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TOKYO, JAPAN

June 19th, 2009

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Mr. Jeffrey A. Ciocco

Docket No. 52-021
MHI Ref: UAP-HF-09332

Subject: MHI's Responses to US-APWR DCD RAI No. COLP 342-2526 Revision 0

Reference: 1) "Request for Additional Information No. COLP 342-2526 Revision 0,
SRP Section: 18 - Human Factors Engineering, Application Section:
18.4 Task Analysis," dated April 23th, 2009.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Responses to Request for Additional Information No. COLP 342-2526 Revision 0."

Enclosed is the responses to 1 RAI contained within Reference 0.

Please contact Dr. C. Keith Paulson, Senior Technical Manager, Mitsubishi Nuclear Energy Systems, Inc. if the NRC has questions concerning any aspect of the submittals. His contact information is below.

Sincerely,



Yoshiaki Ogata,
General Manager- APWR Promoting Department
Mitsubishi Heavy Industries, LTD.

Enclosure:

1. Responses to Request for Additional Information No. COLP 2526 Revision 0

CC: J. A. Ciocco
C. K. Paulson

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Contact Information

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Docket No. 52-021
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Enclosure 1

UAP-HF-09332
Docket No. 52-021

Responses to Request for Additional Information No. COLP 342-2526
Revision 0

June 2009

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

6/17/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.: NO. COLP 342-2526 REVISION 0
SRP SECTION: 18 - HUMAN FACTORS ENGINEERING
APPLICATION SECTION: 18.4 TASK ANALYSIS
DATE OF RAI ISSUE: 4/23/2009

QUESTION NO. 18-43

On January 28, 2009, MHI submitted information to "present the HFE bases used for the design of the US-APWR HSI." One of the documents submitted titled "Selection of Event Scenario for Task Analysis" describes the workload on an operator in the control room during events. The document submitted describes these analyses for single operator operations, and states: "In order to limit the workloads during the single operator operation below the target workload, it will be necessary to extract operational responses of a conventional two-operator design operation that would overlap in a short period of time and discuss measures for reducing the corresponding workloads..." Criterion 4 of Section 5.4, for task analysis of NUREG-0711 states that the task analysis should address issues such as:

- 1) the number of crew members
- 2) Crew member skills
- 3) allocation of monitoring and control tasks to the (a) formation of a meaningful job and (b) management of crew member's physical and cognitive workload.

Criterion 1 of Section 6.4, "Staffing and Qualifications" states that staffing and qualifications should be address applicable guidance in 10 CFR 50.54. the regulations found in 10 CFR 50.54(4)(m)(2)(iii) contains requirements that there be at least 2 licensed operators in each unit during normal operations. It is not clear from the documents submitted that the US APWR control has been designed for 2-operator operation. Please explain how the task analysis for the US APWR plans to address the difference between the single-operator APWR and the required minimum of 2 operator US APWR.

ANSWER:

The HSI System Description and HFE Process (MUAP-07007, Rev.2) section 5.5 describes Staffing and Qualification Requirement. The design complies with 10 CFR 50.54 (m). Subsection (2)(i) requires a minimum of 2 reactor operators (RO) and 2 senior reactor operators (SRO) at the unit, and subsection (2)(iii) requires one SRO and

one RO continuously in the MCR . Therefore, the HSI design considers the minimum continuous MCR staffing shown in Figure 5.5-1, and the maximum continuous MCR staffing shown in Figure 5.5-2. It is noted that Figure 5.5-2 of MUAP-07007 and Figure 18.1-3 of the US-APWR DCD will be revised to eliminate the words "Not located in MCR". Since the task analysis is intended to address the worst task burden situations, the analysis only considers the single RO staffing condition. The two RO staffing condition was tested for various plant scenarios during Phase 1a V&V; there were no HEDs that related to the two RO staffing condition. Therefore, additional two RO staffing scenarios were not conducted in Phase 1b V&V, and are not planned for Phase 2 V&V.

Impact on DCD

The Figure 18.1-3 of DCD subsection 18.1 will be revised to eliminate the words "Not located in MCR".

The Attachment 1 page 18.1-16 shows the above change.

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

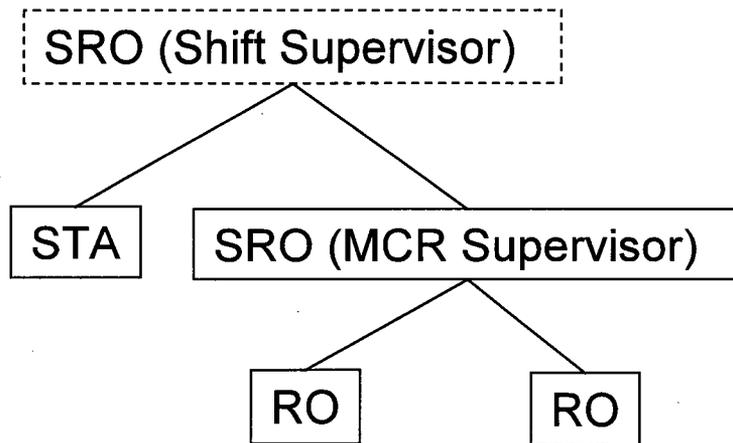


Figure 18.1-3 Operations Personnel Staffing and Organization (Typical)