2010-10-05 Tuesday Morning Notes

Monday, October 04, 2010
3:23 PM

On-call:

Tuesday: Vladimir Nagaslaev
Wednesday: Keith Gollwitzer

Stacking

- Replaced RR cooling fans on A56R01 and A55R05 at AP50
- Investigating longer cycle times
  - Debuncher Transverse: There was a period where the Debuncher transverse powers were decreased. D/A sigmas increased, but stack rate was not measurably impacted.
  - Debuncher Momentum: Cooled at 2.2 seconds. Stack rate only minimally impacted
  - Again believed to be the stacktail
- Stacking Numbers
  - <stacking rate>= 26.3 mA/hr
  - <production>= 24.9 pbars/e6 p
  - <beam on target>= 8.40e12

Transfers

- Unstacked 581e10 in 73 transfers over 24 sets
- <efficiency> = 95.6%

The Numbers

- Stacking
  - Pbars stacked: 608.78 E10
  - Time stacking: 23.74 Hr
  - Average stacking rate: 25.64 E10/Hr

- Uptime
  - Number of pulses while in stacking mode: 29457
  - Number of pulses with beam: 28684
  - Fraction of up pulses was: 97.38%

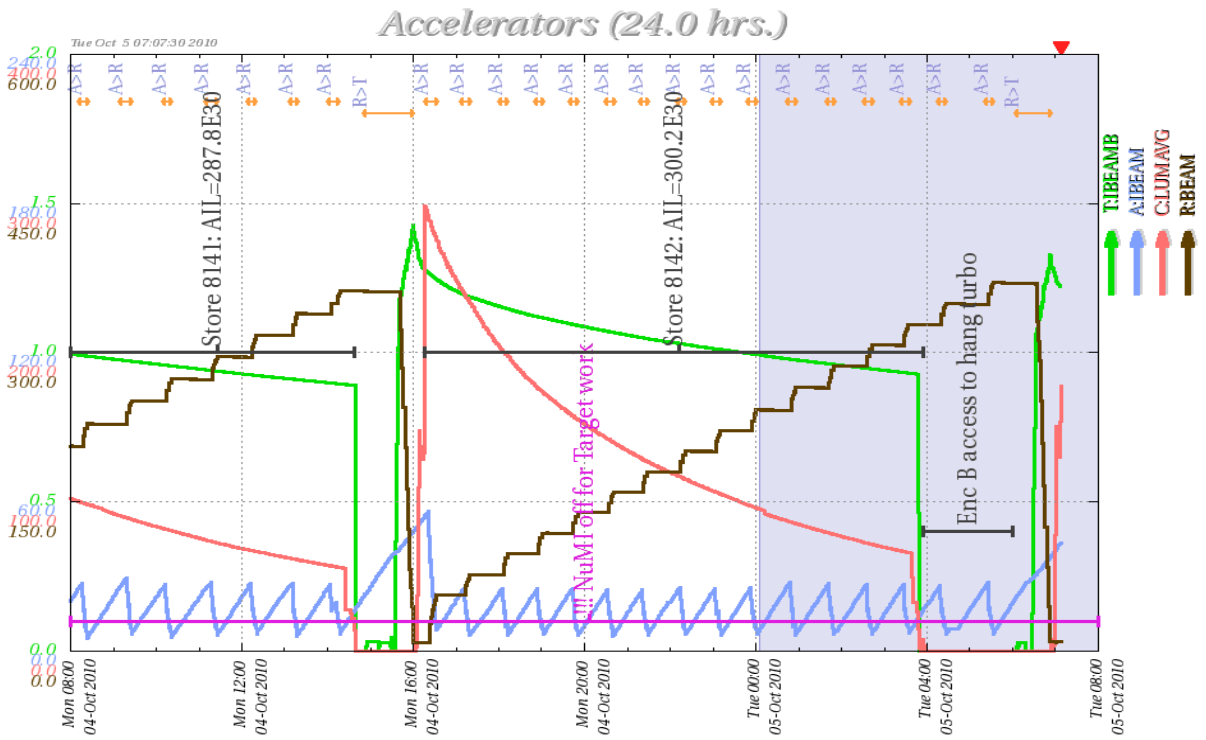
- The uptime's effect on the stacking numbers
  - Corrected time stacking: 23.12 Hr
  - Possible average stacking rate: 26.33 E10/Hr
  - Could have stacked: 625.19 E10/Hr

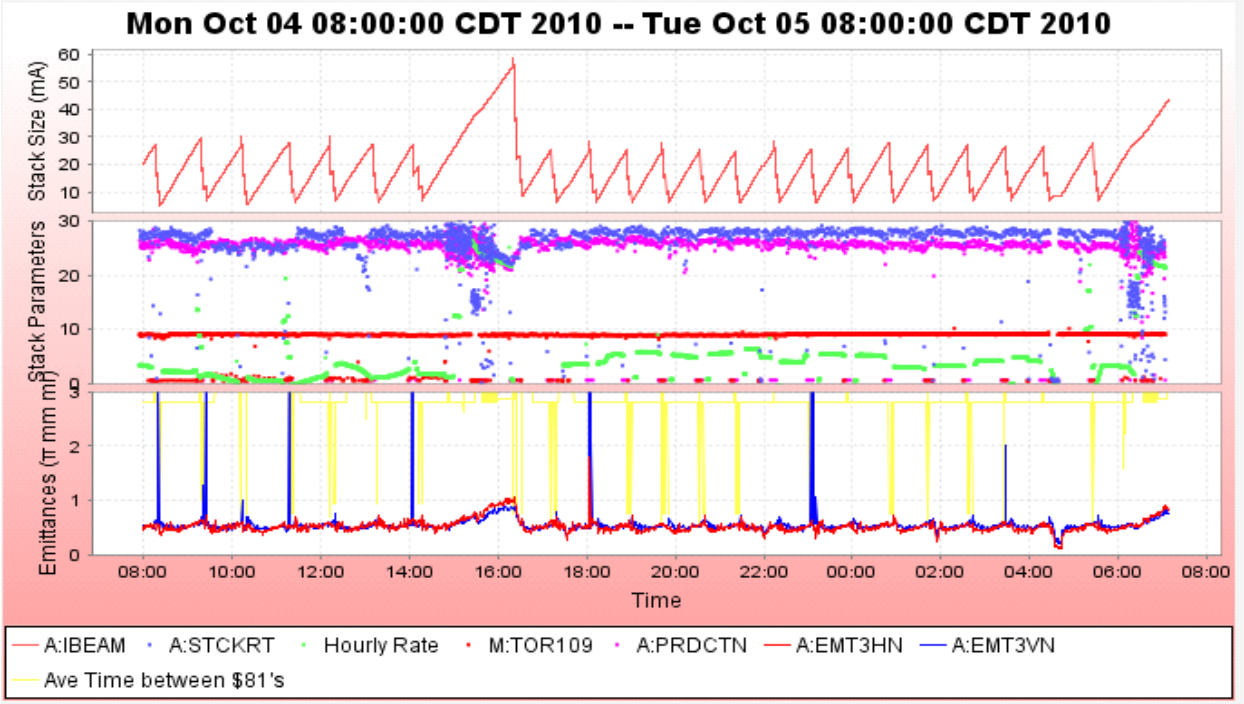
- Recycler Transfers
  - Pbars sent to the Recycler: 579.67 E10
  - Number of transfers : 73
  - Number of transfer sets: 24
  - Average Number of transfer per set: 3.04
  - Time taken to shoot including reverse proton tuneup: 00.26 Hr
  - Transfer efficiency: 95.71%

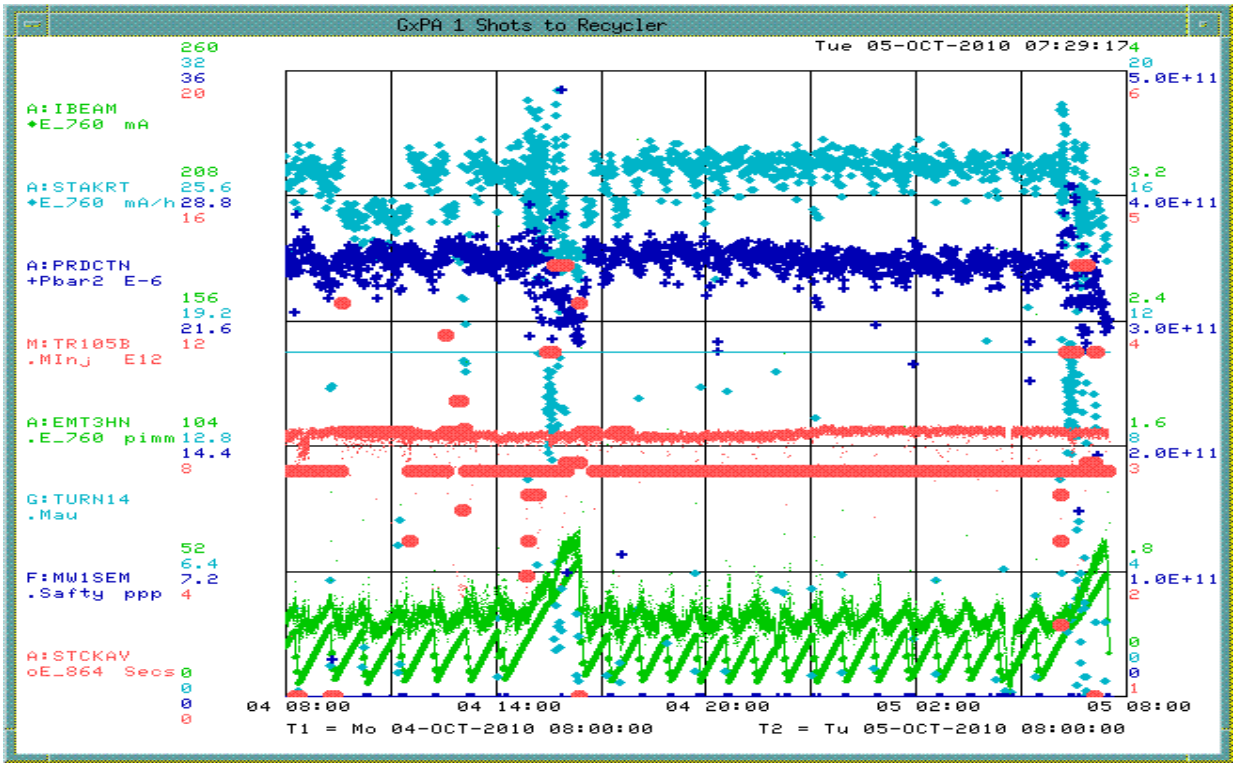
- Other Info
  - Average POT : 8.38 E12

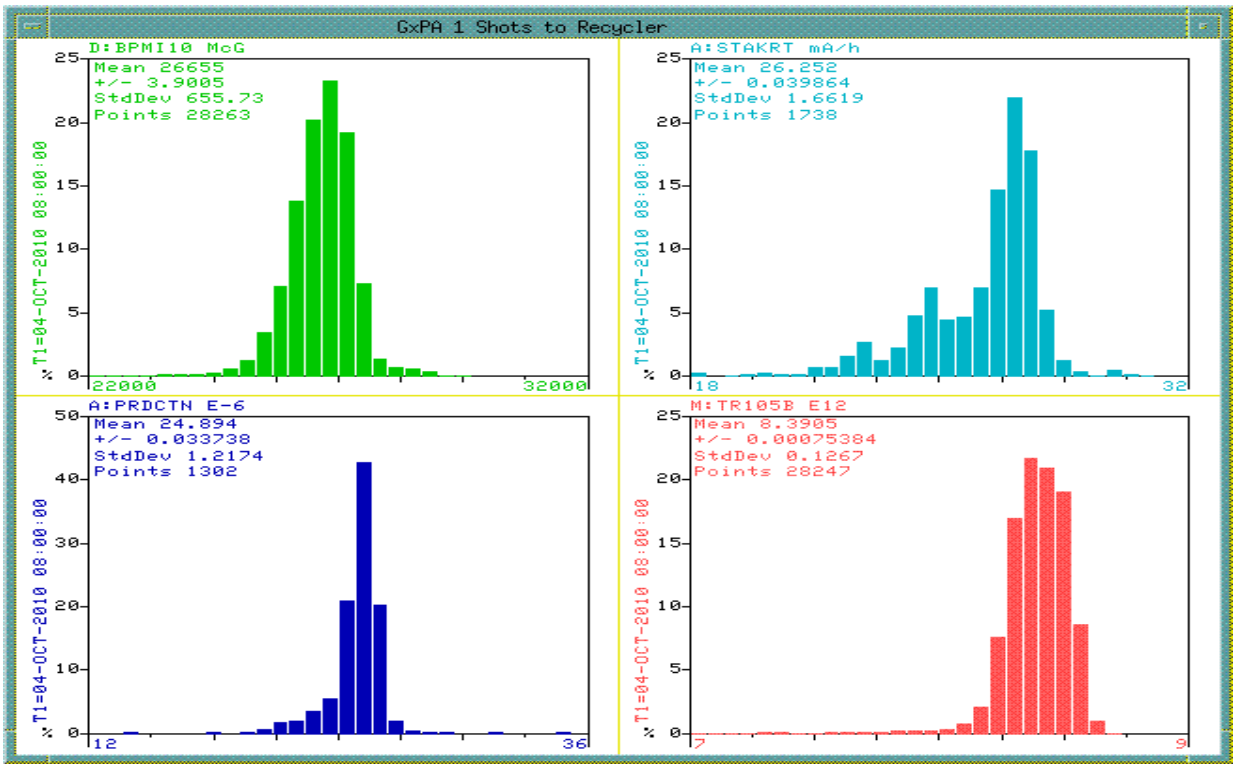
- Average production: 25.32 pbars/E6 protons

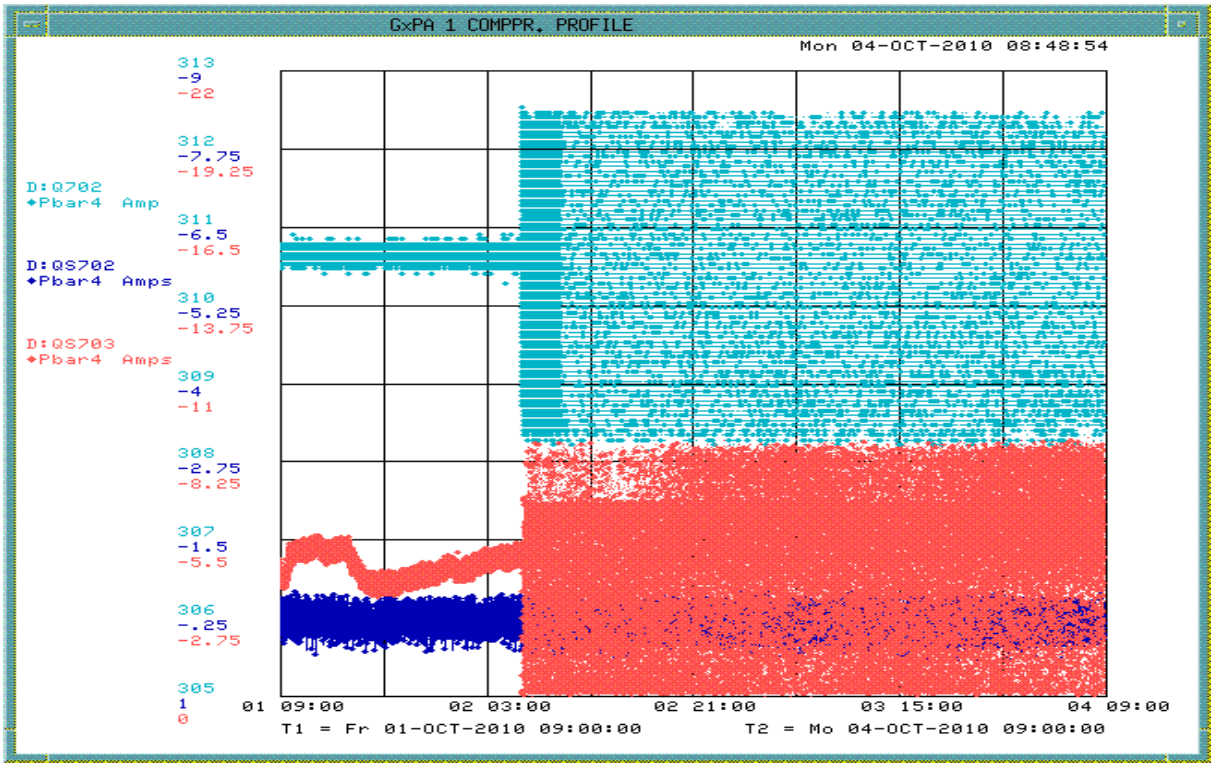
Plots

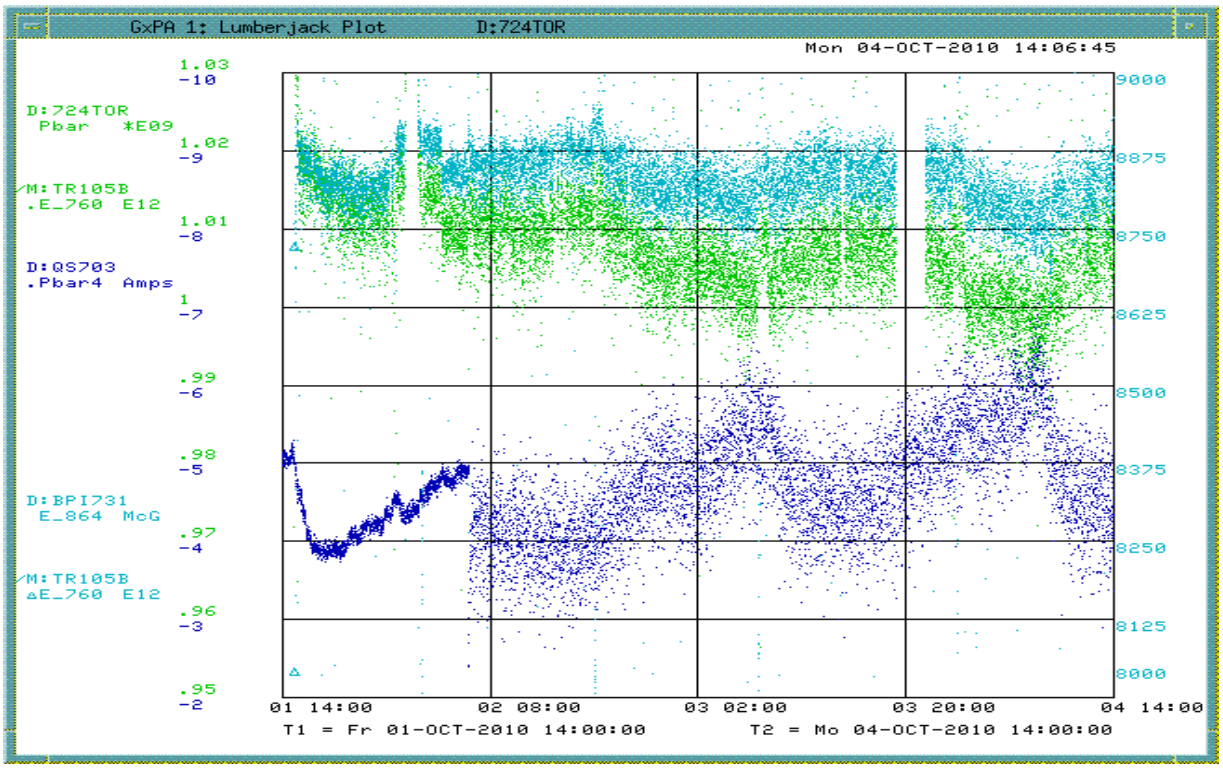


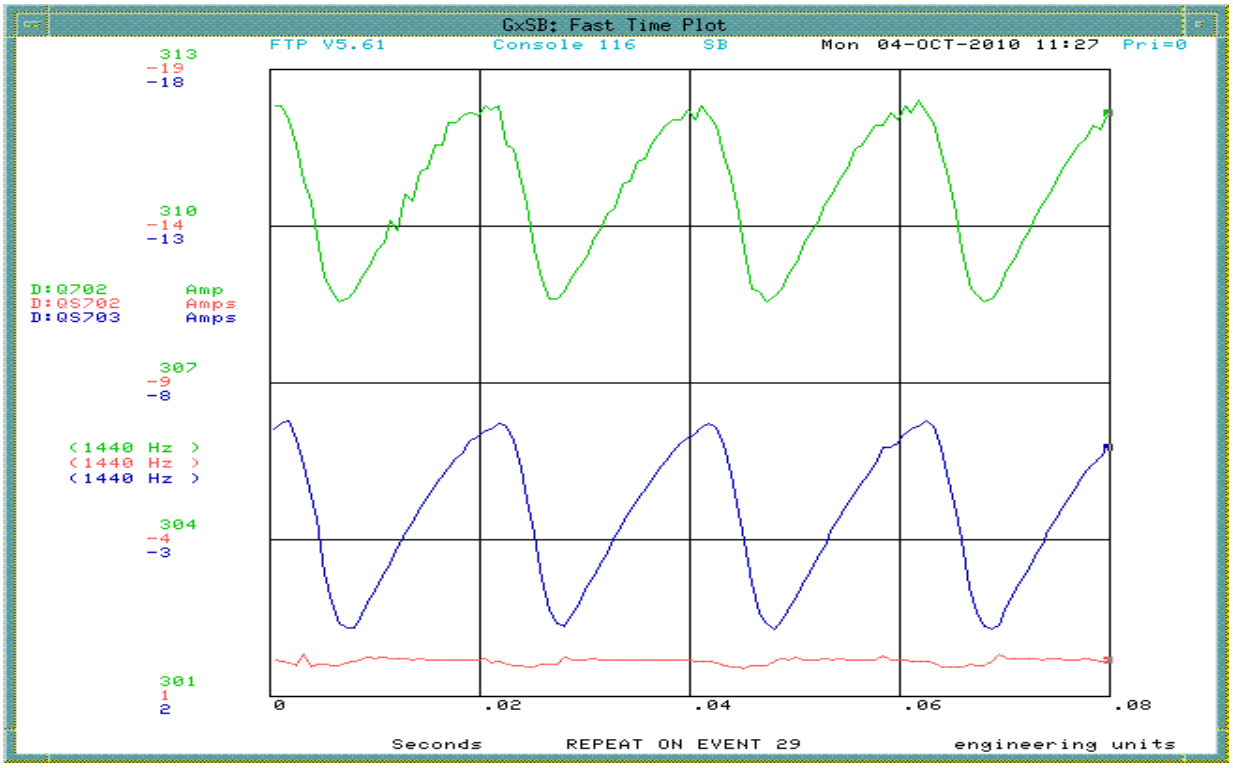


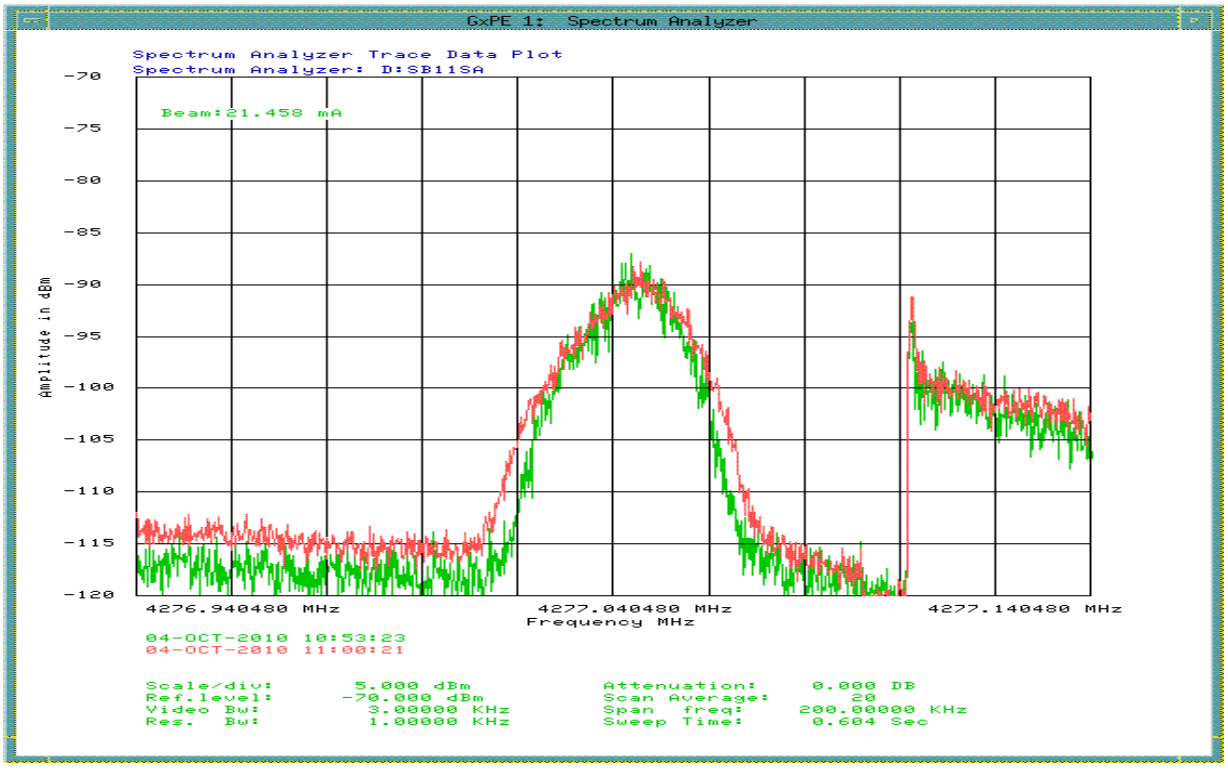

GxPA 1 Shots to Recycler
Tue 05-OCT-2010 07:29:17
A:IBEAM
+E_760 mA
A:STAKRT
+E_760 mA/h
A:PRDCTN
+Pbar2 E-6
M:TR105B
.MInj E12
A:EMT3HN
.E_760 pimm
G:TURN14
.Mau
F:MW1SEM
.Safty ppp
A:STCKAV
oE_864 Secs
04 08:00
04 14:00
04 20:00
05 02:00
05 08:00
T1 = Mo 04-OCT-2010 08:00:00
T2 = Tu 05-OCT-2010 08:00:00


GxPA 1 Shots to Recycler
D:BPMI10 McG
Mean 26655
+/- 3.9005
StdDev 655.73
Points 28263
A:STAKRT mA/h
Mean 26.252
+/- 0.039864
StdDev 1.6619
Points 1738
A:PRDCTN E-6
Mean 24.894
+/- 0.033738
StdDev 1.2174
Points 1302
M:TR105B E12
Mean 8.3905
+/- 0.00075384
StdDev 0.1267
Points 28247
T1=04-OCT-2010 08:00:00


GxPA 1 COMPPR. PROFILE
Mon 04-OCT-2010 08:48:54
313
-9
-22
312
-7.75
-19.25
D:Q702
♦Pbar4 Amp
311
-6.5
-16.5
D:QS702
♦Pbar4 Amps
310
-5.25
-13.75
D:QS703
♦Pbar4 Amps
309
-4
-11
308
-2.75
-8.25
307
-1.5
-5.5
306
-.25
-2.75
305
1
0
01 09:00
02 03:00
02 21:00
03 15:00
04 09:00
T1 = Fr 01-OCT-2010 09:00:00
T2 = Mo 04-OCT-2010 09:00:00


GxPA 1: Lumberjack Plot
D:724TOR
Mon 04-OCT-2010 14:06:45
1.03
-10
D:724TOR
Pbar *E09
1.02
-9
M:TR105B
.E_760 E12
1.01
-8
D:QS703
.Pbar4 Amps
1
-7
.99
-6
.98
-5
D:BPI731
E_864 MoG
.97
-4
M:TR105B
ΔE_760 E12
.96
-3
.95
-2
9000
8875
8750
8625
8500
8375
8250
8125
8000
01 14:00
02 08:00
03 02:00
03 20:00
04 14:00
T1 = Fr 01-OCT-2010 14:00:00
T2 = Mo 04-OCT-2010 14:00:00





This is the difference between the final momentum width in the Debuncher at 2.8s (green) and 2.2s. The production and stack rate take a hit, but it is small. Our problems are in momentum space and it is the stacktail system that is the problem.

Pasted from <http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar10&action=view&page=last&frame=2&scroll=true&load=>

Column 1 Number_0_Pbar Transfer Shot #	Column 4 Number_3_Transfer Time		Column 21 Number_20_A:IBEAMB sampled on $91 (A:BEAM7), E10	Column 22 Number_21_A:IBEAMB sampled on $94 (A:BEAM9), E10	Unstacked (mA)	Column 23 Number_22_R:BEAMS (R:BEAME0[0]) pre xfer E10	Column 24 Number_23_R:BEAM (R:BEAME0[1]) post xfer, E10	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Acc to MI * Acc to MI2 Efficiency	Transfers	Sets	Column 5 Number_4_Acc Horizontal Emittance	Column 6 Number_5_Acc Vertical Emittance	Column 8 Number_7_Acc Longitudinal Emittance
	Totals =>				581.43			555.69	95.57%	97.07%	97.27%	94.42%	73	24	5.1528	5.0872	1.9497
	Daily Average =>				581.43			555.69					73	24			
21074	Tuesday, October 05, 2010	5:25	27.86	6.73	23.64	348.55	370.78	22.52	95.23%	97.91%	98.74%	96.67%	3	1	5.092	5.268	1.963
21073	Tuesday, October 05, 2010	4:19	26.93	6.53	22.89	327.95	349.51	21.79	95.20%	95.05%	95.62%	90.89%	3	1	5.157	5.193	1.96
21072	Tuesday, October 05, 2010	3:27	26.81	6.80	22.61	307.44	328.66	21.46	94.94%	95.08%	94.99%	90.32%	3	1	5.136	5.168	1.914
21071	Tuesday, October 05, 2010	2:35	27.10	6.56	23.09	286.23	308.06	22.03	95.41%	97.09%	96.22%	93.41%	3	1	4.976	5.098	1.965
21070	Tuesday, October 05, 2010	1:42	27.48	6.77	23.27	264.74	286.75	22.20	95.38%	96.67%	97.49%	94.24%	3	1	5.911	5.152	1.957
21069	Tuesday, October 05, 2010	0:49	27.99	6.33	24.22	242.20	265.18	23.15	95.56%	97.59%	97.51%	95.16%	3	1	4.962	5.026	1.974
21068	Monday, October 04, 2010	23:54	26.02	6.22	22.29	221.41	242.57	21.31	95.58%	96.91%	99.02%	95.96%	3	1	5.276	5.042	1.973
21067	Monday, October 04, 2010	23:04	25.64	6.12	22.02	200.81	221.70	21.03	95.48%	97.91%	96.97%	94.94%	3	1	4.839	5.028	1.972
21066	Monday, October 04, 2010	22:14	25.81	6.25	22.08	180.10	201.09	21.12	95.63%	96.68%	96.19%	93.00%	3	1	4.753	4.962	1.98
21065	Monday, October 04, 2010	21:21	24.63	5.96	21.20	160.09	180.32	20.39	96.18%	98.62%	98.95%	97.58%	3	1	5.239	5.033	1.964
21064	Monday, October 04, 2010	20:33	25.17	6.03	21.70	139.48	160.26	20.87	96.22%	97.53%	99.05%	96.61%	3	1	5.203	4.81	1.971
21063	Monday, October 04, 2010	19:44	25.62	6.12	22.04	118.69	139.66	21.09	95.73%	96.33%	96.93%	93.37%	3	1	4.708	5.114	1.968
21062	Monday, October 04, 2010	18:54	25.23	6.10	21.70	98.06	118.78	20.87	96.14%	97.20%	97.69%	94.96%	3	1	4.838	5.032	1.97
21061	Monday, October 04, 2010	18:06	25.68	6.21	22.03	77.08	98.18	21.20	96.25%	98.32%	97.33%	95.69%	3	1	5.471	5.054	1.951
21060	Monday, October 04, 2010	17:12	25.72	6.24	22.00	56.22	77.21	21.10	95.91%	98.83%	97.70%	96.55%	3	1	4.785	5.107	1.967
21059	Monday, October 04, 2010	16:22	56.32	8.49	51.20	8.59	56.37	48.21	94.15%	95.88%	95.40%	91.47%	4	1	6.917	6.312	1.758
21058	Monday, October 04, 2010	14:05	27.24	6.97	25.18	338.86	362.63	24.16	95.95%	98.01%	97.36%	95.43%	3	1	5.573	4.994	1.96
21057	Monday, October 04, 2010	13:11	27.34	6.18	23.80	317.14	339.66	22.77	95.68%	97.73%	97.32%	95.11%	3	1	5.299	5.133	1.941
21056	Monday, October 04, 2010	12:13	27.51	6.71	23.48	295.58	317.88	22.53	95.97%	96.60%	96.38%	93.11%	3	1	5.078	4.973	1.989
21055	Monday, October 04, 2010	11:18	27.92	6.17	24.35	273.03	296.22	23.39	96.05%	96.91%	98.64%	95.59%	3	1	4.754	4.88	1.947
21054	Monday, October 04, 2010	10:13	27.13	5.42	23.86	251.28	273.96	22.88	95.91%	98.13%	99.17%	97.31%	3	1	4.976	4.804	1.942
21053	Monday, October 04, 2010	9:18	29.57	6.88	25.09	228.09	251.92	23.97	95.55%	96.28%	96.44%	92.86%	3	1	5.135	5.072	1.938
21052	Monday, October 04, 2010	8:16	27.31	5.25	23.89	206.08	228.76	22.84	95.60%	96.65%	97.62%	94.35%	3	1	4.368	4.718	1.891
21051	Monday, October 04, 2010	7:24	28.42	7.13	23.81	183.72	206.42	22.82	95.88%	97.35%	98.15%	95.55%	3	1	5.22	5.119	1.977