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November 29, 2006

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

Gentlemen:

In the Matter of) Docket No. 50-328
Tennessee Valley Authority)

SEQUOYAH NUCLEAR PLANT (SQN) - RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING THE UNIT 2 12-MONTH STEAM GENERATOR (SG) REPORT FROM THE UNIT 2 CYCLE 13 REFUELING OUTAGE

Reference: NRC letter to TVA dated October 19, 2006, "Sequoyah Nuclear Plant, Unit 2 – Request for Additional Information Regarding the 2005 Steam Generator Tube Inspections (TAC NO. MD0508)"

The enclosure to this letter provides additional information as requested by the reference letter. The additional information supports the basis for conclusions and statements in SQN's Unit 2 Cycle 13 12-Month SG Report dated March 2, 2006.

Please direct questions concerning this issue to me at (423) 843-7170.

Sincerely,

Original signed by:

Glenn W. Morris
Manager, Site Licensing and
Industry Affairs

Enclosure
cc: See page 2

cc (Enclosure):
Mr. Douglas V. Pickett, Senior Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop 08G-9a
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2739

JWP:DVG:KTS
cc (Enclosures):
Mr. Douglas V. Pickett, Senior Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop 08G-9a
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2739

A. S. Bhatnagar, LP 6A-C
R. H. Bryan, Jr., BR 4X-C
L. S. Bryant, LP 6A-C
J. R. Douet, OPS 4A-SQN
J. C. Fornicola, LP 6A-C
K. R. Jones, OPS 4A-SQN
D. A. Kulisek, POB 2B-SQN
T. J. Niessen, OPS 4A-SQN
P. D. Swafford, LP 6A-C
E. J. Vigluicci, ET 10A-K
WBN Site Licensing Files, ADM 1L-WBN
B. A. Wetzel, BR 4X-C
EDMS, WT CA-K

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ENCLOSURE

TENNESSEE VALLEY AUTHORITY (TVA)
SEQUOYAH NUCLEAR PLANT (SQN)
UNIT 2

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
12-MONTH STEAM GENERATOR (SG) REPORT FROM CYCLE 13 REFUELING OUTAGE

NRC Question 1

Please discuss the scope and results of your foreign object search and retrieval. If any loose parts were left in the steam generator, please discuss whether any analyses were performed to confirm that tube integrity would not be compromised for the time interval between inspections. In addition, if the locations corresponding to any potential loose part indications (detected via eddy current inspection) could not be visually inspected, please discuss your basis for dispositioning these tubes (if they were not plugged/stabilized).

TVA Response

TVA performs remote camera inspection (fiber scope) of the secondary side of the SG at the completion of sludge lancing activities. In addition, 100 percent bobbin coil tube inspection is performed to develop a potential loose parts (PLP) list for consideration/confirmation as part of the foreign object search and retrieval (FOSAR) inspection. TVA dispositions any indication of tube wall loss associated with loose parts or foreign material to ensure tube integrity is maintained. TVA does not disposition PLP indications until confirmation is made by the FOSAR inspection. If FOSAR confirms any loose part or foreign object that can not be removed, the surrounding tubes are evaluated for plugging. The PLP bobbin coil indications typically have a high probability of being overly conservative (over-calls), especially if hard sludge deposits are present on the top of tubesheet.

The following provides the inspection scope and results from SQN's FOSAR report.

Steam Generator (S/G) #1

The tubelane and annulus were clean of sludge upon inspection. The columns inspected were columns 16 (PLP), 20 (PLP), 37 (PLP), 57, and 63 (PLP) on both hot and cold legs. No foreign objects were observed in this S/G.

Steam Generator #2

Inspection showed the annulus and tubelane areas to be free of loose sludge. The columns inspected were columns 38, 44 (PLP), 57, and 62. No foreign objects were observed.

Steam Generator #3

All columns, the tubelane, and the annular inspections were clean and free of loose sludge. The columns inspected were columns 30, 35, 58, and 62. PLP's investigated were in columns 58 and 35 hot leg and found to be hard sludge build-up on the tubes and tubesheet. Hard sludge in the hot leg of 58 was determined to be firmly adhered to the tubesheet. One small piece of flexitallic was retrieved from column 58, row 35, cold leg.

Steam Generator #4

The FOSAR inspection showed the annulus and tubelane areas to be clean and free of loose sludge debris. The columns inspected were columns 30 (cold leg), 38, 41 (PLP), 57, 62, and 65 (PLP). In-bundle inspections showed virtually no loose piles of sludge in the columns. Increased hard sludge buildup and "bridging" was noted in column 57 hot leg. Column 65 cold leg was observed to also have hard sludge buildup on the tubesheet accounting for the PLP, but no bridging. Cold leg column 57 showed early beginnings of yellowed sludge material adhering to the tube around row 15 area. One foreign object was retrieved from SG #4 (a small carbon steel bullet-shaped object retrieved from the hot leg annulus from column 35, row 45, hot leg area.)

There was no foreign material or loose parts left in the SGs and accordingly, no loose part analysis was performed.

NRC Question 2

It was indicated that +Point examinations were performed on new indications of cold leg thinning to confirm that the indication is not crack-like. Please discuss how you confirm that historic indications have not developed crack-like. Please discuss how you confirm that historic indications have not developed crack-like indications (e.g., do you perform rotating probe examinations on a sample of these indications to confirm the absence of cracking). Similarly discuss how you ensure that other volumetric indications (such as wear at anti-vibration bars) do not contain (or have not developed) crack-like indications.

TVA Response

Previous cold leg thinning indications are reviewed and compared to the current indication. When a significant change has occurred, the indication is identified for a rotating probe examination. SQN Unit 2 has not identified cold leg cracking. Inspections are performed of new distorted support indications, changes in cold leg thinning, dents and

other anomalous signals. These tests serve to ensure the lack of cold leg cracking. During the last outage, SQN tested with rotating pancake coil approximately 44 of 186 cold leg thinning indications to ensure there was no cracking associated with cold leg thinning.

As a part of the base scope, TVA examines with rotating probe 100 percent of anti-vibration bar wear indications with a dent. The anti-vibration bars with a dent are the most susceptible to develop a crack due to the stress associated with the dent.

Other service-induced volumetric indications such as loose parts wear is examined with an enhanced technique to size and further characterize the indication. Normally, the enhanced technique is the +Point coil.

NRC Question 3

Several tubes with axially oriented outside diameter stress corrosion cracking were preventively plugged due to the potential for extreme voltage growth. Please provide the bobbin and rotating probe voltages for these indications.

TVA Response

The following provides the bobbin and rotating probe voltages for the tubes that were preventatively plugged:

SG	Row	Col	BC Volts	BC Loc	BC Indic	RPC Volts	RPC Loc	RPC Indic
2	8	92	1	H01+.03	DSI	0.76	H01+.31	SAI
2	33	25	1.97	H02+.03	DSI	0.66	H02+.18	SAI
2	33	25				0.24	H02+.12	SAI
2	33	25				0.38	H02+.22	SAI
3	3	11	1.58	H01+.03	DSI	0.77	H01+.28	SAI
4	8	3	1.74	H02-.06	DSI	1.29	H02+.27	SAI
4	8	3				0.11	H02-.08	SAI
4	8	3				0.08	H02+.16	SAI

NRC Question 4

One tube was preventively plugged since it was not fully expanded into the tubesheet. Please discuss whether all tubes currently in service have nominally been expanded for the full depth of the hot-leg tubesheet.

TVA Response

Tubes without the Westinghouse Explosive Tube Expansion (WEXTEX, NTE - no tubesheet expansion) have been removed from service. The remaining tubes have a WEXTEX expansion that encompasses the full depth of the hot-leg tubesheet.