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From: Jeff Ciocco
Sent: Wednesday, July 30, 2008 8:31 AM
To: us-apwr-rai@mhi.co.jp
Cc: Brad Harvey; Charles Cox; Larry Burkhart; Michael Takacs; Harrison Botwin
Subject: US-APWR Design Certification Application RAI No.42-772
Attachments: US-APWR DC RAI 42 RSAC 772.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. 42-772 REVISION 0

7/30/2008

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 02.03.04 - Short Term Atmospheric Dispersion Estimates for Accident Releases

Application Section: DCD Tier 2 Appendix 15A

RSAC Branch

QUESTIONS

02.03.04-1

Revise DCD Tier 2 Figure 15A-1 to (1) indicate plant north and (2) add the technical support center (TSC) intake and inleakage locations.

The applicant stated in DCD Tier 2 Section 15.6.5.5.1.3 that the dose calculation model used to evaluate main control room (MCR) habitability for the loss-of-coolant accident (including source term, transport, and release assumptions) were also used to evaluate the TSC habitability for the same event. The applicant also stated that the distances from release points to receptors are almost the same between the TSC and MCR; therefore, the radiological consequences in the TSC are represented by those in the MCR. DCD Tier 2 Figure 15A-1 is a site plan showing release locations and MCR receptors. The TSC intake and inleakage locations should be added to Figure 15A-1 to confirm the applicant's statement that the distances from release points to receptors are almost the same between the TSC and MCR.

02.03.04-2

Add a table of ARCON96 source/receptor inputs to the DCD for use by all future COL applicants. The table should identify ARCON96 inputs for each main control room (MCR) and technical support center (TSC) source/receptor combination developed in accordance with the guidance provided in RG 1.194 (e.g., release height above plant grade, intake height above plant grade, horizontal distance between the release point and intake, direction from the intake to source in degrees from plant north, vent vertical velocity, stack flow, stack radius, building area, diffuse source initial lateral and vertical diffusion coefficients).

Review Procedure 6.b of SRP 2.3.4 states the DC application should contain figures and tables showing the design features that would be used by COL applicants to generate MCR χ/Q values. RG 1.194 presents criteria for characterizing atmospheric dispersion conditions for evaluating the consequences of radiological releases to the MCR. RG 1.194 endorses the ARCON96 atmospheric dispersion computer code (Revision 1 to NUREG-6331) as an acceptable methodology for determining MCR χ/Q values for use in design basis accident radiological analyses. The ARCON96 source/receptor inputs required to generate TSC χ/Q values should be added to this table as well.

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02.03.04-3

Justify the main control room (MCR) intake and inleakage locations selected for each postulated accident and anticipated operational occurrence listed in DCD Tier 2 Tables 15A-18 through 15A-23. In particular, address the following:

- (a) Why isn't the MCR HVAC intake listed as a receptor for the steam system piping failure, reactor cooling pump rotor seizure, rod ejection, and steam generator tube rupture postulated accidents?
- (b) Why is the auxiliary building HVAC intake listed as an inleakage location for the rod ejection accident plant vent release pathway whereas the reactor building door is listed as an inleakage location for the loss-of-coolant accident plant vent release pathway?
- (c) Why is the auxiliary building HVAC intake listed as an inleakage location for the rod ejection accident ground level containment release pathway whereas the class 1E electrical room HVAC intake is listed as the loss-of-coolant accident ground level containment release pathway?

02.03.04-4

Revise the DCD to discuss in greater detail the methodology (e.g., atmospheric dispersion models, input assumptions, and meteorological data sets) used to select the exclusion area boundary (EAB), low population zone (LPZ), and main control room (MCR) atmospheric dispersion factors presented as key site parameters in DCD Tier 1 Table 2.1-1 and Tier 2 Table 2.0-1. Discuss how this methodology ensures that the selected key site parameter values bound a reasonable number of sites that have been or may be considered for a COL application.

Review Procedure 6.b of SRP 2.3.4 states site parameters should be representative of a reasonable number of sites that may be considered within a COL application and a basis should be provided for each of the site parameters.