TENNESSEE VALLEY AUTHORITY
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OCT 27 1989

U.S. Nuclear Regulatory Commission
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Gentlemen:

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

SEQUOYAH NUCLEAR PLANT (SQN) - NRC BULLETIN 88-08, SUPPLEMENT 3, "THERMAL STRESSES IN PIPING CONNECTED TO REACTOR COOLANT SYSTEMS"

Reference: NRC letter to TVA dated September 28, 1989, "Request for Information, NRC Bulletin 88-08, Supplement 3, (TAC Nos. R00445/R00446) - Sequoyah Nuclear Plant, Units 1 and 2"

As requested by the referenced letter, this submittal provides TVA's response to Supplement 3 of Bulletin 88-08 for SQN Units 1 and 2.

TVA considered all reactor coolant system (RCS) valves within the pressure boundary at SQN, particularly those directly off the RCS hot and cold legs. Since the supplement addressed a problem associated with wedge-type gate valves, the review was limited to this type application. Gate valves outboard of the RCS primary and secondary check valves were not addressed in the review. The check valves must meet stringent leak rates, and any leakage that did occur would cool sufficiently to preclude unacceptable thermal stresses. The RCS pressure boundary vent and drain valves were also excluded since these valves are either sealed bonnet/stem globe valves or plain globe valves.

Six valves were identified for evaluation: the two block valves for the power-operated relief valves (PORVs); the primary and secondary RCS isolation valves to the residual heat removal (RHR) system; and the two boron injection tank (BIT) outlet isolation valves. These two BIT valves do not meet the criteria for consideration as described above but were evaluated based on recent operating experience.

The sections of piping bounded by the PORV block valves are 6-inch steam lines directly above the pressurizer. Based on their geometric configuration and the fact that this is steam service, no adverse thermal profiles that would produce unanalyzed thermal stresses are anticipated. The temperature profile will be constant with or without packing leakage. Additionally, these valves are normally open during power operation; they are closed only when SQN is experiencing PORV problems.

The RHR and BIT valves have wedge injection paths that are normally open to the high-pressure-side fluid. These paths allow the higher pressure fluid to fill the valve body cavity, which in turn forces the flexible wedge into the valve's seat rings. This results in a tight seal. A direct, continuous flow

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of RCS water is allowed to pass through the valve body in the event of a packing leak. The open flow path through the injection pipe to the valve body precludes the effects of thermal cycling. TVA's existing arrangement for these four valves is essentially the same as the alternative chosen to correct the problem identified in Supplement 3.

In conclusion, TVA does not expect thermal fatigue-induced piping failure as described in Supplement 3 of Bulletin 88-08 to occur at SQN Units 1 and 2.

No commitments are contained in this submittal. Please direct questions concerning this issue to K. S. Whitaker at (615) 843-7748.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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