

RHIC Machine/Detector Planning Meeting

9 May 06

Agenda

- **SPECIAL TOPICS:**
 - **Schedule for the 62 GeV pp run**
 - **What is preferred order of beam species for RUN07? – first thoughts**
- **Scheduling Physicist (Brown) - Scheduling issues**
- **Experiment Progress/Issues - STAR, PHENIX, (BRAHMS)**
- **Jet Target Progress/issues - (Makdisi)**
- **Machine Issues - (Ptitsyn)**
- **AGS beam polarization progress report/polarimeter status – (Huang)**
- **RHIC Polarimeters (Bravar) – issues**
- **RHIC Beam Experiments – (Pilat)**
- **RCF (Throwe) – issues**

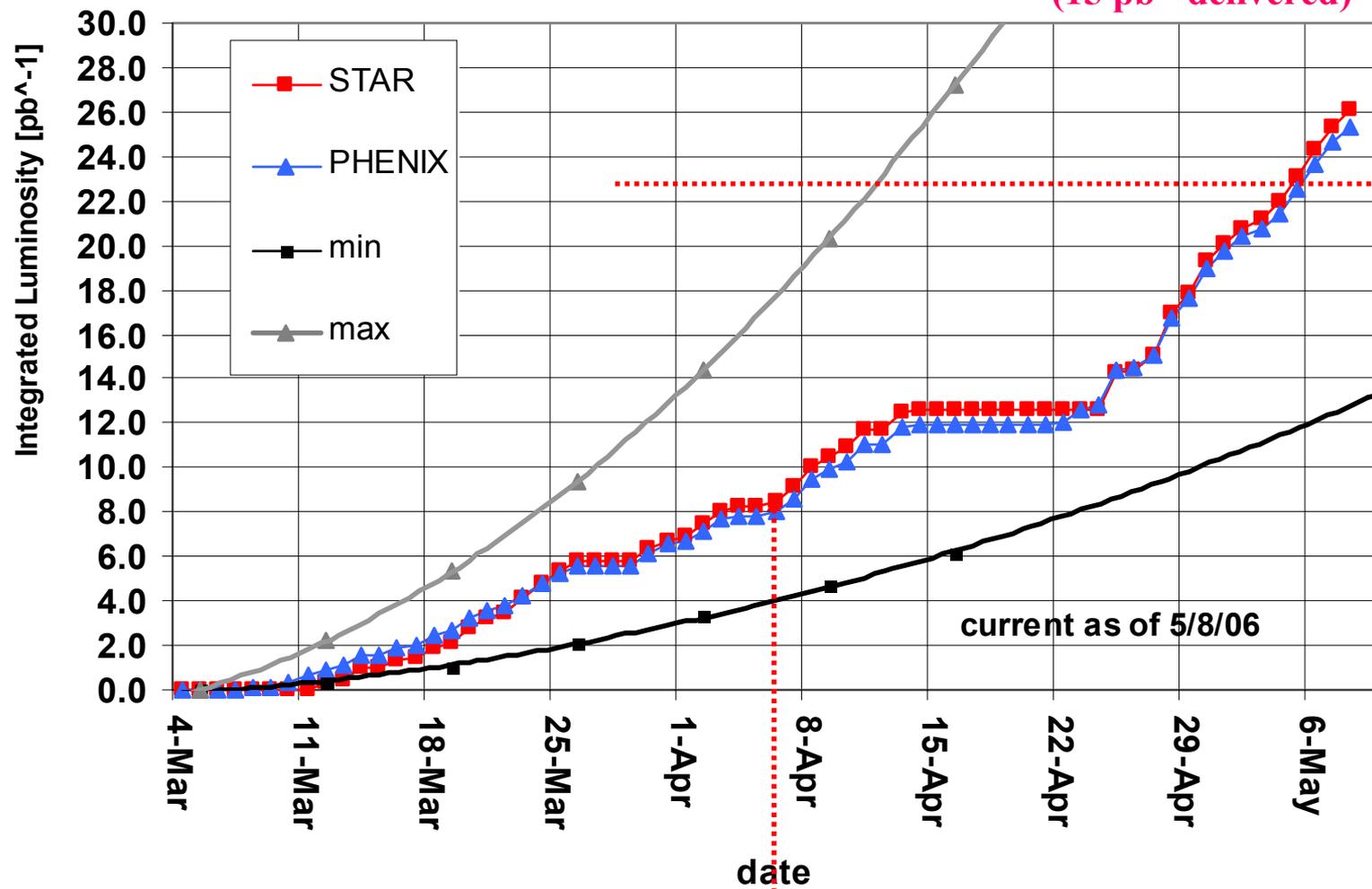
Experiment Goals (in progress)

	<u>\sqrt{s}</u>	<u>Pol. Config.</u>	<u>Recorded L</u>	<u>Delivered L</u>	<u>Pol</u>	<u>weeks</u>
PHENIX:	200 GeV	Radial	4-7 pb ⁻¹	10-17 pb ⁻¹	≥ 50%	3-4#
	200 GeV	Longitudinal	10 pb ⁻¹	30 pb ⁻¹	~ 60%	7
	62.4 GeV	Transverse	0.6 pb ⁻¹	1.4 pb ⁻¹	any	2
	*22 GeV		4 nb ⁻¹	10 nb ⁻¹		
STAR:	200 GeV	Transverse	3 3 pb ⁻¹	15 pb ⁻¹	≥ 50%	~ 4
	200 GeV	Longitudinal	10 pb ⁻¹	30 pb ⁻¹	≥ 50%	~7
	62.4 GeV	Transverse	0.5 pb ⁻¹	0.5 pb ⁻¹	≥ O	2
BRAHMS:	62.4 GeV	Transverse	0.85 pb ⁻¹	1.4 pb ⁻¹	~ 50%	2

- Not in present plan
- # with 50-60% pol, end with ~~4 weeks of operation~~ or 4-7 recorded pb⁻¹, ~~whichever comes first~~

Run6 RHIC p⁺p⁺ Integrated Luminosity for Physics

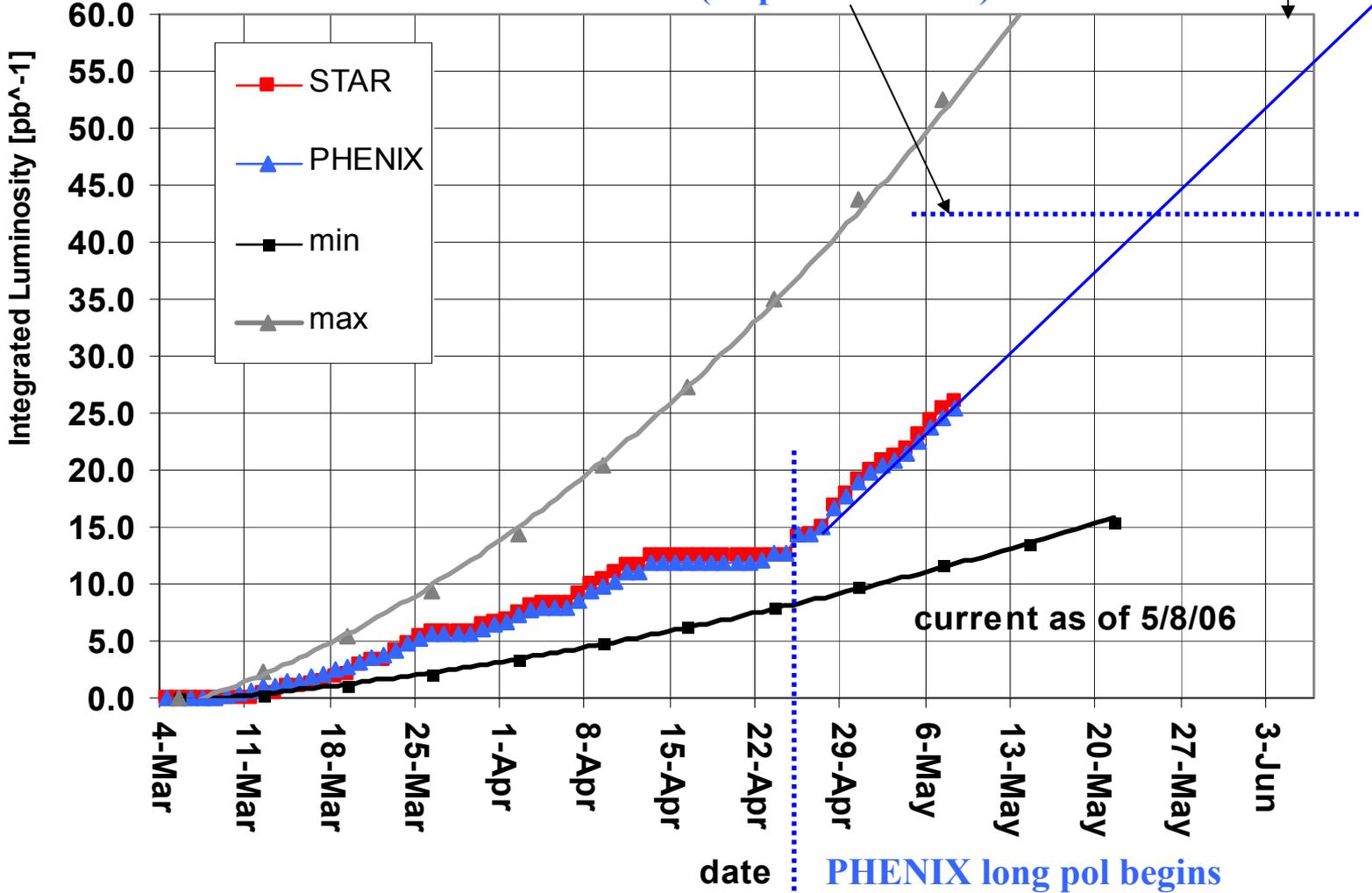
STAR Transverse Goal
(15 pb⁻¹ delivered)

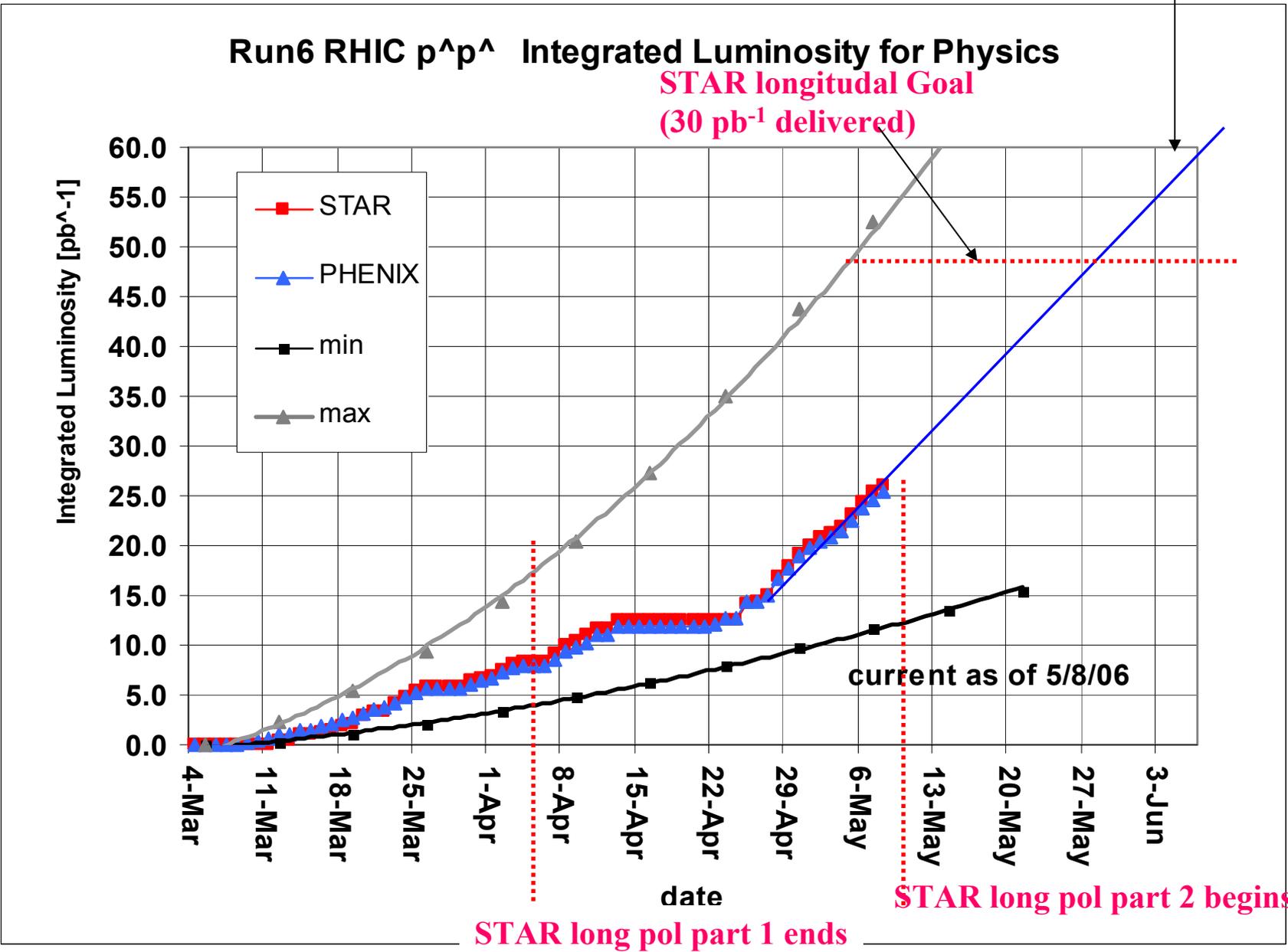


STAR transverse pol begins

“11” weeks in Physics mode

Run6 RHIC p⁺p⁺ Integrated Luminosity for Physics PHENIX longitudinal Goal (30 pb⁻¹ delivered)

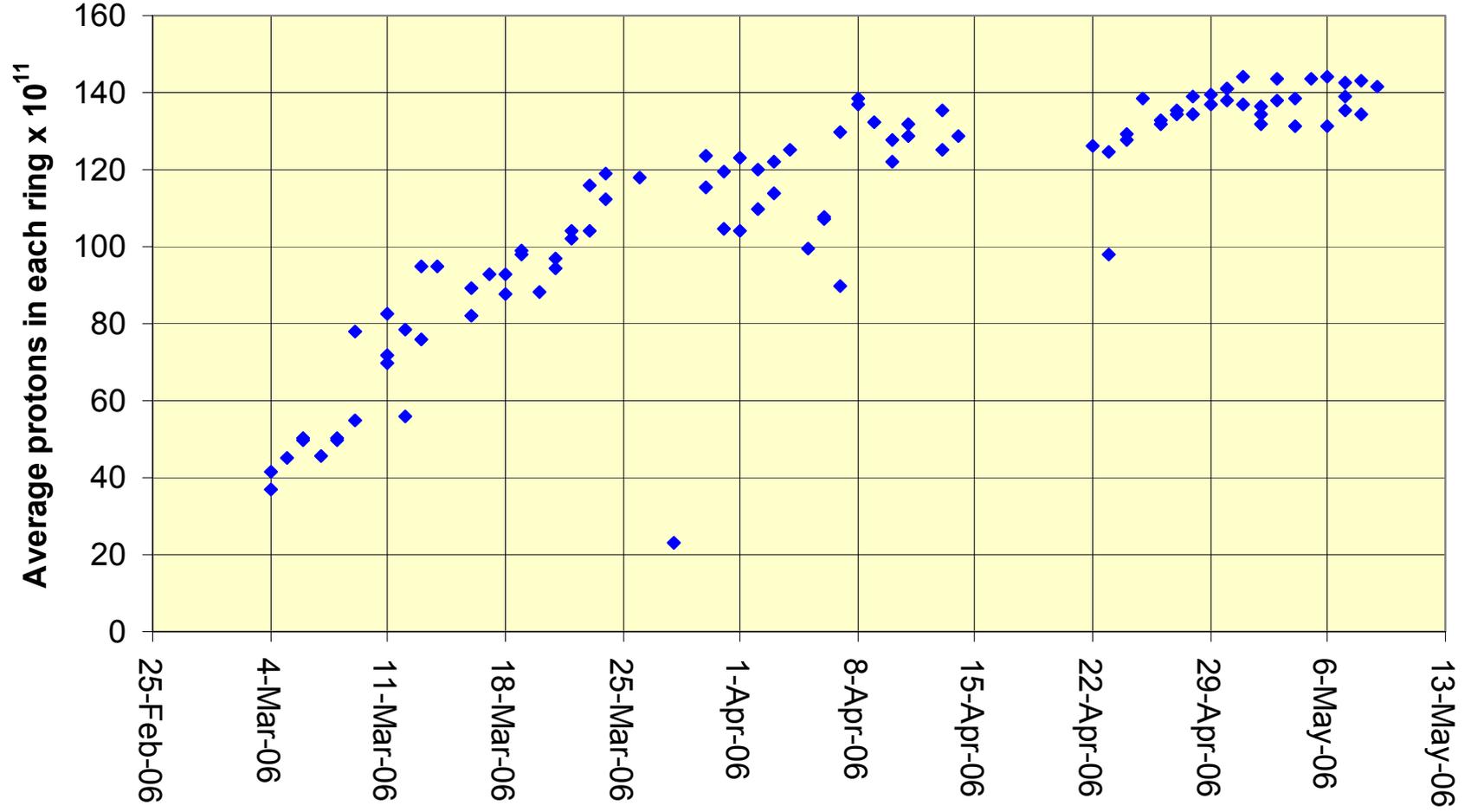




STAR long pol part 1 ends

STAR long pol part 2 begins (plan)

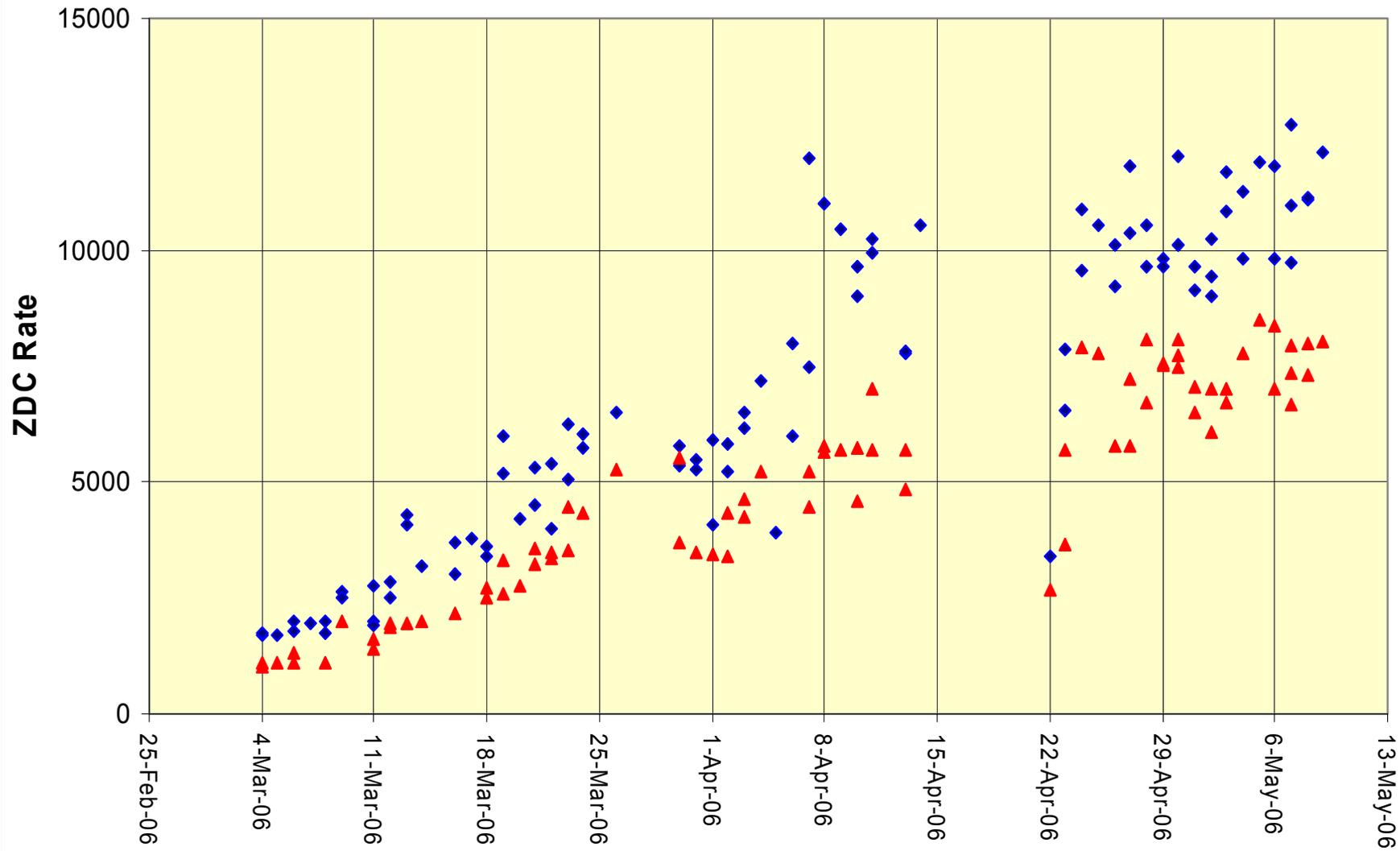
protons in RHIC vs date



5/9/06

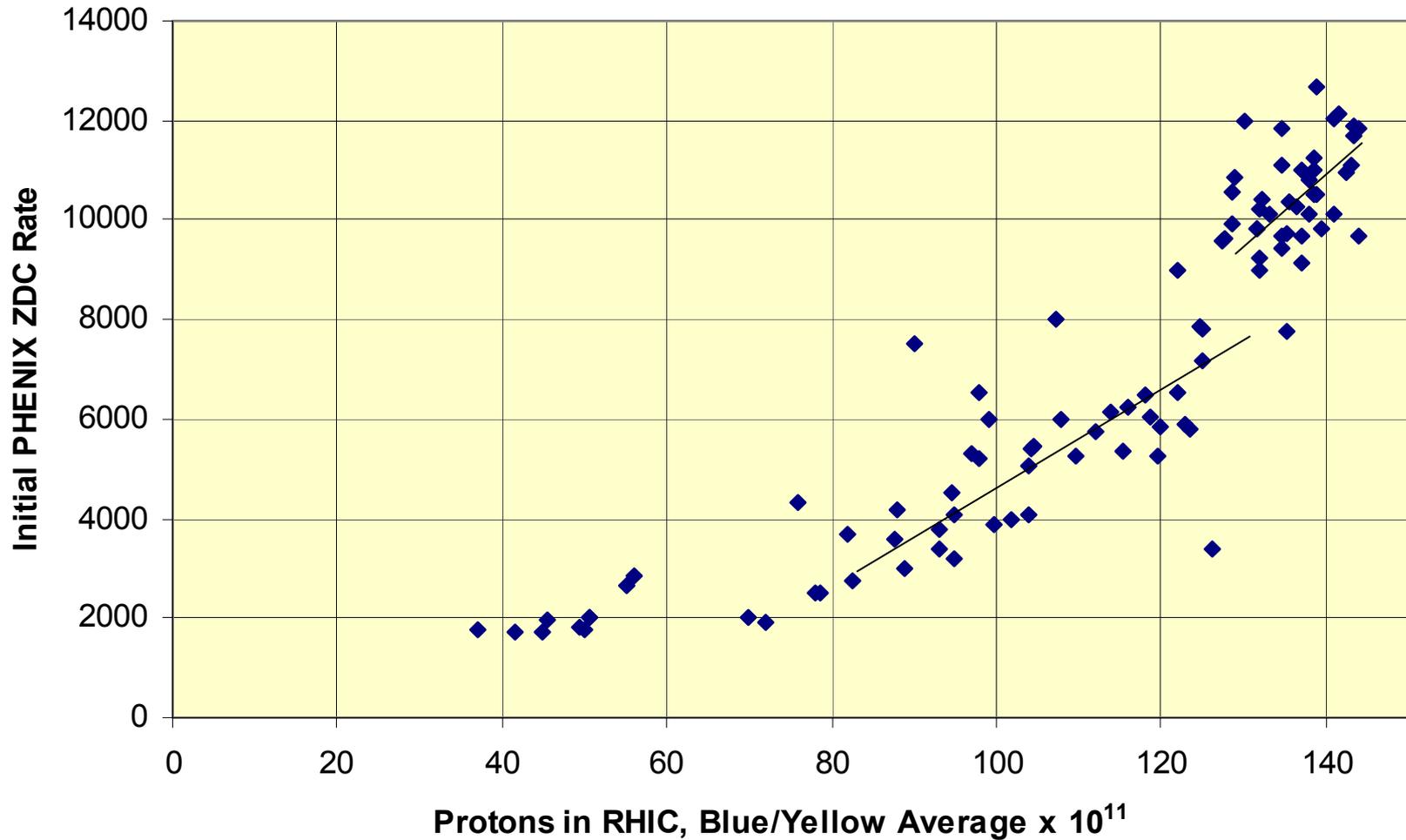
PHENIX ZDC Rate vs date

- ◆ PHENIX ZDC (Initial)
- ▲ PHENIX ZDC (+3 hrs)



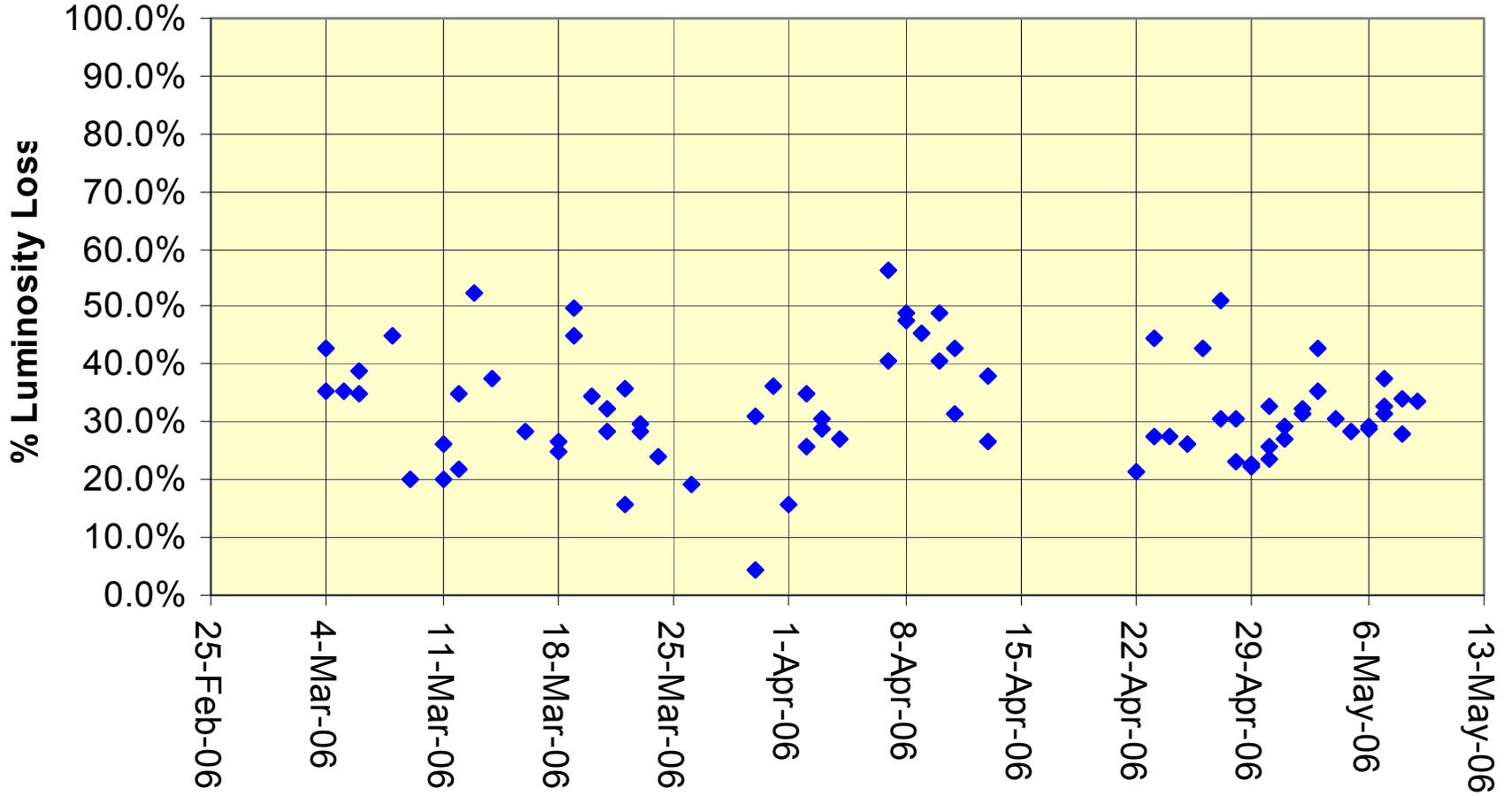
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Phenix Initial ZDC Rate vs Protons in RHIC



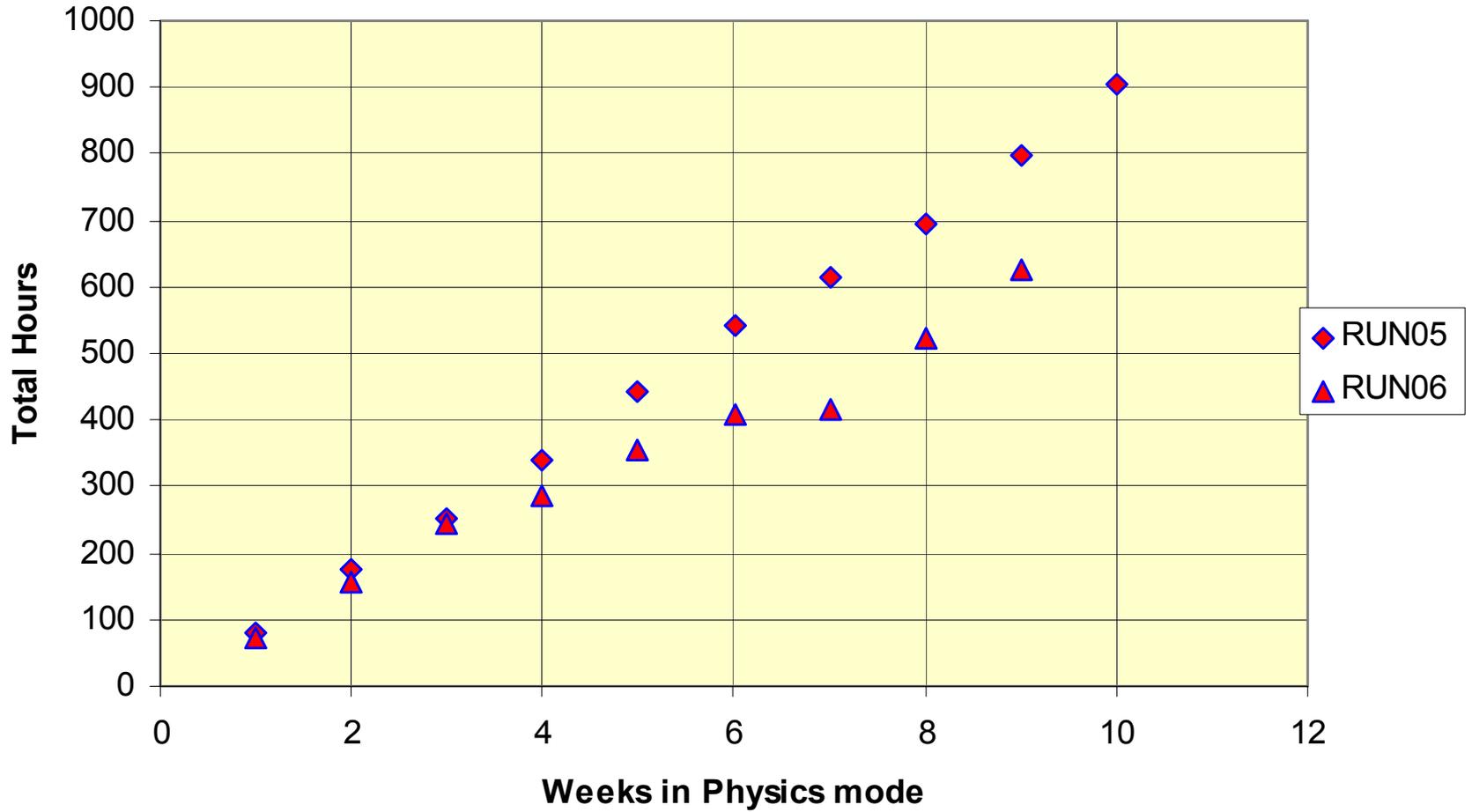
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Luminosity loss 3 hrs into store vs date

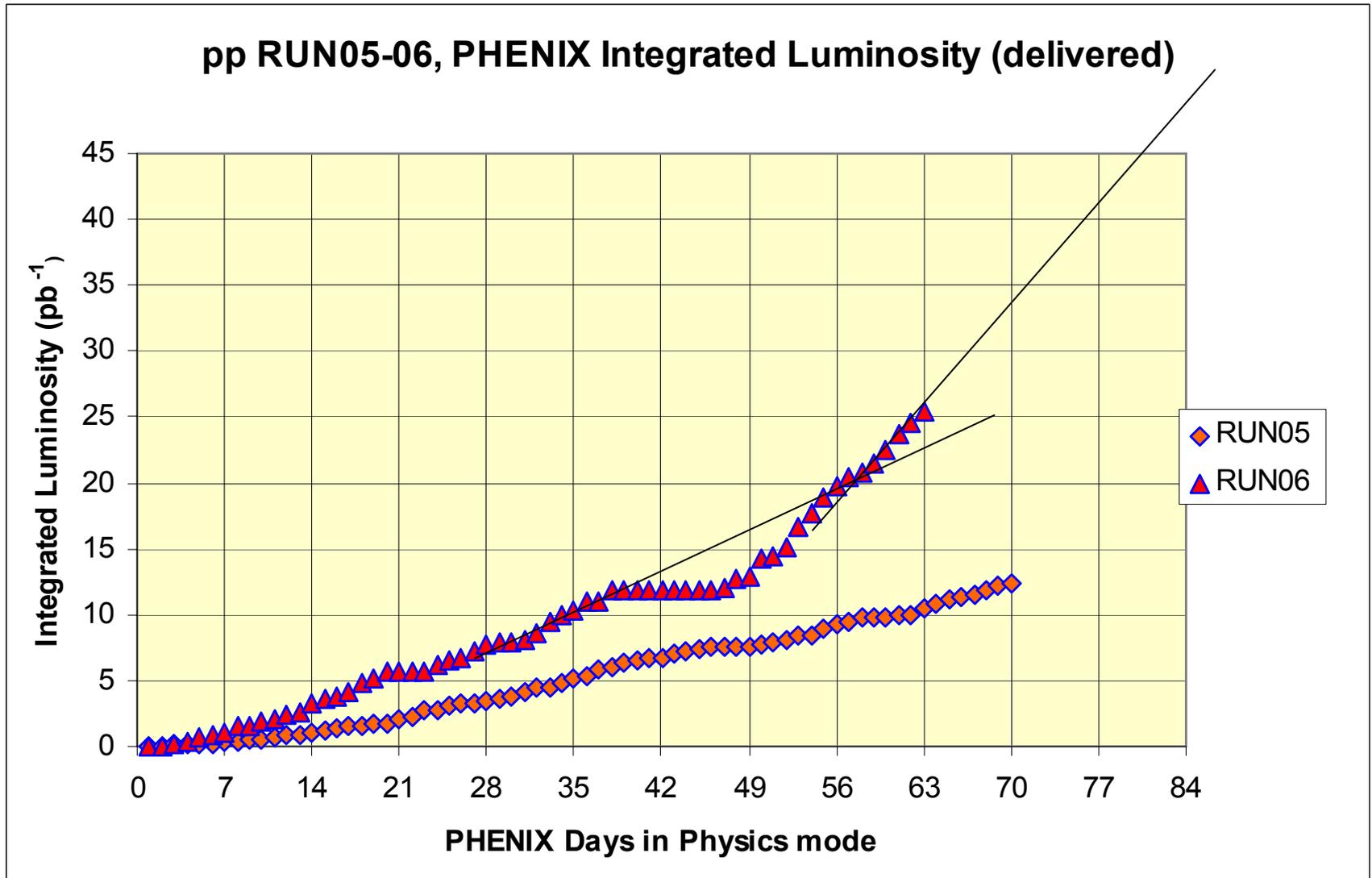


5/6/06

pp RUN05-06, hours at store



5/8/06



RHIC Run 6 - For Discussion 5/9/06

Plan A (present plan):

- 5 Jun: end 200 GeV run, begin 22 GeV test run
- 6 Jun: end 22 GeV test run, begin 62 GeV run
- 20 Jun: end 62 GeV run, begin 500 GeV development
- 26 Jun: end RHIC operations with beam
-

Plan B (proposed):

- 5 Jun: end 200 GeV run, begin 22 GeV test run
- 6 Jun: end 22 GeV test run, begin 500 GeV development
- 12 Jun: end 500 GeV development, begin 62 GeV run
- 26 Jun: end RHIC operations with beam

RHIC Run 6 - For Discussion

5/9/06

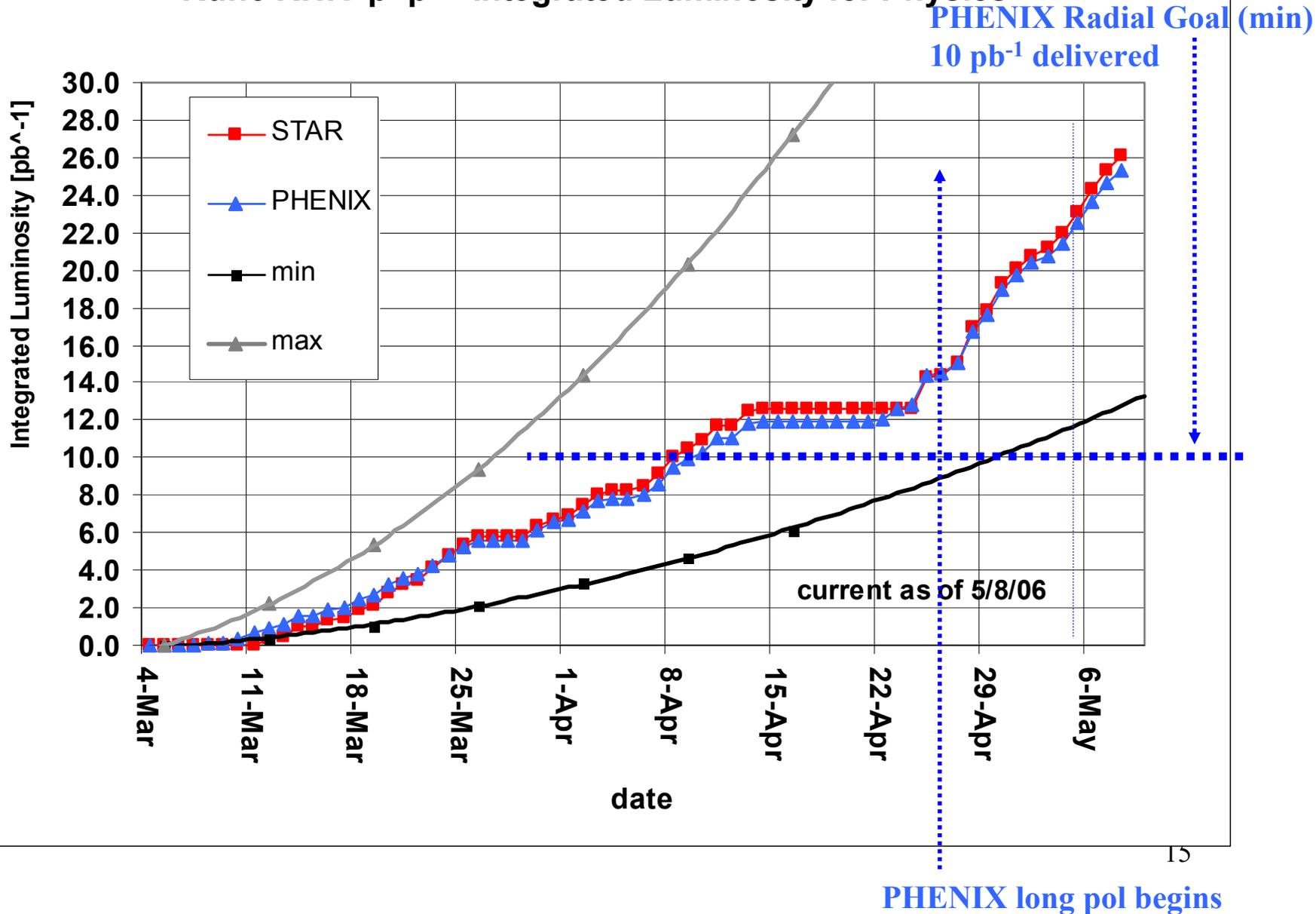
A short history (from my Tuesday meeting notes):

<u>Date</u>	<u>62 GeV Start Date</u>
through 4/18	5/28 (with usual caveats)
4/25	6/1 (added 4 days to schedule as a result of unscheduled shutdown - flag the we needed to "revisit the schedule")
5/2	6/6 (added another 4 days to the schedule, maxing out possible calendar days for RHIC Run 6 and scheduled the 22 GeV test run before 62 GeV run - raised issue that we should consider moving the 62 GeV run to the end to minimize the possible negative impact of the Accelerator Conference on the 500 GeV development run)
5/9	6/6 vs 6/12

RHIC Machine/Detector Planning Meeting

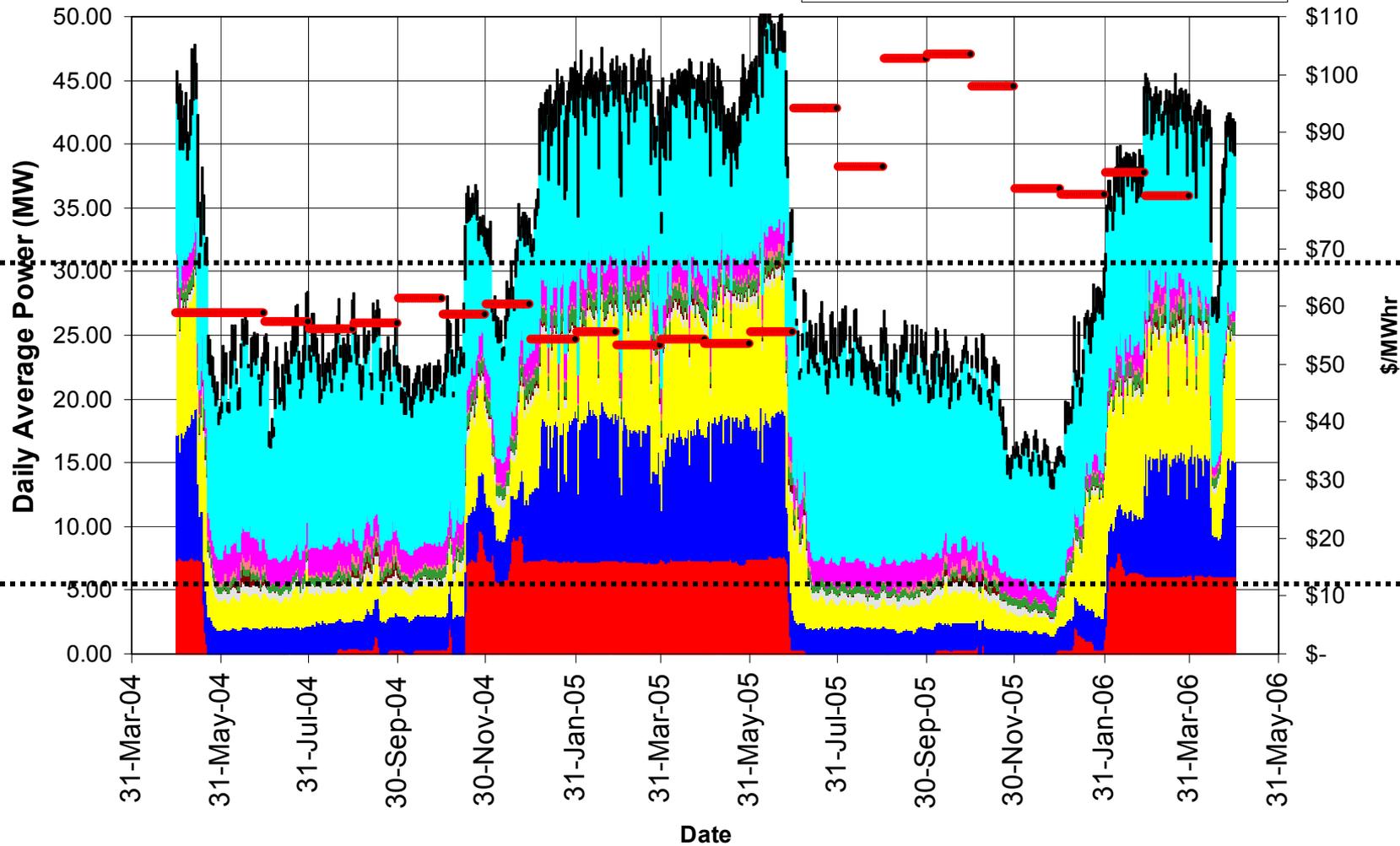
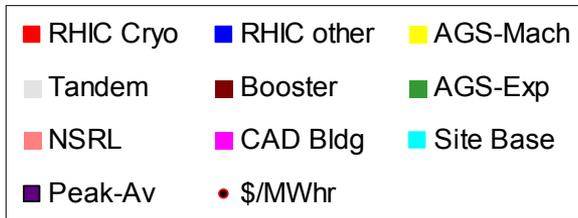
Archive

Run6 RHIC p⁺p⁺ Integrated Luminosity for Physics



BNL Energy Use FY 2005-6

(C-AD Bldg 911 power is in AGS-Exp/Mach)



RHIC Run 6 as run/revised plan

5/9/06

- 1 Feb – Cool-down begins
- 7 Feb – 1st beam in blue ring
- 12 Feb – 1st beam in yellow beam
- 5 Mar – Machine Physics Mode declared (4.6 weeks into run)
- 8 Mar – **PHENIX in Physics Mode – radial pol** (5 weeks into run – on schedule)
- 12 Mar – **STAR in Physics Mode – long pol** (5.6 weeks into run)
- 12 Mar – begin 11.0 weeks of $\sqrt{s}=200$ GeV pp (0.6 weeks behind schedule)
- 6 Apr – **STAR switch to trans pol**
- 14 April – **unscheduled shutdown (incr. power use at ~50% of full operations)**
- 21 April – **unscheduled shutdown ends – lost ~ 7 days**
- 22 April – **PHENIX back on (lost 8 days)**
- 24 April – **STAR back on (lost 10 days)**
- 26 Apr – **PHENIX completed radial polarization, switched to longitudinal**
- 10 May – **STAR switch to longitudinal polarization (plan)**
- 5 Jun – end 11.0 weeks $\sqrt{s}=200$ GeV pp, begin $\sqrt{s}=22$ GeV development
- 6 Jun - begin setup $\sqrt{s}=62$ GeV pp – add **BRAHMS**
- 20 Jun – end 2 week $\sqrt{s}=62$ GeV pp, begin $\sqrt{s}=500$ GeV development
- 26 Jun – end $\sqrt{s}=500$ GeV development, begin warm-up to LN2

- 29 Jun – RHIC Cryo switch to LN2 complete, end 21.1 weeks of cryo operation

The 14.5 week pp “physics” plan, Run6

$\sqrt{s} = 200 \text{ GeV}/c$ (1st 11 weeks)

$\sqrt{s} = 62.4 \text{ GeV}/c$ (next 2 weeks)

- 2 weeks physics
 - STAR Transverse
 - PHENIX Transverse
 - BRAHMS Transverse

$\sqrt{s} = 500 \text{ GeV}/c$ (last 1 week)

- Machine Development

- ~~0.5 week contingency, use to be determined~~

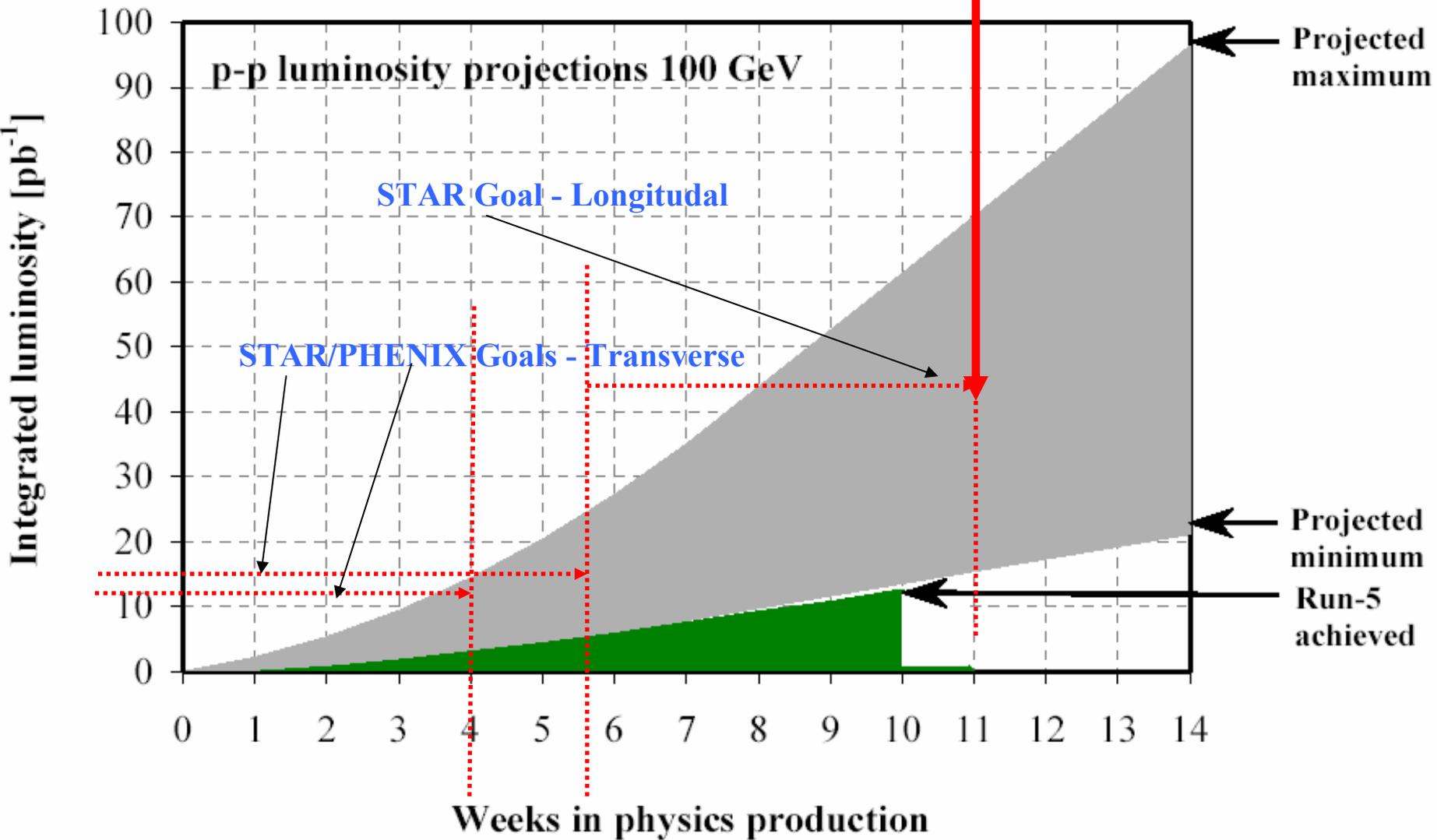
RHIC Run 6 Original Plan

- 1 Feb – Begin cool-down
- 8 Mar – [Physics Mode for machine and experiments](#) (5 weeks into run)
- 8 Mar – begin 11 weeks of $\sqrt{s}=200$ GeV pp
- 24 May – end 11 weeks $\sqrt{s}=200$ GeV pp
- 24 May begin setup $\sqrt{s}=62$ GeV pp
- 7 Jun – end 2 week $\sqrt{s}=62$ GeV pp
- 7 Jun – begin 1 week $\sqrt{s}=500$ GeV pp development
- 14-18 Jun – Contingency (end 14.5 weeks “Physics”)
- 18 Jun – begin cyro warm-up
- 21 Jun – RHIC Cryo warm-up complete, end 20.0 weeks of cryo operation

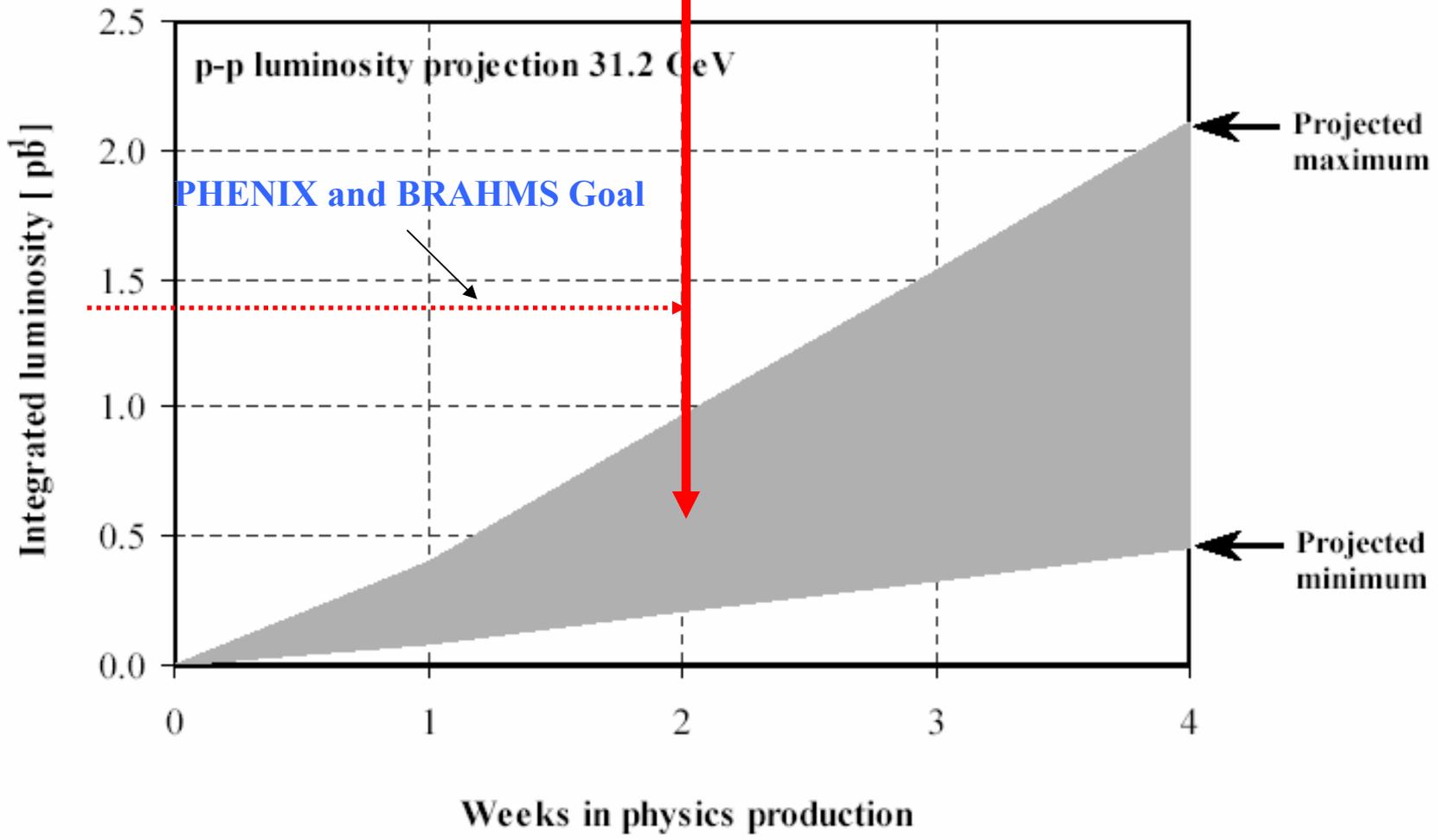
RHIC Run 7 – first look at possible run plan

- PHENIX
 - Long Au-Au run at $\sqrt{s}=200$ GeV/n
 - pp development, especially for $\sqrt{s}=500$ GeV
- STAR
 - d-Au at $\sqrt{s}=200$ GeV/n
 - pp development

11 physics weeks at 200 GeV, (20 weeks cryo operation)



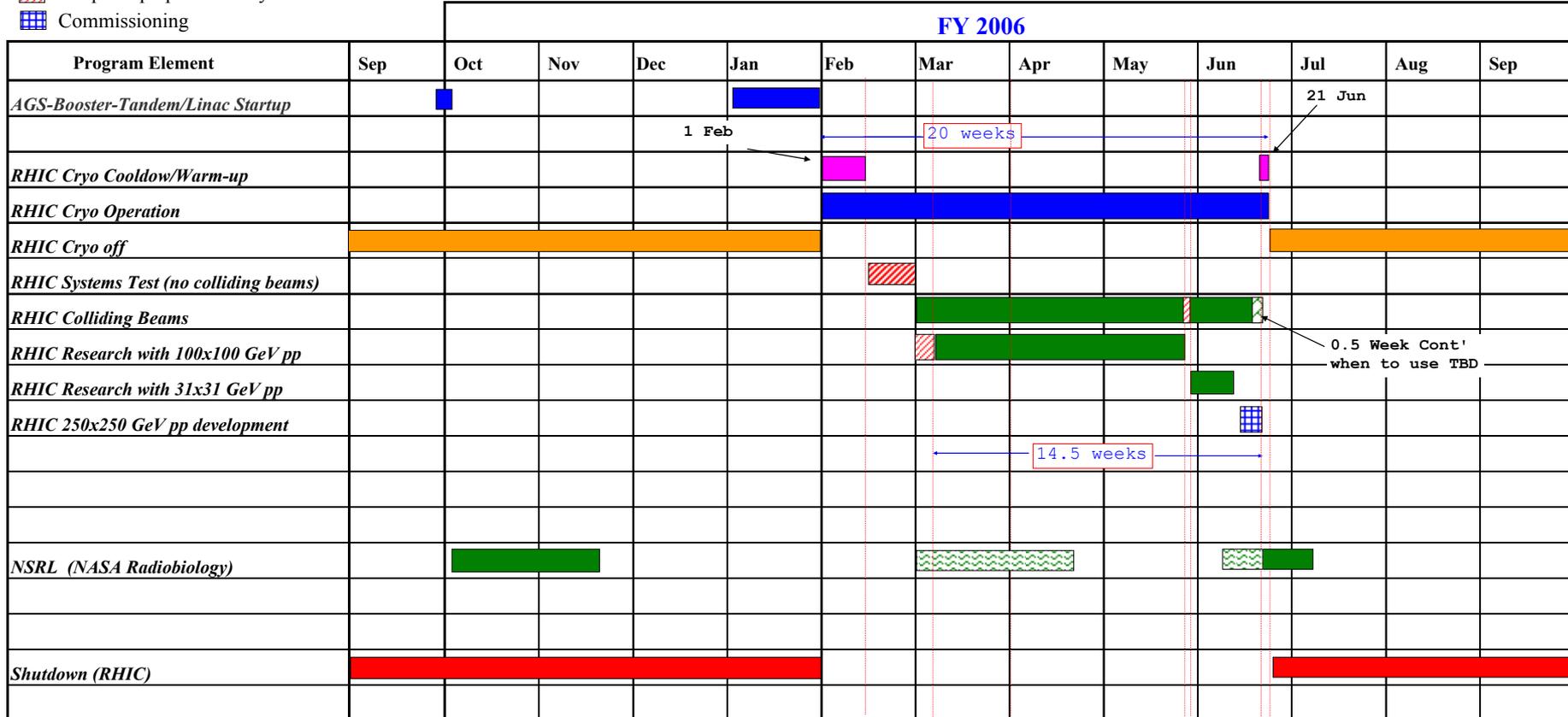
2 physics weeks at $\sqrt{s} = 62.4$ GeV



C-A Operations-FY06

The Plan

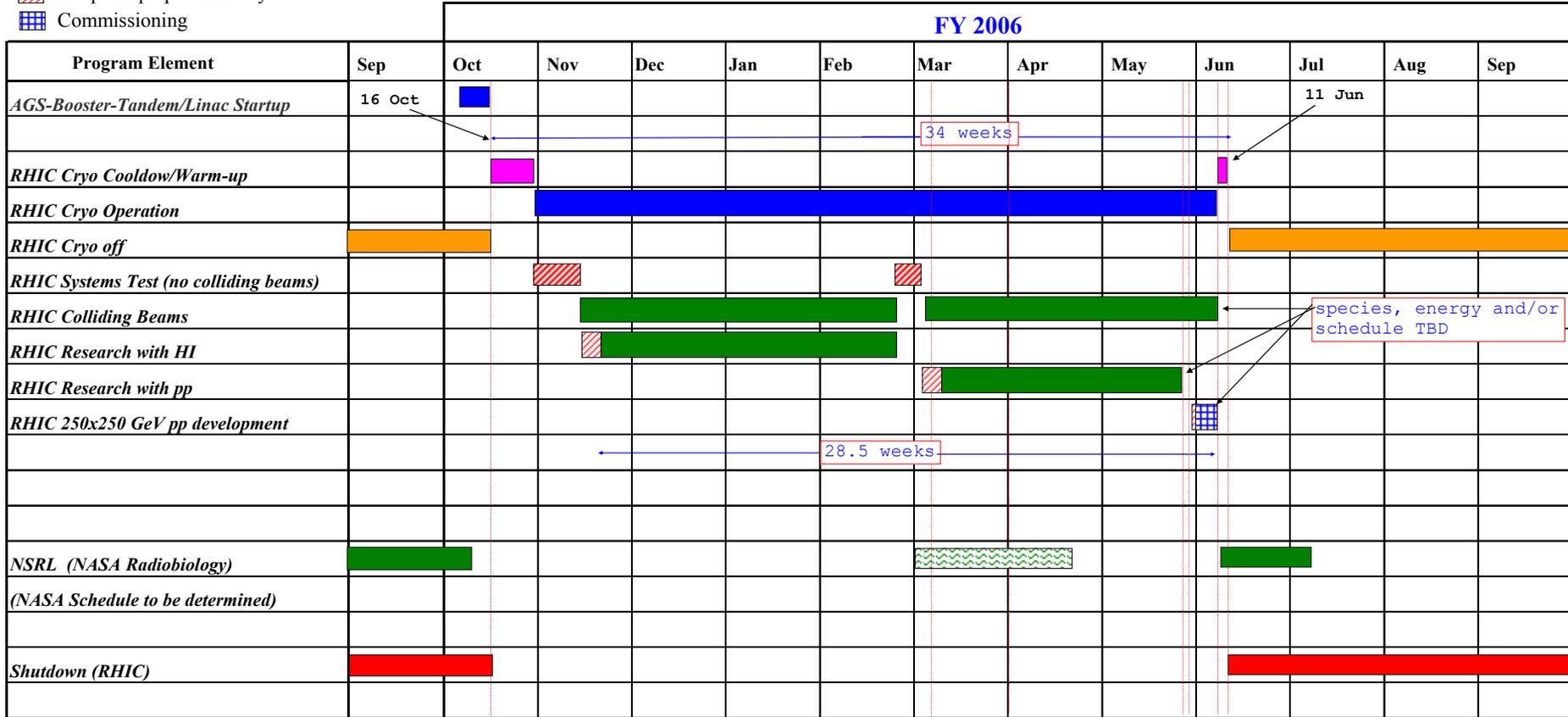
-  Contingency
-  schedule to be determined
-  setup/ramp up luminosity
-  Commissioning



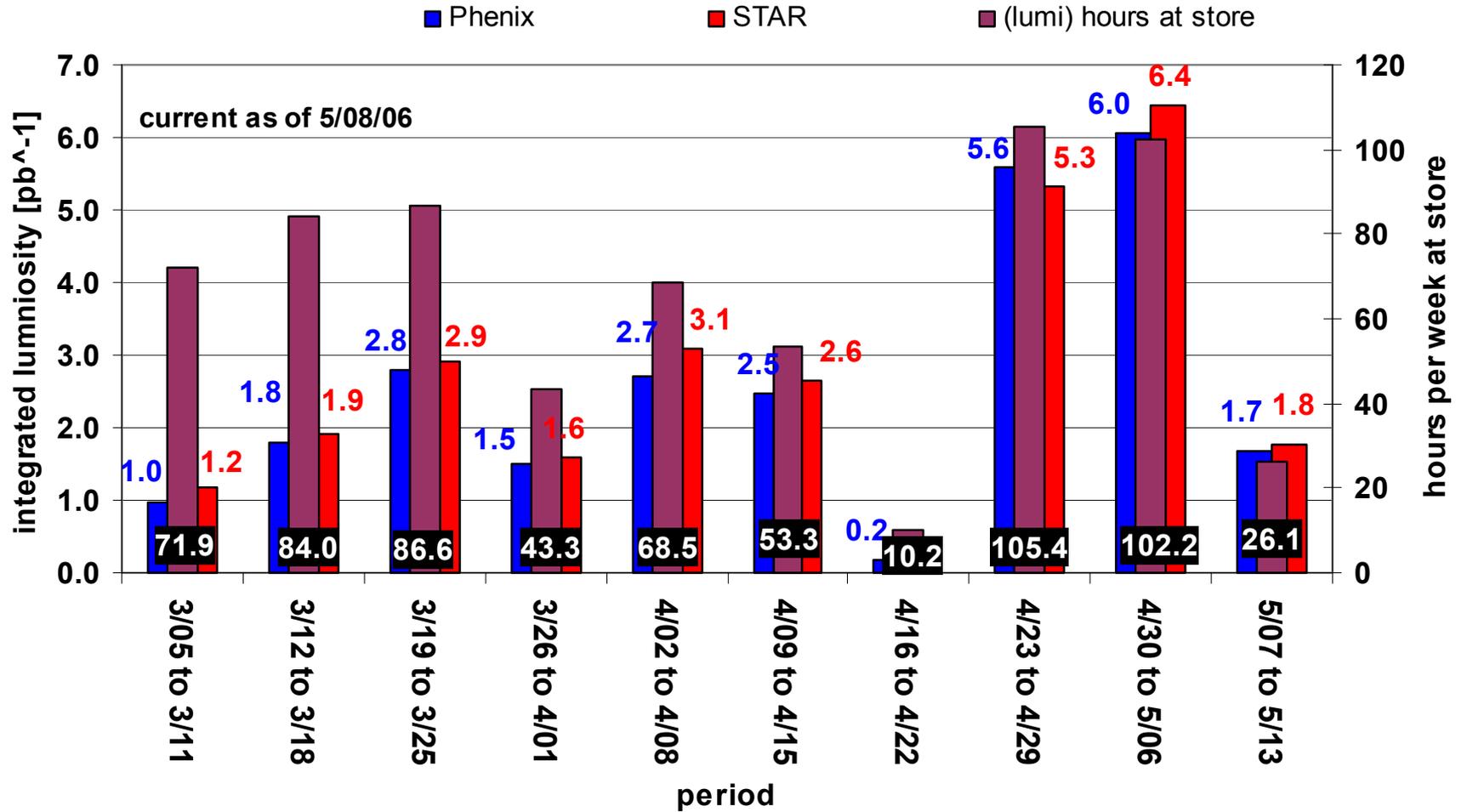
C-A Operations-FY07

34 week Draft Plan

-  Contingency
-  concurrent with RHIC
-  setup/ramp up luminosity
-  Commissioning



Run 6 (p^p) -- Integrated Luminosity by week



Run 5 (p⁺p⁺) -- Integrated Luminosity by week

