NRR-PMDAPEm Resource

From: Schaaf, Robert
Sent: Friday, February 26, 2016 2:14 PM
To: Gordon Arent; Casey, Kevin E (kecasey@tva.gov); Daniels, Desiree L
Cc: Render, Diane; Saba, Farideh; Beasley, Benjamin
Subject: Request for Additional Information Regarding Request to Use F* Steam Generator Alternate Repair Criteria (CAC No. MF7218)
Attachments: Watts Bar 2 - Encl - RAIs re Proposed SG ARC Amendment - MF7218.pdf

By letter dated December 15, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15362A023), the Tennessee Valley Authority (TVA) submitted an application for a license amendment request to revise portions of the Watts Bar Nuclear Plant, Unit 2, technical specifications, to allow implementation of the F* alternate repair criterion for steam generator tubes for Watts Bar Nuclear Plant (WBN), Unit 2.

The Nuclear Regulatory Commission (NRC) staff is reviewing TVA's submittal and has determined that additional information is required to complete its review. The specific information requested is attached to this e-mail.

You may accept this draft as the formal Request for Additional Information (RAI) and provide a response by March 28, 2015. Alternatively, you may request clarification of the attached requests with the NRC staff in a conference call. Please confirm receipt of these RAIs, and the date by which a response will be submitted if no clarification is needed.

Regards,

Robert G. Schaaf

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Options
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REQUEST FOR ADDITIONAL INFORMATION
REGARDING THE PROPOSED AMENDMENT TO USE
THE F* ALTERNATE REPAIR CRITERION FOR STEAM GENERATORS
WATTS BAR NUCLEAR PLANT UNIT 2
DOCKET NO. 50-391

By letter dated December 15, 2015 (Agencywide Document and Management System (ADAMS) Accession No. ML15362A023), the Tennessee Valley Authority (the licensee), submitted a license amendment request to revise portions of the Watts Bar Nuclear Plant, Unit 2, technical specifications, to allow implementation of the F* alternate repair criterion (ARC) for steam generator tubes. In order to complete its review of the above document, the staff requests the following additional information:

1. The proposed amendment inserts the parenthetical words "(or repair)" in various places in Technical Specifications (TS) 3.4.17 "Steam Generator (SG) Tube Integrity," 5.7.2.12 "Steam Generator (SG) Program," and 5.9.9 "Steam Generator Tube Inspection Report." As noted in the model safety evaluation for plant-specific adoption of Technical Specifications Task Force Traveler (TSTF-510), Revision 2 (ADAMS Accession No. ML112101513), the term "repair criteria" is only used when a specific repair method has been approved for use by the applicable unit. While the title "F* Alternate Repair Criterion" uses the word "Repair," the F* Alternate Repair Criterion is, in fact, an alternate *plugging* criterion. Please discuss your plans to remove the proposed addition of the parenthetical words "(or repair)" in the following places:

    - TS 3.4.17
    - TS 3.4.17 A
    - SR 3.4.17.2
    - 5.7.2.12.c
    - 5.7.2.12.d
    - 5.7.2.12.d.2

2. While the submittal states that the SG tubes are expanded for the full depth of the tubesheet, some of the analyses/testing in the technical support document (SG-SGMP-13-15-P (Enclosure 6) and SG-SGMP-13-15-NP (Enclosure 8)), appear to only address the situation where the bottom of the roll transition is near the top of the tubesheet. Please confirm that the F* ARC will only be applied to tubes that have been expanded for essentially the full depth of the tubesheet (i.e., the roll transition is within 1 inch of the top of the tubesheet). Please confirm that all tubes whose bottom of the roll transition is greater than 1 inch below the top of the tubesheet have been plugged, or provide a basis for why these tubes do not need to be plugged.

3. In Tables 1, 2, and 3 of Enclosures 6 and 8, there are entries for hot-leg and cold-leg differential temperatures (ΔT). Please clarify these entries, since it is not clear what two temperatures are used to calculate these ΔTs.

4. Tube slippage is not expected to occur for any of the U.S. Nuclear Regulatory Commission (NRC)-approved alternate repair criteria for flaws within the tubesheet (e.g., H*, C*, F*). However, should slippage occur, it warrants assessment since it is

ENCLOSURE

unexpected and could draw into question assumptions regarding the integrity of other joints. Please discuss your plans to modify your proposal to include monitoring and reporting requirements regarding tube slippage.

5. The proposed amendment adds the F* Alternate Repair Criterion under TS 5.7.2.12.c, which is consistent with TSTF-510. It appears the "Reviewer's Note" contained in the model safety evaluation was inadvertently added to this section of the TS. Please discuss your plans for removing this Reviewer's Note.

6. In past reviews of alternate repair criterion license amendment requests such as H*, NRC identified a concern that cracks could exist in the tube-to-tubesheet welds. It was not clear to the NRC staff how the integrity of the welds would be assured if the licensee did not apply H* to all tubes. The NRC sought clarification from the licensee on their intent of the application of H*, specifically the wording "may be applied" rather than "shall be applied." The NRC had noted that qualified inspection techniques did not exist for the tube-to-tubesheet welds. As a result, adoption of H* resulted in licensees requiring H* to be applied (i.e., it was not an alternative to the depth-based plugging limit).

   Please discuss your plans for requiring F* to be applied rather than providing an option for it to be applied, for example:

   5.7.2.12.c Provisions for SG tube plugging criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

   The following alternate tube plugging criteria shall be applied as an alternative to the 40% depth based criteria:

   1. Tubes with service-induced flaws located in the portion of the tube from the top of the tubesheet to 1.64 inches below the top of the tubesheet, or from the bottom of the roll transition to 1.64 inches below the bottom of the roll transition, whichever is lower, shall be plugged. Tubes with service-induced flaws located below this elevation do not require plugging.

   Also, discuss your plans for redefining the inspection distance (in TS 5.7.2.12.d) to start from 1.64-inches below the bottom of the roll transition or the top of the tubesheet, whichever is lower, on the hot-leg to 1.64-inches below the bottom of the roll transition or the top of the tubesheet, whichever is lower, on the cold-leg.

7. In Section 4.1 of Enclosures 6 and 8, you indicate that a Loss of AC Power (LOAP) to the Plant Auxiliaries and a postulated Steam Line Break (SLB) are the only events in the current licensing basis that evaluate the effects of the release of steam from the secondary system. You further state that only the SLB condition needs to be considered in the development of F*, since it is the only design basis event. You indicated that the LOAP is a Category II event. The facility must be operated in accordance with its current design and licensing basis. Please justify why it is not necessary for the licensee to ensure that any primary-to-secondary leakage that may occur during a LOAP remains less than or equal to what was assumed in the design and licensing basis. Please

demonstrate that use of the F* alternate repair criterion will not create the potential for an increase in the primary-to-secondary leakage that may occur during a LOAP.