


MITSUBISHI HEAVY INDUSTRIES, LTD.
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TOKYO, JAPAN

July 24th, 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-09396

Subject: MHI's Responses to US-APWR DCD RAI No. 410 COLP-2932 Revision 1

Reference: 1) "Request for Additional Information No. 410 COLP-2932 Revision 1,
SRP Section: 18 - Human Factors Engineering, Application Section:
18.2 Operating Experience Review," dated June 24th, 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. 410 COLP-2932 Revision 1."

Enclosed is the response to 1 RAI contained within Reference 1.

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. 410 COLP-2932 Revision 1

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

DOB
LRO

Contact Information

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Enclosure 1

UAP-HF-09396
Docket No. 52-021

Responses to Request for Additional Information No. 410 COLP-2932
Revision 1

July 2009

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

7/24/2009

**US-APWR Design Certification
Mitsubishi Heavy Industries
Docket No. 52-021**

RAI NO.: NO. 410 COLP-2932 REVISION 1
SRP SECTION: 18 - HUMAN FACTORS ENGINEERING
APPLICATION SECTION: 18.2 OPERATING EXPERIENCE REVIEW
DATE OF RAI ISSUE: 6/24/2009

QUESTION NO. 18-49

NUREG-0711, Section 3, Criterion 4, Issues Identified by Plant Personnel states:
"Personnel interviews should be conducted to determine operating experience related to predecessor plants or systems. The following topics should be included in the interviews at a minimum:

Plant Operations:

- Normal plant evolutions
- Instrumentation failures
- HSI equipment and processing failure
- Transients
- Accidents
- Reactors shutdown and cooldown using remote shutdown system

HFE Design Topics:

- Alarm and annunciation
- Display
- Control and automation
- Information processing job aids
- Real-time communications with plant personnel and other organizations
- Procedures, training, staffing/qualifications, and job design."

MHI submitted for Staff review, MUAP-08014-P, Revision 0, "Human System Interface Verification and Validation (Phase 1a), Part 2 Operating Experience Review. There is no information in MUAP-08014-P pertaining to conducting personnel interviews in order to gather information related to the areas listed in NUREG-0711, Section 3, criterion 4. Please tell the Staff how MHI plans to gather this information and meet the requirements of NUREG-0711.

ANSWER:

Due to the inaccessibility to U.S. nuclear plant personnel at the time the OER was conducted, the OER report alone does not fulfill criterion 4. But through the Phase 1a and Phase 1b V&V program, interviews of U.S. licensed operators were conducted. Questions encompassed areas critical to human performance such as situation awareness, crew coordination, workload and error potential and recovery. Where the Basic HSI System or US-APWR HSI System did not address the concerns expressed by U.S. operators, Human Engineering Discrepancies (HEDs) were captured in the HFE Issues Tracking System. The HEDs captured in Phase 1a were reported in the same report as the OER, Part 1 of the Technical Report MUAP-08014. The resolution of those HEDs was reported in the Technical Report MUAP-09019. MUAP-09019 also included the HEDs from additional interviews with US licensed operators conducted during Phase 1b V&V.

Impact on DCD

There is no impact on the DCD

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

This completes MHI's responses to the NRC's questions.