

# REQUEST FOR ADDITIONAL INFORMATION 516-4027 REVISION 0

1/11/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 07.01-C Appendix - Guidance for Evaluation of Conformance to IEEE Std. 603  
Application Section: 7.2 Reactor Trip System, 7.3 Engineered Safety Feature Systems

QUESTIONS for Instrumentation, Controls and Electrical Engineering 1 (AP1000/EPR Projects) (ICE1)

07.01-C Appendix-1

Provide the predefined, preferred failure state of the control outputs of the safety systems.

10 CFR 50.55a(h) incorporates by reference IEEE Std. 603-1991. Criterion 5.5 of IEEE Std. 603-1991 requires, in part, that the safety systems be designed to accomplish their safety functions under the full range of applicable conditions enumerated in the design basis. Appendix 7.1-C of the SRP, states "The review of system integrity should confirm that the design provides for safety systems to fail in a safe state, or into a state that has been demonstrated to be acceptable on some other defined basis, if conditions such as disconnection of the system, loss of energy, or adverse environments, are experienced." Additionally, the guidance goes on to state, "During either partial or full system initialization or shutdown after a loss of power, control output to the safety system actuators should fail to a predefined, preferred failure state." At the October 7 - 8, 2009 meeting with the staff, MHI agreed to provide the predefined, preferred failure state for the control outputs of the safety system. The staff needs to understand the predefined, preferred failure state of safety systems, including information that will determine which state receives priority from the Power Interface Modules. MHI is requested to provide this information as a table in the US-APWR Design Certification Final Safety Analysis Report.