Accelerator Status

- Performance Statistics Since September 1, 2000
  - Weekly Hours
  - Stacking Performance
  - Luminosity Performance (Store 1716 – 1808)
  - Reliability
- ✓ FY02 Integrated Luminosity > 20 pb^{-1}
- Luminosity Goals for October 1, 2002
  - Initial luminosity of 4E31
    - Obtained Initial 3.02E31
  - Integrated 5 pb^{-1} / week
    - Obtained Week 4.79 pb^{-1} / week
- Goals for November 1st
  - Initial luminosity of 4E31
  - Integrated 5 pb^{-1} / week
  - Integrate 20 pb^{-1} for the month of October

Issues Presently being addressed

(Tevatron partial list)

- ➢ Near term investigation of high losses at the beginning of the store
  - ➢ Before the last store, the orbit was smoothed up the ramp and through the squeeze.
  - ➢ Tunes and coupling adjusted up the ramp and through the squeeze (1st order)
- Injection closure into the Tevatron (BLT)
  - ✓ – pbar system operational, proton system being developed
- Lattice Matching into Tevatron (proton & pbars)
  - – fourth attempt made and effect being evaluated
- ✓ Tevatron Tune and Coupling Drift – operational
- Tevatron Transverse Dampers –
  - horizontal in use…lowering chromaticity and turning on damper shows increased proton and pbar lifetimes at 1500 GeV
  - Vertical remains under development

Issues being addressed

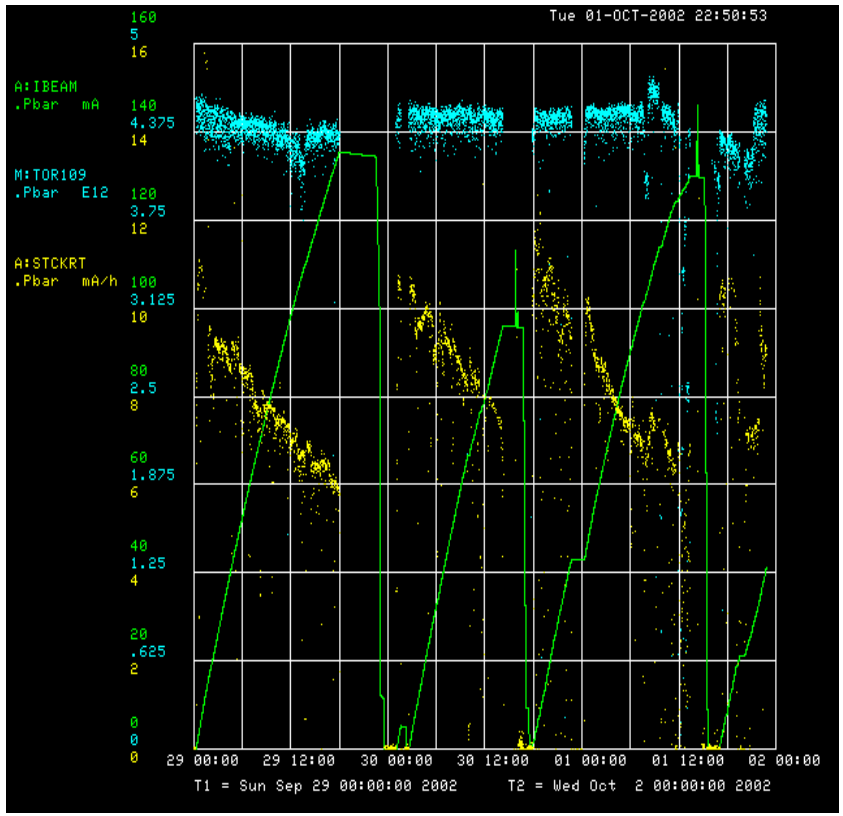
(MI, partial list)

- Coalescing improvements
  - Main Injector pbar beam loading compensation
    - operational… average pbar coalescing efficiency shot 1823 was 84% (95% to 65% /transfer
  - Operational optimization (timing, phasing,voltages)
- Bucket area matching at injection for pbars
  - Preliminary data taken, initial adjustments made, and data being analysed
- Reduction of longitudinal emittance during coalescing (protons and pbars
- MI longitudinal instability leading to longitudinal growth –under investigation
- Bunch length reduction on the $29 stacking cycles

Issues being addressed

(Pbar, partial list)

✓Stacking Record 12.43 mA/hr



Recent Activities

- ✓ Centered DRF2 on cooling arrays
- ✓ Install new bandpass filters for momentum bands 3 & 4
- ✓ Gain balanced all arrays

Future Focus

Stacking Rate

- •Debuncher momentum cooling optimization
- •Debuncher/AP2 aperture (5 shifts)
- •Core momentum cooling phasing
- •Target studies

Shots

- •Return to stacking lattice
- •Gating stabilizing RF during shots

Issues being addressed

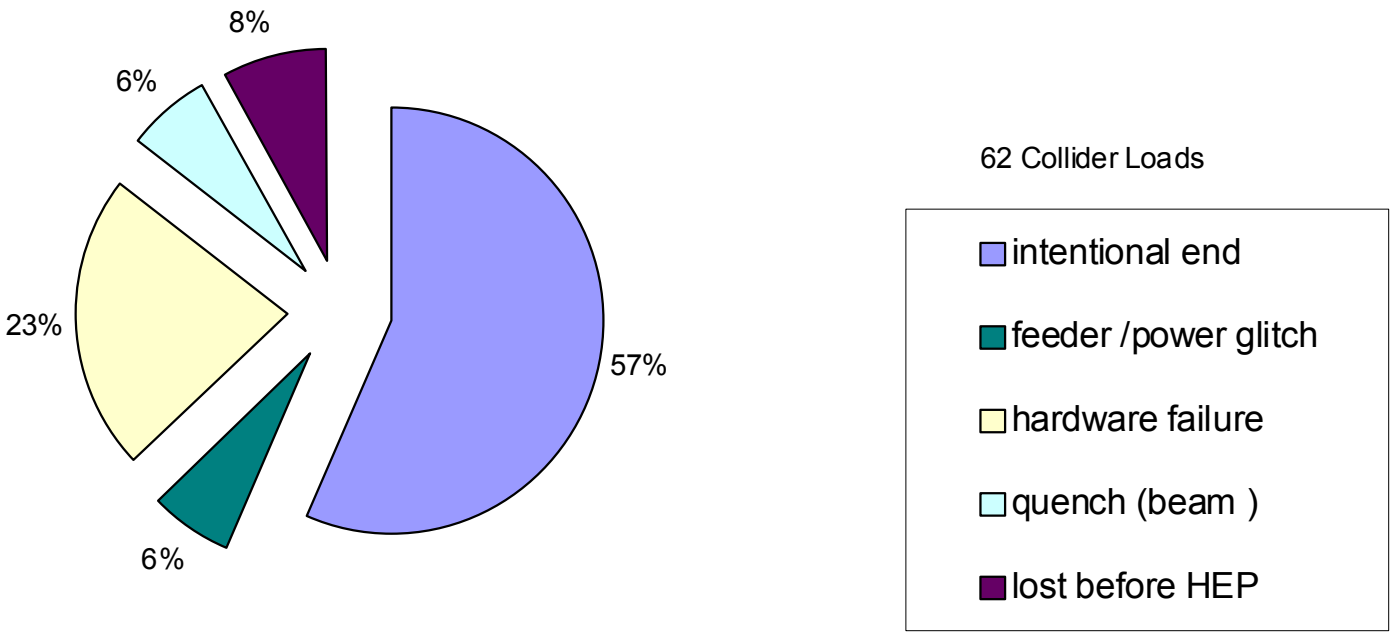
(Recycler, partial list)

- Last Month
  - Implementing closure for reverse protons from RR to MI (R22) which required 53 Mhz on the Recycler cavities
  - Revising RF curve manipulations for stacking pbars
  - Revising sequencer commands required tor reverse proton tune up and pbar injection and stacking.
  - Investigation on longitudinal emittance evolution in barrier buckets
- Current status
  - Stacking efficiency > 80%
  - Lifetime > 100 hrs
- Goal For November
  - Stack > 200E10 with a lifetime > 100hrs
  - Extract pbars to MI and accelerate with efficiency > 80%

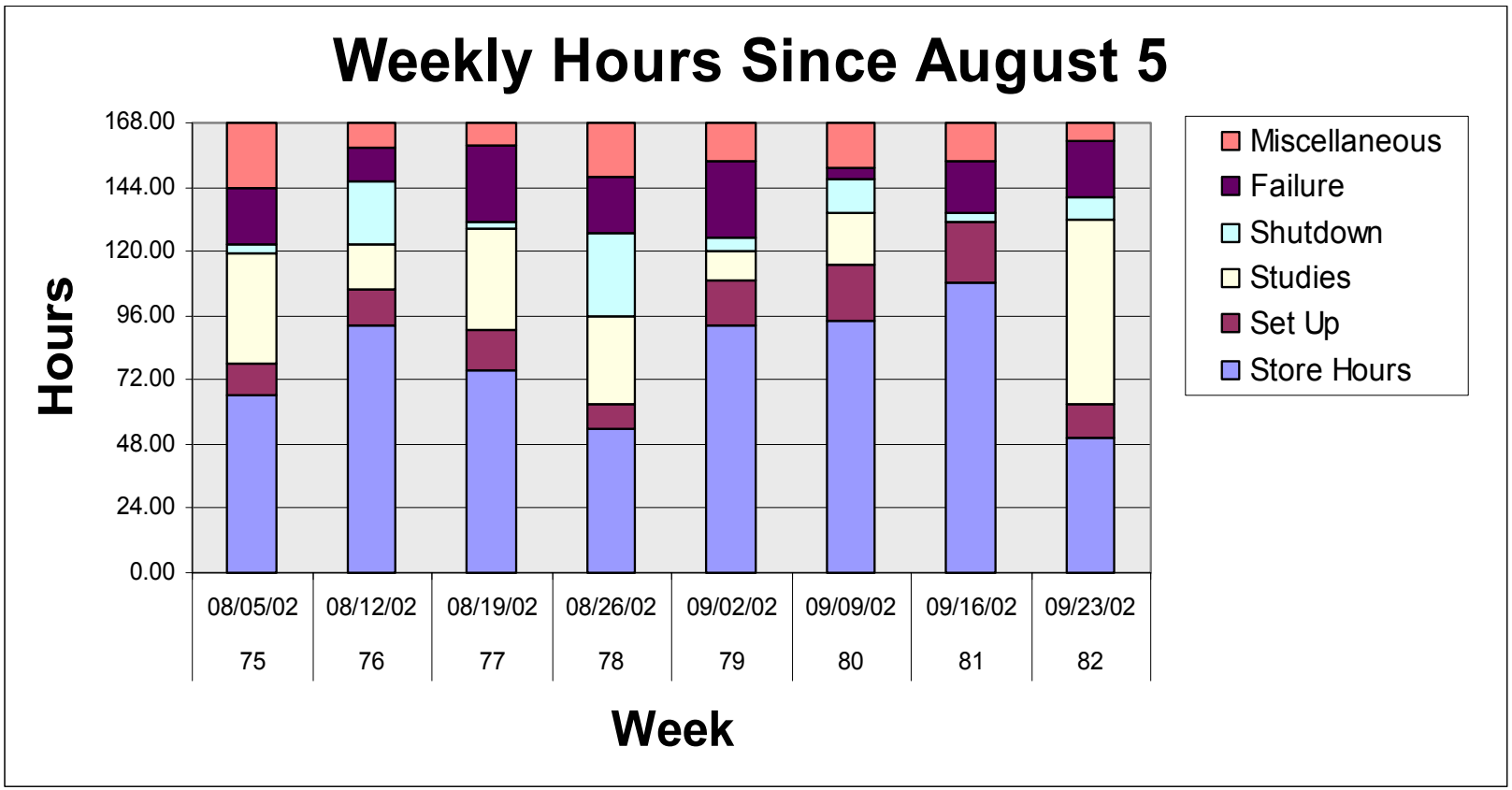
View for the Next Month

- ✓ Alternating weeks of "stack 'n store" and dedicated Collider studies.
- Shot strategy:
  - ✓ Pbar stacks 120 to 150 mA
  - – Proton bunch intensity – push toward 200E9 at low beta
  - – Work on efficiency and lifetime
- As previously, take advantage of "no stack –no store" periods for studies while building up stack.
- ✓ Dedicated studies to focus on boosting initial luminosity and luminosity lifetime, stacking rate, near term reliability and longer term physics issues.
- ✓ Focused studies between store termination and shot set up
- ✓ Support Recycler Integration and MiniBoone

Reliability



Weekly Hours



Status on Luminosity Parameters

	Run IIa Goals	Average Since 8/1	Best Since 9/1
Stacking rate (E10/hr)	18	6.3	12.43
Pbar stack (E10)	165	120	165
Pbar xfer eff to low beta	.80	.42	$.66^{96}/.27^{135}$
Pbars/bunch (E9)	33.0	12.2	17.1
Protons/bunch (E9)	270	176	187
Emit* at low beta (π–mm-mr)	17.5	16.7	13.2
FW Emittance (pbar)	-	20.1	-
Initial Luminosity	8.3	1.95	3.15

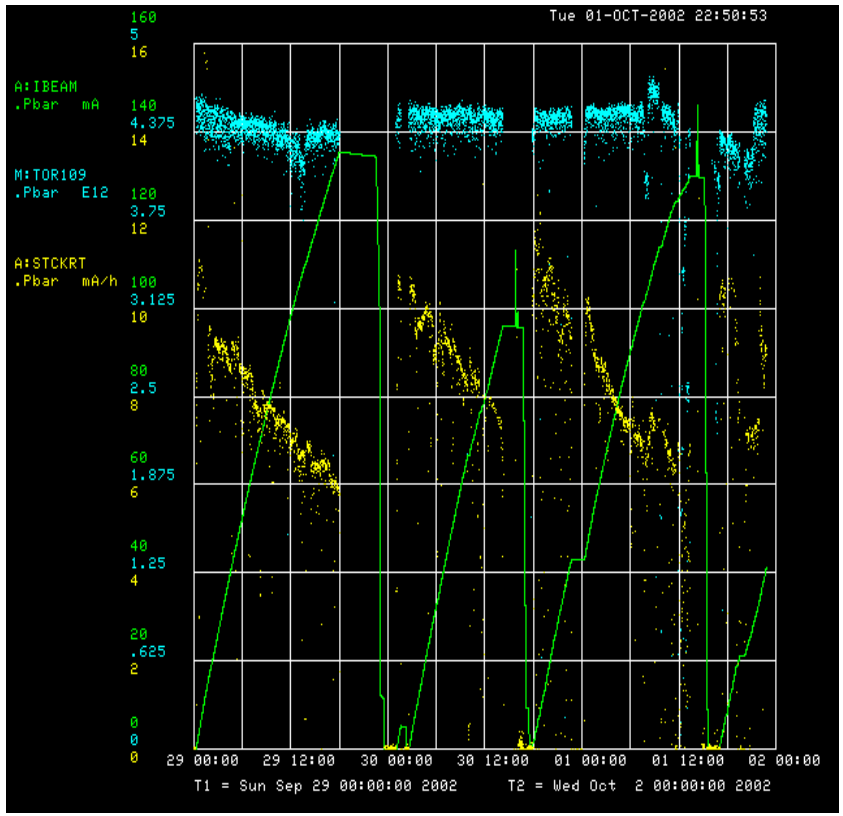
Issues being addressed

(Pbar, partial list)

- Improve Stacking
  - Production Efficiency
    - Debuncher momentum aperture
    - AP2-Debuncher transverse aperture
    - Debuncher transverse cooling
  - Rate
    - Understand Debuncher momentum cooling limitations
    - Decrease bunch length on target
- Target Studies
  - Investigation of Inconel target material

Stacking Performance

✓Stacking Record 12.43 mA/hr



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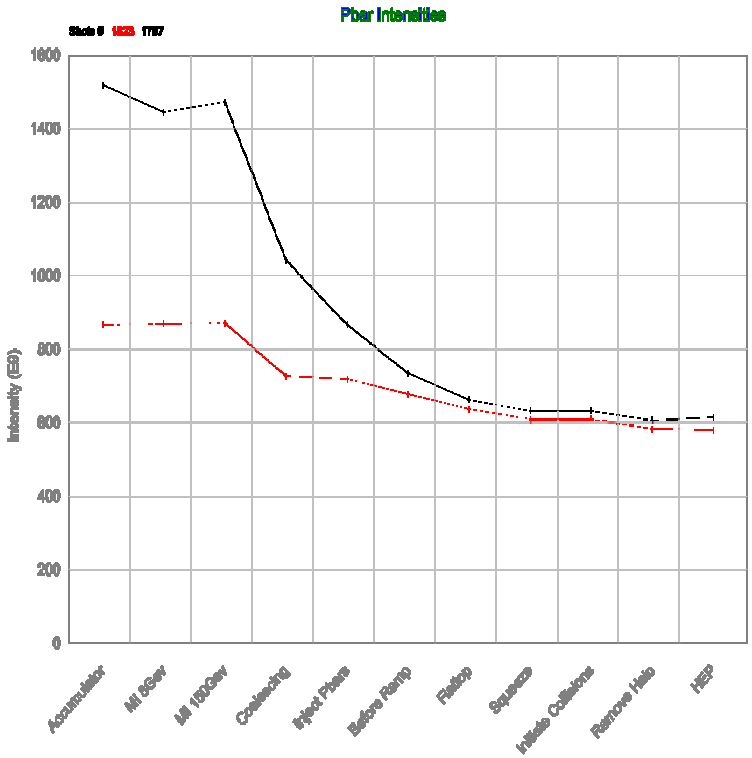
Pbar Intensities
1600
1400
1200
1000
800
600
400
200
0
Intensity (E9)
Accumulator
MI 8Gev
MI 150Gev
Coalescing
Inject Pbars
Before Ramp
Flattop
Squeeze
Initiate Collisions
Remove Halo
HEP