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To: Lew, David
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Subject: Summary of S/G Eddy Current Performance Issues

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The S/N ratio of the '97 EC data was not good. The noise level was great enough that it masked small signals that alert an analyst to the possible presence of PWSCC. The '97 data contained small indications that are precursors indicative of PWSCC. The precursors were inadvertently screened out by IP2 because IP2 was not sensitive to the importance of this signal. In addition, when evaluating signals that were deemed important, using a plus-point probe, IP2 apparently did not optimize compensation for probe lift-off during their calibration process. The IP2 guideline did not match the calibration used to qualify the probe for this purpose. This variation from optimum calibration made it difficult to interpret the PWSCC signals.

Except for correcting the weakness in the plus-point calibration IP2 is applying essentially the same EC techniques now. These techniques are "qualified" and satisfy the regulatory requirements. The techniques, however, still have a less than optimal S/N. IP2 has not generally enhanced their EC techniques but are depending on a heightened awareness by the EC analyst to compensate for the weakness introduced by the S/N. This heightened awareness is being reinforced by an additional, tertiary, level of signal analysis.

NRR believes this is insufficient. NRR has discussed EC technique enhancements with IP2. One simple enhancement, increasing the probe frequency, would increase the S/N and reduce the possibility that a small precursor is being masked. NRR is concerned that a masked signal is not amenable to the solution currently being used by IP2: additional analysis. IP2 has not convinced NRR that IP2 has a reliable crack length measurement technique in the face of the S/N conditions existing in their generators. NRR has expressed concerns that the cracks tend not to be shallow and may readily propagate. Without a good crack length NRR believes there is not enough assurance that these masked signals will not grow to rupture during the next operational cycle.

IP2 has tested a higher frequency probe in one tube to compare its results against the currently acquired data in the same tube. IP2's initial and tentative assessment of the results was the data looked "somewhat" better. IP2, however, remains non-committal about further use of the this probe. Although not the optimum frequency and probe size suggested by the NRR consultant NRR thinks it is a small step in the right direction. IP2 is advancing toward in-situ pressure testing. This pressure testing will, if successful, put IP2 in a position to argue that the tubes have sufficient structural integrity to compensate for any weaknesses in EC technique perceived by NRR. NRR is, at this point, unwilling to accept this argument.

CC: Bateman, Bill, Coffin, Stephanie, Cranston, Greg...

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