4X-980601-CLN-01

TO: DISTRIBUTION
FROM: C NEUMEYER
SUBJECT: IP ROGOWSKI REWORK

References:

1) "Resolution Of Problems With First Article Rogowski At Airex", 4X-980424-CLN-01

2) "Final Resolution Of Problems With First Article Rogowski At Airex", 4X-980424-CLN-01

A meeting was held to decide on a rework plan for the Ip Rogowski coils. This was deemed necessary due to a breakdown which was experienced during the first of the 5kV megger tests on the items which were received from the manufacturer, Airex.

In attendance were:

J Chrzanowski B McCormack R Kaita T Meighan
C Neumeyer M Williams

Based on a previous failure during a test at Airex (ref. 1) it was decided to perform the testing at PPPL using the proper equipment (DC megger at PPPL vs. AC power supply at Airex). Based on measurements and breakdown tests made by PPPL on a sample (ref. 2), insulated with teflon, it was anticipated that the units would pass the PPPL 5kV megger without difficulty.

Instead, a breakdown during the PPPL test occurred at 2.5kV, near the edge. Evidently, something about the process of application of the teflon tape (e.g. contamination, inconsistencies in the tension, etc.) leads to weaknesses which are not evident in the small area, small number sample tests such as those performed earlier.

At the meeting it was decided to go back to the kapton insulation scheme as follows:

- strip off the teflon insulation in the center stack region

- apply a 1/2 lapped layer of kapton over the full length, overlapping the teflon regions remaining at the ends

- kapton/adhesive to be same thickness as original teflon design so that build in the center stack region is not increased compared to original design

- megger test to be performed after completing first unit but prior to proceeding with second unit

- third unit only to be reworked at a later date only if necessary

Although the kapton may be less flexible and more difficult to coil up at the ends, it is more durable and thought to provide a better end result than has been achieved thus far with the teflon.

Action Items:

B Mc Cormack - proceed with the rework
B Mc Cormack - proceed with required drawing change (or additional drawing to reflect the rework) and NSTX change request
T Meighan - perform megger tests on reworked units

cc:

J Chrzanowski
R Kaita
F Malinowski
B McCormack
T Meighan
C Neumeyer
M Ono
M Williams

NSTX File