

REQUEST FOR ADDITIONAL INFORMATION 458-3643 REVISION 0

9/14/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 11.02 - Liquid Waste Management System
Application Section: 11.2 - LWMS, 11.3 - GWMS, 11.4 - SWMS

QUESTIONS for Balance of Plant Branch 1 (AP1000/EPR Projects) (SBPA)

11.02-21

The staff developed Regulatory Guide (RG) 4.21 (issued in draft as DG-4012) in order to provide guidance to the industry on how to meet the requirements of 10 CFR 20.1406 with respect to minimizing, to the extent practicable, contamination of the facility and the environment, facilitating eventual decommissioning, and minimizing, to the extent practicable, the generation of radioactive waste. Additionally, the staff developed Standard Review Plan (SRP) 11.3, "Gaseous Waste Management System," and SRP 11.4, "Solid Waste Management System," which provide relevant and specific guidance on how to meet the requirements of 10 CFR 20.1406.

In "Request for Additional Information (RAI) No. 91-1496 Revision 1, SRP Section: 12.03-12.04 – Radiation Protection Design Features, Application Section: 12.3," dated October 30, 2008, the staff asked the applicant to address how they will comply with the requirements of 10 CFR 20.1406, both as they apply to Chapters 11 and 12, as well as how they apply to other sections of the DCD. The staff summarized nine design and operational objectives contained in the Regulatory Position section of RG 4.21. The staff asked the applicant, in parts A, B, and C of the staff's RAI, to provide additional details in the DCD. Additionally, for any plant systems which may generate radioactive waste or could result in the contamination of non-radioactive systems, the staff asked the applicant to describe specific design features which are incorporated into the US-APWR design to comply with the requirements of 10 CFR 20.1406.

In its response, the applicant summarized how specific objectives are met on a system basis. Additionally, the response indicated that design features of the radioactive waste management systems (liquid, gaseous, and solid) were included as examples of other plant systems which generate radioactive wastes. The applicant's response also included Table 12.03-1D, "Liquid Waste Management System (LWMS)," which included discussion of the nine objectives described in the RAI.

- Clarify which, if any, of the LWMS design features or provisions outlined in Table 12.03-1D of the response to RAI No. 91-1496 Revision 1, also apply to the Gaseous Waste Management System (GWMS) or the Solid Waste Management System (SWMS). Additionally, justify why similar tables were not created for the GWMS and the SWMS, or provide similar tables addressing the requirements of 10 CFR 20.1406 for the GWMS and SWMS.

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- Regulatory Position 1.5, “Measures for Reducing the Need to Decontaminate Equipment and Structures,” of RG 4.21 states, “Leakage from components containing radioactive liquids can be reduced by: (1) the inclusion of design specifications such as the proper selection of materials (e.g., corrosion-resistant piping, double-walled pipes, and tanks with annulus monitoring); (2) improved protection of buried components (e.g., galvanic corrosion protection, coatings)...” Additionally, the Technical Rationale Sections of SRP Sections 11.2, “Liquid Waste Management System,” and 11.4 contain similar statements, “In facilitating decommissioning, designs should minimize embedding contaminated piping in concrete, consistent with maintaining radiation doses ALARA during operations and decommissioning.” In Table 12.03-1D of the response to RAI No. 91-1496 Revision 1, the applicant states, “The design uses a drain header to direct potential leakage and spills to the floor drain sump via a common header. This design minimizes embedded and buried piping within the building foundation slab. No other embedded piping is anticipated in the current design.”

Discuss and provide in the DCD a discussion of all expected instances of embedded or buried piping in the LWMS, GWMS, and SWMS. Additionally, discuss and provide in the DCD a discussion of how the LWMS, GWMS, and SWMS embedded or buried piping meets the guidance of RG 4.21, SRP 11.2, and SRP 11.4 and the requirements of 10 CFR 20.1406.