REQUEST FOR ADDITIONAL INFORMATION 442-3378 REVISION 1

8/25/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 09.04.01 - Control Room Area Ventilation System
Application Section: DCD sections 6.4 and 9.4.1 through 9.4.6

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

09.04.01-10

DCD Section 6.4 Habitability Systems (subsection 6.4.5, Table 6.4-1, Table 6.4-2)

As a part of satisfying "SRP Acceptance Criteria" #4 for the "Emergency Standby Atmosphere Filtration System, SRP 6.4 indicates that iodine removal for this system should be in accordance with the guidelines of Regulatory Guide 1.52, Revision 3. DCD Reference 6.4-2 lists revision 3 of RG 1.52 which is consistent with the SRP guidance. Regulatory Position C.3 of RG 1.52 invokes the use of ASME AG-1-1997 and RG 1.52 cites this ASME AG-1 version as its basis in Reference #9. Therefore, ASME AG-1-1997 is the most recent version of ASME AG-1 endorsed by the NRC staff.

In contrast, DCD section 6.4.8 "References" cites ASME AG-1-2003 as part of its licensing bases in Reference 6.4-5. Provide justification for use of the newer code rather than the NRC endorsed version of the code.

DCD Section 9.4.1 Main Control Room HVAC System (subsections 9.4.1.1.1 and 9.4.1.4)

As a part of satisfying the provisions of GDC 60, SRP 9.4.1 indicates that the regulatory position C.3 of RG 1.52, revision 3 should be used regarding the suitable control of the release of gaseous radioactive effluents to the environment. DCD Reference 9.4.8-3 lists revision 3 of RG 1.52 which is consistent with the SRP guidance. Regulatory Position C.3 of RG 1.52 invokes the use of ASME AG-1-1997 and RG 1.52 cites this ASME AG-1 version as its basis in Reference #9. Therefore, ASME AG-1-1997 is the most recent version of ASME AG-1 endorsed by the NRC staff.

In contrast, DCD section 9.4.8 "References" cites ASME AG-1-2003 as part of its licensing bases in Reference 9.4.8-2. Provide justification for use of the newer code rather than the NRC endorsed version of the code.

DCD subsection 9.4.3.4.4 Technical Support Center (TSC) HVAC System

As a part of satisfying the provisions of GDC 60, SRP 9.4.3 indicates that regulatory positions C.2 and C.3 of RG 1.140, revision 2 should be used in the design, inspection,

testing, and maintenance criteria for post-accident and normal atmosphere cleanup systems, ventilation exhaust systems, air filtration, and adsorption units of light-water-cooled nuclear power plants. DCD Reference 9.4.8-15 lists revision 2 of RG 1.140 which is consistent with the SRP guidance. Regulatory Position C.3 "System Design Criteria" of RG 1.140 invokes the use of ASME AG-1-1997 and RG 1.140 revision 2 cites this ASME AG-1 version as its basis in Reference #3. Therefore, ASME AG-1-1997 is the most recent version of ASME AG-1 endorsed by the NRC staff.

In contrast, DCD section 9.4.8 "References" cites ASME AG-1-2003 as part of its licensing bases in Reference 9.4.8-2. Provide justification for use of the newer code rather than the NRC endorsed version of the code.

DCD subsections 6.5.1.5, 6.5.1.5.1, Table 6.5-2, Table 6.5-3, subsections 9.4.5.1.1.1 and 9.4.5.4.1 Annulus Emergency Exhaust System

As a part of satisfying the provisions of GDC 60, SRP 9.4.5 indicates that the regulatory position C.3 of RG 1.52, revision 3 should be used in the design, inspection, testing, and maintenance criteria for post-accident and normal atmosphere cleanup systems, ventilation exhaust systems, air filtration, and adsorption units of light-water-cooled nuclear power plants. The staff notes that SRP 6.5.1 also supports this direction. DCD Reference 9.4.8-3 lists revision 3 of RG 1.52 which is consistent with the SRP guidance. Regulatory Position C.3 of RG 1.52 invokes the use of ASME AG-1-1997 and RG 1.52 cites this ASME AG-1 version as its basis in Reference #9. Therefore, ASME AG-1-1997 is the most recent version of ASME AG-1 endorsed by the NRC staff.

In contrast, DCD section 9.4.8 "References" cites ASME AG-1-2003 as part of its licensing bases in Reference 9.4.8-2. Provide justification for use of the newer code rather than the NRC endorsed version of the code.

DCD Section 9.4.6 Containment Ventilation System (subsections 9.4.6.4.4.1 and 9.4.6.4.4.2)

For the Containment Low Volume Purge System and the Containment High Volume Purge System, the staff used the review guidance of SRP 6.5.1 since there is no SRP that is dedicated exclusively to the review of containment ventilation systems. As a part of satisfying the provisions of GDC 60 and GDC 61, SRP 6.5.1 indicates that the regulatory guidance of RG 1.140 is applicable in the review of these non-ESF atmospheric cleanup systems. DCD Reference 9.4.8-15 lists revision 2 of RG 1.140 which is consistent with the SRP guidance. Regulatory Position C.3 "System Design Criteria" of RG 1.140 invokes the use of ASME AG-1-1997 and RG 1.140 revision 2 cites this ASME AG-1 version as its basis in Reference #3. Therefore, ASME AG-1-1997 is the most recent version of ASME AG-1 endorsed by the NRC staff.

In contrast, DCD section 9.4.8 "References" cites ASME AG-1-2003 as part of its licensing bases in Reference 9.4.8-2. Provide justification for use of the newer code rather than the NRC endorsed version of the code.

09.04.01-11

The applicant's response to Question 09.04.01-9 (RAI No. 327-2401, Revision 1; MHI Ref. # UAP-HF-09323, dated June 19, 2009) eliminated COL 9.4(1) in Revision 1 of the DCD due to the fact that it duplicated COL 6.4(1). However, the wording of COL 6.4(1) does not resolve the staff's original concern about the need for the design of the ESF atmospheric cleanup system to consider the effects on the system due to the environment in which the nuclear plant is sited. The staff in RAI Question 09.04.01-32 (RAI No. 63, MHI Ref. UAP-HF-08215, dated October 3, 2008) that preceded Question 09.04.01-9 also raised this issue.

In particular, the staff notes that Revision 3 of NUREG-0800 SRP 9.4.1 Section II, "SRP Acceptance Criteria " #5 indicates that regulatory position C.3 of Regulatory Guide 1.52, Revision 3 applies. C.3 of RG 1.52 reads that:

> *"…If the atmosphere surrounding the plant could contain significant environmental contaminants, such as dusts and residues from smoke cleanup systems from adjacent coal-burning power plants or industry, or is a salty environment near an ocean, the design of the system should consider these contaminants and prevent them from affecting the operation of any ESF atmosphere cleanup system."*

The environment in which a nuclear plant is sited, can affect the short term daily operations of an ESF atmosphere cleanup system as well as the long term integrity and operability of the system.

The staff finds that COL 6.4(1) does not capture the need for the COL applicant to consider these or similar issues in the design of the ESF atmosphere cleanup system.

The staff requests that the DCD applicant amend COL 6.4(1) or create a separate COL item to capture the expectations of SRP 9.4.1 Section II, "SRP Acceptance Criteria " #5 and regulatory position C.3 of Regulatory Guide 1.52.