

REQUEST FOR ADDITIONAL INFORMATION NO. 188-2007 REVISION 1

2/9/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 11.03 - Gaseous Waste Management System
Application Section: 11.3

QUESTIONS for Balance of Plant Branch 2 (ESBWR/ABWR) (SBPB)

11.03-1

Regulatory Position 2.3 from RG 1.143 states that the portions of the gaseous radwaste treatment system that are intended to store or delay the release of gaseous radioactive waste, including portions of structures housing these systems, should be classified as described in Regulatory Position 5, "Classification of radwaste systems for design purposes," and designed in accordance with Regulatory Position 6, "Natural phenomena and man-induced hazards design for radwaste management systems and structures." A review of the DCD found a lack of discussion related to the guidance given in these regulatory positions. Provide additional information in the DCD to justify how the guidance in Regulatory Position 2.3, is met.

11.03-2

The general design criteria specified in section 6.1.4 of Regulatory Guide 1.143 states, "The acceptability evaluation should be based on the requirements of the codes and standards given in Table 1, using the capacity criteria in Table 4."

The "Inspection and Testing" codes from Table 11.3-11 of the DCD for Tanks (0-15 psig) and atmospheric tanks are API 620 and API 650, respectively. The "Inspection and Testing" codes from Table 1 of Regulatory Guide 1.143 for tanks (0-15psig) and atmospheric tanks are API 650 and API 620, respectively. Provide justification in the DCD why the "Inspection and Testing" codes for the tanks (0-15 psig) and atmospheric tanks components from Table 11.3-11 of the DCD, differ from the Table 1 "Inspection and Testing" codes given in Regulatory Guide 1.143.

11.03-3

SRP Section 11.3, SRP Acceptance Criteria 6 provides guidance on system design if the potential for explosive mixtures of hydrogen and oxygen exist. Section 11.3 of the DCD does not address this guidance. Provide additional information in the DCD to confirm compliance with SRP Section 11.3, SRP Acceptance Criteria 6.

Also, DCD Table 11.3-3, "Equipment Malfunction Analysis (Sheet 2 of 2)," states "the main process equipment and piping are designed to contain a detonation." Specify in the DCD which components and piping are designed to withstand a hydrogen explosion.

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11.03-4

SRP Section 11.3, SRP Acceptance Criteria 2 states: "The GWMS should be designed to meet the anticipated processing requirements of the plant. Adequate capacity should be provided to process gaseous wastes during periods when major processing equipment may be down for maintenance (single failures) and during periods of excessive waste generation. Systems that have adequate capacity to process the anticipated wastes and that are capable of operating within the design objectives during normal operation, including anticipated operational occurrences."

In DCD Section 11.3.2.1.6 it is stated that "Four charcoal bed adsorbers are provided and arranged in two parallel trains. Each train has two charcoal bed adsorbers in series. During normal operation, both trains are in service. If one adsorber bed is saturated with moisture, the train is taken out of service for a short period until the charcoal is replaced and the train is returned back to service. With one train out of service, the system operates at half of its capacity for a short period until the out-of-service train is returned to service." Provide additional information in the DCD to justify how the US-APWR GWMS processing capacity is adequate to process the anticipated wastes when one train of charcoal adsorbers is out of service.

11.03-5

SRP Section 11.3, Acceptance Criteria 3 states "The design should include precautions to stop continuous leakage paths (i.e., to provide liquid seals downstream of rupture discs) and to prevent permanent loss of the liquid seals in the event of an explosion due to gaseous wastes produced during normal operation and anticipated operational occurrences." The DCD describes several design provisions of the GWMS to reduce or minimize explosive mixtures. However, the DCD does not describe any provisions for isolation of continuous gaseous leakage paths in the event that an explosion was to occur. Verify in the DCD that such provisions are included in the design of the GWMS.