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1CAN011004

January 26, 2010

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Summary of Analysis Related to ANO-1 Once-Through Steam Generator Tube Thermal Loads due to Breaks in RCS Upper Hot Leg Large-Bore Piping
Arkansas Nuclear One, Unit 1
Docket No. 50-313
License No. DPR-51

- REFERENCES:
1. Entergy letter to the NRC, dated October 26, 2009, "Supplemental to Response to Request for Information Regarding Steam Generator Tube Integrity During Break in Upper Hot Leg Piping" (1CAN100903)
 2. NRC letter to ANO, dated November 4, 2009, "Arkansas Nuclear One, Unit No. 1 – Once-Through Steam Generator Tube Loads Under Conditions Resulting from Postulated Breaks in Reactor Coolant System Upper Hot Leg Large-Bore Piping" (TAC No. MD 7178)

Dear Sir or Madam:

In Reference 1, Entergy Operations, Inc. (Entergy) committed to verify that the Arkansas Nuclear One, Unit 1 (ANO-1) Steam Generators are designed to withstand the thermal loading associated with the worst-case large break Loss of Coolant Accident (LBLOCA), specifically a LBLOCA in the upper hot leg (candy-cane) piping, and that tube integrity will be maintained for this LBLOCA as verified through implementation of Technical Specification (TS) 5.5.9, Steam Generator (SG) Program. Entergy further committed to notify the NRC of the acceptability of the ANO-1 SGs with regard to the aforementioned LBLOCA within 30 days following the completion of the verification.

In Reference 2, the NRC acknowledged the above commitment. In addition, the NRC presented its expectation that the ANO-1 Safety Analysis Report (SAR) would be updated as necessary to reflect the ANO-1 SG design and management of SG tube integrity for LBLOCA loads. The SAR update would include removal of any reference to the Pressurized Water Reactor Owners Group (PWROG) Topical Report BAW-2374, Revision 2, "Risk-Informed Assessment of Once-Through Steam Generator Tube Thermal Loads Due to Breaks in Reactor Coolant System Upper Hot Leg Large-Bore Piping," because this Topical Report has not been endorsed or approved by the NRC.

Following completion of the aforementioned verification of SG tube integrity considering the RCS upper hot leg LBLOCA, Entergy implemented necessary changes to the ANO-1 SAR. No references to Topical Report BAW-2374 were noted. The Alternate Source Term (AST) for ANO-1 approved by the NRC by letter dated October 29, 2009 (1CNA100901) was implemented at the site in conjunction with the SAR update following the aforementioned verification. The updated SAR is currently scheduled for submittal to the NRC by October 2010 in accordance with 10 CFR 50.71.

The verification of SG tube integrity with regard to the upper hot leg LBLOCA was completed by AREVA on January 8, 2010 (AREVA-10-00083). The results are summarized in AREVA Report 51-9125139-001 "Summary Report for Qualification of EOTSG for LBLOCA Loading." This analysis parametrically evaluated the tube-to-tubesheet weld of the SGs for the tube axial load resulting from LBLOCA long-term differential thermal expansion between the tube and the SG shell (determined to be the only area of significant concern). AREVA concluded that tube integrity is maintained with regard to the structural integrity for the tube axial load resulting from LBLOCA long-term differential thermal expansion. The report additionally verified that the current 40% through-wall (TW) plugging limit for SG tubes at ANO-1 as designated in TS 5.5.9 remains conservative to ensure tube integrity is maintained. AREVA Report 51-9125139-001 will be referenced in the ANO-1 Steam Generator Inspection Program document as a bases document for the plugging limit. Based on these results, no TS changes will be required for ANO-1.

The AREVA report is proprietary in nature, but can be reviewed by the NRC at the AREVA office or at ANO. The report is not proposed to be docketed at this time.

The verification performed by AREVA is based on the TS 5.5.9 SG program which implements inspection requirements that ensure SG tube integrity is assessed on a routine basis and that degrading tubes are removed from service prior to exceeding the 40% TW limit. The program requires projected flaw growth to be determined to provide high confidence that a degraded tube will not exceed the TS TW limit prior to the next scheduled unit shutdown.

Based on the above information, Entergy considers the Reference 1 licensee commitment to be closed.

This letter contains no new commitments.

If you have any questions or require additional information, please contact David Bice at 479-858-5338.

Sincerely,

A handwritten signature in black ink, appearing to be 'DBB', with a long horizontal flourish extending to the right.

DBB/dbb

cc: Mr. Elmo E. Collins
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