SANE Short Term Run Plan – <u>Wed. 3/11 owl /day/evel</u>

<u>RUN PLAN</u> *(SAVE previous run plans in the Run Plans binder)*

Wed. 3/11 owl/day/eve. Opportunistic accesses: when switching targets, during anneals (check with the target experts) or to delay or move up anneal times to avoid annealing between midnight and 6:00 AM. Keep < 30 min. long if possible.

Target: Insert with new material loaded. No cross-hairs on this insert. Needs C runs for packing fraction.

BEAM (for production runs):
   Current : **85 to 105 nA**
– check that the **SR is ON** and configured for *20 mm diameter, 5.9 GeV beam.*
   Wavetek generators Preset 6: spiral = 1.6 V; circles 1 & 2 = 1.50 V
– **fast rater 1 x 1 mm**
   beam at **x = 0.5, y = -1.0 mm on BPM 3H00A;**
   x = 0.0 y = 0.6 mm on BPM 3H00B (*run 72912, hclog entry* 178349)

DATA:

HMS: should be set to central momentum 3.1 GeV, 15.4°, electrons.

Make sure all detectors are ON, LED's off and retracted, prescale factors and trigger type correct, etc. before starting

– Check centering of the beam on the target by looking at the slow raster y vs x ADC plot. Put the empty target in the beam and ask for 70 nA.
– Watch for the target cup rims showing as bright areas on the raster ADC plot.
– The encoder may need to be adjusted to reflect the new insert geometry.
    – Move the target down in steps of 80 encoder units taking ~ 50k trigger runs and looking at the raster ADC plot, until the top rim of the cup appears. IMPORTANT: to compensate for backlash overshoot the desired setting moving up by an extra 150 units and move back down 150 units; repeat until the rim is seen,
    – Record the encoder value and move the target up by 200 units. No need to compensate for backlash moving down. The bottom rim may be visible. Move up by an additional 40 units if needed to see the rim. Take the average of the encoder settings for seeing the top and bottom rims.
– The above beam settings should be good for the horizontal coordinate. If the left or right rims are visible on the raster ADC plot adjust the beam center by asking MCC to steer the beam left or right. It should not be necessary to steer the beam more than 0.3 mm in either direction.

– Take data with BOTTOM target **NEGATIVE** polarization.

– (Most likely for new material) If the polarization rises *above 60% in ≤ 30 min*, ask for **90 nA,** take ~1 h long runs. If the polarization continues to increase with beam, ask for **100 nA**, but reduce the current back to **90 nA** once the *maximum* polarization is attained. When the polarization is around 62% take data at **105 nA**. Continue with 1 h runs until the polarization is at ~ 0.75 of its maximum value or 60%, **whichever is higher**. Move to the BOTTOM target.

– If the polarization takes *more than 30 min to get to 50%*, it can/will improve with beam. Ask for **105 nA** and start taking data.
   – If the polarization increases with beam continue at 105 nA for up to one hour after the polarization starts dropping, then *take data at 90 nA* until the polarization drops below 60%.
   – If the polarization does not increase after 2 h of beam, move to the BOTTOM target.

– If the polarization rises quickly but it does not get significantly above 70%, and it starts dropping as soon as beam is turned on, it may have been underannealed. Take data at **85 nA .** When the polarization is around 62% take data at **95 nA**. Move to the BOTTOM target when the polarization drops below 60%.

   Take data with TOP target **NEGATIVE** polarization.

– Follow the guidelines for the BOTTOM target . Anneal when the polarization is at the low limits indicated on the guidelines.

   ANNEAL

   1. Target experts will conduct the anneal.

   2. Put C target in beam to help boiling off He in the nose. Ask for 120 nA. Take two 1/2 h long runs *AFTER the nose is empty. Watch the HMS or BigCal rates: the nose will be empty when the rates stop changing after dropping, start the run then.*

   3. Target experts will finish the anneal.

   4. When there is LHe in the nose, take a ½ h run with the EMPTY target with He and another ½ h long run with the C target with He (C+He).