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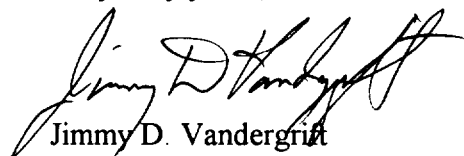
Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
2P00 Steam Generator Tube Inspection

Gentlemen:

On July 21, 2000, Entergy Operations will begin a mid-cycle outage (2P00) for the purpose of inspecting steam generator tubes for degradation at the lower tube support plates. This letter supports the proposed Arkansas Nuclear One, Unit 2 (ANO-2) technical specification amendment for the 2P00 special steam generator inspection submitted on July 13, 2000 (2CAN070009). The planned scope and expansion criteria for the special steam generator tube inspection are described in the attachment to this letter.

During this inspection, Entergy Operations will repair all tubes identified as defective. If you have any questions regarding this submittal, please contact me.

Very truly yours,


Jimmy D. Vandergrift
Director, Nuclear Safety Assurance

JDV/fpv
attachment

ADD1

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2P00 STEAM GENERATOR TUBE INSPECTION

This attachment outlines the scope and the expansion criteria for the Arkansas Nuclear One, Unit Two (ANO-2) 2P00 mid-cycle outage steam generator (SG) tube inspection. The inspection will consist of a bobbin campaign for a portion of the straight sections of the hot leg tubing in both generators. Both the scope and expansion criteria for this special inspection are discussed below:

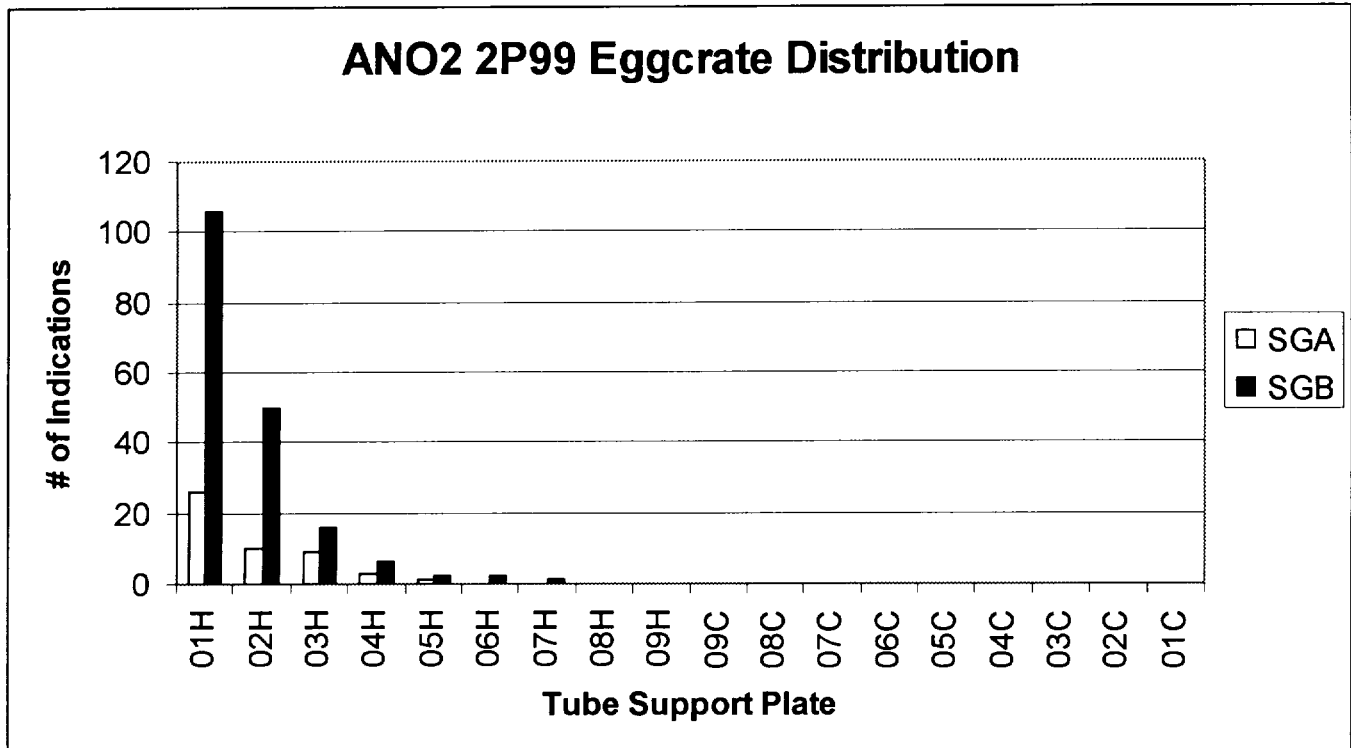
Bobbin Scope

The bobbin scope of the 2P00 steam generator tube inspection includes the following:

- Tubes in both the “A” and “B” SGs will be inspected.
- In general, all inservice tubes will be inspected using a bobbin coil from the hot leg tube end to one inch above the seventh tube support plate (TSP) on the hot leg. For tubes that have been previously sleeved, the inspection will not include the sleeves and the tube length between the sleeve and the tube end on the hot leg.
- Bobbin indications confirmed by rotating pancake coil (RPC) will be repaired.

A review was performed to identify the locations of the indications detected in the previous inspection (2P99). As shown in Figure 1, the majority of the indications at the TSPs have been found in the lower sections of the hot leg side of the SG. This is due to the higher temperature effect on the flaw initiation and growth rate. The 2P99 inspection results are consistent with those of previous inspections. Because the lower hot leg tube sections have had the majority of axial indications, as well as the largest indications, these areas are of primary interest for the mid-cycle inspection.

Figure 1



A comparison has been made using data from the last four outages (2R12, 2P98, 2R13, and 2P99). For each outage, a 100% bobbin examination was performed. Several parameters can be used to evaluate sizes of flaws. These parameters include length, depth, and amplitude or voltage. Depth can be measured as a maximum depth by bobbin/rotating pancake coil (RPC) or as an average depth. Typically, average depth is only taken on the larger flaws as part of the in-situ pressure test screening criteria. Therefore, this data is not available for all indications. Maximum depth, as measured by bobbin, is based on phase angle and generally is not accurate at low amplitudes (less than 0.5 volts). Amplitude does correlate well, but is influenced by such things as deposits and structures. Based on these factors, the length measurement (by RPC) was used as the variable for comparison. Length (which is directly tied to structural integrity) is conservatively measured with RPC and is available for all indications.

Figures 2 and 3 depict the relative lengths of the axial indications at the hot leg support plates by SG. The values are plotted as length in inches for each support plate. The outages are in chronological order from top to bottom. As shown, the number of indications decrease with higher elevation. The lengths of the flaws generally decrease as distance from the tubesheet increases. This condition is consistent with the decreasing

operating temperatures higher in the tube bundle. The largest flaws each inspection have consistently been observed at the 01Hot and 02Hot support plate. It is also noted that during the first outage trended (2R12), the number of indications and lengths appear to be much higher than the other outages. This occurred because 2R12 was the first outage that a larger diameter bobbin coil was used in conjunction with a change in philosophy related to repair on detection. Prior to 2R12, axial flaws in the eggcrates were sized by bobbin and left in service if determined to be less than 40 percent through wall (TW). Several indications identified for repair during 2R12 had been in service for several outages. All indications identified during 2R12 were repaired by mechanical plugging regardless of depth.



Bobbin Expansion

The following expansion criteria will be used for indications identified by the bobbin probe:

- Because 100% of the inservice tubes will be included in the first inspection, no expansion is possible in the areas of interest (hot leg tubes from the TTS through the seventh TSP).
- If one confirmed indication is found in a tube within the tubesheet, the inspection will be expanded to include the area below the installed sleeves in the affected SG. The expansion would equal 661 tubes in the "A" SG and/or 194 tubes in the "B" SG. Since a large initial inspection will be performed in each SG, no expansion will be made into the unaffected SG.
- If an indication is identified in the seventh support plate that exceeds the NEI 97-06 requirements for burst or leakage, further testing will be performed to the next support plate to bound the condition.