Jeff Ciocco

From: Jeff Ciocco
Sent: Monday, August 11, 2008 2:21 PM
To: us-apwr-rai@mhi.co.jp
Cc: Tanya Ford; Joseph Donoghue; William Ward; Larry Burkhart
Subject: US-APWR Design Certification Application RAI No.48-840
Attachments: US-APWR DC RAI 48 SRSB 840 _2_.pdf

MHI,

Attached please find the subject request for additional information (RAI). This RAI was sent to you in draft form. The schedule we established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. However you have requested and are granted a 45 day response time. Please submit your RAI response to the NRC Document Control Desk.

Thanks,

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REQUEST FOR ADDITIONAL INFORMATION NO. 48-840 REVISION 0

8/11/2008

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 05.04.12 - Reactor Coolant System High Point Vents

Application Section: 5.4.12

SRSB Branch

QUESTIONS

05.04.12-1

RAI 5.4.12-1

Section 5.4.12.2 of DCD indicated that the reactor vessel head vent system consists of a flow path that diverges into two parallel paths each with two redundant motor operated remote manual valves in series. Also, each valve connected in series is powered by the independent Class 1E power supply. Please provide detailed discussion for the Class 1E power supplies to each of the four valves in the redundant vent flow path and demonstrate that at least one of the redundant vent flow path will open on demand and be able to isolate after the flow path is opened with the capability of preventing inadvertent or irreversible actuation of a vent path following a single failure of an active component, mechanically or electrically.

(These regulatory criteria are consistent with the information provided on page 5.4.12-5 of the SRP Section 5.4.12, Revision 1, March 2007.)

RAI 5.4.12-2

Provide discussions regarding power supplies to motor operated valves in the reactor coolant system high point vent system on pressurizer using safety depressurization valve and depressurization valve to demonstrate that the vent system will perform its design safety function and capable of preventing inadvertent or irreversible actuation of a vent path following a single failure of an active component, mechanically or electrically .

(These regulatory criteria are consistent with the information provided on page 5.4.12-5 of the SRP Section 5.4.12, Revision 1, March 2007.)

RAI 5.4.12-3

Provide discussions regarding high points in the reactor coolant system (RCS) other than the reactor vessel head and pressurizer that could accumulate non-condensable gases and the need of providing vent system at these high points to assure adequate core cooling during natural circulation cooldown following an accident.

(These regulatory criteria are consistent with the information provided on page 5.4.12-1 of the SRP Section 5.4.12, Revision 1, March 2007.)

RAI 5.4.12-4

Provide discussion regarding provision of flow restriction in the RCS high point vent flow path to assure that the size of the vent is smaller than the size corresponding to the definition of a LOCA to avoid unnecessary challenges to the ECCS.

(These regulatory criteria are consistent with the information provided on page 5.4.12-5 of the SRP Section 5.4.12, Revision 1, March 2007.)

RAI 5.4.12-5

Provide discussion regarding operating procedures including instrumentation required by operators and the bases for these procedures for the RCS system high point vents.

(These regulatory criteria are consistent with the information provided on page 5.4.12-2. The acceptance criteria of SRP Section 5.4.12 specify that procedures should be developed to use the vent paths to remove gases that may inhibit core cooling from the U-tubes of the SGs. In addition, the procedures to operate the vent system should consider when venting is needed and when it is not needed, taking into account a variety of initial conditions, operator actions, and necessary instrumentation.)

RAI 5.4.12-6

DCD Section 5.4.12.2 indicates that the depressurization valves (DVs) only consist of a single flow path. Explain how this flow path could open to perform its designed safety function following a single failure in the system.