




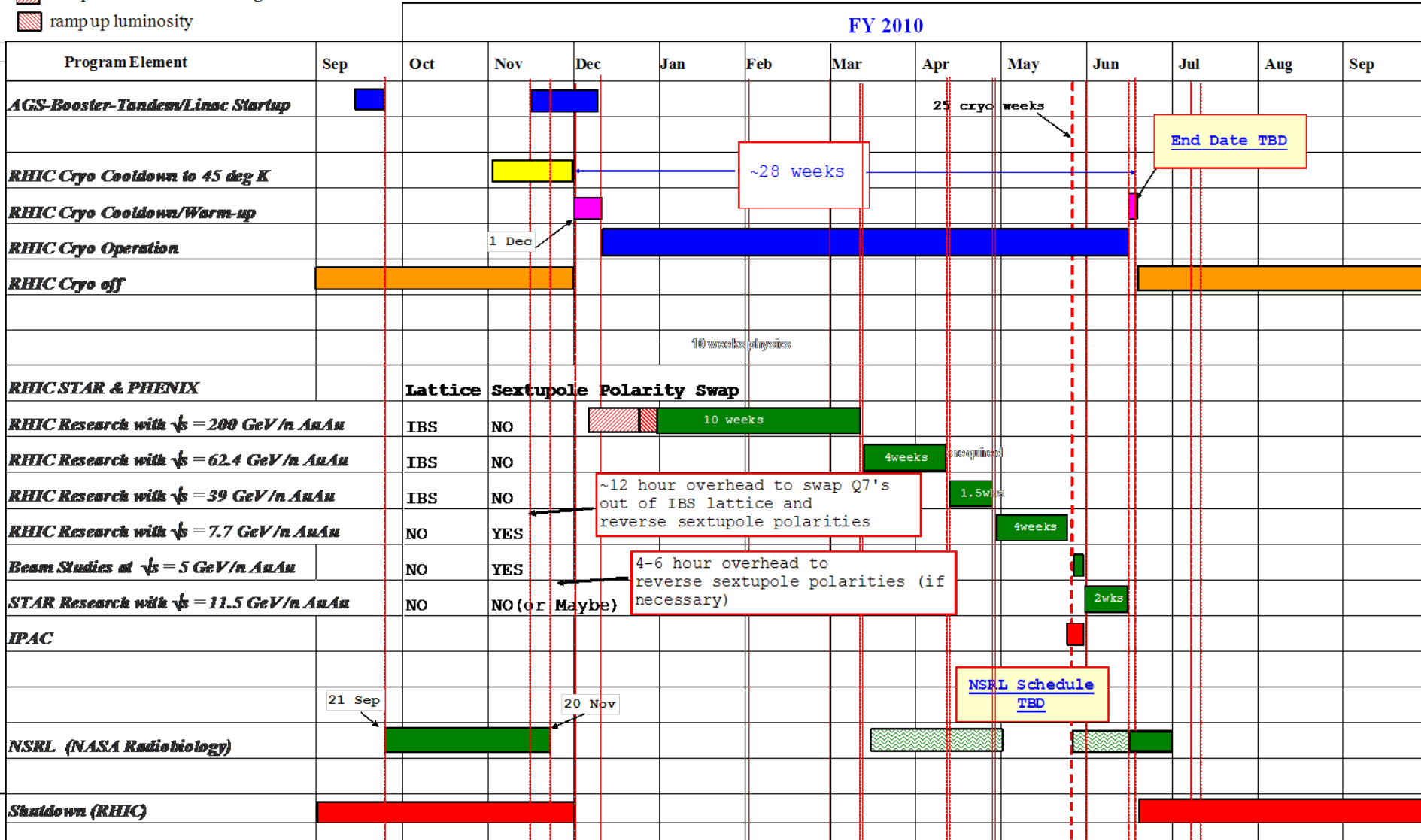
Possible Run 10 plan based on 25 Nov Revised Plan

- Run10, 25 cryo-weeks (my guesses after Jan 12)
 - 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 $\sqrt{s}=200$ 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. 11, End 10 week $\sqrt{s} = 200$ GeV/n Run, begin $\sqrt{s} = 62.4$ GeV/n setup
 - Mar. 13, Begin 4 week $\sqrt{s} = 62.4$ GeV/n run
 - Apr. 10, End 4 week $\sqrt{s} = 62.4$ GeV/n Run, begin $\sqrt{s} = 39$ GeV/n setup
 - Apr. 12, Begin 1.5 week $\sqrt{s} = 39$ GeV/n run
 - **Apr 18-22, Satogata is away**
 - Apr. 23, End 1.5 week $\sqrt{s} = 39$ GeV/n Run, begin $\sqrt{s} = 7.7$ GeV/n setup
 - Apr. 25, Begin 4 week $\sqrt{s} = 7.7$ GeV/n run
 - May 20, End 4 week $\sqrt{s} = 7.7$ GeV/n Run, begin $\sqrt{s} = 5.0$ GeV/n setup
 - May 23, End 4 week $\sqrt{s} = 7.7$ GeV/n Run, begin $\sqrt{s} = 5.0$ GeV/n setup
 - **May 23 – 28 IPAC (Kyoto)**
 - May 25, begin 0.5 week beam studies at $\sqrt{s} = 5$ GeV/n and $v \sim 0.67$ -- **25 CRYO WEEKS**
 - **This is it unless we have \$'s to run longer – revisit in March**
 - May 29, end 0.5 week studies
 - May 31, begin $\sqrt{s} = 11.5$ GeV/n for STAR
 - **Jun 8, – 27 CRYO WEEKS**
 - Jun 15, end 2 week $\sqrt{s} = 11.5$ GeV/n run
 - Jun 15, Begin Cryo Warm-up
 - Jun 16, Warm-up complete, Run 10 ends – **28.2 CRYO WEEKS**

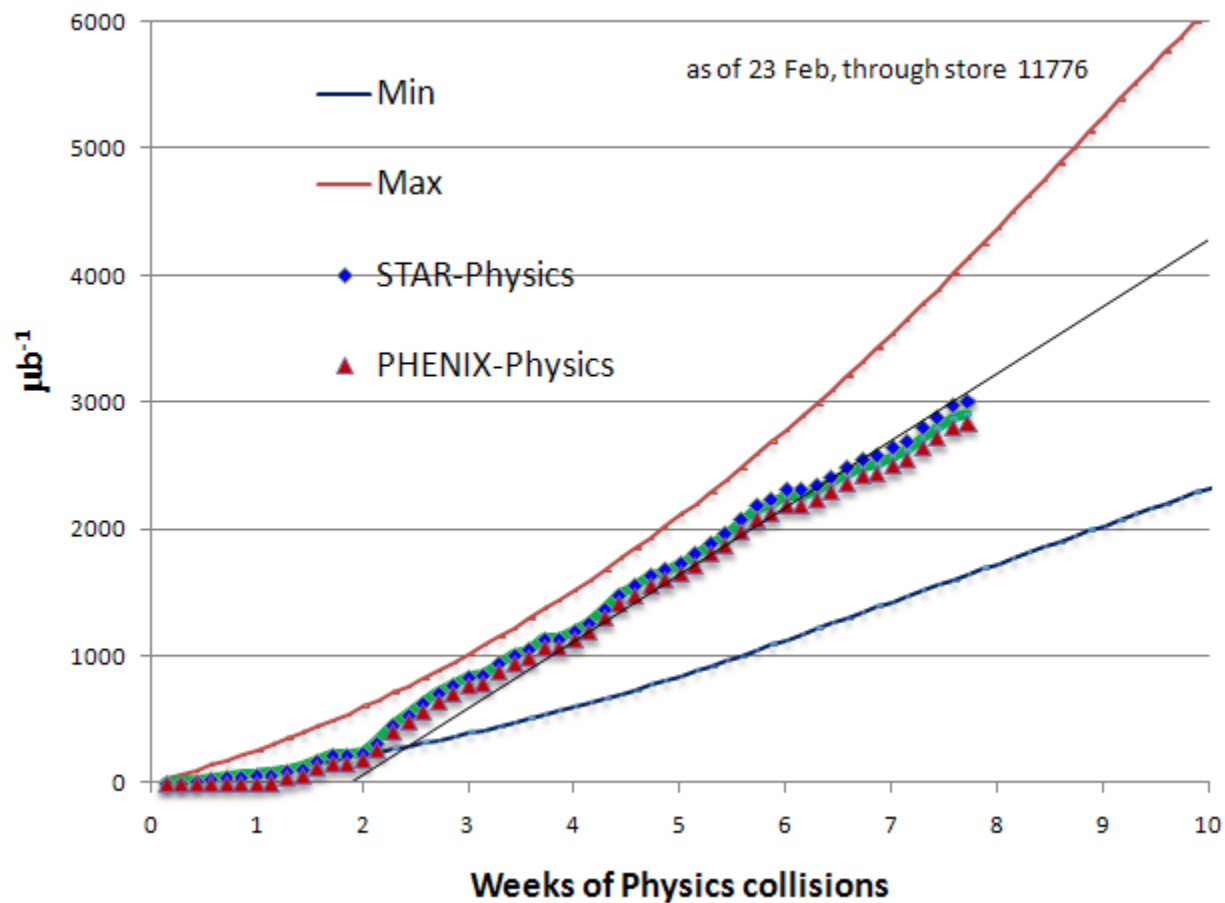
C-A Operations-FY10

For Discussion Only

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

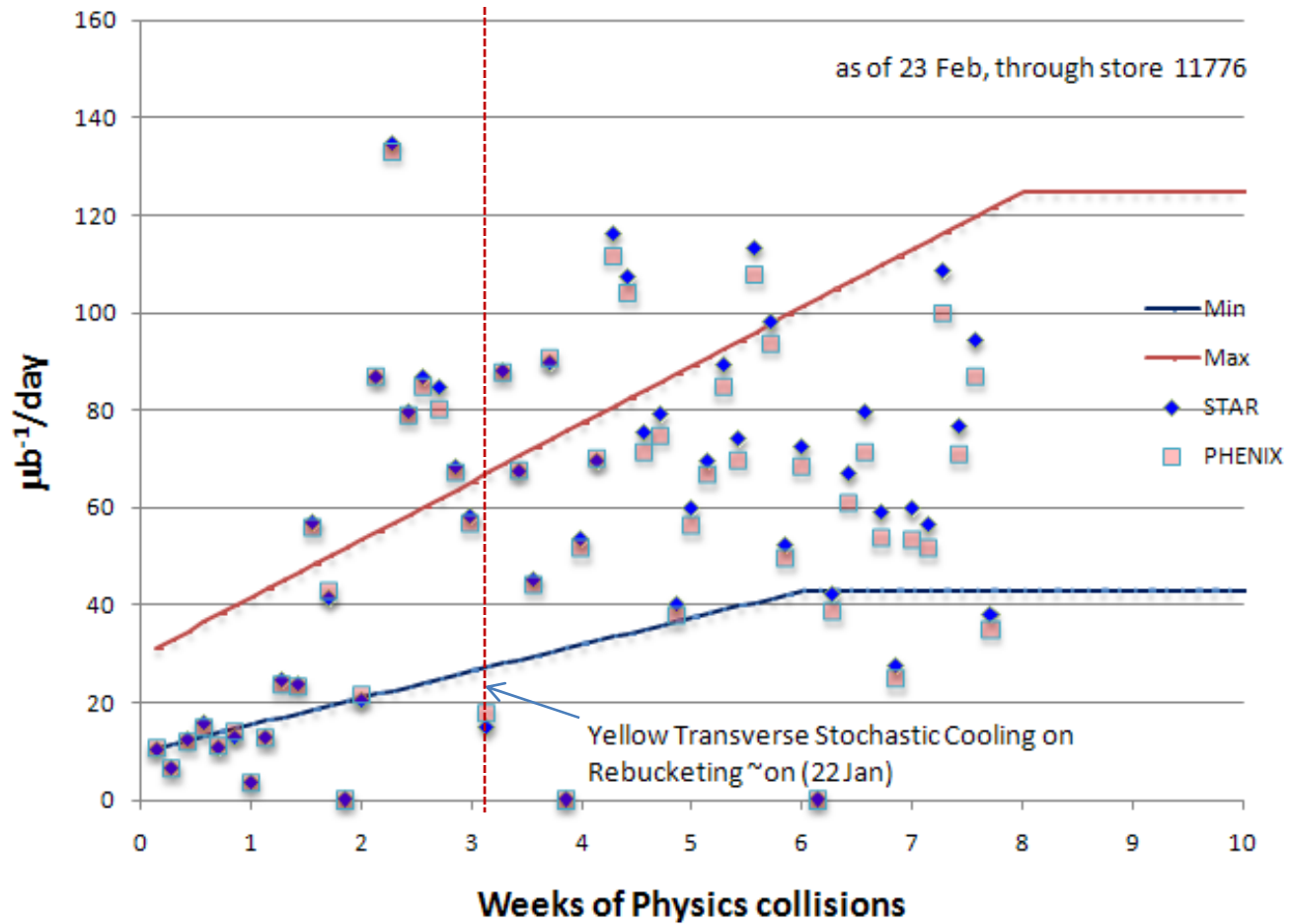


Run 10 100 x 100 GeV/n Au Delivered Luminosity

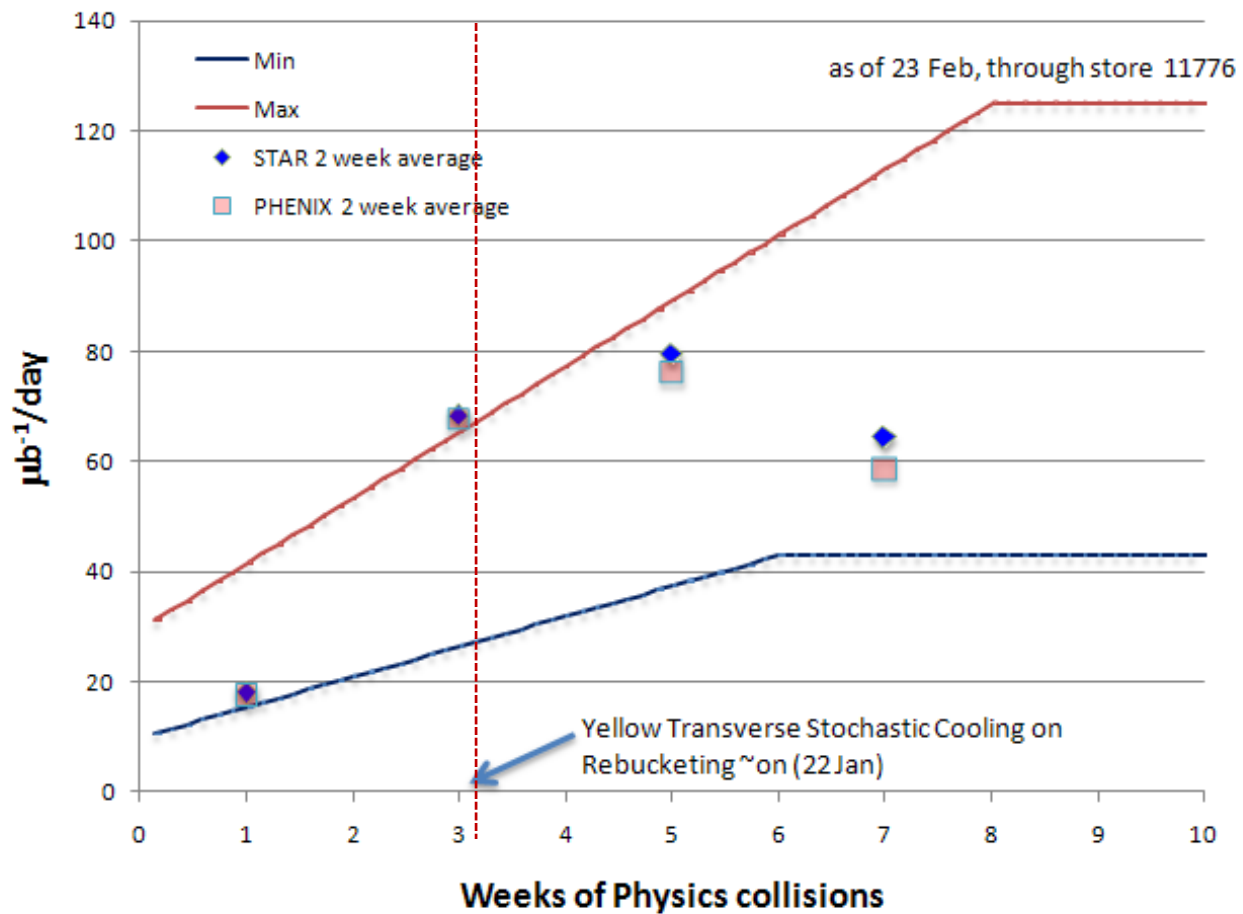


Run 10 100 x 100 GeV/n Au Delivered Luminosity per day

as of 23 Feb, through store 11776

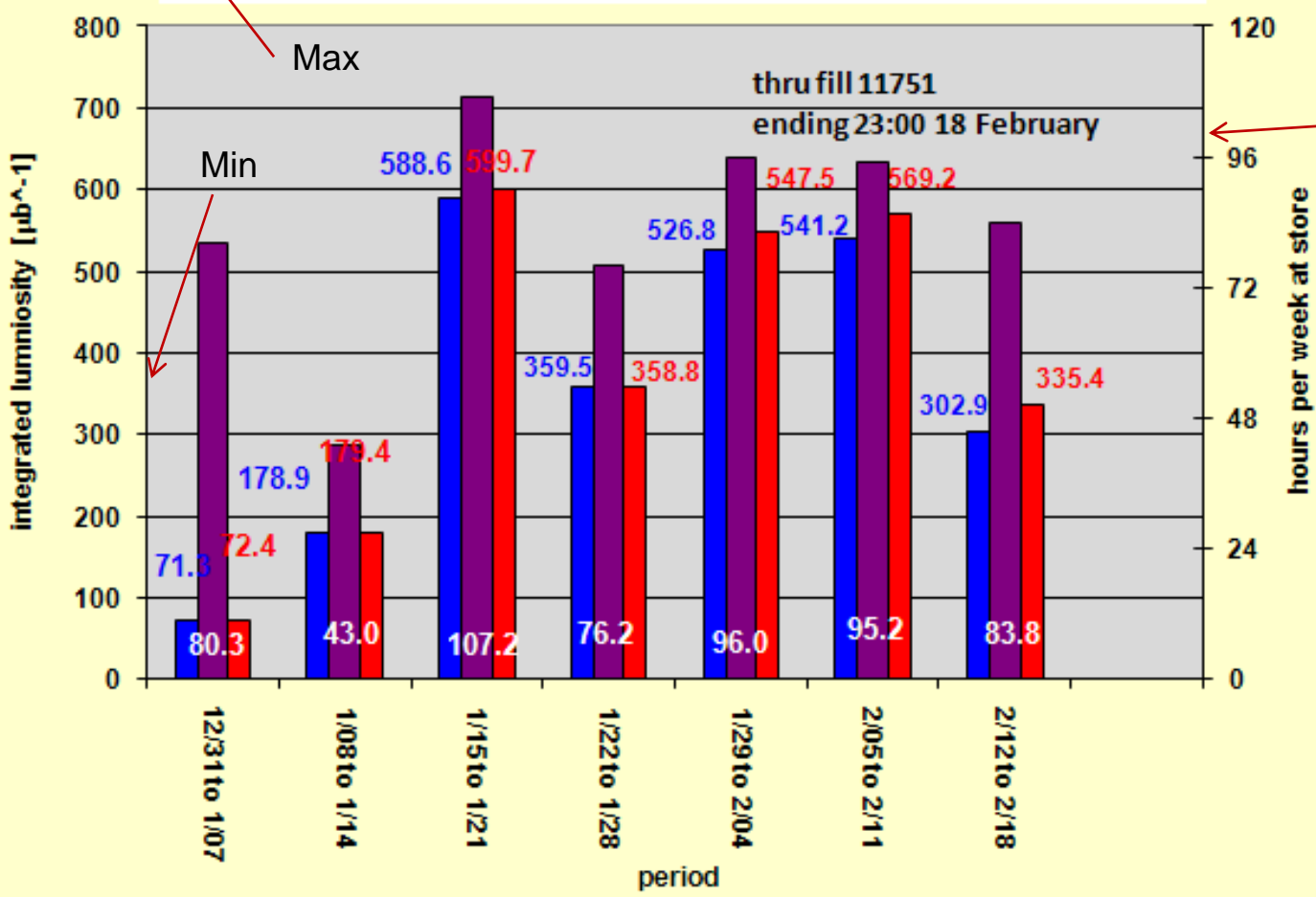


Run 10 100 x 100 GeV/n Au Delivered Luminosity per day



Run 10 (AuAu) -- Integrated Luminosity by week

■ Phenix ■ STAR ■ (lumi) hours at store



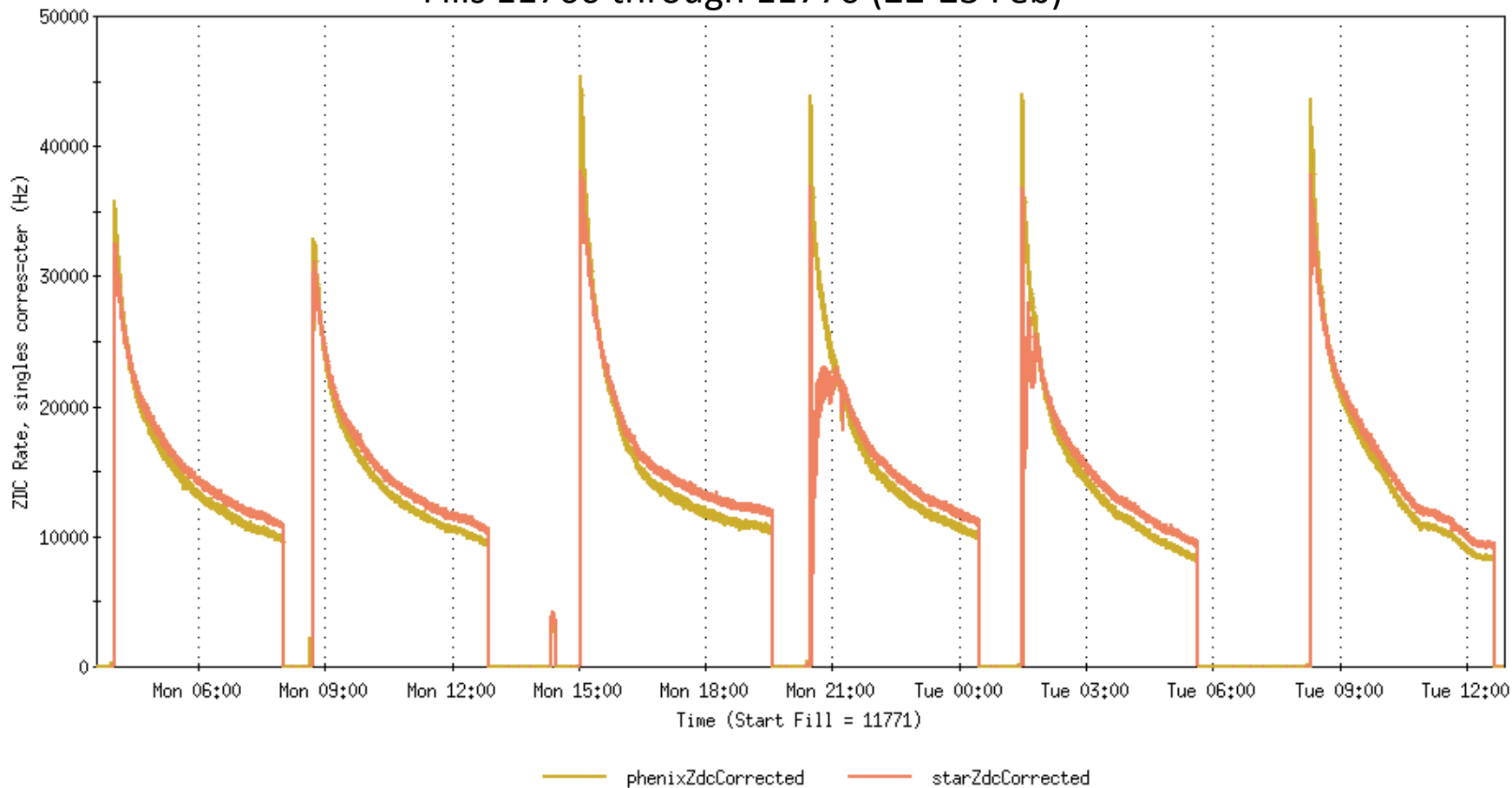
Goal

Max

Min

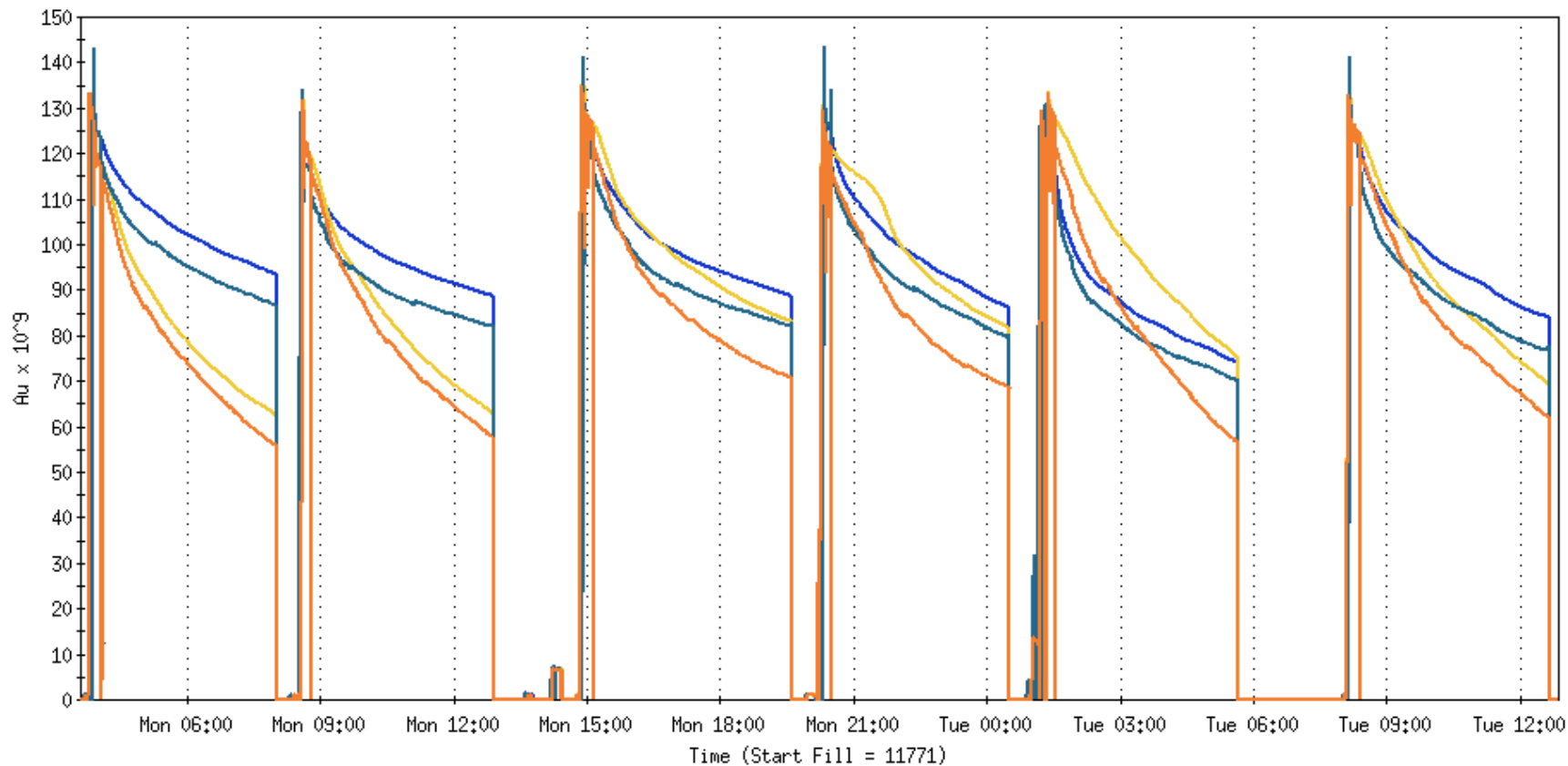
thru fill 11751
ending 23:00 18 February

Fills 11766 through 11770 (22-23 Feb)



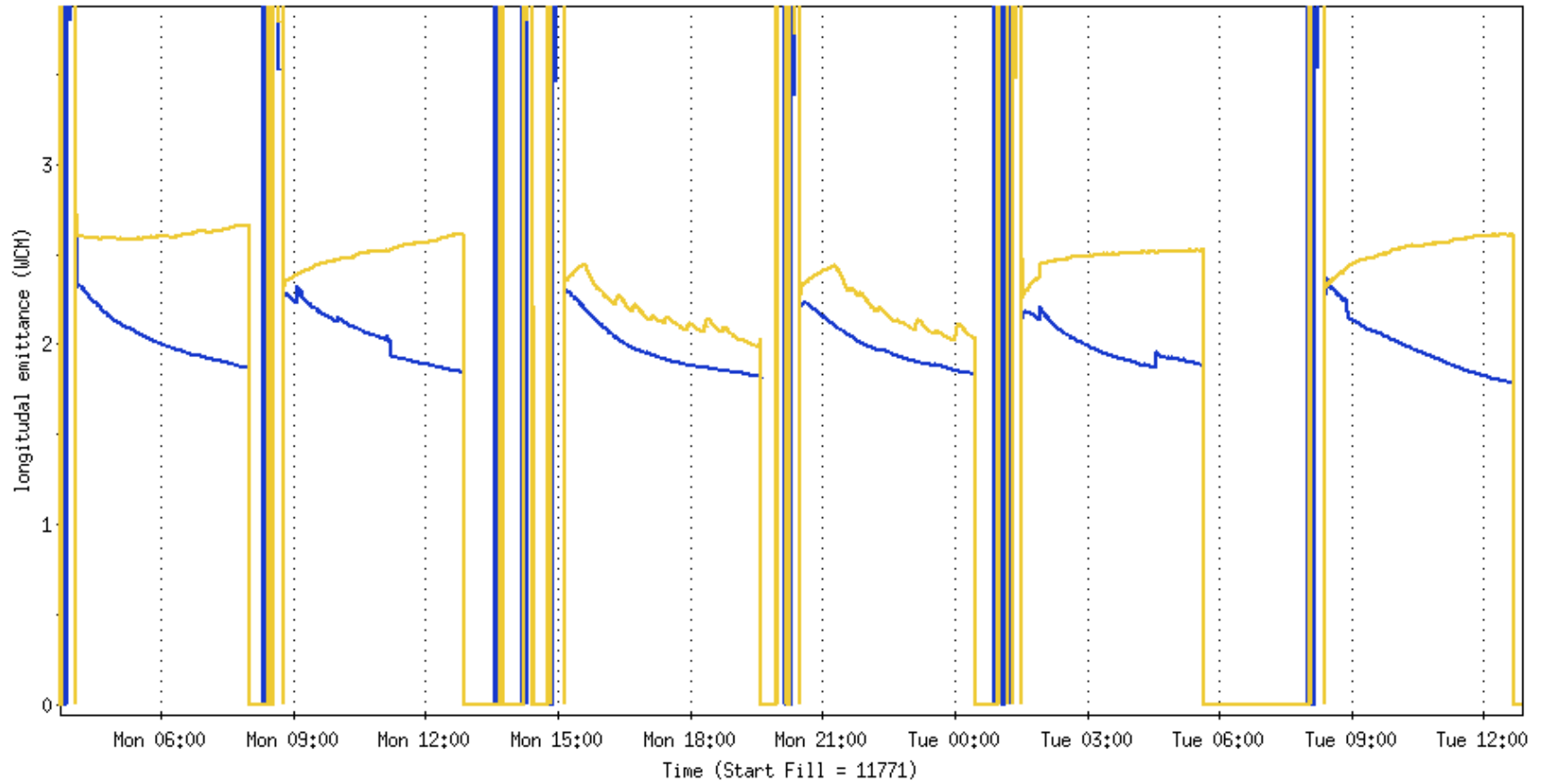
Fills 11766 through 11770 (22-23 Feb)

RHIC - DCCT total beam & WCM bunched beam

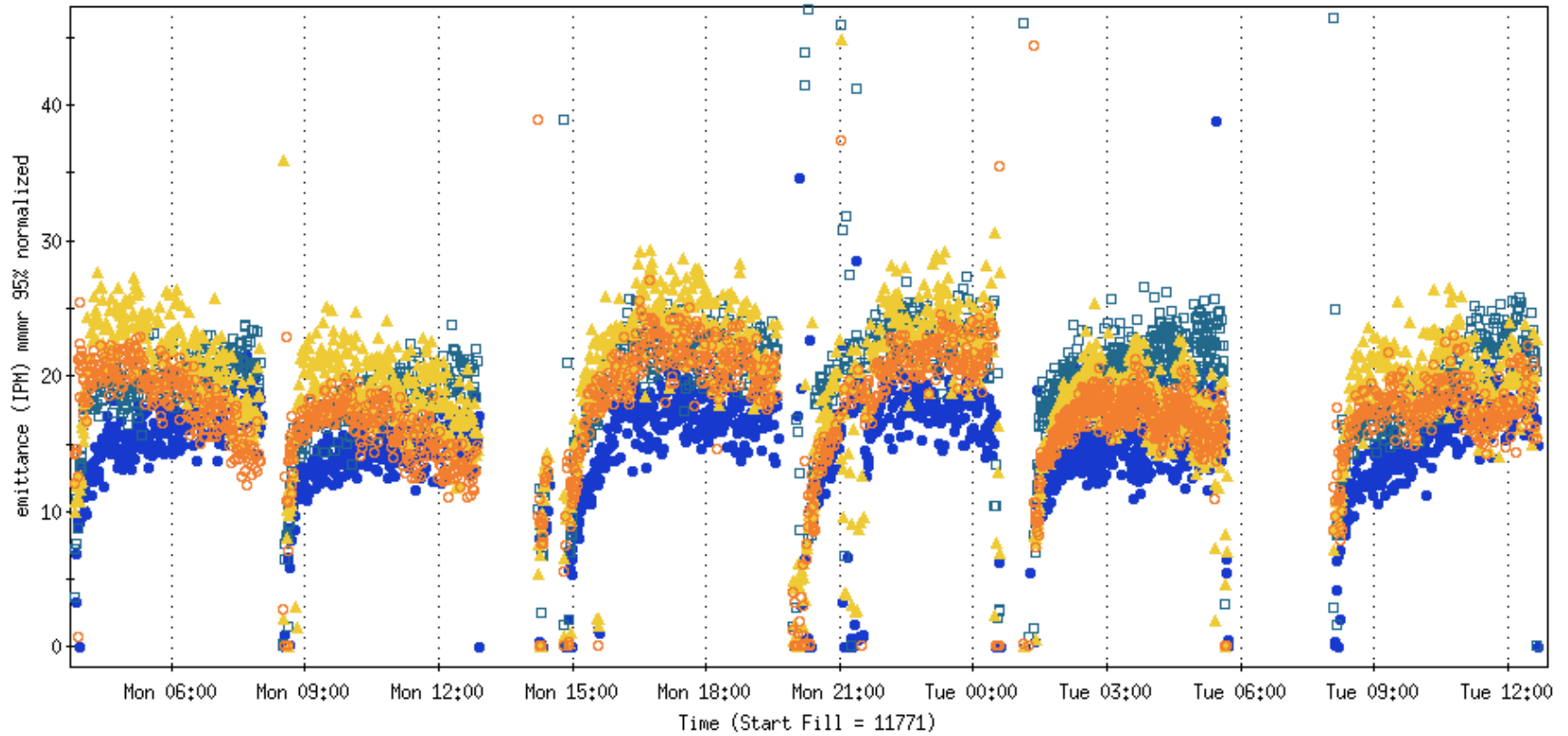


bluDCCTtotal yellDCCTtotal bluWCMbunched yellWCMbunched

Fills 11766 through 11770 (22-23 Feb)



Fills 11766 through 11770 (22-23 Feb)



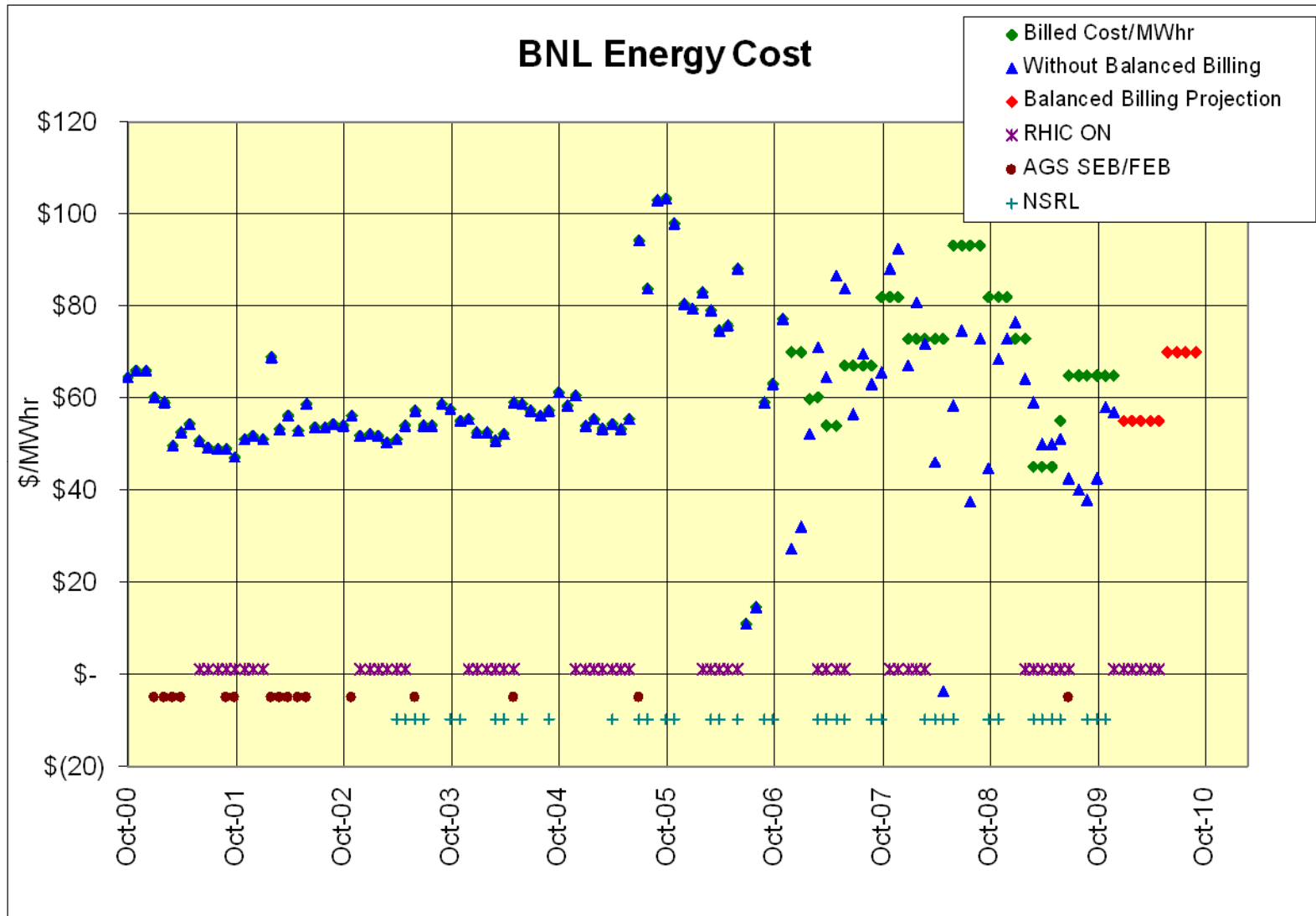
- RhicIpMManager.blue_horiz;normEmitM[.]
- ▲ RhicIpMManager.yellow_horiz;normEmitM[.]
- RhicIpMManager.blue_vert;normEmitM[.]
- RhicIpMManager.yellow_vert;normEmitM[.]

Future Topics

- Toward Smaller β^* - new quad triplets – D. Trbojevic

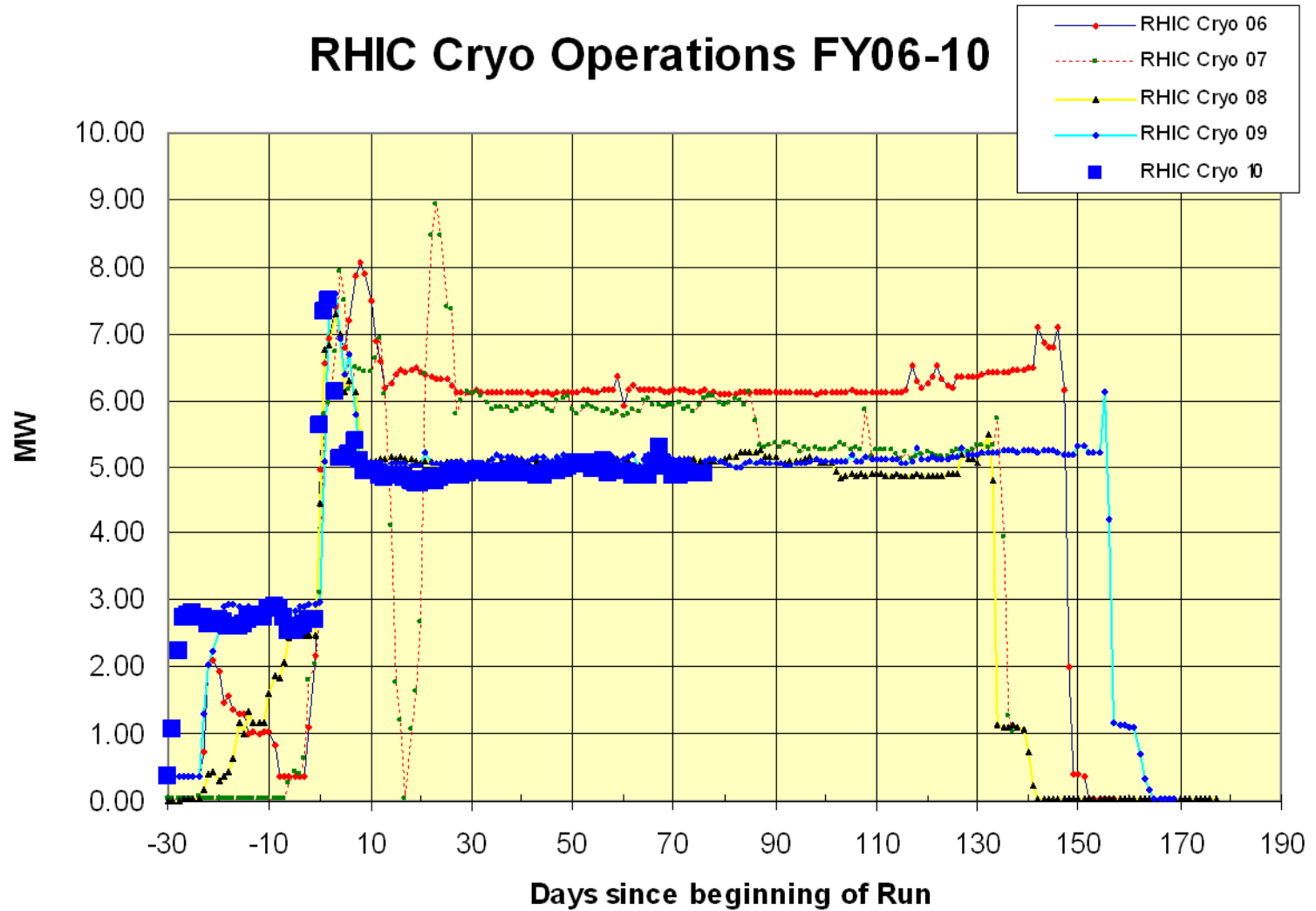
Archive

Through Dec 2009



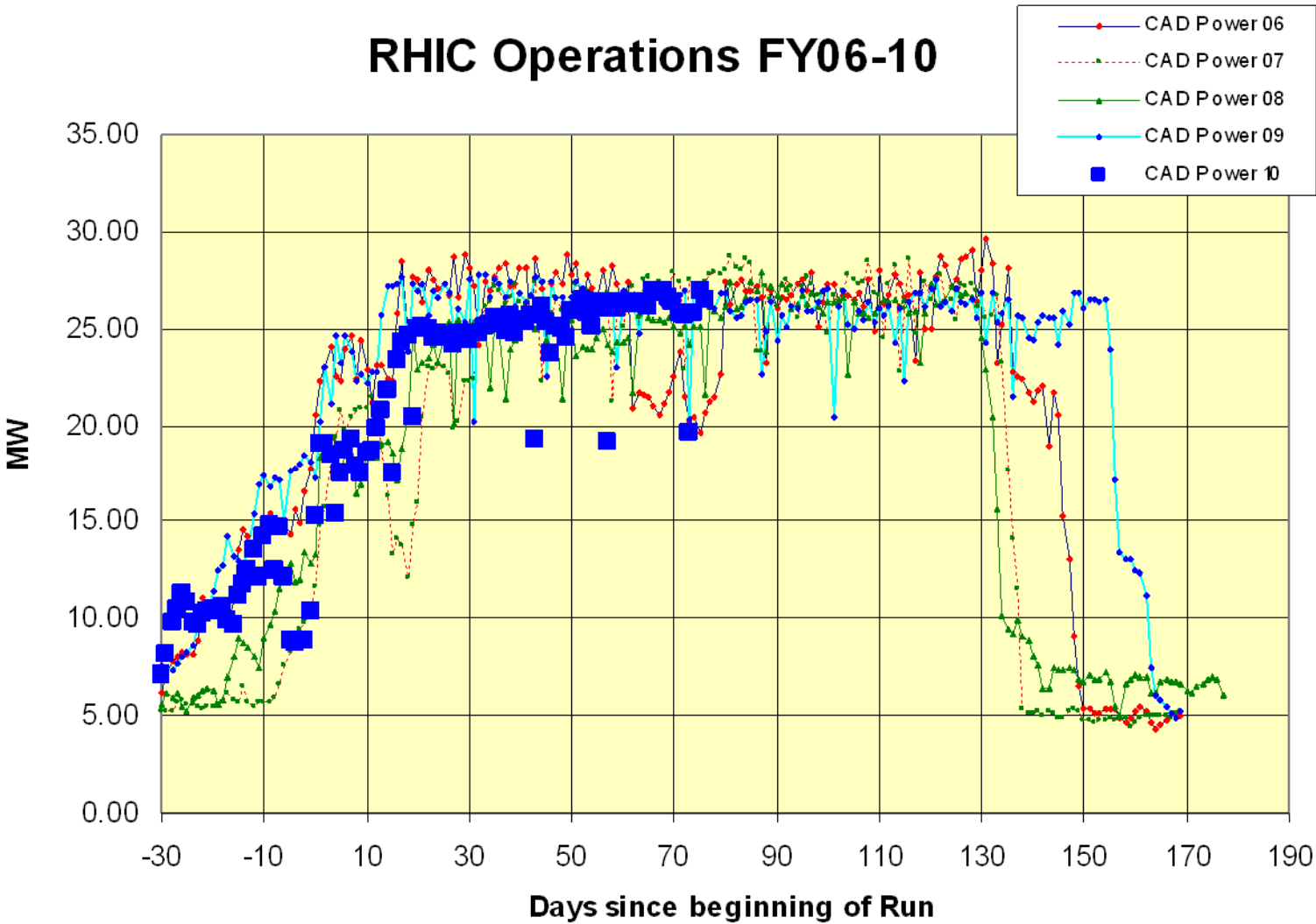
Through 2/15/10

RHIC Cryo Operations FY06-10



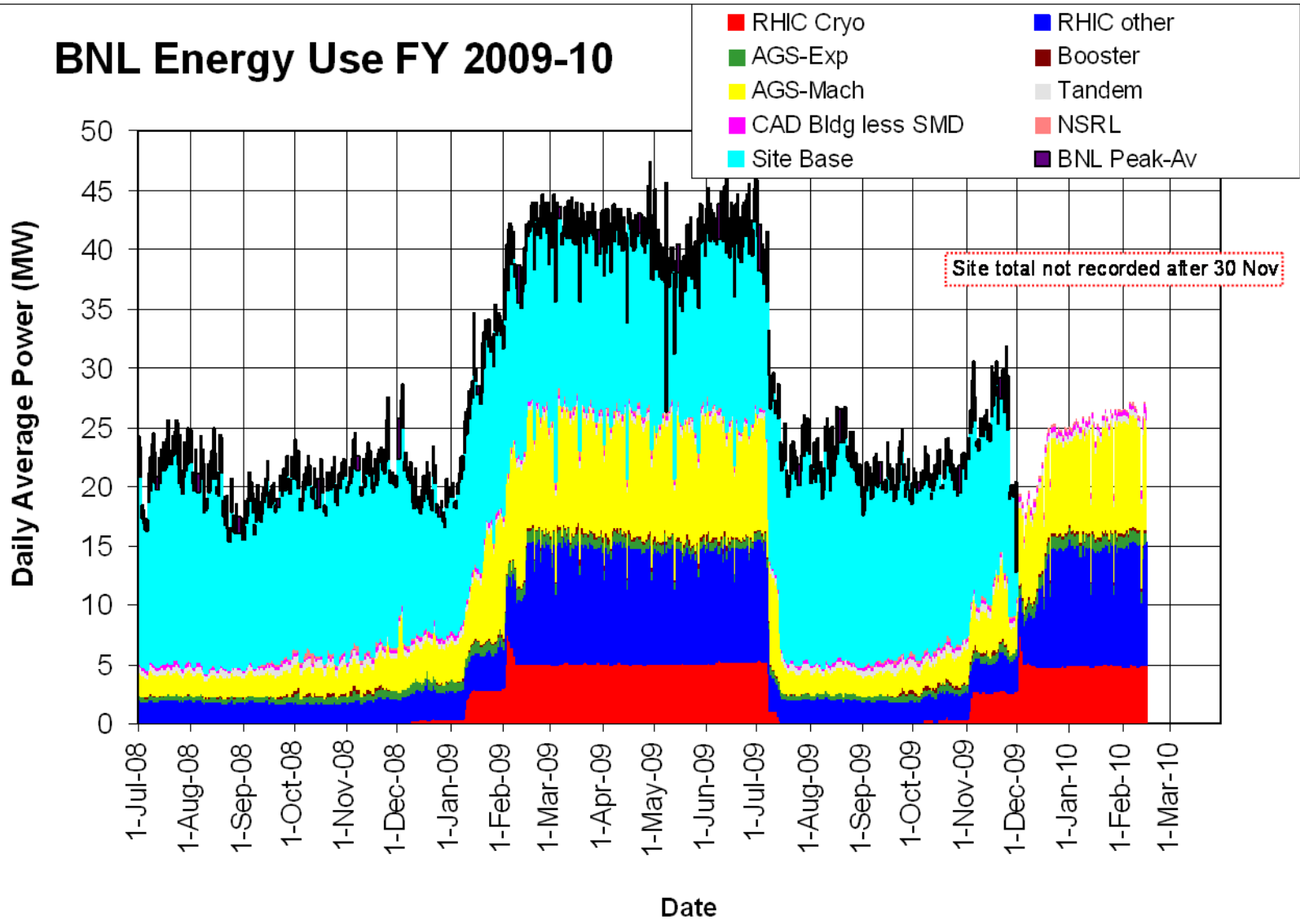
Through 2/15/10

RHIC Operations FY06-10



Through 2/15/10

BNL Energy Use FY 2009-10



31 Dec 1st Physics Store

Injected Beam Statistics for Fill number 11340

Started filling RHIC: Thu Dec 31 22:51:52 2009, Fill complete: Thu Dec 31 22:59:50 2009, Minutes to fill: 7

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

5 Jan Physics Store

Injected Beam Statistics for Fill number 11370

Started filling RHIC: Tue Jan 5 03:22:19 2010, Fill complete: Tue Jan 5 03:32:02 2010, Minutes to fill: 9

Ring	Bunches/Cycles	Avg Bunch in RHIC (10 ⁶ ions)	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	<i>Uxf1 to Wxf</i>	<i>Wxf to Arc</i>	<i>Arc to RHIC</i>
Blue	68/68	1031	0.906	1.053	<i>0.964</i>	<i>1.001</i>	<i>0.892</i>
Yellow	68/68	991	0.938	1.050	<i>0.964</i>	<i>0.993</i>	<i>0.934</i>

17Jan Physics Store

Injected Beam Statistics for Fill number 11493

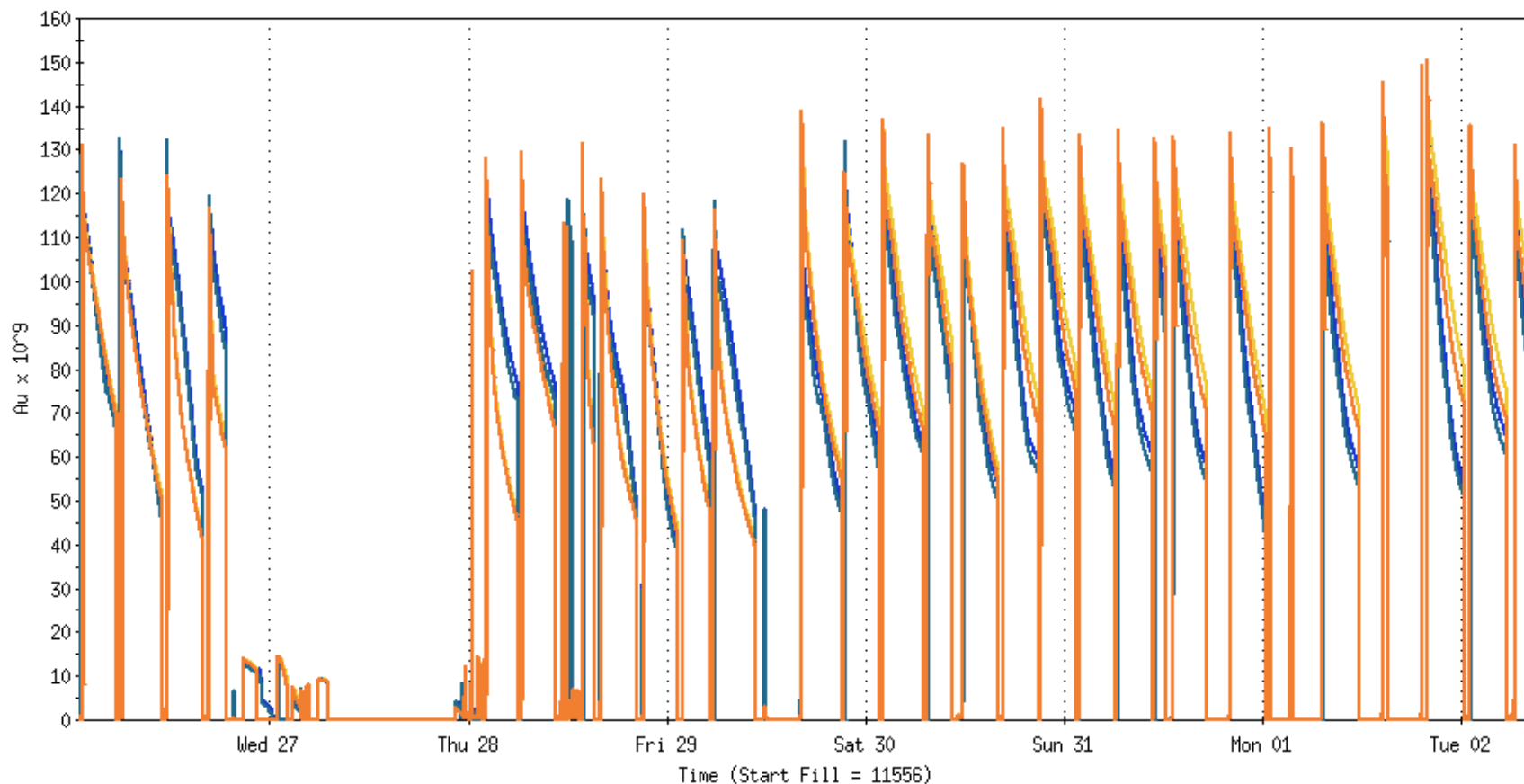
Started filling RHIC: Tue Jan 19 12:20:17 2010, Fill complete: Tue Jan 19 12:25:12 2010, Minutes to fill: 4

Newfill time: Tue Jan 19 12:09:38 2010, Minutes from newfill to accramp: 16

Ring	Bunches/Cycles	Avg Bunch in RHIC (10 ⁶ ions)	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	<i>Uxf1 to Wxf</i>	<i>Wxf to Arc</i>	<i>Arc to RHIC</i>
Blue	111/28	1160	0.936	1.036	<i>0.961</i>	<i>1.000</i>	<i>0.940</i>
Yellow	111/28	1150	0.917	1.034	<i>0.960</i>	<i>0.991</i>	<i>0.932</i>

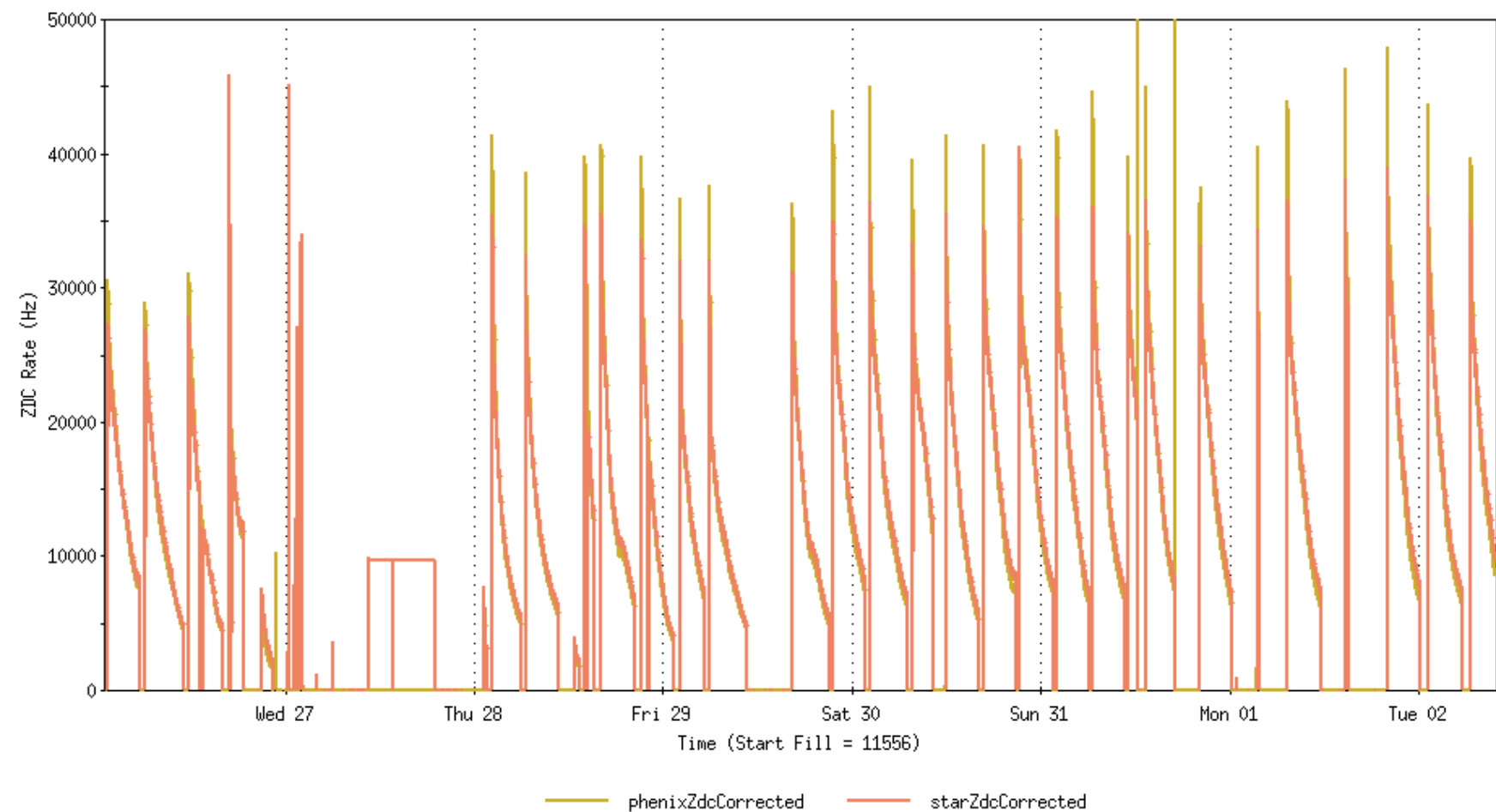
26 Jan-2 Feb

RHIC - DCCT total beam & WCM bunched beam

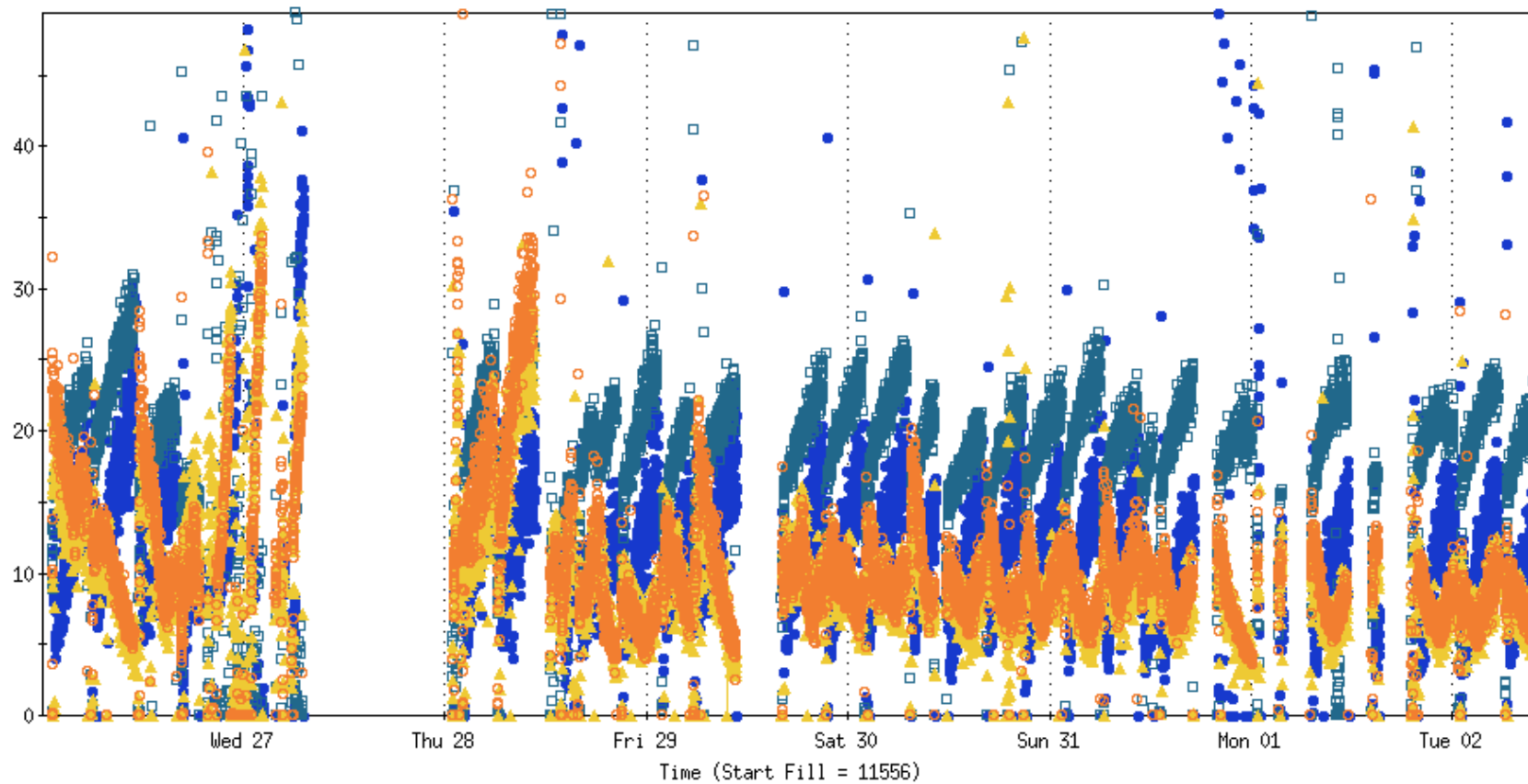


bluDCCTtotal yellDCCTtotal bluWCMbunched yellWCMbunched

26 Jan-2 Feb



26 Jan-2 Feb

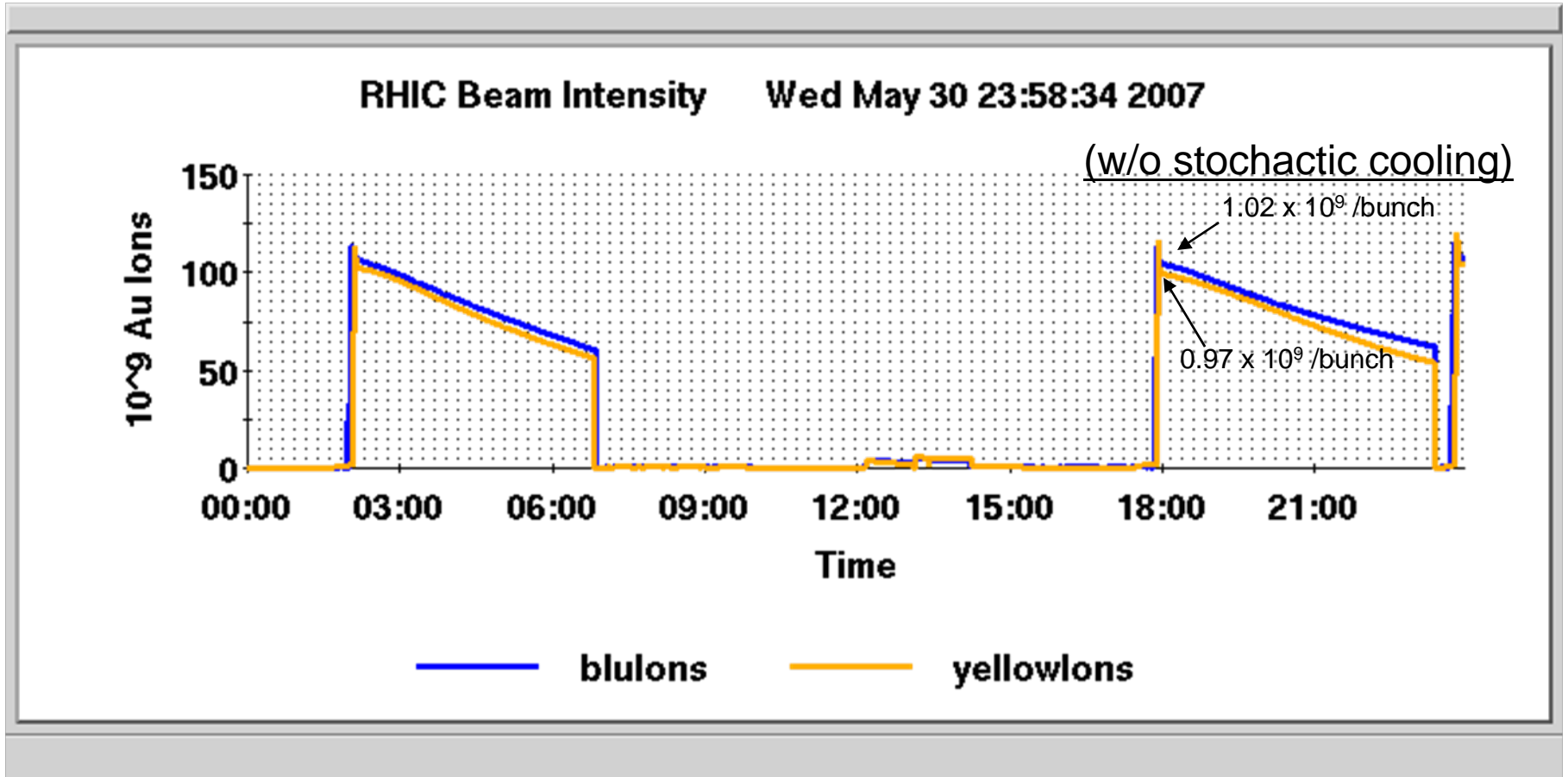


- RhicIpMManager.blue_horiz;normEmitM[.]
- RhicIpMManager.blue_vert;normEmitM[.]
- RhicIpMManager.yellow_horiz;normEmitM[.]
- RhicIpMManager.yellow_vert;normEmitM[.]

Run 7 Fill 8878 Injected Beam Statistics from ELOG

Blue = 103 bunches 1.04×10^9 /bunch

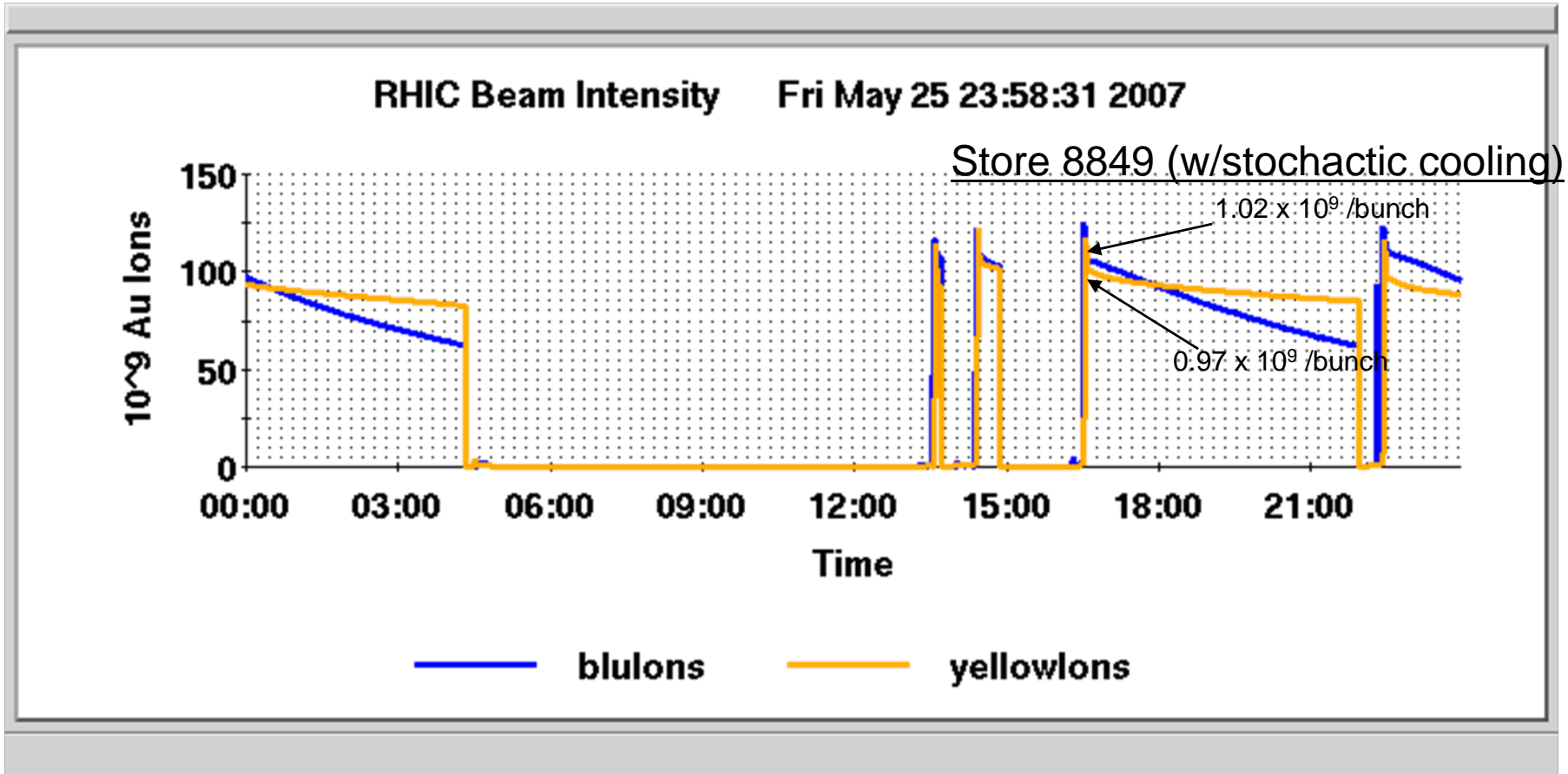
Yellow = 103 bunches 1.13×10^9 /bunch



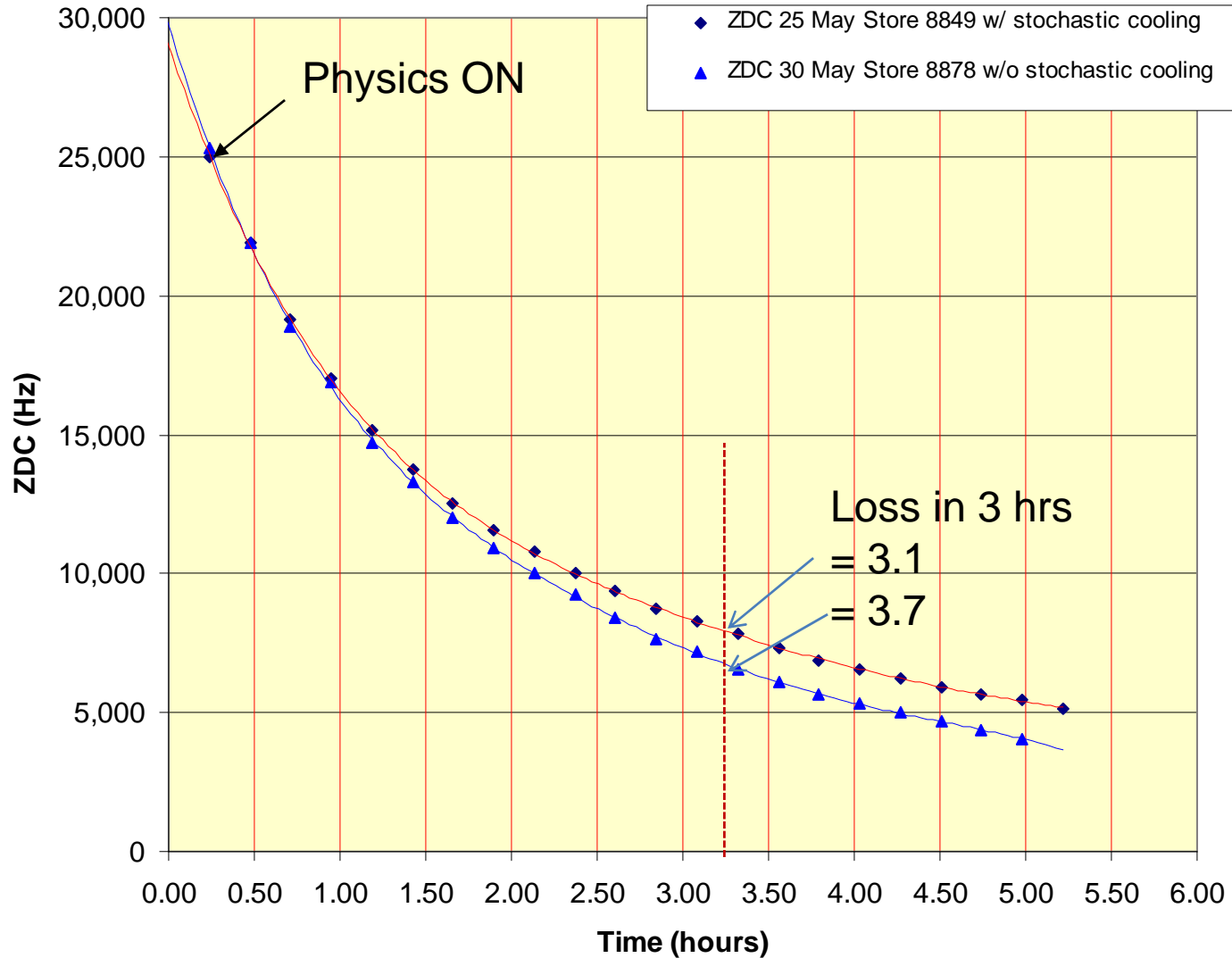
Run 7 Fill 8849 Injected Beam Statistics from ELOG

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



Revised Run 10 Plan, Nov 25, 2009

$\sqrt{s_{NN}}$ (GeV)	Physics production or beam studies weeks	
	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 @ $v \approx 0.67$	0.5	0.5

Run 10 Au-Au Goals

11/19/09

- STAR

- $\sqrt{s} = 200 \text{ GeV/n}$

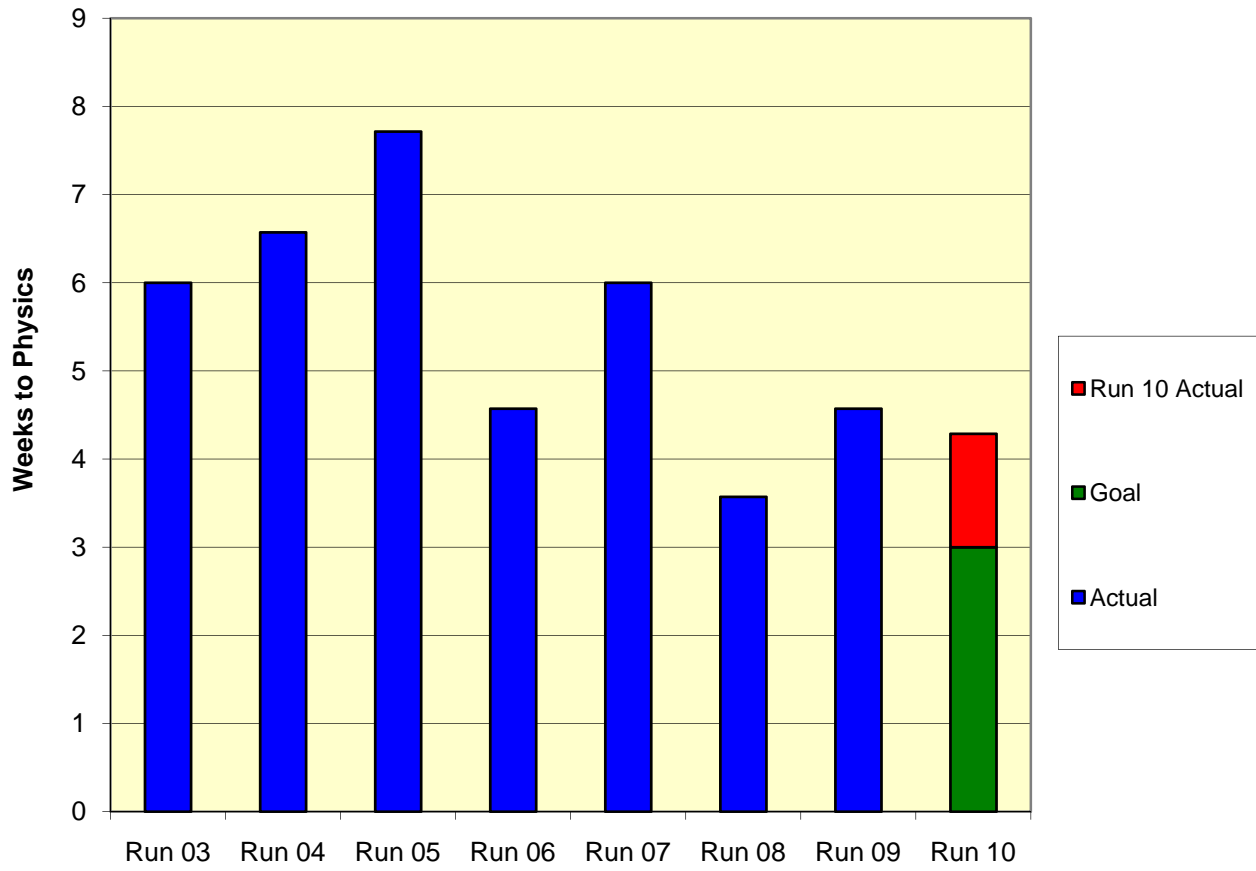
- Luminosity Sampled/Delivered = 2/4 nb⁻¹
 - 250M Central Events
 - 300M Min-bias events

- PHENIX

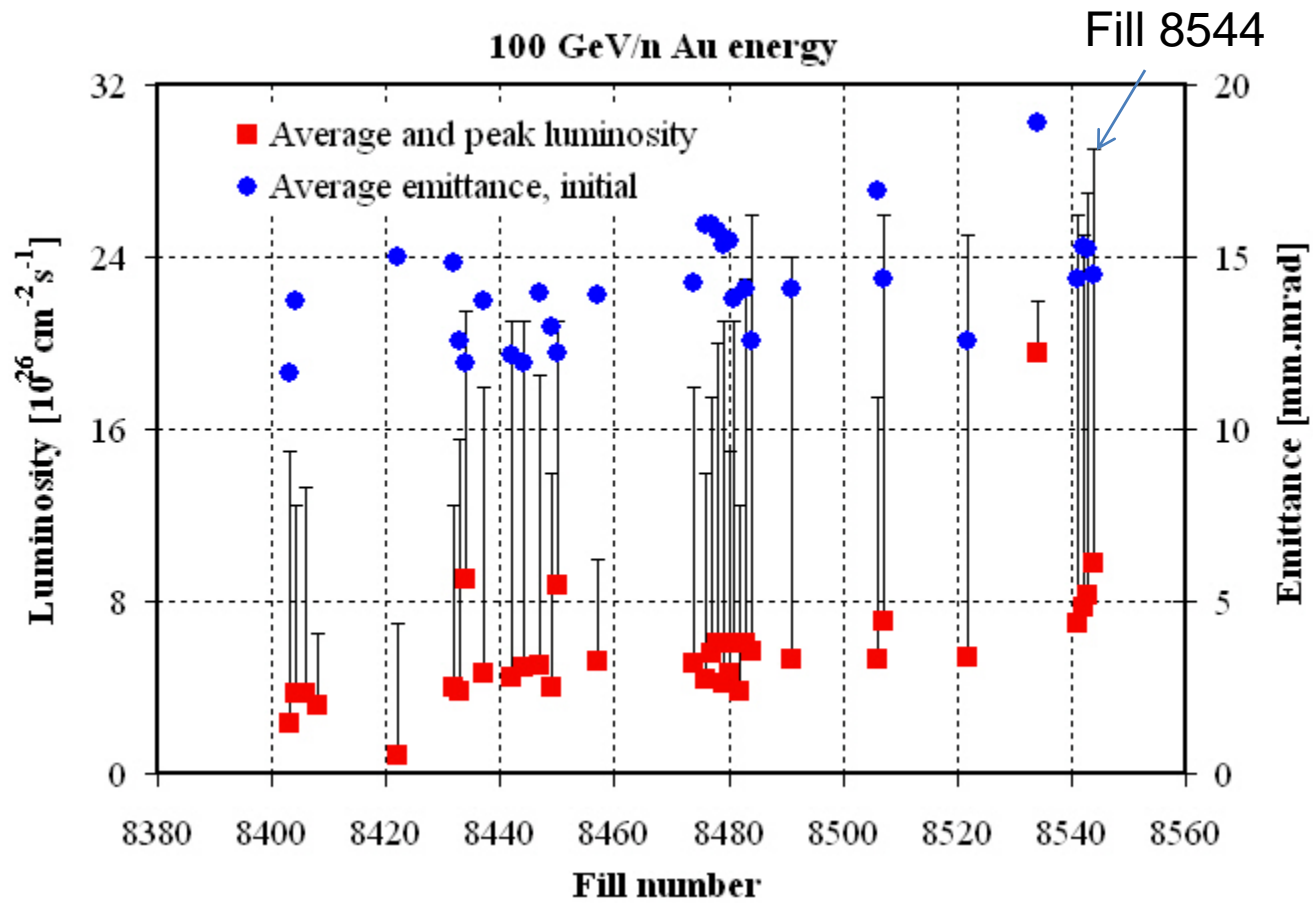
- $\sqrt{s} = 200 \text{ GeV/n}$

- 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

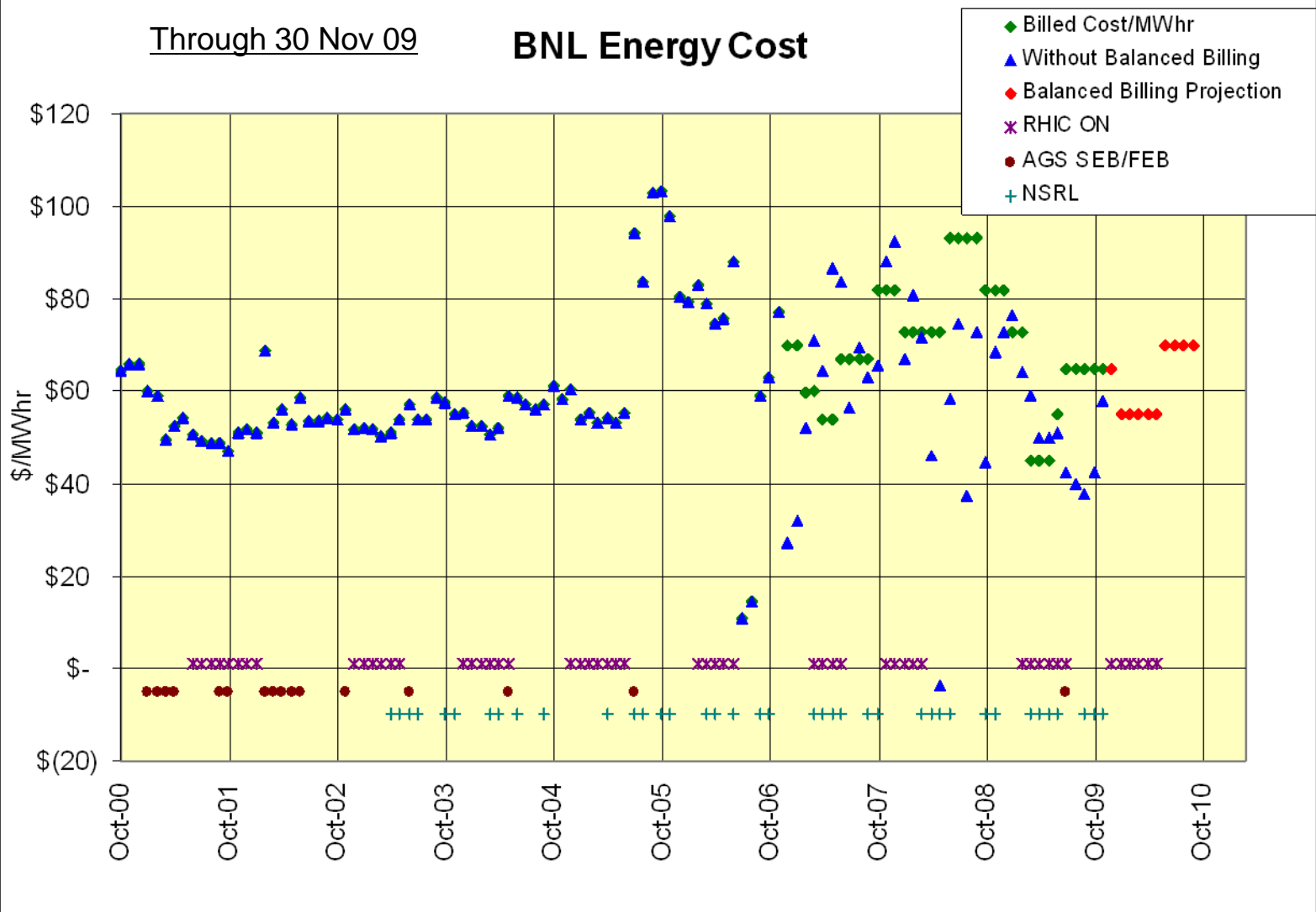


Run 7



Through 30 Nov 09

BNL Energy Cost



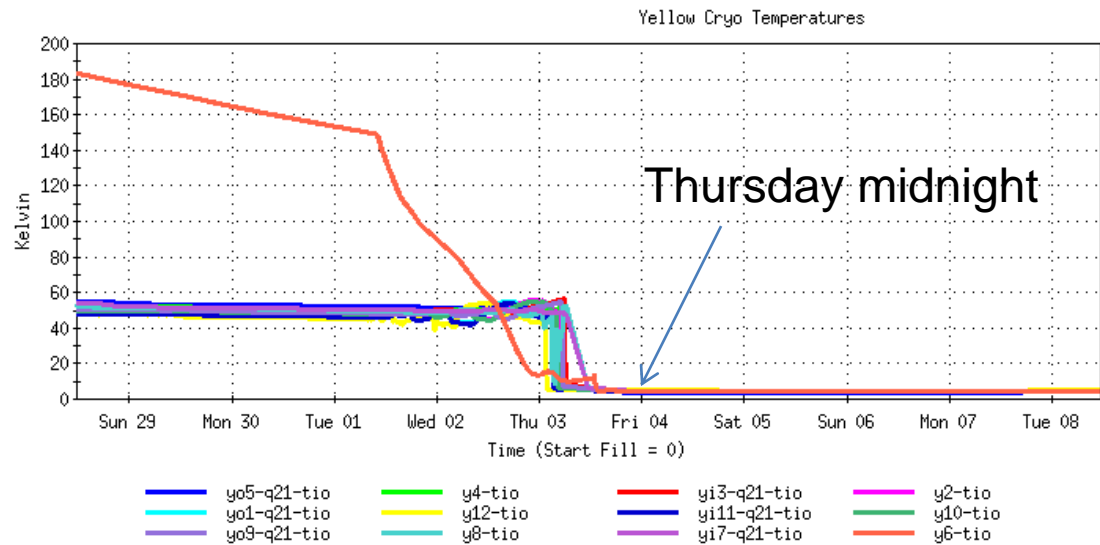
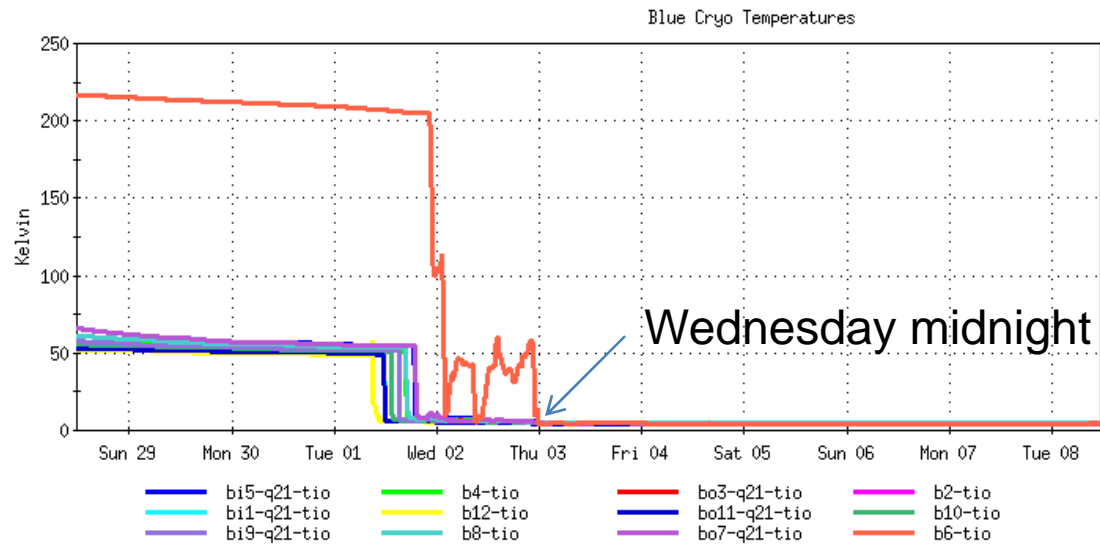
Run 10 Setup

- Oct. 5, N2 scrubbing
- Oct. 30, Temp. Control devices in and ready (required for 45 K wave cooldown).
- Nov. 2, 45 K wave begins.
- Nov. 12, AGS Testing.
- Nov. 12-13, APEX Workshop
- Nov. 16, beam setup in Booster and AGS
- Nov. 16-20, RHIC Dry Run
- Nov 22, Beam extracted from AGS to W dump

Cryogenic Blue & Yellow Rings (14 days)




[Ring Summary \(1 day\)](#) [Sector Plots \(1 day\)](#) [Sector Plots \(14 days\)](#)

Window Markers Analysis



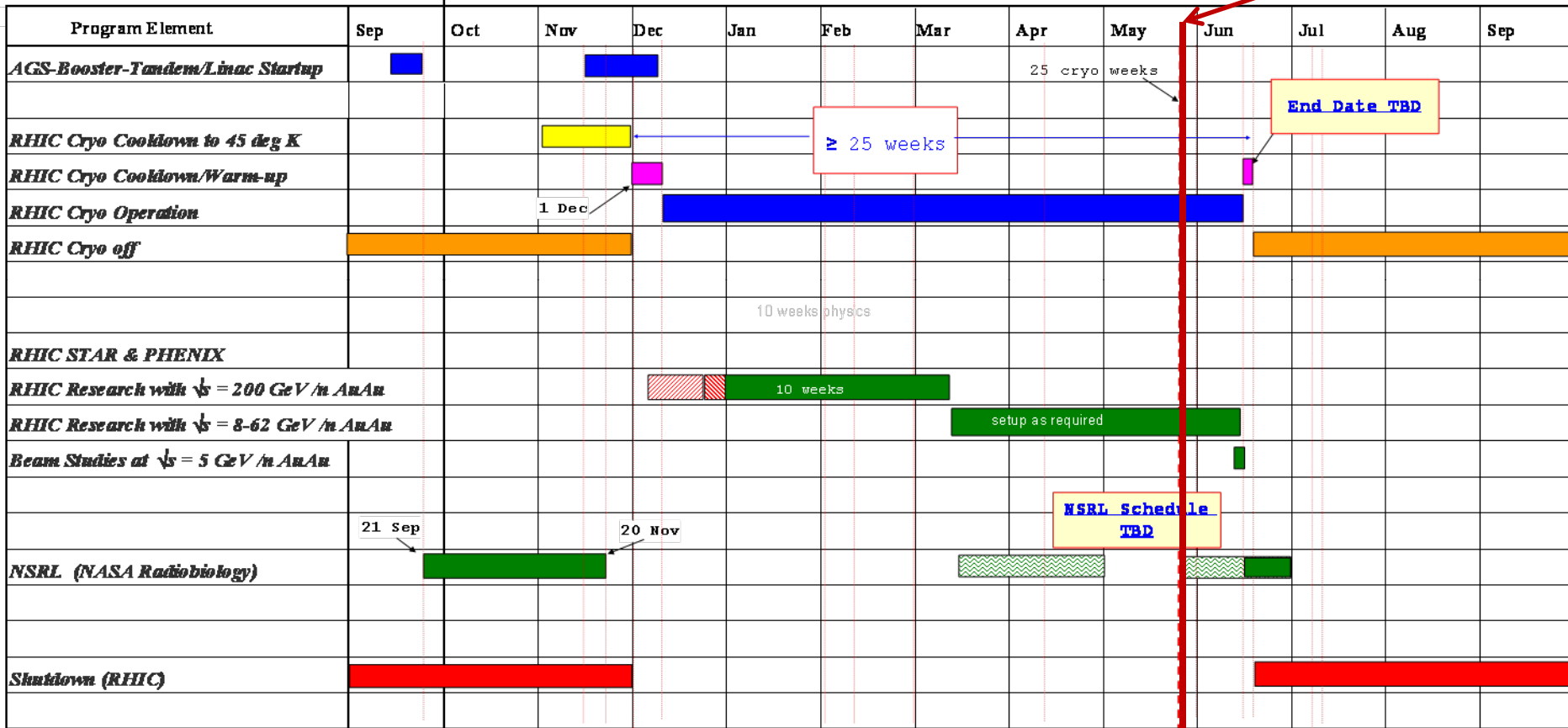
C-A Operations-FY10

As Run/Planned

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

25 Cryo Weeks

FY 2010



≥ 25 weeks

25 cryo weeks

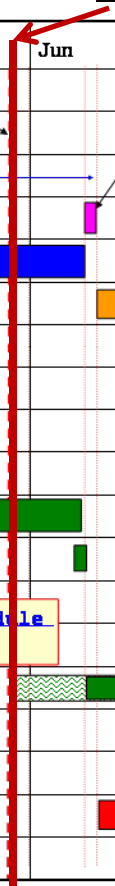
End Date TBD

10 weeks physics

10 weeks

setup as required

NSRL Schedule TBD



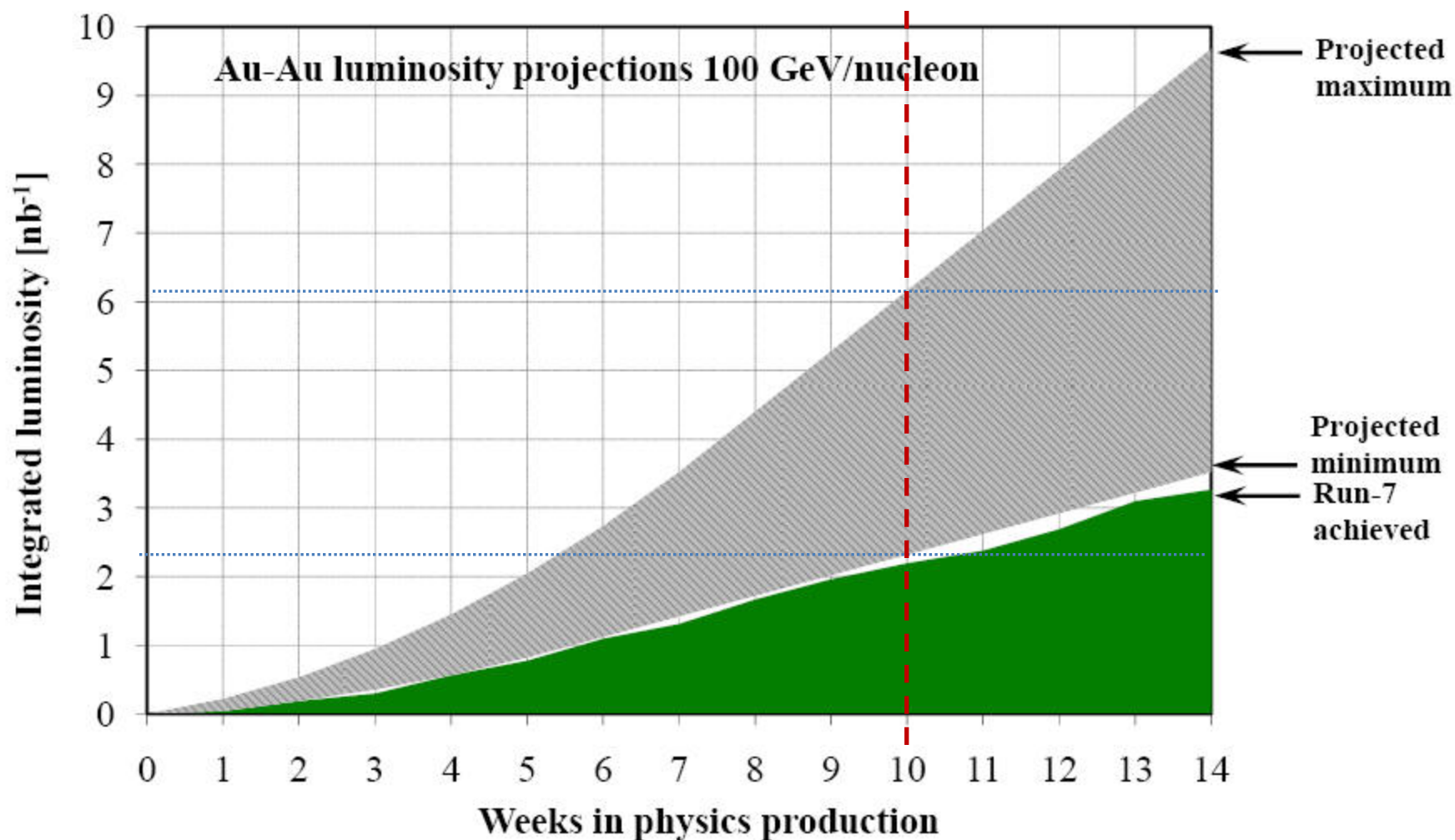


Figure 2: Projected minimum and maximum integrated luminosities for gold-gold collisions at 100 GeV beam energy, assuming linear weekly luminosity ramp-up in 6 weeks for the minimum and 8 weeks for the maximum.