PRIORITY ATTENTION REQUIRED MORNING REPORT - REGION IV October 16, 2003

Licensee/Facility:

ARIZONA PUBLIC SERVICE CO.
Palo Verde
Phoenix, Arizona
Dockets: 050-00528 050-00529 050-00530
[1] CE80, [2] CE80, [3] CE80

Notification:

MR Number: 4-2003-0008
Date: 10/14/2003
License No:

Subject: IDENTIFICATION OF CIRCUMFERENTIAL INDICATIONS IN UNIT 2 PRESSURIZER HEATER SLEEVES WHILE SHUTDOWN FOR UNIT 2 REFUELING OUTAGE 11 (2RFO 11)

Discussion:

On October 14, 2003, the licensee notified the Senior Resident Inspector that they had discovered unexpected circumferential indications on 6 pressurizer heater sleeves. The licensee had an ongoing program to replace Alloy 600 components that was prioritized based on a susceptibility ranking. Part of the program involved manually performing as-found eddy current examinations prior to installing a half-pipe replacement of the Alloy 600 sleeve with an Alloy 690 sleeve. Of the 36 heater sleeve locations, 33 were available for examination. Of the 33 sleeves that were examined, 12 had indications. Six of these were axial indications and six were circumferential indications. The circumferential indications were not expected. Due to the manual method of examination, it is undetermined if the indications are actual flaws or some other anomaly, such as a machined area. There was no boric acid residue associated with these indications.

On October 15, 2003, the NRC held a teleconference with the licensee to gain a better understanding of these findings and to assess the implications of these observations for the operating units, Units 1 and 3. The licensee did not get enough information from their manual as-found eddy current examination to clearly define the depth or location of the 6 circumferential indications. The licensee believes that all of the indications are within approximately 2 inches from the J-weld, that joins the inner portion of the heater sleeve to the inner portion of the pressurizer wall. They plan additional eddy current and ultrasonic examinations to more accurately characterize these indications.

The licensee stated that their technique was sufficient to estimate the length of the indications. They estimated that the longest indication was approximately .9 inches long on a circumference that was approximately 4 inches. Considering the licensee's estimate of the size of the indication (70 - 90 degrees), the maximum expected crack propagation growth rate and the crack size needed for catastrophic failure (300 degrees), the licensee concluded and the staff agreed that adequate margin to failure existed to support safe operation of Units 1 and 3. In addition, inspections to identify boric acid leaks in these locations in Units 1 and 3 were recently performed in August and July, respectively, with no leakage identified.

The licensee is continuing to refurbish the pressurizer sleeves with the Alloy 690 replacements. Eighteen of the sleeves have been cut already and removed portions are not traceable to their prior location. Considering the industry interest in this issue, the licensee committed to keeping NRC informed regarding 1) the results of their planned more detailed nondestructive and boroscope/video examinations to precisely locate and characterize any indications, 2) the results of their more detailed failure analyses/critical flaw size calculation and 3) their basis for concluding that it is not necessary to leave the remaining heater sleeves with circumferential indications uncut in order to allow for additional metallurgical analysis.

REGIONAL ACTION:

The NRC staff will continue to monitor the licensee's followup activities.