

September 10, 2004

LICENSEE: Tennessee Valley Authority

FACILITY: Sequoyah Nuclear Plant, Unit 1

SUBJECT: SUMMARY OF MAY 20, 2004, TELEPHONE CONFERENCE WITH  
TENNESSEE VALLEY AUTHORITY REGARDING POTENTIAL FABRICATION  
DAMAGE TO THE STEAM GENERATOR TUBES AT SEQUOYAH, UNIT 1  
(TAC NO. MC3377)

On May 20, 2004, a telephone conference was held between the staff of the U.S. Nuclear Regulatory Commission (NRC) and representatives of Tennessee Valley Authority (TVA). The purpose of the meeting was to discuss recent operating experience related to steam generator fabrication and its potential applicability to Sequoyah Nuclear Plant, Unit 1.

AB Sandvik Materials Technology manufactures tubes used in nuclear steam generators. After manufacturing the tubes, Sandvik packages the tubes and sends them to a steam generator fabricator. There are several steam generator fabricators. Following the unpacking of tubes manufactured by Sandvik, a steam generator fabricator (Ansaldo) noticed several tubes were damaged by screws used in the packing container. As a result of this finding, Sandvik notified the NRC formally by submitting a report pursuant to Part 21 of Title 10 of the *Code of Federal Regulations*. In this report (ML041410445), Sandvik indicated that the tubes manufactured for the replacement steam generators at Sequoyah, Unit 1, were also packaged using screws.

As a result of this notification, the NRC held a conference call with TVA on May 20, 2004, to ensure they were aware of the finding of damaged tubes and to discuss any actions they have taken to address the issue. The Sequoyah, Unit 1, steam generator tubes were manufactured by Sandvik and the steam generators were fabricated by Doosan.

During the call, the licensee indicated they were aware of the Sandvik report which indicated that tubes had been identified with damage as a result of the packing procedure. In addition, they indicated that they entered this condition into their corrective action program.

The licensee also indicated that they do not believe there is an immediate safety concern at Sequoyah, Unit 1, for several reasons. These reasons are discussed below.

The Sandvik tubes found to be damaged by screws by the steam generator fabricator were for steam generators that employ "square" bends (i.e., 90-degree bends) rather than the U-shaped used in the Sequoyah, Unit 1, steam generators. As a result, the tubes at Sequoyah, Unit 1, do not have a long horizontal run between the square bends and are, therefore, supported differently in the packing container (i.e., the U-bends don't need additional support). In addition to the differences in the packaging of the tubes, the TVA representatives indicated that they had sent representatives to Sandvik to ensure they followed their packing procedures.

Since the replacement steam generators were placed into service, there has been no primary-to-secondary leakage at Sequoyah, Unit 1, indicating that there is no through-wall penetration. This provides confidence that if any damage did occur, it was not through-wall (nor did it tear through-wall during the hydrostatic test following fabrication).

With respect to the inspection of the tubes, the licensee indicated that during the preservice inspection all (113) dents greater than 2 volts were inspected with a rotating probe. None of the dents were anomalous (i.e., the licensee believes that any anomalous dents such as that observed associated with a tube damaged by a screw would have been identified). In addition, the licensee recently reviewed the largest dent in their steam generator and concluded it was not similar to the dent found at another plant where a screw had damaged the tube.

To provide added confidence that none of the tubes were severely damaged during fabrication by a screw, the licensee currently plans to inspect all dents greater than 2 volts with a rotating probe (+Point™) during their next steam generator tube inspection (which is currently planned for October 2004). In addition, they indicated the analysts would be trained to identify tubes damaged by screws.

The licensee also indicated that they were not aware of any tubes being rejected by their steam generator fabricator (Doosan). In addition, they were not aware of any leakage during the primary or secondary side hydrostatic test performed on their steam generators.

At the end of the conference call, the staff verified that the TVA representatives were aware of qualification work being performed by another utility to confirm the capabilities of the rotating probe at detecting steam generator tube fabrication damage. The TVA representatives were aware of this effort.

Please direct any inquiries to Ken Karwoski at 301-415-2752, or [KJK1@nrc.gov].

*/RA/*

Robert J. Pascarelli, Project Manager, Section 2  
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Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-327

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