RHIC Machine/Detector Planning Meeting

4 Mar 08

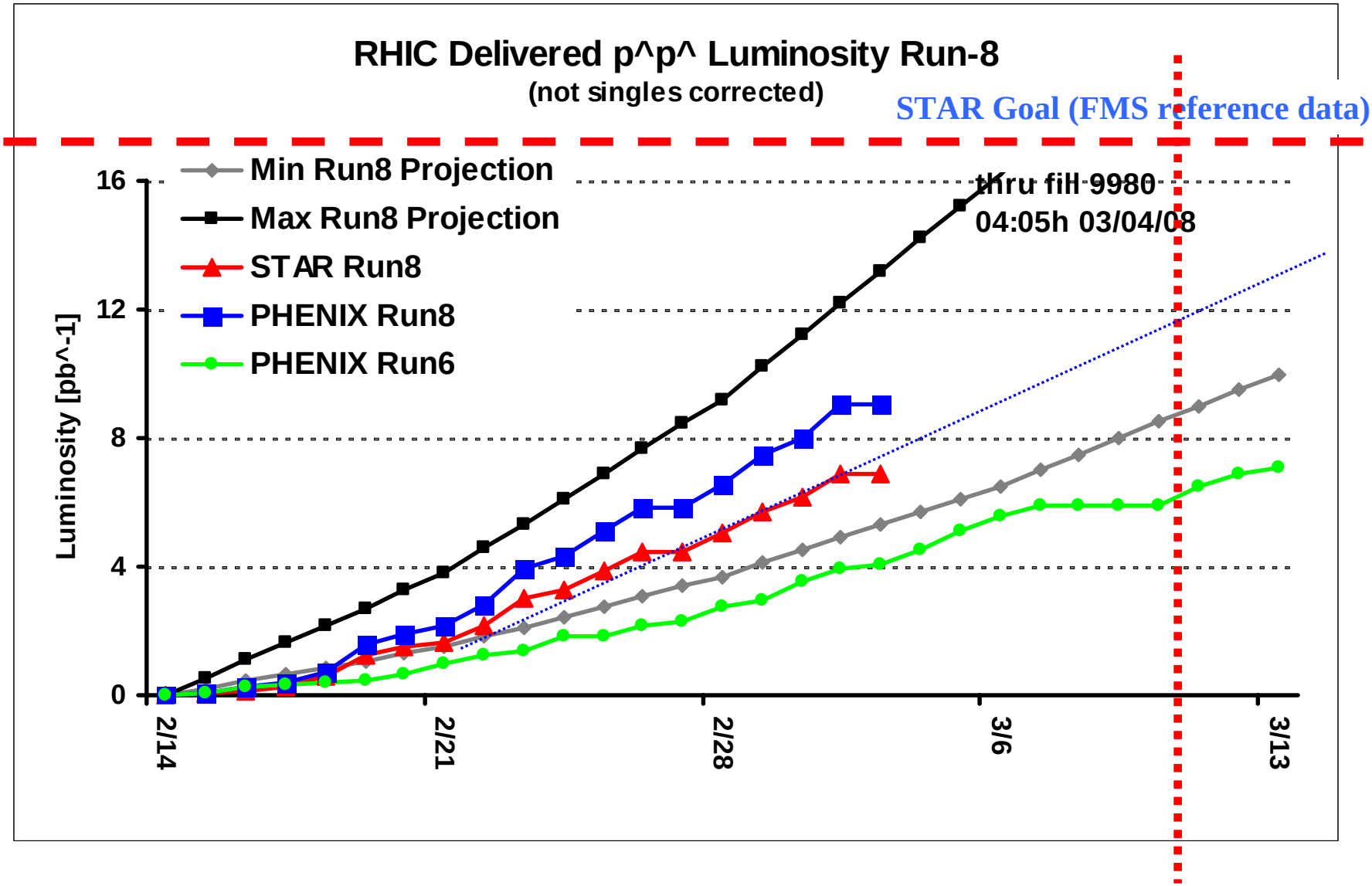
Agenda

- Low Energy Run (Satogata)
- AGS, Update (Huang)
- APEX, update (Pilat)
- STAR (Christie)
- PHENIX (Leitch)
- Other

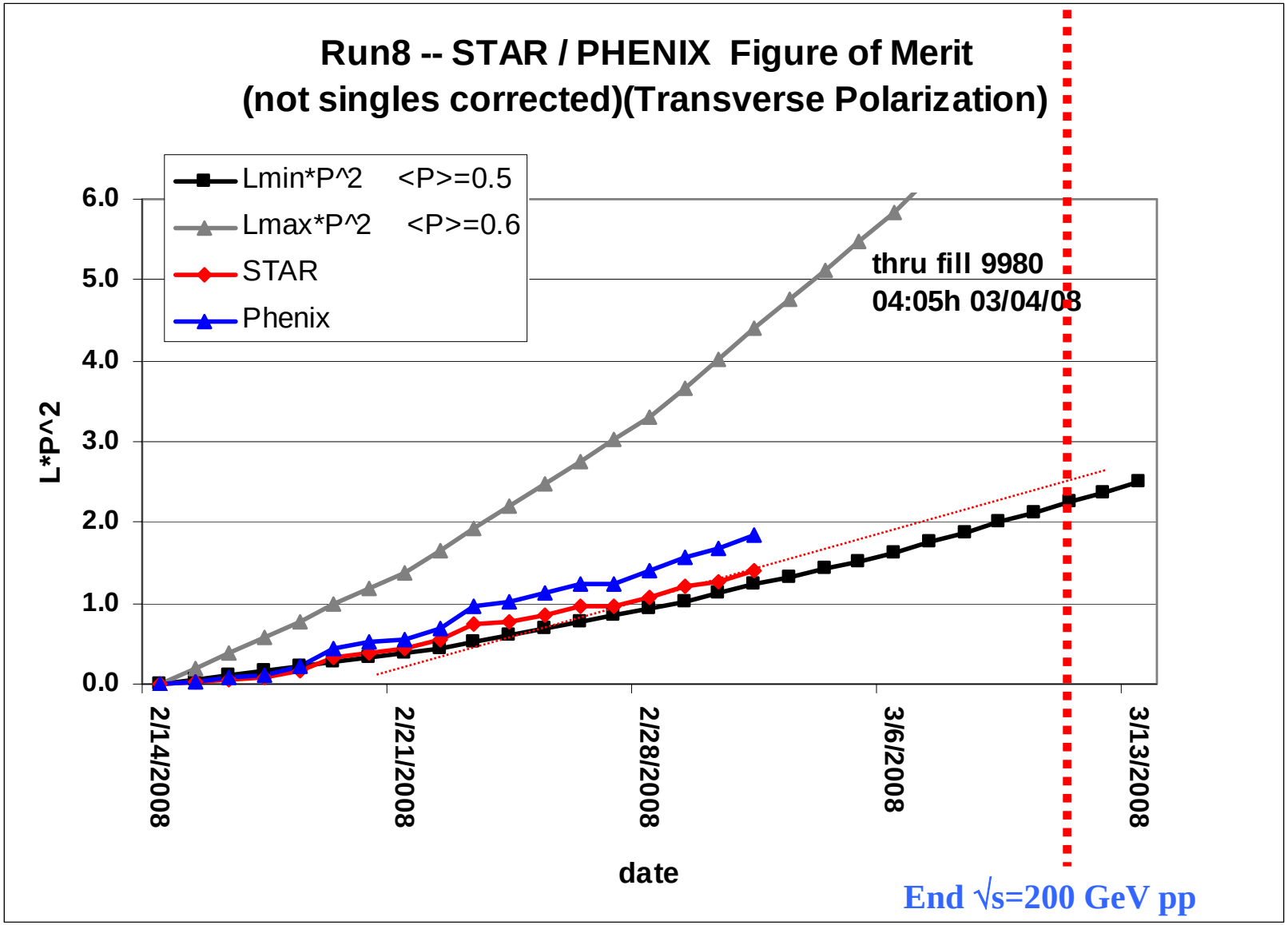
Planning Meeting Web Site: http://www.c-ad.bnl.gov/esfd/RMEM_08/rhic_planning.htm

Run 8 Log

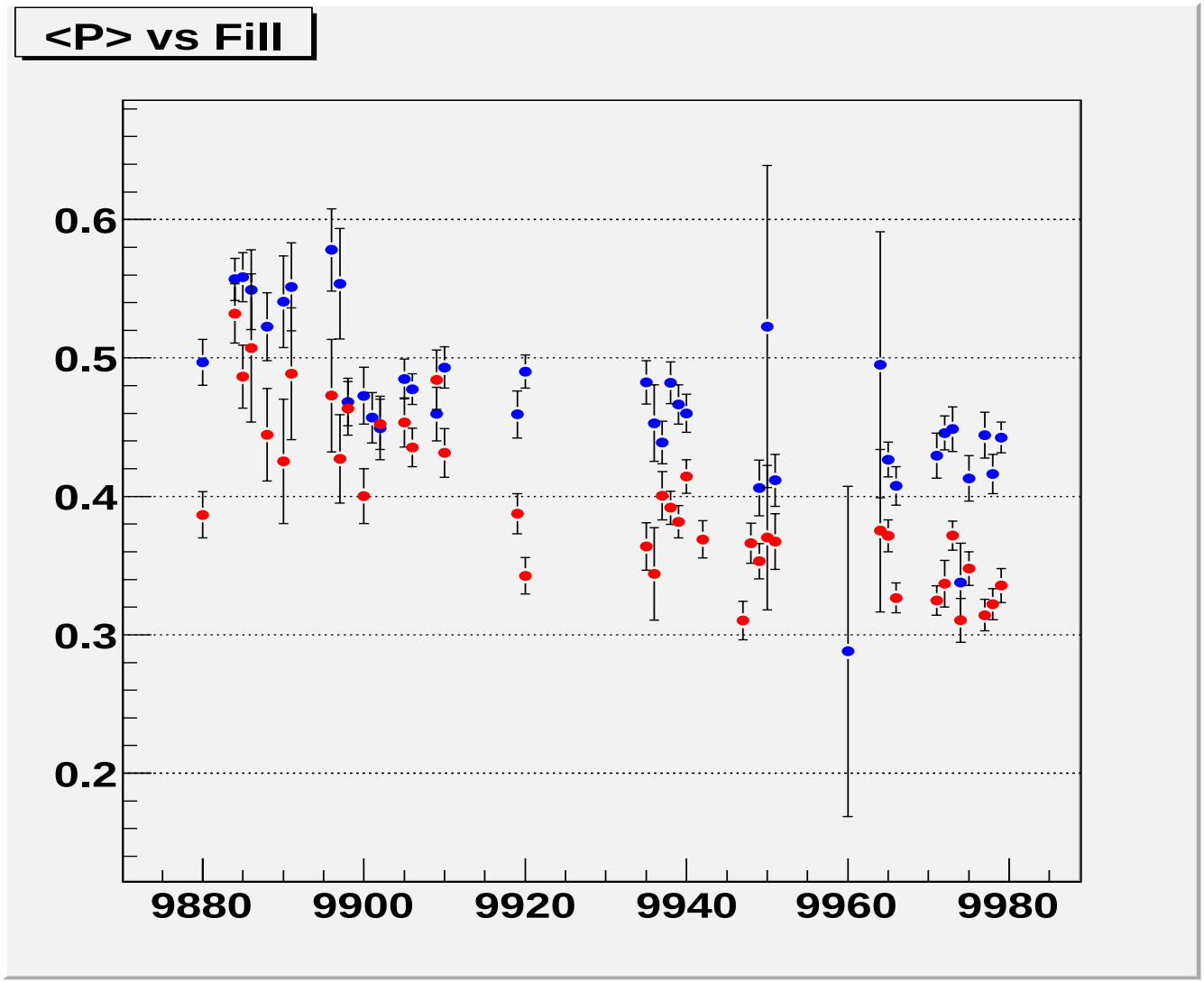
- 25 Oct, begin 45 degree cold wave (2.5 MW-NEW)
- 1 Nov, Cool-down to 4.5 degrees begins
- 4 Nov, Blue ring cold but still stabilizing
- 6 Nov, Blue and Yellow cold and stable (0.9 weeks into run)
- 8 Nov, Beam in Blue ring, "Setup Mode begins"
- 16 Nov, Beam in Blue and Yellow rings
- 18 Nov, First collisions (2.6 weeks into run)
- 19 Nov, Experiment Magnets on, begin night shifts for experiments, "Ramp-up Mode" begins (2.7 weeks into run)
- 26 Nov (1600 hrs), Machine declared operational for Physics (3.7 weeks into run)
- 29 Nov, PHENIX in physics mode
- 1 Dec STAR in limited physics mode (min-bias)
- 31 Dec, STAR in full physics mode
- 28 Jan, 0800, end dAu run (9 weeks physics)
- 28 Jan, maintenance and begin 100x100 GeV pp setup
- 15 Feb (evening), Machine declared operational for Physics (2.6 weeks into run)
- 10 Mar, 0800 pp run ends (3.4 physics weeks), Low energy AuAu setup begins
- 12 Mar, 0800 low energy AuAu ends
- 14 Mar, Cryo warm-up complete (19.3 cryo weeks)


RHIC Delivered p^p^ Luminosity Run-8
(not singles corrected)
STAR Goal (FMS reference data)
Min Run8 Projection
Max Run8 Projection
STAR Run8
PHENIX Run8
PHENIX Run6
thru fill 9980
04:05h 03/04/08
Luminosity [pb^-1]
16
12
8
4
0
2/14
2/21
2/28
3/6
3/13

STAR Goal (FMS spin)



Polarizations per fill



RHIC Machine/Detector Planning Meeting

Next Meeting

11 Mar 08

Planning Meeting Web Site: http://www.c-ad.bnl.gov/esfd/RMEM_08/rhic_planning.htm

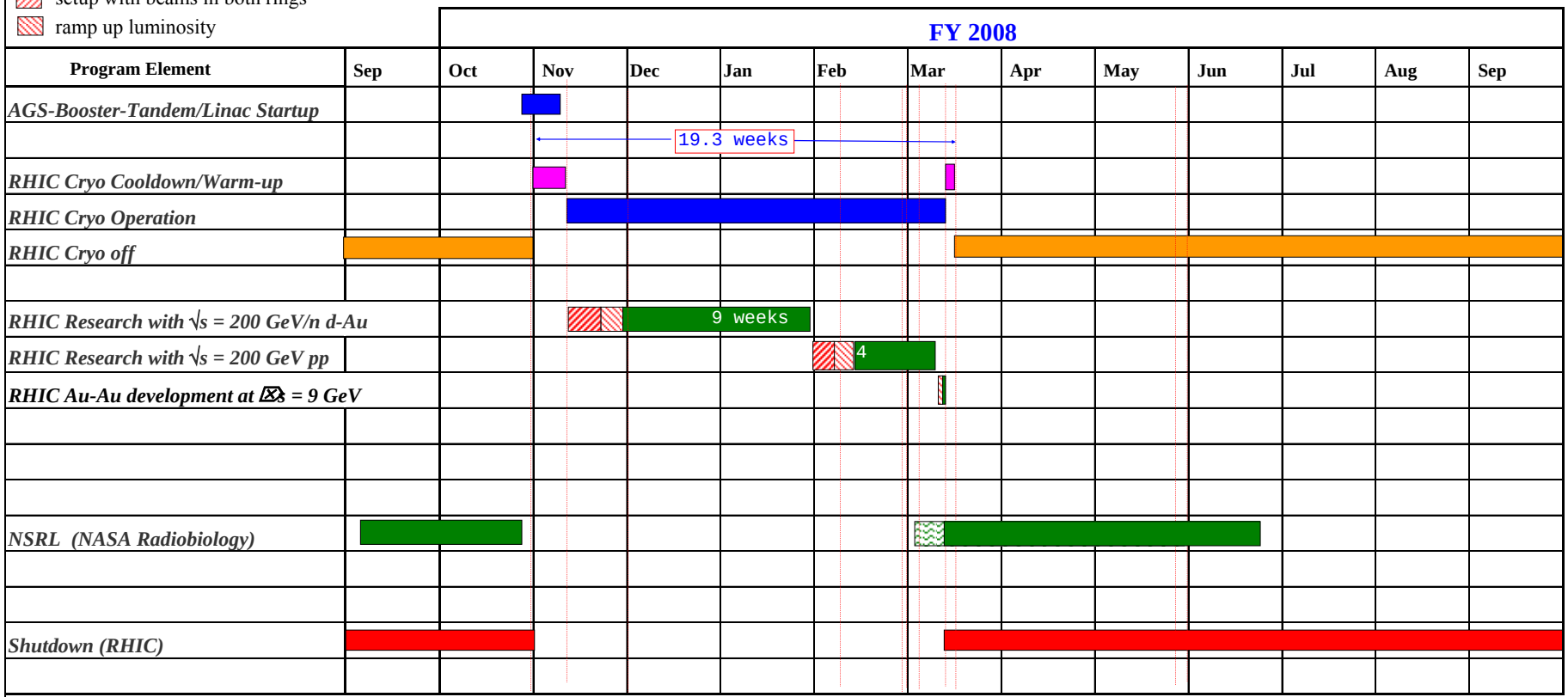
http://www.bnl.gov/cad/esfd

C-A Operations-FY08

29 Jan 08

Planned, subject to change

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



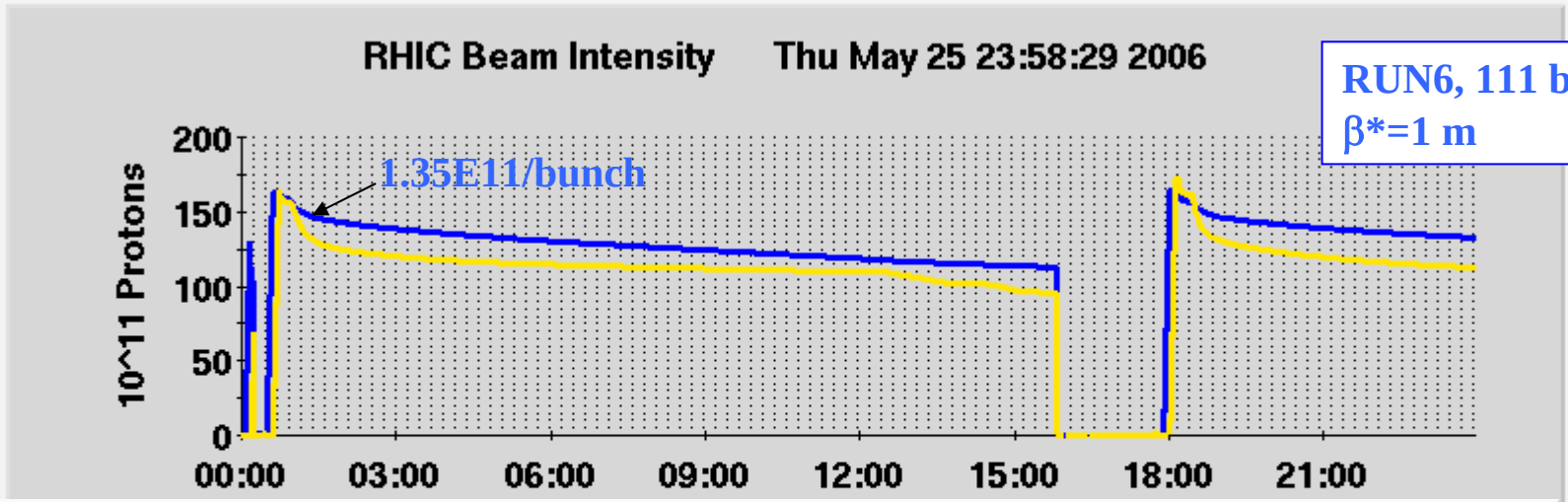
STAR Goals for the 200 GeV pp run

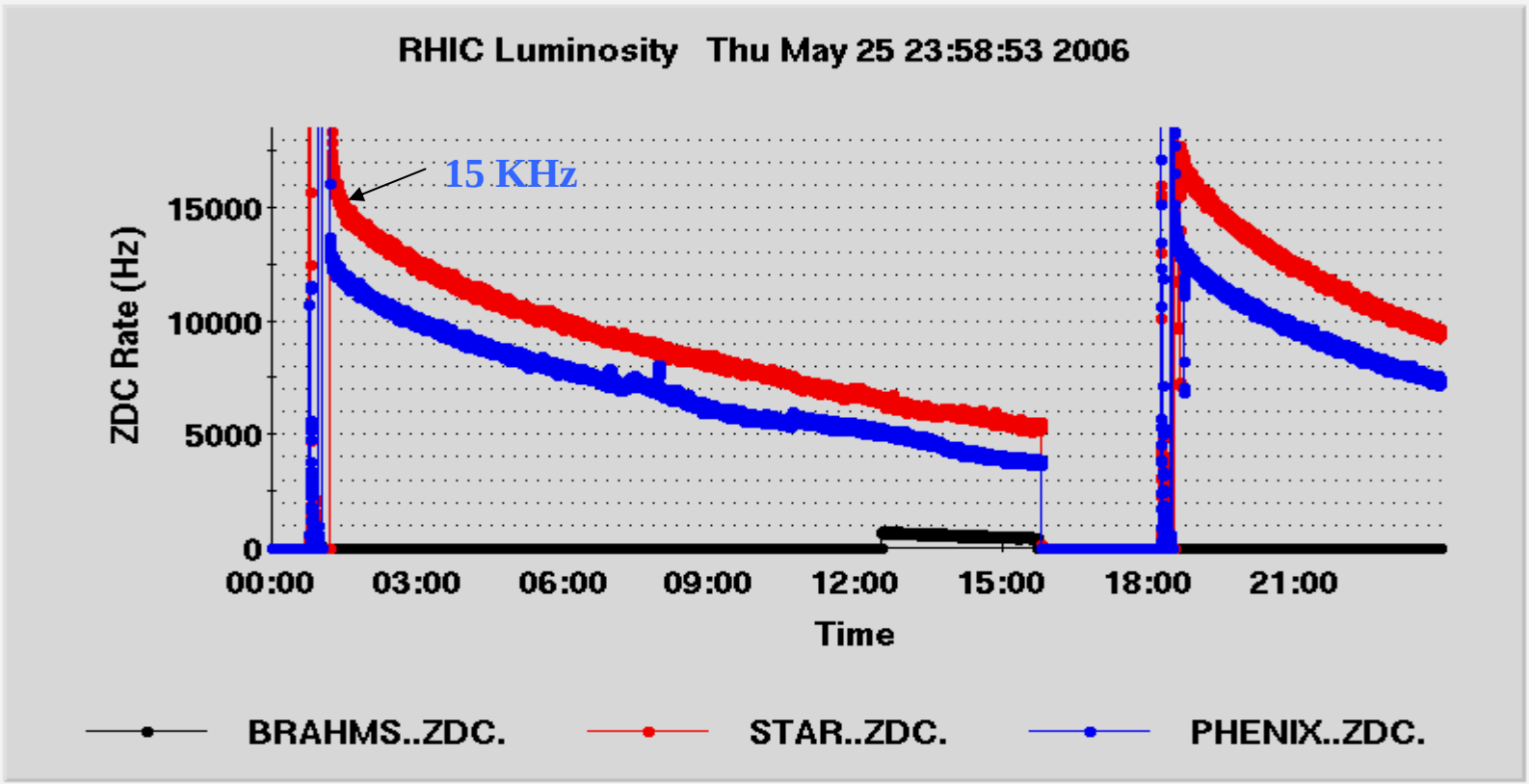
- FMS reference data
  - Sample at least 9 pb^{-1} with fast detectors
- FMS transverse spin asymmetry measurements
  - Sampled figure of merit (P^2L) at least 3.8 pb^{-1} with fast detectors
  - Equivalent to 9 pb^{-1} at 65% polarization
- Slow detector measurements for non-photonic electrons
  - Sample at least 4.5 pb^{-1}
- This requires:
  - C-AD deliver at least 18 pb^{-1} (assumes 50% STAR up time)
  - STAR operate the slow detectors with at least 50% live time
  - FMS fast detector data recorded when the slow detectors are both live and dead
    - Has not been done during this year's d+Au run
    - Was done during Run 6 p+p

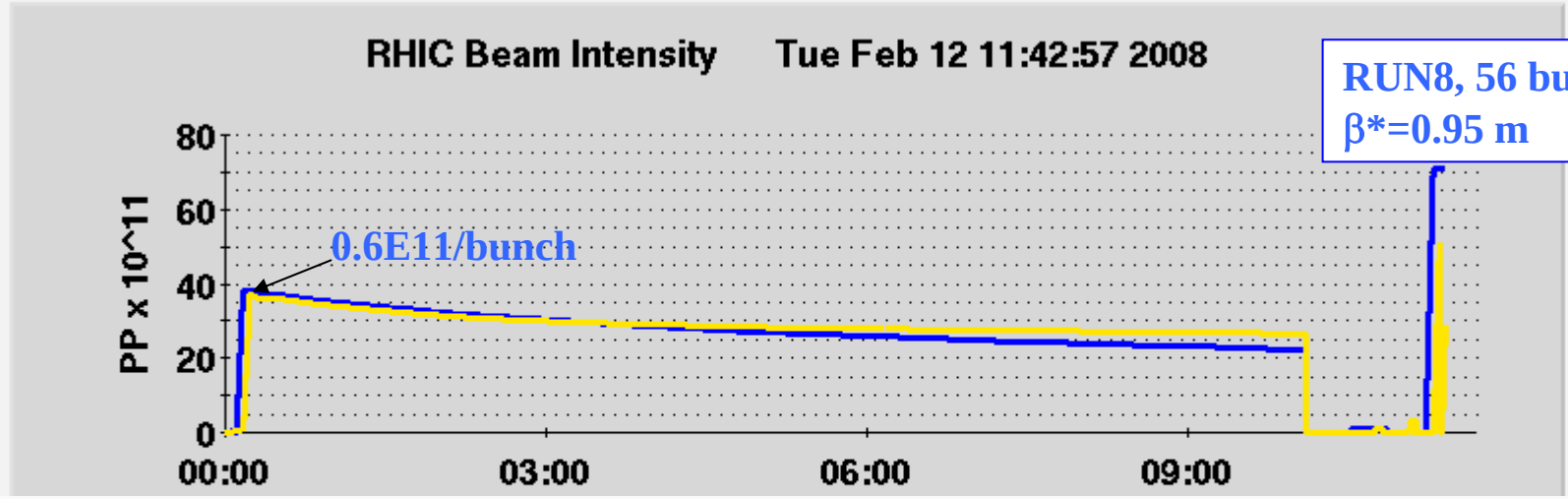
PHENIX Goals for Run-8 pp

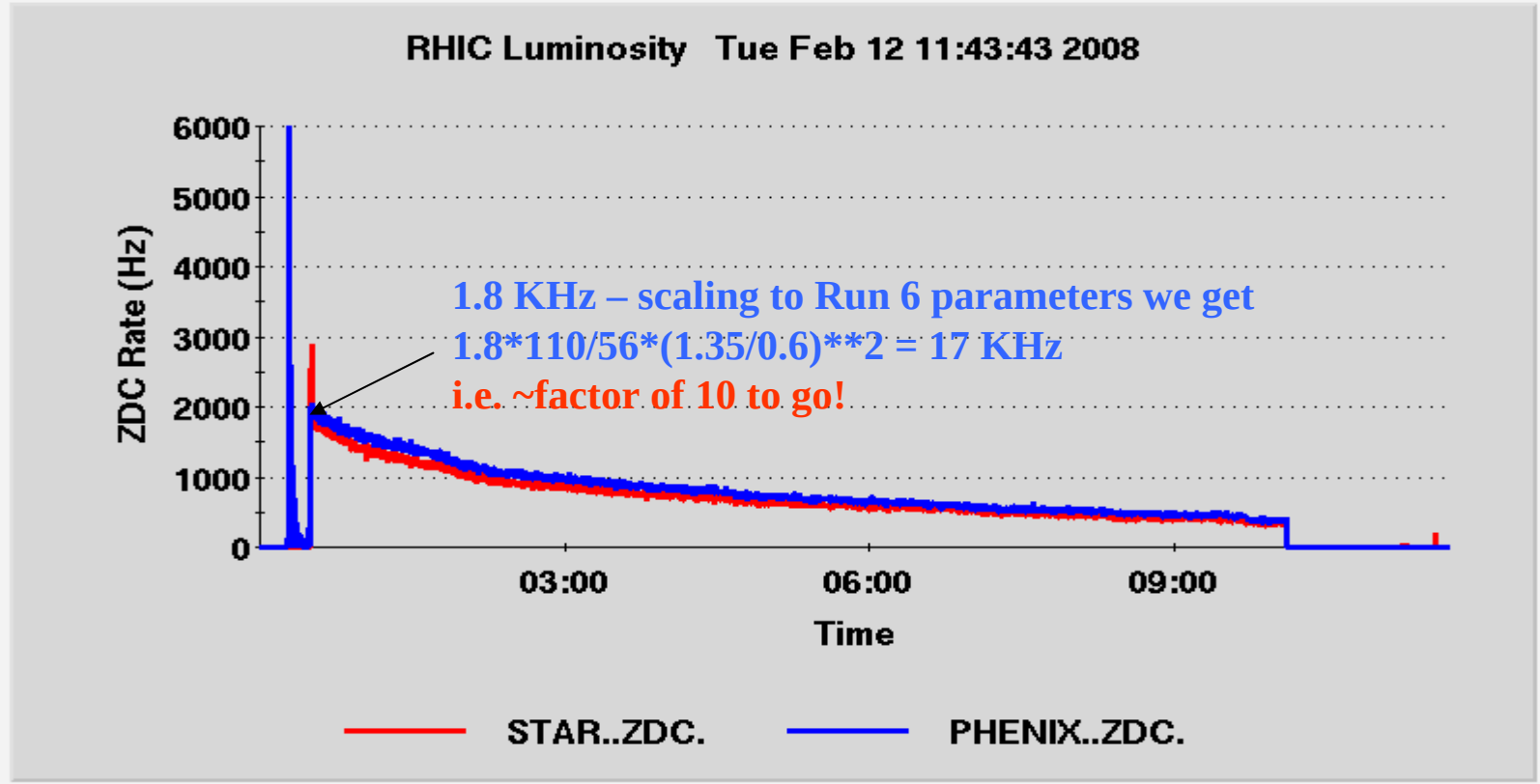
- Plan A
  - If higher luminosity, polarization achievable in Run-8
  - 7.5-10 pb^{-1} recorded, at P=0.6
  - if we must plan on 1.2 pb^{-1}/week at P=0.5
  - will be forced to return to transverse spin running
  - in a future year
  - *we'll tell you when, when you tell us the luminosity*

- Plan B
  - 2.5 pb-1 recorded at the maximum P you can give us
  - Switch ASAP to 500 GeV p+p for ≥ 2 weeks
  - We consider development so important we'll risk the very short physics run
  - *Skip the low energy test run in Run-8*


RHIC Beam Intensity Thu May 25 23:58:29 2006
RUN6, 111 bunches
β*=1 m
1.35E11/bunch
10^11 Protons
200
150
100
50
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00


RHIC Luminosity Thu May 25 23:58:53 2006
15 KHz
ZDC Rate (Hz)
15000
10000
5000
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Time
BRAHMS..ZDC.
STAR..ZDC.
PHENIX..ZDC.


RHIC Beam Intensity Tue Feb 12 11:42:57 2008
RUN8, 56 bunches
β*=0.95 m
0.6E11/bunch
PP x 10^11
80
60
40
20
0
00:00
03:00
06:00
09:00


RHIC Luminosity Tue Feb 12 11:43:43 2008
1.8 KHz – scaling to Run 6 parameters we get
1.8*110/56*(1.35/0.6)**2 = 17 KHz
i.e. ~factor of 10 to go!
ZDC Rate (Hz)
6000
5000
4000
3000
2000
1000
0
03:00
06:00
09:00
Time
STAR..ZDC.
PHENIX..ZDC.

STAR and PHENIX Plan

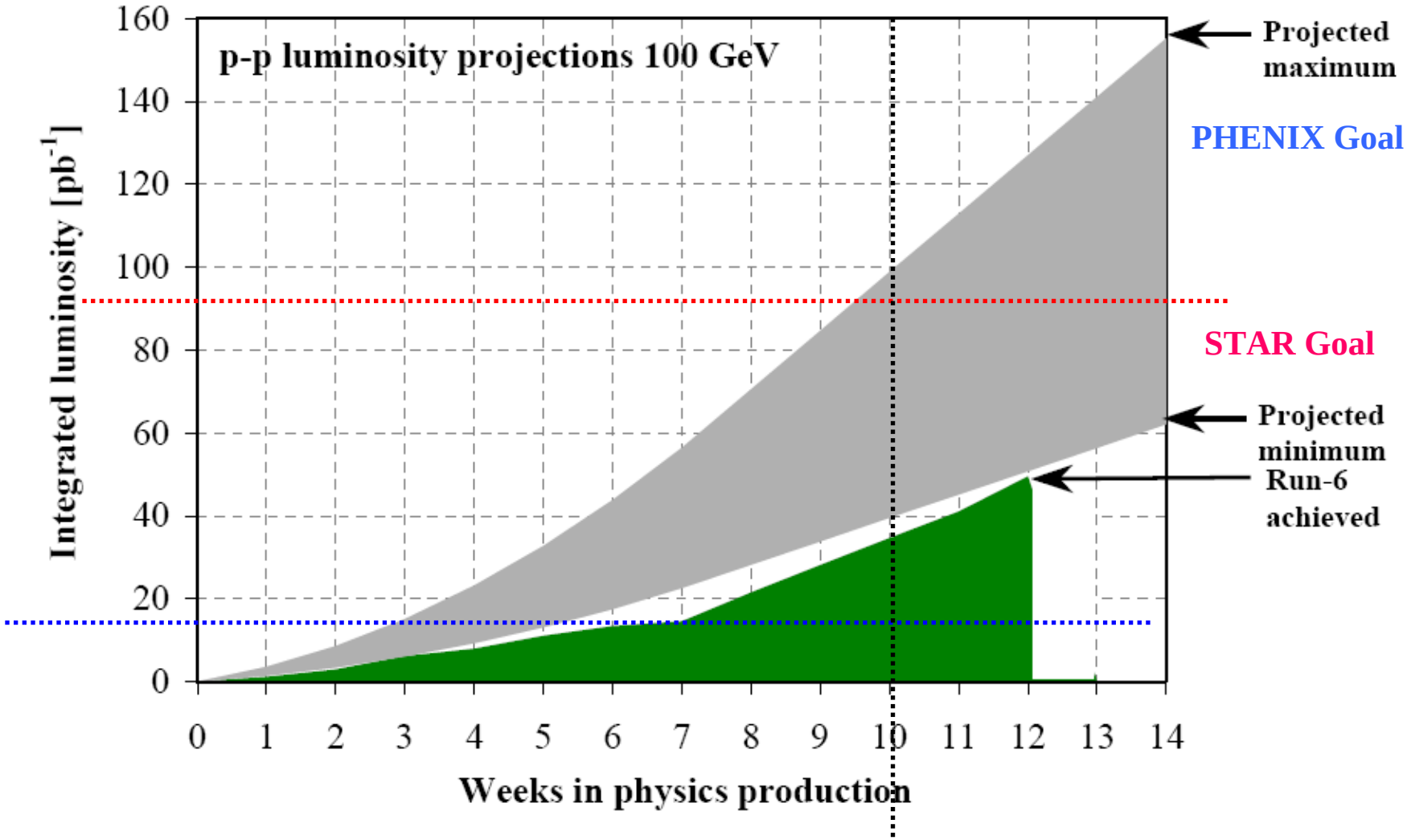


Figure 3: Projected minimum and maximum integrated luminosities for polarized proton collisions at 100 GeV beam energy, assuming linear weekly luminosity ramp-up in 8 weeks. An average store polarization of 65% is expected.