

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

August 31, 2011

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-11292

**Subject: Transmittal of the Technical Reports related to Reactor Internals  
(MUAP-070023 Revision 2 and MUAP-07027 Revision 2)**

**References:** [1] Letter MHI Ref: UAP-HF-10254 from Y. Ogata (MHI) to U.S. NRC, "MHI's Response to US-APWR DCD RAI No.614-4853" dated Sep.16,2010.

The purpose of this letter is to formally transmit the revised technical reports entitled "APWR Reactor Internals 1/5 Scale Model Flow Test Report " (MUAP-07023, Revision 2) and "Comprehensive Vibration Assessment Program for US-APWR Reactor Internals" (MUAP-07027, Revision 2) from Mitsubishi Heavy Industries, Ltd. ("MHI") to the U.S. Nuclear Regulatory Commission ("NRC").

As proposed in the enclosure document attached to the letter (Reference [1], Enclosure 1), the following are the principal changes from the previous revision of the reports:

1. APWR Reactor Internals 1/5 Scale Model Flow Test Report

In accordance with the response to RAI No.614-4853 Question 03.09.02-89 transmit by Reference [1] , the interface test data used for the analysis of US-APWR Reactor Internals was identified in additional Chapter 8.

2. Comprehensive Vibration Assessment Program for US-APWR Reactor Internals

Response analysis was revised with the modified cross flow forcing function in the upper plenum structures to improve the margin of safety to the high cycle fatigue. The related discussion in RAI No.614-4853 Question 03.09.02-90 was included in Appendix-J of this report. The discussions in RAI No. 498-3782 Question 03.09.02-65 and Question 03.09.02-84 were included in Appendix-F. The discussion in RAI No. 498-3782 Question 03.09.02-66 was included in Appendix G. The discussion in RAI No. 498-3782 Question 03.09.02-68 was included in Appendix H. The discussion in RAI No. 646-5065 Question 03.09.02-92 was included in Appendix K.

As indicated in the enclosed materials, this document contains 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. A non-proprietary version of the document is also being submitted with the information identified as proprietary redacted and replaced by the designation "[ ]".

Enclosed are 2 copies of the proprietary version (Enclosure 2 and 4) and 2 copies of the

DOB  
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non-proprietary version (Enclosure 3 and 5), and the Affidavit of Yoshiki Ogata (Enclosure 1) which identifies the reasons MHI respectfully requests that all materials designated as "Proprietary" in Enclosure 2 and 4 be withheld from public 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 the submittals. His contact information is below.

Sincerely,



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

Enclosures:

1. Affidavit of Yoshiki Ogata
2. CD1: APWR Reactor Internals 1/5 Scale Model Flow Test Report (MUAP-07023-P Rev.2)  
- Version Containing Proprietary Information
3. CD2: APWR Reactor Internals 1/5 Scale Model Flow Test Report (MUAP-07023-NP Rev.2)  
- Version **Not** Containing Proprietary Information
4. CD3: Comprehensive Vibration Assessment Program for US-APWR Reactor Internals  
(MUAP-07027-P Rev.2) - Version Containing Proprietary Information
5. CD4: Comprehensive Vibration Assessment Program for US-APWR Reactor Internals  
(MUAP-07027-NP Rev.2) – Version **Not** Containing Proprietary Information

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

Contact Information

C. Keith Paulson, Senior Technical Manager  
Mitsubishi Nuclear Energy Systems, Inc.  
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Telephone: (412) 373 – 6466

## ENCLOSURE 1

Docket No.52-021

### MITSUBISHI HEAVY INDUSTRIES, LTD.

#### AFFIDAVIT


I, Yoshiki Ogata, 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 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.
2. In accordance with my responsibilities, I have reviewed the enclosed document entitled "APWR Reactor Internals 1/5 Scale Model Flow Test Report" dated August 2011 and "Comprehensive Vibration Assessment Program for US-APWR Reactor Internals" dated August 2011, and have determined that portions of the document contain proprietary information that should be withheld from public disclosure. Those pages containing proprietary information are identified with the label "Proprietary" on the top of the page and the proprietary information has been bracketed with an open and closed bracket as shown here "[ ]". The first page of the document indicates that all information identified as "Proprietary" should be withheld from public disclosure pursuant to 10 C.F.R. § 2.390 (a)(4).
3. The information identified as proprietary in the enclosed document has in the past been, and will continue to be, held in confidence by MHI and its disclosure outside the company is limited to regulatory bodies, customers and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and is always subject to suitable measures to protect it from unauthorized use or disclosure.
4. The basis for holding the referenced information confidential is that it describes the unique design, test results, and analyses results performed by MHI not used in the exact form by any 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.
5. The referenced information is being furnished to the Nuclear Regulatory Commission ("NRC") in confidence and solely for the purpose of information to the NRC staff.
6. The referenced information is not available in public sources and could not be gathered readily from other publicly available information. Other than through the provisions in paragraph 3 above, MHI knows of no way the information could be lawfully acquired by organizations or individuals outside of MHI.
7. Public disclosure of the referenced information would assist competitors of MHI in their design of new nuclear power plants without incurring the costs or risks associated with the design of the subject systems. Therefore, disclosure of the information contained in the referenced document would have the following negative impacts on the competitive position of MHI in the U.S. nuclear plant market:

- A. Loss of competitive advantage due to the costs associated with the development of the test configuration, methodology, procedure and the test results. Providing public access to such information permits competitors to duplicate or mimic the methodology without incurring the associated costs.
- B. They include the know-how and outputs of analyses used by mathematical models developed at significant cost to MHI. Since these required the performance of detailed design calculations, supporting analyses and testing extending over several years. The referenced information is not available in public sources and could not be gathered readily from other publicly available information. MHI knows of no way the information could be lawfully acquired by organizations or individuals outside of MHI.

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 31st day of August, 2011.

A handwritten signature in black ink, appearing to read "Y. Ogata". The signature is written in a cursive, somewhat stylized font.

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

**ATTACHMENT 1**

**FILE CONTAINED IN CD 1**

**CD 1: “APWR Reactor Internals 1/5 Scale Model Flow Test Report (MUAP-07023-P Rev.2)”  
– Version Containing Proprietary Information**

**Contents of CD**

<b><u>File Name</u></b>	<b><u>Size</u></b>	<b><u>Sensitivity Level</u></b>
001 MUAP-07023-P-R2.pdf	49.4 MB	Proprietary

**ATTACHMENT 2**

**FILE CONTAINED IN CD 2**

**CD 2: "APWR Reactor Internals 1/5 Scale Model Flow Test Report (MUAP-07023-NP Rev.2)"  
– Version Not Containing Proprietary Information**

**Contents of CD**

<u>File Name</u>	<u>Size</u>	<u>Sensitivity Level</u>
001 MUAP-07023-NP-R2.pdf	256KB	Non-Proprietary

**ATTACHMENT 3**

**FILE CONTAINED IN CD 3**

**CD 3: “Comprehensive Vibration Assessment Program for US-APWR Reactor Internals (MUAP-07027-P Rev.2)”  
– Version Containing Proprietary Information**

**Contents of CD**

<u>File Name</u>	<u>Size</u>	<u>Sensitivity Level</u>
001 MUAP-07027-P-R2.pdf	16.9 MB	Proprietary

**ATTACHMENT 4**

**FILE CONTAINED IN CD 4**

**CD 4: “Comprehensive Vibration Assessment Program for US-APWR Reactor Internals (MUAP-07027-NP Rev.2)”  
– Version Not Containing Proprietary Information**

**Contents of CD**

<u>File Name</u>	<u>Size</u>	<u>Sensitivity Level</u>
001 MUAP-07027-NP-R2.pdf	5.74 MB	Non-Proprietary