Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379

December 6, 1995

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority	)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) - UNITS 1 AND 2 - RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION REGARDING GENERIC LETTER (GL) 95-03

References:
1. NRC letter to TVA dated September 6, 1995, "Request for Additional Information - Generic Letter 95-03, Circumferential Cracking of Steam Generator Tubes - Sequoyah Nuclear Plant Units 1 and 2 (TAC Nos. M92274 and M92275)"

2. NRC letter to TVA dated September 20, 1995, "Supplemental Request for Additional Information - Generic Letter 95-03, Circumferential Cracking of Steam Generator Tubes - Sequoyah Nuclear Plant Units 1 and 2 (TAC Nos. M92274 and M92275)"

Enclosed is TVA's response to the NRC request for additional information contained in the referenced letters. The enclosed information was verbally provided during a September 25, 1995, teleconference between David Goetcheus of TVA and Ken Karwoski of NRC.

This information is being provided in writing within 90 days of your request as discussed during a subsequent phone call. If you have any questions concerning this issue, please telephone D. V. Goodin at (423) 843-7734.

Sincerely,

R. H. Shell

R. H. Shell
Manager
SQN Site Licensing

Enclosure
cc: See page 2

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cc (Enclosure):

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ENCLOSURE

The following provides the TVA response to NRC's request for information as provided in their September 6 and 20, 1995, letters.

1. NRC Request

   TVA reported that 16 expansion transition circumferential indications were detected in Unit 1 during the last steam generator (S/G) tube inspection outage and that over 50 percent of the tubes were inspected with a rotating pancake coil (RPC) probe. Please discuss the expansion criteria used during these examinations.

   TVA indicated that the expansion criteria contained in the Westinghouse Owners' Group WEXTEX Guidelines would be followed for indications detected at the expansion transition. Provide a summary of these expansion criteria.

   TVA Response

   The expansion criteria used during the last Unit 1 outage top-of-tubesheet examinations was the Westinghouse Owners Group WEXTEX Guidelines, Revision 2, October 15, 1991, and a copy was provided to the staff for their review of the expansion criteria.

2. NRC Request

   TVA indicated that dents greater than 5.0 volts were inspected with a RPC probe. Provide the procedures used for sizing the dents. If the procedure is identical to the procedure for the voltage-based repair criteria, a detailed description is not necessary.

   Future inspection plans for dented (greater than 5 volts) intersections concentrate at the lowest hot-leg tube support plates (TSPs). A large dent at an upper TSP may be more significant in terms of corrosion susceptibility as a result of higher stresses than a small dent at a lower TSP even though the temperature is lower at the upper TSP. Given this, discuss the basis for the proposed sample strategy given that cracking depends on many factors including temperature and stress levels.

   TVA Response

   The procedure used for sizing dents is identical to the procedure for voltage-based repair criteria. Sample strategy for dented TSP intersections was established as a part of Sequoyah Technical Specification Change 95-15, Revision 1 (Enclosure 4, Section 1.3.b.3), and TVA's letter to NRC dated September 15, 1995, "Additional Information for Technical Specification (TS) Change 95-15, Revision 1."

3. NRC Request

During the Unit 1 Cycle 6 outage, TVA indicated that one tube was conservatively plugged for a circumferential indication in a tube with a small radius U-bend and that the degradation mechanism is not active. Discuss the basis for these statements, particularly with respect to being conservatively plugged. For Units 1 and 2, clarify the extent of the RPC examinations performed in the U-bend region of Rows 1 and 2 (i.e., percentage of tubes inspected). Provide the expansion criteria implemented during the previous outage, if applicable.

TVA Response

The one tube conservatively plugged for a circumferential indication in a Row 1 U-bend was a preexisting indication in a previously heat-treated U-bend that had not significantly changed in service since the mid-1980's heat treatment. TVA elected to preventatively plug the tube.

During the Unit 1 Cycle 6 outage, 100 percent of Row 1 and the following percentages in Row 2 were RPC examined in the U-bend region.

S/G Nos.	Percentages
S/G No. 1	10 percent
S/G No. 2	10 percent
S/G No. 3	26 percent
S/G No. 4	19 percent

At the Unit 2 Cycle 6 outage, the Rows 1 and 2 U-bends were heat treated and 100 percent RPC examination of both Row 1 and Row 2 U-bends were performed after heat treatment.

4. NRC Request

Please provide the month and year for the completion of the last two S/G tube inspections at both Sequoyah Units 1 and 2.

TVA Response

	U1	U2
Cycle 6 Refueling Outage	Completed inspections on May 27, 1993	Completed inspections on August 24, 1994
Cycle 5 Refueling Outage	Completed inspections on November 24, 1991	Completed inspections on April 19, 1992

5. NRC Request

During the Maine Yankee outage in July/August 1994, several weaknesses were identified in its eddy current program as detailed in NRC Information Notice 94-88, "Inservice Inspection Deficiencies Result in Severely Degraded Steam Generator Tubes." In Information Notice 94-88, the staff observed that several circumferential indications could be traced back to earlier inspections when the data was reanalyzed using terrain plots. These terrain plots had not been generated as part of the original field analysis for these tubes.

For the RPC examinations performed at your plant at locations susceptible to circumferential cracking during the previous inspection (i.e., previous inspection per your Generic Letter [GL] 95-03 response), discuss the extent to which terrain plots were used to analyze the eddy current data. If terrain plots were not routinely used at locations susceptible to circumferential cracking, discuss whether or not the RPC eddy current data has been reanalyzed using terrain mapping of the data. If terrain plots were not routinely used during the outage and your data has not been reanalyzed with terrain mapping of the data, discuss your basis for not reanalyzing your previous RPC data in light of the findings at Maine Yankee.

Discuss whether terrain plots will be used to analyze the RPC eddy current data at locations susceptible to circumferential cracking during your next S/G tube inspection (i.e., the next inspection per your GL 95-03 response).

TVA Response

In previous outages at Sequoyah Units 1 and 2 terrain plots were used and are included in analysis of all RPC data. Sequoyah site specific analysis guidelines require terrain plots for analysis of RPC data and will be used at future S/G inspections.