

September 17, 2002

LICENSEE: Tennessee Valley Authority

FACILITY: Sequoyah Nuclear Plant, Unit 2

SUBJECT: SUMMARY OF CONFERENCE CALLS WITH TENNESSEE VALLEY
AUTHORITY (TVA) REGARDING THE 2002 STEAM GENERATOR
INSPECTION RESULTS AT SEQUOYAH UNIT 2 (TAC NO. MB4915)

In April and May of 2002, the NRC staff participated in several conference calls with the Tennessee Valley Authority (TVA) to discuss the ongoing steam generator (SG) inspection activities at Sequoyah Nuclear (SQN) Plant, Unit 2. The following summary highlights the interactions between the licensee and the NRC staff. Written information was provided by TVA in support of the conference calls, which is attached to this summary.

APRIL 25, 2002 OUTAGE CONFERENCE CALL

On April 25, 2002, the NRC staff participated in the first outage conference call with TVA to discuss the ongoing SG inspection activities at Sequoyah Unit 2. The licensee had completed approximately 35 percent of the analysis of eddy current data at the time the conference call took place. TVA supplied written information in support of this conference call which was comprehensive.

The licensee had identified approximately 16 flaws which required plugging. The licensee briefly discussed the most significant flaws identified. However, TVA indicated that very few of the flaws had been sized at the time of the call so the information could change as the inspections progressed. A few additional details beyond those documented in the written materials were discussed as follows:

- The extent of the rotating probe inspection at the hot leg top-of-tubesheet (TTS) was from 2 inches above the TTS to 5.5 inches below the TTS. In past outages, the licensee only inspected to 2 inches below the TTS.
- The only eddy current coils utilized during this inspection were the bobbin coil and Plus Point coil.
- The licensee indicated that one tube support plate (TSP) axial primary water stress corrosion cracking (PWSCC) indication had been identified. However, it had not, yet, been depth sized, so the licensee had not determined whether it was a pluggable indication.
- The licensee stated that the deepest cold leg wastage indication identified to-date was approximately 44 percent throughwall. Also, the deepest anti-vibration bar wear indication identified to-date was approximately 40 percent throughwall.

- The licensee has an alternate repair criteria (ARC) approved for use at Sequoyah Unit 2 which allows certain axial PWSCC greater than 40 percent throughwall at dented TSPs to remain in service. However, the licensee stated that they did not plan to implement the ARC and would plug all axial PWSCC at dented TSPs that were greater than 40 percent throughwall.

At the conclusion of this conference call, a follow-up call was scheduled for April 29, 2002 to discuss final inspection results.

APRIL 29, 2002 OUTAGE CONFERENCE CALL

On April 29, 2002, the NRC staff participated in the second outage conference call with TVA to discuss the ongoing SG inspection activities at Sequoyah Unit 2. The licensee had completed all of the SG inspections and data analysis at the time the conference call took place. TVA supplied written information in support of this conference call which was comprehensive. It is attached to this summary. Additional details beyond those documented in the written materials were discussed as follows:

- The licensee identified two axial PWSCC at the TSP that required plugging (i.e., greater than 40 percent throughwall). These were the only axial PWSCC indications identified.
- The licensee identified 11 cold leg wastage indications that required plugging. The licensee indicated that they were all small and less than 1 volt. Although they were sized as greater than 40 percent throughwall and, therefore plugged, the licensee believes they are actually much more shallow. They stated that industry experience indicates that very shallow cold leg wastage indications appear deeper than they actually are. The NRC staff questioned how many cold leg wastage indications were found (i.e., greater than and less than 40 percent throughwall), their locations in the SG, and the basis for the licensee's conclusion that they were in fact cold leg wastage. The licensee did not have all the information available for the conference call, but indicated they would discuss these questions in their 90-day report that is to be submitted to the NRC.
- The tubes that were plugged due to "other" indications consisted of TTS volumetric indications, an oblique indication at the TTS, loose part indications and preventive plugging.
- The licensee notified the staff that several SGs fell into the technical specification (TS) C-3 category. This conference call constituted their official NRC notification.
- The axial PWSCC flaw that was identified in the U-bend was in a Row 1 tube.
- The licensee indicated that circumferential indications were identified during the hot leg TTS inspection, during which a rotating pancake probe with a Plus Point (+Pt) coil is used. Several of these indications were located at the bottom of the TTS inspection range (i.e., 5.5 inches below the TTS). Therefore, they were located significantly below the expansion-transition region, which is located near the TTS, and were not caused by residual stresses within the expansion transition region. The bobbin probe was the only

inspection technique used for the remainder of the tube within the tubesheet below that which was inspected with the +Pt coil.

The NRC staff stated that the inspection results indicate that it is very likely that circumferential cracks are present in the tubesheet below the area inspected with the +Pt coil. The staff also stated that TSs require the entire tube within the tubesheet on the hot leg side to be inspected, and Title 10 to the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, requires qualified techniques to be used for this inspection. Because the bobbin probe is not qualified for detecting circumferential cracks, it appeared appropriate that the licensee expand the +Pt coil inspection to the lower portion of the tube within the tubesheet, or conversely, request a change to their TSs to modify the portion of the tube which is required to be inspected.

The licensee stated that they did not believe their TSs required them to inspect the entire tube within the tubesheet with a probe containing a +Pt coil. In addition, an analysis had been performed for Sequoyah Unit 2 which indicated that the presence of circumferential cracks more than 5.5 inches below the TTS did not pose a safety issue. Therefore, they did not believe it was necessary to expand the scope of their inspection or to request a change to their TSs.

Given the licensee's position, the NRC staff indicated it would discuss the issue internally and discuss the results of those internal discussions with the licensee in a future conference call.

APRIL 30, MAY 1 AND MAY 3, 2002 OUTAGE CONFERENCE CALLS

The staff participated in three additional conference calls with TVA to discuss the issue raised in the previous conference call regarding the extent of the inspection within the tubesheet. At the conclusion of the conference call on May 3, 2002, the licensee concluded that they would submit an emergency license amendment request to revise their TSs to clearly delineate the scope of the SG tube inspection required in the tubesheet region. This license amendment request was submitted to the NRC in a letter dated May 6, 2002. The staff reviewed and approved the request and issued the TS amendment to TVA in a letter dated May 10, 2002 (ML021340595).

/RA/

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Office of Nuclear Reactor Regulation

Docket No. 50-328

Enclosures: As stated

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