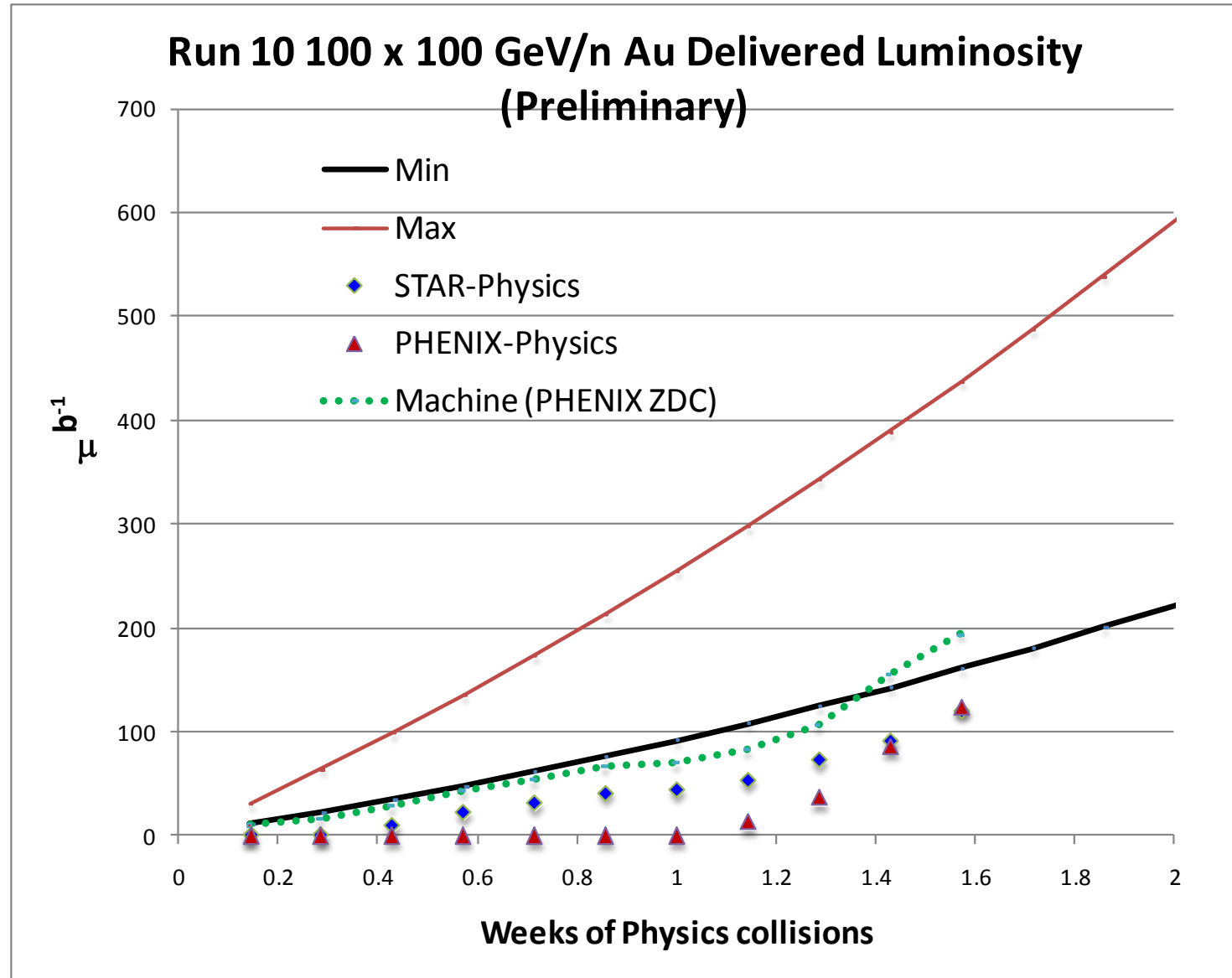


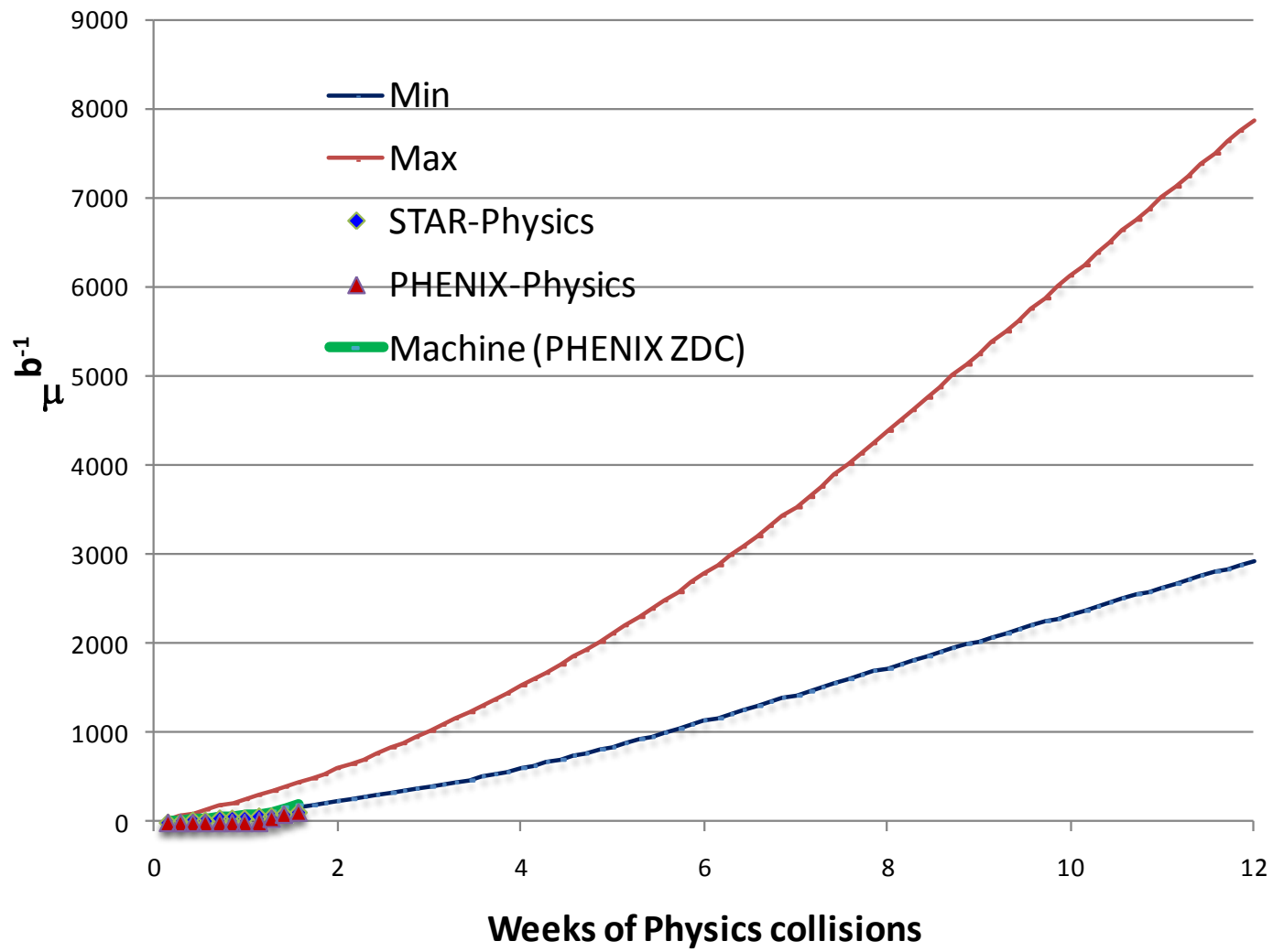
# Possible Run 10 plan based on 25 Nov Revised Plan

- Run10, 25 cryo-weeks (my guesses after Jan 12)
  - Dec. 1, Begin cooldown 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
  - 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. 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 25, begin 0.5 week beam studies at  $\sqrt{s} = 5$  GeV/n and  $v \sim 0.67$  -- **25 CRYO WEEK**
  - **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 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**

Through 11 Jan store 11433, ZDC Singles correction for STAR is wrong,  
PHENIX ZDC thresholds adjustments in progress (?)

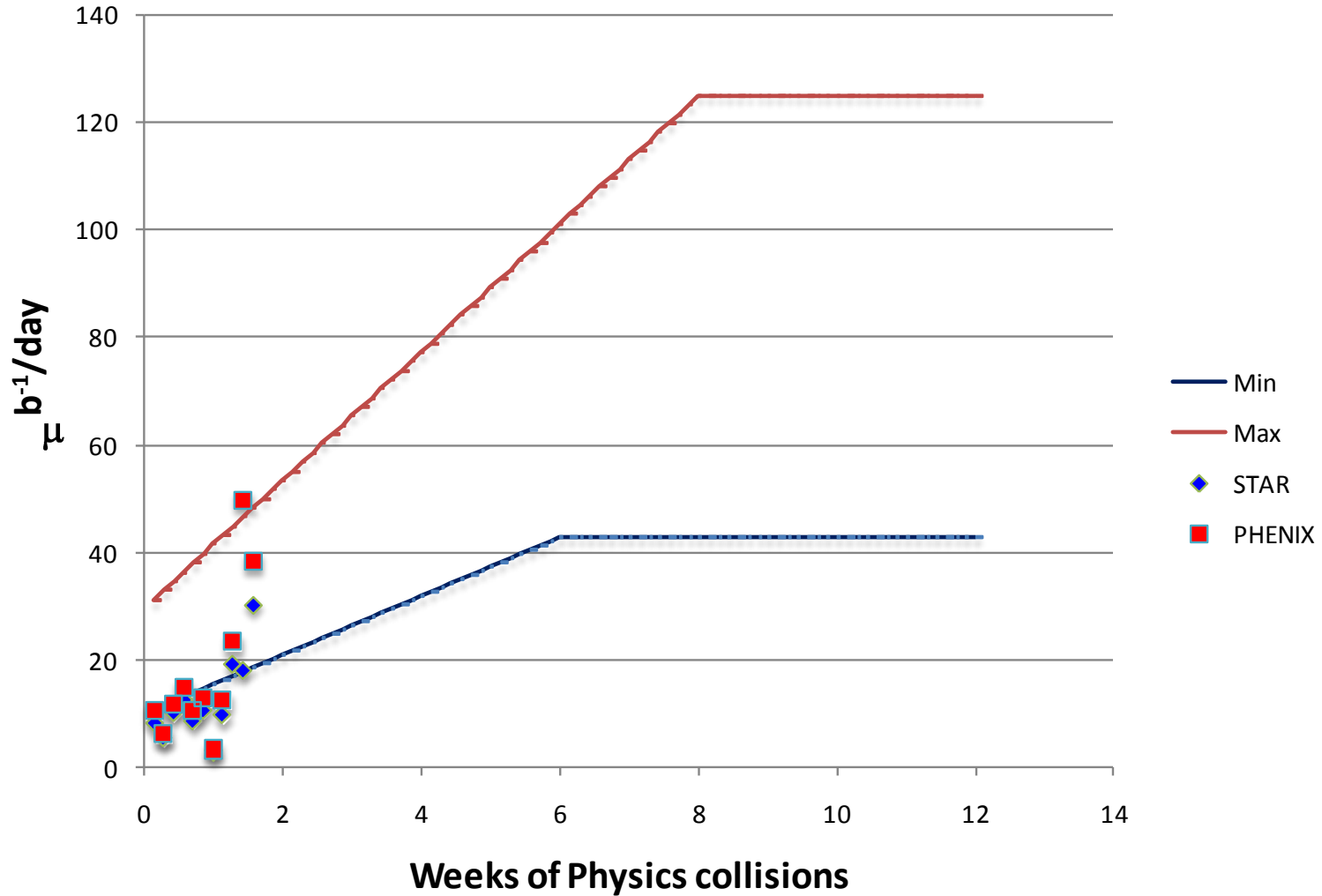


# Run 10 100 x 100 GeV/n Au Delivered Luminosity



Through 11 Jan store 11433

## Run 10 100 x 100 GeV/n Au Delivered Luminosity per day (Preliminary)



31 Dec 1<sup>st</sup> 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 <sup>6</sup> ions)	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	<i>Uxf1 to Wxf</i>	<i>Wxf to Arc</i>	<i>Arc to RHIC</i>
<b>Blue</b>	56/56	909	0.836	1.056	<i>0.963</i>	<i>0.992</i>	<i>0.828</i>
<b>Yellow</b>	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 <sup>6</sup> ions)	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	<i>Uxf1 to Wxf</i>	<i>Wxf to Arc</i>	<i>Arc to RHIC</i>
<b>Blue</b>	68/68	1031	0.906	1.053	<i>0.964</i>	<i>1.001</i>	<i>0.892</i>
<b>Yellow</b>	68/68	991	0.938	1.050	<i>0.964</i>	<i>0.993</i>	<i>0.934</i>

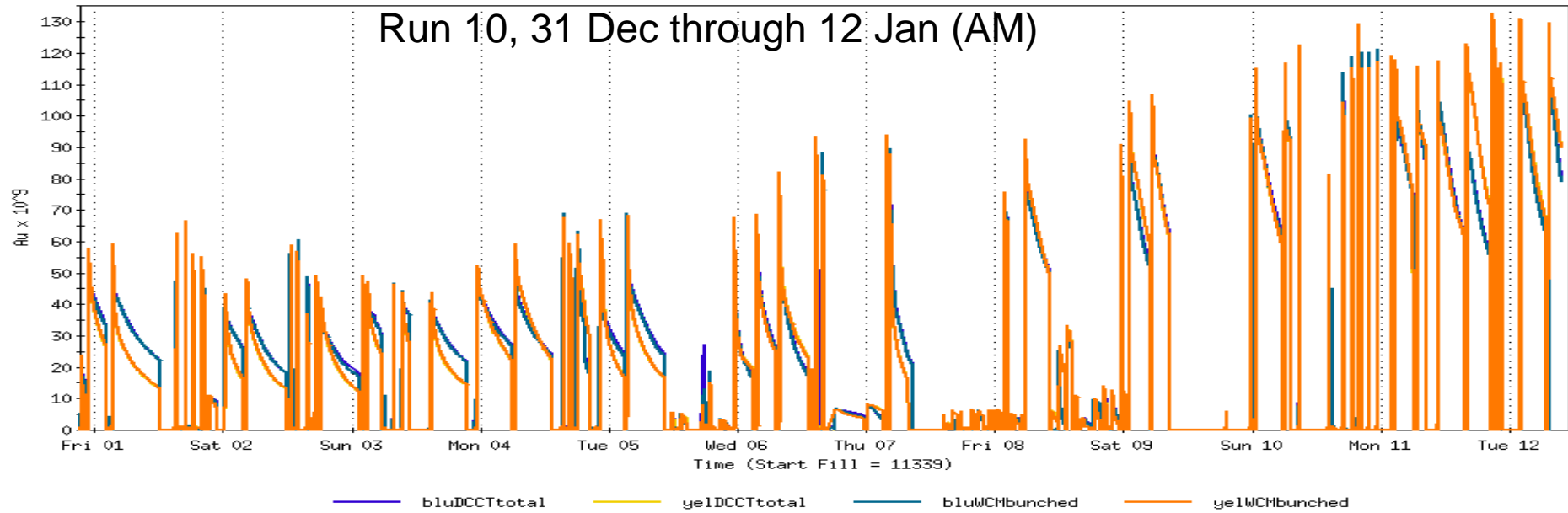
12Jan Physics Store

**Injected Beam Statistics for Fill number 11438**

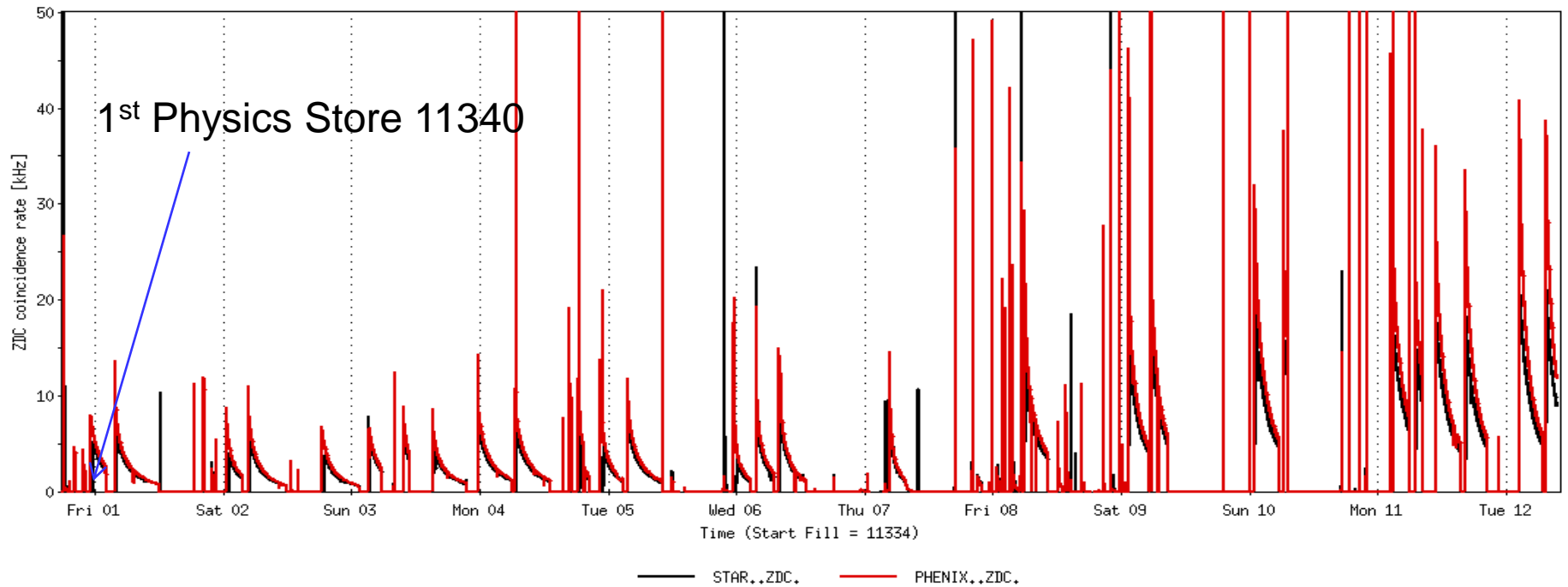
Started filling RHIC: Tue Jan 12 07:19:04 2010, Fill complete: Tue Jan 12 07:24:36 2010, Minutes to fill: 5

Ring	Bunches/Cycles	Avg Bunch in RHIC (10 <sup>6</sup> ions)	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	<i>Uxf1 to Wxf</i>	<i>Wxf to Arc</i>	<i>Arc to RHIC</i>
<b>Blue</b>	111/28	1102	0.873	0.992	<i>0.962</i>	<i>0.998</i>	<i>0.918</i>
<b>Yellow</b>	111/28	1145	0.912	0.995	<i>0.963</i>	<i>0.991</i>	<i>0.961</i>

## Run 10, 31 Dec through 12 Jan (AM)



## Experimental Coincidence Signals

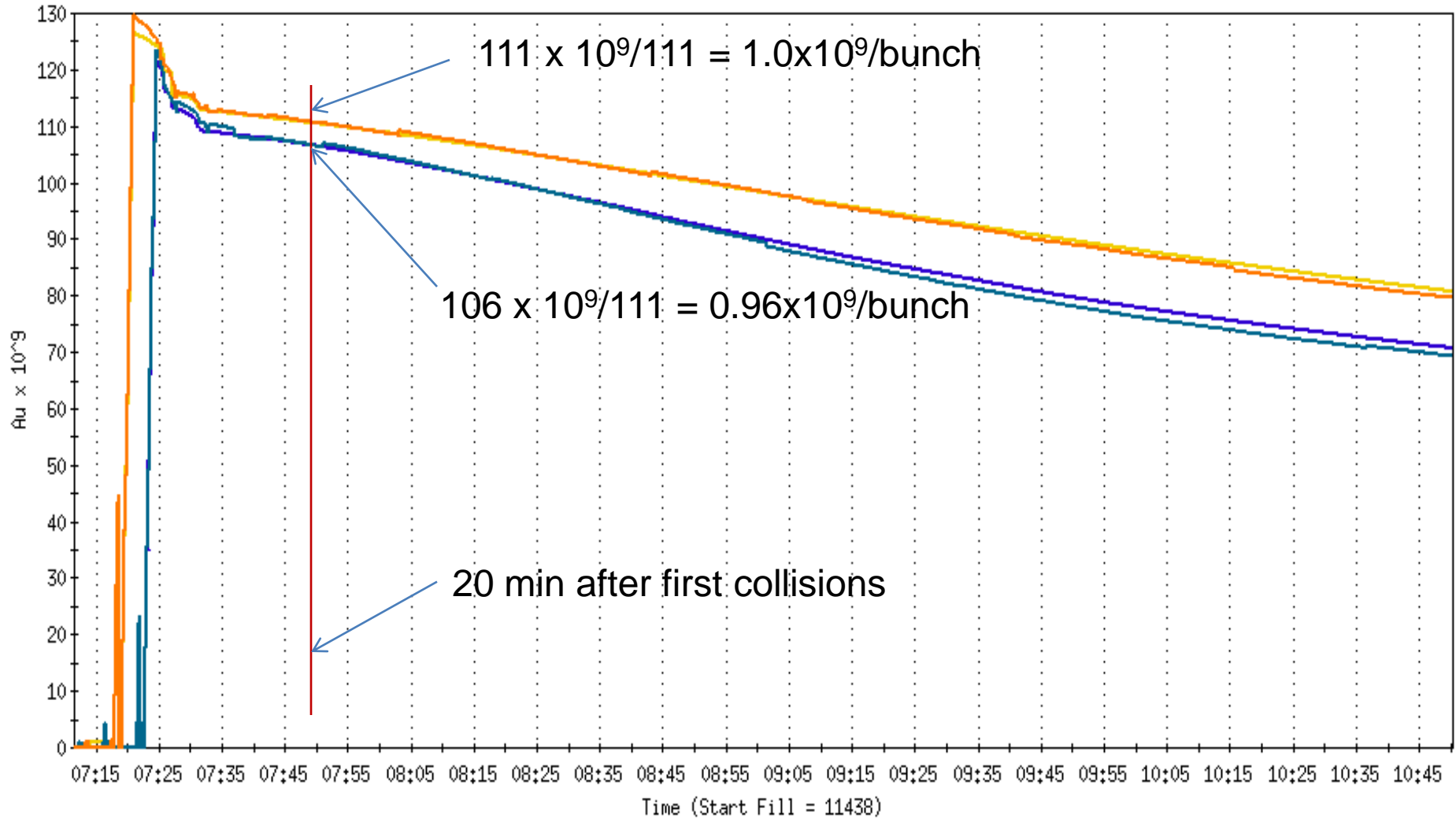


# Fill 11438 (12 Jan) Injected Beam Statistics from ELOG

Blue = 111 bunches  $1.10 \times 10^9$ /bunch

Yellow = 111 bunches  $1.15 \times 10^9$ /bunch

RHIC - DCCT total beam & WCM bunched beam



bluDCCTtotal

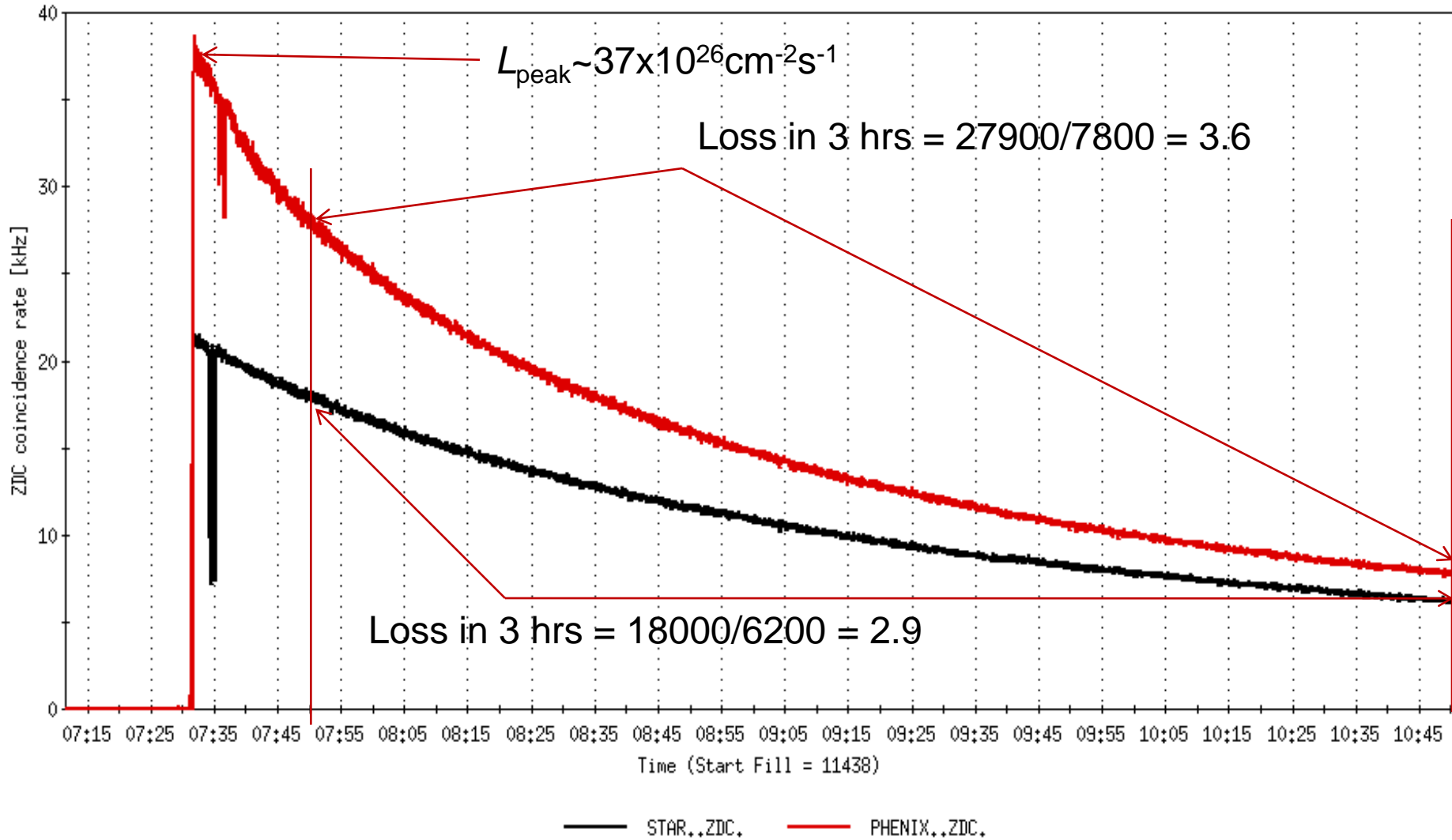
yelDCCTtotal

bluWCMbunched

yelWCMbunched

12 Jan Store 11438, singles corrected (Preliminary, STAR has issues)  
No rebucketing

Experimental Coincidence Signals



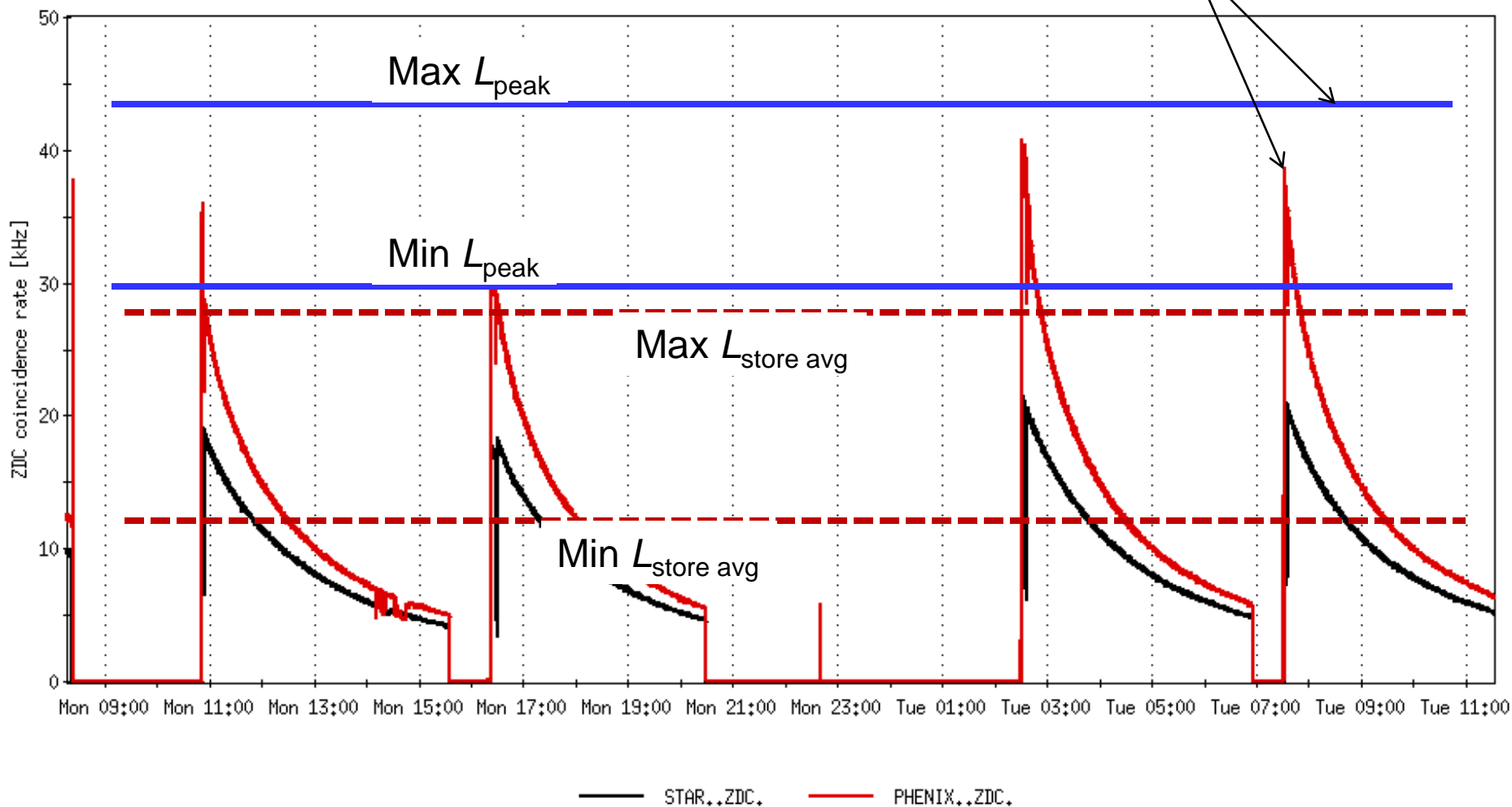


1/11 – 1/12 stores, singles corrected (Preliminary, STAR has issues)

No rebucketing

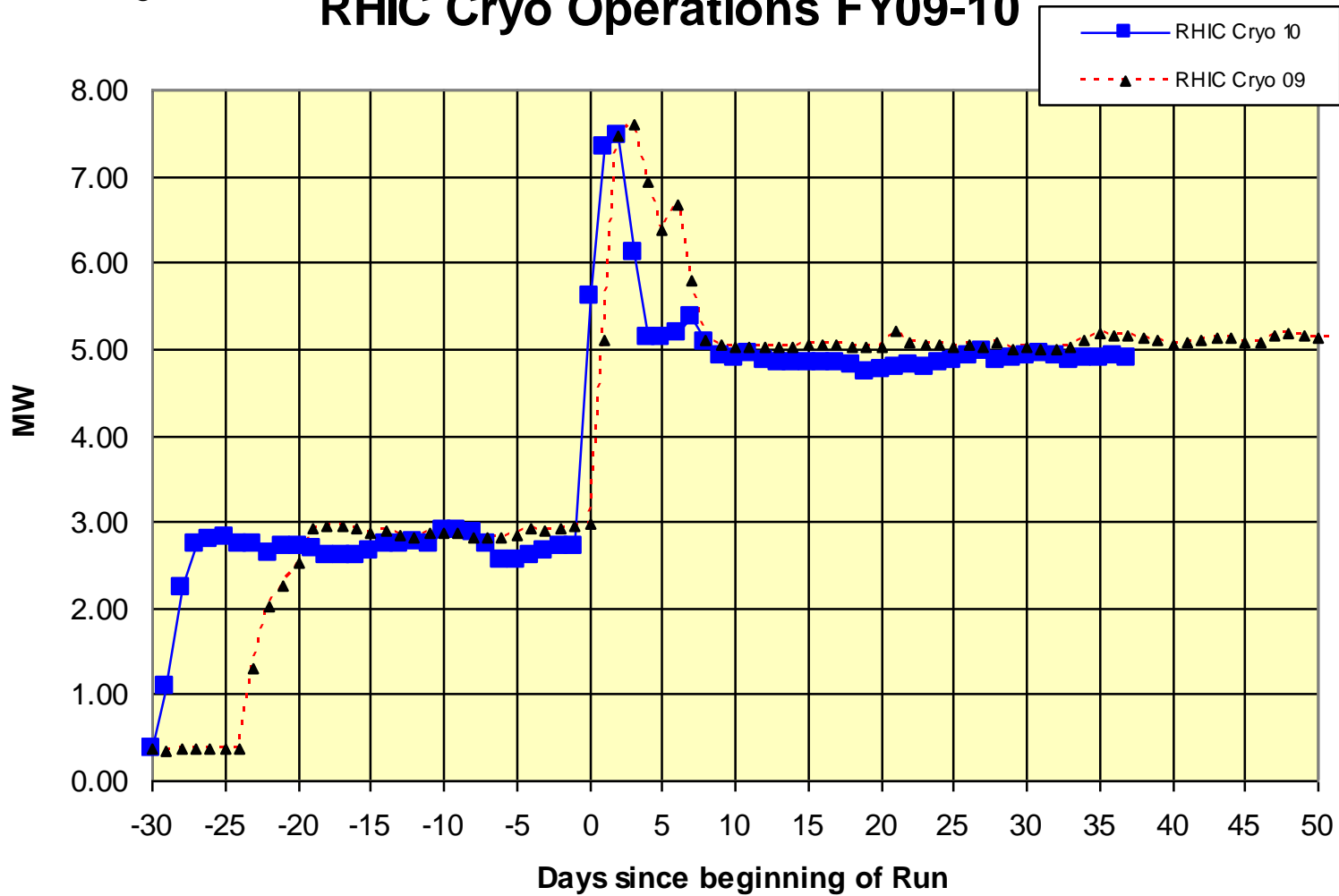
Experimental Coincidence Signals

Within 20%!!



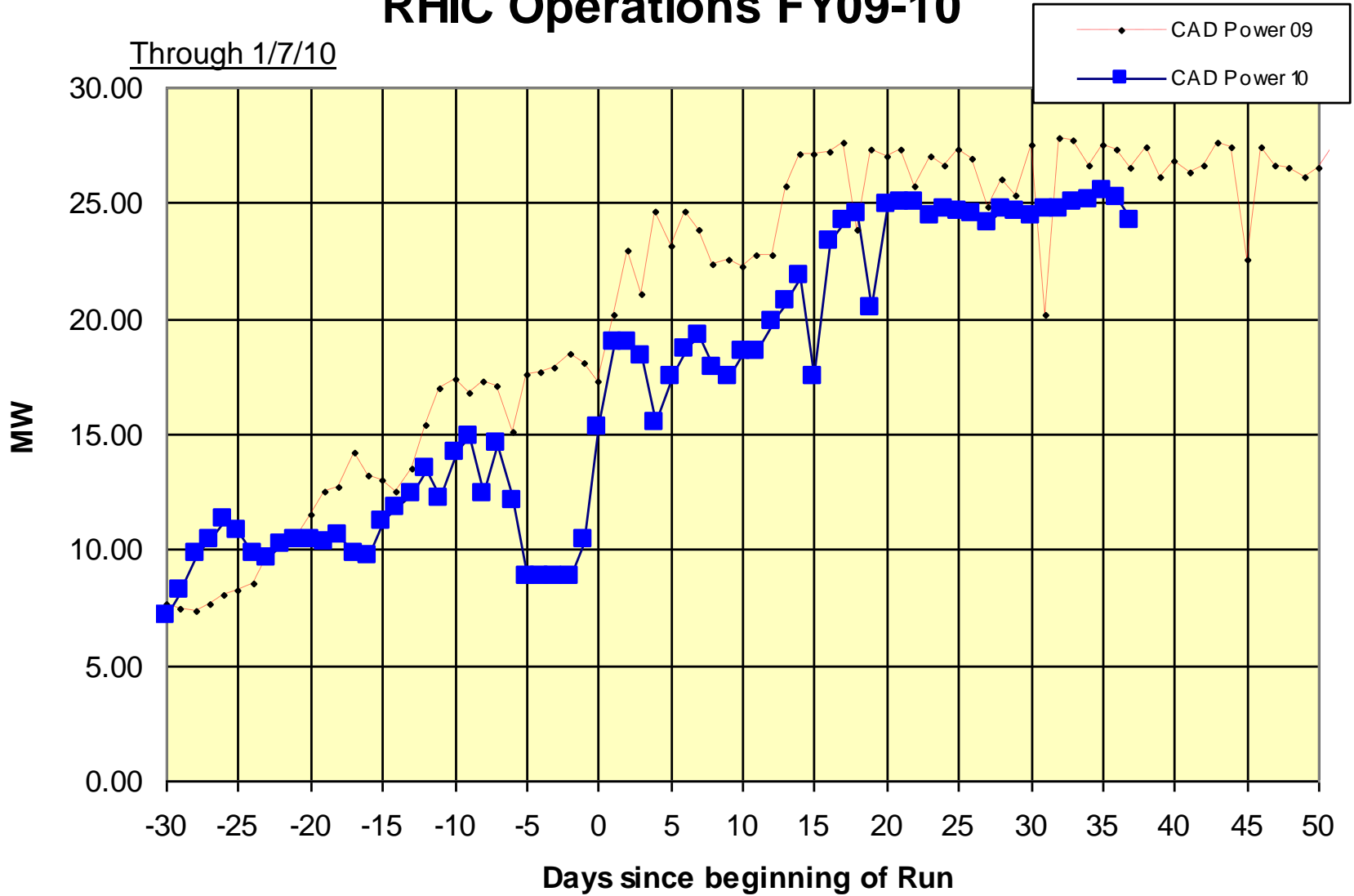
Through 1/7/10

# RHIC Cryo Operations FY09-10



# RHIC Operations FY09-10

Through 1/7/10



# Future Topics

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

Archive

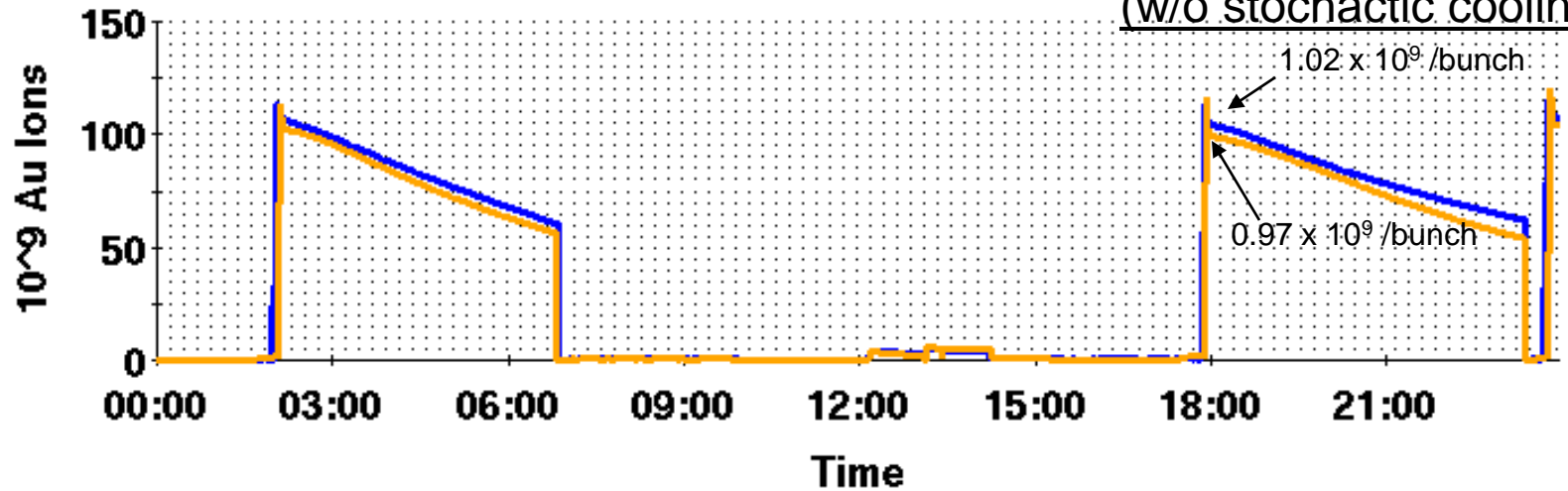
# Run 7 Fill 8878 Injected Beam Statistics from ELOG

Blue = 103 bunches  $1.04 \times 10^9$ /bunch

Yellow = 103 bunches  $1.13 \times 10^9$ /bunch

## RHIC Beam Intensity Wed May 30 23:58:34 2007

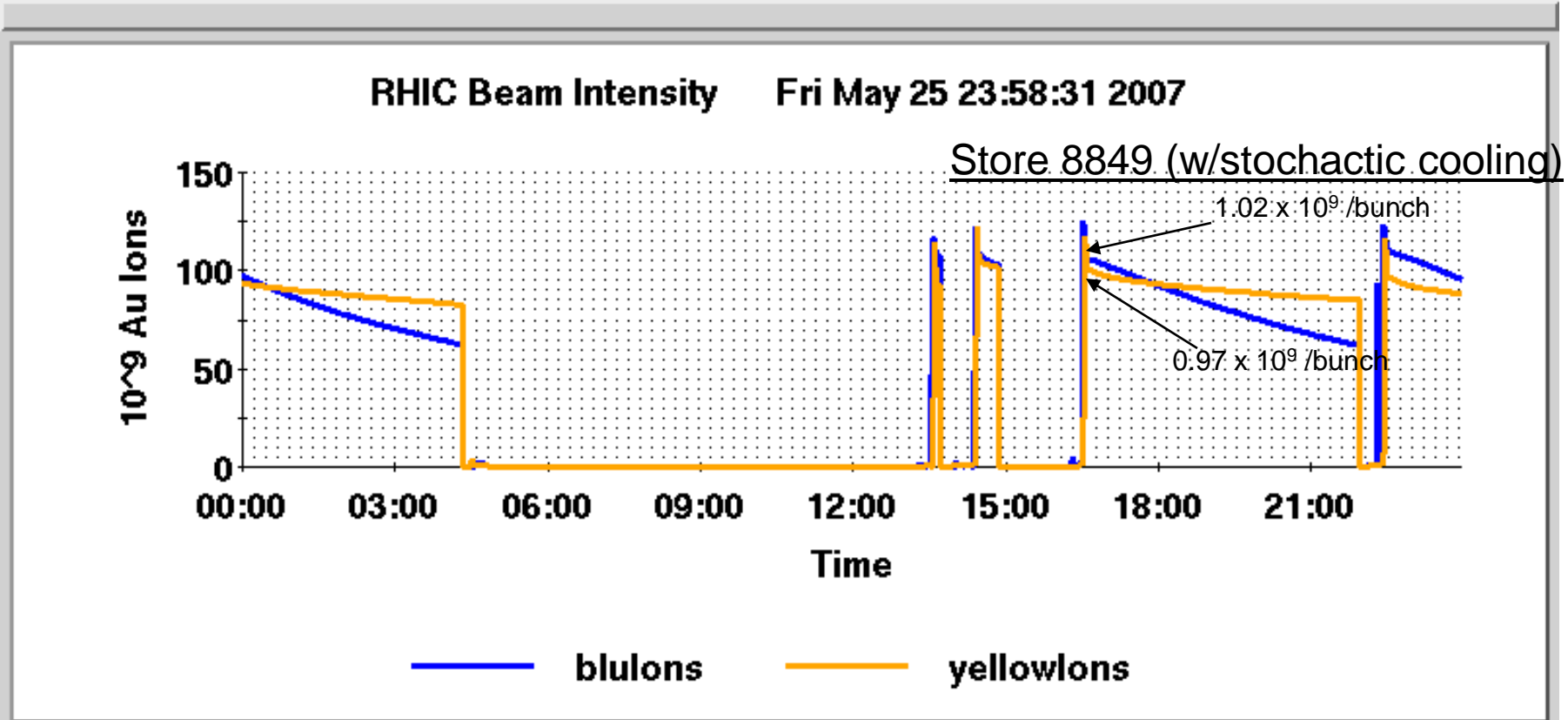
(w/o stochastic cooling)



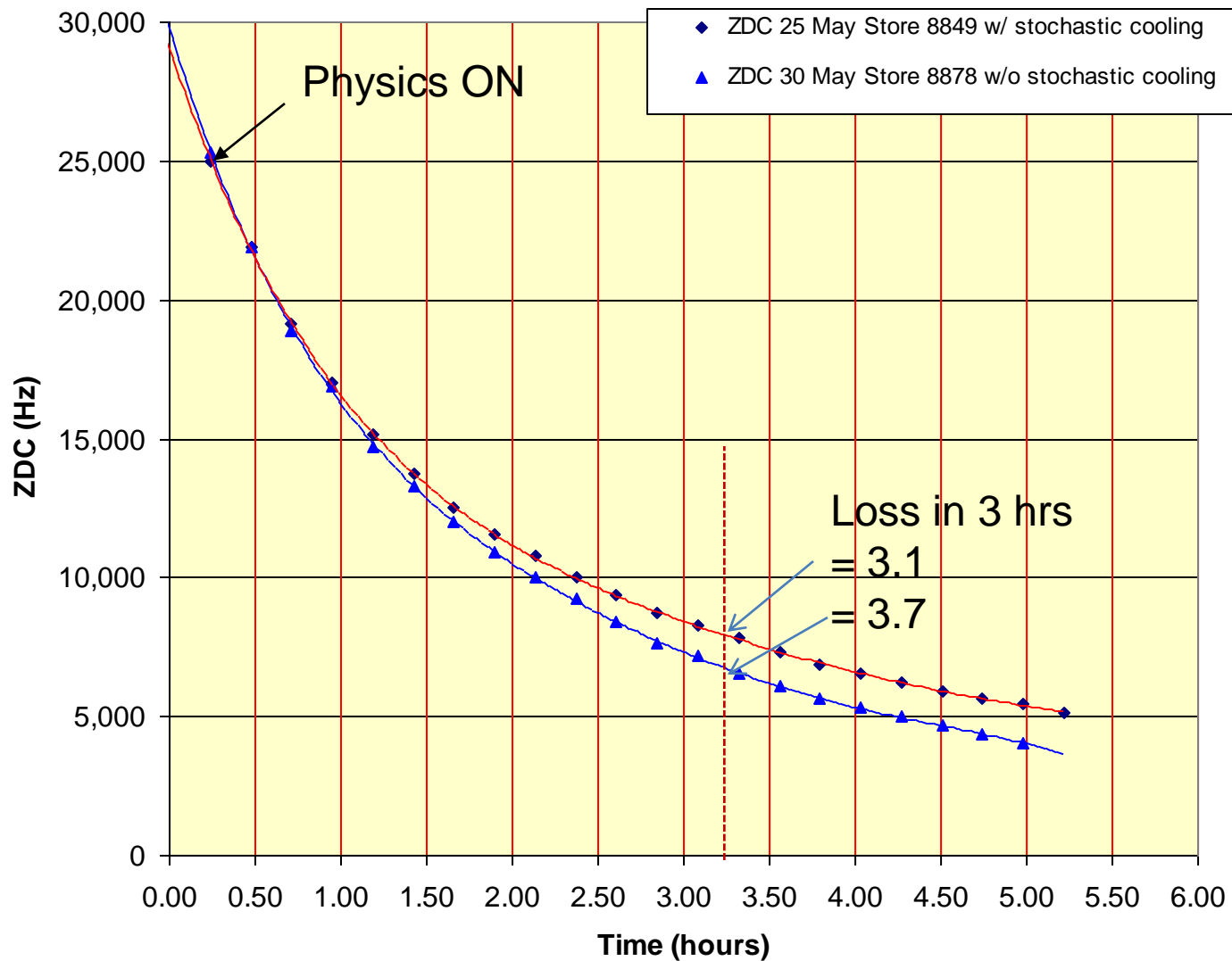
# Run 7 Fill 8849 Injected Beam Statistics from ELOG

Blue = 103 bunches  $1.23 \times 10^9$ /bunch

Yellow = 103 bunches  $1.15 \times 10^9$ /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

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

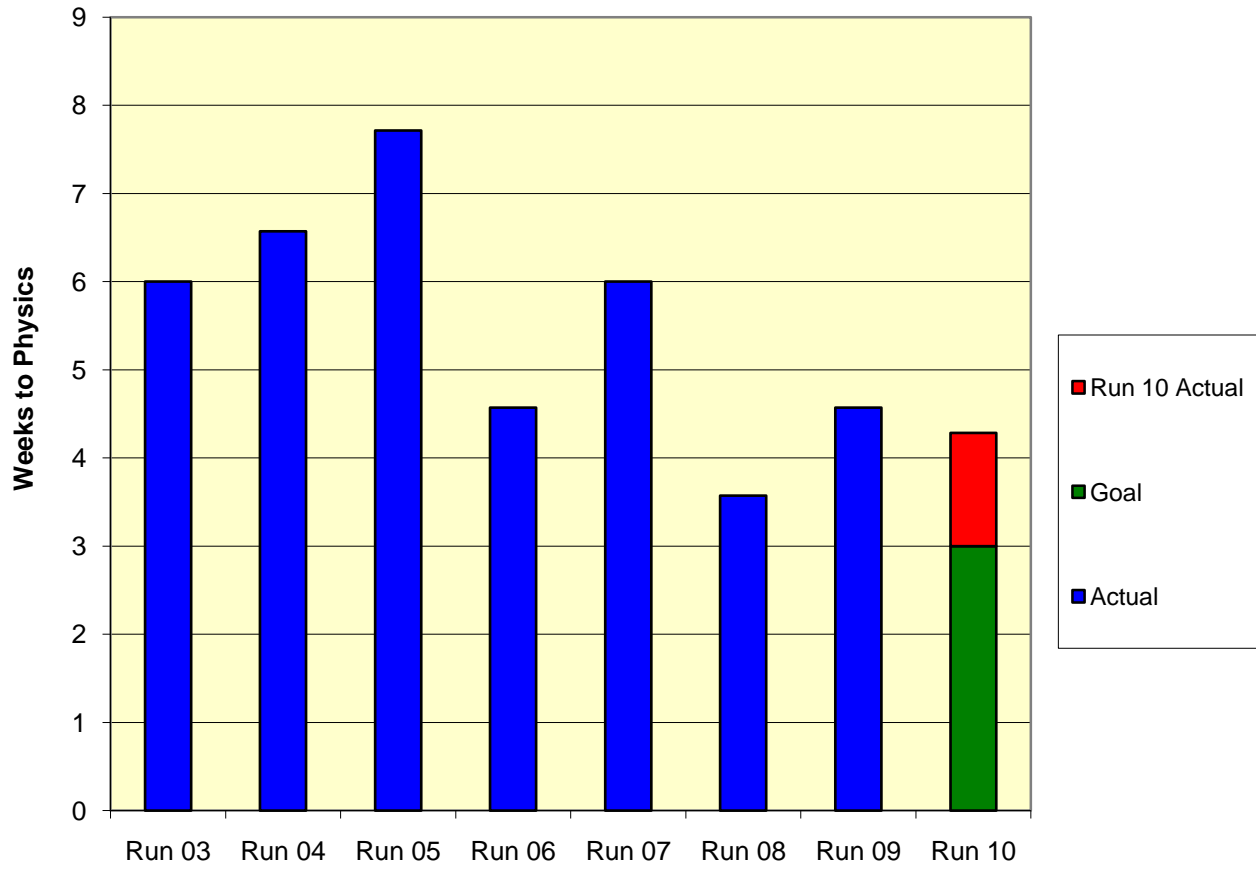
- Luminosity Sampled/Delivered = 2/4 nb<sup>-1</sup>
    - 250M Central Events
    - 300M Min-bias events

- PHENIX

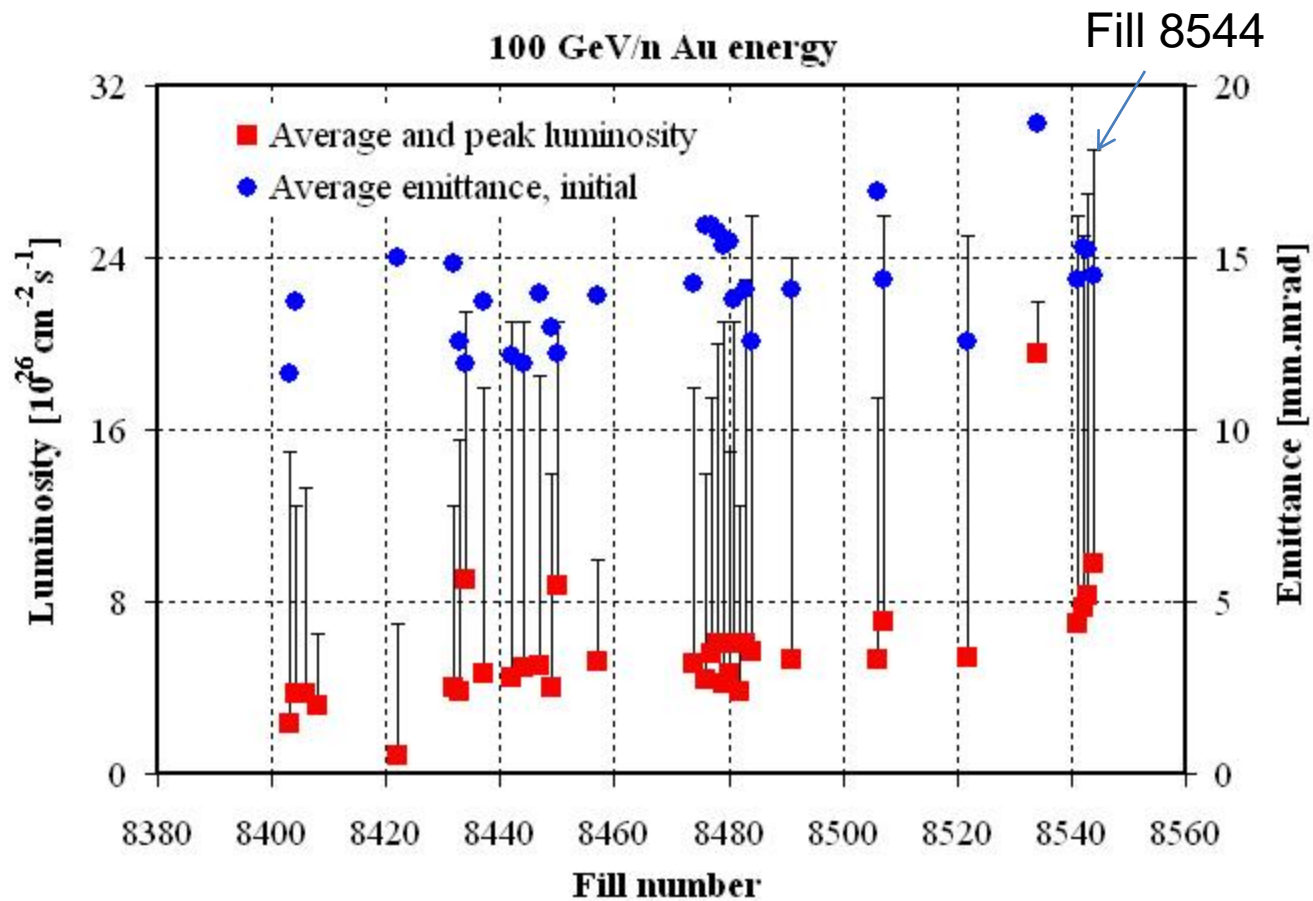
- $\sqrt{s} = 200 \text{ GeV/n}$

- Luminosity Recorded/Delivered = 1.4/>6 nb<sup>-1</sup>
    - Minimum Goal:
      - Luminosity Recorded/Delivered = 1.1/3.9 nb<sup>-1</sup>

Time from start of 4.5 deg cooldown to Physics



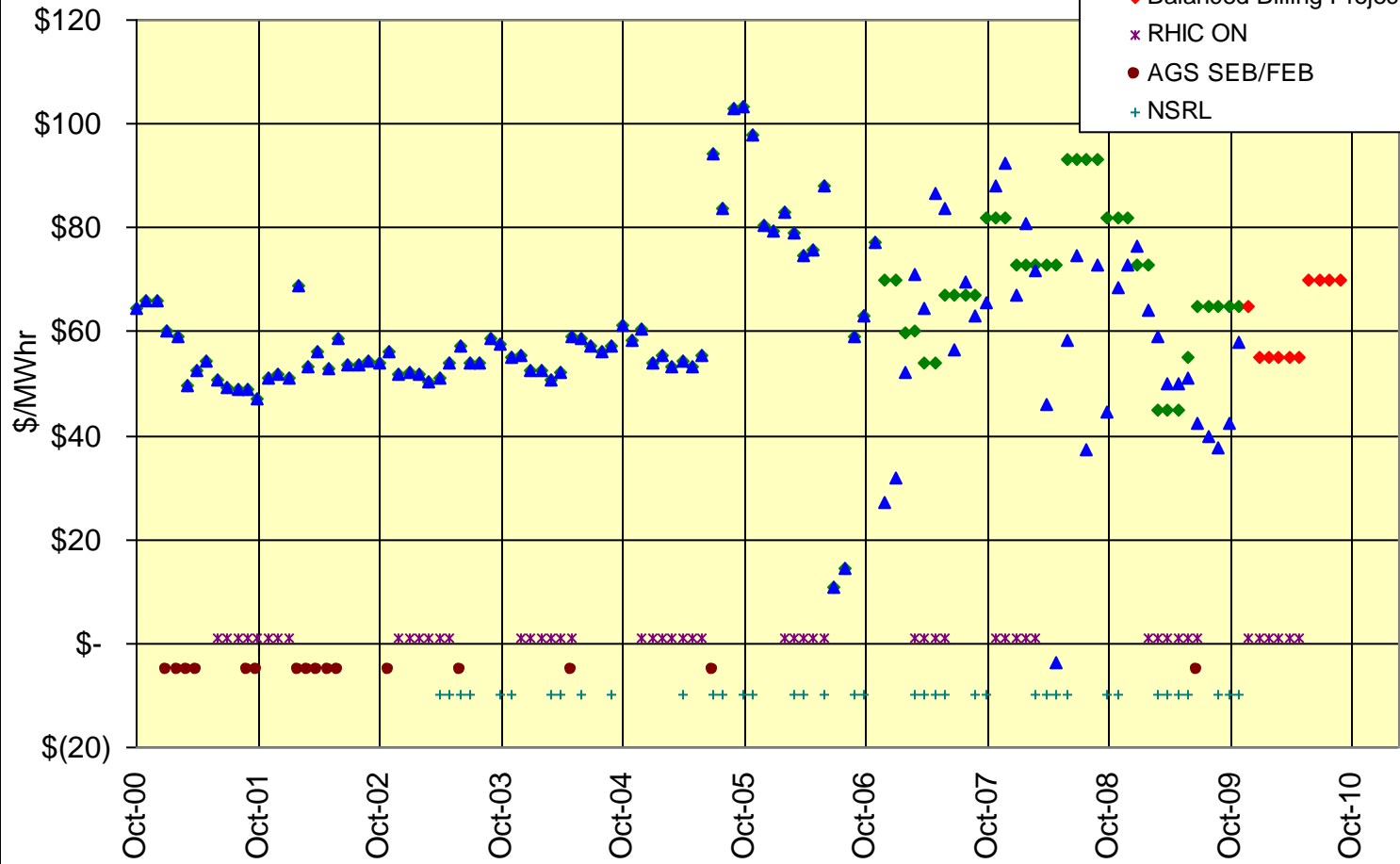
# Run 7



Through 30 Nov 09

# BNL Energy Cost

- ◆ Billed Cost/MW hr
- ▲ Without Balanced Billing
- ◆ Balanced Billing Projection
- × RHC ON
- AGS SEB/FEB
- + NSRL



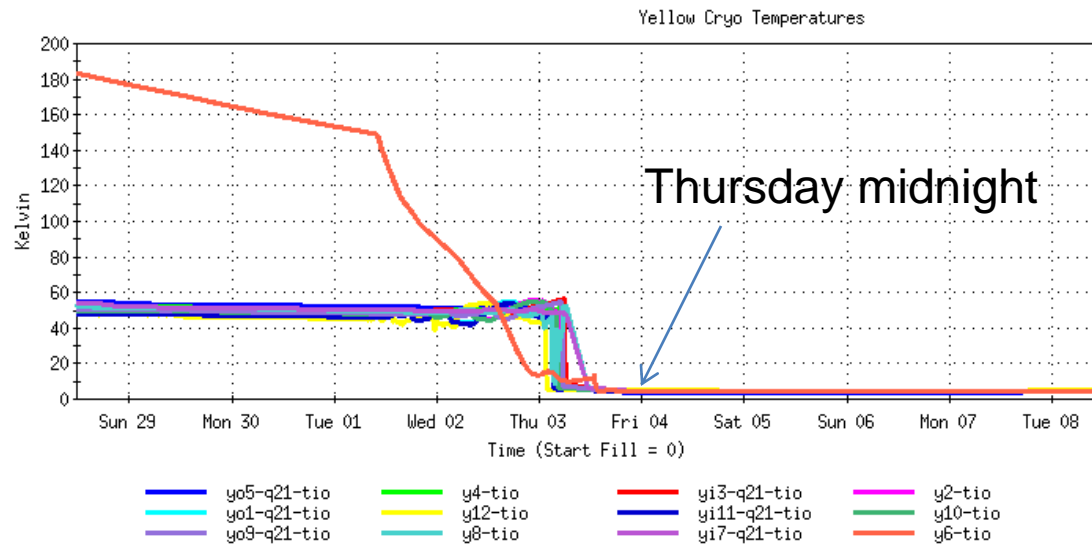
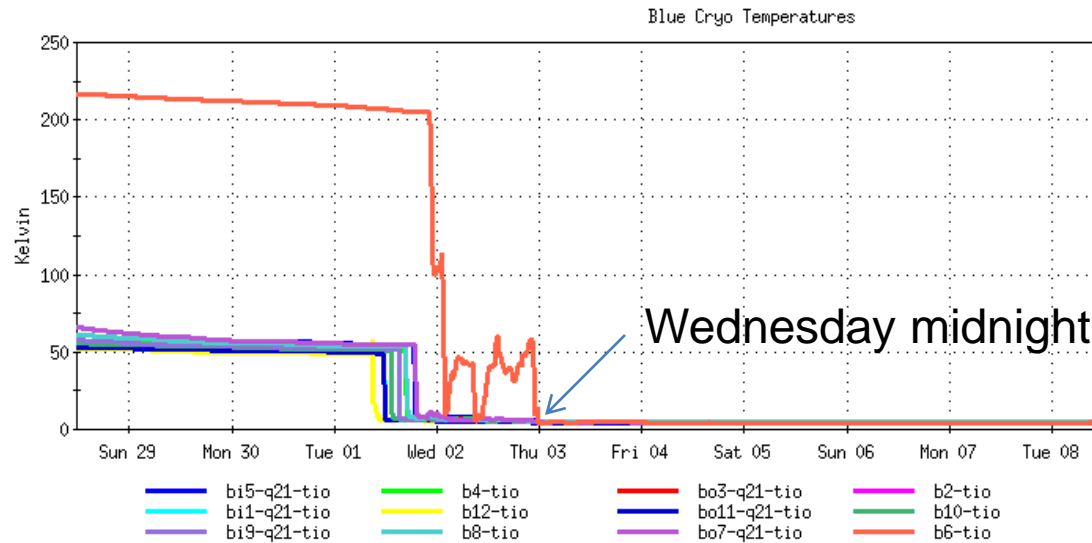
# Run 10 Setup

- 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



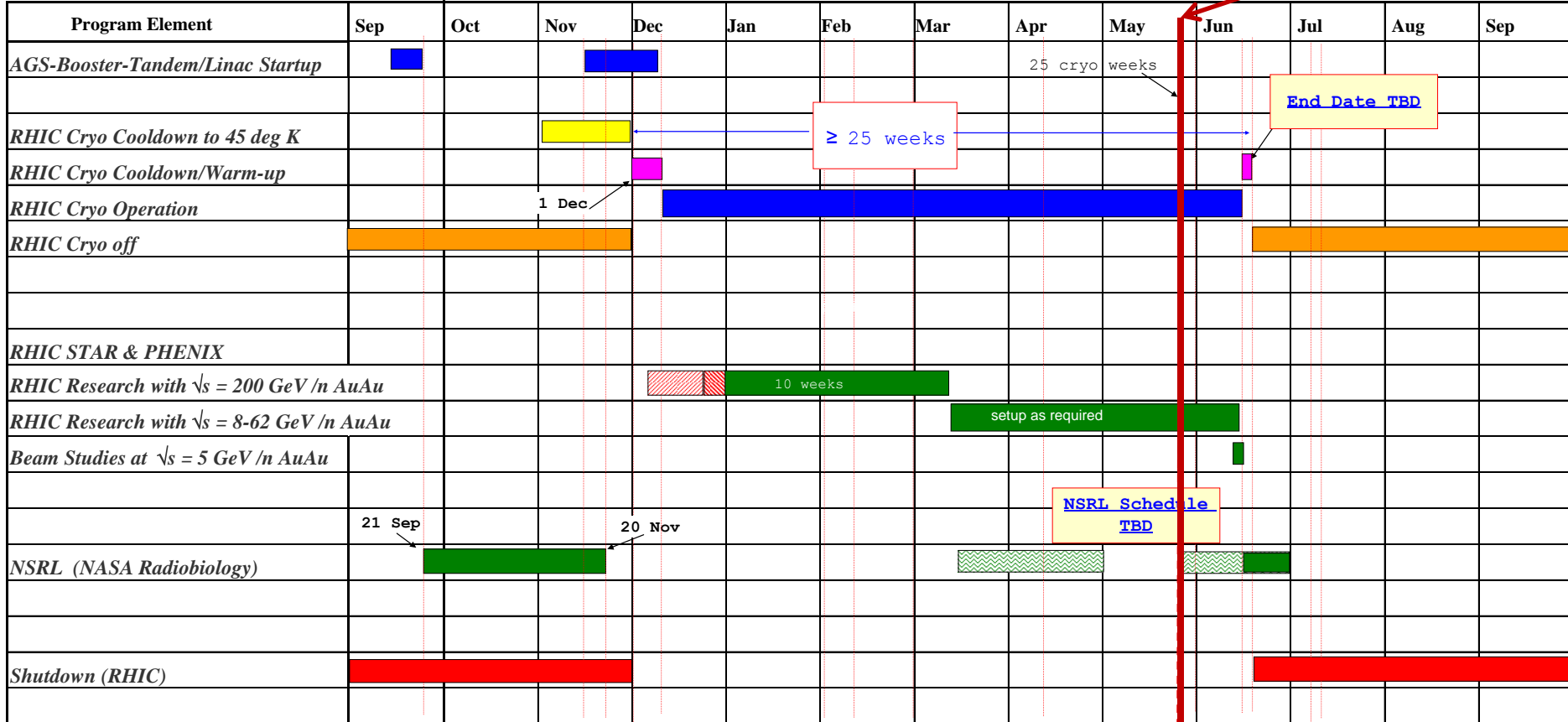
# C-A Operations-FY10

*As Run/Planned*

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

**25 Cryo Weeks**

FY 2010





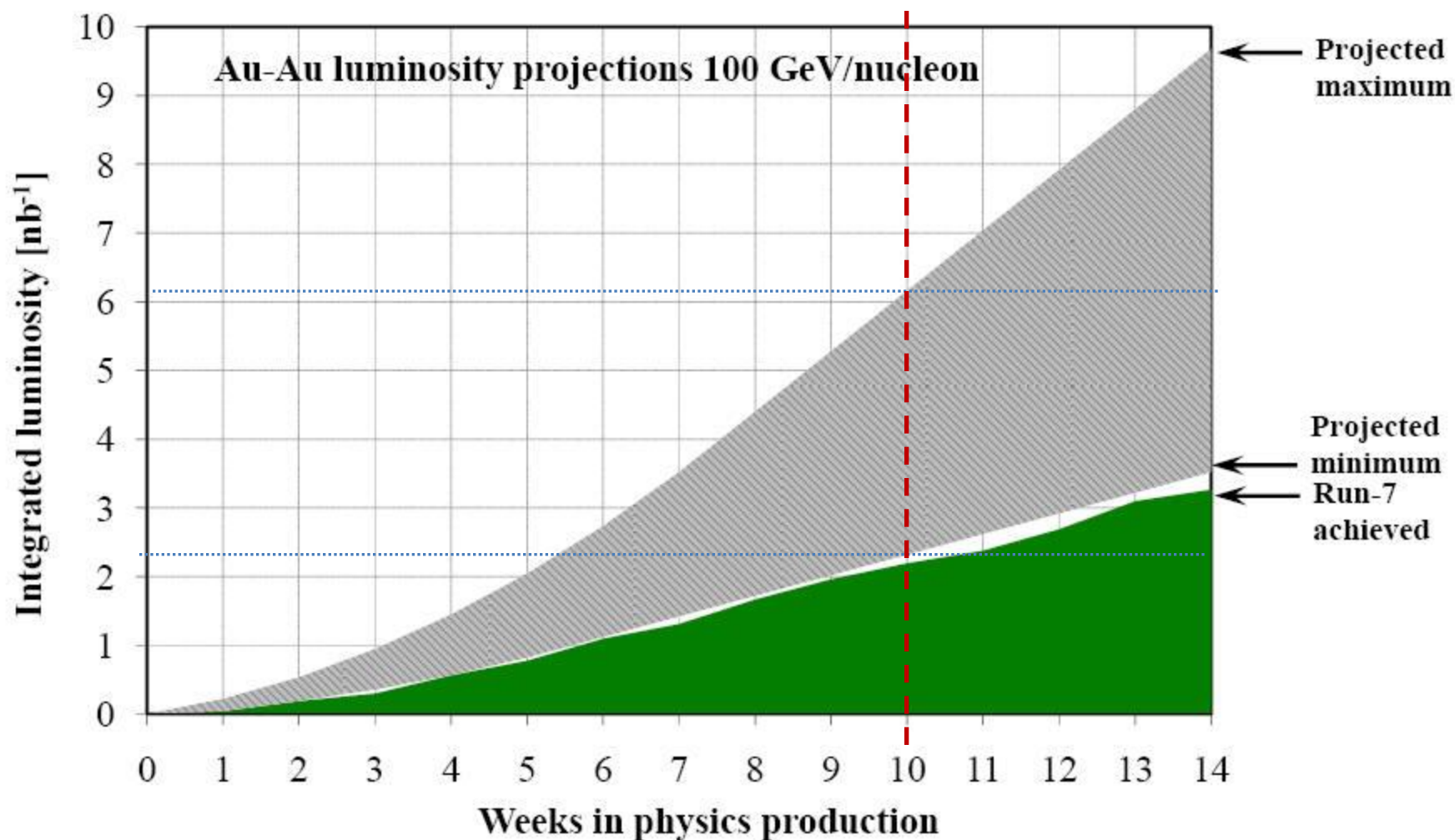


Figure 2: Projected minimum and maximum integrated luminosities for gold-gold collisions at 100 GeV beam energy, assuming linear weekly luminosity ramp-up in 6 weeks for the minimum and 8 weeks for the maximum.