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TOKYO, JAPAN

April 14, 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-11105

**Subject: Amended MHI's Response to US-APWR DCD RAI No. 274-2126 REVISION 1
(SRP 05.04.01.01)**

- Reference:** 1) "Request for Additional Information No. 274-2126 Revision 1, SRP Section: 05.04.01.01 – Pump Flywheel Integrity (PWR): Application Section 5.4.1.1", dated March 11, 2009.
2) "MHI's Response to US-APWR DCD RAI No. 274-2126 Revision 1", UAP-HF-09208, dated April 28, 2009.
3) "Amended MHI's Response to US-APWR DCD RAI No.274-2126 Revision 1", UAP-HF-11051, dated February 25, 2011.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Amended Response to Request for Additional Information No. 274-2126 Revision 1."

Enclosed is the response to the RAI contained within Reference 1.

This response amend the previously transmitted responses submitted under MHI's Reference UAP-HF-09028 on April 28, 2009 (Reference 2) in order to correct description of responses to US-APWR DCD RAI No. 274-2126 Revision 1, and so to withdraw MHI's Reference UAP-HF-11051 on February 25, 2011 (Reference 3).

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,



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



Enclosures:

1. Amended Response to Request for Additional Information No. 274-2126 Revision 1

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

Contact Information

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Docket No. 52-021
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Enclosure 1

UAP-HF-11105
Docket Number 52-021

Amended Response to Request for Additional Information
No. 274-2126 REVISION 1

April 2011

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

04/14/2011

**US-APWR Design Certification
Mitsubishi Heavy Industries
Docket No. 52-021**

RAI NO.: NO.274-2126 REVISION 1
SRP SECTION: 05.04.01.01 - Pump Flywheel Integrity (PWR)
APPLICATION SECTION: 5.4.1.1
DATE OF RAI ISSUE: 3/11/2009

QUESTION NO. : 05.04.01.01-3

RG 1.14, Section C.4.a states that following the spin test, each finished flywheel receives a check of critical dimensions, and a non-destructive examination. The nondestructive examination includes surface examination of areas of high stress concentrations using procedures in accordance with NB-2540, and acceptance criteria in NB-2545 or NB-2546 of Section III to the ASME Code, and a 100 percent volumetric examination using procedures and acceptance criteria specified in accordance with NB-2530 or NB-2540 of Section III to the ASME Code. Revise the DCD to provide the following information in sections 5.4.1.1.1 and 5.4.1.1.2 to address the above guidance in RG 1.14. Provide a copy of the revised sections and specify in which revision of the DCD the changes will appear.

- a) Specify that the surface and volumetric examinations will be performed after the spin test so that any flaws that have initiated or grown during the spin test can be detected.
- b) Specify that the flywheel will be inspected for critical dimensions after the spin test so that any dimensional changes can be detected.
- c) Specify what the inspection procedures will be qualified to, and include the acceptance criteria.

ANSWER:

The DCD will be changed reflecting NRC comments. These are the comments related to PSI test, so we will change the section 5.4.1.1.2.

05.04.01.01-1

Impact on DCD

DCD Subsection 5.4.1.1.2 will be changed as indicated in the attached mark-up.

Impact on R-COLA

There is no impact on R-COLA.

Impact on S-COLA

There is no impact on S-COLA.

Impact on PRA

There is no impact on the PRA.

5.4.1.1.2 Fabrication and Inspection

The flywheel consists of two thick plates bolted together. The flywheel material is produced by a process that minimizes flaws in the material and improves its fracture toughness properties, i.e., an electric furnace with vacuum degassing. Each plate is fabricated from SA-533, Grade B, Class 1 steel. Flywheel blanks are cut from SA-533, Grade B, Class I plates with at least 1/2 in. of stock remaining on the outer surface and bore surface for machining to final dimensions. All welding, including tack welding and repair welding should be prohibited for the flywheels.

Finished machined bore, keyways, and drilled holes are subjected to magnetic particle or liquid penetrant examination in order to meet the requirements of Article NB-2545 or NB-2546 of Section III of the ASME Code. Finished flywheels, as well as the flywheel material, are subjected to 100% volumetric ultrasonic inspection in accordance with procedures and acceptance standards specified in Article NB-2530 of Section III of the ASME Code (Ref. 5.4-14).

The surface and volumetric examinations will be performed after the overspeed test so that any flaws that have initiated or grown during the overspeed test can be detected. The flywheel will be inspected for critical dimensions after the overspeed test so that any dimensional changes can be detected. With respect this test procedure, it should be decided qualified test procedure and acceptance criteria.

Flywheels are inspected by a program based on the recommendations of RG 1.14, which references Section XI of the ASME Code (Ref. 5.4-9, 15). The inspection program is discussed in Technical Specification 5.5.7, Reactor Coolant Pump Flywheel Inspection Program and Technical Report "Justification for 20 Years Inspection Interval for Reactor Coolant Pump Flywheel" (Ref. 5.4-23).

Note: Third paragraph of Subsection 5.4.1.1.2 (indicated in bold and italic letters) was provided in MHI letter, UAP-HF-09208, dated April 28 2009.