

ENCLOSURE 1

TVA Summary of Sequoyah Unit 2 and Watts Bar Unit 1  
Inspection Results

Sequoyah Unit 2

Ultrasonic examination has revealed reflectors in six of the eight reactor vessel nozzles which are typical of reheat cracking. Reflectors in the seventh nozzle are small but did not fall in bands commonly associated with reheat cracking. A case for hydrogen-induced cracking (cold cracking), as experienced in the Framatome nozzles, cannot be substantiated as indications fall in an area clad with one layer. The eighth nozzle contained only one small reflector.

All reflectors meet the preservice inspection acceptance criteria of ASME XI, utilizing an acceptance criteria based on an aspect ratio of 0.33 percent as well as a 0.50 percent aspect ratio and are thus acceptable to criteria similar to that applied by the NRC for Sequoyah unit 1.

Watts Bar Unit 1

Ultrasonic examination has revealed a number of reflectors in three of the vessel inlet nozzles typical of hydrogen-induced cracking (cold cracking), as experienced in the Framatome nozzles. The fourth inlet nozzle contains reflectors which conform to the criteria normally associated with reheat cracks. No reportable indications were detected in the outlet nozzles.

Based on the assumption derived from destructive metallurgical evaluation that flaw depths are no greater than 0.125" (3.2mm) or 1/3 of their ultrasonically measured length, whichever is larger, to a maximum depth of 0.295" (7.5mm), we conclude that all recorded reflectors meet the preservice acceptance criteria of ASME XI.

In the event more conservative flaw throughwall sizing estimates are applied, such as an aspect ratio ( $a/l$ ) of 0.33 with no maximum limit for flaw depth, all indications except one were acceptable, and this unacceptable indication has been removed. Using an aspect ratio of 0.50 with no maximum limit for flaw depth (as was required by the NRC for Sequoyah Nuclear Plant unit 1 before licensing), ASME XI preservice acceptance calculations predict that all but 20 indications are acceptable.

To support the position that our flaw depth estimates are, in fact, conservative, TVA has determined the depth of two of the worst reflectors and two additional representative reflectors via grinding. The results of this evaluation substantiates TVA's use of an 0.33 aspect ratio as being conservative in estimating the indication size and depth and confirms that the indications are limited to the area of the heat-affected zone.

For example, the one rejectable indication using an 0.33 aspect ratio, as discussed above, was 1-5/8" long. With no maximum on flaw depth used, the depth is predicted to be no greater than 0.541", or 1/3 of the ultrasonic measured length. The actual depth, as determined by an 0.33 aspect ratio, is conservative and also substantiates the maximum flaw depth as being limited by depth of the heat-affected zone. Similar results were obtained on the other indications removed. The actual sizes of the three other indications which were removed were 1-3/4" long and 0.286" deep, 1/8" long and 0.005" deep, and 1/2" long and 0.147" deep. All of this work is in agreement and substantiates Westinghouse experience.

All remaining indications meet ASME Section XI acceptance criteria using an aspect ratio of 0.33 with no maximum flaw depth, and TVA considers the Watts Bar unit 1 reactor Pressure Vessel as being fully acceptable for service.