

Notes from MI/RR Meeting - 24 Feb 2003

by Bruce Brown

Notes on 25 Feb 2003

Ming-Jen Yang -- MI8 Line issues

Measurements of the MI8 Lattice following the Jan03 shutdown indicate that the vertical properties of the line have changed, particularly the vertical dispersion. The major change during the shutdown was the installation of a new MP02 Extraction Septum at the Booster L3 extraction point. Analysis of that change is underway by a group including Wiren Chou and Francois Ostiguy of the Beams Physics group. It appears unlikely that the observed changes can be explained by the L3 modifications. Meanwhile, Ming-Jen has been smoothing the positions horizontally and especially vertically down the line and reducing the vertical dispersion with quadrupole changes in the matching section between the Booster and the end of the vertical bend section. Of interest is the fact that a shunt power supply has been removed from the MI8BEND string. Since it had been set to zero, there is, in principle, no impact but further attention to this is needed. The first few BPM's in the line are not responding. Ming-Jen also asked for a change in scaling for I:IBEAMS to remove some saturation issues.

Krish Gounder -- Recycler Lifetime with Protons.

A comparison of Recycler properties observed with proton beams before and after the January 2003 shutdown was presented.

Recycler Operation: Comparison:

Item	Before Shutdown	After Shutdown
Thin beam lifetime (MI ramping)	≈ 100 hrs	30 hrs
Unscraped beam lifetime	11-13 hrs	5-7 hrs
Horizontal admittance	62 π -mm-mr	65 π mm-mr
Vertical admittance	44 π -mm-mr	45 π mm-mr
Tunes	(0.418, 0.414)	(0.419, 0.414)
Hor. beam center at Scraper	-2.8 mm	4.2 mm
Ver. beam center at Scraper	-5.0 mm	-2.5 mm
Ion gauges - average vacuum	2.65 E-10 Torr	3.95 E-10

Discussion of the various measurements followed. The lifetime with 'thin' (scraped) proton beams should reflect the vacuum effects due to single coulomb scattering. It is agreed that the vacuum improvements in the MI30 region were completed and improvements there are seen but elsewhere in the

ring there are large degradations from the changes associated with the flying wires and there are many regions where the addition of more ion pumps was not as benign a modification as had been hoped. Both firing of the TSP's and baking will help when time is available. Studies this week with pbars will clarify the lifetime issues. In addition to the tune and chromaticity changes noted following the shutdown, there appears to be a change in the average current required for the vertical correctors of 0.5 A. This has no obvious explanation at present.

Shekhar Mishra -- Plans For This Week

Prior to a shutdown day on Tuesday (Feb 25) for the rest of the machines, we will attempt to transfer pbars to the Recycler tonight. They will shoot to the Tevatron, then stack to about 60 mA in the Accumulator for a series of shots to the Recycler. Tune-up of the BLT will take place during this time and the cooling systems and lifetime measurements will use the pbars which are successfully transferred.

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