

4 Attempt to Extract Beam from H10

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Blumberg

FEB COMMISSIONING STUDIES

MAY 1, 1973

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Scheduled: 1700-2400 Actual 1830-0030 17~~0~~

Objective: Extraction at H10.

Result: We didn't observe external beam, but radiation survey after run indicates beam was extracted, hitting valve upstream of our scintillating screen and current transformer.

- (1). Prior to studies, during HEP on 4/30 WITH $CBM = 4.7 \cdot 10^{12}$ ppp we moved E10 septum in to measure injection aperture. We did not see any effect on CBM until septum was 1.1-inch from Beamcode axis in st. sect. E10. CBM was down 10% at 1.06". Horizontal aperture of AGS is thus surprisingly small. Nominal operating position of E10 is 1.9" for FEB.
- (2). On 5/1 we set up for fractional extraction on flattop at $t = 700$ ms. Lost about 1 hour as EAO searched for cause of water flow fault in external quads UQ1, 2; new No. Area water cooling tower was not on. Lost another hour in clearing No. Area tunnel; a portion of tunnel was locked and inaccessible to MCR.
- (3). Set up with beam grazing E10 and H10 septa. With C15 + E15 beam kickers at 5000 A we see 0.6 cm deflection at E7 electrode. This is about as previously observed. Then increased kickers to maximum (6000 A) which should give 1.2 cm bump at E10. Noted on beam monitor that about 20% of CBM is removed from AGS.
- (4). At H7 we observed a .7 cm positive deflection of particles (mainly 4 bunches) kicked by E10 at 3000 A (~ 1 mrad). This confirms correct polarity of E10. We also saw a beam displacement of $\sim 3/4$ " at H10 flag. E10 septum works fine! With H10 off, we see beam at H15 electrodes which passed through aperture of H10 ejector. We turned on H10 at 1800 A and noted that those bunches previously observed at H15 were removed from AGS. We could not see extracted beam on U16 flag. We suspected incorrect polarity of H10 EM so reversed cables. Still no external beam.
- (5) On 5/2, radiation survey meter indicated hot spot at U10 valve, which was inadvertently closed during 5/1 run. We were extracting!