

ENCLOSURE

SEQUOYAH NUCLEAR PLANT (SQN) UNIT 2
WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2
TEMPERATURE EFFECT ON MAIN STEAM SAFETY VALVE SETPOINT
NCR SQN MEB 8002 AND WBN MEB 8005
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The setpoint of the main steam safety valves is dependent on environmental temperature since the valve spring constant is temperature dependent. These safety valves are located inside the valve rooms at Sequoyah and Watts Bar. The present HVAC design for these valve rooms utilizes exhaust fans to limit the maximum temperature to 120° F. However, no control is established to limit the minimum temperature and the exhaust fans run at all times. Consequently, temperature in the valve room may get down to 20° F or below. This environment could lead to a change in setpoint of as much as 1.5 percent, depending on the temperature at which the setpoint was adjusted. This is in excess of the 1.0-percent tolerance specified in Paragraph NC 7614.2 of Section III of the ASME Code.

Safety Implications

If the setpoint of the main steam safety valves rise, then the steam generator pressure could rise to levels higher than anticipated. This could possibly affect auxiliary feedwater system performance if it is called upon to function with the high steam generator pressure.

A decrease in the Main Steam Safety Valve setpoints is not a safety concern because the maximum allowable pressure of the Steam Generator will not be exceeded.

Corrective Action

The HVAC system for the valve rooms is being modified to provide a stricter temperature range of 80° F to 120° F. This will be accomplished by installing a thermostat in the vicinity of the valves which will cycle the exhaust fans on and off. Calculations show that the heat given off by the high energy lines which are in the valve room can maintain the temperature at 80° F minimum if the exhaust fans are cycled. By controlling the exhaust fans in this manner, the proper valve room temperature range will be maintained. TVA will complete these changes before fuel loading of each unit.