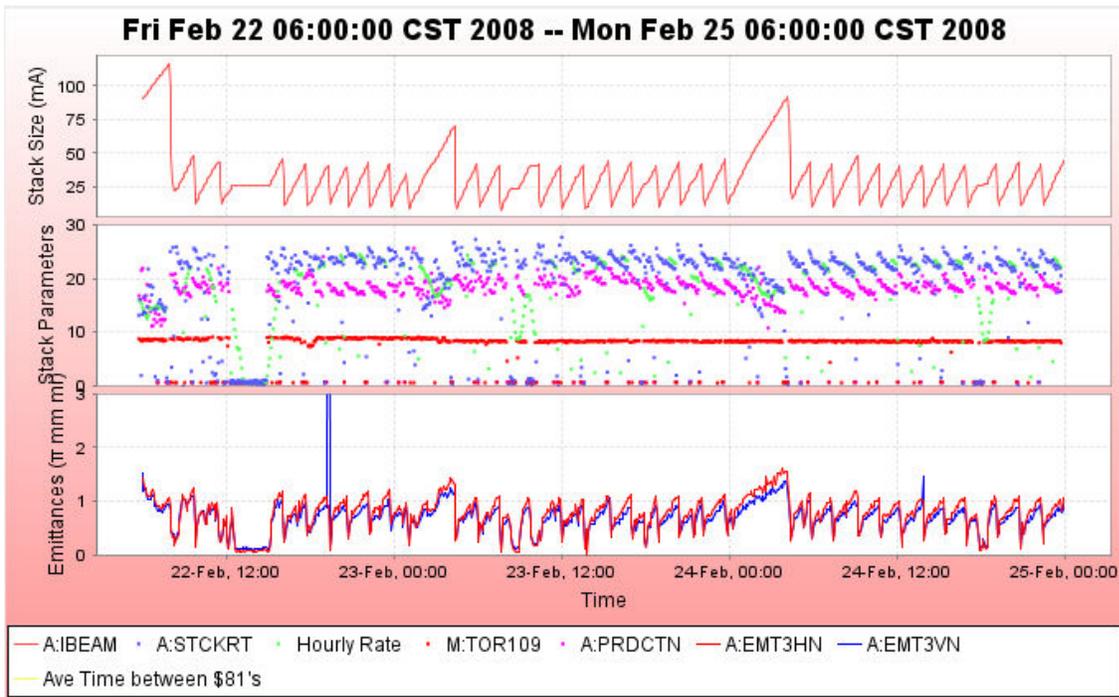


2008-02-22 Monday Morning Pbar Notes

Friday, February 22, 2008
1:06 PM

Stacking

- Friday there were problems with the target air blower.
 - At first it was thought that only a belt change would be necessary, but once they had the system apart, they found grease blowing through the seal on the pulley drive shaft of the blower and the shaft was not turning freely. As a result, it had to be replaced.
 - Lost about 2.5 hours of stacking due to this failure.
- On Saturday owls, Ops had some problems with the P1 permit. Since we switched to the \$29 events, the vertical position is slightly different coming out of the Main Injector. The normal LAM52 tweaks can fix the horizontal position, but not the vertical. Main Injector experts are going to check the last turn vertical position coming out of the Main Injector and will adjust if necessary.
- Over the weekend experts came in to examine the differences between a 2.2 and 2.4 second cycle time (<http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar08&action=view&page=88&scroll=false&load=>).
 - It looks like 2.2s gains us something for the first 30 minutes, then little or nothing after that.
- Protons on target
 - Ran about $8.25e12$ at 11 turns until Saturday owl shift when turns were reduced to minimize losses.
 - We ran about $7.6e12$ for the remainder of the weekend at 10 turns.
- Best stacking hours were 23.98, 23.55, 23.32mA/hr on Friday, Saturday and Sunday. We were running ten turns on Saturday and Sunday, and the stacking was about 0.5mA/hr lower than when we were running 11 turns.
- Average production was 17.80 pbars/E6 protons
- We are down about 1mA/hr, so we will tune on stacking today to try to get back.
- We would like to tune-up stacking on 11 turns if the upstream machines can deliver with acceptable losses.



Transfers

- Transferred 1328mA in 113 transfers over 36 sets.
 - Average Acc to MI eff 97.7%
 - Average Acc to RR eff 91.4%
- Transfer 7256 had a 73% transfer efficiency, due to problems with the beam line orbit tuneup. This was a subtle Accumulator BPM problem. House A30 was hung, though though it did not show a trip status. Two other BPM houses showed a trip status, but they were ok. In the end, it was found that booting the A30 house BPMs fixed the problem.

Column 1 Number _0_Pbar	Column 4 Number_3_Transfer Time	Column 21 Number_2 0_A:IBEAM B sampled	Column 22 Number _21_A:IB	Unstacked (mA)	Column 23 Number _22_R:BE	Column 24 Number _23_R:BE	Stashed	Acc to RR Eff	Column 27 Number_ 26_MI	Column 28 Number_2 7_MI Before	Acc to MI Eff	Acc to MI2 Eff	Transfers	Sets
	2/25/2008 7:00:00 AM			1327.393			1213.60	91.43%	1295.697	1296.624	97.61%	97.68%	113	36
7256	Monday, February 25, 2008 5:31:08 AM	42.787	25.188	17.599	70.412	83.266	12.85	73.04%	15.565	15.474	88.44%	87.93%	1	1
7255	Monday, February 25, 2008 3:48:30 AM	74.188	12.188	62.000	15.971	70.815	54.84	88.46%	59.354	59.484	95.73%	95.94%	4	1
7254	Monday, February 25, 2008 12:21:00 AM	52.387	8.188	44.199	396.590	436.109	39.52	89.41%	43.401	43.167	98.19%	97.67%	4	1
7253	Sunday, February 24, 2008 10:19:53 PM	42.387	10.588	31.799	369.484	398.512	29.03	91.29%	31.381	31.545	98.69%	99.20%	3	1
7252	Sunday, February 24, 2008 8:45:54 PM	44.188	10.987	33.201	340.476	370.941	30.47	91.76%	32.848	32.918	98.94%	99.15%	3	1
7251	Sunday, February 24, 2008 7:06:47 PM	42.188	10.188	32.000	312.677	341.883	29.21	91.27%	31.442	31.445	98.26%	98.27%	3	1
7250	Sunday, February 24, 2008 4:55:23 PM	42.387	10.188	32.199	284.651	314.005	29.35	91.16%	31.415	31.645	97.57%	98.28%	3	1
7249	Sunday, February 24, 2008 3:22:06 PM	41.788	9.788	32.000	256.784	285.722	28.94	90.43%	31.126	31.353	97.27%	97.98%	3	1
7248	Sunday, February 24, 2008 1:51:01 PM	42.387	10.188	32.199	227.936	257.560	29.62	92.00%	31.655	31.466	98.31%	97.72%	3	1
7247	Sunday, February 24, 2008 12:15:14 PM	41.788	10.188	31.600	199.695	228.638	28.94	91.59%	31.355	31.129	99.22%	98.51%	3	1
7246	Sunday, February 24, 2008 10:43:05 AM	42.188	9.988	32.200	170.710	200.354	29.64	92.06%	31.601	31.465	98.14%	97.72%	3	1
7245	Sunday, February 24, 2008 9:10:34 AM	47.787	11.988	35.799	138.283	171.218	32.94	92.00%	35.049	35.202	97.90%	98.33%	3	1
7244	Sunday, February 24, 2008 7:20:41 AM	41.388	10.788	30.600	110.151	138.814	28.66	93.67%	30.080	29.644	98.30%	96.88%	3	1
7243	Sunday, February 24, 2008 5:48:45 AM	43.388	10.388	33.000	79.766	110.418	30.65	92.88%	32.262	32.524	97.76%	98.56%	3	1
7242	Sunday, February 24, 2008 4:14:13 AM	92.188	15.388	76.800	9.098	80.042	70.94	92.38%	74.991	75.101	97.64%	97.79%	6	1
7241	Saturday, February 23, 2008 11:43:39 PM	45.388	11.188	34.200	360.917	391.612	30.70	89.75%	33.277	33.333	97.30%	97.46%	3	1
7240	Saturday, February 23, 2008 10:03:05 PM	41.988	9.988	32.000	333.888	363.338	29.45	92.03%	31.432	31.708	98.23%	99.09%	3	1

7239	Saturday, February 23, 2008	8:23:38 PM	42.787	10.188	32.599	305.638	335.282	29.64	90.94%	31.891	31.945	97.83%	97.99%	3	1
7238	Saturday, February 23, 2008	6:50:22 PM	41.788	9.988	31.800	277.247	306.438	29.19	91.80%	31.313	31.243	98.47%	98.25%	3	1
7237	Saturday, February 23, 2008	4:59:00 PM	42.988	9.788	33.200	247.677	278.192	30.52	91.91%	32.562	32.589	98.08%	98.16%	3	1
7235	Saturday, February 23, 2008	1:35:19 PM	41.988	8.588	33.400	185.597	216.493	30.90	92.50%	32.552	32.747	97.46%	98.04%	3	1
7234	Saturday, February 23, 2008	11:55:53 AM	41.588	9.188	32.400	156.130	186.091	29.96	92.47%	31.822	32.248	98.22%	99.53%	3	1
7233	Saturday, February 23, 2008	10:23:23 AM	42.188	9.988	32.200	125.757	156.443	30.69	95.30%	31.719	31.789	98.51%	98.72%	3	1
7232	Saturday, February 23, 2008	7:33:09 AM	41.388	8.388	33.000	95.484	126.191	30.71	93.05%	32.699	32.376	99.09%	98.11%	3	1
7231	Saturday, February 23, 2008	5:58:26 AM	42.188	9.188	33.000	64.884	95.806	30.92	93.70%	32.295	32.156	97.86%	97.44%	3	1
7230	Saturday, February 23, 2008	4:20:19 AM	69.988	8.388	61.600	10.057	65.175	55.12	89.48%	59.319	59.566	96.30%	96.70%	4	1
7229	Saturday, February 23, 2008	12:58:54 AM	35.788	8.388	27.400	325.015	349.813	24.80	90.50%	26.707	26.655	97.47%	97.28%	3	1
7228	Friday, February 22, 2008	11:42:00 PM	41.788	10.188	31.600	297.407	326.169	28.76	91.02%	30.831	30.689	97.57%	97.12%	3	1
7227	Friday, February 22, 2008	10:12:16 PM	42.988	9.988	33.000	268.505	298.571	30.07	91.11%	32.524	32.059	98.56%	97.15%	3	1
7226	Friday, February 22, 2008	8:40:07 PM	40.788	9.988	30.800	240.801	269.169	28.37	92.10%	30.411	30.663	98.74%	99.56%	3	1
7225	Friday, February 22, 2008	7:21:16 PM	40.988	12.588	28.400	214.529	241.275	26.75	94.18%	27.816	27.841	97.94%	98.03%	3	1
7224	Friday, February 22, 2008	5:41:51 PM	42.188	9.788	32.400	185.274	215.319	30.05	92.73%	31.561	31.920	97.41%	98.52%	3	1
7223	Friday, February 22, 2008	4:04:46 PM	45.788	10.788	35.000	153.268	185.909	32.64	93.26%	34.165	34.170	97.61%	97.63%	3	1
7222	Friday, February 22, 2008	11:34:18 AM	42.787	12.188	30.599	124.784	154.083	29.30	95.75%	30.309	30.029	99.05%	98.14%	2	1
7221	Friday, February 22, 2008	9:42:53 AM	48.588	12.588	36.000	92.957	125.270	32.31	89.76%	34.331	34.140	95.36%	94.83%	3	1
7220	Friday, February 22, 2008	7:57:54 AM	116.587	20.987	95.600	6.328	93.488	87.16	91.17%	92.636	93.196	96.90%	97.49%	5	1

Requests and Plan for the Day

- Tune-up on stacking
- We may have Debuncher Gain ramping studies requests later this week now that Val is back from furlough.
- We will have less Stacking During transfers study requests this week since Vander is on furlough this week.

Day by day details.....

Friday

- Target air blower tripped off 11:50.
 - Turned it on. Inspection showed that one of the belts tripped.
 - 12:28 - 15:08
 - Turned back off to replace belt.
 - Had to replace blower.

Saturday

- 00:00 P1 Permit
 - The p1 line trips of I:VT703 were caused by the Overthrunder pushing it over its limit in the P1 204 module again. We lowered I:LAM52(from 1580 to 1578) to get the P1 line BPMs back in place, but they seem to have only corrected the horizontal. We will try to get them back in place. You can see from the plot that VT701 is now sharing some of the load. It runs at about 1A now, allowing VT703 to run lower at 4.5A
- 04:58
 - Went from 11 to 10 turns.
We have backed the \$14s down to 10 Booster turns. We don't see too big of a hit to stack rate, and MI aborts on extraction losses are greatly reduced.
- 09:56
 - Rad tripped when setting up for transfers.
 - Replaced chipmunk.

• Sunday

- Debuncher momentum cooling was backed off and not restored.
- Ran a little less efficient for about 10 hours.

• Monday

- transfers

Other

- Paul's Numbers
 - Saturday
 - Most in an hour: 23.98 mA at Fri Feb 22 21:45:11 CST 2008
 - Best: 25.19 mA on 30-Jan-08
 - Average Production 16.34 e-6/proton Best: 25.41 e-6/proton on 01/30/2008
 - Average Protons on Target 7.21 e12 Best: 8.77 e12 on 07/24/2007
 - Largest Stack 116.73 mA Best: 313.58 mA on 02/18/2008
 - Sunday
 - Most in an hour: 23.55 mA at Sat Feb 23 16:32:11 CST 2008
 - Best: 25.19 mA on 30-Jan-08
 - Average Production 16.25 e-6/proton Best: 25.41 e-6/proton on 01/30/2008
 - Average Protons on Target 7.20 e12 Best: 8.77 e12 on 07/24/2007
 - Largest Stack 92.29 mA Best: 313.58 mA on 02/18/2008
 - Monday
 - Stacking in last 24 hours
 - Most in an hour: 23.32 mA at Sun Feb 24 23:25:29 CST 2008
 - Best: 25.19 mA on 30-Jan-08
 - Average Production 18.24 e-6/proton Best: 25.41 e-6/proton on 01/30/2008
 - Average Protons on Target 6.75 e12 Best: 8.77 e12 on 07/24/2007
 - Largest Stack .00 mA Best: 313.58 mA on 02/18/2008
- Al's Numbers
 - Stacking
 - Pbars stacked: 1296.05 E10
 - Time stacking: 63.49 Hr
 - Average stacking rate: 20.41 E10/Hr
 - Uptime
 - Number of pulses while in stacking mode: 101704
 - Number of pulses with beam: 93320
 - Fraction of up pulses was: 91.76%
 - The uptime's effect on the stacking numbers
 - Corrected time stacking: 58.26 Hr
 - Possible average stacking rate: 22.25 E10/Hr
 - Could have stacked: 1412.49 E10/Hr
 - Recycler Transfers
 - Pbars sent to the Recycler: 1355.35 E10
 - Number of transfers : 122
 - Number of transfer sets: 38
 - Average Number of transfer per set: 3.21
 - Time taken to shoot: 05.16 Hr
 - Time per set of transfers: 08.15 min
 - Transfer efficiency: 93.59%
 - Other Info
 - Average POT : 7.80 E12
 - Average production: 17.80 pbars/E6 protons

