

PMFermiCOLPEm Resource

From: Eudy, Michael
Sent: Wednesday, August 31, 2011 2:27 PM
To: 'Nicholas A Latzy'
Cc: Muniz, Adrian; FermiCOL Resource
Subject: Draft Fermi Chp 10 RAI 6015
Attachments: RAI 6015.doc

Importance: High

Nick,

Please see attached draft RAIs for Chapter 10. We hope to be able to discuss these with you tomorrow morning during the OI call. Thanks.

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U.S. Nuclear Regulatory Commission
NRO/DNRL/NGE1&2
301-415-3104

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Request for Additional Information No. 6015 Revision 3

Fermi Unit 3
Detroit Edison
Docket No. 52-033
SRP Section: 10.02.03 - Turbine Rotor Integrity
Application Section: 10.2.3

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

10.02.03-***

Based on the review of the GE material specification B50A373B12, the staff requests for the applicant to provide the following information:

- a. Please specify what yield and tensile strength was used in the turbine missile probability analysis, GE-ST-56834, Revision 3. Note that this is a bounding analysis and should use the bounding material properties as stated in the ESBWR DCD, Section 10.2.3.8 and STD COL Item 10.2-2-A of the Fermi 3 COLA FSAR..
- b. Table 4-1 of GE-ST-56834, Revision 3, has a maximum total bore stress that exceeds the minimum yield strength of the material in GE material specification B50A373B12. Please specify why this is acceptable.
- c. Section 8 and 9 of GE-ST-56834, Revision 3, was revised to state that the analysis will be updated to reflect the actual (as-built) FATT values. This statement should be changed to specify "the actual (as-built) material properties" to be consistent with the ESBWR DCD, Section 10.2.3.8 and ITAAC Commitment 7 in Table 2.11.4-2 of Tier 1 to the ESBWR DCD. FATT is not the only material property used in the analysis. Please revise accordingly.

10.02.03-***

In a letter dated July 29, 2011, the response to RAI 10.02.03-14 states that the GE-ST-56834, Revision 3, provides an analysis of a flaw growing radially inward from the bore (of a bored rotor) using stresses in Table 4-1 of GE-ST-56834, Revision 3. The staff requests for the applicant to provide the following information:

- a. Please specify how this applies to the solid (non-bored) rotor, in that an embedded flaw propagates to the surface generating a missile.
- b. In addition, Tables 4-1 and 4-3 only provide the rotor stress for normal speed. Please provide and use the rotor stresses for design overspeed in the analysis as stated in ESBWR DCD Sections 10.2.3.4 and 10.2.3.8 and SRP 3.5.1.3.

10.02.03-***

Revision 3 to GE ST-56834/P included a new subsection, 10.1.1, "In-service Rotor Inspections," which provides the GE recommendations for performing regular inservice inspections of both the HP and LP rotors, including rotor dovetail inspections per Section 10.1.2. In addition, Section 10.2 was revised in Revision 3 to GE ST-56834/P to include testing of extraction non-return valves. These inspections and

tests are not included in the ESBWR DCD, which the Fermi 3 COLA FSAR uses to describe the plant-specific turbine inservice inspection and testing program. Therefore, the staff requests that the applicant provide the following:

- a. Confirm that the 12-year inspection interval specified in Section 10.1 applies to the inspections in Section 10.1.1 of GE ST-56834/P.
- b. Include the rotor dovetail inspections and the extraction non-return valve testing in the Fermi 3 COLA FSAR as part of the applicant's inservice inspection and testing program to satisfy the manufacturer's inspection and maintenance recommendations as required by ESBWR DCD COL 10.2-1-A.