April 27, 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-10123

Subject: MHI's Responses to US-APWR DCD RAI No.556-4269 Revision 2

Reference: 1) "Request for Additional Information No. 556-4269 REVISION 2, SRP

Section: 09.05.07 – Emergency Diesel Engine Lubrication System,

Application Section: 9.5.7, dated March 23, 2010.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Response to Request for Additional Information No.556-4269 Revision 2."

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

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

y. Oguter

Mitsubishi Heavy Industries, LTD.

Enclosure:

1. Responses to Request for Additional Information No.556-4269 Revision 2

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: ck_paulson@mnes-us.com Telephone: (412) 373-6466

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Docket No. 52-021 MHI Ref: UAP-HF-10123

Enclosure 1

UAP-HF-10123 Docket No. 52-021

Response to Request for Additional Information No. 556-4269 Revision 2

April 2010

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

4/27/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:

NO. 556-4269 REVISION 2

SRP SECTION:

09.05.07 - Emergency Diesel Engine Lubrication System

APPLICATION SECTION:

9.5.7

DATE OF RAI ISSUE:

3/23/2010

QUESTION NO.: 09.05.07-24

In response to RAI 09.05.07-15, which questioned the bases for the 81 gallon inventory limit, the applicant proposed to add a design requirement to the US-APWR DCD to require that lube oil consumption be 0.053 gal/hr or less. This RAI also questioned the apparent discrepancy between the 74 gal minimum specified in MUAP-07024-P and the 72 gal that would be remaining after 7 days operation at the design consumption rate. The applicant responded that 74 gal is a typical minimum allowable level by the manufacturer. This response does not adequately resolve the staff's questions regarding the requirements for lube oil consumption and inventory. Therefore the applicant should address the following issues:

- a. The specified maximum design lube oil consumption rate of 0.053 gal/hr does not specify a corresponding design GT load or operating life. If the design operating load condition maximizes the lube oil consumption rate, then this should be included in the design basis. In addition, if the lube oil consumption increases with the operating life of the GT, then the design consumption rate should be based on operation just prior to engine overhaul or other appropriate basis.
- b. The minimum lube oil inventory should be more specifically defined in the FSAR as a design requirement. The engine design requirements should include the minimum lube oil inventory required for continuous full-load operation without damage to the engine. In addition, MUAP-07024-P should be revised to be consistent with the Technical Specifications.

REFERENCE: MHI's Responses to US-APWR DCD RAI No. 320-2010; MHI Ref: UAP-HF-09294; dated June 9, 2009; ML091630627.

ANSWER:

a. The lube oil consumption rate of 0.053 gal/hr is based on full load operation of gas turbine engine including taking into consideration the operating design life with appropriate maintenance.

Last sentence of third paragraph in Subsection 9.5.7.2 will be revised to specify a corresponding design GT load and operating life.

b. DCD Subsection 9.5.7.2 will be revised to define the minimum lube oil inventory for continuous full load operation of the GT. MUAP-07024-P will be revised to be consistent with the Technical Specification.

Impact on DCD

Third paragraph of DCD Subsection 9.5.7.2 will be revised as below:

When the GTG is operating, circulation is accomplished by the gas turbine shaft driven pumps, which draw oil from the reduction gear oil reservoir through a suction strainer, and passes it through a full-flow filter, a strainer, and air cooled lube oil cooler before distribution to the bearings. Requirement specification of fuel oil consumption is 0.053 gal/h or less with rated load operation of the GT including consideration for increased lube oil consumption during design life with appropriate maintenance. The minimum lube oil inventory for seven days full-load operation is 81 gal.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.