


MITSUBISHI HEAVY INDUSTRIES, LTD.
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TOKYO, JAPAN

Decemberr 21, 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-10338

Subject: Response to the NRC Request for Additional Information on "Thermal Design Methodology" MUAP-07009

References: 1) "Request for Additional Information Topical Report Thermal Design Methodology MUAP-07009-P, dated December 3, 2010.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Response to the NRC Request for Additional Information on "Thermal Design Methodology" MUAP-07009".

Enclosed are the responses to 2 RAIs contained within Reference 1. Additional supporting materials for the RAI responses are provided on an Optical Storage Medium ("OSM"). The specific files contained on the OSM are listed on the associated enclosure cover sheet.

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 "[]".

This letter includes a copy of the proprietary version of the response (Enclosure 2), a copy of the non-proprietary version of the response (Enclosure 3), an OSM (Enclosure 4) and the Affidavit of Yoshiki Ogata (Enclosure 1) which identifies the reasons MHI respectfully requests that all materials designated as "Proprietary" in Enclosure 2 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. Response to the NRC Request for Additional Information on "Thermal Design Methodology" MUAP-07009 (proprietary version)
3. Response to the NRC Request for Additional Information on "Thermal Design Methodology" MUAP-07009 (non-proprietary version)
4. OSM: Additional Supporting Documentation

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

Contact Information

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Enclosure 1

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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 "Response to the NRC Request for Additional Information on "Thermal Design Methodology", MUAP-07009 Rev. 0" (Enclosures 2 and 3) and the enclosed Optical Storage Medium ("OSM", Enclosure 4) all dated October 4, 2010 and have determined that portions of the document contain proprietary information that should be withheld from public disclosure. Those pages of Enclosure 2 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 OSM (Enclosure 4) contains the proprietary document "VIPRE-01M Code Manual, 5*AS-UAP-20090052 Rev. 2". The all information in the OSM 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 thermal and hydraulic design developed by MHI and not being 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 thermal and hydraulic design. Providing public access to such information permits competitors to duplicate or mimic the methodology without incurring the associated costs.
- B. Loss of competitive advantage of the US-APWR created by benefits of enhanced plant safety, and reduced operation and maintenance costs associated with the thermal and hydraulic design.

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 21th day of December, 2010.



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

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Enclosure 3

UAP-HF-10338, Rev.0
Docket No. 52-021

Response to the NRC Request for Additional Information on "Thermal
Design Methodology", MUAP-07009

December 2010
(Non-Proprietary)

Response to the NRC Request for Additional Information on
"Thermal Design Methodology" MUAP-07009

Non-Proprietary Version

1. *The DNBR correlation limits have been stated in a RAI response to the Topical Report MUAP-07009. How will users of the code be made aware of the correlation limits? What document(s) would be modified?*

Response:

In the calculation of minimum DNBRs, VIPRE-01M internally checks the validity of all involved input parameters needed for the selected design DNB correlation or correlations (e.g., WRB-1, WRB-2, and/or W-3) against those applicable ranges described in Topical Report MUAP-07009 and in the response to RAI. If any of the parameters violate the applicable ranges, VIPRE-01M shall print out the error messages that are warranted.

To make sure that the users are aware in case that any correlation range is violated, the user manual of VIPRE-01M, CODET-M-07-0002 Rev. 2 have been revised to Rev. 3 so as to require that users check at the end of each computer run if the above messages emerge. This action is dictated by the checklist described in the response to the next RAI item.

The English translation of the user manual has been also revised (Ref. 1-1). This document is a MHI property document, and is provided in Enclosure 4 of MHI letter UAP-HF-10338.

Reference

- 1-1 M. Kawachi, "VIPRE-01M Code Manual," 5*AS-UAP-20090052 Rev. 1 (Translation of CODET-M-07-0002 Rev. 3, MHI proprietary)

2. *As part of the code development and usage process a series of checklists are used. Does the code developer and user checklists including checking and depositing code warning messages and non-fatal errors? If not, explain why it is not necessary.*

Response:

In accordance with MHI's document control procedure, the designers (including code developers and users) shall fill out the checklist designated at each division when any kind of the documents is issued. While the existing checklists include the items relevant to verification of the analysis results, those have not included checking and depositing code warning messages as well as non-fatal errors. MHI is incorporating this element [

] into the
checklists to accommodate the NRC requirement.

Enclosure 4

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Contents of OSM:
Additional Supporting Documentation

December 2010

	<u>File Name</u>	<u>Size</u>	<u>Sensitivity Level</u>
1.	001_Reference-1-1	1,297 KB	Proprietary