Run 10 plan based on 25 Nov Revised Plan and √s=200 extended by 1 week

- Dec. 1, Begin cool down to 4.5K
- Dec. 4, Cooldown to 4.5K complete in both rings!
- Dec. 5, beam setup in RHIC begins.
- Dec 16, 20 hr unplanned Maintenance day
- Dec 20 (AM)-21(PM), blizzard 09 shut us down
- Dec. 27, RHIC Setup complete, begin Ramp Up for Physics (was 14 Dec, late)
- Dec 31 (midnight-store 11340), Machine **(and PHENIX?)** Physics declared √s=200 GeV/n Au-Au
- Jan 2 (midnight) STAR in Physics Mode
- Jan 8 (0600) PHENIX in Physics Mode
- Jan 12, Rebucketing not yet routine, stochastic cooling still to come.
- Jan 22, changed beta* from 0.6 to 0.7 meters, rebucketing ~established, yellow transverse stochastic cooling on
- Mar. 18, End 10 week √s = 200 GeV/n Run, begin √s = 62.4 GeV/n setup
- Mar. 20, Begin 4 week √s = 62.4 GeV/n run
- **Apr 10-14, Satogata is away**
- Apr. 17, End 4 week √s = 62.4 GeV/n Run, begin √s = 39 GeV/n setup
- Apr. 19, Begin 1.5 week √s = 39 GeV/n run
- **Apr 17-23, Satogata is away**
- Apr. 30, End 1.5 week √s = 39 GeV/n Run, begin ν= 0.67 studies before polarity switches begin (i.e. this is a placeholder)
- May 1, complete ν= 0.67 studies for pp and √s = 7.7 GeV/n setup **(12 hr pol. switches)**
- May. 3, Begin 4 week √s = 7.7 GeV/n run
- **May 23 – 28 IPAC (Kyoto)**
- **May 22 Jun 3, Satogata is away**
- May 31, End 4 week √s = 7.7 GeV/n Run, begin √s = 11.5 GeV/n setup **(4-6 hr polarity switch, if necessary)**
- Jun 2, begin √s = 11.5 GeV/n for STAR
- Jun 16, end 2 week √s = 11.5 GeV/n run, begin √s = 5 GeV/n setup **(4-6 hr polarity switch, if necessary)**
- Jun 18, begin √s = 5 GeV development
- Jun 21, end 3 days at √s = 5 GeV/n
- Jun 22 , Begin Cryo Warm-up
- Jun 23, Warm-up complete, Run 10 ends – **29.2 CRYO WEEKS**

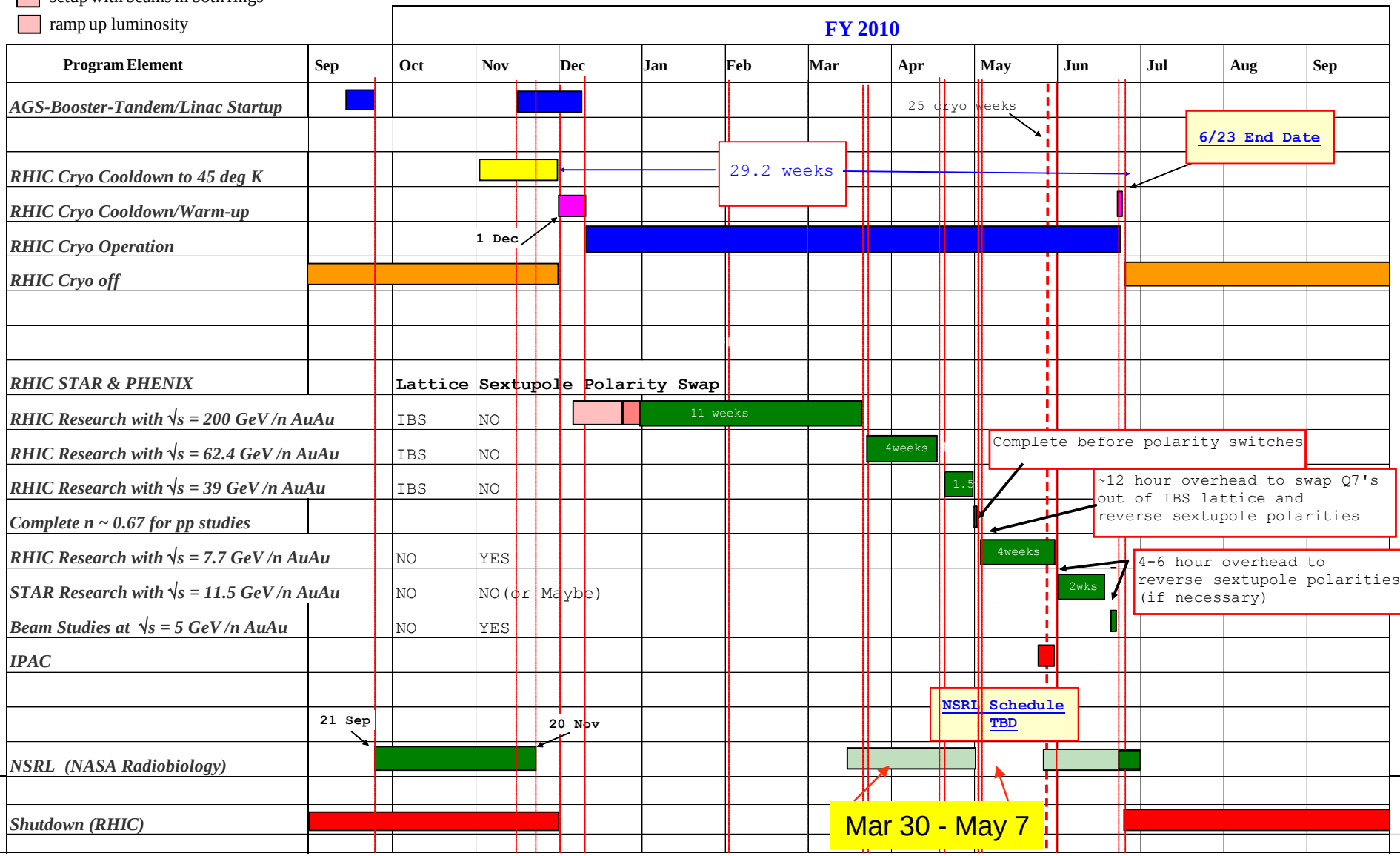
http://www.bnl.gov/cad/esfd

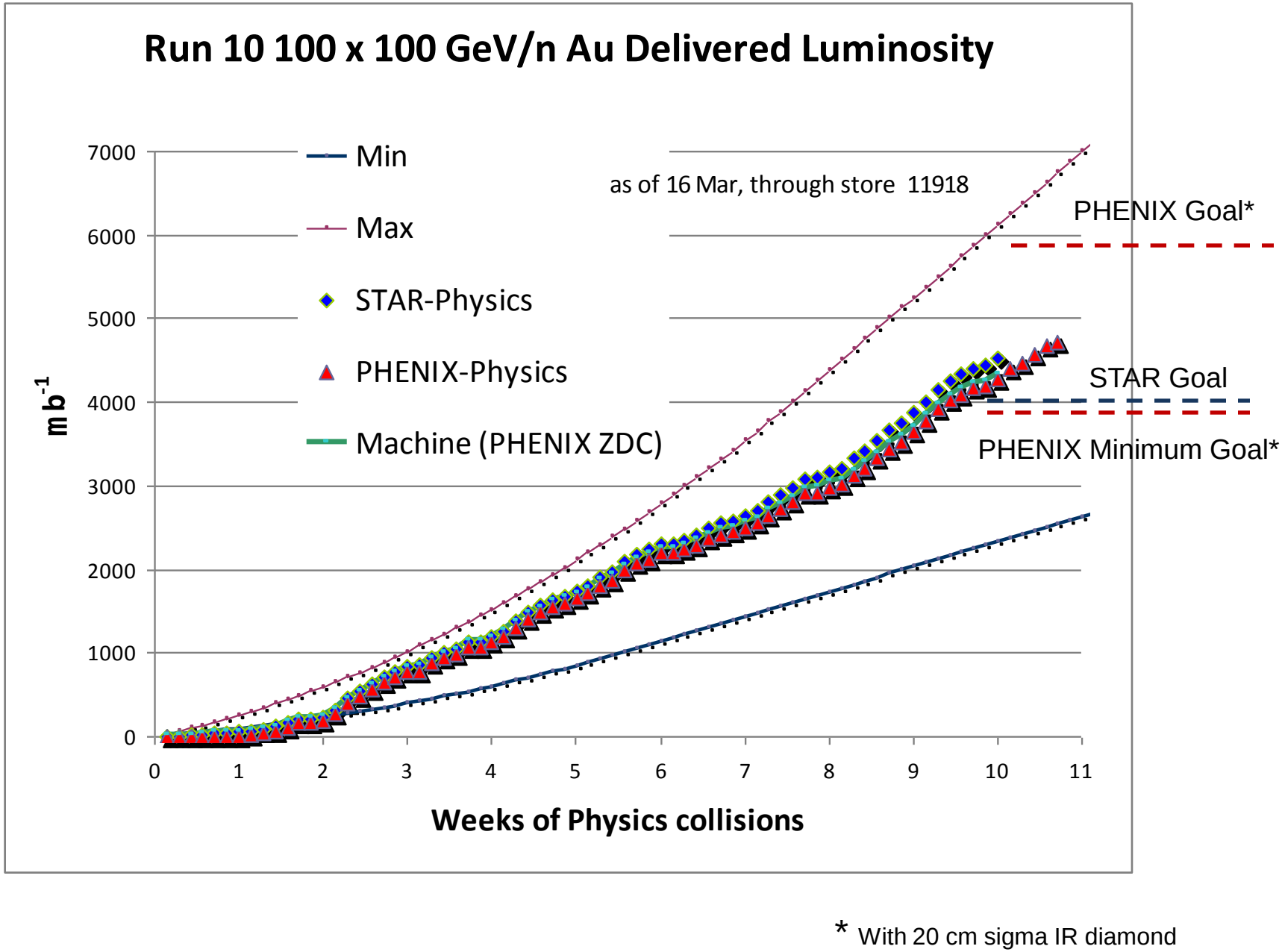
C-A Operations-FY10

9 Mar 10

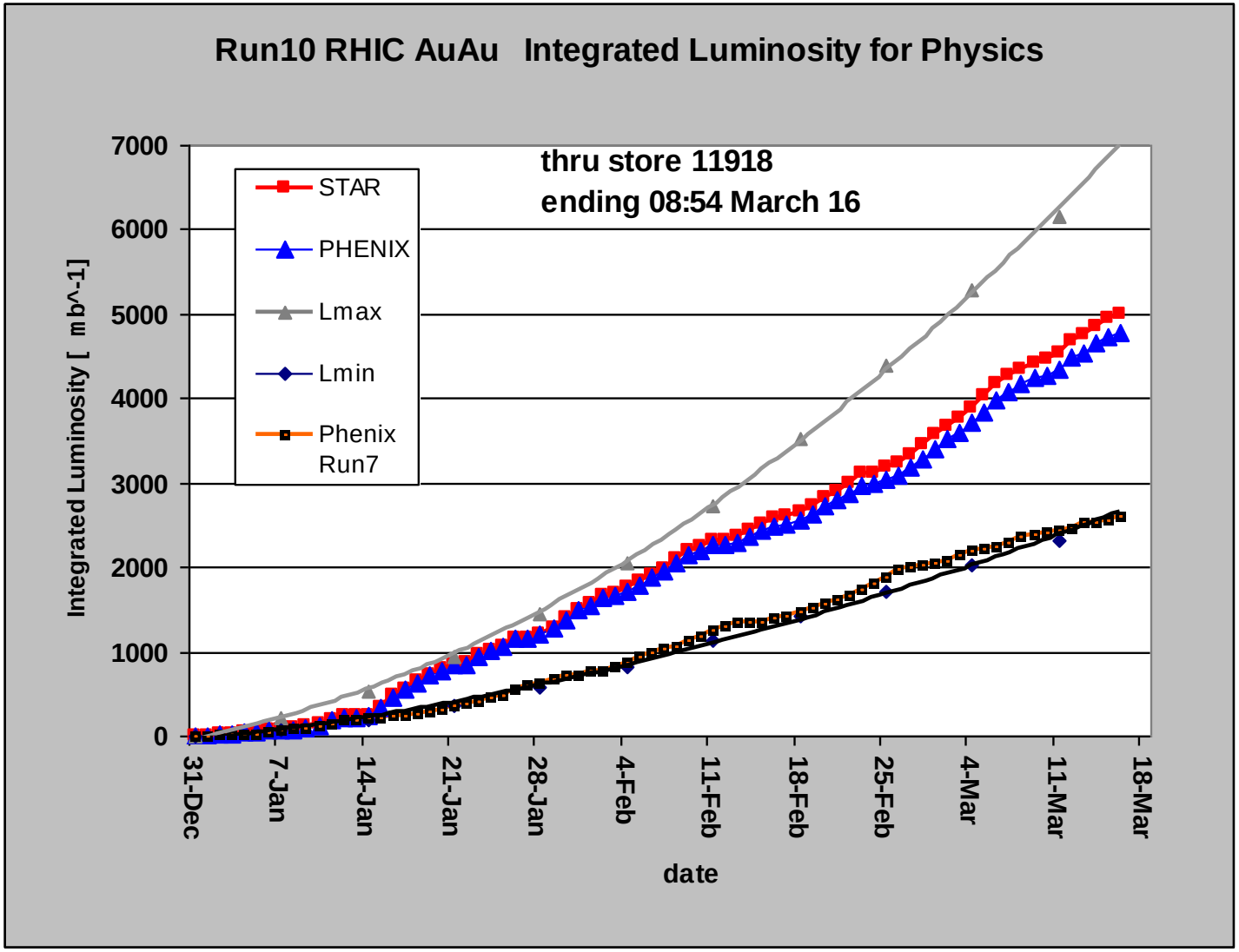
concurrent with RHIC
setup with beams in both rings
ramp up luminosity

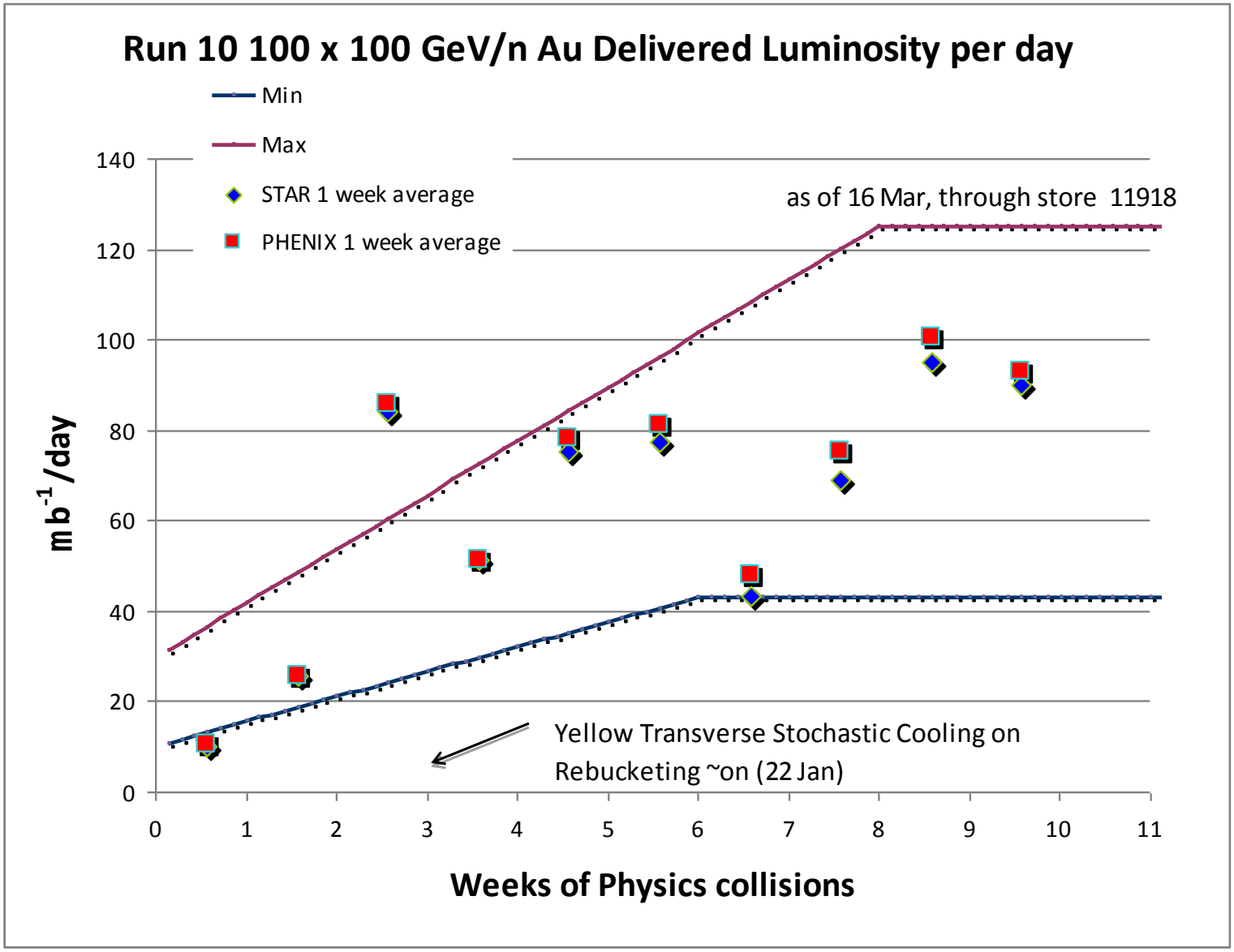
with √s=200 extended 1 week (budget premitting)

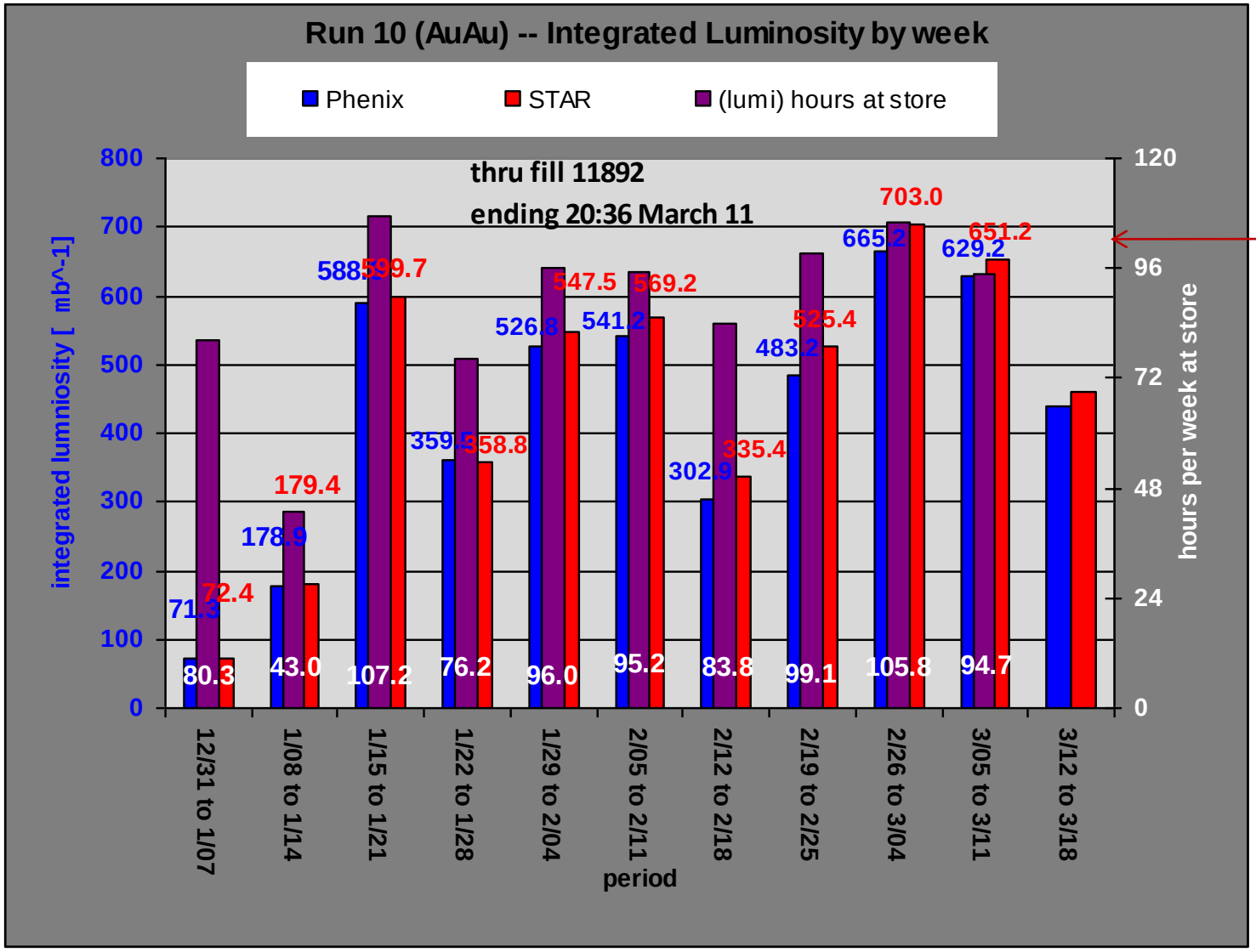




* With 20 cm sigma IR diamond


Run10 RHIC AuAu Integrated Luminosity for Physics
thru store 11918
ending 08:54 March 16
STAR
PHENIX
Lmax
Lmin
Phenix Run7
Integrated Luminosity [mb^-1]
7000
6000
5000
4000
3000
2000
1000
0
31-Dec
7-Jan
14-Jan
21-Jan
28-Jan
4-Feb
11-Feb
18-Feb
25-Feb
4-Mar
11-Mar
18-Mar
date

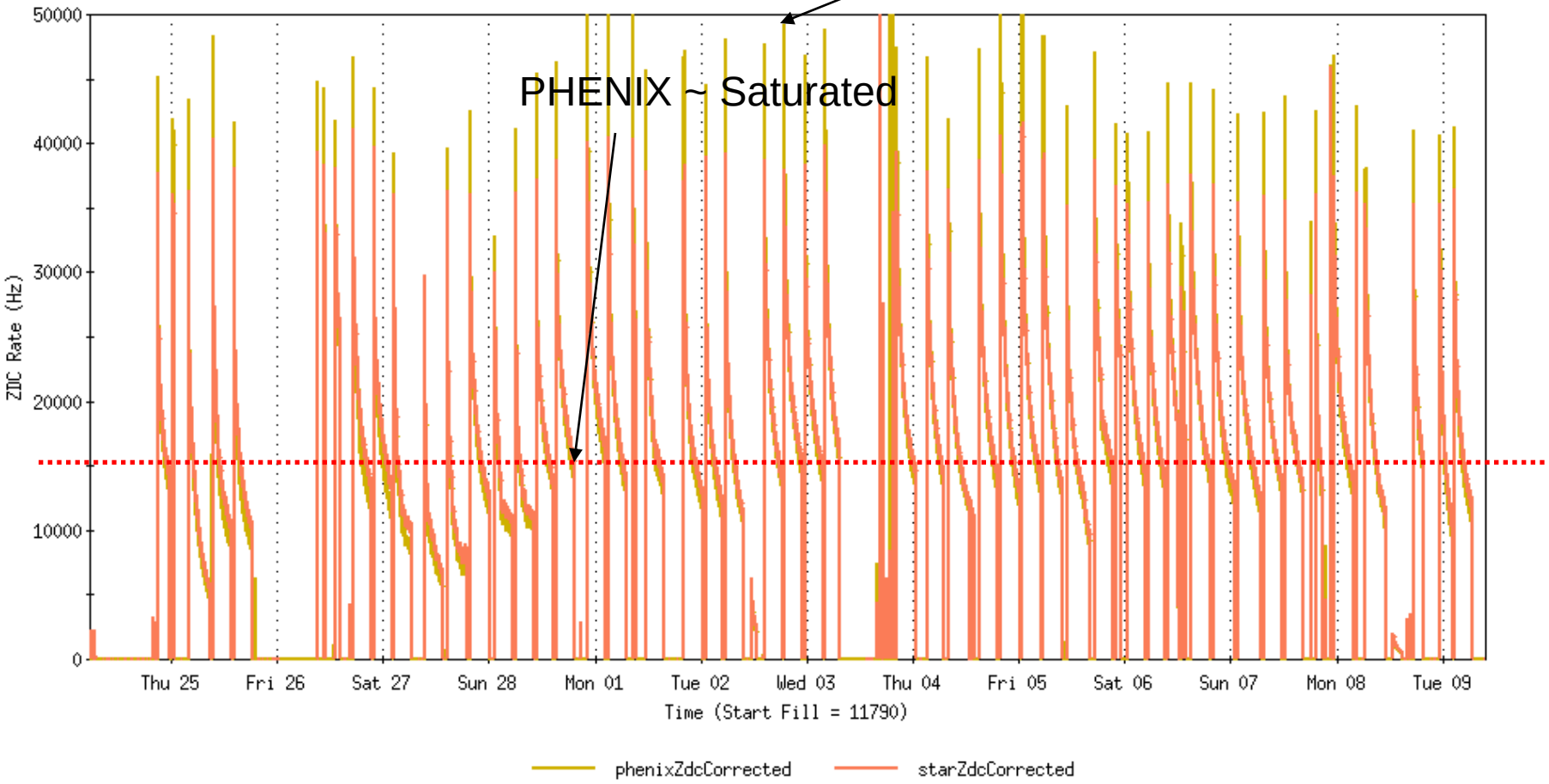

Run 10 100 x 100 GeV/n Au Delivered Luminosity per day
Min
Max
STAR 1 week average
PHENIX 1 week average
as of 16 Mar, through store 11918
Yellow Transverse Stochastic Cooling on
Rebucketing ~on (22 Jan)
mb-1/day
Weeks of Physics collisions
0
20
40
60
80
100
120
140
0
1
2
3
4
5
6
7
8
9
10
11


Run 10 (AuAu) -- Integrated Luminosity by week
Phenix
STAR
(lumi) hours at store
thru fill 11892
ending 20:36 March 11
integrated lumniosity [mb^-1]
hours per week at store
period
Goal
800
700
600
500
400
300
200
100
0
120
96
72
48
24
0
71.3
72.4
80.3
178.9
179.4
43.0
588.2
599.7
107.2
359.3
358.8
76.2
526.8
547.5
96.0
541.2
569.2
95.2
302.9
335.4
83.8
483.2
525.4
99.1
665.2
703.0
105.8
629.2
651.2
94.7
12/31 to 1/07
1/08 to 1/14
1/15 to 1/21
1/22 to 1/28
1/29 to 2/04
2/05 to 2/11
2/12 to 2/18
2/19 to 2/25
2/26 to 3/04
3/05 to 3/11
3/12 to 3/18

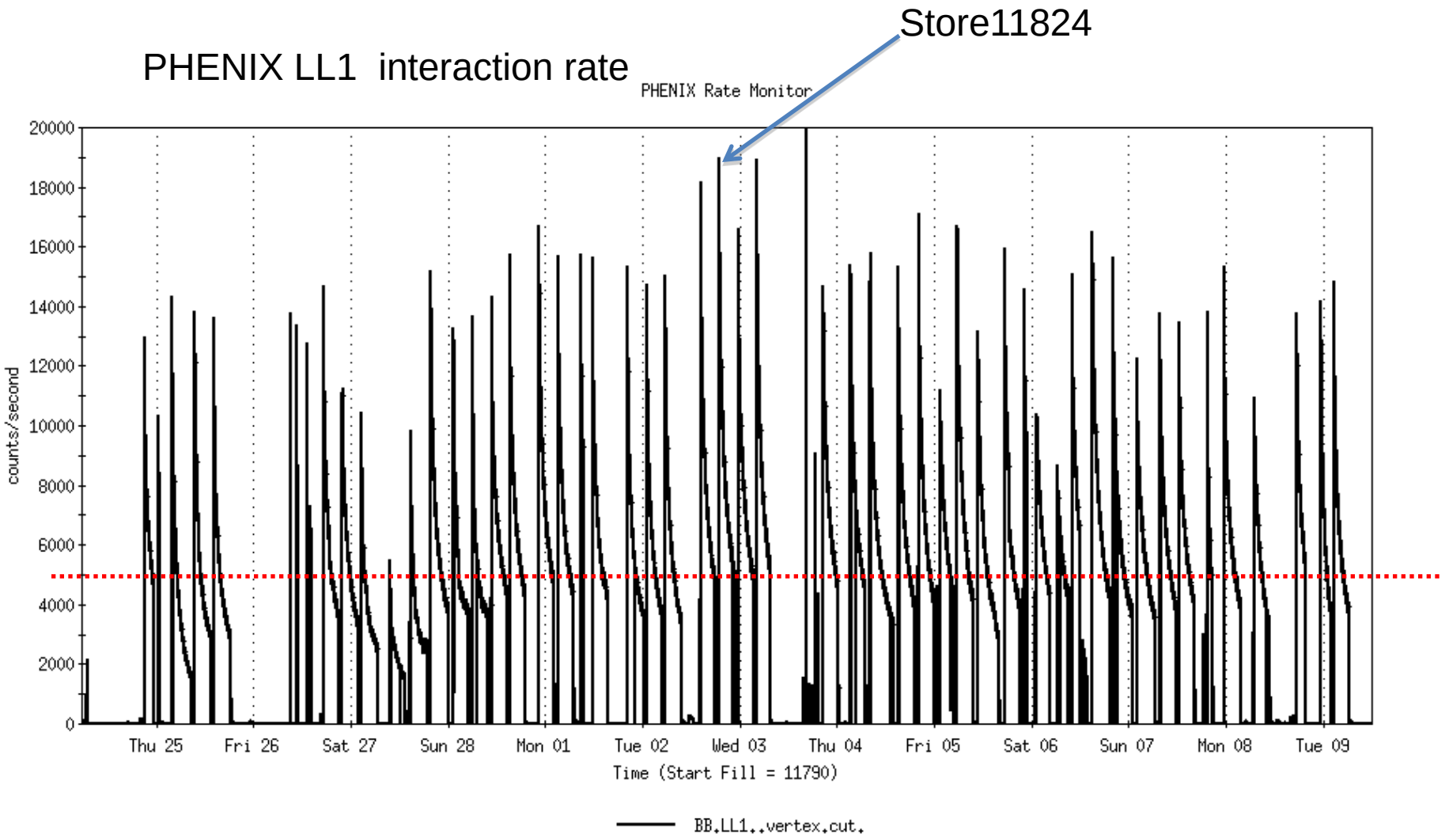
Archive

24 Feb – 9 Mar 10

Look at this one in detail (11824)

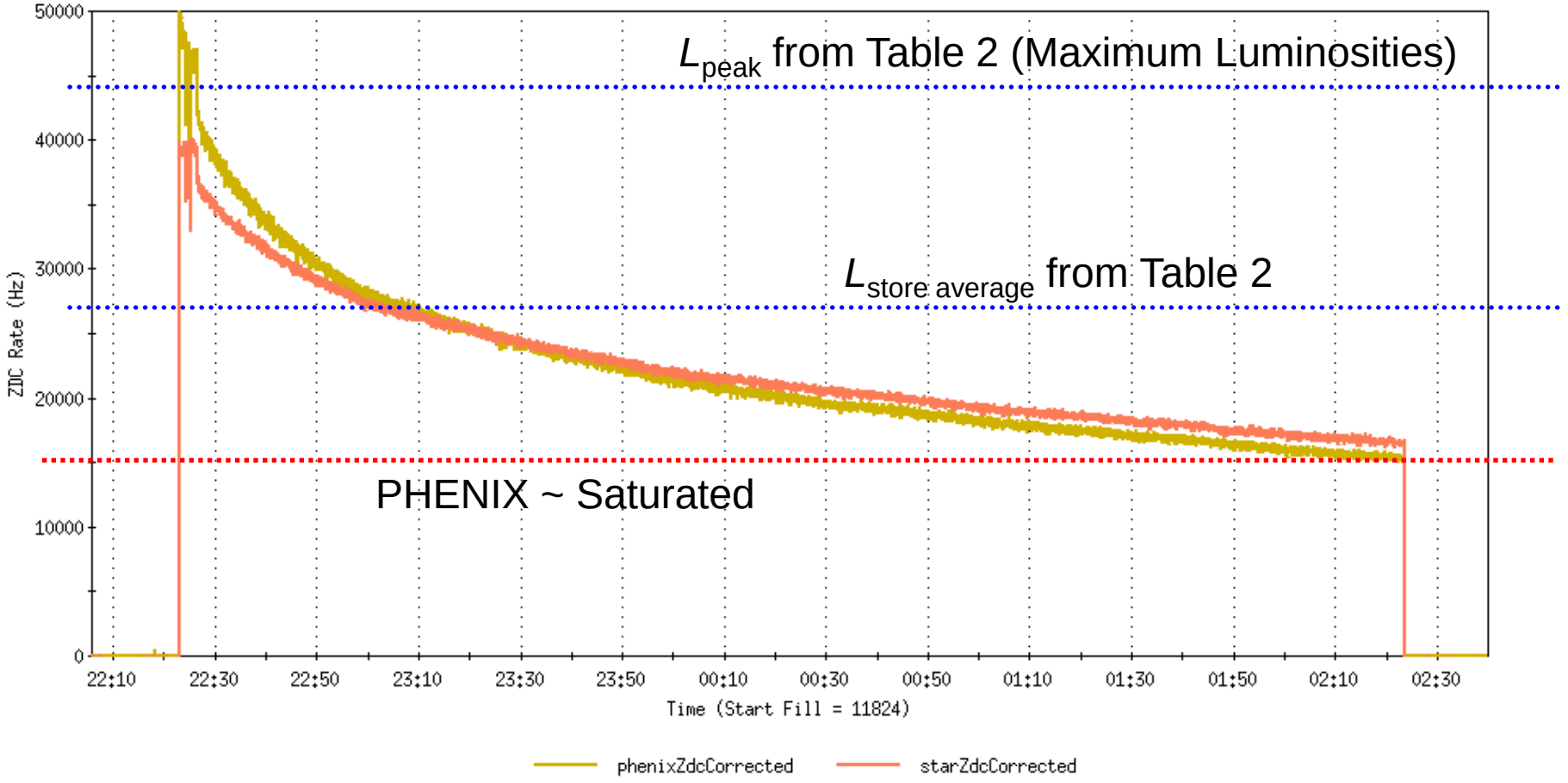


PHENIX LL1 interaction rate



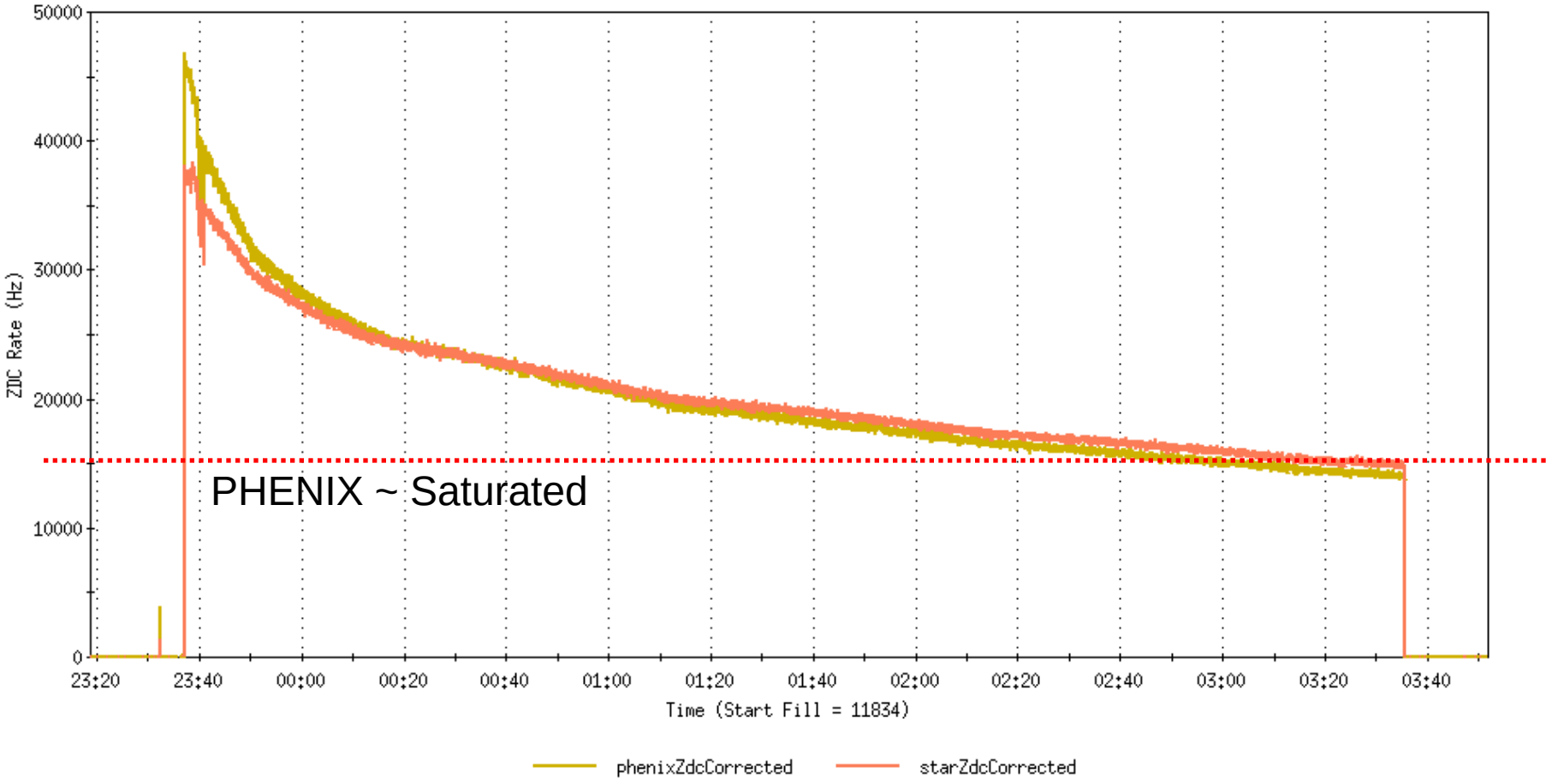
Fills 11824 28 Feb 10 -- still about the best store (with ~1.25 x 10^9 ions/bunch)

0.7 m β* with some cooling and with rebucketing, STAR 32.7 μb-1, 3.9 hr store

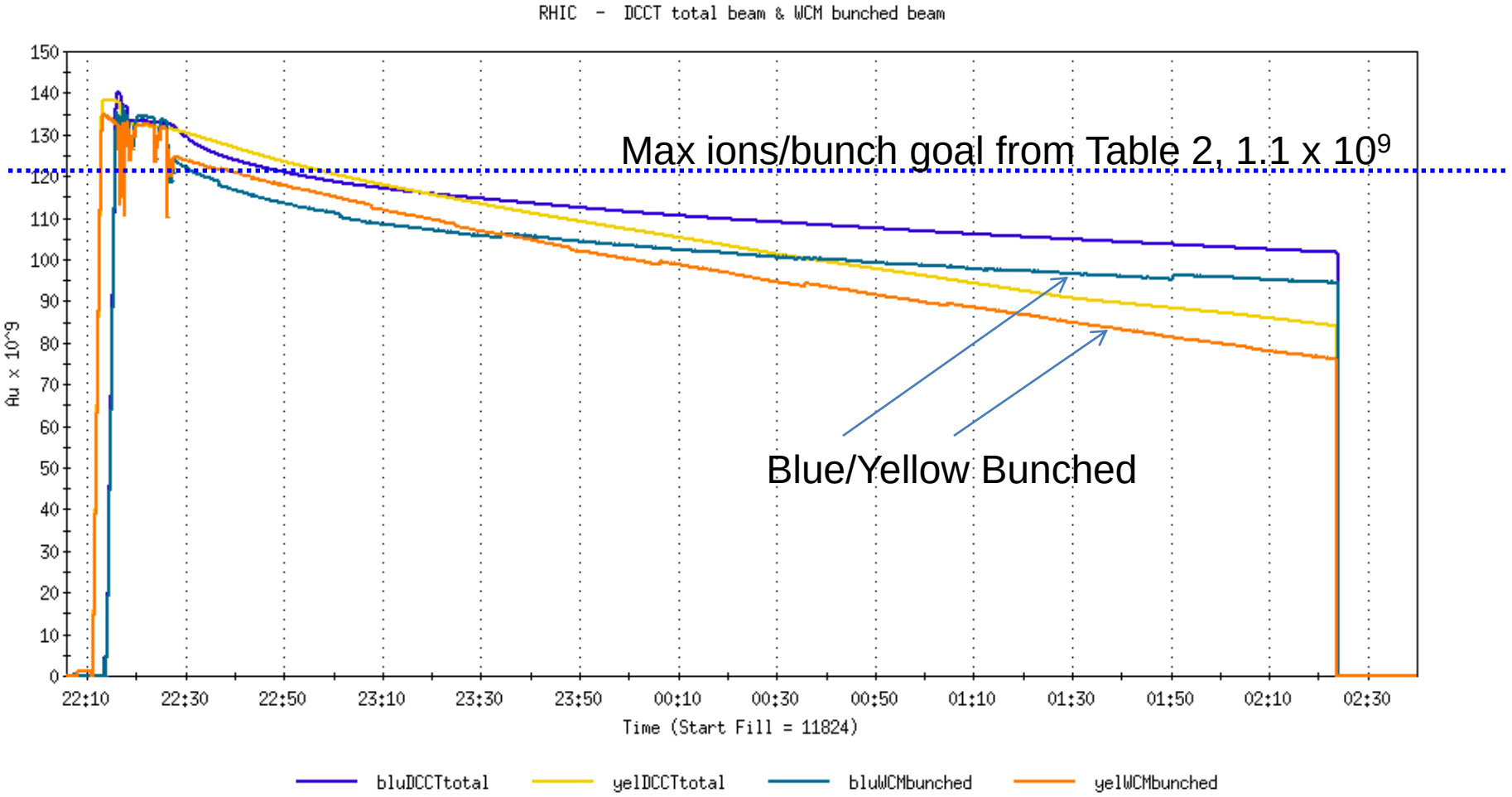


Fills 11824 2 Mar 10 (with ~1.36 x 10^9 ions/bunch)

0.7 m β^* with some cooling and with rebucketing,STAR 29.4 μb^{-1},3.9 hr store)

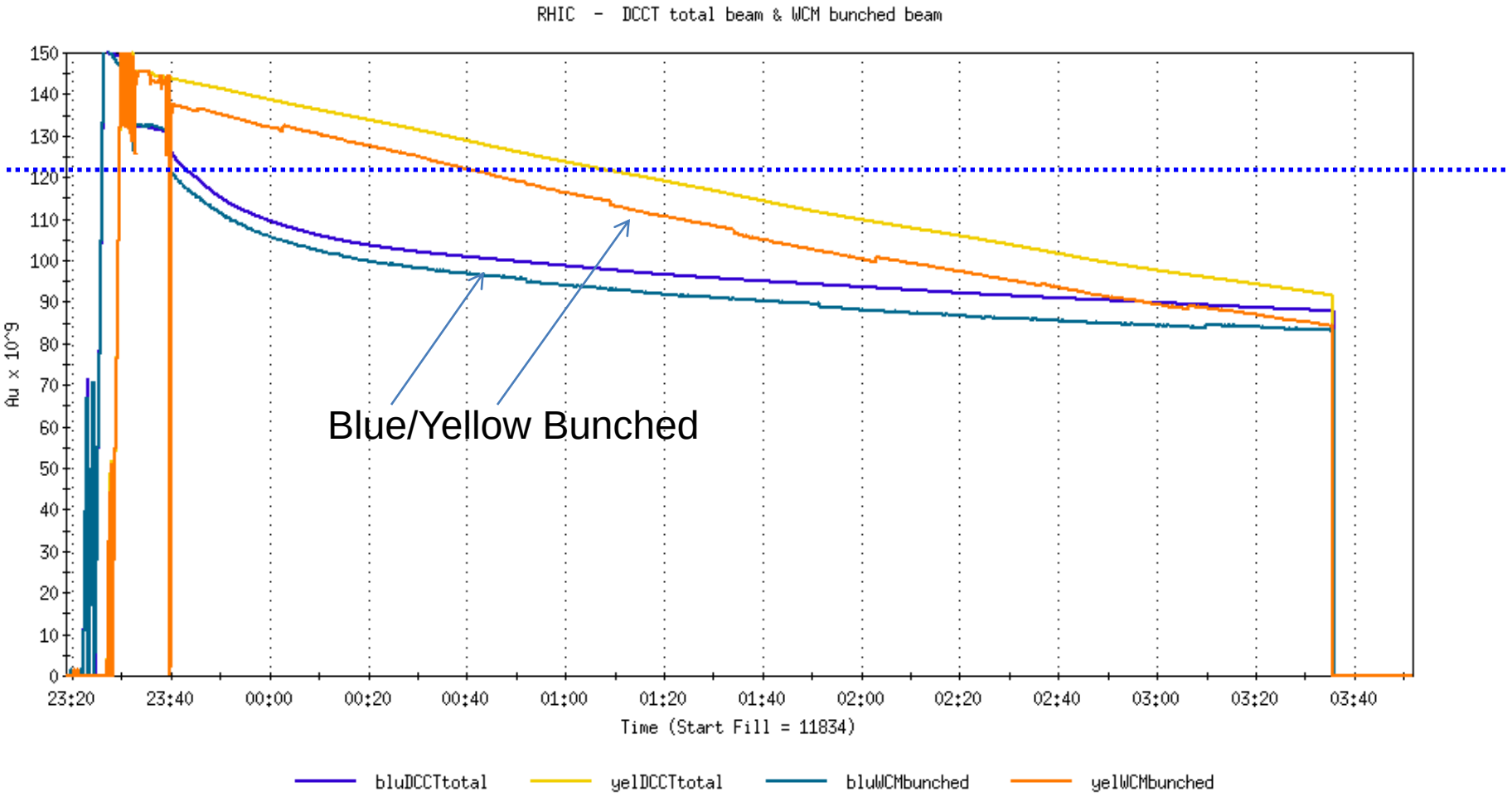


Fills 11824 28 Feb 10



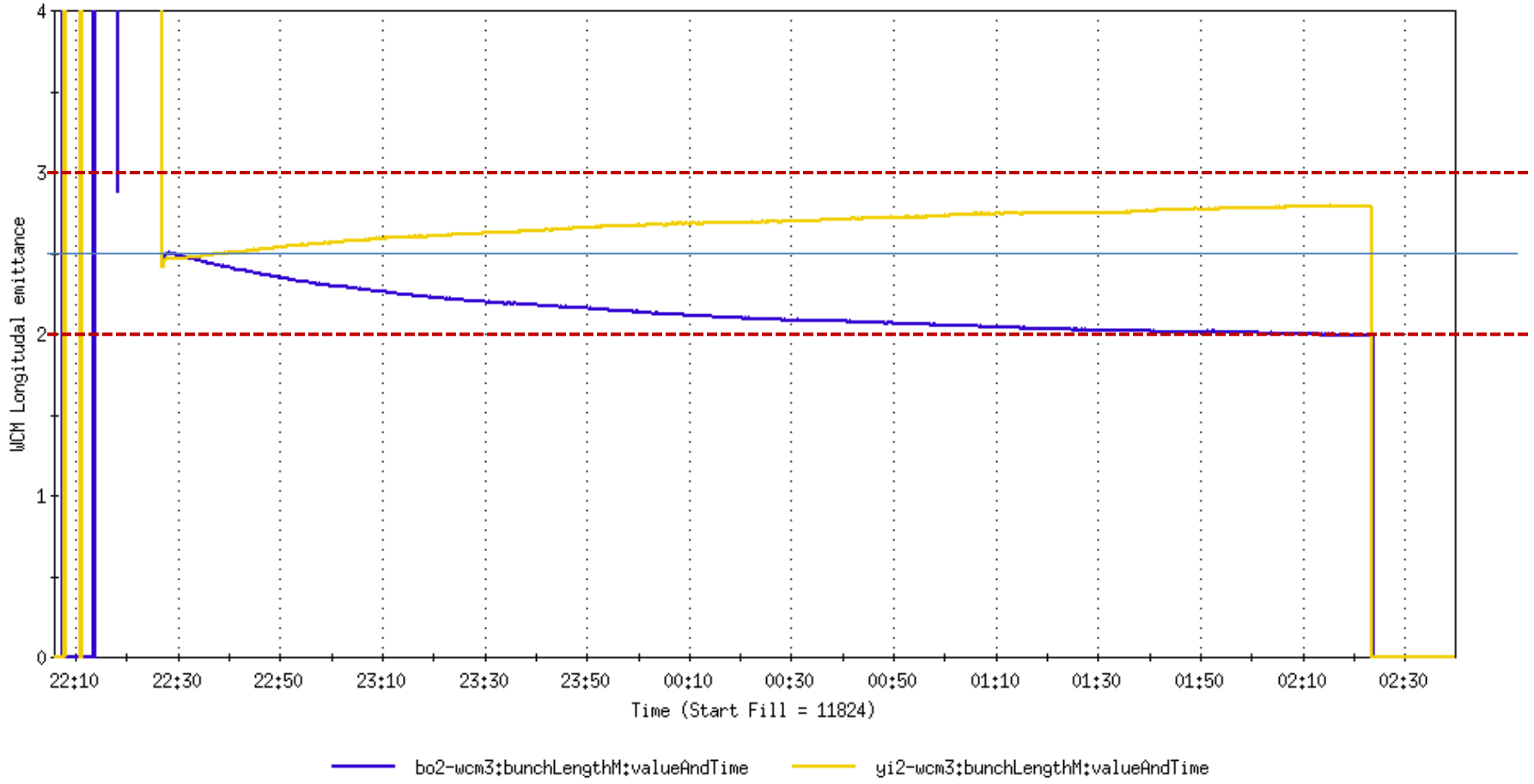
Ring	Bunches/Cycles	Avg Bunch in RHIC (10^6 ions)	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	*Uxf1 to Wxf*	*Wxf to Arc*	*Arc to RHIC*
Blue	111/28	1262	0.917	0.975	*0.961*	*1.001*	*0.977*
Yellow	111/28	1246	0.910	0.961	*0.964*	*0.988*	*0.994*

Fills 11824 2 Mar 10

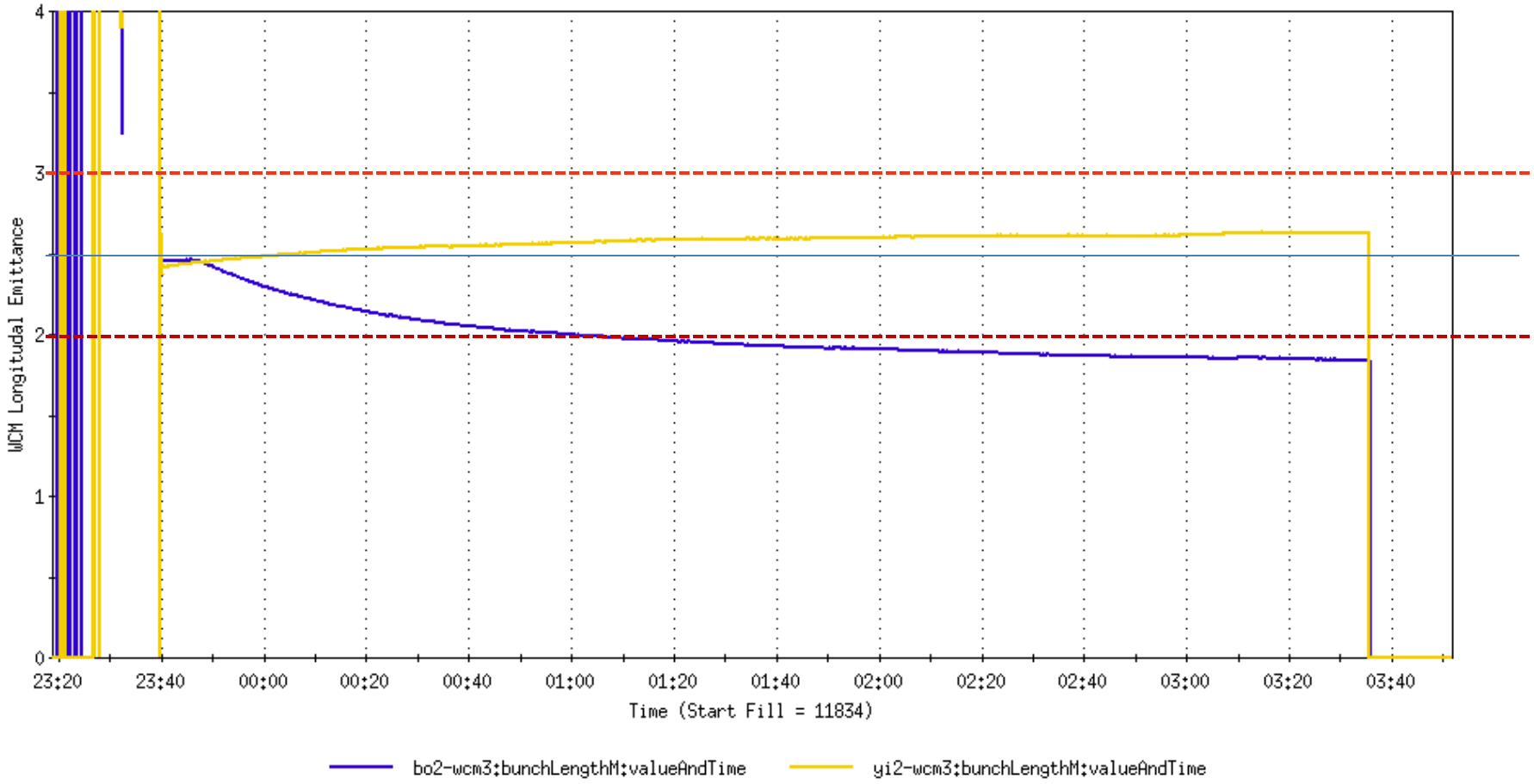


Ring	Bunches/Cycles	Avg Bunch in RHIC (10^6 ions)	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	*Uxf1 to Wxf*	*Wxf to Arc*	*Arc to RHIC*
Blue	111/28	1354	0.927	0.990	*0.965*	*1.003*	*0.968*
Yellow	111/28	1377	0.931	0.990	*0.964*	*0.989*	*0.987*

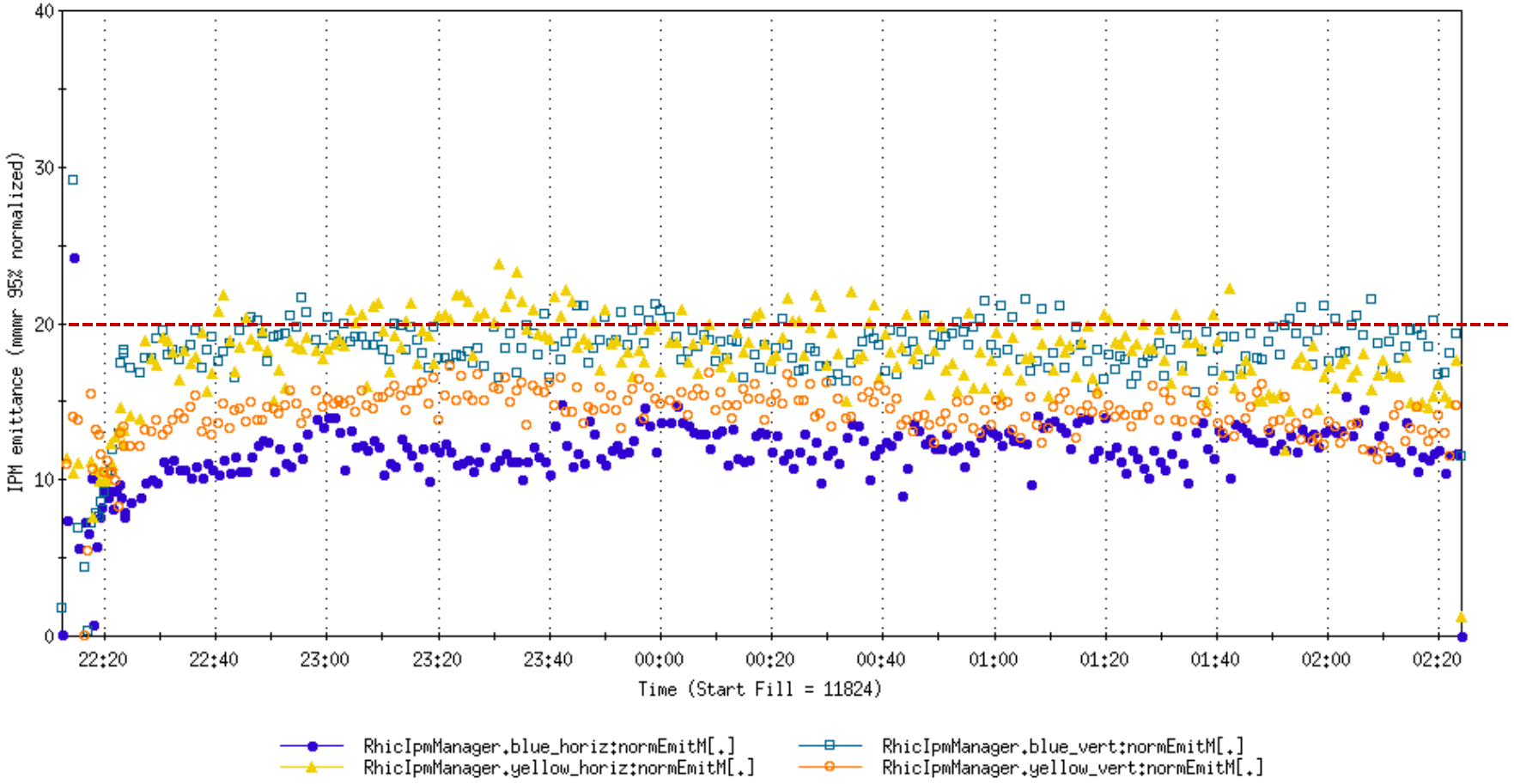
Fills 11824 28 Feb 10, Longitudal Stochastic Cooling (Blue only)



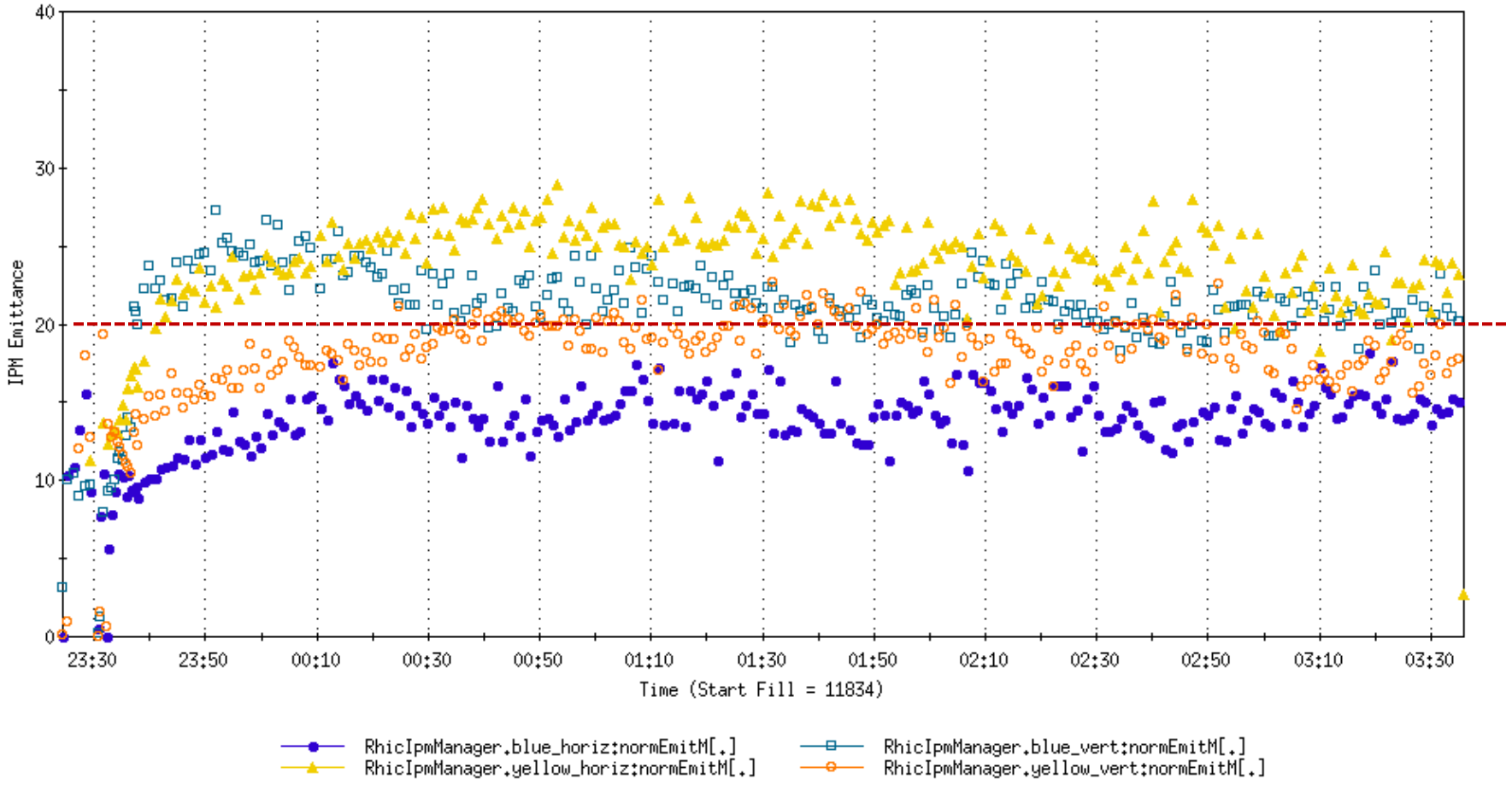
Fills 11824 2 Mar 10, Longitudal Stochastic Cooling, Blue only



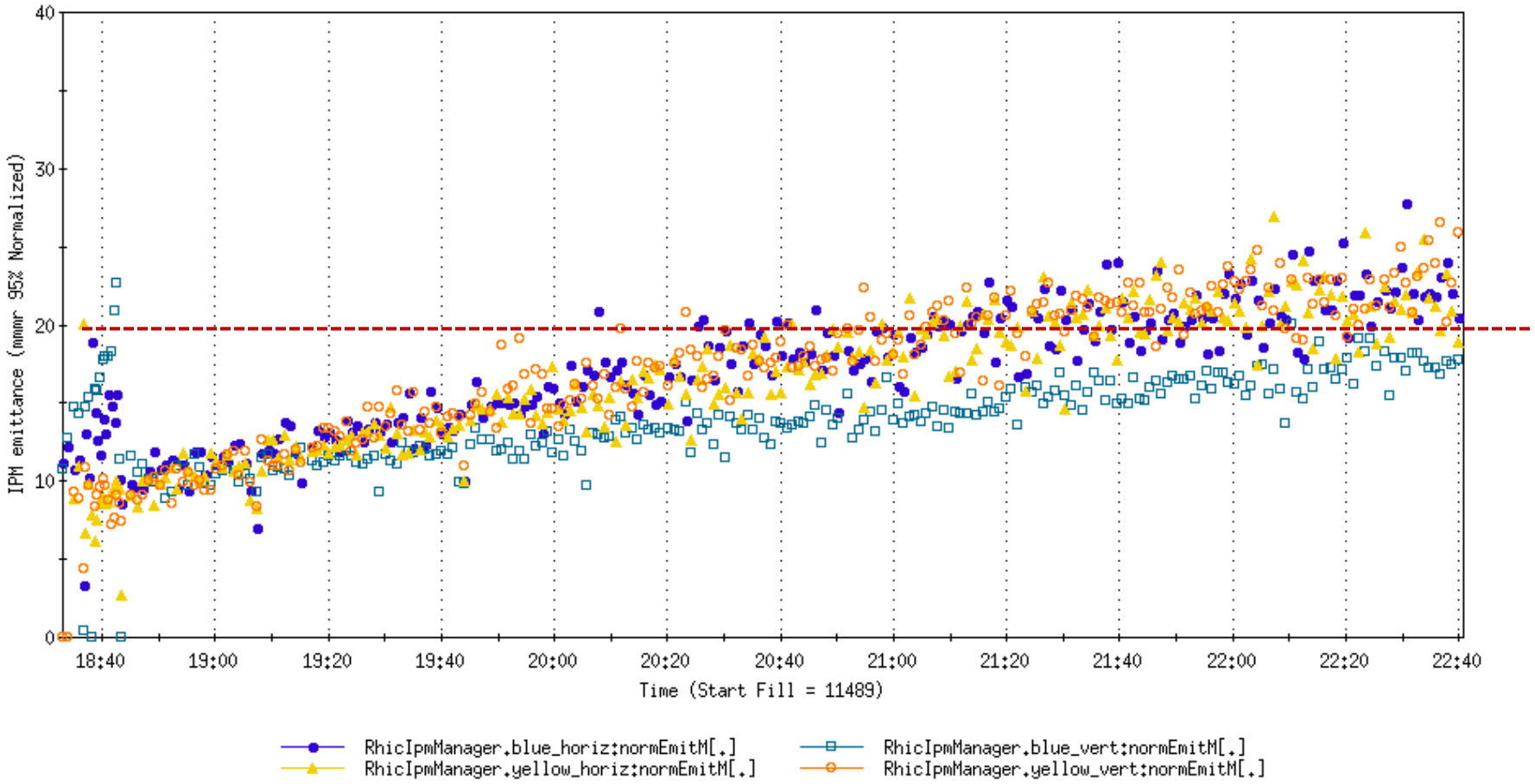
Fills 11824 28 Feb 10, Transverse Stochastic Cooling



Fills 11824 2 Mar 10, Transverse Stochastic Cooling



Fill 11489, no cooling, no rebucketing (0.6 m beta*)
Monday, 18 Jan.



Ring	Bunches/Cycles	Avg Bunch in RHIC (10^6 ions)	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	*Uxf1 to Wxf*	*Wxf to Arc*	*Arc to RHIC*
Blue	111/28	1196	0.911	1.024	*0.961*	*0.999*	*0.927*
Yellow	111/29	1168	0.879	1.023	*0.961*	*0.989*	*0.905*

31 Dec **1st Physics Store** 11340, 0.6 m β* No cooling or rebucketing, STAR 3.2 μb^{-1}, 2.6 hr store

Ring	Bunches/Cycles	Avg Bunch in RHIC (10^6 ions)	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	*Uxf1 to Wxf*	*Wxf to Arc*	*Arc to RHIC*
Blue	56/56	909	0.836	1.056	*0.963*	*0.992*	*0.828*
Yellow	56/56	990	0.971	1.085	*0.962*	*0.959*	*0.970*

18 Jan Physics Store 11489, **0.6 m β* No cooling or rebucketing**, STAR 22.6 μb^{-1}, 3.9 hr store

Ring	**Bunches/Cycles**	**Avg Bunch in RHIC (10^6 ions)**	**Avg Efficiency XCBM to RHIC**	**XCBM to Uxf1**	***Uxf1 to Wxf***	***Wxf to Arc***	***Arc to RHIC***
Blue	111/28	1196	0.911	1.024	*0.961*	*0.999*	*0.927*
Yellow	111/29	1168	0.879	1.023	*0.961*	*0.989*	*0.905*

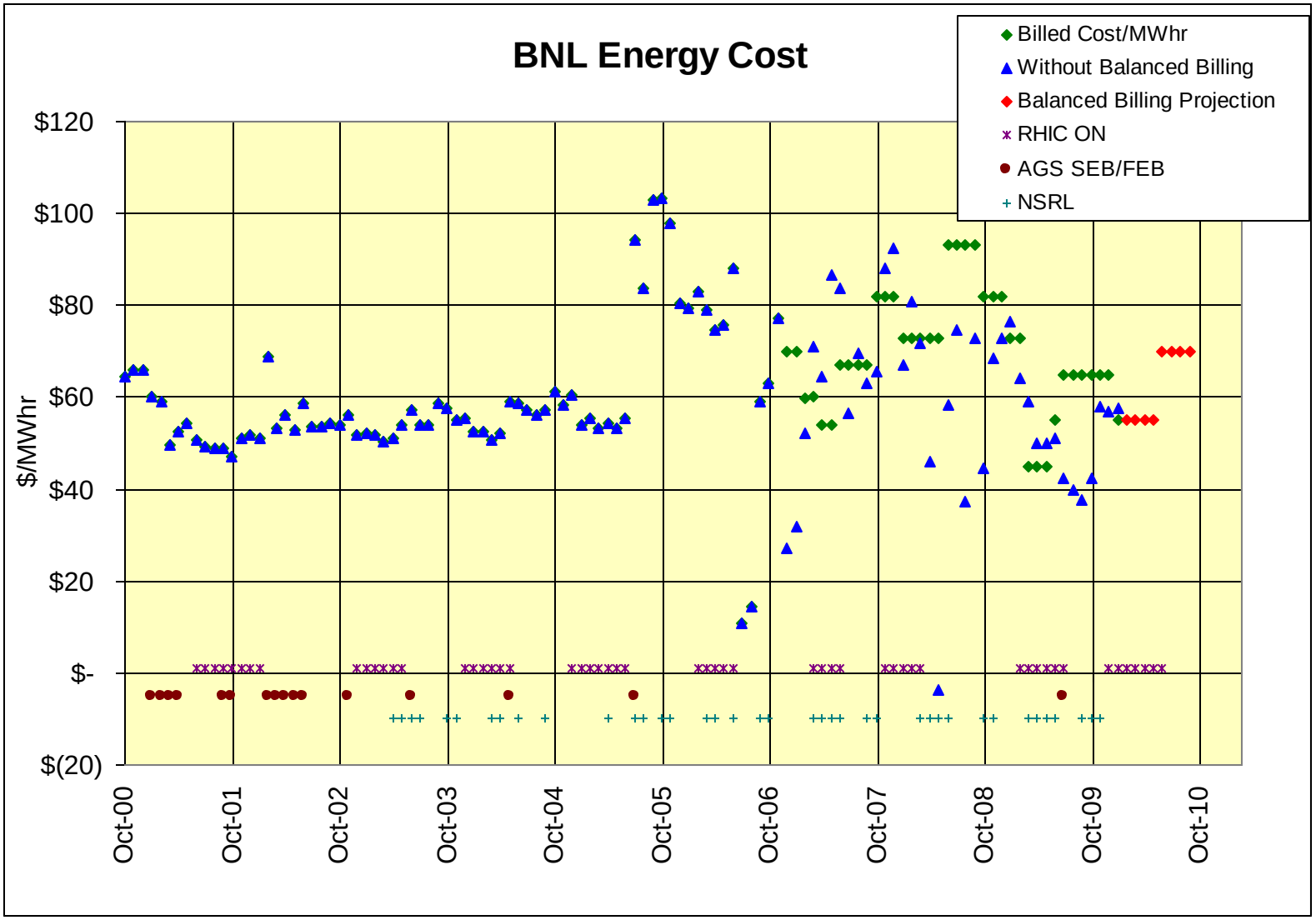
28 Feb Physics Store 11824, **0.7 m β* with some cooling and with rebucketing**, STAR 32.7 μb-1, 3.9 hr store

Ring	**Bunches/Cycles**	**Avg Bunch in RHIC (10^6 ions)**	**Avg Efficiency XCBM to RHIC**	**XCBM to Uxf1**	***Uxf1 to Wxf***	***Wxf to Arc***	***Arc to RHIC***
Blue	111/28	1262	0.917	0.975	*0.961*	*1.001*	*0.977*
Yellow	111/28	1246	0.910	0.961	*0.964*	*0.988*	*0.994*

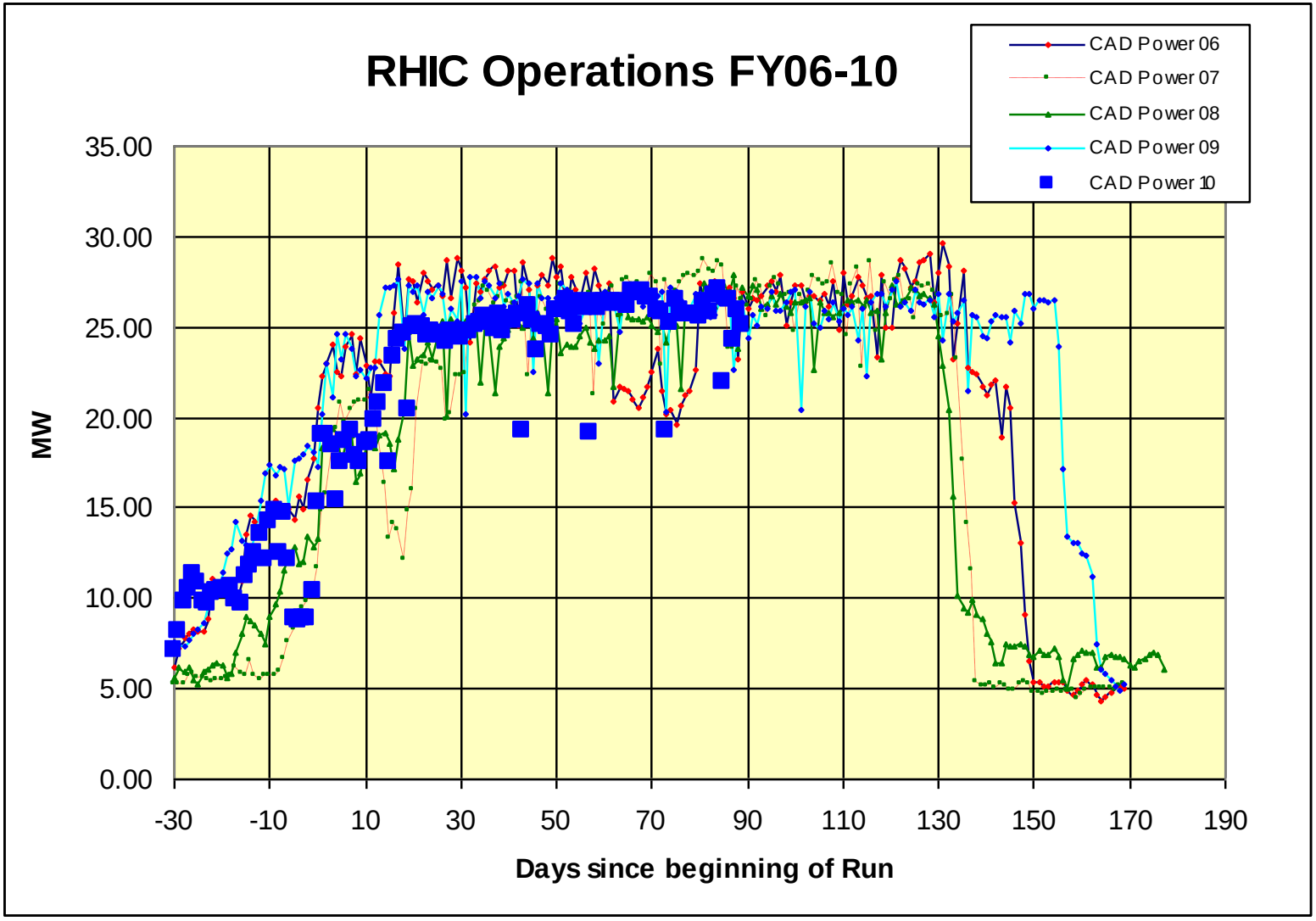
2 Mar Physics Store 11834, **0.7 m β* with some cooling and with rebucketing**, STAR 29.4 μb^{-1},3.9 hr store)

Ring	**Bunches/Cycles**	**Avg Bunch in RHIC (10^6 ions)**	**Avg Efficiency XCBM to RHIC**	**XCBM to Uxf1**	***Uxf1 to Wxf***	***Wxf to Arc***	***Arc to RHIC***
Blue	111/28	1354	0.927	0.990	*0.965*	*1.003*	*0.968*
Yellow	111/28	1377	0.931	0.990	*0.964*	*0.989*	*0.987*

Through Jan 2010



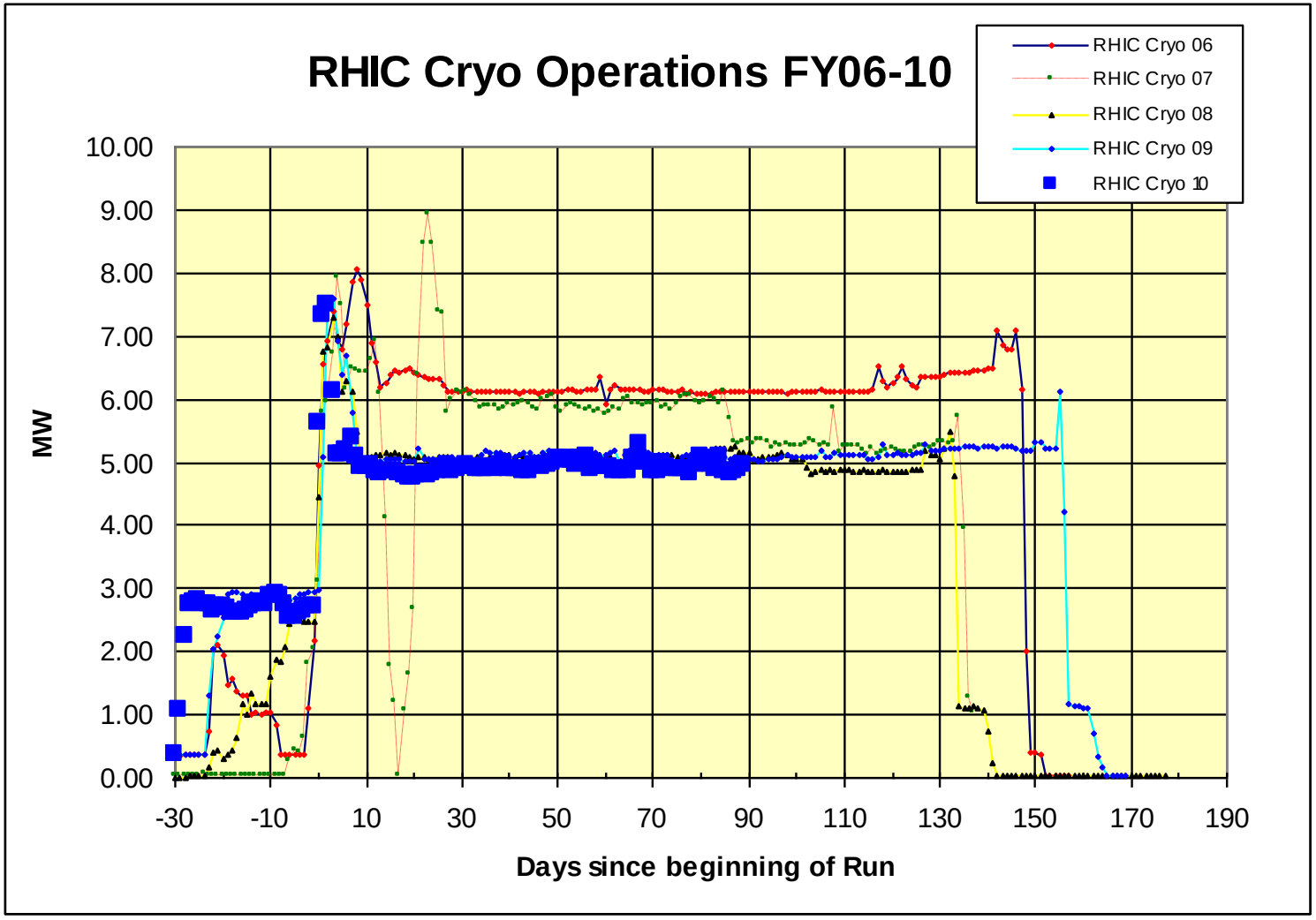
Through 2/28/10



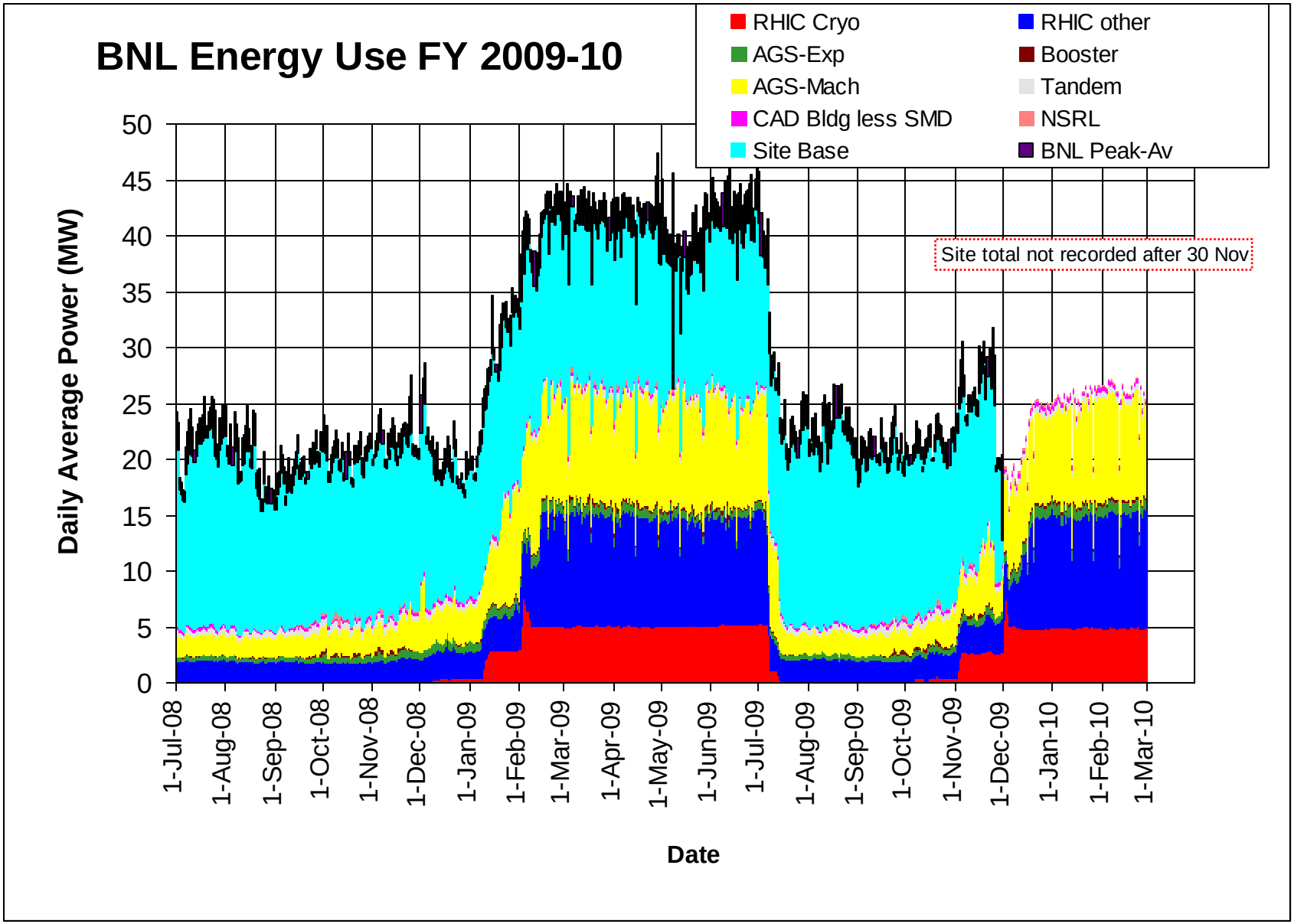
Future Topics

- Toward Smaller beta* - new quad triplets – D. Trbojevic

Through 2/28/10



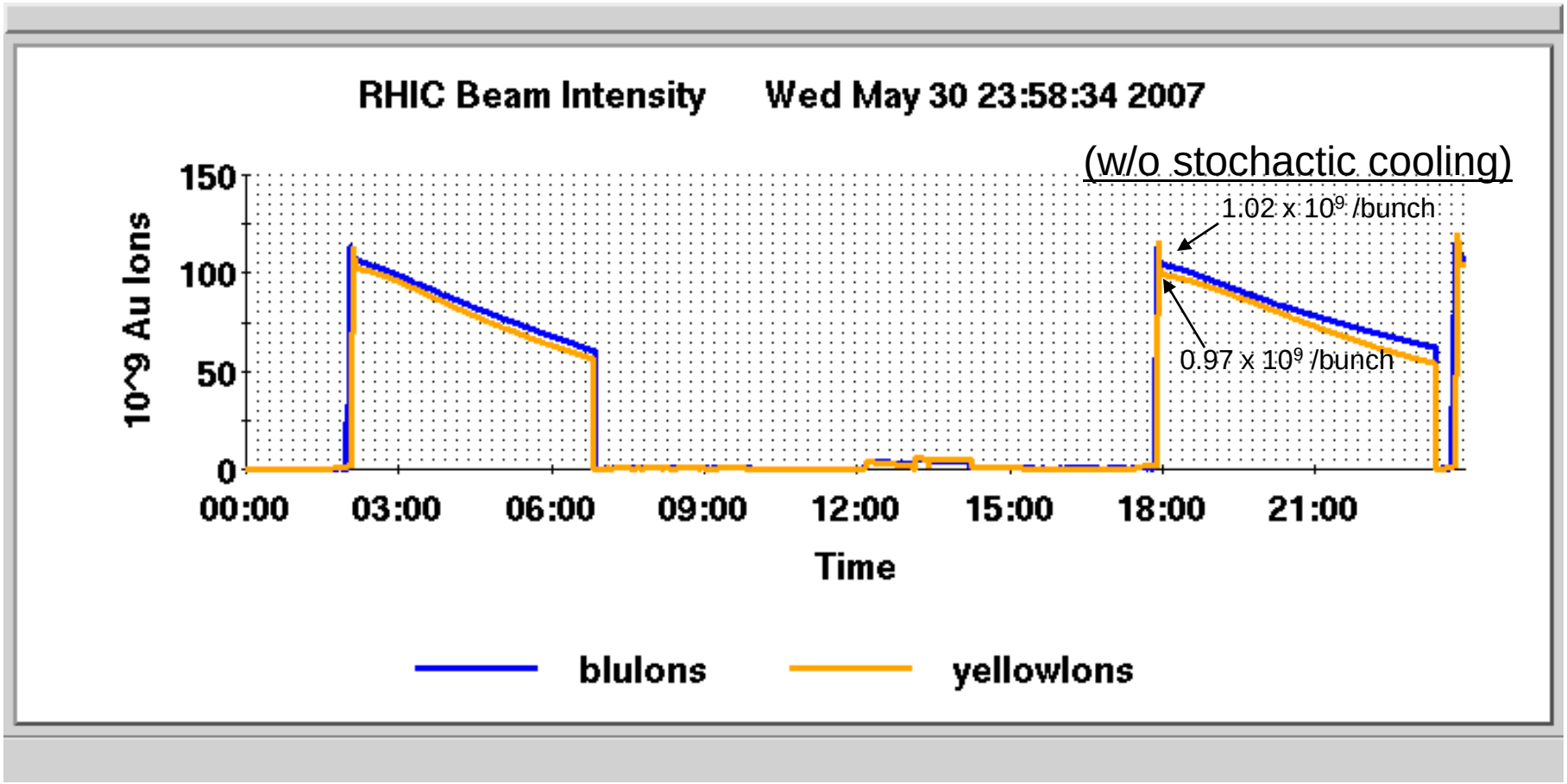
Through 2/28/10



Run 7 Fill 8878 Injected Beam Statistics from ELOG

Blue = 103 bunches 1.04×10^9/bunch

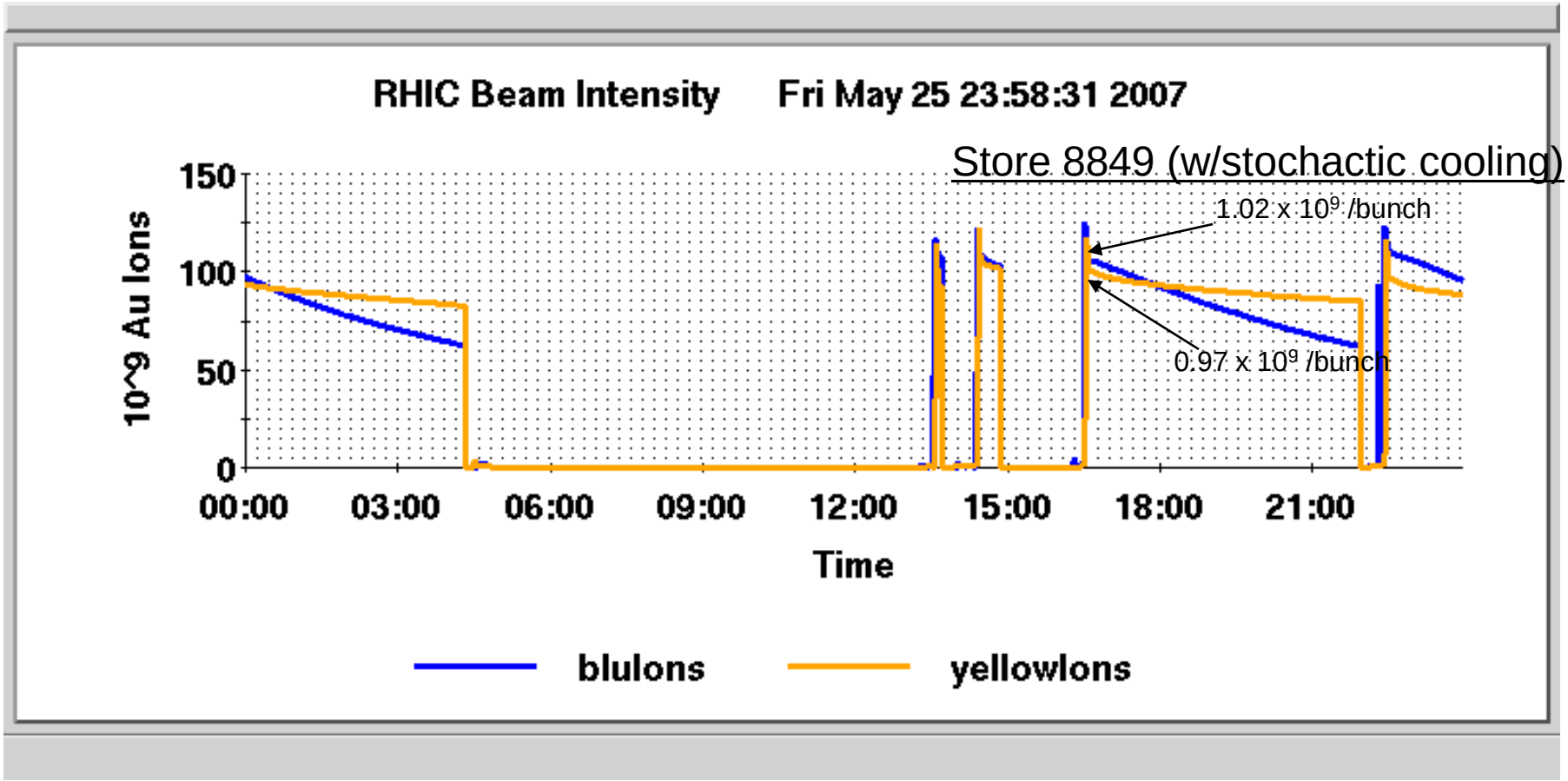
Yellow= 103 bunches 1.13×10^9/bunch

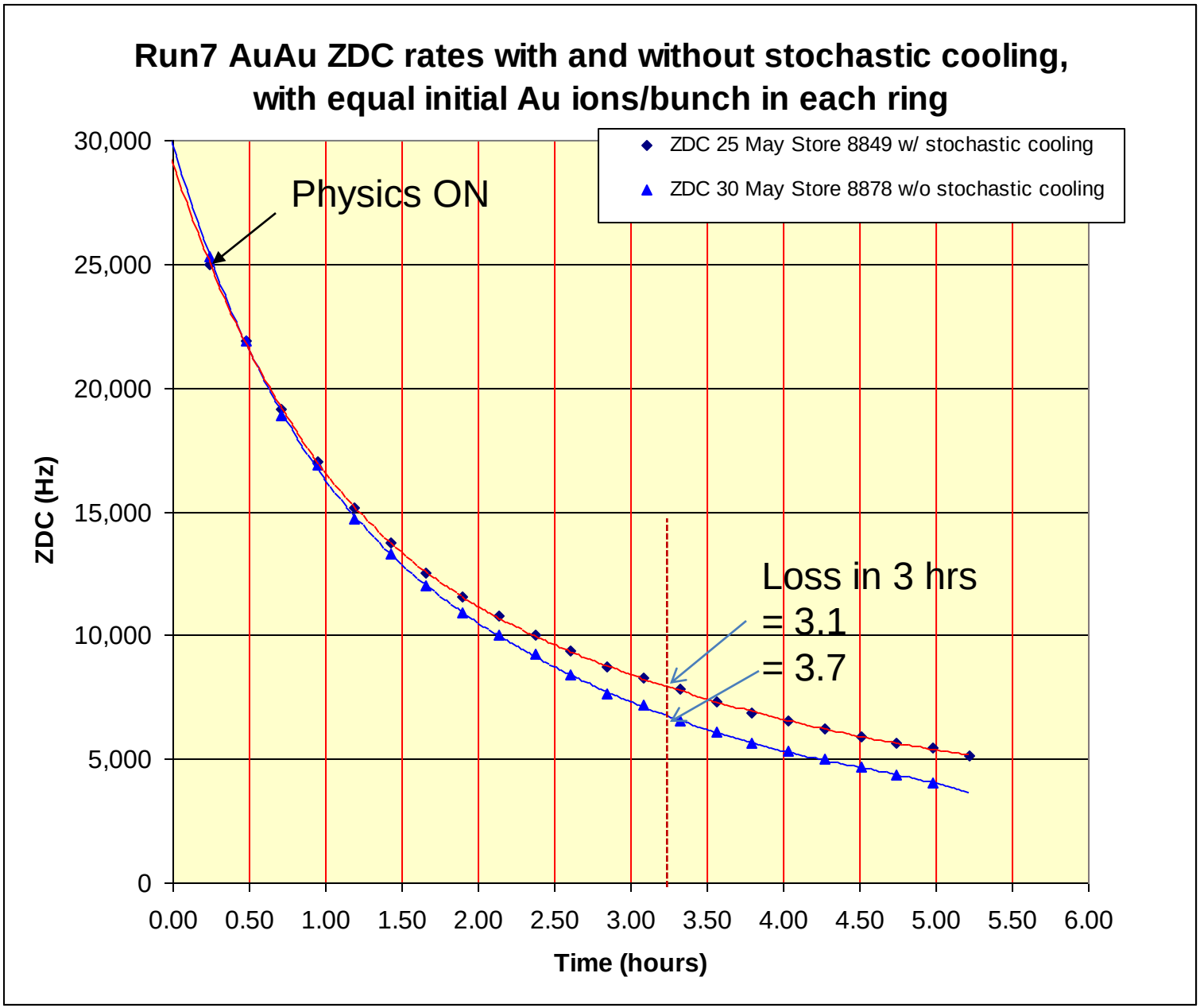


Run 7 Fill 8849 Injected Beam Statistics from ELOG

Blue = 103 bunches 1.23×10^9/bunch

Yellow= 103 bunches 1.15×10^9/bunch




Run7 AuAu ZDC rates with and without stochastic cooling,
with equal initial Au ions/bunch in each ring
ZDC 25 May Store 8849 w/ stochastic cooling
ZDC 30 May Store 8878 w/o stochastic cooling
Physics ON
Loss in 3 hrs
= 3.1
= 3.7
ZDC (Hz)
30,000
25,000
20,000
15,000
10,000
5,000
0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00
Time (hours)

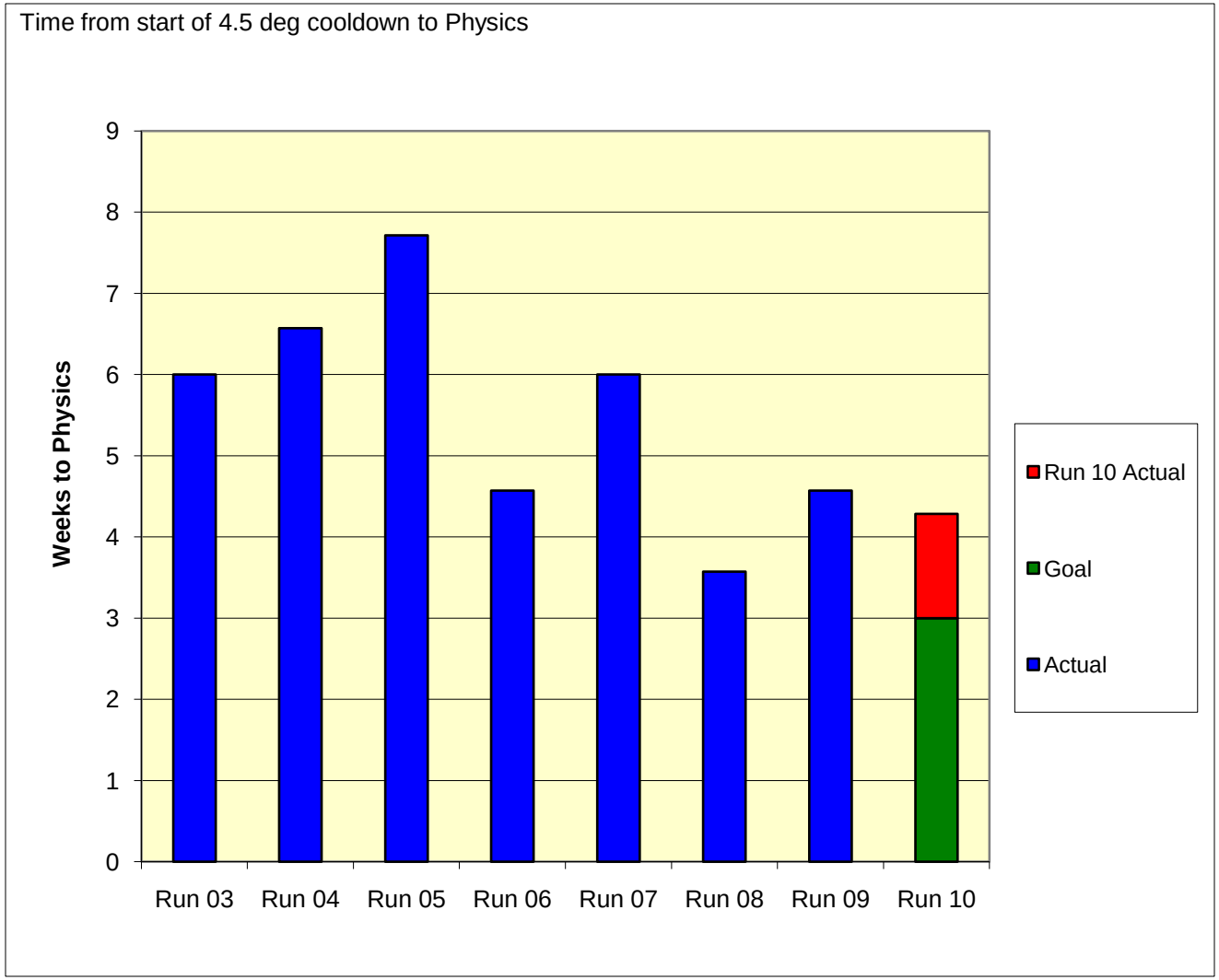
Revised Run 10 Plan, Nov 25, 2009

	Physics production or beam studies weeks	
$\sqrt{s_{NN}}$ (GeV)	25-cryoweek run	27-cryoweek run
200	10	10
62.4	4	4
39	1.5	1.5
27	0	0
18	0	0
11.5 @ STAR	0	2
7.7	4	4
Beam studies @ 5 GeV and @ $\nu \approx 0.67$	0.5	0.5

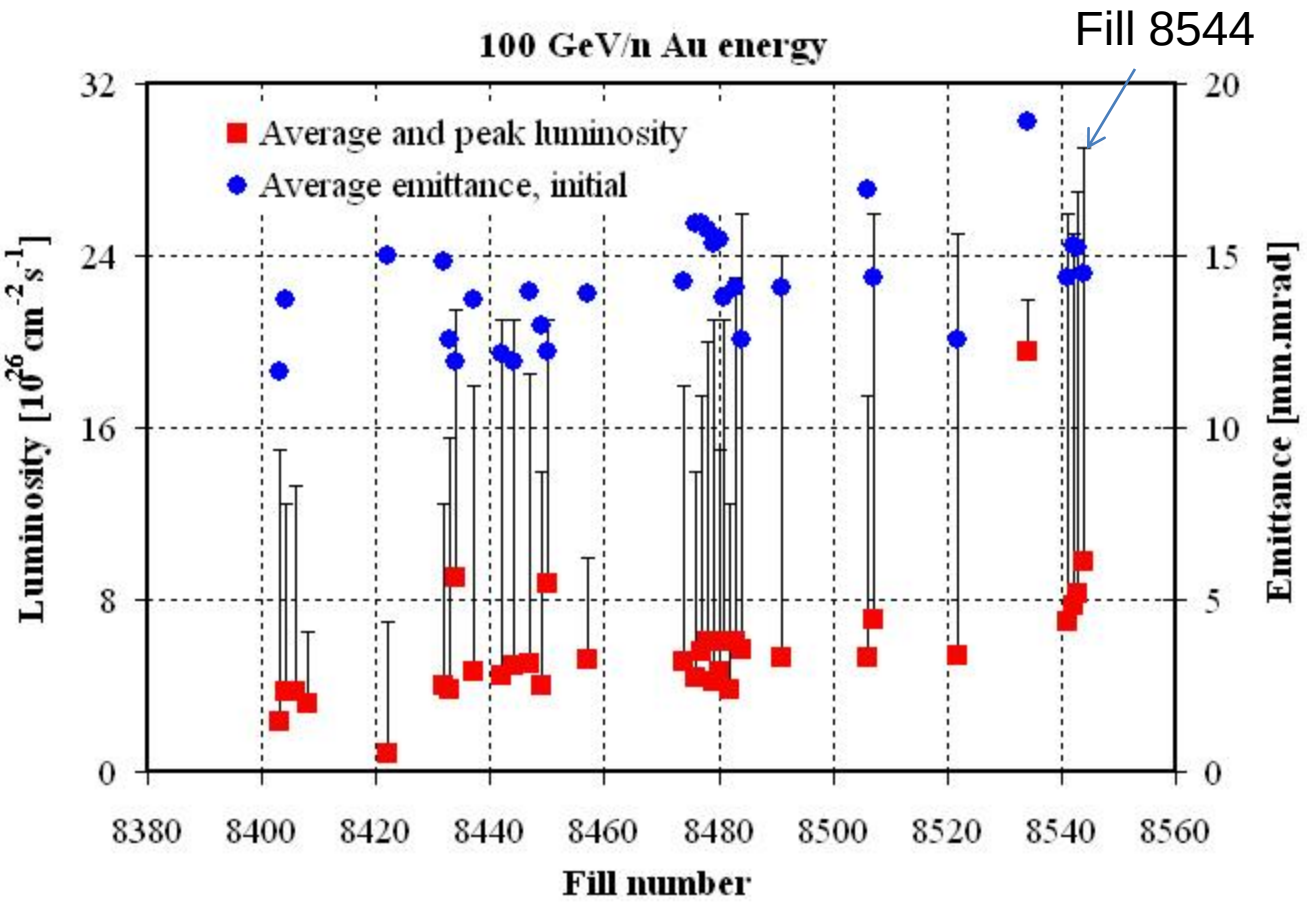
Run 10 Au-Au Goals

11/19/09

- STAR
  - $\sqrt{s}$ = 200 GeV/n
    - Luminosity Sampled/Delivered = 2/4 nb^{-1}
    - 250M Central Events
    - 300M Min-bias events
- PHENIX
  - $\sqrt{s}$ = 200 GeV/n
    - Luminosity Recorded/Delivered = 1.4/>6 nb^{-1}
    - Minimum Goal:
      - Luminosity Recorded/Delivered = 1.1/3.9 nb^{-1}


Time from start of 4.5 deg cooldown to Physics
Weeks to Physics
0
1
2
3
4
5
6
7
8
9
Run 03
Run 04
Run 05
Run 06
Run 07
Run 08
Run 09
Run 10
Run 10 Actual
Goal
Actual

Run 7


Fill 8544
100 GeV/n Au energy
Average and peak luminosity
Average emittance, initial
Luminosity [10^26 cm^-2 s^-1]
Emittance [mm.mrad]
Fill number
32
24
16
8
0
20
15
10
5
0
8380
8400
8420
8440
8460
8480
8500
8520
8540
8560

Cryogenic Blue & Yellow Rings (14 days)

Ring Summary (1 day) Sector Plots (1 day) Sector Plots (14 days)