

# REQUEST FOR ADDITIONAL INFORMATION 323-2071 REVISION 1

4/8/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 03.05.01.03 - Turbine Missiles

Application Section: 3.5.1.3

QUESTIONS for Component Integrity, Performance, and Testing Branch 1 (AP1000/EPR Projects)  
(CIB1)

03.05.01.03-1

The US-APWR DCD, Revision 1, Tier 2, FSAR Section 3.5.4 and Table 1.8-2 provide COL information item COL 3.5(2), which states that the COL applicant will commit to actions to maintain  $P_1$  within acceptable limits as provided by turbine and rotor design features, material specifications and recommended inspections during preservice and inservice periods based on Mitsubishi Technical Report MUAP-07028, "Probability of Missile Generation from Low Pressure Turbines." However, the NRC staff notes that inservice testing of the overspeed protection system is also needed to prevent destructive overspeed conditions and maintain the turbine missile probability within acceptable limits as discussed in Mitsubishi Technical Report MUAP-07029, "Probabilistic Evaluation of Turbine Valve Test Frequency." Therefore, the COL information item should also include inservice testing based on Mitsubishi Technical Report MUAP-07029.

03.05.01.03-2

In addition USAPWR DCD, Revision 1, Tier 2, FSAR Sections 3.5.4, 3.5.5, and Table 1.8-2 reference Mitsubishi Technical Report MUAP-070028, Revision 0, "Probability of Missile Generation from Low Pressure Turbines." The staff notes that the applicant submitted Mitsubishi Technical Report MUAP-07028, Revision 0. Confirm that Mitsubishi Technical Report MUAP-07028, Revision 0 is the correct report and correct the reference to this report in the applicable sections.

03.05.01.03-3

Table 2.7.1.1-1 in US-APWR DCD, Revision 1, Tier 1, Section 2.7.1.1, provides an ITAAC (commitment 1) for the arrangement of the turbine generator. The acceptance criteria for this ITAAC states, "The as-built turbine generator conforms to the functional arrangement as described in Subsection 2.7.1.1.1." However, the NRC staff notes that FSAR Section 2.7.1.1.1 does not provide arrangement criteria, except that the orientation of turbine generator is such that high-energy missiles would be directed at approximately 90 degrees away from safety-related equipment. This is not completely consistent with RG 1.115 and FSAR Section 3.5.1.3.1 of US APWR DCD, Revision 1, Tier 1, which state the high energy, low-trajectory missile strike zone is the area bounded by lines inclined at 25 degrees to the turbine wheel planes and passing through

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the end wheels of the low pressure stages. Therefore, the staff requests that the ITAAC or FSAR Section 2.7.1.1.1 provides an accurate acceptance criteria, or reference criteria of the applicable Tier 2 FSAR Section or RG 1.115.