

ENCLOSURE

SEQUOYAH NUCLEAR PLANT UNIT 1
BARTON NARROW RANGE STEAM GENERATOR LEVEL TRANSMITTERS
DO NOT MEET ACCEPTANCE CRITERIA FOR ACCURACY
NCR MEB 79-24
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

This deficiency was discovered by Barton Company and reported to Westinghouse and subsequently by Westinghouse to TVA. Barton Company discovered this deficiency during some additional qualification testing performed at the request of Westinghouse. It was found by Barton Company that the output of the Lot 1 transmitters shifted with temperature. Following this discovery, Barton developed a mathematical correlation to relate the available measured check values of output shift induced by temperature compensation to a conservatively predicted maximum inaccuracy for each transmitter in Lot 1.

Based on the Barton Company results, Westinghouse performed an evaluation of the estimated maximum inaccuracy for each transmitter against the functional requirements of the transmitter as installed. As a result of this evaluation, Westinghouse has determined that a number of those Lot 1 units in the steam generator narrow range level function have excessive positive inaccuracies. This is due to the short-term accuracy requirement of this function and the special temperature-induced error characteristic of the differential pressure transmitter.

TVA considers this deficiency reportable because the steam generator narrow range level transmitters control the Auxiliary Feedwater initiation, the low steam generator level reactor trip, and input to a post-accident monitoring channel. If the steam generator narrow range level transmitters were not corrected, the initiation of Auxiliary Feedwater and low steam generator reactor trip may not have been timely enough to prevent jeopardizing the safe operation of the two nuclear plants involved.

Sequoyah and Watts Bar Nuclear Plants are the only TVA nuclear plants that have been identified as having the deficient Lot 1 narrow range level transmitters. The exact cause of this deficiency has been investigated in detail by Barton Company and Westinghouse, as reported in letter NS-TMA-2098 from T. M. Anderson of Westinghouse to John G. Davis of NRC dated June 11, 1979.

Safety Implications

If this deficiency had remained uncorrected, the steam generator narrow range level transmitters may have led to initiation of protective functions (i.e.,

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AFW initiation and/or low steam generator level reactor trip) too late to provide protection for the plant following an accident or transient because of another cause.

Corrective Actions

The suspect Lot 1 narrow range steam generator level transmitters at Sequoyah and Watts Bar Nuclear Plants have been returned to Barton Company. There were five suspect transmitters at Sequoyah unit 1 and seven at Watts Bar unit 1.

The transmitters in question will be checked and then modified as necessary to return them within specifications.

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