it may be between Operational VDU Processors and multiple Controllers in different divisions.**"

## REQUEST FOR ADDITIONAL INFORMATION 722-5597 REVISION 5

MHI is requested to implement a thorough review of the documents (TRs and DCD) for specificity to the US-APWR Design Certification in descriptions of applications, if and how they are applicable to US-APWR as well as do they provide reference to the specific section of the DCD that describes this feature. Use of terminology should also be reviewed within the individual documents as well as among all documents.

07.01-30

Appendix B to 10 CFR Part 50 provides detailed quality assurance criteria, including criteria for administrative control, design documentation, design interface control, design change control, and most importantly, document control. NRC staff guidance in Chapter 7 of Standard Review Plan (SRP) specifically states that the design basis should not contain contradictory statements, definitions or requirements and the information provided should have one and only one interpretation (e.g., unambiguous). Given multiple technical reports in addition to the DCD, their consistency through rigorous configuration control is important for more effective and efficient staff review.

MHI is requested to implement a thorough review of the documents (TRs and DCD) for consistency in descriptions of applications, how and if they are applicable to US-APWR as well as do they provide reference to the specific section of the DCD. Use of terminology should also be reviewed within the individual documents as well as among all documents.

Examples:

- 1) Engineering Tool: The definition of this item should be the same through all documents:
  - i) MUAP-07005, Rev. 6, identifies it as "MELENS" which is the "Mitsubishi Electric Total Advanced Controller Engineering Station," and "MELENS is installed on a non-safety Personal Computer running the Windows Operating System."
  - ii) In JEXU-1012-1132, R2, MELTAC Platform Basic Software Program Manual, the engineering tool is not listed in the definitions but the body of procedure identifies it as "software (what software?) operating on a computer."
  - iii) MUAP-07004, R.5, P.22, identifies the engineering tool as a personal computer.
  - iv) MUAP-07017, R.3, Definitions, doesn't commit to it being a PC or software, only that it "has functions aimed at steadier and more efficient software".
- 2) Engineering Tool/ Maintenance Network connection
  - i) MUAP-07004, R.5, states "PSMS controllers are normally disconnected from the Maintenance Network, which is the interface between the controllers and the Engineering Tool."
  - ii) MUAP-07005, R.6, states "The Maintenance Network is permanently or temporarily connected to the controllers in the same safety division." "The permanent or temporary connection of the Maintenance network and the Engineering Tool is application dependent." The application is US-APWR; this is an application specific document.
- 3) In MUAP-07005, R.6, Table 6.1-8, under software loading, the fifth paragraph, first sentence appears to contain an inaccurate statement regarding when software can be loaded. Additionally, this paragraph seems to contradict the sixth paragraph.

## REQUEST FOR ADDITIONAL INFORMATION 722-5597 REVISION 5

- 4) By letter dated July 10, 2009 (ML091770212) the NRC Office of Nuclear Reactor Regulation (NRR), decided to discontinue review of report, MUAP-07005, due to the quality and technical issues. Therefore, references to Operating Reactors should be removed from this report.
- 5) If MUAP-07005 is to be changed to a Technical Report, and applicable only to the US-APWR design certification, the title and content should be changed accordingly with all due specificity and references to each applicable section of the US-APWR DCD as well as any topical or technical reports which may reference MUAP-07005.
- 6) The following terms should be clarified to identify one and only one term to be used consistently throughout the docketed documents to the extent practical:
  - i) Train vs division
  - ii) Safety vs safety grade vs safety-related vs Class 1E vs important safety
  - iii) 2-port, 2 port, 2port-memory or two-port
  - iv) FROM, F-ROM, ROM
  - v) Interface or IF, I/F