Initial Beam Delivery to Hall A for G2P

comments/History:

03/01/12 10:46 OPS REVIEW by l_Carlino:

Prior to CW beam setup Hall A Ion Chamber Calibration must be done. Contact Tommy Michaelides, who must be present for this activity. Ops must do the functional test and then run Tune beam for setup if it passes.

02/20/12 10:02 PRIORITY ASSIGNED by A_Freyberger:

02/13/12 15:40 NEW by Y_Roblin:

Beam Test

✔ BEAM Testplan has been reviewed by Ops group.

The test is invasive and will disrupt beam delivery to halls
Test to be performed by Yves Roblin
Required Current(s)
TUNE MODE
Beam Source: A
2 uA - 4 uA
CW MODE
Beam Source: A
0 - 5
Energy Requirement(s)
2 Pass
Termination Point(s)
Hall A

Critical Tools

The testplan author has specified that the following tools must be available.
30 Hz
Archiver
Courant Snyder
FOPT
MST
Multi-Harp

Beam Testplan Details

Brief Purpose of Test

Establish the initial beam delivery to the newly constructed beamline for G2P/gep.
This test plan only addresses the initial commissioning in straight-thru mode with delivery to the Hall A dump.
Subsequent test plans will address commissioning the chicane, the diagnostics and interlock systems.

Anticipated Benefits

Provide a procedure to establish beam in Hall A

Special Beam Conditions Required

CW limited to 10 microamps and tune mode with a 4 microamps beam.

Hardware and/or Software Changes Required

None

Special Hazards/Safety Considerations (enter ""None"" if not applicable)

None

Setup Procedure

Prerequisites:

1. Take multiharp data at 1C05 HARP with dumplette inserted in order to have the data available for matching.
2. The Compton chicane has to be configured in straight-thru mode.
3. Optics have been downloaded in the Hall A line. Use MST to set it at pass 2.
4. FZ1 and FZ2 dipole magnets are OFF and degaussed. Interlocks disabled.
5. Experimental target is empty, target field is ZERO.
6. The silver calorimeter is in retracted position.

Status

Application:	ATLis
Task ID:	**12015**
Task Status:	**NEW**
Time Estimate:	**4 Hours**
Required PSS:	**NA**
Priority:	**Whenever**
Scheduled:	
Created:	**02/13/12 15:23**
Last Modified:	**03/01/12 10:46**
Created By:	**Y_Roblin (x.7105)**
Owned By:	**Y_Roblin (x.7105)**
Created For:	**CASA**
Responsible:	**yves roblin**
Project:	**Other - No Project**
Charge Code:	
Risk Classification (pre-mitigation):	
Risk Classification (post-mitigation):	

Systems

OPS
OPTICS

Areas

ENCLOSURE:
- Injector
- NLinac
- SLinac
- Hall A

BUILDINGS:

Elog References

1675469: OPS REVIEW Initial Beam Delivery to Hall A for G2P

Attachments

Add an attachment...

Test Procedure

1. Tune mode, 8 uamps. Termination point is Hall A dump
2. Check that the Lambertson magnet is properly set. It should bring the beam to near zero at 1C01 /1C02/1C03. Zero Horizontal correctors and use the Lambertson to flatten in this region.
3. Check that MBN dipole is properly set. It should be adjusted to flatten orbit at 1C04/1C05. The resulting BDL value should be close to thevalue of the lambertson (MLA) dipole. zero out corrector C04H first.
4. Check that there is no incoming dispersion by verifying with 30Hz system. Correct as needed in the arcs. Correct the vertical leakage if any in 4T line.
5. Pull the dumplette. Send tune beam to the hall A dump and steer up the line in tune mode.
6. Take HARP scans at 1H04 and 1H05A.
7. From these scans, establish a 2 point line for the centroid in the X and Y planes.
8. Adjusting correctors MBD1H04H/MBD1H04V as needed, zero the incoming angle in order to have the two HARPS given the same centroids within errors in both planes.
9. Go back to step 4 and repeat until all two HARPS give the same centroid within errors.

10. ESTABLISHING DUMP LOCATION:
11. GO to CW, increase current starting around 0.5 microamps, You should start seeing it at a few microamps.
12. If beam not visible on dump viewer, go to step 15. You can do that in tune beam.
13. By using MBD1H04H, map out the dump by swinging across and observing the ion chamber readings. Use a striptool and graph the readings versus corrector setpoints.
14. determine the center of dump, leave horizontal corrector at this value.
15. IMPORTANT: do not do that for the vertical plane. We need the angle to be exactly zero towards target.
16. Make an ALLSAVE of all the setpoints and correctors. Label it explicitely as the reference setup for Hall A straight-thru at 2.2 Gev/c

Backout Procedure

NONE. We go forward..