REQUEST FOR ADDITIONAL INFORMATION 328-2436 REVISION 1

4/8/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 09.04.02 - Spent Fuel Pool Area Ventilation System
Application Section: DCD 9.4.2 and DCD 9.4.3

QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

09.04.02-2

The staff finds the applicant's response for RAI #65-844/Question No. 09.04.02-1, RAI 9.4.2-5 as incomplete. In particular, the staff finds the applicants answer to the requests for additional information parts (2) and (3) as incomplete.
The staff notes that DCD Section 12.3.3.4 [Ventilation] Design Description reads:

The ventilation systems serving the following structures are considered to be potentially radioactive and are discussed in detail in Chapter 6, Subsections 6.5.1, and in Chapter 9, Section 9.4.

- **R/B (see Chapter 9, Subsection 9.4.3)**
  A small amount of radioactivity exists in the ventilation air, due to noble gases and iodine in the reactor coolant, and is partially released into the air when a reactor coolant leak occurs in the A/B.

  The R/B ventilation air is released from the stack, and the concentration of radioactivity is monitored with the vent stack radiation gas monitor.

  When the plant is at cold shutdown for periodic inspections etc., the quantity of noble gases transferred to the ventilation air in the R/B and A/B in the course of fuel handling and repair of equipment can be negligible. However, this air is assumed to contain I-131

- **"Fuel handling area (Chapter 9, Subsection 9.4.2)"**

The applicant states that "all areas served by the A/B HVAC system … are maintained under a negative pressure." Obviously, the areas served by the A/B HVAC system cannot all be under one identical pressure OR the design basis of "Maintain airflow from areas of low radioactivity to areas of potentially higher radioactivity" could not be satisfied. For example, for the request for additional information (2) in point, the design basis negative pressure for the fuel handling area would have to be at a lower pressure than adjacent areas that will contain less contamination.

Whether the staff chooses to invoke the "Review Procedures" identified in either SRP 9.4.2 or SRP 9.4.3 both read similar:

"*The reviewer will select material from the procedures described below, as may be appropriate for a particular case.*

These review procedures are based on the identified SRP acceptance criteria. For deviations from these acceptance criteria, the staff should review the applicant's evaluation of how the proposed alternatives provide an acceptable method of complying with the relevant NRC requirements identified in Subsection II.

The procedures are used during the construction permit or standard DC review to determine that the design criteria and bases and the preliminary design, as set forth in the preliminary SAR, meet the acceptance criteria of subsection II of this SRP section.

For the review of an operating license (OL) application, the procedures are used to verify that the initial design criteria and bases have been implemented appropriately in the final design as set forth in the final SAR. These procedures should also be followed for the review of a DC or COL application."

For (3) the applicant indicates that "…When the ventilation system is installed, it will be balanced to maintain the required air flow, temperatures and negative pressures for all areas serviced by this ventilation system." Please explain how the COL will ballance the flow to assure that the varous design commitments are met and explain why a specific preoperational test action (14.2) is not needed to ensure this occurs. The staff needs this information "*to determine that the design criteria and bases and the preliminary design, as set forth in the preliminary SAR, meet the acceptance criteria of subsection II of this SRP section"*

Along with the reasons identified above for doing so, the staff resubmits RAI #65-844 / Question No. 09.04.02-1, RAI 9.4.2-5 to the applicant in its entirety. The staff requests that the applicant provide the needed information to allow the staff to fulfill the procedural review requirements as identified in SRP 9.4.2 and SRP 9.4.3.

09.04.02-3

The staff finds the applicant's response for RAI #65-844/Question No. 09.04.02-1, RAI 9.4.2-6 as incomplete.

The staff disagrees with the dependant clause in the applicant's response stating: "...the ventilation system is not credited in dose evaluation, so that provision to monitor radioactivity release from spent handling area is not required."

Criterion 64 “Monitoring radioactivity releases” of 10CFR50 Appendix A reads:

> **“Means shall be provided for monitoring the reactor containment atmosphere, spaces containing components for recirculation of loss-of-coolant accident fluids, effluent discharge paths, and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences, and from postulated accidents.”**

The applicant’s response does not address the question related to any additional accident monitoring requirements for radioactive releases which bypass the ventilation system. The aging of the fuel in the spent fuel pool will result in a different balance of fission products than would be relapsed from the primary coolant or core.

More specifically, the staff’s rejoinder question is "Were ground level releases from the spent fuel pool considered when setting the monitoring requirements for meeting GDC-64?"