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

December 11, 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-09556

Subject: MHI's Response to US-APWR DCD RAI No. 492-3898 Rev. 1

Reference: 1) "Request for Additional Information No. 492-3898 Revision 1, SRP Section: 15.00.03 – 15.00.03 - Design Basis Accidents Radiological Consequence Analyses for Advanced Light Water Reactors, Application Section: 15.0.3" dated 11/23/2009.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") documents entitled "Response to Request for Additional Information No. 492-3898 Rev. 1".

Enclosed 1 provides the response to the 1 question that is 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,

Y. Ogata

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

Enclosure:

1. Response to Request for Additional Information No. 492-3898 Revision 1

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

D081
NRO

Docket No. 52-021
MHI Ref: UAP-HF-09556

Enclosure 1

UAP-HF-09556
Docket No. 52-021

Response to Request for Additional Information No. 492-3898
Revision 1

December 2009

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

12/11/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No.52-021

RAI NO.:	**NO. 492-3898 REVISION 1**
SRP SECTION:	**15.00.03 – Design Basis Accidents Radiological Consequence Analyses for Advanced Light Water Reactors**
APPLICATION SECTION:	**15.0.3**
DATE OF RAI ISSUE:	**11/23/2009**

QUESTION NO. : 15.00.03-32

Background

In the response to Question 15.00.03-29 (Ref. 1), the applicant stated that the volume of water assumed in calculating the post-accident pH to determine the minimum required amount of NaTB buffer is 879,690 gallons (3,330 m^3). However, in DCD Table 6.2.5-1, the maximum RWSP volume is given as 651,000 gallons. Further, the response to RAI 15.00.03-27 indicated that 134,730 gallons of RCS water was assumed to be discharged to the sump. The sum of 651,000 gallons plus 134,730 gallons equals 785,730 gallons, which is considerably less than the figure of 879,690 gallons.

Requested Information

Please explain the basis for the use of 879,690 gallons for calculating the minimum amount of buffer. The basis should detail the contributions from the various volumes such as the RWSP, RCS, accumulators, any other significant contributions, and any margin added for conservatism.

References

1. Letter from Yoshiki Ogata to NRC dated July 13, 2009, Docket No. 52-021, MHI Ref: UAP-HF-09373 Subject: MHI's Response to US-APWR DCD RAI No. 390-3088 Rev. 0 (ADAMS Accession No. ML091602680)

ANSWER:

The basis for 3,330 m^3(879,690 gallons), which is used to calculate the minimum buffering agent volume, is shown in Table 1. Margin is not considered except the round-up.

Table 1 Basis for calculating the minimum amount of the buffering agent

Water source	Volume (m^3)	Basis
RWSP	2,520	Maximum RWSP inventory at normal operation (See Figure 1). (1) 0 ~ 100% volume: 81,307.6 ft^3 (2) Volume below 0% (excluding sump pit): 5,678.3 ft^3 (3) Sum of four sump pits volume: 1,045.7 ft^3 (1)+(2)+(3) = 88,031.6 ft^3 ≈ 89,000 ft^3 (2,520 m^3)
Accumulators	300	Total accumulator water volume = [tank total volume - tank minimum gas space volume] x [Number of Accumulator] = (90m^3 - 15.3m^3) x 4 = 298.8 m^3 ≈ 300 m^3
RCS	510	RCS volume including pressurizer full volume : 502.6 m^3 ≈ 510 m^3
Total	3,330	2,520 + 300 + 510 = 3,330

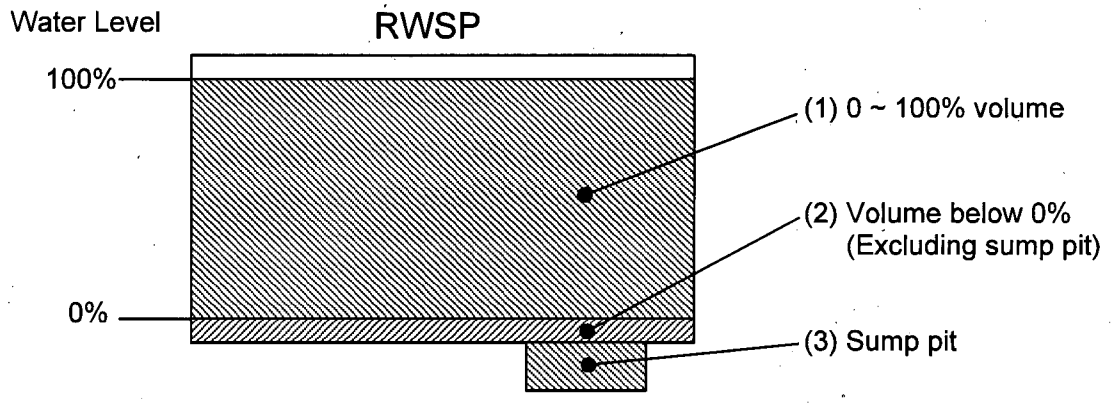

Figure 1 Areas for calculating water volume in RWSP

Impact on DCD

There is no impact on the DCD.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.