RHIC Run 3, 100 x 100 dAu

- **Details – as run**
  - **2 Dec 02 – Blue Ring Cold,**
  - **3 Dec 02 – "2 week" setup w/o colliding beams begins**
  - **9 Dec 02 – Yellow Cold**
  - **23 Dec 02 – first collisions at store, "3 week" setup with colliding beams begins**
  - **12 Jan 03 – Physics with 100 GeV/n x 100 GeV/n d-Au began**
  - **24 Mar 03 – End of d-Au run (10.1 Physics Weeks)**

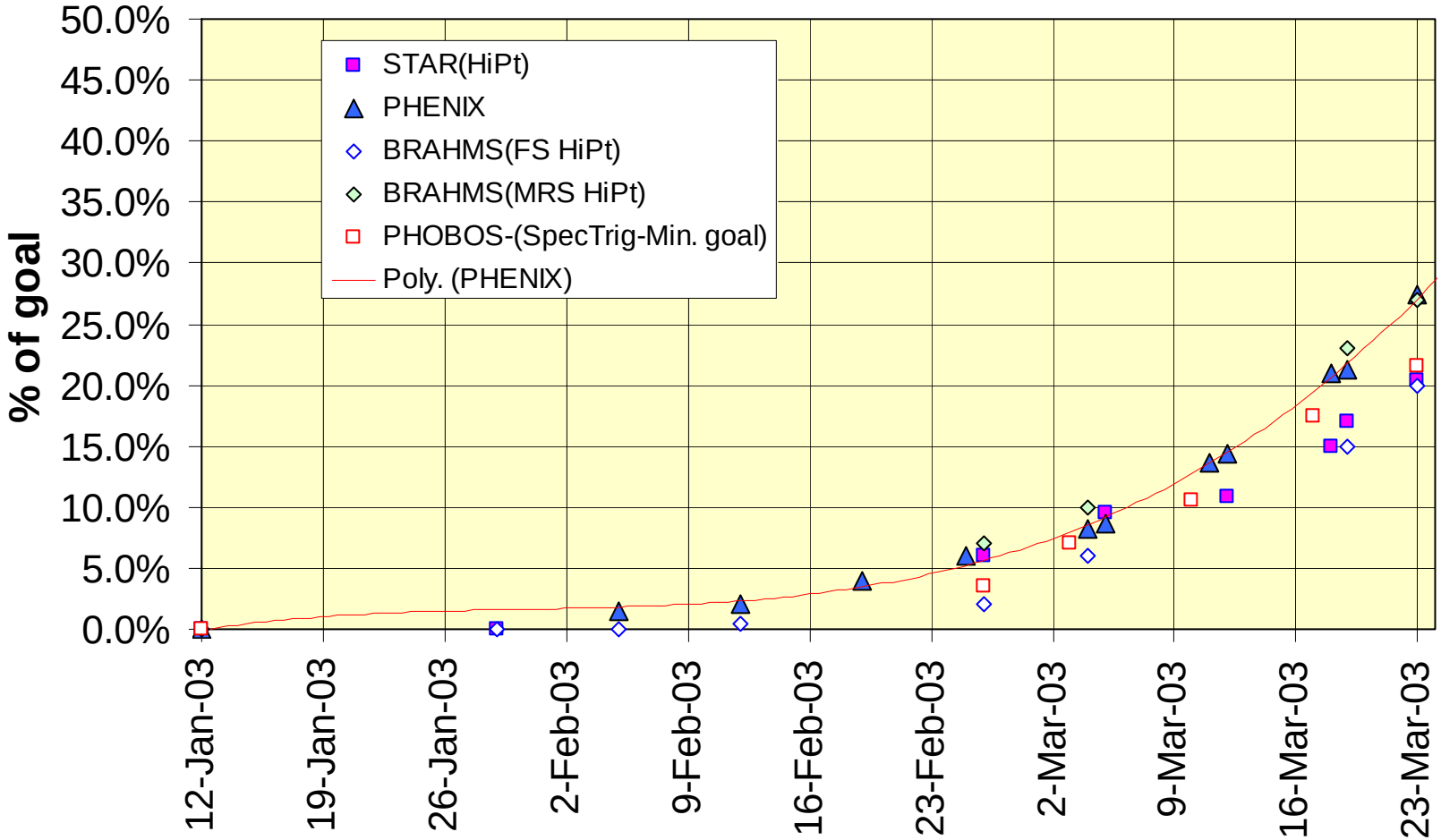
RHIC Run 3, 100 x 100 dAu summary

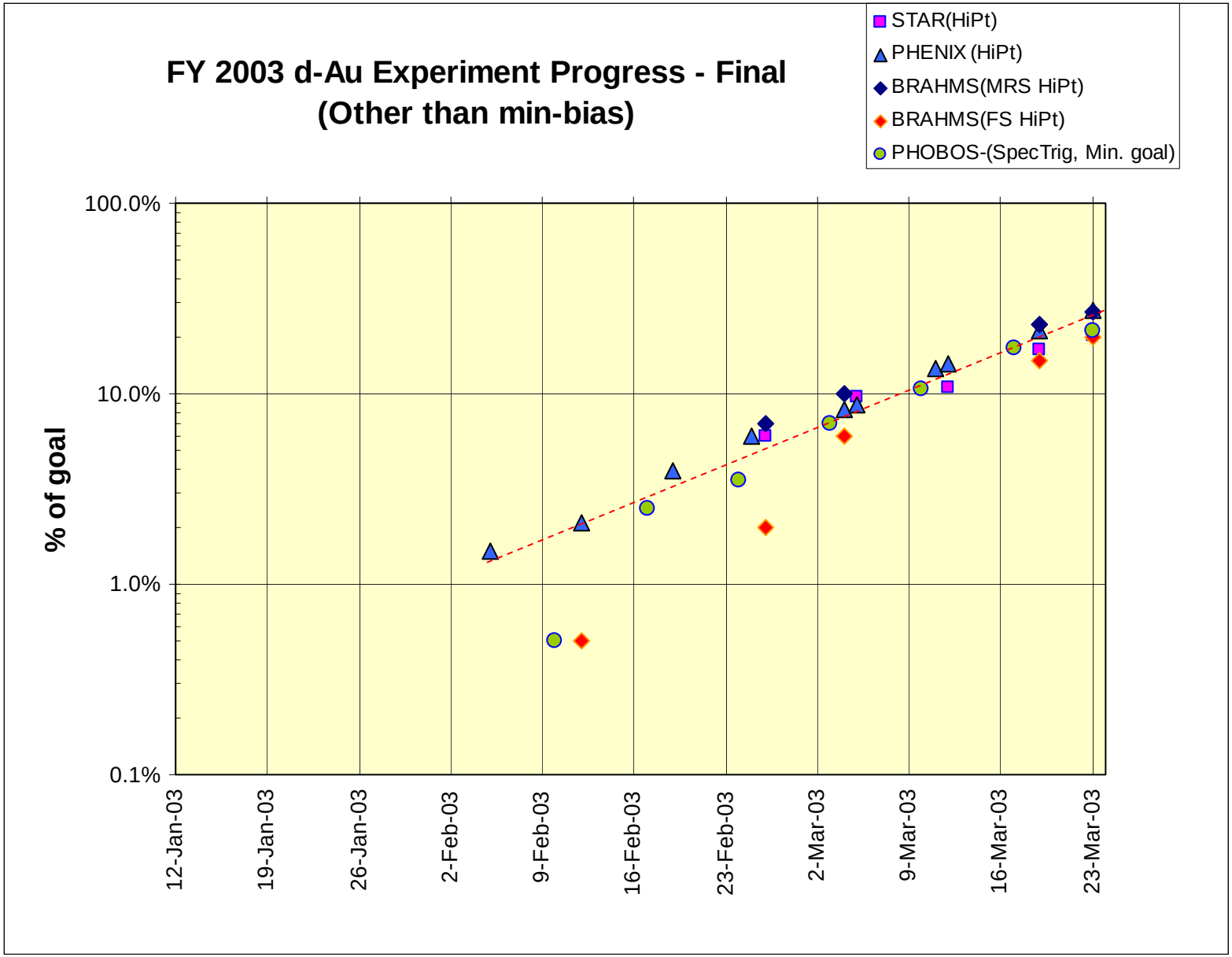
- **STAR –**
  - 54 % of min-bias - ($38 \times 10^6 / 70 \times 10^6$ recorded events) for "soft" physics program
  - 20.3 % of 12.5 nb^{-1} recorded High Pt triggers
- **PHENIX –**
  - 27.4 % of 10 nb^{-1} recorded
  - 141×10^6 min bias events (no goal stated)
- **BRAHMS –**
  - 100% of MRS Low PT survey
  - 100% of FS Low PT survey

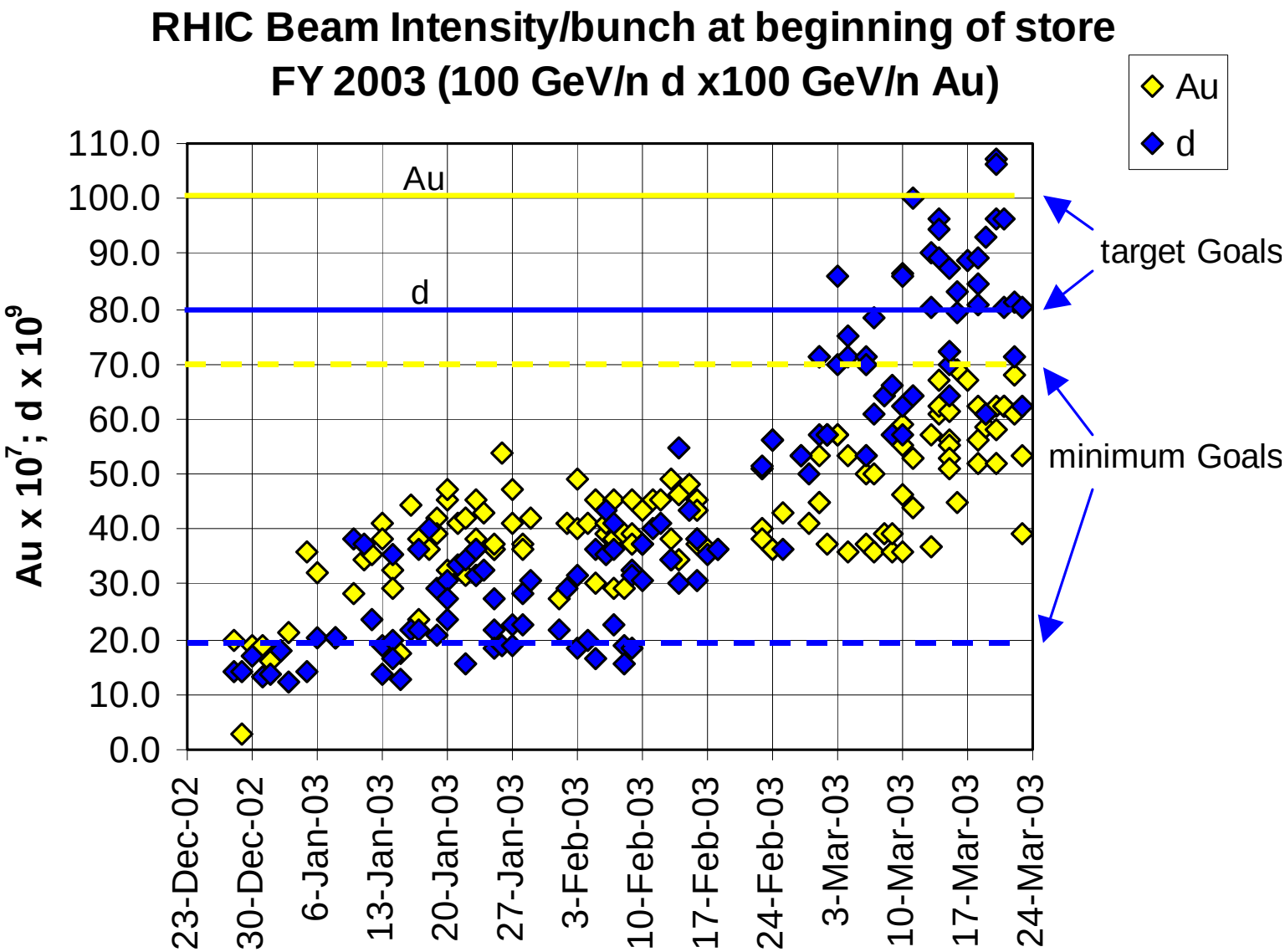
  } 25% of program
  - 27% of 15 nb^{-1} recorded High Pt events MRS
  - 20% of 15 nb^{-1} recorded High Pt events FS

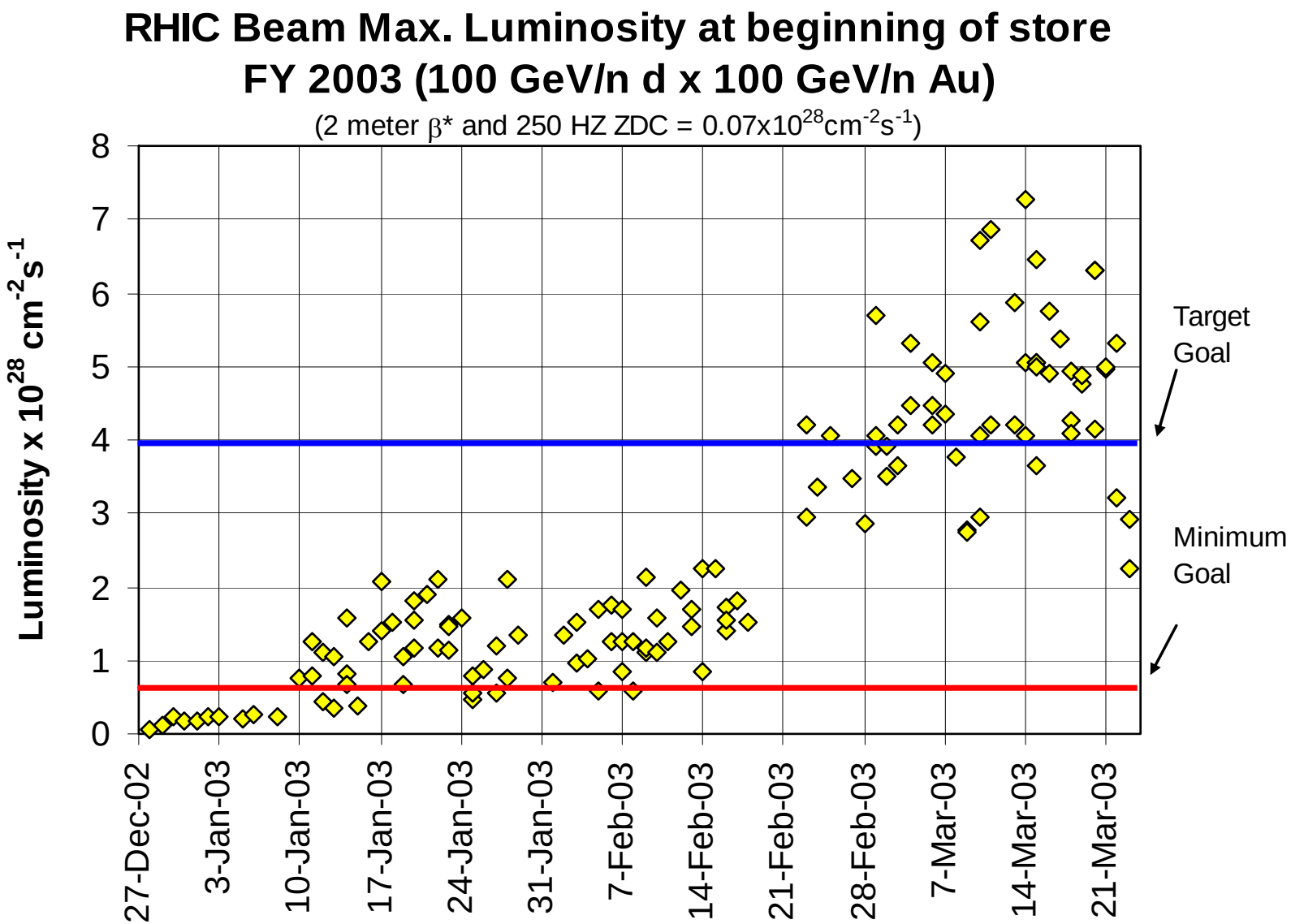
  } 75% of program
- **PHOBOS –**
  - 86% of min-bias - ($86 \times 10^6 / 100 \times 10^6$ recorded events)
  - 4.3 % of 10 nb^{-1} recorded SpecTrig events – Goal
  - 21.5 % of 2 nb^{-1} recorded SpecTrig events – Minimum Goal

FY 2003 d-Au Experiment Progress - Final
(Other than min-bias)



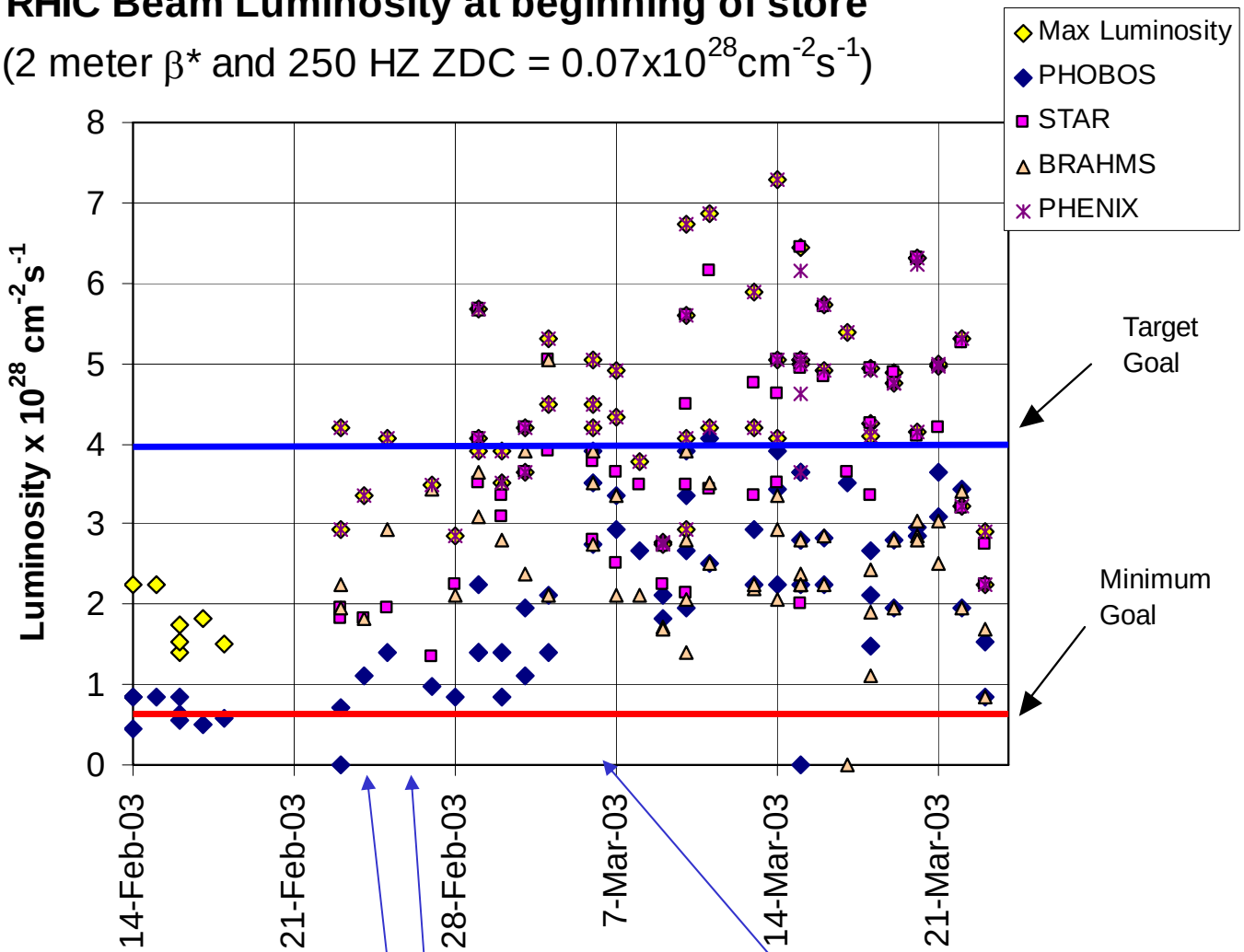

FY 2003 d-Au Experiment Progress - Final
(Other than min-bias)
STAR(HiPt)
PHENIX (HiPt)
BRAHMS(MRS HiPt)
BRAHMS(FS HiPt)
PHOBOS-(SpecTrig, Min. goal)
% of goal
100.0%
10.0%
1.0%
0.1%
12-Jan-03
19-Jan-03
26-Jan-03
2-Feb-03
9-Feb-03
16-Feb-03
23-Feb-03
2-Mar-03
9-Mar-03
16-Mar-03
23-Mar-03


RHIC Beam Intensity/bunch at beginning of store
FY 2003 (100 GeV/n d x100 GeV/n Au)
Au
d
target Goals
minimum Goals
Au x 10^7; d x 10^9
110.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
23-Dec-02
30-Dec-02
6-Jan-03
13-Jan-03
20-Jan-03
27-Jan-03
3-Feb-03
10-Feb-03
17-Feb-03
24-Feb-03
3-Mar-03
10-Mar-03
17-Mar-03
24-Mar-03


RHIC Beam Max. Luminosity at beginning of store
FY 2003 (100 GeV/n d x 100 GeV/n Au)
(2 meter β* and 250 HZ ZDC = 0.07x10^28cm^-2s^-1)
Luminosity x 10^28 cm^-2s^-1
0
1
2
3
4
5
6
7
8
27-Dec-02
3-Jan-03
10-Jan-03
17-Jan-03
24-Jan-03
31-Jan-03
7-Feb-03
14-Feb-03
21-Feb-03
28-Feb-03
7-Mar-03
14-Mar-03
21-Mar-03
Target Goal
Minimum Goal

RHIC Beam Luminosity at beginning of store

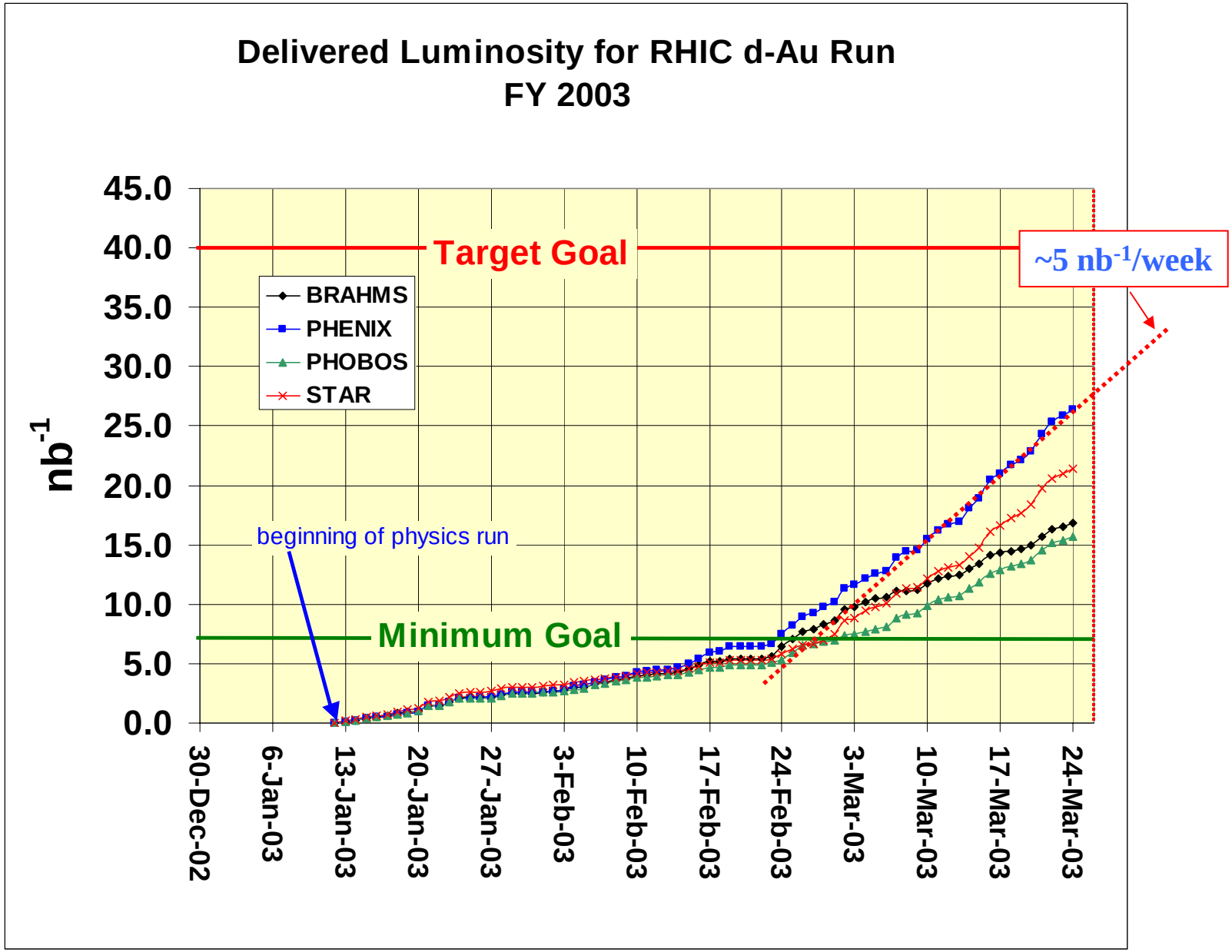
(2 meter β* and 250 HZ ZDC = $0.07 \times 10^{28} cm^{-2} s^{-1}$)



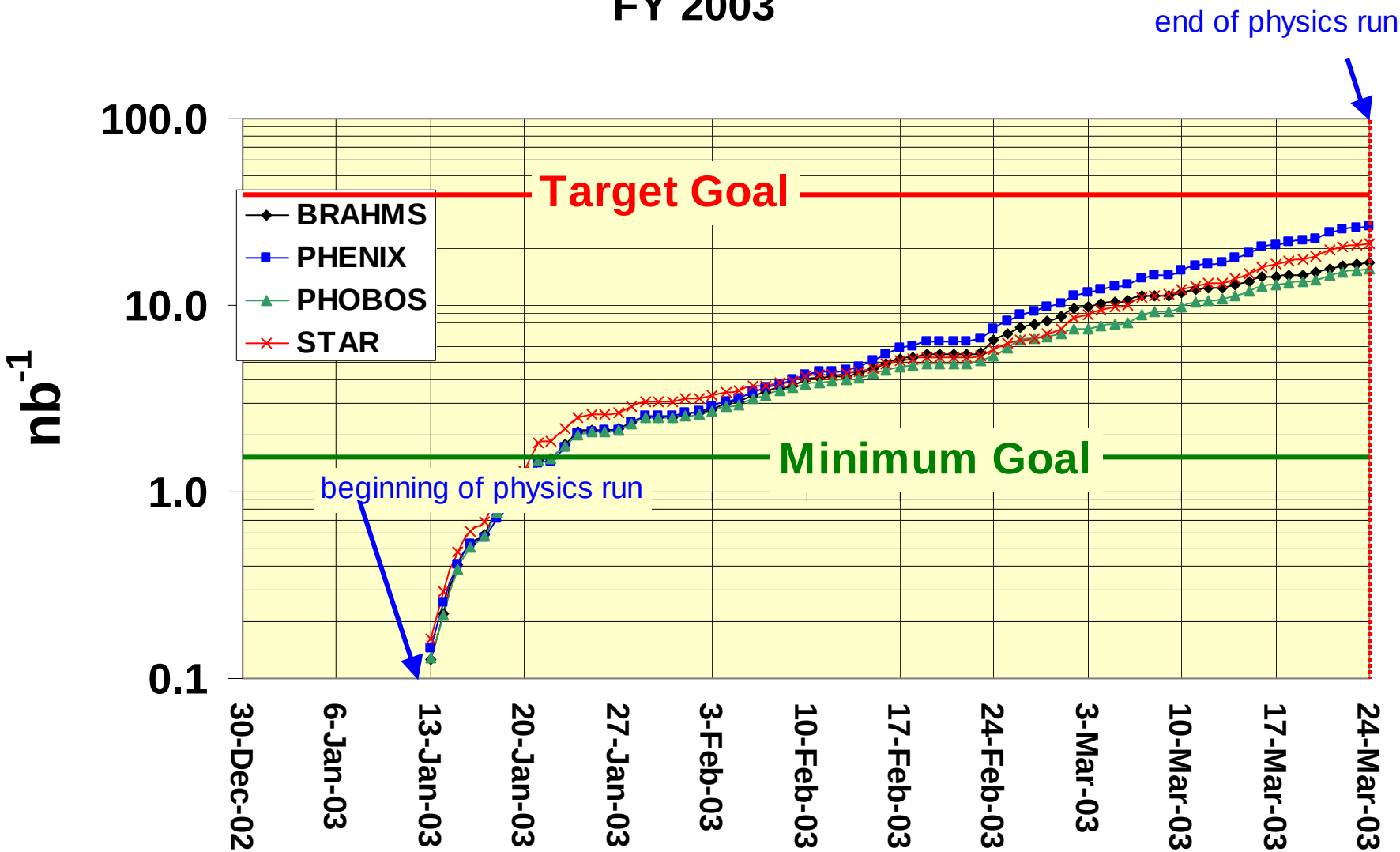
d bunch merge (routine)

β* = 3 meters at BRAHMS & PHOBOS

Switch from 110 to 56 bunches per ring

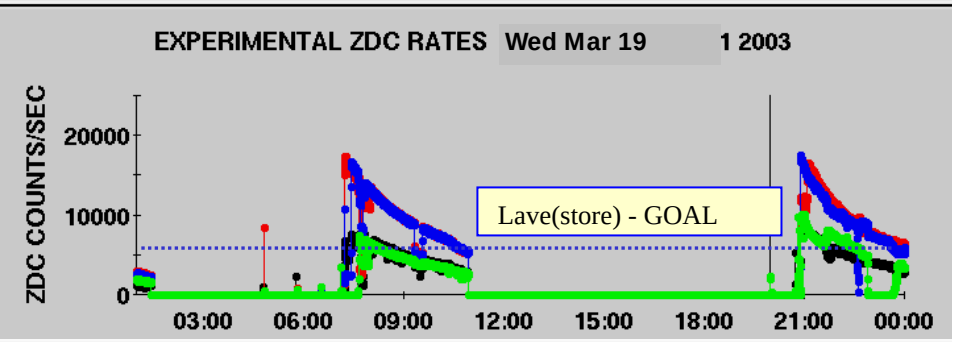

Delivered Luminosity for RHIC d-Au Run
FY 2003
nb-1
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Target Goal
Minimum Goal
BRAHMS
PHENIX
PHOBOS
STAR
beginning of physics run
~5 nb-1/week
30-Dec-02
6-Jan-03
13-Jan-03
20-Jan-03
27-Jan-03
3-Feb-03
10-Feb-03
17-Feb-03
24-Feb-03
3-Mar-03
10-Mar-03
17-Mar-03
24-Mar-03

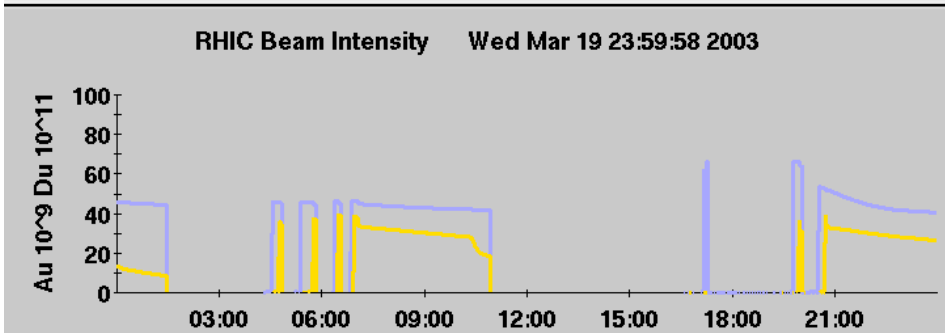
Delivered Luminosity for RHIC d-Au Run
FY 2003

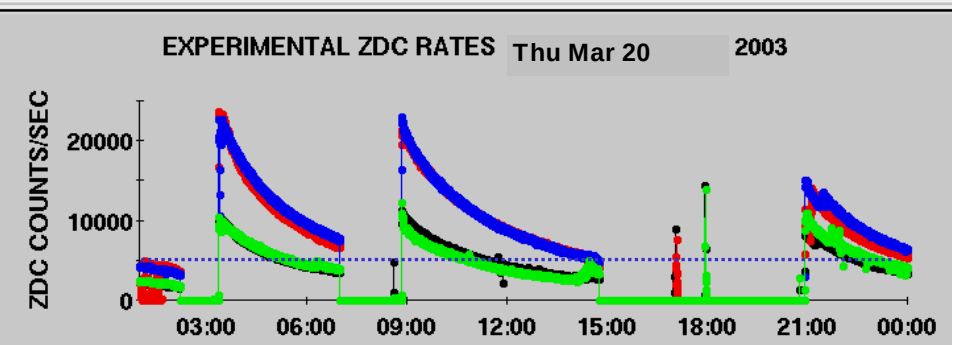


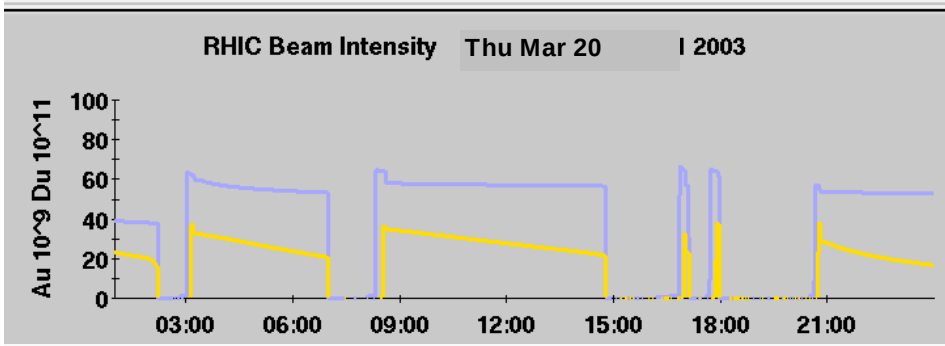
26 Mar 2003
supplemental

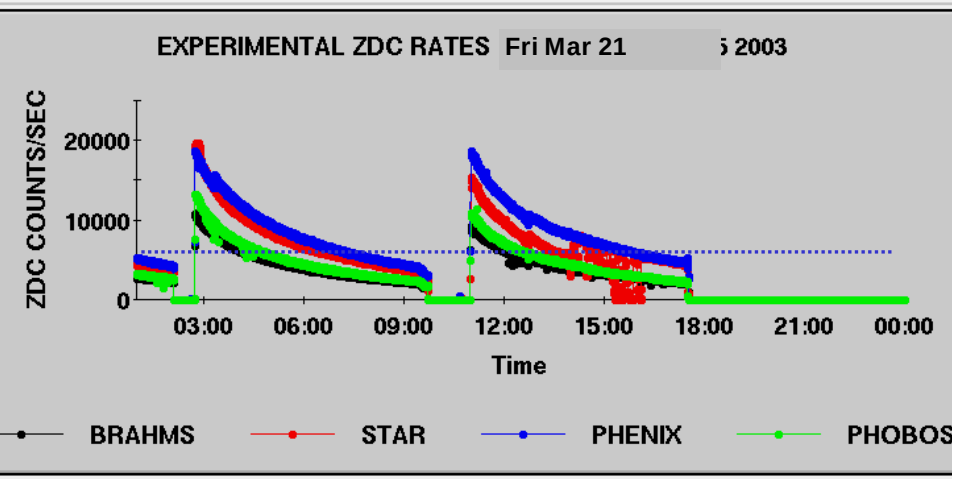
RHIC Machine/Detector Planning Meeting

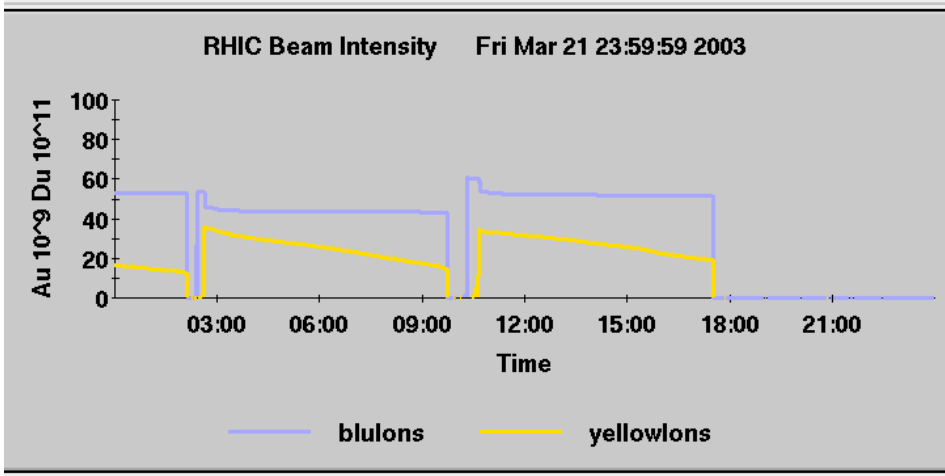




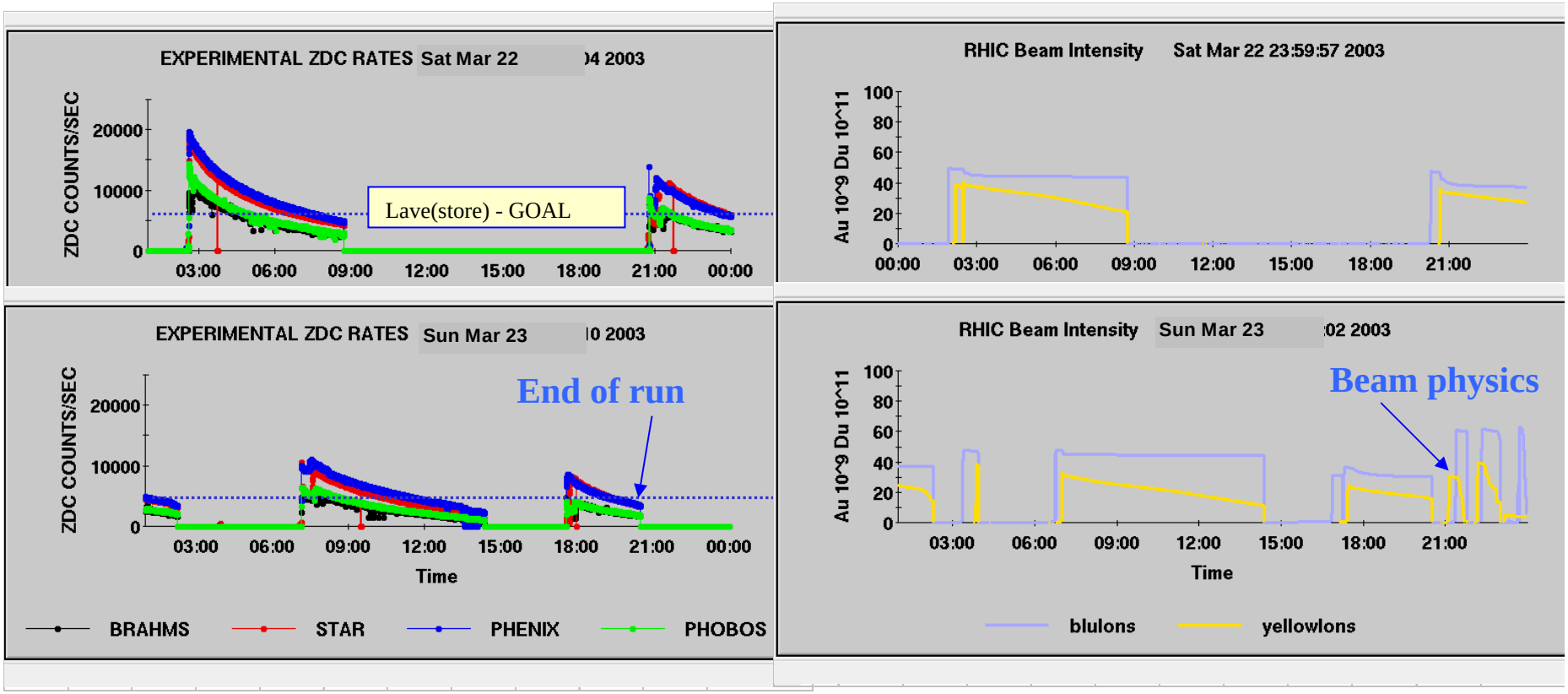


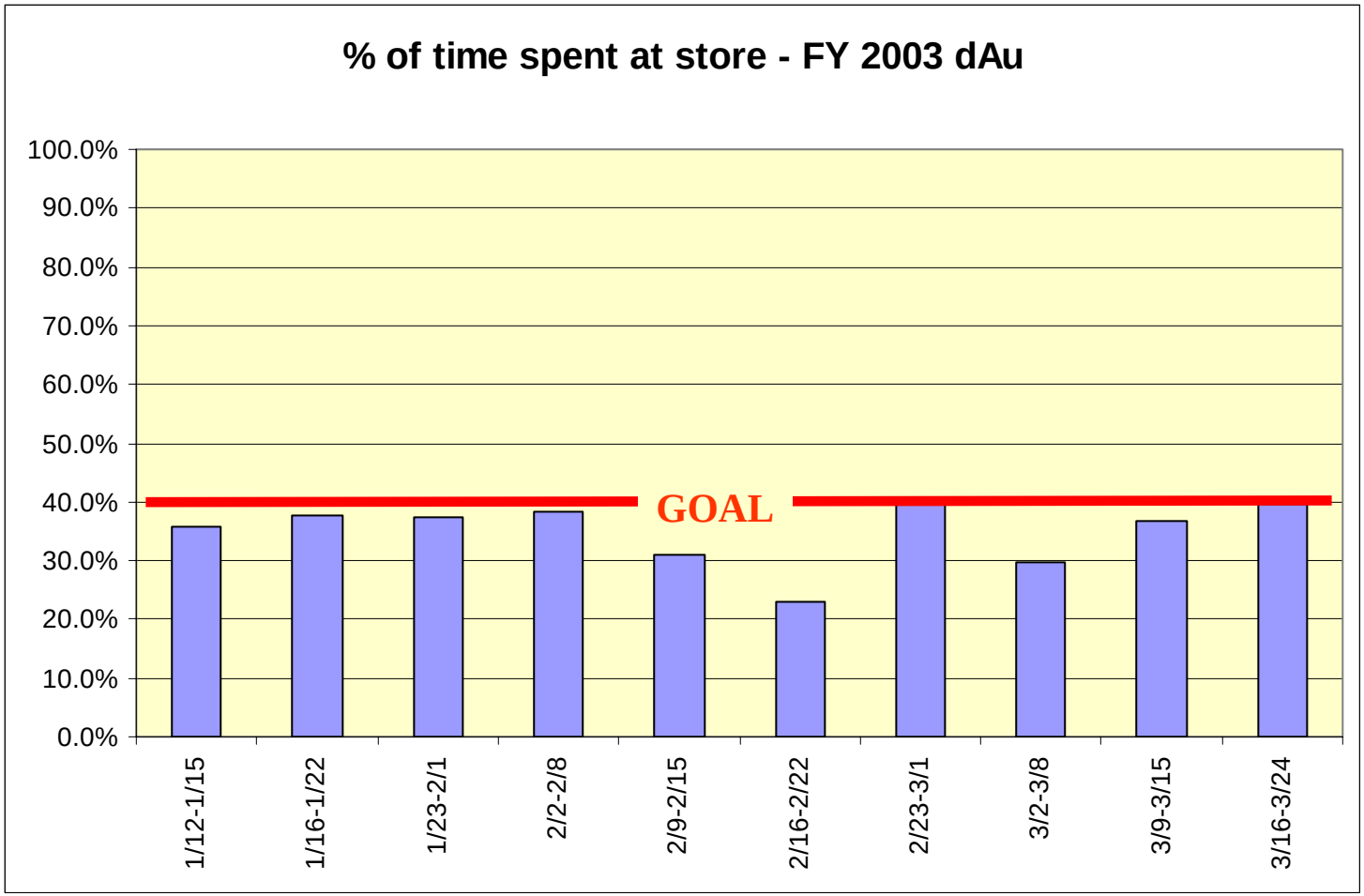




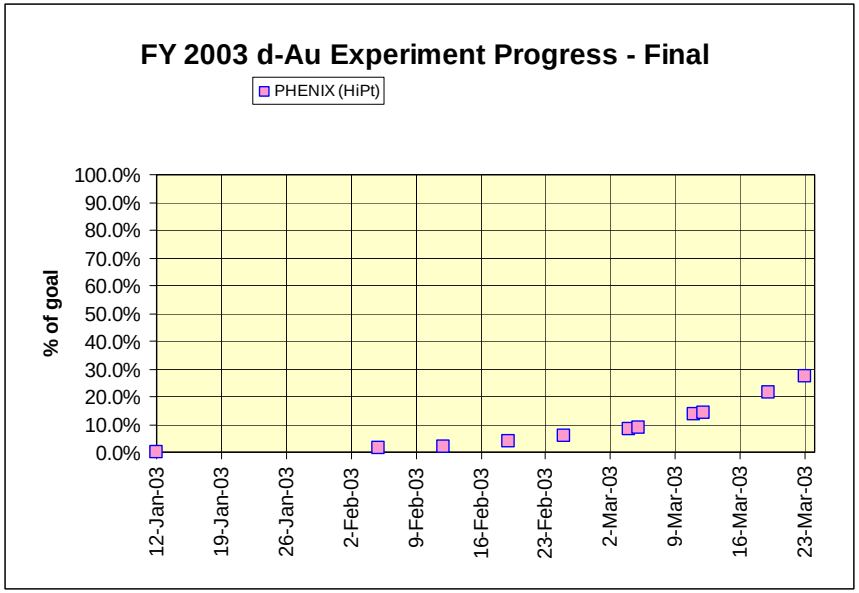


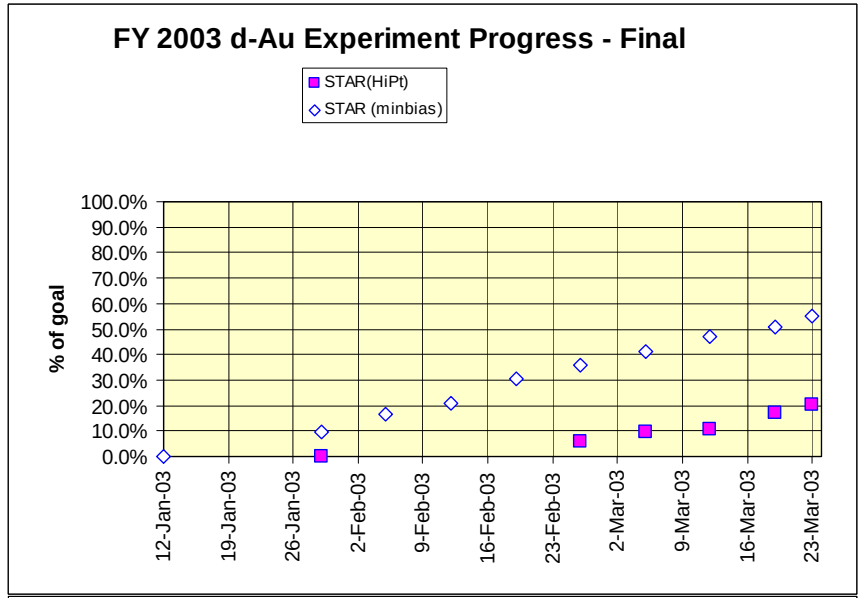
RHIC Machine/Detector Planning Meeting

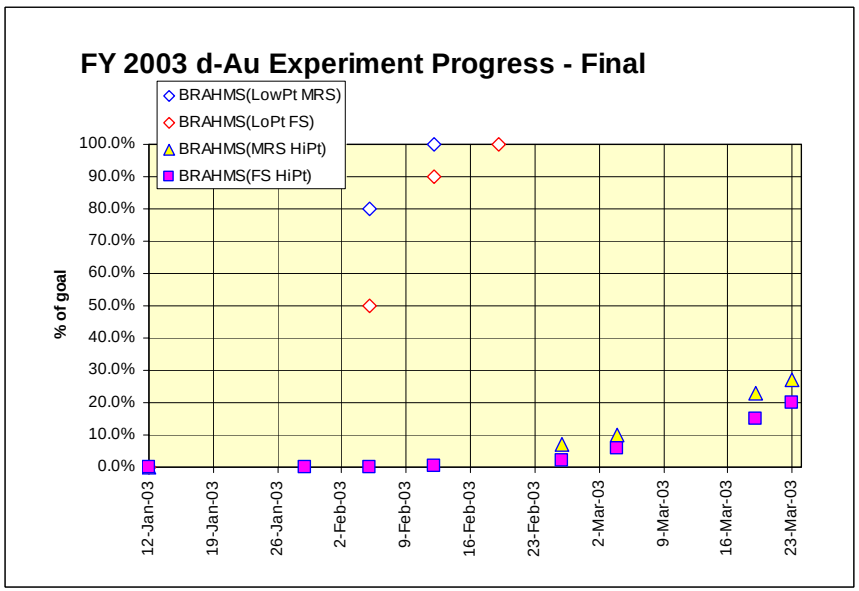


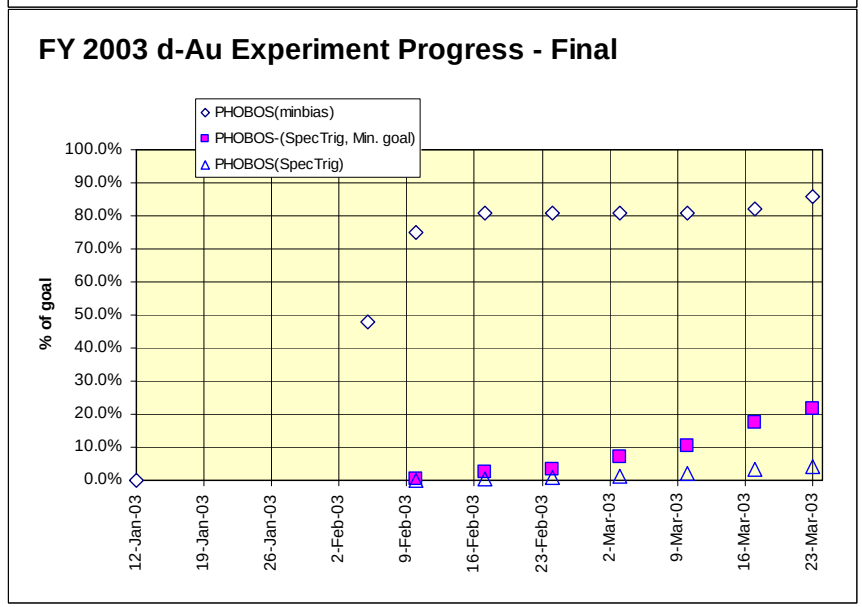

% of time spent at store - FY 2003 dAu
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
GOAL
1/12-1/15
1/16-1/22
1/23-2/1
2/2-2/8
2/9-2/15
2/16-2/22
2/23-3/1
3/2-3/8
3/9-3/15
3/16-3/24

RHIC Machine/Detector Planning Meeting









RUN2003 (~ 3-4 weeks into run)

Energy/beam: 100 GeV/nucl., diamond length: σ = 20 cm, L_{ave}(week)/L_{ave}(store) = 40%

Mode	# bunches	Ions/bunch [$\times 10^9$]	β^* [m]	Emittance [$\pi\mu$m]	L_{peak} [$cm^{-2}s^{-1}$]	L_{ave}(store) [$cm^{-2}s^{-1}$]	L_{ave} (week) [$week^{-1}$]
p-p (Min)*	55	70	3	25	1.8×10^{30}	1.2×10^{30}	$0.3(pb)^{-1}$
p-p (Goal)#	112	100	1	25	16×10^{30}	10×10^{30}	$2.8(pb)^{-1}$
d-Au (Min)	56	20(d), 0.7(Au)	2	20	0.7×10^{28}	0.3×10^{28}	$0.7\ (nb)^{-1}$
d-Au (Goal)	56	80(d), 1(Au)	2	20	4×10^{28}	1.6×10^{28}	$4\ (nb)^{-1}$

* Beam polarization ≥ 40 %

Beam polarization ≥ 50 %