ENCLOSURE
WATTS BAR NUCLEAR PLANT UNIT 1
INCORRECT BORE IN DRAVO TRANSMITTER BOSS
NCR'S 1942R, 2011R, 2192R
10CFR50.55(e)
FINAL REPORT

Description of Deficiency

During an inspection of some instrumentation connections for the reactor coolant pressure transmitters, located on the reactor coolant hot leg loop No. 4, it was discovered that two bosses were incorrectly bored. The bosses were bored to the standard 3/4" inside diameter (id) instead of 3/8" id special bore as specified. These two bosses are documented on NCR 1942R. The bosses were supplied to TVA by Dravo, Marietta, Ohio, as part of a piping subassembly. There were 38 other similar bosses (total of 40) that were required to be 3/8" id. These were examined in order to ensure that all bosses were fabricated to the proper dimensions. Three more occurrences of this condition were found in the safety injection system (SIS). One boss is documented on NCR 2192R while the other two are documented on NCR 2011R. A total of five bosses supplied by Dravo were deficient.

Safety Implications

The two bosses on the reactor coolant hot leg were required to be 3/8" id for flow restriction purposes in order to use Class B piping and root valves in those instrument loops. Use of a 3/4" id boss would allow enough flow to require Class A components in the instrument loops because the components would be considered to be within the RCS pressure boundary. (Reference FSAR paragraph 3.2.2.1.) Therefore, branch piping which is Class B would have been used in a Class A application if this condition had remained undetected, which might degrade plant safety caused by the potential to violate the reactor coolant pressure boundary.

The bosses in the SIS were also required to be 3/8" id for flow restriction purposes in order to limit leaks in the SIS in case the instrument loop were to break. This condition could have allowed leaks in the SIS that were larger than expected, thereby reducing the design margin of the SIS.

Corrective Action

The two bosses documented in NCR 1942R were not modified. Instead, a 3/8" id by 3" long flow restrictor was installed between the boss and the root valve to accomplish the necessary flow limitation. The two bosses documented in NCR 2011R were corrected by removing the section of pipe with the deficient boss and replacing it with a new section of pipe with the proper boss added.

The boss documented in NCR 2192R will be dispositioned in a similar manner as described above for NCR 1942R. A flow restrictor will be installed between the boss and root valve. TVA anticipates completing this modification by August 1, 1980.

In the future, all bosses that are required to have a special bore will be examined before installation to verify proper bore size.