REQUEST FOR ADDITIONAL INFORMATION 712-5534 REVISION 2

3/7/2011

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 Health Physics Branch (CHPB)

11.03-19

NRC Staff review of DCD Tier 1, Section 2.7.4.2 and Table 2.7.4.2-1; DCD Tier 2, Sections 9.5.1, 11.3.2.1.3, 11.3.2.1.4, and 14.3.7 and Tables 9A-2, 11.3-3, and 14.3-6; and response to RAI 535-4287, Question 11.03-17 determined that information on a charcoal bed fire analysis in completing the series of malfunction events and ITAAC on explosive monitoring instrumentation which are important to safety was needed. Please address the following items and provide a markup on the proposed DCD changes.

1. In the response to RAI 629-4973, Question 11.03-18, the applicant stated that "the charcoal beds are not required to be included as a potential combustible item because the charcoal beds are managed to be protected from fire." Although there are provisions to prevent auto ignition, the charcoal beds may be exposed to direct flame for a postulated fire in the Auxiliary Building. Therefore, its combustible content should be included and addressed in the Fire Hazard Analysis. DCD Tier 2, Table 9A-2 (Sheet 236 of 293) identifies "Filters" as a potential combustible item in the Auxiliary Building which houses the GWMS. Describe what these "Filters" are and whether they include the charcoal beds in the GWMS.

2. Part C.I.11.3.1 to RG 1.206 states the applicant should describe the design features incorporated to prevent, control, and collect the release of radioactive materials in gaseous effluents due to equipment malfunction or operator error. Therefore, the applicant should add, in DCD Tier 2, Table 11.3-3, an entry corresponding to the charcoal bed fire in presenting a complete series of malfunction events.

3. The ability to maintain gaseous effluent concentrations below the dose limits in 10 CFR Part 20 depends upon several the GWMS design features including instrumentation used to monitor and prevent the accumulation of explosive gas mixtures. Without confirming explosive monitoring instrumentation, the GWMS would fail to meet the design criteria in DCD Tier 2, Section 11.3.1.2. As a result, gaseous effluent releases could exceed the ECLs in 10 CFR Part 20, Appendix B; dose limits in 10 CFR Part 20; and dose objectives in 10 CFR Part 50, Appendix I. Additionally, since the GWMS is not designed to withstand the effects of internal detonations, ITAAC should be included to confirm hydrogen and oxygen monitoring instrumentation in the GWMS design for compliance with 10 CFR 52.47(b)(1) and 10 CFR Parts 20 and 50. Please include the relevant Tier 1

information derived from the GWMS design description in DCD Tier 2, Sections 11.3.2.1.3 and 11.3.2.1.4, and Table 11.3-3 (Sheets 1 of 2) presented in response to RAI 535-4287, Question 11.03-17 (ML101130288) to address explosive monitoring instrumentation.