

December 29, 2006

APPLICANT: MITSUBISHI HEAVY INDUSTRIES (MHI)

PROJECT: US-APWR STANDARD DESIGN PRE-APPLICATION REVIEW

SUBJECT: SUMMARY OF NOVEMBER 29, 2006, PUBLIC MEETING TO DISCUSS MHI'S PROPOSED TOPICAL REPORT ON THE ADVANCED ACCUMULATOR (TAC NO. MD2767)

On November 29, 2006, an open and closed Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) staff and representatives of MHI at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to discuss MHI's plans to submit a topical report on the advanced accumulator design, as part of their pre-application activities related to the US-APWR design certification. MHI intends to submit a design certification application for the US-APWR in December 2007. A list of attendees is provided as Enclosure 1. MHI presented handouts that are shown in Enclosure 2 and can be assessed through the Agencywide Documents Access and Management System (ADAMS) accession number ML063350022).

MHI opened the meeting by describing the design features of the advanced accumulator. The US-APWR is a four loop system with each advanced accumulator connected to one reactor coolant system (RCS) cold leg. Although the US-APWR has a high head safety injection system, the advanced accumulator system substitutes for a low head and immediate head safety injection system. A central point of the advanced accumulator is the flow damper located inside each advanced accumulator. The flow damper serves to provide either a small or large flow rate to the RCS during a large break loss-of-coolant-accident.

Next, MHI discussed the characteristics of the advanced accumulator design. The advanced accumulator is pressurized with nitrogen gas. Reactor coolant flow from the accumulator to the RCS is controlled by the flow damper and high and low level instrumentation. This flow damper has several design features, such as the standpipe, small flow pipe, and anti-vortex cap. The anti-vortex cap is installed on the inlet of the standpipe to prevent the formation of a vortex and to increase reactor coolant flow into the flow damper. At high level inside the accumulator, reactor coolant flows through the standpipe and small flow pipes to provide a large flow rate to the RCS. When the level inside the advanced accumulator decreases to the low level, reactor coolant flow into the standpipe stops. Reactor coolant continues to flow through the small flow pipe to the RCS. During this low level flow, the reactor coolant flow through the small pipe forms a vortex that maintains the reactor coolant inside the standpipe, thus preventing nitrogen gas from entering the RCS.

MHI presented the results of the testing that was performed on the flow damper, anti-vortex cap, and standpipe. MHI described their testing apparatus, testing equipment, scale models, number of tests conducted, and results. During the closed portion of the meeting, MHI presented the performance requirements and the design parameters for the advanced

accumulator. The NRC staff provided feedback throughout the presentation. The NRC staff questioned MHI on whether any nuclear plants in Japan used the advanced accumulator design. MHI stated that while there are no nuclear plants in Japan that utilize the advanced accumulator, there is a plant under construction that will use the advanced accumulator design. MHI plans to submit the advanced accumulator topical report in January 2007. The NRC staff queried MHI on the review time for this topical report and MHI stated they would like to have the NRC staff complete their review within 12 to 15 months. The NRC staff pledged to continue to communicate frequently with MHI during the topical report review process.

Members of the public were in attendance, but Public Meeting Feedback forms were not received. Please direct any inquiries to me at 301-415-1544, or [srm2@nrc.gov](mailto:srm2@nrc.gov).

**/RA/**

Stephen Raul Monarque  
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Project No. 751

Enclosures:

1. List of Attendees
2. Mitsubishi Handout - US-APWR 3<sup>rd</sup>  
Pre-Application Review Meeting  
Advanced Accumulator (ML063350022)

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ADAMS Accession No: ML063480160

Pkg ML063480178

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DATE	12/21/06	12/26/06	12/29/06

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Attendees

Public Meeting to Discuss

Mitsubishi Heavy Industries' (MHI's) US-APWR

Advanced Accumulator Topical Report

November 29, 2006

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Edward Throm	NRC
Sam Miranda	NRC
Y. Gene Hsui	NRC
Ryuji Iwasaki	Toshiba
Ashok Thadani	Nuclear Energy Consultants
William Mills	Nuclear Energy Consultants
Alan Levin	AREVA
David Bessette	NRC
Stephen Monarque	NRC
Douglas Wood	Advent Engineering
Toshisada Kato	MHI
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Paul Gaukler	Pillsbury Winthrop Shaw Pittman
Takahiro Imamura	MNES
Masayuki Kambara	MHI
Kiyoshi Yamauchi	MHI
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Hiroshi Sano	MHI
Hiroshi Hamamoto	MHI
Tadashi Shiraishi	MHI

Distribution for 11/29/2006, Meeting Summary dated January , 2006

SUBJECT: SUMMARY OF NOVEMBER 29, 2006, PUBLIC MEETING TO DISCUSS MHI'S  
PROPOSED TOPICAL REPORT ON THE ADVANCED ACCUMULATOR  
(TAC NO. MD2767)

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