# MITSUBISHI HEAVY INDUSTRIES, LTD.

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# TOKYO, JAPAN

March 4, 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-09078

# Subject: MHI Comments to Safety Evaluation Report for Topical Report MUAP-07006-P, Revision 2, "Defense-in-Depth and Diversity"

**Reference:** 1) Safety Evaluation Report for Mitsubishi Heavy Industries US-APWR Topical Report number MUAP-07006-P, Revision 2, "Defense-in-Depth and Diversity" dated January 22, 2009

With this letter, Mitsubishi Heavy Industries, LTD. (MHI) transmits to the U.S. Nuclear Regulatory Commission (NRC) a document entitled "MHI Comments to Safety Evaluation Report for Topical Report MUAP-07006-P, Revision 2."

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.

M. Ogutu

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

Enclosure:

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1. MHI Comments to Safety Evaluation Report for Topical Report MUAP-07006-P, Revision 2, "Defense-in-Depth and Diversity"

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

Contact Information

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Docket No. 52-021 MHI Ref: UAP-HF-09078

# Enclosure 1

# UAP-HF-09078 Docket Number 52-021

# MHI Comments to Safety Evaluation Report for Topical Report MUAP-07006-P, Revision 2 "Defense-in-Depth and Diversity"

March 2009

# MHI Comments on Draft D3 SER

### 2.17.2009 MHI

# 1. Bistable for Reactor Trip and ESF function

The following sections of the D3 SER pertain to separate bistables in the PSMS for reactor trip (RT) and engineered safety feature (ESF) function. However, there are separate bistables <u>only</u> for cases where the parameters or setpoints are different. Otherwise the bistables are common to both RT and ESF function.

Then the following sections in the draft D3 SER need to be changed:

## Section 3.1.1, the second paragraph, page 6

There are separate bistables for each reactor trip and engineered safety feature (ESF) function because of differences in setpoint values.

#### Change to:

There are separate bistables for each reactor trip and engineered safety feature (ESF) when there are differences in setpoint values.

Section 3.1.5, the fourth paragraph, page 10

There are separate bistables for each reactor trip and ESF function because of setpoint differences.

#### Change to:

There are separate bistables for each reactor trip and ESF function when there are setpoint differences.

The voting logic is associated with each bistable, so it is separate for each reactor trip and ESF function.

Change to:

The voting logic is associated with each bistable, so it is separate for each reactor trip and ESF function when there are setpoint differences.

### 2. CCF with AOO and PA

Section 1.0, page 1, the second sentence of the fourth paragraph

This approach includes ... a diverse backup system to cope with a postulated CCF occurring simultaneously with an Anticipated Operational Occurrence (AOO) or a Postulated Accident (PA).

#### Comment:

The topical report clearly states that based on the deterministic design features of the PSMS, plant events do not cause CCFs. Therefore, the plant event and CCF coexist concurrently, but they do not occur simultaneously. MHI recommends the sentence be revised, as follows:

This approach includes ... a diverse backup system to cope with an Anticipated

Operational Occurrence (AOO) or a Postulated Accident (PA) with a concurrent CCF.

## 3. Signals between DAS and SLSA

Section 3.1, page 5, the second paragraph

The output from each DAS train, still in its analog form, is transmitted to the corresponding train in the Safety Logic System (SLS), which is part of the PSMS. The DAS output signal is passed through an analog isolation module prior to entering the SLS. Inside the SLS, the discrete binary, analog DAS output signal enters a Power Interface (PIF) Module.

#### Comment:

This paragraph incorrectly describes the DAS outputs to the SLS as analog signals. All DAS outputs to the SLS are binary signals. MHI recommends these sentences be revised, as follows:

The output from each DAS train, now in conventional discrete binary form, is transmitted to the corresponding train in the Safety Logic System (SLS), which is part of the PSMS. The DAS output signal is passed through a discrete binary isolation module prior to entering the SLS. Inside the SLS, the discrete binary DAS output signal enters a Power Interface (PIF) Module.

#### 4. Item 4 of SECY 93-087

Section 3.2.1, page 14, the first paragraph

Item 4 requires manual controls and independent and diverse protection and control system monitoring.

#### Comment:

MHI believes this is an incorrect summation of Item 4, since Item 4 does not require monitoring of the protection and control system. MHI recommends this sentence be revised, as follows:

Item 4 requires manual controls, and independent and diverse monitoring of critical safety functions.

#### 5. Reference of D3 Coping Analysis Report

#### Section 6.0, 6.1-12

#### Comment:

MHI request that the latest version of D3 Coping Analysis report will be referenced as follow.

Technical Report MUAP-07014-P/NP, "Defense-in-Depth and Diversity Coping Analysis," Revision 1, Mitsubishi Heavy Industries, Ltd., June 2008.