REQUEST FOR ADDITIONAL INFORMATION NO. 174-1873 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)

12.03-12.04-12

10 CFR 20.1101(b), 1201and 1202 require licensees to control internal and external occupational exposure, and to ensure that engineering controls are used to keep occupational doses ALARA. 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. Regulatory Guide (RG) 1.206 section C.I.12.3.1 "Facility Design Features" notes that the Applicant should identify features that reduce the potential for exposure by minimizing the time in the area, reducing source build up, providing remote operation, reduce activation product generation. Regulatory Guide 8.8 Position C2.e, notes that the applicant should provide design features that reduce the potential for exposure by selection of materials to reduce activation product formation, finishing of the material surfaces to minimize erosion, facilitate decontamination and reduce deposition.

APWR FSAR section 12.3.1.1.2.E "Common Facility and Layout Designs for ALARA – Equipment Layout" discusses some design features intended to reduce radiation exposure. RG-8.8 C2.i notes that adequate lighting is required for safe and efficient operation of the plant and that for lighting in radiation areas, lighting design should include provisions for access to the light fixtures, such as platforms, installed ladders, quick disconnects or movable fixtures. Based on industry experience, some plants have implemented a number of dose reduction methods on normal and emergency lighting. Relocation of components that require frequent access for maintenance, such as batteries and chargers for emergency lights, to low dose rate areas or to areas eliminates the need to enter high dose rate area. Where ladders or scaffolds are required for personnel access, specifying the use of long life lighting elements is an effective method of reducing exposure associated with maintaining lighting. The use of retractable or quick change fixtures has been demonstrate to save time and effort in both nuclear and non-nuclear industries. FSAR Section 12.3.1.1.2.E "Common Facility and Layout Designs for ALARA – Equipment Layout" fails to note any of these aspects as part of the design bases for the equipment.

In accordance with RG 8.8 and RG 1.206, please revise chapter 12.3.1.1.2.E to include the information that describes the specifications for the design features associated with servicing and maintenance of normal and emergency lighting, provided for the purpose of ALARA or revise chapter 12.3 to provide your justification for not specifying known

and proven exposure reduction methods and materials as part of the design features discussed in section 12.3.1.1.2.E.