MITSUBISHI HEAVY INDUSTRIES, LTD.
16-5, KONAN 2-CHOME, MINATO-KU
TOKYO, JAPAN

May 27, 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-09263

Subject: MHI's Responses to US-APWR DCD RAI No. 333-2407 Revision 1

Reference: 1) "Request for Additional Information No. 333-2407 Revision 1, SRP Section: 18 - Human Factors Engineering, Application Section: 18.11," dated April 13th, 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. 333-2407 Revision 1."

Enclosed is the responses to 3 RAIs 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,

Y. Ogata

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

Enclosure:

1. Responses to Request for Additional Information No. 333-2407 Revision 1

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

D081
NRO

Contact Information
C. Keith Paulson, Senior Technical Manager
Mitsubishi Nuclear Energy Systems, Inc.
300 Oxford Drive, Suite 301
Monroeville, PA 15146
E-mail: ck_paulson@mnes-us.com
Telephone: (412) 373-6466

Docket No. 52-021
MHI Ref: UAP-HF-09263

Enclosure 1

UAP-HF-09263
Docket No. 52-021

Responses to Request for Additional Information No. 333-2407
Revision 1

May 2009

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

5/27/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 333-2407 REVISION 1**
SRP SECTION:	**18 - HUMAN FACTORS ENGINEERING**
APPLICATION SECTION:	**18.11**
DATE OF RAI ISSUE:	**4/13/2009**

QUESTION NO. 18-21

NUREG-0711, Section 12.4.6, Criterion 1 states:
Aspects of the design that were not addressed in V&V should be evaluated using an appropriate V&V method. Aspects of the design addressed by this criterion may include design characteristics such as new or modified displays for plant-specific design features and features that cannot be evaluated in a simulator such as CR lighting and noise.

The US-APWR DCD, Section 18.11.2, first bullet point states:
Aspects of the design that were not addressed in the design V&V are evaluated using an appropriate V&V method. Aspects of the design addressed by this criterion may include design characteristics such as new or modified displays for plant-specific design features and features that cannot be evaluated in a simulator, such as control room lighting and noise

The US-APWR DCD restates the NUREG-0711 criteria and does not demonstrate, with sufficient detail, **how** criterion 1 of NUREG-0711 section 12.4.6 will be met. The information to meet this criterion should:

- Provide a complete process description
- Provide a flow diagram, or similar graphic example, that illustrates the relationship of the different process steps to each other (if applicable)
- Contain a sufficient description of quality, and technical requirements, to enable the staff to verify that the product conforms to the intent of the methodology

Please provide detailed information to satisfy criterion 1 of NUREG-0711, section 12.4.6.

ANSWER:

The detailed information to the criterion 1 of NUREG-0711, section 12.4.6 will be described in the US-APWR procedure for design Implementation. The US-APWR

procedure for design Implementation will be developed during Phase 2b of the US-APWR HFE program.

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

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

5/27/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 333-2407 REVISION 1**
SRP SECTION:	**18 - HUMAN FACTORS ENGINEERING**
APPLICATION SECTION:	**18.11**
DATE OF RAI ISSUE:	**4/13/2009**

QUESTION NO. 18-22

NUREG-0711, Section 12.4.6, Criterion 2 states:

The final (as-built in the plant) HSIs, procedures, and training should be compared with the detailed design description to verify that they conform to the design that resulted from the HFE design process and V&V activities. Any identified discrepancies should be corrected or justified.

The US-APWR DCD, Section 18.11.3 states:

Facility design changes are documented and analyzed for their potential impact on HSIs. Those design implementation issues that negatively impact human performance are identified as HEDs and are tracked and dispositioned. HFE design modifications are documented in a periodic status report.

The US-APWR DCD does not demonstrate, with sufficient detail, **how** criterion 2 of NUREG-0711 has been met. The information to meet this criterion should:

- Provide a complete process description
- Provide a flow diagram, or similar graphic example, that illustrates the relationship of the different process steps to each other (if applicable)
- Contain a sufficient description of quality, and technical requirements, to enable the staff to verify that the product conforms to the intent of the methodology

Please provide detailed information to satisfy criterion 2 of NUREG-0711, section 12.4.6.

ANSWER:

The detailed information to the criterion 2 of NUREG-0711, section 12.4.6 will be described in the US-APWR procedure for design Implementation. The US-APWR

procedure for design Implementation will be developed during Phase 2b of the US-APWR HFE program.

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

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

5/27/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 333-2407 REVISION 1**
SRP SECTION:	**18 - HUMAN FACTORS ENGINEERING**
APPLICATION SECTION:	**18.11 DESIGN IMPLEMENTATION**
DATE OF RAI ISSUE:	**4/13/2009**

QUESTION NO. 18-23

NUREG-0711, Section 12.4.6, Criterion 3 states:

All HFE-related issues documented in the issue tracking system should be verified as adequately addressed.

The US-APWR DCD, Section 18.11.2, third bullet point states:

All HFE-related issues documented in the issue tracking system are verified to be adequately addressed

The US-APWR DCD restates the NUREG-0711 criteria and does not demonstrate, with sufficient detail, **how** criterion 3 of NUREG-0711 will be met. The information to meet this criterion should:

- Provide a complete process description
- Provide a flow diagram, or similar graphic example, that illustrates the relationship of the different process steps to each other (if applicable)
- Contain a sufficient description of quality, and technical requirements, to enable the staff to verify that the product conforms to the intent of the methodology

Please provide detailed information to satisfy criterion 3 of NUREG-0711, section 12.4.6.

ANSWER:

The detailed information to the criterion 3 of NUREG-0711, section 12.4.6 will be described in the US-APWR procedure for design Implementation. The US-APWR procedure for design Implementation will be developed during Phase 2b of the US-APWR HFE program.

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.