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TOKYO, JAPAN

July 13, 2009

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-09377

Subject: MHI's Response to US-APWR DCD RAI No.399-2992 Revision 0

 References: 1) "Request for Additional Information No.399-2992 Revision 0, SRP Section: 16 – Technical Specifications, Application Section: TS Section 3.4" dated June 18, 2009.

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.399-2992 Revision 0".

Enclosed is the response to one 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,

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

Enclosure:

1. Response to Request for Additional Information No. 399-2992, Revision 0

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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Enclosure 1

UAP-HF-09377 Docket Number 52-021

Response to Request for Additional Information No. 399-2992, Revision 0

July, 2009

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

7/13/2009

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

RAI NO.: NO. 399-2992 REVISION 0

SRP SECTION: 16 - TECHNICAL SPECIFICATIONS

APPLICATION SECTION: 16

DATE OF RAI ISSUE: 6/18/2009

QUESTION NO.: 16-298

TS 3.4.9, Pressurizer.

Provide justification for the selected pressurizer water level limit of 92% specified in LCO 3.4.9.a and SR 3.4.9.1. Revise LCO 3.4.9.a, SR 3.4.9.1 and the associated TS bases, as appropriate.

In the APWR DCD Section 15.2, the initial conditions of the pressurizer water volume assumed in all heatup transients are below 1500 cu-ft. (see Figures 15.2.1-4, 15.2.7.4 and 15.2.8-3) which is less than 50% of the total pressurizer water volume (3000 cu-ft). A heatup transient or accident initiated at 92% pressurizer water level constitutes an unanalyzed event which could lead to a water solid pressurizer and liquid release through the pressurizer safety valves.

This information is needed to ensure adequacy and completeness of LCO 3.4.9 requirements.

ANSWER:

TS 3.4.9 provides the maximum pressurizer water level (\leq 92%). As the B 3.4.9 Pressurizer Bases state, the intent of the maximum pressurizer level LCO is to assure that a steam bubble exists; and the level LCO represents the minimum steam space needed for pressure control. As with any TS LCO limit, the nominal operating point is selected so there is operating margin to the LCO limit.

The safety analyses in Chapter 15 assume the nominal pressurizer water level (approximately 44%) plus uncertainty for the initial condition. This approach is analogous to and consistent with initial conditions for DNB events. For DNB events that utilize the Revised Thermal Design Procedure (RTDP), the initial conditions for average temperature, RCS pressure, and power are assumed at the nominal operating conditions. These conditions are pre-defined and maintained by plant control systems including the rod control system and pressurizer pressure control system. When these control systems are unavailable or in manual control, the plant is maintained at the nominal conditions by the operator. The uncertainties for these parameters are statistically treated as part of the approved RTDP. For DNB events that do not use the RTDP, the initial conditions for average temperature, RCS pressure, and power are assumed at the nominal conditions for average temperature, RCS pressure, and power are assumed at the nominal conditions for average temperature, RCS pressure, and power are assumed at the nominal conditions for average temperature, RCS pressure, and power are assumed at the nominal condition with the normal uncertainties applied in the conservative direction for each of the parameters. The uncertainties include both process measurement uncertainty and control

system deadbands. Similarly, for events resulting in a challenge to filling the pressurizer, the initial pressurizer water level is the nominal level as predefined and maintained by the pressurizer level control system, with the uncertainty applied in the conservative direction.

Impact on DCD

There is no impact on the DCD.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

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There is no impact on the PRA.