

REQUEST FOR ADDITIONAL INFORMATION NO. 173-1865 REVISION 1

2/3/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 12.03-12.04 - Radiation Protection Design Features

Application Section: 12.3.1

QUESTIONS for Health Physics Branch (CHPB)

12.03-12.04-11

10 CFR 20.1101(b) and 1406 requires licensees to control external occupational exposure, to ensure that engineering controls are used to keep occupational doses ALARA, and to ensure that facility contamination is minimized. In 10 CFR 20 the definition for ALARA includes guidance to make every reasonable effort to maintain exposures below regulatory limits, taking into account the state of technology. 10 CFR 50 GDC 61 notes that systems containing radioactive material are a potential source of exposure to personnel and are to be designed to ensure adequate safety in the event of leakage during normal operation or an AOO. The guidance contained in Regulatory Guide 1.206 section C.I.12.3.1 notes that the applicant is to provide the information regarding how to keep dose ALARA by reducing time spent in radiation areas, and methods of reducing production of radioactive material. Regulatory Guide 8.8 Position C2.e and C2.f provide methods and techniques that may be used to reduce radiation exposure and leakage associated with operation and maintenance of plant equipment. NRC Bulletin 80-10 "Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment" notes that leakage into some systems may change the status of a non-radiological system. APWR FSAR section 12.3.1.1.1.2.F "Balance of Plant – Heat Exchangers" discusses the use of heat exchangers handling radioactive fluids.

APWR FSAR section 12.3.1.1.1.2.F "Balance of Plant – Heat Exchangers" contains information that appears to be inconsistent with FSAR sections 9.1.3.2.1.3 "Spent Fuel Pit Heat Exchangers" and 9.2.2.2.1.1 "CCW HX", which indicate that Plate Type heat exchangers are the specified design for those heat exchangers.

In accordance with 10 CFR 20.1101(b), 10 CFR 50 GDC 61, and Regulatory Guides 8.8 and 1.206, please update chapter 12.3.1.1.1.2.F. to provide design information that is consistent with the design specifications provided in FSAR sections 9.1.3.2.1.3 "Spent Fuel Pit Heat Exchangers" and 9.2.2.2.1.1 "CCW HX". Ensure that 12.3.1.1.1.2.F continues to address the design specifications of the shell and tube type heat exchangers provided for other applications.