REQUEST FOR ADDITIONAL INFORMATION 671-5126 REVISION 2

12/6/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 07.04 - Safe Shutdown Systems
Application Section: 7.4

QUESTIONS for Instrumentation, Controls and Electrical Engineering 2 (ESBWR/ABWR Projects) (ICE2)

07.04-20

DCD Tier 2 Section 7.4.1.5 discusses the normal and safe shutdown from outside the MCR. Confirm that no single failure will prevent transfer of more than one train from the MCR to the RSR. That is, Section 4.2.4.d in MUAP-07004-P states that, “This design ensures no single failure will prevent transfer of more than one train. In addition a single failure will not result in spurious transfer of any train.” And, Fig. 4.2-1 in MUAP-07004-P shows an AND gate for transfer switch 1 and transfer switch 2. DCD Tier 2 Section 7.4.1.5 does not address this issue. In accordance with Section 5.1 of IEEE-603, please confirm that the AND gate in Fig. 4.2-1 represents one train and that the transfer meets the single failure criterion.

07.04-21

DCD Tier 2 Section 7.4.1.5 discusses the location, purpose, and controls of the transfer switches but not periodic testing of those switches. DCD Tier 2 Section 7.4.1.3 mentions periodic testing, but in the general sense of the SLS, PRS, and ESFAS. As required by Criterion 5.7 of IEEE Std 603-1991, periodic testing should duplicate, as closely as practical, the overall performance required of the safety system. The test should confirm operability of both the automatic and manual circuitry. The capability should be provided to permit testing during power operation. Please address periodic testing of the RSC and the transfer switches from the MCR to the RSR and how the tests duplicate the overall performance required of the safe shutdown system, how the tests confirm operability of both the automatic and manual circuitry, and the ability to perform these tests during power operation.

07.04-22

Neither DCD Tier 2, Section 7.4 nor 8.3, nor MUAP-07004-P, "Safety I&C System Description and Design Process," Appendix A discusses the ability to achieve safe shutdown with onsite electric power available assuming offsite power is not available and with offsite electric power available assuming onsite power is not available. Provide specific details on how the maintenance bypass of power sources and the reliability of

electric power for the systems required to achieve and maintain safe shutdown meets the requirements of IEEE Std. 603-1991, Clause 8.3.