

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

January 7, 2010

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-10001

**Subject: MHI's 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> Responses to NRC's Requests for Additional Information on US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P (R0)**

- References:**
- 1) "REQUEST FOR ADDITIONAL INFORMATION, MARVEL-M Theory Manual GEN-LP-480, US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P(R0)", dated November 23, 2009.
  - 2) "REQUEST FOR ADDITIONAL INFORMATION, US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P(R0)", dated November 23, 2009.
  - 3) "REQUEST FOR ADDITIONAL INFORMATION, US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P(R0)", dated December 10, 2009.

Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") the document entitled "MHI's 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> Responses to NRC's Requests for Additional Information on US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P (R0)". The enclosed materials provide MHI's responses to the NRC's Requests for Additional Information ("RAIs") (References 1, 2, and 3). MHI has previously responded to RAIs on the Non-LOCA Topical Report in MHI letters: UAP-HF-08141 dated August 22, 2008, UAP-HF-08170 dated September 12, 2008, UAP-HF-08245 dated November 19, 2008, UAP-HF-09040 dated February 12, 2009, and UAP-HF-09358 dated July 10, 2009. Additional proprietary supporting materials for the RAI response are provided on an Optical Storage Medium ("OSM"). The OSM contains MARVEL-M input data, Excel spreadsheets, the document "MARVEL-M: A Digital Computer Code for Transient Analysis of a Multi-Loop PWR System GEN0-LP-480(R8)", and the document "Numerical Experiments of Coolant Mixing in a Lower Plenum of PWR under Asymmetric Thermal-Hydraulics Conditions". The specific files contained on the OSM are listed on the associated enclosure cover sheet.

As indicated in the enclosed materials, Enclosures 2, 3, 4, and 5 contain information that MHI considers proprietary, and therefore should be withheld from public disclosure pursuant to 10 C.F.R. § 2.390 (a)(4) as trade secrets and commercial or financial information which is privileged or confidential.

This letter includes a copy of the proprietary version of the RAI responses (Enclosures 2, 3, and 4), additional proprietary supporting documentation provided on an OSM (Enclosure 5), and the Affidavit of Yoshiki Ogata (Enclosure 1) which identifies the reasons MHI respectfully requests that all material designated as "Proprietary" in Enclosures 2, 3, 4, and 5 be withheld from disclosure pursuant to 10 C.F.R. § 2.390 (a)(4).

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

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information is provided below.

Sincerely,



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

Enclosures:

1. Affidavit of Yoshiaki Ogata
2. MHI's 6<sup>th</sup> Response to NRC's Requests for Additional Information on MARVEL-M Theory Manual GEN0-LP-480, US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P (R0) (proprietary)
3. MHI's 7<sup>th</sup> Response to NRC's Requests for Additional Information on US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P (R0) (proprietary)
4. MHI's 8<sup>th</sup> Response to NRC's Requests for Additional Information on US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P (R0) (proprietary)
5. OSM: Additional Supporting Documentation (proprietary)

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

Contact Information

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

## ENCLOSURE 1

Docket No. 52-021

MHI Ref: UAP-HF-10001

### MITSUBISHI HEAVY INDUSTRIES, LTD.

#### AFFIDAVIT

I, Yoshiki Ogata, being duly sworn according to law, depose and state as follows:


1. I am General Manager, APWR Promoting Department, of Mitsubishi Heavy Industries, Ltd. ("MHI"), and have been delegated the function of reviewing MHI's US-APWR documentation to determine whether it contains information that should be withheld from disclosure pursuant to 10 C.F.R. § 2.390 (a)(4) as trade secrets and commercial or financial information which is privileged or confidential.
2. In accordance with my responsibilities, I have reviewed the enclosed documents entitled "MHI's 6<sup>th</sup> Response to NRC's Requests for Additional Information on MARVEL-M Theory Manual GEN0-LP-480, US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P (R0)", "MHI's 7<sup>th</sup> Response to NRC's Requests for Additional Information on US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P (R0)", and "MHI's 8<sup>th</sup> Response to NRC's Requests for Additional Information on US-APWR Topical Report: Non-LOCA Methodology, MUAP-07010-P (R0)" and the enclosed Optical Storage Medium ("OSM"), all dated January 7, 2010, and have determined that the documents contain proprietary information that should be withheld from public disclosure. The OSM contains the proprietary document "MARVEL-M: A Digital Computer Code for Transient Analysis of a Multi-Loop PWR System GEN0-LP-480(R8)", Enclosure 5 File 2, two proprietary MARVEL-M input files, Enclosure 5 Files 3 and 4, two proprietary Excel spreadsheets, Enclosure 5 Files 5 and 6, and the non-proprietary document "Numerical Experiments of Coolant Mixing in a Lower Plenum of PWR under Asymmetric Thermal-Hydraulics Conditions", Enclosure 5 File 7. The labels on the OSM have been marked to indicate that the entire contents of the OSM should be withheld from public disclosure pursuant to 10 C.F.R. § 2.390 (a)(4).
3. The basis for holding the referenced information confidential is that it describes the unique design of the safety analysis, developed by MHI (the "MHI Information").
4. The MHI Information is not used in the exact form by any of MHI's competitors. This information was developed at significant cost to MHI, since it required the performance of research and development and detailed design for its software and hardware extending over several years. Therefore public disclosure of the materials would adversely affect MHI's competitive position.
5. The referenced information has in the past been, and will continue to be, held in confidence by MHI and is always subject to suitable measures to protect it from unauthorized use or disclosure.
6. The referenced information is not available in public sources and could not be gathered readily from other publicly available information.
7. The referenced information is being furnished to the Nuclear Regulatory Commission

("NRC") in confidence and solely for the purpose of supporting the NRC staff's review of MHI's application for certification of its US-APWR Standard Plant Design.

8. Public disclosure of the referenced information would assist competitors of MHI in their design of new nuclear power plants without the costs or risks associated with the design and testing of new systems and components. Disclosure of the information identified as proprietary would therefore have negative impacts on the competitive position of MHI in the U.S. nuclear plant market.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed on this 7<sup>th</sup> day of January, 2010.



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Yoshiaki Ogata