8005020268

Report No: SD-413-414/80-05

Report Date: April 23, 1980

Facility: Catawba Nuclear Station Units 1 and 2

Identification of Deficiency: Control Rod Guide Tube Support Pin Cracking

Description of Deficiency:

On 3/25/80 Mr. J R Wells, Mr. J K Berry, Mr. V H Shellhorse, Mr. P R Herran, and Mr. L C Johnson advised Mr. Milt Hunt of the NRC of the following deficiency. In late 1978, cracked control rod guide tube support pins were found in PWR plants operating in a foreign country. Investigations at that time concluded that there was no safety issue for domestic operating plants because only one heat treatment lot of foreign manufactured support pins appeared to be affected. No cracks were found in Westinghouse supplied support pins in the foreign plants nor had Westinghouse ever experienced support pin cracking in any plant.

Recent support pin inspections at a foreign plant revealed stress corrosion cracking in Westinghouse supplied support pins, Laboratory testing, conducted as part of the investigation into the support pin cracking decreases with increasing solution heat treatment temperature. These tests have established that Westinghouse current manufacturing process, which utilizes a solution heat treatment at 2000°F results in support pins which are highly resistant to stress corrosion cracking. The majority of support pins previously supplied by Westinghouse have had solution heat treatment at less than 2000°F.

Specifically, all pin cracking was found in pins having solution heat treatment at temperature less than 1800°F. These pins used on Catawba (1) were solution heat treated at less than 1800°F. Pins for Catawba (2) were heat treated at a temperature $\geq$ 1800°F.

Analysis of Safety Implications:

The Westinghouse Water Reactor Divisions Safety Review Committee concluded, on March 11, 1980, that the potential for broken guide tube support pins, due to stress corrosion cracking, is reportable to the NRC, under title 10CFR Part 21, (reference Victor Stello's Westinghouse letter dated 3/14/80, Number NS-TMA-2214) for the following reasons:

For Upper Head Injection (UHI) Plants: If a guide tube support pin should break, alignment of the guide tube may not be maintained. Guide tube misalignment could jeopardize the operation of the associated control rod.

For UHI and Non-UHI Plants: In the unlikely event of a broken pin leaf, there may be some small potential for a loose part to adversely affect associated control rod operation. However, based on W operating experience and routine refueling inspections, W has never seen any evidence of broken pins in domestic plants. This includes some of the earliest Westinghouse plants to go into operation which are also know to include guide tube pins manufactured at the lower, suspect solution heat treatment temperature.

Corrective Action:

Westinghouse's recommended action is to replace the guide tube support pins on Catawba (1) with pins manufactured using a solution heat treatment temperature of 2000°F. The Catawba (1) replacement pins will be installed prior to operation.

The Catawba (2) guide tube support pins were solution heat treated at temperatures greater than 1800°F. Westinghouse recommends no action pending the results of the proposed support pin inspection program.