SANE Short Term Run Plan – Fri. 3/6 day/eve – Sat. 3/7 owl

RUN PLAN *(SAVE previous run plans in the Run Plans binder)*

Fri. 3/6 day/eve to Sat. 3/7 owl. 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.

Starting parallel data with 5.9 GeV beam.

TARGET: Finish target preparation, ramp magnet – negative polarity, take TE's (need new CC's for field at 180 degrees).

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 = -0.6 mm on BPM 3H00A;**
  x = 0.0 y = 0.7 mm on BPM 3H00B (*run 72909 in hclog entry* 178034)

DATA:

HMS: should be set to central momentum 2.2 GeV, 16°, electrons.

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

- Fine centering of the beam on the target: put the cross hairs target in the beam. Ask for 70 nA, start with the approximate beam positions above. The target magnet is on, and the beam is straight through (chicane is off, final alignment was done today,) so the beam horizontal (and vertical) center may have changed. Follow the usual procedure:

- First, check the target vertical centering by looking at the slow raster y vs x ADC plot, adjust the encoder values until the horizontal cross hairs arms are centered.

- Next, adjust the beam center by asking MCC to steer the beam left or right in steps of 0.5 mm, as needed. Don't steer the beam more than 3 mm in either direction. Watch for the target cup rims showing as bright areas on the raster ADC plot.

- Take data with TOP target **POSITIVE** polarization.
- (Most likely scenario) 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 <u>higher</u>**. 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 <u>underannealed</u>. 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 BOTTOM target **POSITIVE** polarization.

- <u>(Most likely scenario)</u> This target was in the beam before the rotation. It may have been partially annealed by sitting in LN2 for about 8 h while the rotation was being done. Follow the guideline for the TOP target for the case of <u>underannealed</u> material. Anneal when the polarization is below 65%.

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, <u>start the run then.</u>*

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). Take another C+He ½ h run with HMS cosmics trigger (3/ 4) to check the HMS efficiency. Restore the HMS normal trigger after the run.