

July 19, 2011

APPLICANT: MITSUBISHI HEAVY INDUSTRIES, LTD.

APPLICATION: UNITED STATES - ADVANCED PRESSURIZED WATER REACTOR
DESIGN CONTROL DOCUMENT

SUBJECT: SUMMARY OF THE FEBRUARY 22 - 23, 2011, CLOSED AND PUBLIC
MEETINGS WITH MITSUBISHI HEAVY INDUSTRIES, LTD. TO
DISCUSS THE STATUS OF THE UNITED STATES - ADVANCED
PRESSURIZED WATER REACTOR DIGITAL INSTRUMENTATION AND
CONTROLS DESIGN REVIEW

On February 22 - 23, 2011, a closed and a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC), Mitsubishi Heavy Industries, Ltd. (MHI), Mitsubishi Nuclear Energy Systems, Inc., and members of the public. On February 22, 2011, a closed meeting was held at the NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. On February 23, 2011, a Category 1 public meeting was held at the NRC Headquarters, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland. The purpose of the meetings was to discuss issues related to planned design changes and the current status of the NRC staff's review of the United States - Advanced Pressurized Water Reactor (US-APWR) Digital Instrumentation and Controls (DI&C) Design. The meetings were announced on February 10, 2011, as documented in the Agencywide Documents Access and Management System (ADAMS) under accession number ML110400418. A list of attendees is provided as Enclosure 1.

The purpose of the February 22, 2011, closed meeting was to discuss planned changes to the US-APWR DI&C System data communications. The meeting centered on design changes being implemented and the conformance of the changes and overall system to DI&C Interim Staff Guidance (ISG)-04 and Institute of Electrical and Electronics Engineers (IEEE)-603 standard. Also discussed was the detailed design information to be added to the next revision of applicable technical reports and specific examples of terminology which needs clarification or internally consistent use throughout the Design Control Document (DCD) and related technical reports. The meeting lasted the entire day.

MHI conducted two presentations which generated dialog between the NRC staff and MHI. The first presentation covered design conformance with IEEE-603. The second presentation discussed detailed design information added to MELTAC Technical Report MUAP-07005, "Safety System Digital Platform - MELTAC." The presentations are proprietary and are not available to the public. MHI clarified specific design details for the NRC staff. The NRC staff identified instances of inconsistent terminology use within various previously submitted documents and specific terms or phrases which needed clarification. There was a discussion about whether certain network interface modules contained software (firmware) or not and, if so, how that software is maintained. The day closed with the discussion of a draft Request for Additional Information (RAI) regarding the need to clearly identify all electro-mechanical interlocks that are important to safety and describe their implementation. The RAI, number 702-5518, was subsequently issued on February 28, 2011.

On February 23, 2011, a Category 1 public meeting was held to discuss Quality Assurance (QA), the MELTAC Re-evaluation Plan (MRP), self-diagnostics testing, and the status of the review of the Software Program Manuals (SPMs) and RAIs. MHI conducted presentations regarding Augmented QA (ML110600831) and self-diagnostics (ML110600792). During the QA presentation, there were discussions regarding regulatory requirements versus staff guidance; safety classifications including the 10 identified in DCD Chapter 3; the applicability of Branch Technical Position (BTP) 8-5; the use of digital components which may affect safety outside of the I&C systems (see RAI 720-5539), specifically if the same component appears in all four divisions and the fact that Topical Report MUAP-07006, "Defense-in-Depth and Diversity," may need to be revised if such components exist. There was additional discussion about the testing requirements of BTP 7-19 and ISG-02, as well as the need to define the scope of the systems and the applicable testing and QA requirements.

The NRC staff announced that the MRP would be considered a QA document and inspected and not be reviewed as a licensing document. The MRP is a QA document which demonstrates how MELCO, manufacturer of the MELTAC DI&C platform, has been brought into QA compliance. A discussion ensued on the inspection, test, analysis, and acceptance criteria changes and other document changes needed as a result. Removing the MRP as a licensing document will save licensing review resources and may shorten the review schedule. MHI asked for the Inspection Procedures that would apply in the inspection. A list was provided to MHI after the meeting.

NRC staff then discussed the SPM review so far. The most significant was the NRC staff's identification of some clarifications that MHI must make regarding the SPM appendix identifying compliance with guidance and several other items. These will be identified in a future RAI. The NRC staff concluded the meeting by giving specific feedback regarding RAIs which the NRC staff has determined that the response was insufficient or not acceptable. MHI will submit amended responses based on the handouts and discussion.

Please direct any inquiries to me at 301-415-7038, or via e-mail at William.Ward@nrc.gov.

Sincerely,

/RA/

William R. Ward, Senior Project Manager
US-APWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-021

Enclosure:
List of Attendees

cc w/encl: See next page

On February 23, 2011, a Category 1 public meeting was held to discuss Quality Assurance (QA), the MELTAC Re-evaluation Plan (MRP), self-diagnostics testing, and the status of the review of the Software Program Manuals (SPMs) and RAIs. MHI conducted presentations regarding Augmented QA (ML110600831) and self-diagnostics (ML110600792). During the QA presentation, there were discussions regarding regulatory requirements versus staff guidance; safety classifications including the 10 identified in DCD Chapter 3; the applicability of Branch Technical Position (BTP) 8-5; the use of digital components which may affect safety outside of the I&C systems (see RAI 720-5539), specifically if the same component appears in all four divisions and the fact that Topical Report MUAP-07006, "Defense-in-Depth and Diversity," may need to be revised if such components exist. There was additional discussion about the testing requirements of BTP 7-19 and ISG-02, as well as the need to define the scope of the systems and the applicable testing and QA requirements.

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Sincerely,

/RA/

William R. Ward, Senior Project Manager
US-APWR Projects Branch
Division of New Reactor Licensing
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Docket No. 52-021

Enclosure:
List of Attendees

cc w/encl: See next page

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NRC-001

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NAME	WWard	CSmith	JCiocco
DATE	07/19/2011	07/18/2011	07/19/2011

List of Attendees

Closed and Public Meetings with Mitsubishi Heavy Industries, Ltd. to Discuss the Status of the Digital Instrumentation and Controls Design Review for the United States - Advanced Pressurized Water Reactor, Held February 22 - 23, 2011

<u>NAME</u>	<u>AGENCY/AFFILIATION</u>	<u>Feb 22</u>	<u>Feb 23</u>
Robert Atkinson	Dominion Virginia Power	X	X
Robert Reible	Luminant Generation Company, LLC.	X	X
Katsumi Akagi	Mitsubishi Electric Company	X	X
Yukiko Hirano	Mitsubishi Electric Company	X	X
Gil Remley	Mitsubishi Electric Power Products, Inc.	X	X
Gyota Yasoda	Mitsubishi Electric Power Products, Inc.	X	X
Makoto Takashima	Mitsubishi Heavy Industries, Ltd.	X	X
Yuji Maruta	Mitsubishi Heavy Industries, Ltd.	X	X
Bruce Geddes	Mitsubishi Heavy Industries, Ltd. / SES	X	X
Hiroshi Shirasawa	Mitsubishi Nuclear Energy Systems, Inc.	X	X
Ryan Sprengel	Mitsubishi Nuclear Energy Systems, Inc.	X	X
Ken Scarola	Mitsubishi Nuclear Energy Systems, Inc. / NAE	X	X
Dinesh Taneja	U.S. Nuclear Regulatory Commission	X	X
Erick Martinez	U.S. Nuclear Regulatory Commission	X	X
Hossein Hamzehee	U.S. Nuclear Regulatory Commission	X	X
Hulbert Li	U.S. Nuclear Regulatory Commission	X	X
Ian Jung	U.S. Nuclear Regulatory Commission	X	X
Joseph Ashcraft	U.S. Nuclear Regulatory Commission	X	X
Juan Peralta	U.S. Nuclear Regulatory Commission		X
Khoi Nguyen	U.S. Nuclear Regulatory Commission	X	X
Royce Beacom	U.S. Nuclear Regulatory Commission	X	X
Sang Rhow	U.S. Nuclear Regulatory Commission	X	X
Tung Truong	U.S. Nuclear Regulatory Commission		X
William Ward	U.S. Nuclear Regulatory Commission	X	X

Enclosure

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(Revised 05/18/2011)

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