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MAR 05 1990

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) - ADDITIONAL INFORMATION REGARDING CODE CASE N-416

Reference: TVA letter to NRC dated December 20, 1989, "Sequoyah Nuclear Plant (SQN) - Request for Relief from the Requirements of the American Society of Mechanical Engineers (ASME) Code Section XI - Hydrostatic Pressure Test Requirements"

This letter provides NRC with additional information that supports a previous TVA relief request as submitted in the reference letter. During NRC's review of TVA's request for relief, questions arose concerning the applicability of an authorized Code Case N-416 that provides an alternative to the code requirement for hydrostatic testing of Class 2 piping following repair or replacement.

Because of various technical difficulties involved in evoking Code Case N-416 (i.e., volumetric examination of a full penetration weld on a branch connection whose nominal pipe size is 1.25 inches), TVA submitted the reference relief request and proposed an alternative weld exam. TVA considers the alternate exam to be the best method available for testing the branch connection weld. Enclosed is a discussion of the technical difficulties associated with evoking Code Case N-416 and TVA's rationale for selecting the alternate examination method under the proposed relief request.

If you have any questions concerning this submittal, please telephone D. V. Goodin at (615) 843-7734.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission

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ENCLOSURE

I. Description of the Modification

An open-ended section of piping between the residual heat removal (RHR) heat exchanger and the RHR containment spray header is to be modified to receive a branch connection. This section of piping is 8 inches in diameter and is an American Society of Mechanical Engineers (ASME) Class 2. The modification requires a 1.06-inch-diameter hole be drilled in the 8-inch piping and a 1.25-inch fitting be welded onto the outside wall of the pipe. The normal installation method is to weld the sockolet in place and then drill out the inside diameter of the sockolet and the pipe wall to which it is connected to the desired dimension (1.06 inches). This drilling process removes both the parent metal and the root bead of the weld leaving a full penetration attachment weld.

II. Technical Difficulties Associated with Code Case N-416

Code Case N-416 was considered by the Tennessee Valley Authority (TVA) for the proposed modification. Paragraph (b) of this code case requires using volumetric examination methods (i.e., radiography or ultrasonic examination) for full penetration welds. The construction code of record for Sequoyah Nuclear Plant (SQN) (i.e., U.S.A. Standard B31.7-1969) does not require radiography for branch connections that have a nominal pipe size of 4 inches or less.

Radiography of the 1.25-inch branch connection would offer no guarantee in the results because of large density changes over a cross section of the weld and the rapid curvature of a fitting of this size. TVA estimates a 6- to 8-hour timeframe to perform a radiograph of this geometry and configuration with the possibility for indeterminate results. Ultrasonic examination would also be impractical because of the lack of a surface (parallel to the weld) of sufficient length to allow an ultrasonic scan.

III. Justification for TVA's Proposed Alternative Exam

TVA considers the alternative examination technique proposed in TVA's original request for relief letter dated December 20, 1989, "Sequoyah Nuclear Plant (SQN) - Request for Relief from the Requirements of the American Society of Mechanical Engineers (ASME) Code Section XI - Hydrostatic Pressure Test Requirements," to be the best method available for testing the branch connection weld.

The unimpaired flow test required by the ASME Section XI code would have subjected the weld to a flow of air past the weld. The alternate test proposed by TVA would subject the weld to a column of water with a static head pressure of approximately 45 pounds per square inch followed by a VT-2 visual leakage examination.