

Run 13 RHIC Machine/Experiments Meeting

5 March 2013

Agenda:

- Early store performance
- Status Reports

Run 13 plan based on 20 weeks cryo operation

and Fischer et.al. RHIC Collider Projections (FY 2013 – FY 2017), 27 Sep 2012

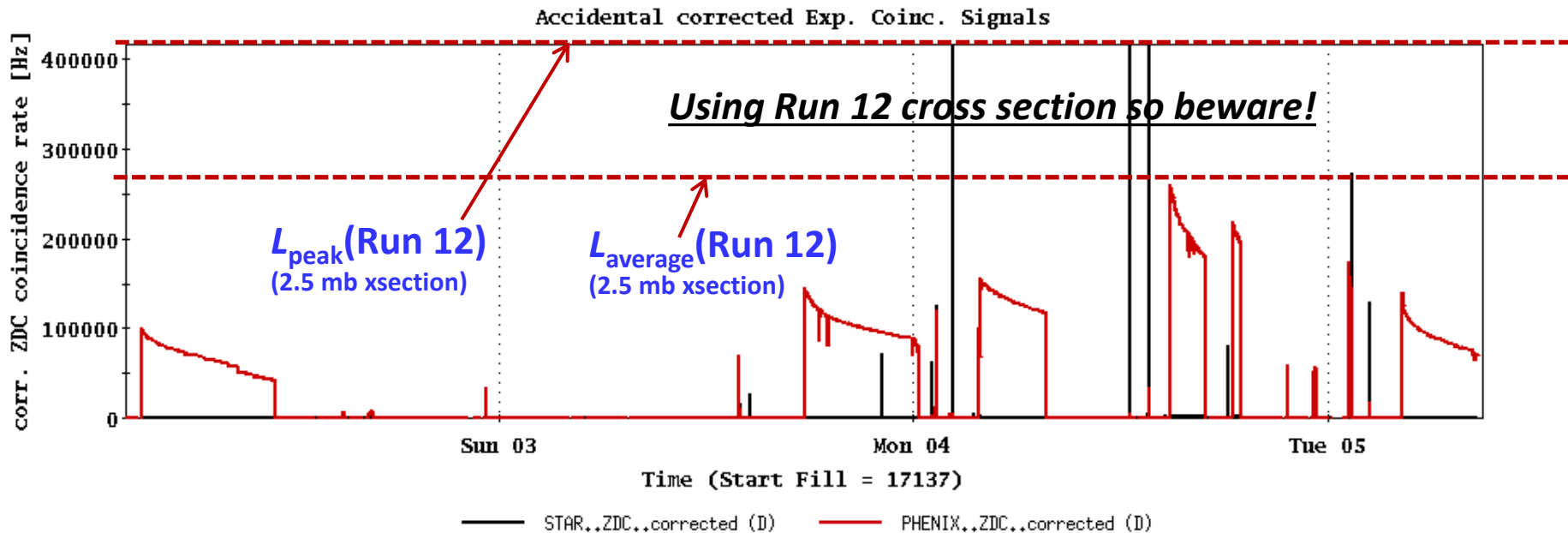
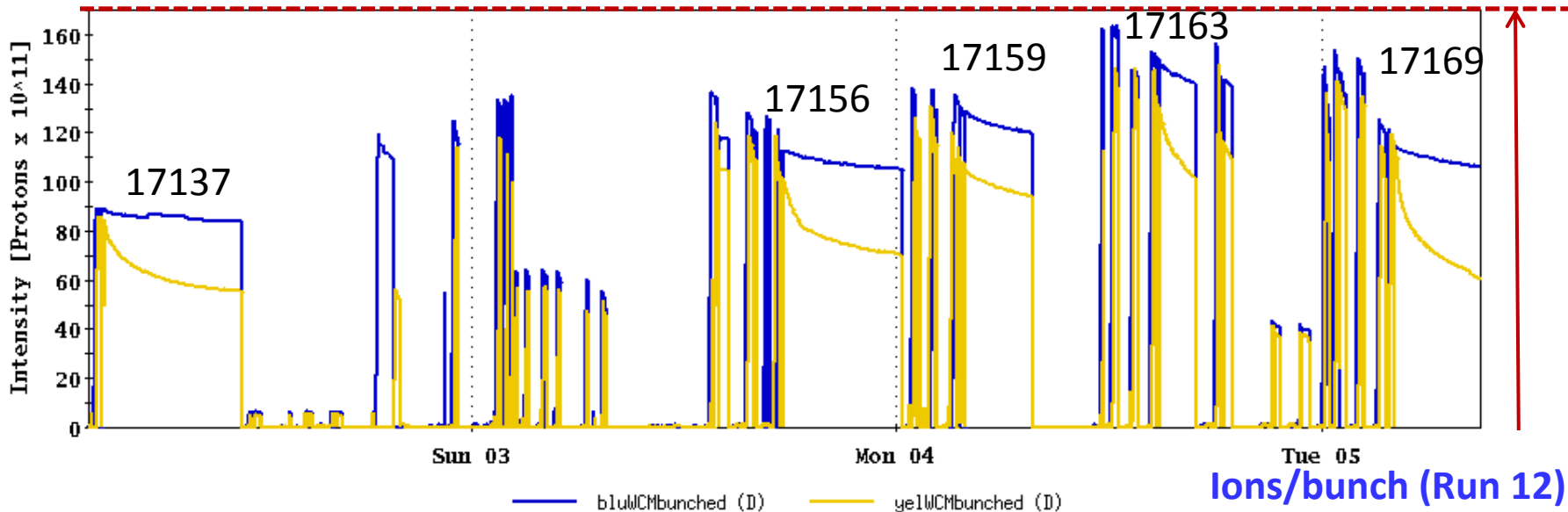
- ✓ 11 Feb, Begin cool-down to 4.5K
- ✓ 15 Feb, Cool-down to 4.5K in Blue and Yellow Ring complete, begin magnet setup
- ✓ 26 Feb, first collisions
- ✓ 15 Feb -1 Mar, RHIC $\sqrt{s} = 510$ GeV pp machine setup
- ✓ 1-8 Mar, machine ramp-up with 8 hr/night for experiment setup

today, 5 Mar...

- 8 Mar, LIPA Substation Shutdown, unplanned maintenance day, then begin $\sqrt{s} = 510$ GeV pp physics run
- 6 Jun, switch to $\sqrt{s} = 15$ GeV/n AuAu if pp goals are met and end 12.9 week $\sqrt{s} = 510$ GeV pp physics run
- 27 Jun, end ~ 2.5 week $\sqrt{s} = 15$ GeV/n AuAu physics run or 15.9 week $\sqrt{s} = 510$ GeV pp physics run, begin cryo warm-up
- 30 June, cryo warm-up \sim complete (19.9 cryo-weeks)

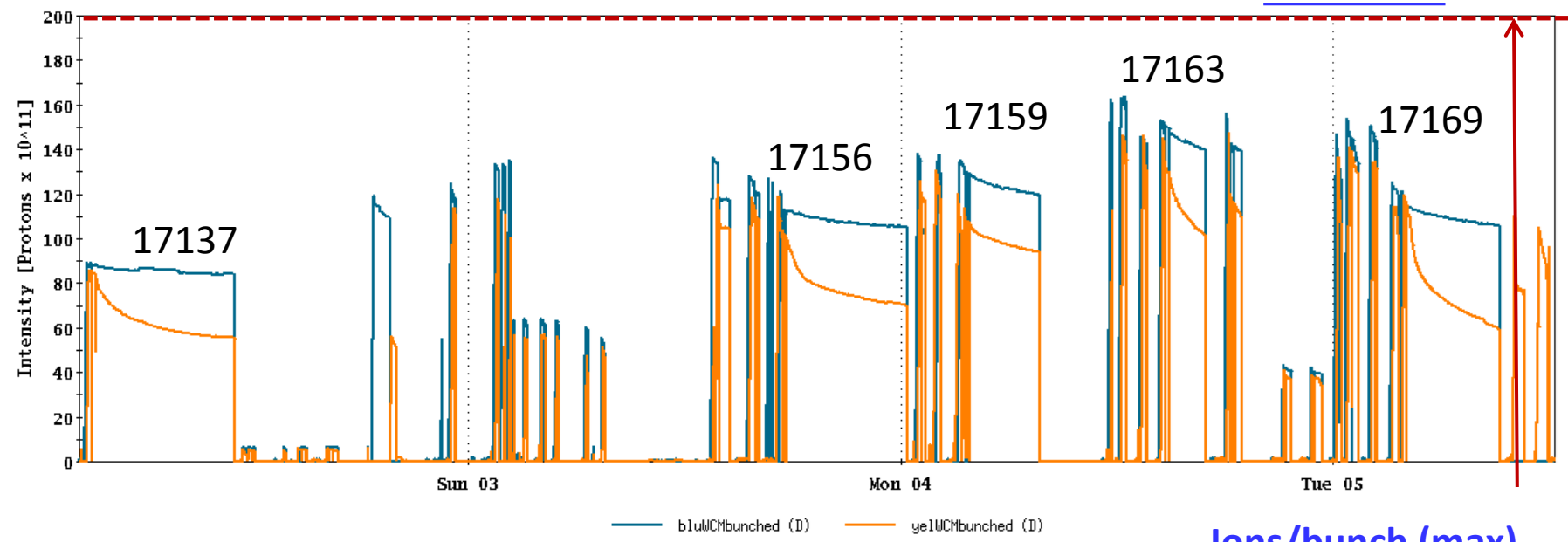
See <http://www.rhichome.bnl.gov/AP/Spin2013/> for the Run Coordinator's detailed plan

Overnight set-up/ramp-up stores



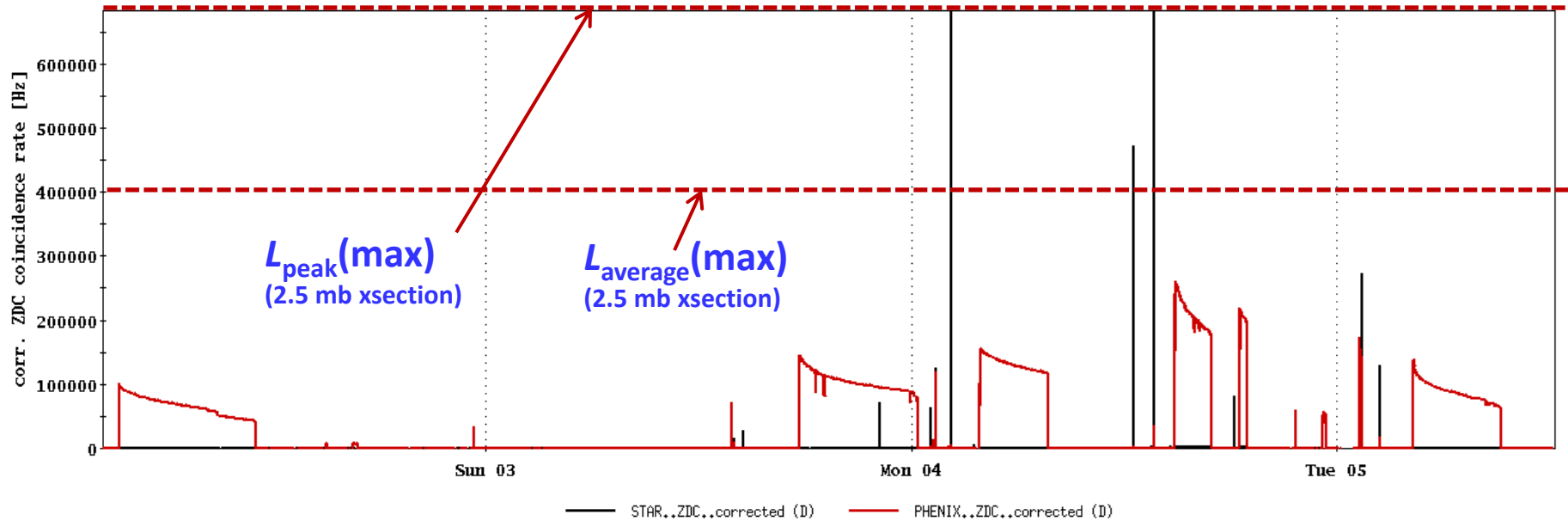
Overnight set-up/ramp-up stores

Past Week



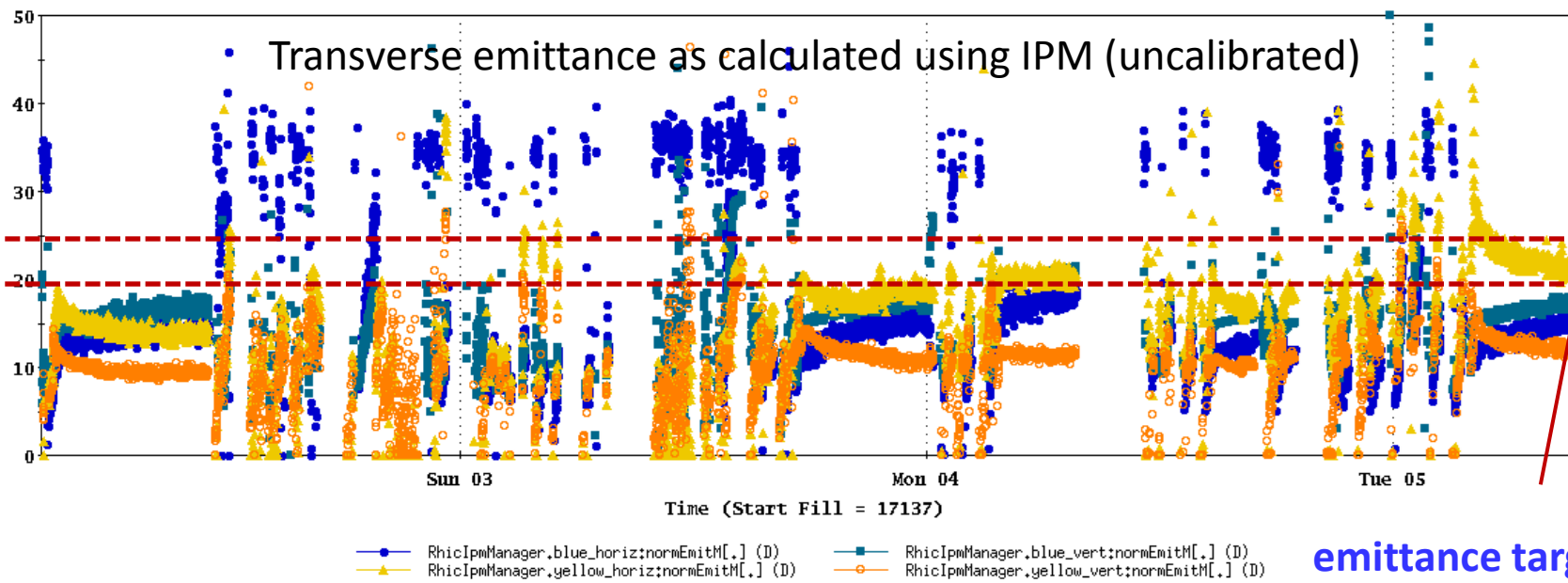
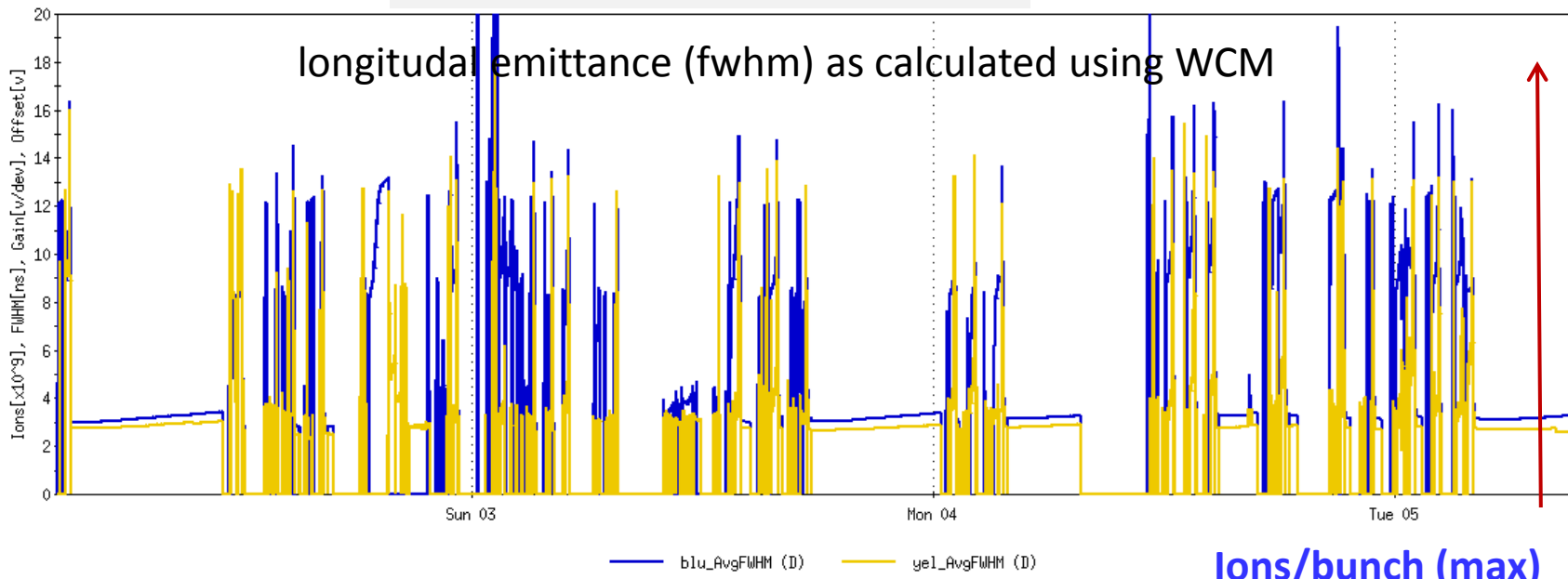
Ions/bunch (max)

Accidental corrected Exp. Coinc. Signals

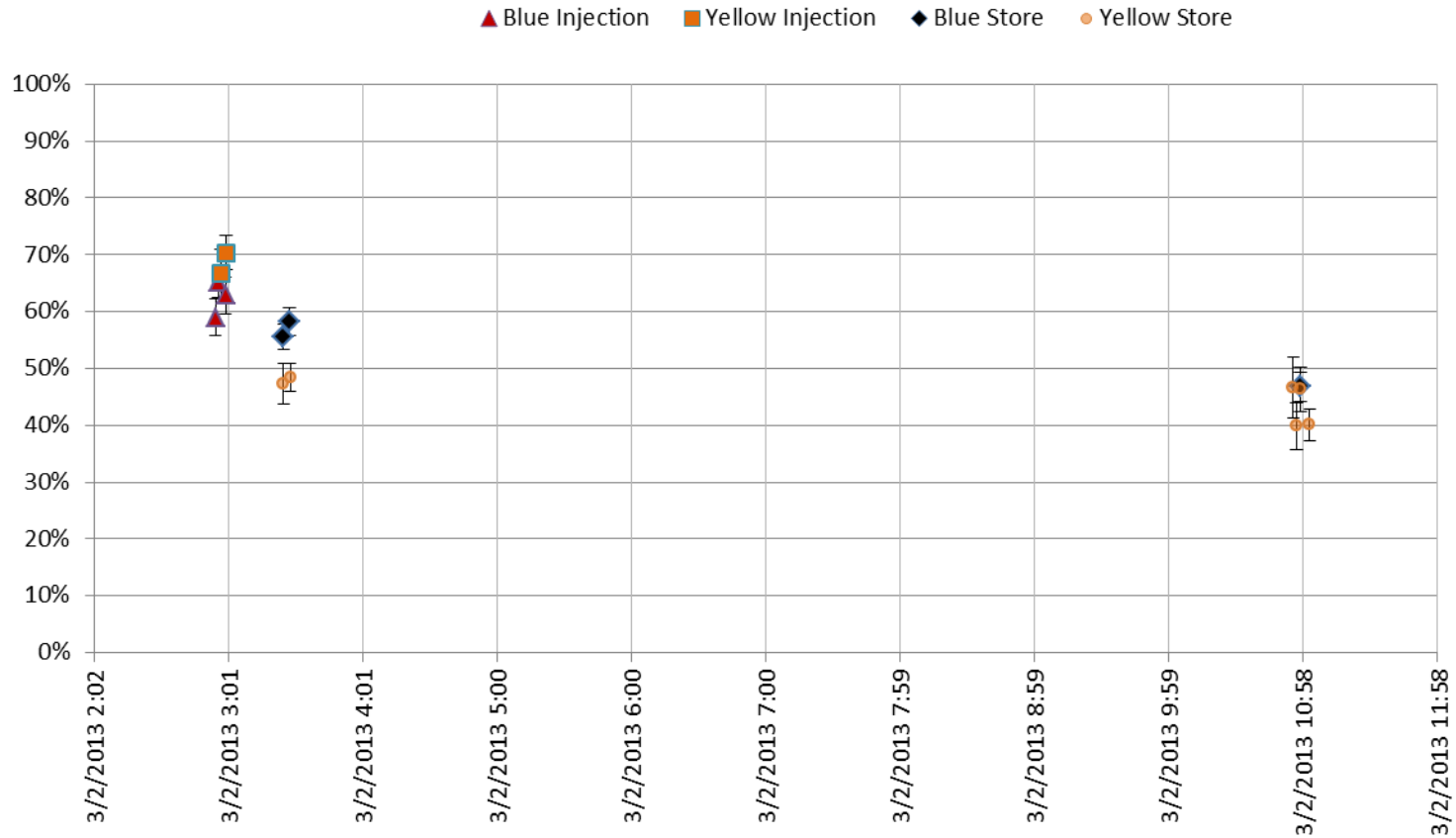


Overnight set-up/ramp-up stores

Past Week



CNI Offline Polarization, store 17137

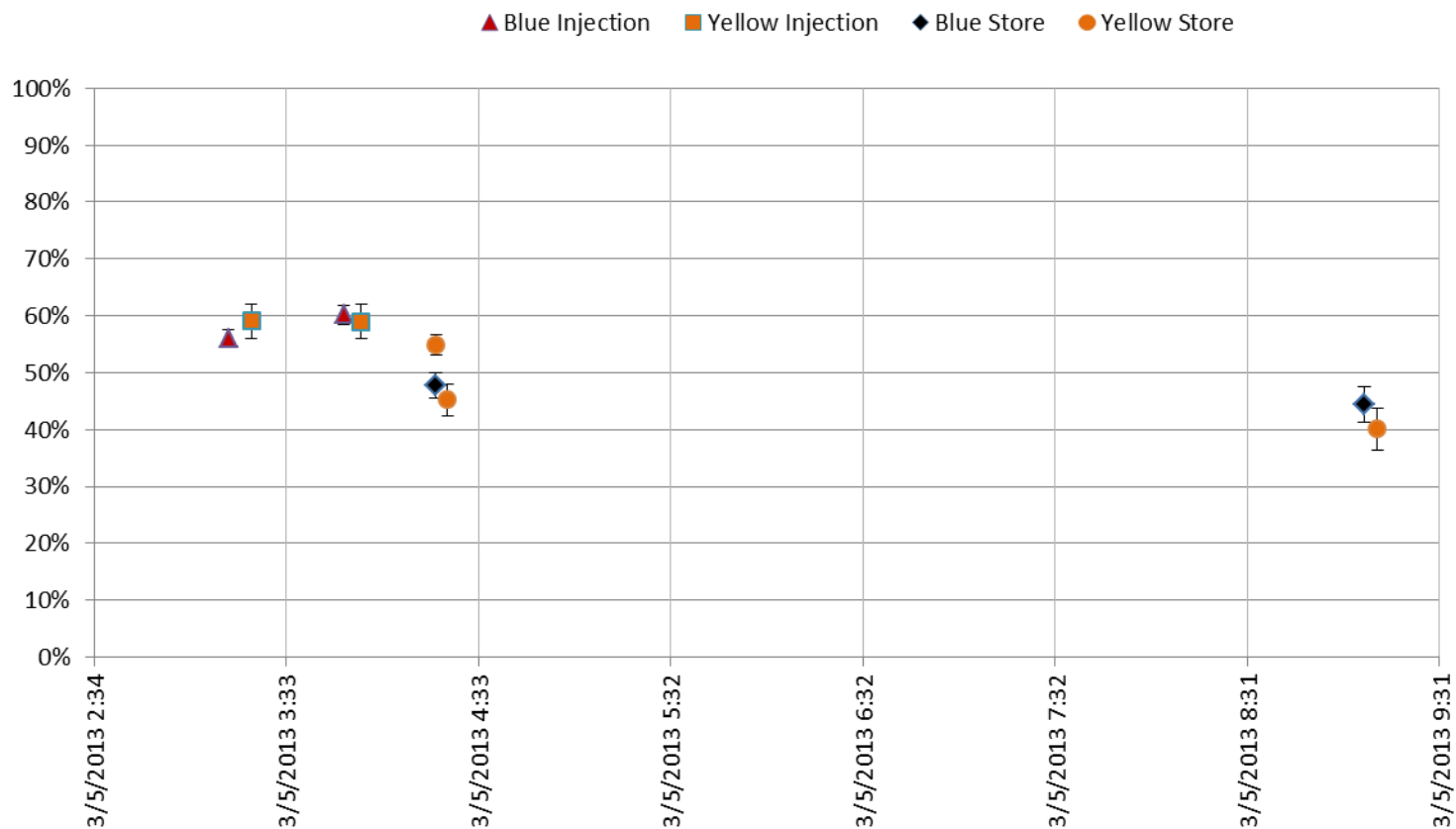


Injected Beam Statistics for Fill number 17137

Started filling RHIC: Sat Mar 2 02:43:54 2013, Fill complete: Sat Mar 2 02:58:20 2013, Minutes to fill: 14
 Newfill time: Sat Mar 2 02:25:43 2013, Minutes from newfill to accramp: 37

Ring	Bunches/Cycles	Avg Bunch in RHIC (10 ⁶ protons)	Source Polarization	Ags Polarization	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	Uxf1 to Wxf	Wxf to Arc	Arc to RHIC
Blue	108/108	84863	83.8	77.0(before)	0.950	1.021	0.982	0.986	0.960
Yellow	109/109	80931	82.1	-	0.899	1.023	0.982	0.987	0.907

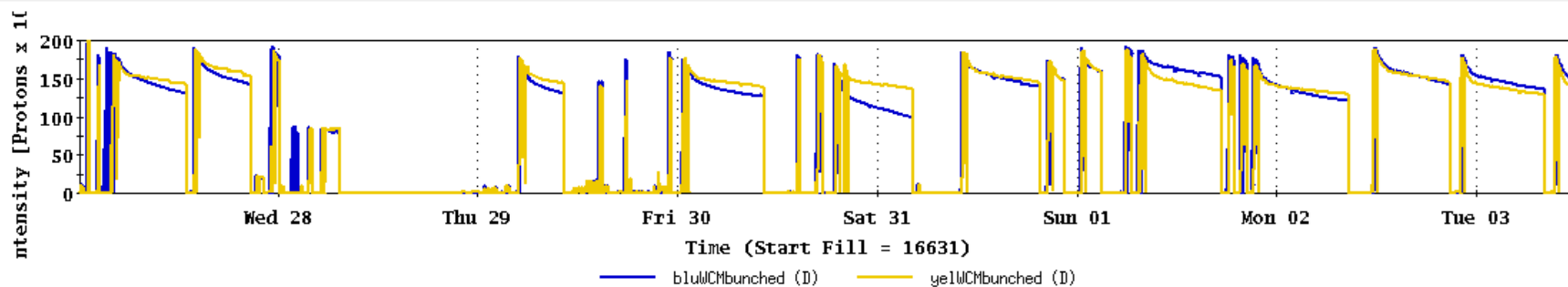
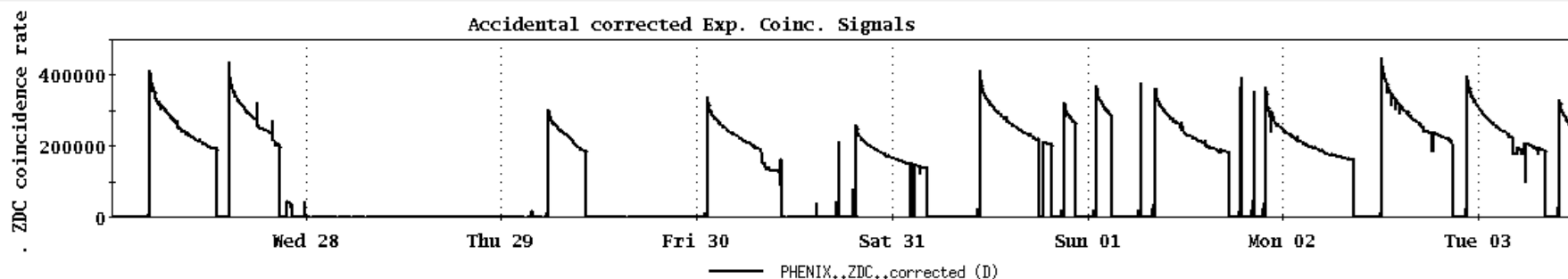
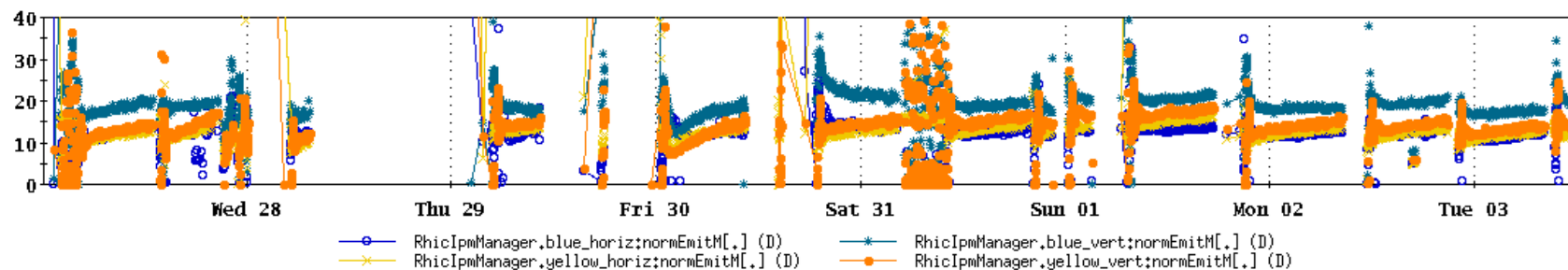
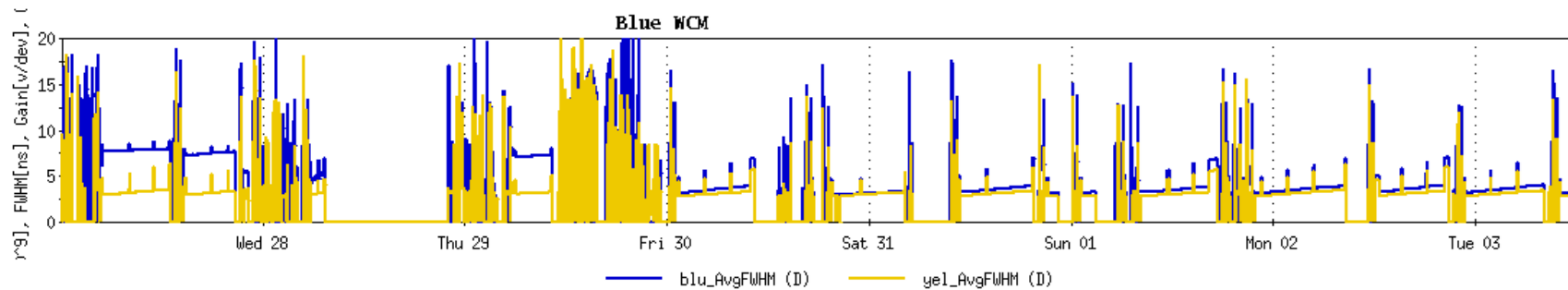
CNI Offline Polarization, store 17169



Injected Beam Statistics for Fill number 17169

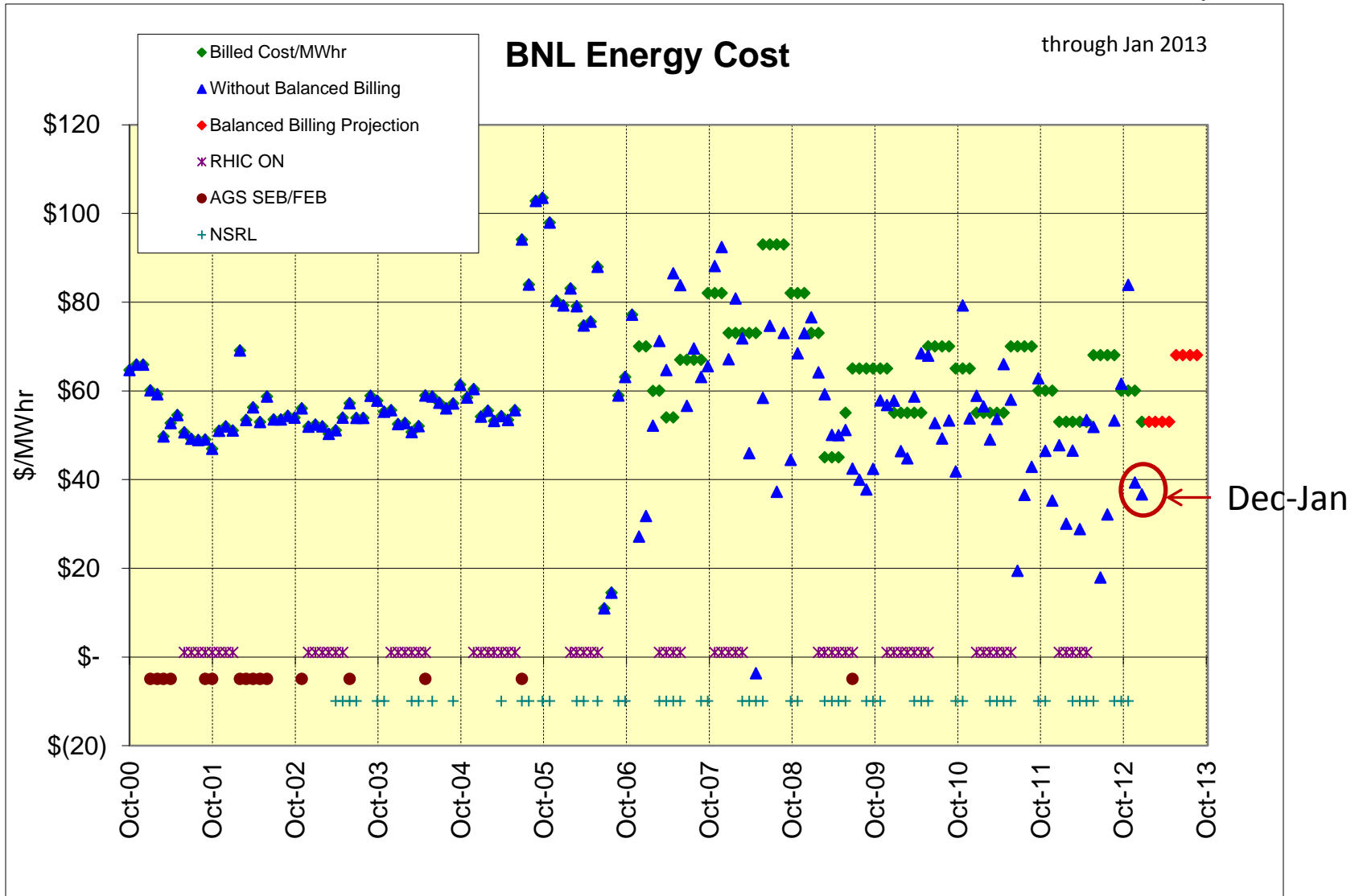
Started filling RHIC: Tue Mar 5 03:41:57 2013, Fill complete: Tue Mar 5 03:56:31 2013, Minutes to fill: 14
 Newfill time: Tue Mar 5 02:44:02 2013, Minutes from newfill to accramp: 75

Ring	Bunches/Cycles	Avg Bunch in RHIC (10 ⁶ protons)	Source Polarization	Ags Polarization	Avg Efficiency XCBM to RHIC	XCBM to Uxf1	Uxf1 to Wxf	Wxf to Arc	Arc to RHIC
Blue	108/108	115482	83.6	-	0.888	0.989	0.990	0.977	0.929
Yellow	109/109	113448	81.3	-	0.867	0.991	0.989	0.949	0.932



January 2013 bill
\$36.61 actual
billed at \$53/Mwhr

+\$505.1K in BNL bank through Jan 2013



Additional Information

PHENIX Goal, 250 pb⁻¹ recorded, 750 pb⁻¹ delivered, ≥ 55% polarization
STAR Goal, 165 pb⁻¹ recorded, 275 pb⁻¹ delivered, ≥ 55% polarization

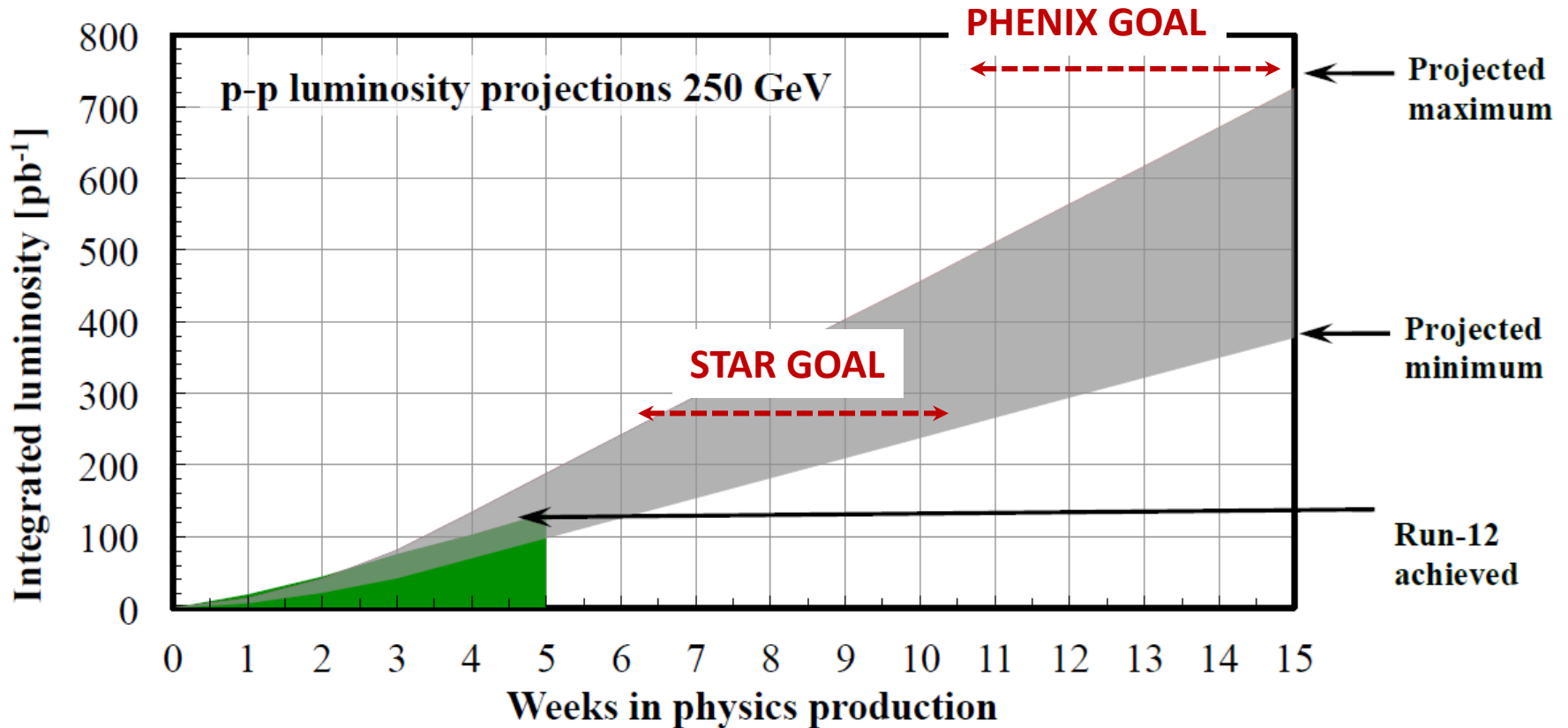
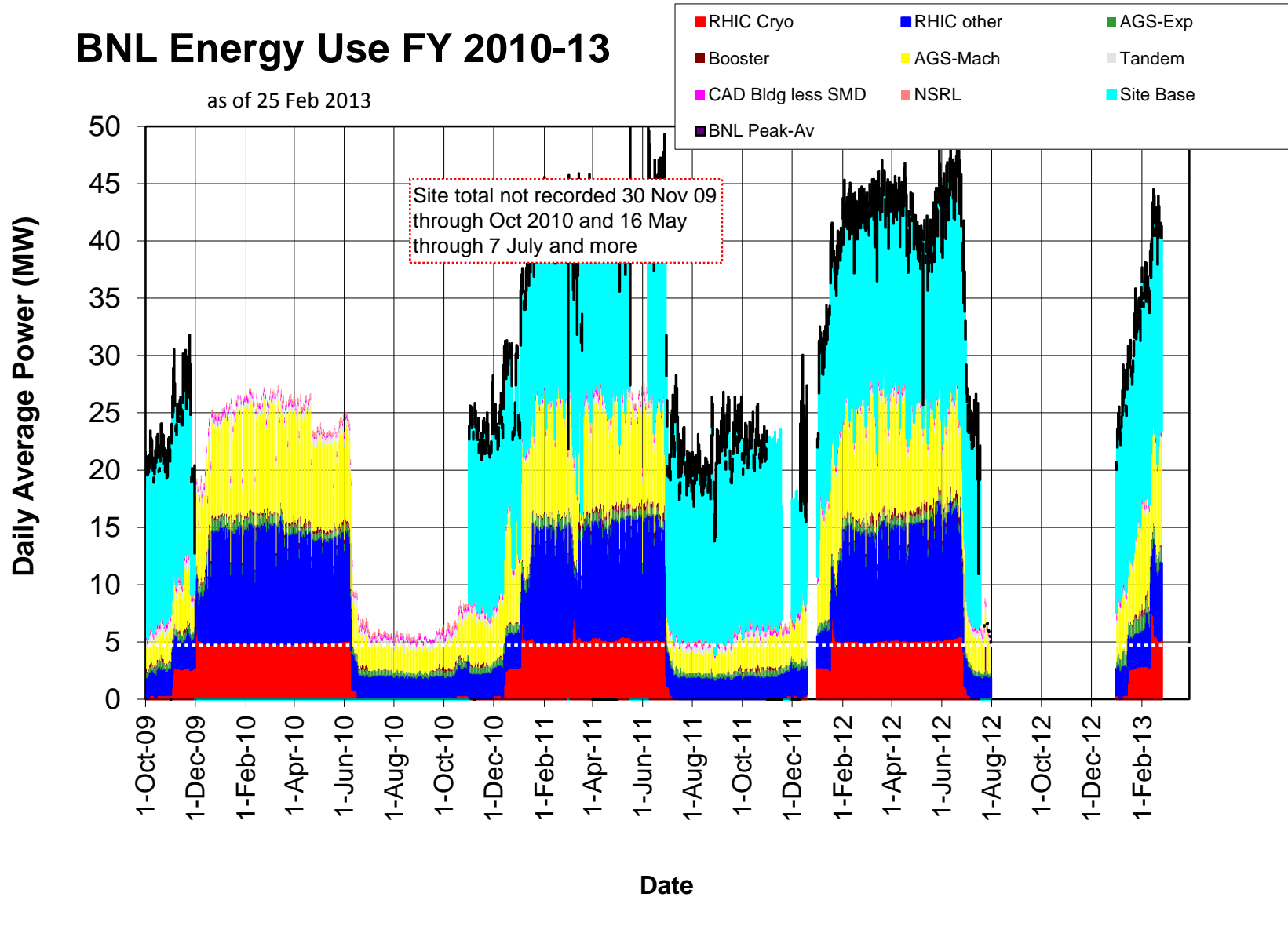


Figure 3: Projected minimum and maximum integrated luminosities for polarized proton collisions at 255 GeV beam energy, assuming linear weekly luminosity ramp-up in 4 weeks. An average store polarization between up to 57% is expected.

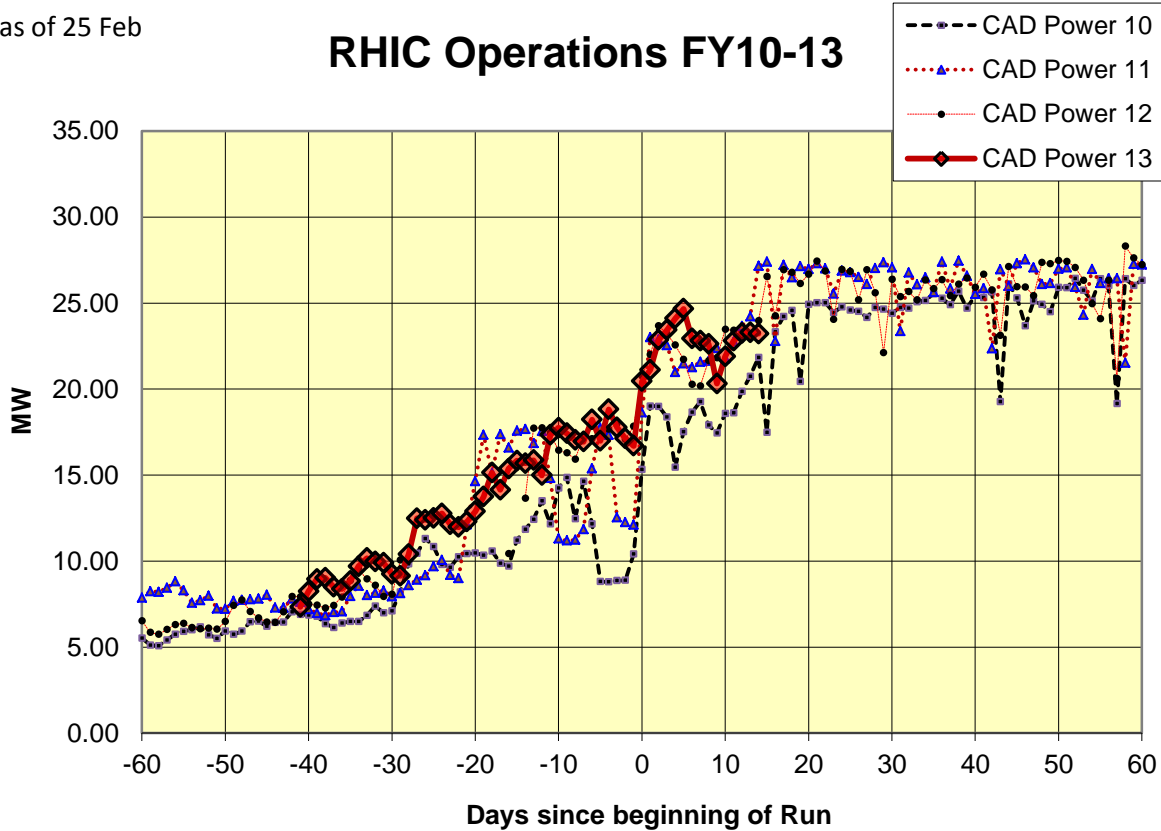
BNL Energy Use FY 2010-13

as of 25 Feb 2013



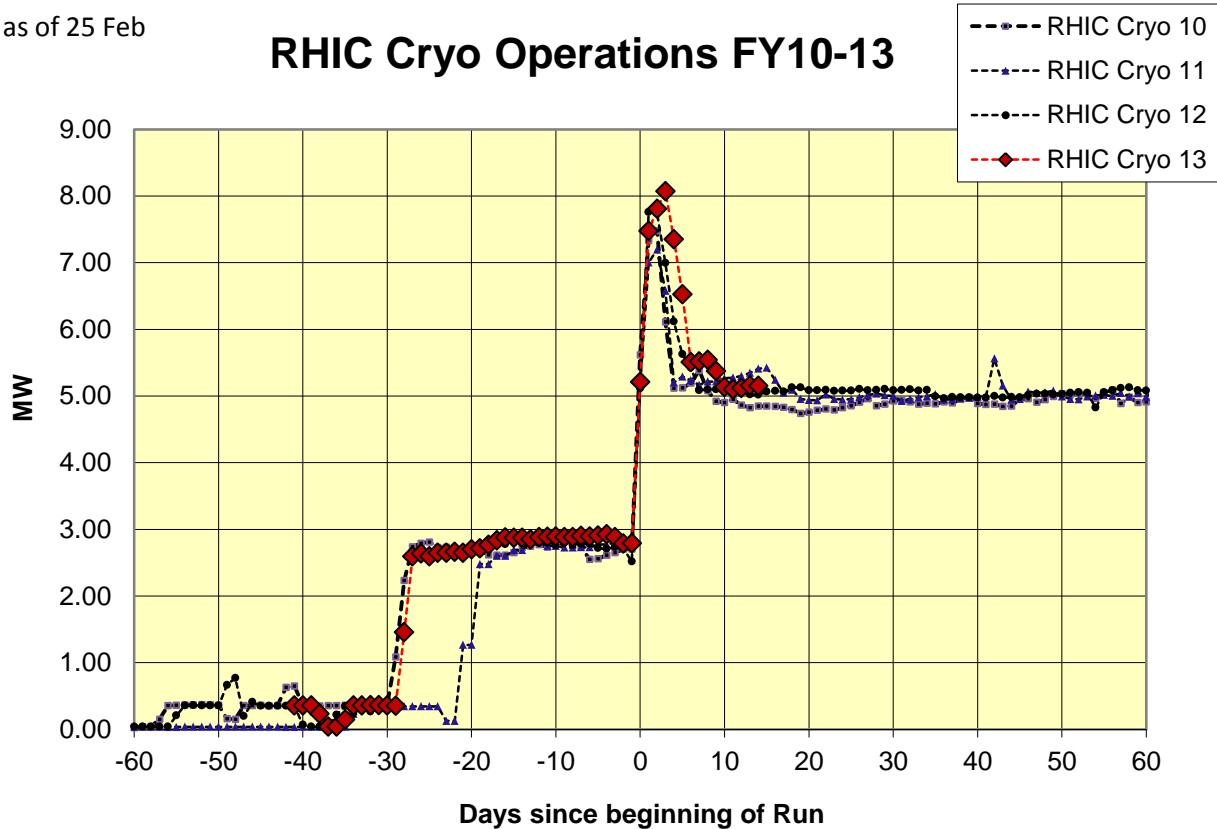
as of 25 Feb

RHIC Operations FY10-13



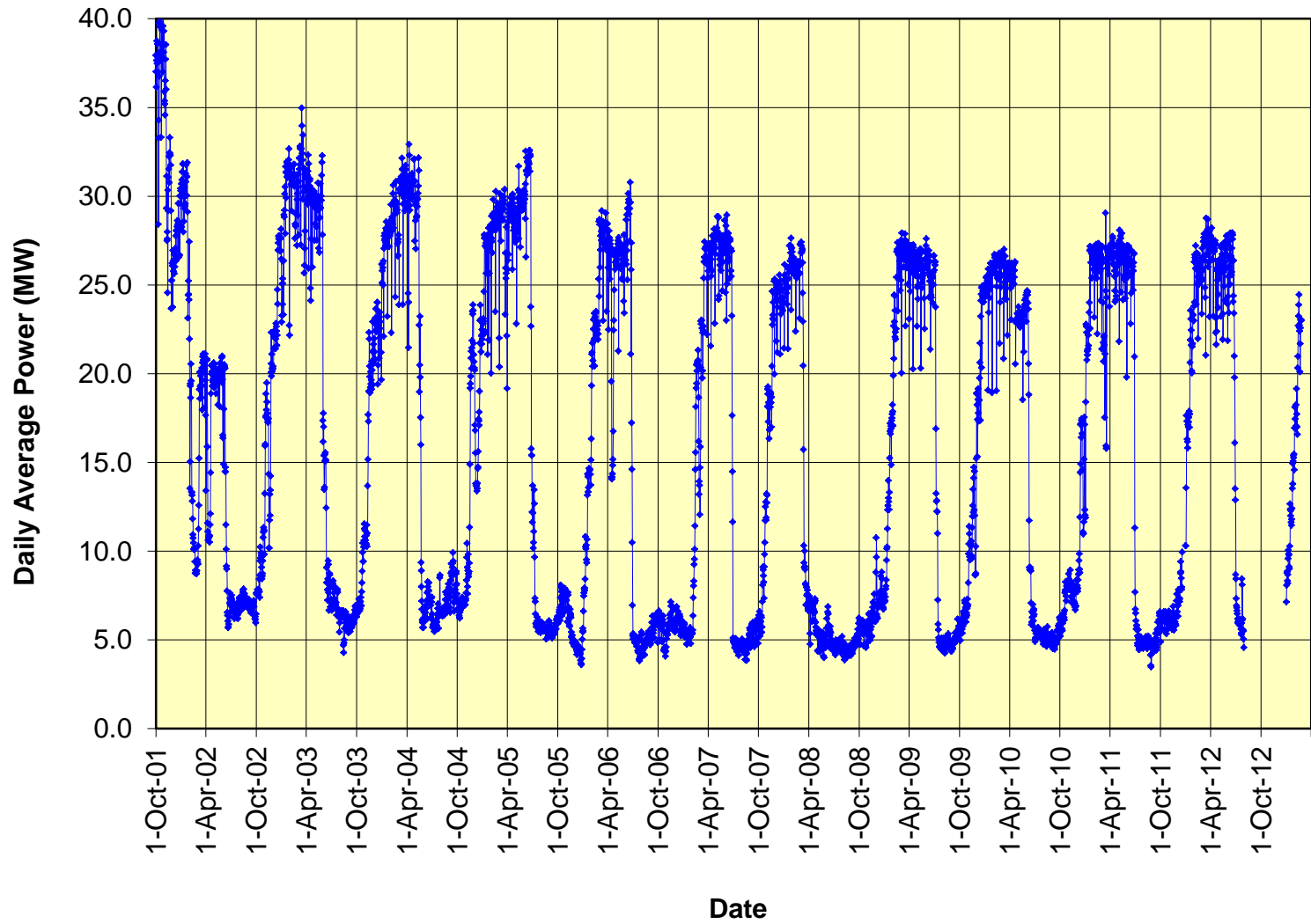
as of 25 Feb

RHIC Cryo Operations FY10-13

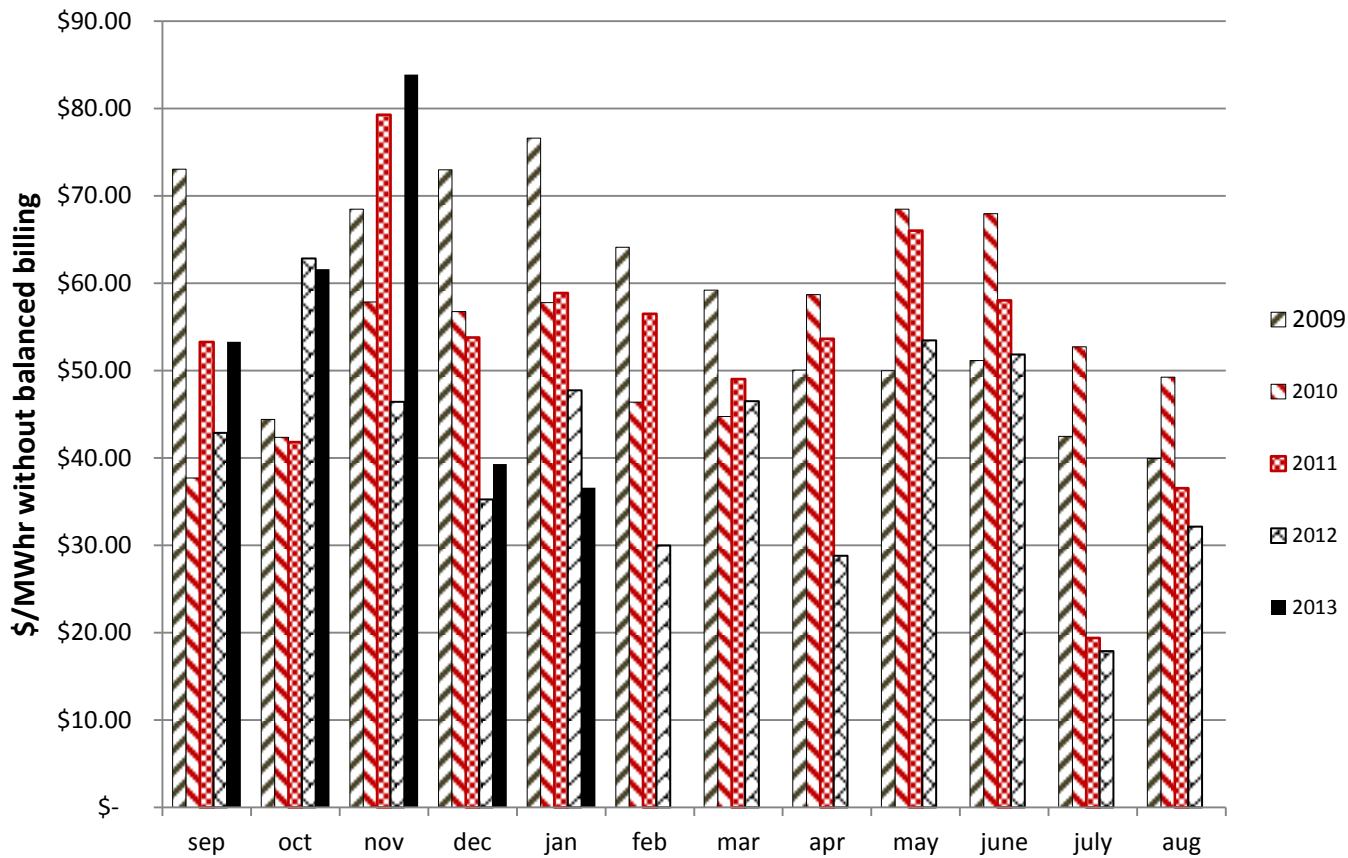


as of 25 Feb 2013

C-AD Energy Use FY 2002-13



BNL Electricity Cost

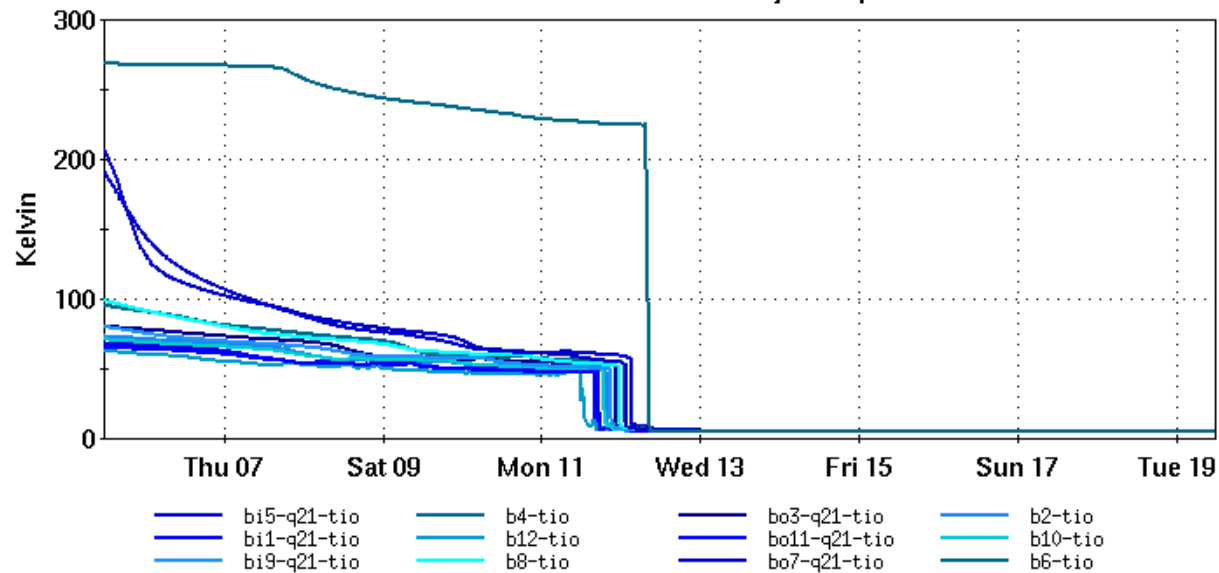


Cryogenic Blue & Yellow Rings (14 days)

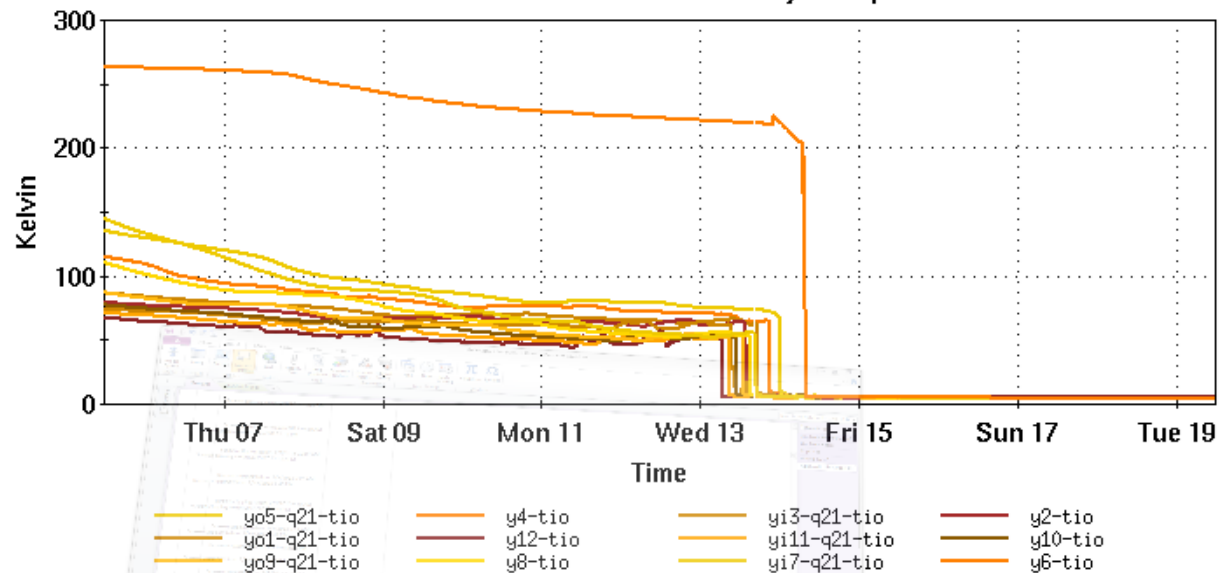
[Ring Summary \(1 day\)](#) [Sector Plots \(1 day\)](#) [Sector Plots \(14 days\)](#)

File Window Markers Analysis

Blue Cryo Temperatures






Yellow Cryo Temperatures

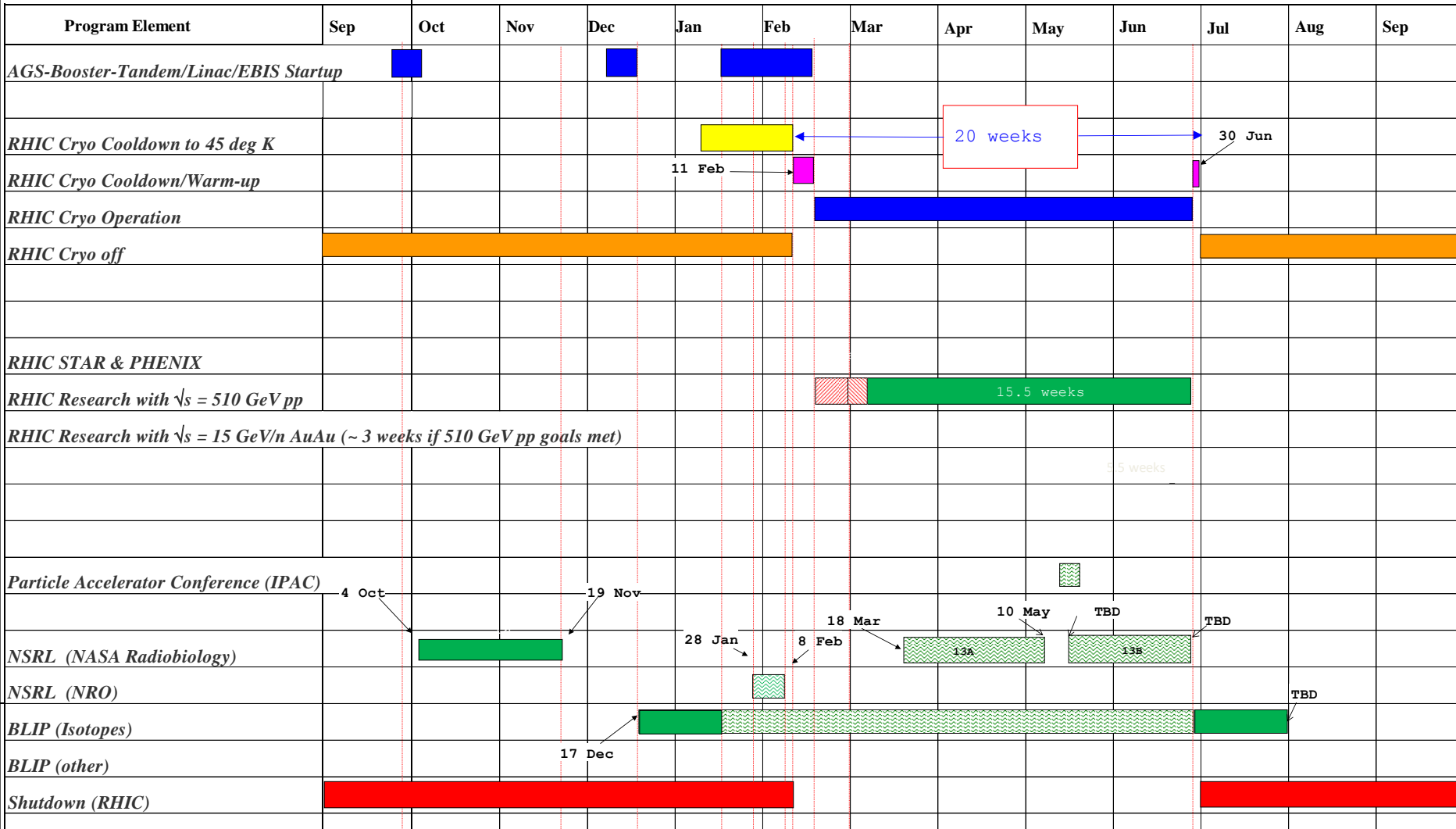


C-A Operations-FY13

planned, budget permitting, Preliminary

-  concurrent with RHIC
-  setup with beams
-  ramp up luminosity

FY 2013



For Run 13 the PAC recommends the following (*in order of priority*):

1. Running with polarized proton collisions at 500 GeV to provide an integrated luminosity of 750 pb^{-1} at an average polarization of 55%.
2. Depending on the amount of running time remaining after priority #1
 - a. If less than 3 weeks remain, a week of 200 GeV Au+Au collisions.
 - b. If at least 3 weeks of running time remain, 3 weeks of 15 GeV Au+Au collisions.
3. 8 days of 62 GeV p+p collisions.
4. At the discretion of the ALD, 4 days of low-luminosity running to accomplish the pp2pp goals.