

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
STEAM GENERATOR WATER LEVEL REFERENCE COLUMN ERROR
NCR MEB 79-33
10 CFR 50.55(e)
FIRST INTERIM REPORT

Description of Deficiency

The steam generator (SG) secondary side water level instrumentation utilizes a reference water column external to the SG but inside the SG enclosure. The column has a condensate reservoir at the top with the top portion of the reservoir connected to the SG steam space. A differential pressure transmitter is connected between the bottom of the column and the SG water space. The column thus provides a reference water column of constant height to which the water depth in the SG is compared through the transmitter. In the event of a high energy line break in the containment, the reference column could become heated and the reduced water density could cause the SG water level to be indicated erroneously high. In the event of a main feedwater line break, this would delay actuation of the SG low-low level signal which initiates a reactor trip. A timely reactor trip is assumed in the plant safety analysis of a main feedwater line break.

The deficiency results from a Westinghouse design oversight. Westinghouse reported the deficiency to TVA and other Westinghouse plant owners and has also reported it to NRC under 10 CFR 21.

Corrective Action

It is not clear at this time that the deficiency is of significant importance for TVA plants. The Westinghouse letters on this subject are generic to all Westinghouse plants. It appears, based on cursory analyses, that the TVA plants which are of ice condenser containment design may have minimal problems introduced by the water column error. Also, it is assumed in the safety analyses of a main feedwater line break that the reactor trip by low-low steam generator water level is coincident with safety injection actuation signals from the unaffected steam generators.

Westinghouse is to perform detailed analyses for Sequoyah and Watts Bar Nuclear Plants to determine what corrective actions, if any, are necessary. The analyses and any necessary hardware and/or procedural changes will be completed before fuel loading for each plant.