

REQUEST FOR ADDITIONAL INFORMATION 624-4972 REVISION 2

8/30/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 11.02 - Liquid Waste Management System

Application Section: 11.2

QUESTIONS for Health Physics Branch (CHPB)

11.02-33

Staff review of DCD Tier 2, Sections 11.2 and 11.3 and applicant responses to RAIs found some design details were not fully described for compliance with 10 CFR Part 20, Appendix B, Table 2, Column 2; 10 CFR Part 50, Appendix I; 10 CFR 20.1301; 10 CFR.1302; 10 CFR 50.34a; 10 CFR 50.36a; 10 CFR 50, Appendix A; 10 CFR 50.9; and 40 CFR Part 190. In response to the following questions, please revise the DCD and provide a markup.

1. Please provide the basis for input design values used in the MHI PWR-GALE code calculation of annual liquid and gaseous effluents released during normal operations including AOOs:
 - a) Card 3, "PCVOL" for the primary coolant mass value of 646×10^3 lbs).
 - b) Card 5, "CBFLR" for the letdown cation demineralizer rate value of 7 (gpm).
 - c) Card 8, "WLI" for the liquid mass in each steam generator value of 135×10^3 lbs).
 - d) Card 9, "BLWDWN" for the steam generator blowdown rate value of 155.4×10^3 lbs/hr) and the blowdown treatment method value of 0.
2. Please submit for staff review the MHI PWR-GALE code calculations of liquid effluent releases (both normal and maximum releases) and comparisons to the ECLs in 10 CFR Part 20, Appendix B, Table 2, and LADTAP II code calculations of liquid effluent doses that support demonstration of compliance to the NRC regulations.
3. DCD Tier 2, Sections 11.2 and 11.3, describe use of the NRC PWR-GALE (GALE86) code to calculate annual liquid and gaseous effluent releases and subsequent doses (using the LADTAP II and GASPAR II codes, respectively). However, a proprietary version (MHI PWR-GALE code) of the GALE86 code was actually used to calculate these effluent releases in the US-APWR design to comply with NRC regulations. In DCD Tier 2, Sections 11.2 and 11.3, please make reference to the MHI PWR-GALE code and describe the specific modifications to the GALE86 code such as the noble gases leakage rate change from 3.0%/day to 0.02%/day, updated ANSI/ANS-N18.1-1999 primary coolant concentrations, addition of Ba-137M, correction for Y-93 (water) secondary coolant concentration (Errata sheet for ANSI/ANS-N18.1-1999), and discuss the application of QA/QC to validate the MHI PWR-GALE code.