SLAC MEMORANDUM

TO: ILC/ESA, PEP-II/LCLS OPS, EOICs   DATE: 25-Jun-2007

FROM: Rick Iverson

SUBJECT: Linac/ESA electron beam startup checklist for LCLS/ESA beam tests (T-490)

Schedule: LCLS/ESA beam tests to run in ESA from Jun 29 – Jul 8, 2007.

Purpose: To investigate capabilities for future test beam experiments in ESA using the LCLS beam. Commission the accelerator safety systems for beam containment (BCS) and machine protection (MPS) when the LCLS injector is used. Characterize the transverse and longitudinal emittance of the beam in ESA.

_____1) Establish Electrons to CA11 PR-55 at 13.64 GeV.
     Primary beam: 13.64GeV, 2 to 5E+09 electrons/bunch, 1-10pps
     Energy spread   = 0.02% (minimum).
     BC-1 on with L1S set for maximum compression.
     Linac Phase   = -10 degrees after BC-1

_____2) These are the configs to start with. After the first shift,
         configs will be saved that are more current.

     BSY-ESA Magnet   config NOR #482 24-Jun-07 "NOR#477 scaled to 13.64GeV"
     SLC CIDESA BPM   config NOR #134 26-Apr-06 "T474, T480 after y beta match"
     COLLLI30   config NOR#287 25-Jun-07 "wide open"

_____3) Verify that the BAS is signed off and the Beam containment items in the BAS are active.

_____4) Check that the ESA BCS and MPS are made up.

_____5) When the experimenters are ready for beam,
     -Go to no access, pull the vacuum valves etc.
     -Set the beam rate to 1hz.
     -Verify that the LI29 feedback is on and working.
     -Bring the beam straight ahead to D-2
*Note:It is not necessary to degauss 50-B1. Just do "LGPS OFF" and set the
         launch with XCOR 34 and YCOR 35 in CA11 and XCOR 4085 , YCOR 4085 in LI30.
     -Steer BPMS,CB00,30,50,1010,1020 to zero.
     -Bring the beam to the Aline.
     -Touch up the energy until the bpms match the reference orbit listed above.
     -Call the experimenters at x2811 and have them put in roller screens 1 and 2. Center the beam on these screens using XCOR A28 & A32 plus YCOR A29 & A33.
     -Sector 30 PLIC level should be less than 50 mV
     -Ask the experimenters if you want to go to 10Hz.