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PG&E Letter DCL-07-068

U.S. Nuclear Regulatory Commission
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Washington, DC 20555

Docket No. 50-323, OL-DPR-82
Diablo Canyon Unit 2
PG&E Response to NRC Request for Additional Information Regarding the Unit 2 Thirteenth Refueling Outage Steam Generator Tube Inspections

Dear Commissioners and Staff:

The NRC requested additional information regarding Diablo Canyon Unit 2 thirteenth refueling outage steam generator tube inspection reports by letter dated May 2, 2007.

Enclosed are the NRC questions and PG&E's response to each question.

If you have any questions or require additional information, please contact John Arhar at (805) 545-4629.

Sincerely,

Jed A Flall for Donna Jacobs 7/9/07

Donna Jacobs

ddm1/469/A0696018
Enclosure
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A001

NRR

PG&E Response to NRC Request for Additional Information (RAI) Regarding the Unit 2 Thirteenth Refueling Outage (2R13) Steam Generator Tube Inspections

Pacific Gas and Electric Company (PG&E) Letters DCL-06-068, "Steam Generator Tube Plugging Due to Stress Corrosion Cracking," dated May 19, 2006, DCL-06-100, "Special Report 06-02 - Results of Steam Generator (SG) Tube Inspections for the Diablo Canyon Power Plant Unit 2 Thirteenth Refueling Outage," dated August 21, 2006, and DCL-06-129, "Special Report 06-03 – 180 Day Report for Steam Generator Technical Specification Task Force (TSTF) 449 for Diablo Canyon Power Plant Unit 2 Thirteenth Refueling Outage," dated November 17, 2006, submitted information regarding the 2R13 SG tube inspections. NRC letter to PG&E dated May 2, 2007, requested additional information regarding the 2006 SG tube inspections performed during 2R13. PG&E responses to the NRC questions are provided in this enclosure.

W* Alternate Repair Criteria (ARC)

Q1. *In the development of the growth rate distribution for implementation of the W* ARC, it was indicated that the growth rate data for one single axial indication was excluded because two indications merged in cycle 13. Since merging of indications can occur in the future, please discuss whether the "growth rate" for this indication was consistent with the growth rates for the remaining indications.*

Response to W* ARC Q1:

As discussed in DCL-06-100 (W* ARC report), one repeat indication (SG 2-4 R5C37) was identified as two single axial indications (SAIs) in the prior inspection, and one SAI in the current inspection (the two indications merged in Cycle 13), such that the growth data for this indication was excluded.

The 2R13 length was 0.68 inch, and the Unit 2 twelfth refueling outage (2R12) lengths were 0.16 and 0.50 inch, for a total length of 0.66 inch. Thus, the total change was 0.02 inch, or a growth rate of about 0.015 inch per effective full power year (EFPY) applying the 1.31 EFPY cycle length. This growth rate is consistent with the growth rates for the remaining indications, which had an average cycle growth rate of 0.03 inch per EFPY.

Axial Primary Water Stress Corrosion Cracking (PWSCC) ARC

Q1. *In the tube at Row 10 Column 30 in SG 2-2, one circumferential outside diameter stress corrosion cracking (ODSCC) indication, one circumferential PWSCC indication, and one axial PWSCC indication were located at the first hot-leg support plate elevation. In assessing whether these indications would interact,* *you considered the potential for each of the circumferential indications to independently interact with the axial indication. Please discuss whether the circumferential indications could interact (i.e., merge) and then affect the burst pressure of the axial indication. In addition, please discuss why non-destructive examination (NDE) uncertainty was not included in this assessment.*

Response to PWSCC ARC Q1:

The average depth, which is a function of length, of the circumferential indication is a factor when assessing affects on the burst pressure of the axial indication. As depicted in Figure 4 of Enclosure 2 to DCL-06-100 (PWSCC ARC report), the circumferential indications are separated from each other by 0.19 inch and 0.09 inch in the circumferential and axial position, respectively. If the circumferential indications are postulated to be merged, due to the longer overall length, the average depth of the single merged indication would be less than the average depths of the individual indications (52.7 percent (%) and 44.3%), and much less that the 80% average depth threshold for possible interaction affects, accounting for 95% NDE uncertainty for mix mode affects.

As discussed in response to PWSCC ARC Q4 below, only average depth is directly applied in the assessments, and NDE uncertainty is included in the assessment.

Q2. *In Table 1 of Enclosure 2 to the August 21, 2006, letter, it was indicated that a 20-percent sample of the dents at the sixth hot-leg tube support was to be performed (refer to the footnotes); however, the table does not indicate that any exams were performed at the sixth hot-leg tube support. Please explain. If there are no dents at the sixth hot-leg tube support, please discuss why a 20-percent sample was not performed at the seventh hot-leg tube support.*

Response to PWSCC ARC Q2:

Table 1 of Enclosure 2 to DCL-06-100 (PWSCC ARC report) includes the 2R13 minimum scope for Plus Point inspections of 2 to 5 volt dents, and shows that no 2 to 5 volt dents are required to be examined at 6H in SG 2-2. The reason is that there are no 2 to 5 volt dents at 6H. The dent inspection program described in Diablo Canyon Power Plant (DCPP) Technical Specification (TS) 5.5.9 does not provide criteria for inspecting dents at the next colder tube support plate (TSP) elevation if there are no dents at a certain TSP elevation. PG&E notes that there are sixteen 2 to 5 volt dents at 7H in SG 2-2, of which two were inspected as part of the 2R13 U-bend inspection program.

There are no other similar cases in Unit 1 and Unit 2 where there are no dents at TSP elevations requiring Plus Point inspection and there are uninspected dents at the next colder elevation in the same dent voltage range.

Q3. *If the circumferential indications detected at the tube support plate elevations in 1996 are ignored (since they may represent an inspection transient), there appears to be an increase in the number of circumferential indications at tube support plate elevations. Please discuss any insights into this trend. In addition, please discuss any insights into the increase in the average depth of newly detected circumferential indications. For example, did the chemical cleaning performed in 2R12 improve the ability to detect these flaws?*

Response to PWSCC ARC Q3:

PG&E agrees that the number of Unit 2 circumferential indications at TSP elevations is higher than the previous five Unit 2 inspections, ignoring the 1996 inspection, which was the first dented TSP inspection using Plus Point. This increase is attributed to the increasing number of circumferential ODSCC indications, whereas the number of circumferential PWSCC indications has trended down. All of the new ODSCC indications were in SG 2-2, which has over 85% of the greater than two (>2) volt dented TSP at elevations 1H through 4H (critical area) in Unit 2.

The most likely reason for increased numbers of ODSCC indications is due to increased operation time at a higher stress state associated with dented TSPs. In SG 2-2, 2R12 chemical cleaning was conducted before 2R12 tube inspections, so the increase in 2R13 numbers is not related to an improvement in Plus Point detection capability associated with chemical cleaning. Chemical cleaning did not clean the TSP crevices, and has been shown to have no affect on the bobbin detection capability of axial ODSCC at TSPs based on ODSCC ARC evaluations.

Page 2-12 of DCL-06-100 (PWSCC ARC report) notes that even though Unit 2 shows increasing recent trends in average depths of circumferential indication, there are small Plus Point voltages associated with these indications. Figure 1 of this letter plots the Plus Point voltages of all Unit 2 TSP circumferential indications, and shows a decreasing trend over time, even when the larger 1996 voltages are removed from the trend.

Q4. *Regarding Table 6 of Enclosure 2 to the August 21, 2006, letter (which was superseded by Table 5 in Enclosure 1 to the November 17, 2006, letter), please discuss the difference between the "Adjusted for Upper 95% NDE Uncertainty" and "ODSCC Adjusted for Upper 95% NDE Uncertainty Mix Mode Only" columns. In addition, please discuss which assessments use the data in these columns.*

Response to PWSCC ARC Q4:

As discussed in Section 4.10.6 of WCAP-15573 Revision 1, correlations were performed for the circumferential ODSCC and PWSCC specimens to relate the destructive exam results to the NDE results for angular extent, maximum depth, and average depth. The data in the column labeled "Adjusted for Upper 95% NDE Uncertainty" reflects these correlations. The data is used in assessments of circumferential indications and mix mode assessments.

For the circumferential ODSCC specimens, the WCAP documents an additional analysis which was performed to reflect an adjusted DE profile where the shallow tails (defined as less than 30% deep) were eliminated from the profile, resulting in a more conservative average depth. The data in the column labeled "ODSCC Adjusted for Upper 95% NDE Uncertainty Mix Mode Only" reflects this correlation. The data is only used in circumferential ODSCC mix mode assessments.

Only the average depth data, as adjusted for NDE uncertainty, is applied in mix mode assessments, such as for comparison with the approximate 75% to 80% average depth threshold for potential mix mode affects. The angular extent and maximum depths are not directly used in the assessments, and are provided for information only.

<u>ODSCC ARC</u>

Q1. *In 2R12, a 1.37 volt indication was missed (refer to page 18 of Enclosure 3 to the August 21, 2006, letter). Please discuss whether there were any complicating factors associated with this signal (or as your report suggests that this was just a missed indication as a result of the probability of detection).*

Response to ODSCC ARC Q1:

A review of the 2R12 and 2R13 data for this ODSCC indication (SG 2-3 R45 C57) shows that the 1.40 volt indication in 2R13 and the 1.37 volt lookup in 2R12 voltage are conservative calls and include some of the mix residual. The total mix residual at the TSP is 1.67 volts and no dent signal is evident. ODSCC may not have been confirmed with Plus Point had Plus Point inspections been performed in 2R12 or earlier inspections.

Q2. *Referring to Table 3-6 of Enclosure 3 to the August 21, 2006, letter, the average beginning of cycle voltage for cycle 13 is larger than in prior cycles; however, the average growth has decreased substantially. Please discuss any insights into this trend. For example, were a large number of "larger" voltage indications detected during 2R13 whose prior voltages were near the voltage reported in 2R13 such that the overall growth rate was low.*

Response to ODSCC ARC Q2:

The average Unit 2 beginning of cycle (BOC) 13 ODSCC voltage of 0.56 volts, per Table 3-6 of Enclosure 3 to DCL-06-100 (ODSCC ARC report), is slightly larger than prior cycles based on the natural progression over time of the large population of slowly increasing voltages. (Note: The average Unit 2 BOC-12 voltage of 0.46 volts reflects the preventive plugging of greater than 1.2 volt indications in the Unit 2 eleventh refueling outage (2R11), and otherwise would have been about 0.55 volts with plugging at 2 volts.)

The Unit 2 average growth rate has trended down in Cycles 12 and 13. As shown Tables 3-14 and 3-15 of the 2R13 ODSCC ARC report, the growth rate decrease is across all voltage ranges and not relegated to higher voltage indications.

Unit 1 has shown similar trends of increasing BOC average voltage and decreasing average voltage growth rate.

The reason for the recent decrease in growth rate trend for both units cannot be conclusively determined.

Q3: *In Section 5.2 of Enclosure 3 to the August 21, 2006, letter, it was noted that the composite probability of prior cycle detection (POPCD) data for eight inspections was used in the benchmarking. Please confirm that this composite curve includes only data that would have been available at the time the projections were being made (i.e., it does not include POPCD data from a subsequent inspection). If this POPCD data does contain information obtained in a subsequent inspection, please evaluate the effects if only the POPCD data available prior to the 2R13 inspections was used.*

Response to ODSCC ARC Q3:

The composite POPCD curve that was used for Unit 2 benchmarking only used data from inspections prior to 2R13, and therefore contains only data that would have been available at the time the projections were made. The most recent data for the benchmarking was obtained from the prior 1R13 inspections.

<u>Other Inspection Findings (not related to an ARC)</u>

Q1. *Two axial ODSCC indications associated with dings were identified with a bobbin coil probe. These indications were found on the cold-leg side of the tube. No similar occurrences of cracking at free span dings have been observed at Diablo Canyon. Given that these initial indications were found on the cold-leg rather* *than the hot leg highlights that the prediction of areas susceptible to cracking requires consideration of the material, the environment, and the stresses. Given that your dent and ding sampling strategies are primarily predicated on temperature being the main contributor to cracking, discuss whether these findings have resulted in changes to your inspection strategies. The staff recognizes there are no additional inspections planned for the Unit 2 SGs.*

Response to Other Inspection Findings Q1:

In light of the Unit 2 experience in 2R13, no changes to the Unit 1 dent inspection program in the Unit 1 fourteenth refueling outage (1R14) were needed; however, changes to the Unit 1 ding inspection program in 1R14 were implemented, as discussed below.

PWSCC and ODSCC at dented TSPs have been demonstrated to be dependent on temperature, along with dependencies on stress level (primarily associated with larger dents for circumferential indications), as well as the tubing material properties. For example, tubing manufactured at Huntington Alloys (SGs 1-3 and 1-4) has shown fewer indications at dented TSPs than tubing manufactured at Blairsville (other 6 SGs).

Detection of ding ODSCC on the cold leg side before the hot leg side could reflect the greater variability of the secondary side environment than the primary side.

Table 3-3 of the EPRI Examination Guidelines, Revision 6, provides critical area sampling for Westinghouse SGs, and recommends 20% sampling of hot leg dinged locations up/down to the coldest elevation at which degradation has been reported. This guideline provided a basis for biasing the Plus Point sampling of greater than 5 volt dings to the lower hot leg elevations as conducted in 1R13 and 2R13. PG&E notes that the two ding axial ODSCC indications in 2R13 in the cold legs of SG 2-1 and SG 2-2 were initially detected by the qualified bobbin coil. One hundred percent of the greater than 5 volt ding population was inspected in 2R11, 1R12, 2R12, and SGs 2-1 and 2-2 in 2R13, with no ODSCC detected.

PG&E's ding inspection plan for 1R14 was revised to require that Plus Point 20% sampling of greater than 5 volt free span dings be biased to the cold legs, as opposed to the hot legs, to counter the 1R13 biasing to the hot leg. In addition, the ding expansion plan criteria (if ding axial ODSCC would have been detected) was revised to require 100% Plus Point inspection of the greater than 5 volt ding population in the affected SGs, irrespective of leg, rather than the EPRI-recommended step wise expansion criteria from the hot leg to the cold leg. No ding ODSCC was detected in 1R14.

Q2. *In response to the axial indications identified at the dings, the rotating probe inspection sample of greater than 5 volt dings was expanded to 100-percent in the two SGs in which these indications were detected. Given the limited number of locations that would be expected to have this degradation mechanism, please address whether a 20-percent sample (in the unaffected steam generators) is adequate to detect this mechanism. Similarly, given the potential for circumferential cracking at dings (most likely only affecting a small number of tubes), discuss whether a 20-percent sampling strategy is adequate for detecting circumferentially oriented indications in dings (for dings with voltages above 5 volts and for dings with voltages less than 5 volts).*

Response to Other Inspection Findings Q2:

PG&E agrees that performing sample inspections leaves a small probability that a limited number of indications would not be detected. However, the ding axial ODSCC in 2R13 in the cold legs of SGs 2-1 and 2-2 was initially detected by the qualified bobbin coil (ding voltages were less than 5 volts), and 100% of the less than 5 volt ding population was inspected in all SGs using the qualified bobbin coil.

With respect to potential circumferential indications at free span paired dings, PG&E treated this damage mechanism as potential for the first time in 1R14 based on knowledge gained from reviews of industry experience which determined that four circumferential ODSCC were detected at paired dings in two Westinghouse plants, as discussed in PG&E Letter DCL-06-129 dated November 17, 2006. As a result, PG&E's ding inspection plan for 1R14 was revised to require Plus Point inspection of 100% of greater than 2 volt paired dings that had never been inspected in the current inspection period, to be consistent with the TS 5.5.9 requirement to inspect 100% of potential damage mechanisms within the 60 effective full power month (EFPM) period. The current Unit 1 period includes 1R12, 1R13, and 1R14. There are 268 paired dings in Unit 1, and 121 were preprogrammed for Plus Point inspection in 1R14 to meet the requirement described above. The vast majority (117) of the 121 dings inspected were less than 5 volts, representing about 6% of the less than 5 volt ding population in Unit 1. No ODSCC was detected in this 1R14 inspection program.

Q3. *On page 18 of Enclosure 1 to the November 17, 2006, letter, it was indicated that condition monitoring and operational assessment is not required for preventive plugging of a tube (referring to a tube in row 2 that was plugged due to noisy data). From the NRC staff's perspective, condition monitoring and an operational assessment should be performed on all tubes. It is possible that noise in the eddy current data could be masking a flaw. If the flaw were significant enough, it may call into question the adequacy of the inspections or the time interval between inspections (i.e., cycle length). Please discuss whether the noise in the data in the tube that was preventively plugged could have been masking a* *significant flaw that may call into question the adequacy of your inspection intervals.*

Response to Other Inspection Findings Q3:

As noted on page 18 of DCL-06-129, SG 2-2 R2C80 was preventively plugged in 2R13 due to U-bend noisy data. The location of the noise is 7H + 13.48 inch, about 2 inches above the cold leg U-bend tangent point. The noise signal is believed to be associated with a burr on the inside of the tube. The axial length of the signal is 0.06 inch, and the circumferential extent of the signal is 49 degrees, or about 0.37 inch.

The rows 1 and 2 U-bends in Unit 2 were heat treated after one cycle of operation, which arrested the rapid growth and initiation of U-bend PWSCC. One hundred percent of these rows have been inspected in every refueling outage, and single coil rotating probes were used after the first cycle. Based on DCPP experience, the vast majority of PWSCC indications have been limited to Row 1, with only two axial indications detected in Row 2 where the residual stress is lower. The location of the 2R13 noise signal does not coincide with the location of DCPP U-bend PWSCC flaws, which normally initiate at either the apex point (for circumferential indications) or at the tangent point (for axial indications). The lengths of the noise signal are much smaller than the 0.64 inch and 265 degree lengths needed to challenge the Row 2 U-bend PWSCC 100% throughwall structural limits for axial and circumferential indications, respectively. In addition, the peak Plus Point amplitude of the signal is 1.36 volts, which is less than critical values for which leakage would be expected per the EPRI Insitu Pressure Test Guidelines.

In conclusion, because the noise signal is limited to small extents and small amplitude, it is judged that a significant PWSCC indication was not masked by the signal, and significant PWSCC degradation would have been detectable by the Plus Point coil. In addition, the row and location of the signal are not typical of PWSCC degradation locations based on DCPP experience. Therefore, condition monitoring is satisfied for the tube.

Q4. Given the finding of cracking on the cold-leg side of the steam generator, discuss the need to perform random rotating probe examinations of potential cold leg thinning indications to confirm the continued absence of cracking at these locations.

Response to Other Inspection Findings Q4:

Based on the 2R13 experience of ding axial ODSCC in the cold leg, an augmented Plus Point sample inspection of repeat cold leg thinning (CLT) indications was performed in 1R14 to verify the absence of ODSCC coincident with CLT. The sample was biased to repeat CLT indications greater than one and a half (>1.5) volts that has not been Plus

Point inspected during the current inspection period. Of the 161 inservice Unit 1 CLT indications prior to the 1R14 inspections, 107 had not been inspected during the current inspection period. Of these 107 indications, 16 were greater than 1.5 volts, and were selected for inspection. In addition, it was determined that two repeat CLT indications had never been Plus Point inspected, and these were also selected for inspection in 1R14. Also, CLT indications that were greater than or equal to 40% TW were Plus Point inspected. Lastly, any new CLT indications were Plus Point inspected consistent with past practices.

The results of these 1R14 Plus Point inspections verified the absence of ODSCC in all cases, confirming that ODSCC and CLT are not occurring in the same area of the tube bundle at DCPP.

Q5. *Several new ligament gaps were identified in the tube support plates. In some cases these indications were fairly large (60- to 85-degrees). Please discuss any insights on why these gaps were not identified in the prior inspections.*

Response to Other Inspection Findings Q5:

As discussed in DCL-06-129, there were 11 new TSP indications with ligament gaps (LIG indications) detected by bobbin and confirmed by rotating coil in 2R13. The largest new gaps were 83 degrees and 59 degrees as measured by rotating coil, and the others were less than 28 degrees. The new indications were traceable to the prior outage 2R12 bobbin data based on a lookup inspection.

The distribution of these new LIG indications was 3, 7, 1, and 0 in SGs 2-1 through 2-4, respectively. In SGs 2-1 and 2-2, 2R12 chemical cleaning was conducted before 2R12 tube inspections. In SGs 2-3 and 2-4, 2R12 chemical cleaning was conducted after 2R12 tube inspections. Therefore, the distribution of new LIG indications does correlate with potential improved detection capability associated with chemical cleaning.

DCPP site specific performance demonstration (SSPD) training and testing may have resulted in improved analyst performance in detecting ligament indications with the bobbin coil. A large percentage of the analysts are returnees and have gained experience with detection techniques for potentially degraded support plates.

Q6. *Please summarize the nature of the SG upper internals maintenance activities referenced on page 32 of Enclosure 1 to the November 17, 2006, letter.*

Response to Other Inspection Findings Q6:

DCL-06-129 states that the trend for loose parts has declined over the years, coincident with the decline of SG upper internals maintenance activities, which were completed in 2R11 and 1R12. The maintenance activities included the following:

J-Tube Entrances - Highly localized flow-accelerated corrosion damage was observed at several j-tube / feedring connections. Two types of repairs were implemented: removal of the damaged area by installation of a larger diameter j-tube attachment, and weld overlay of the original attachment weld. Both remedies were designed for the remaining life of the SGs.

Riser Barrels - Riser barrel erosion caused by j-tube discharge impingement was repaired and further degradation precluded by installation of erosion-resistant Inconel plates.

Feedring - Small defects in the seal welds at plugs closing the original feedring bottom holes (the holes were later replaced by j-tubes) were repaired by welding. In SG 1-1, base metal repair was done in one small area of the feedring subject to j-tube discharge impingement. Remote visual inspection of backing rings identified potential remnants that could detach in operation, and these remnants were removed in advance of detachment.

Q7. *Regarding the turbo-mix referenced on page 34 of Enclosure 1 to the November 17, 2006, letter, please discuss how this method was qualified for detecting potential loose parts or wear near the top of the tubesheet.*

Response to Other Inspection Findings Q7:

Turbo-mix is not an EPRI qualified detection technique for loose part wear. The technique is not intended to detect loose parts, only tube wear. As discussed in DCL-06-129, inspection of the cold leg peripheral tubes was satisfied by 100% bobbin inspection. A special bobbin turbo-mix evaluation of peripheral tubes (3 tubes in from outer periphery and tube lane) at the cold leg top of tubesheet was performed as an augmented exam in order to detect potential tube degradation that could be missed by the standard bobbin data analysis that employs a differential two frequency mix. The turbo-mix evaluation was performed due to recent increased industry use of this technique, and due to elimination of foreign object search and retrieval (FOSAR) inspections in 2R13, the last outage before SG replacement. A detailed justification for elimination of FOSAR in 2R13 was provided in DCL-06-129, and noted that loose part wear has never been detected in the DCPP Units 1 and 2 SGs. The use of nonqualified techniques, such as the turbo-mix, can sometimes enhance the detection capability of the bobbin probe in regions where rotating probes are not routinely employed. Because the turbo-mix is neither qualified nor required, it is used as best effort diagnostic tool. Industry use of the turbo-mix has demonstrated its ability to detect loose part wear.

Additional technical details of PG&E's program for detection of potential loose parts and potential loose part wear are discussed below.

There is no EPRI qualified eddy current technique for detection of loose parts. The techniques used at DCPP, described below, are consistent with industry practice and have proven effective in finding loose parts at DCPP and many other sites. Tubes with loose part signals are included on the SSPD which all analysts are required to pass.

Detection of loose parts is accomplished using the bobbin probe on 100% of the tubes. Both groups of analysts (primary and secondary) are required to review channel 8 (15kHz) bobbin data in the strip chart and lissajous looking for potential loose part (PLP) indications. In 2R13, no PLP Indications were found. In addition, designated analysts perform a separate in-depth PLP analysis in the full length of tubes (including TSPs and top of tubesheet) in rows 1 to 3 and the 3 outer periphery tubes. If PLP indications are found, the indications require examination with a three coil rotating probe (0.115 pancake/+Point/0.080 pancake). PLP detection with the three coil rotating probe is accomplished by screening the 15 kHz pancake coil. PLPs confirmed with the three coil rotating probe also require that the surrounding tubes be examined with the three coil rotating probe to bound the PLP.

Detection of potential loose part wear is accomplished using the bobbin probe. EPRI ETSS 96004.1 for detection of wear at tube supports and antivibration bars (AVB) is extended for detection of loose part wear. The augmented turbo-mix analysis at the cold leg top of tubesheet is a 200/400/100 kHz mix with the 100, 60 and 20% flaws "saved" and the support ring and cold leg tubesheet expansion suppressed. No percent curve is applied to this mix and any indications detected by this review must be reported to the Lead Analyst and examined with the three coil rotating probe. In 2R13, no turbo-mix indications were reported.

Detection of potential loose parts and loose part damage is also accomplished by both analysis parties screening all three coil rotating probe data.

Figure 1

DCPP Unit 2 TSP Circumferential Indications Plus Point Maximum Voltage Trending