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FROM: C NEUMEYER
SUBJECT: NSTX TEST CELL VOLTAGE ISOLATION

Concerning the general electrical isolation requirements for NSTX, which are set forth in the GRD as follows...

1.1.5 General Electrical Isolation Requirements

a. All instrumentation shall be isolated via optical and/or magnetic (isolation transformer) means prior to exiting the test cell boundary. The isolation shall be rated to withstand a one minute AC hipot test at 20 kV AC rms.

...the following points of interpretation shall be applicable:

- 1) Note that the requirement applies to INSTRUMENTATION, which shall consist of instrumentation related electrical/electronic components, control wiring, and AC power sources associated therewith;
- 2) Exception can be taken, based on written approval from the NSTX Project Engineer, for items with air gaps no less than 3' from nearest potentially live components, including components in direct electrical contact with NSTX vacuum vessel or center stack casing, coil and coil circuit components, RF transmission line/waveguide components, or NBI components.
- 3) Note that the requirement does not apply to large electrical loads such as motors, etc., which are supplied and grounded via heavy conductors able to carry prospective fault currents.

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