g2p /gep Beam Transport Meeting Minutes

Tuesday 8/31/10

Attendees: Y. Roblin, J. Benesch, A. Freyberger, W. Oren, P. Francis, P. Kjeldsen, JP Chen, D. Hingbotham, E. Folts, A. Gavalya, P. Degtiarenko, J. Heckman, Dillon-Townes, A. Camsonne, K. Allada, J. Zhang et al.

The following is a summary of issues discussed during the second g2p /gep Beam Transport Meeting:

OPTICS:

- Yves Roblin produced an optics deck which includes all the energy runs for both target locations. The deck data has been transmitted to the Mechanical Engineering Group to assemble the elements and components.
- One result of the optics run is that the neither FZ magnets will have to be translated down beam when the target is relocated to the pivot.
- The upside down double quad girder will have to be removed because of its impact with FZ1. Mechanical Engineering will verify this issue. The correctors on this girder will be relocated to the beam line before the FZ1 magnet.

MAGNETS:

- J.P. will contact Mark Jones from Hall C to secure commitment to HALL A for the usage of the FZ1 and FZ2 magnets and their associated power supplies. Jay Benesch stated the current requirements for those power supplies (see page 3).
- There is no multi-pole issue with the proposed 10” vacuum chambers for the FZ magnets and Unrastered beam. Further study will be done by Jay with rastered beam.

BEAM TRANSPORT:

- M20 BPM’s were decided to be used on the transport line exiting the FZ2.
- The transport line exiting the FZ2 will have no vacuum connection to the target chamber. A beryllium window will terminate that line.
- Installation of transport line to start at the beginning of the 2011 six months down—5/14/11.

- Mechanical Engineering Schedule will be produced when the optics runs and the element and component assembly has been completed.
- Engineering Specifications Document created (pages 3 & 4))

RAD CON:

- Pavel Degtiarenko requested data for target thickness, duration of run times, and energy during those runs, etc. to develop radiation events for the experiment.
- Dump definition still is being worked. Pavel, J.P., Doug, Ed, and Alan will get together to develop the configurations, locations, and address radiation concerns.

SOFTWARE: No issues

VACUUM: No issues

INSTALLATION: No issues

ALIGNMENT: No issues

ELECTRONICS: BPM type to be determined within two weeks. Mechanical and electrical testing is being conducted. The decision of fabricating wire, strip line, or new type strip line BPM is pending. In any case M20's will have to be fabricated.

g2p –Gep Engineering/ Design Specification

Experimental Runs:

Experiment	Beam Path	ENERGY	Date	FZ1 Position	FZ2 Position	TARGET Location	SEPTUM	DUMP
g2p	Chicane Straight	Tune 1.1GeV* 1.6GeV 2.2GeV 3.3GeV	Nov-2011 Thru Jan-2012	NO VERTICAL MOVEMENT **[Power supply current:~130 A]**	At Y=100.0 **[Power supply current:~306A]**	87.69 cm Upstream of PIVOT	INSTALLED	
	Chicane Active	Tune 1.1GeV 1.6GeV 2.2GeV 3.3GeV		NO VERTICAL MOVEMENT **[Power supply current:~130 A]**	VARIOUS VERTICAL LOCATIONS: **[Power supply current:~306A]**	87.69 cm Upstream of PIVOT	INSTALLED	AFTER TARGET
geP	Chicane Active	Tune 2.2GeV 3.3GeV	Feb-2012 Thru Mar-2012	NO VERTICAL MOVEMENT **[Power supply current:~175 A]**	VARIOUS VERTICAL LOCATIONS: **[Power supply current:~350A**	At the PIVOT	REMOVED	

* Actual Energies: 1.1 GeV-------1.159 GeV
1.6 GeV ------1.706 GeV
2.2 GeV ------2.257 GeV
3.3 GeV ------3.355 GeV

- **BEAM CHARACTERISTICS;**
  - Current:
    - Through Chicane: 50-120 nA
    - Straight through ≤ 30 μA
  - Beam Size
    - Unrastered: 50-200 microns diameter
    - Rastered: 25 mm diameter
- **VACUUM:**
  - Beam Line and Target: 1X 10^{-6} Torr
  - Leak Checking: Standard JLab Vacuum Specifications
- **ALIGNMENT:**
  - Target: TBD
  - BPM: Known to .25 mm

    - Magnet Centers: Known to .25 mm
    - Stands: Typical Tolerances (5 decimal accuracy)
- **WELDING:** Adherence to JLAB Specification: 6122 appendix T6 and 6151 appendix T6