Sequoyah Unit 2
Fall 2003 Outage Phone Call Supplemental Discussion Points
November 26, 2003


1. *Describe the types of flaws contained in the ETSS qualification data set for u-bends. Discuss the degree to which this data set is representative of cracks which may potentially exist in the u-bends at Sequoyah 2.*

The MHI array coil is an EPRI qualified technique with the ETSS number 23514. The technique was qualified on the same row-1 u-bend data set that was used to qualify the plus point and pancake coils.
These samples consist of inside diameter axial and circumferential EDM notches placed at various locations with respect to the bend tangent. With regard to how representative the notches are of indications which may be present at Sequoyah, there are the following observations:
a) In general, ID EDM notches will yield ECT signal amplitudes that are greater than those from PWSCC for a given depth.
b) The row 1 u-bend interference present in the samples from over-bending and mandrel bulges are considerably more adverse than the bend geometry present in the tubes being examined at Sequoyah.
   The minimum u-bend that is being examined with the array probe is row 5.


2. *Provide any other data that may provide insight on the ability of the MHI probe to detect axial and circumferential cracks in the u-bends. Provide any comparative data that may exist between the plus point and MHI probe concerning the detection of u-bend cracks.*

 The MHI array coil was used at Diablo Canyon in February 2003 to examine low row u-bends that were identified as containing circumferential indications with the plus point coil. The same indications present on the plus point coil data were present in the MHI coil data.

3. *Discuss the quality of the data being obtained in the Sequoyah u-bends with the + Point and MHI probes. How does data quality compare between the two probes? Discuss whether data quality poses a concern with respect to reliable detection of circumferential cracks in the u-bends which produce + Point responses of from 0.3 to 2 volts (as seen at Salem)?*

For the plus point examinations of rows 1 & 2 noise measurements are recorded at the apex of each u-bend by analysts who are specifically dedicated to data quality. Any peak to peak or vertical maximum voltage which exceeds (by 10%) of the average values from the qualification data set are identified for further review by the resolution team. The resolution team may use circumferential averaging filters, review of prior cycle data, and/or request retests. In general, the data quality from the u-bend exams is commensurate with previous examinations at Sequoyah. For u-bend examinations with plus point or the MHI probe above row 2 the data quality analysts review tubes on a sampling basis using qualitative judgment.

We have no specific information regarding what was reported at Salem several weeks ago. However, the circumferential indications from Diablo Canyon were clearly visible and we

have no reason to suspect that similar flaws, if present at Sequoyah would be masked. In general, the MHI data in the u-bends appears to be good quality without much interfering noise.

4.  *For the ODSCC at the tube support plates, describe your criteria, if any, for implementing preventive plugging of tubes exhibiting bobbin voltages between 1 and 2 volts.*

During the inspection of support plates utilizing the bobbin probe our testing will be performed in accordance with our alternate repair criteria.  TVA has elected to +Point examine DSI indications of 1 volt or greater.  Once these support plate locations are +Point tested various parameters will be evaluated.  The parameters being reviewed will be the length of the indication, the numbers and types of cracks (e.g., several microcracks versus one macrocrack), the voltage ratio of the +Point to bobbin, the elevation of the support plate, and the growth of the indication from outage to outage.  Combinations of the aforementioned parameters shall be considered when evaluating the disposition of these indications.  No specific criteria as to preventive plugging of this category of tubes have been determined at this point.

5.  *It was stated that the ODSCC findings satisfied performance criteria for CM.  From a structural standpoint, does this include satisfying both probability of burst for the population of indications/SG and 1.4 x MSLB pressure for the most limiting indication?*

Yes, a preliminary calculation was performed based on the population of indications as of 11/24 am prior to the phone call.  At that time with the data available, the population met condition monitoring burst and leakage performance criteria.  This morning an updated set of data was evaluated and this set also met condition monitoring burst and leakage performance criteria.  We are in the process of evaluating growth so that we can do a preliminary OA calculation.