

Beams Week in Review

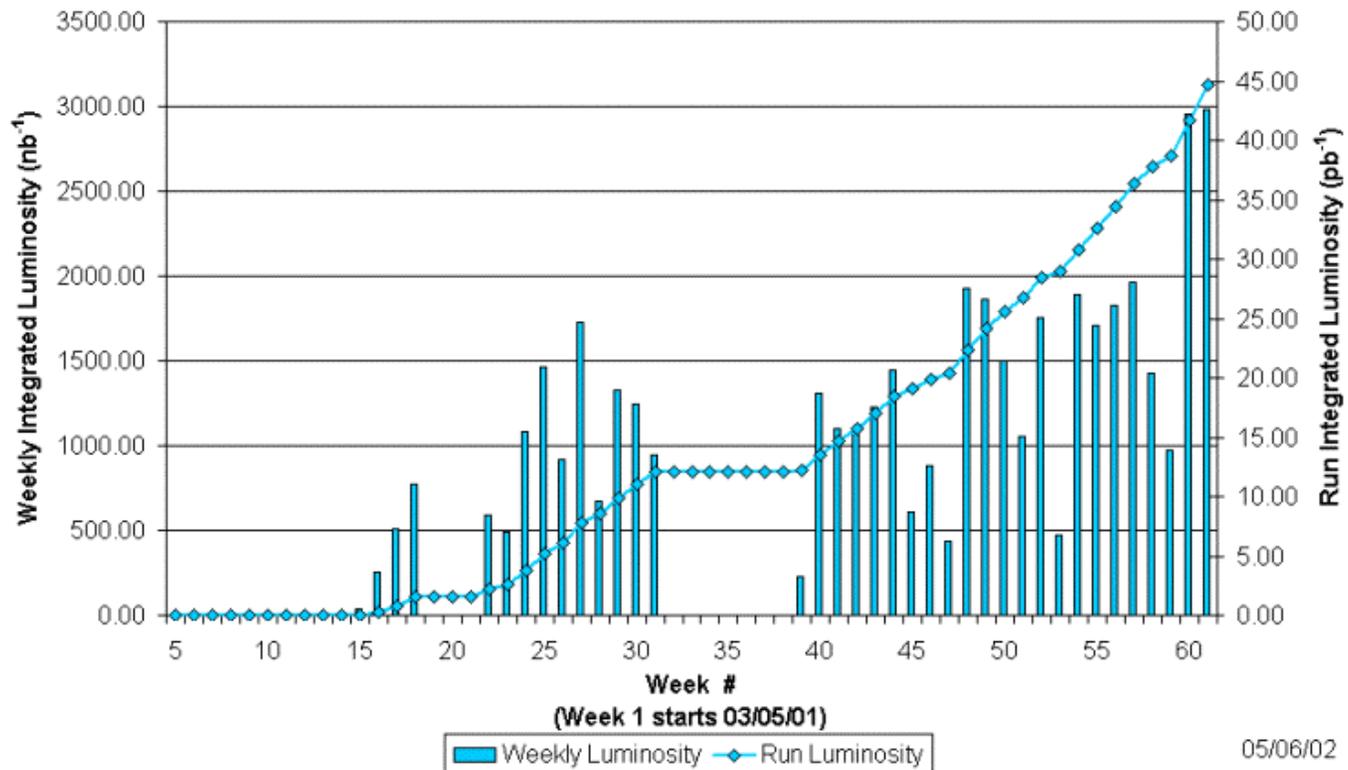


- 5 stores
- Another Record Luminosity -18.31E30
- Machine studies
- Pbars reintroduced to Recycler
- MiniBooNe

Integrated Luminosity



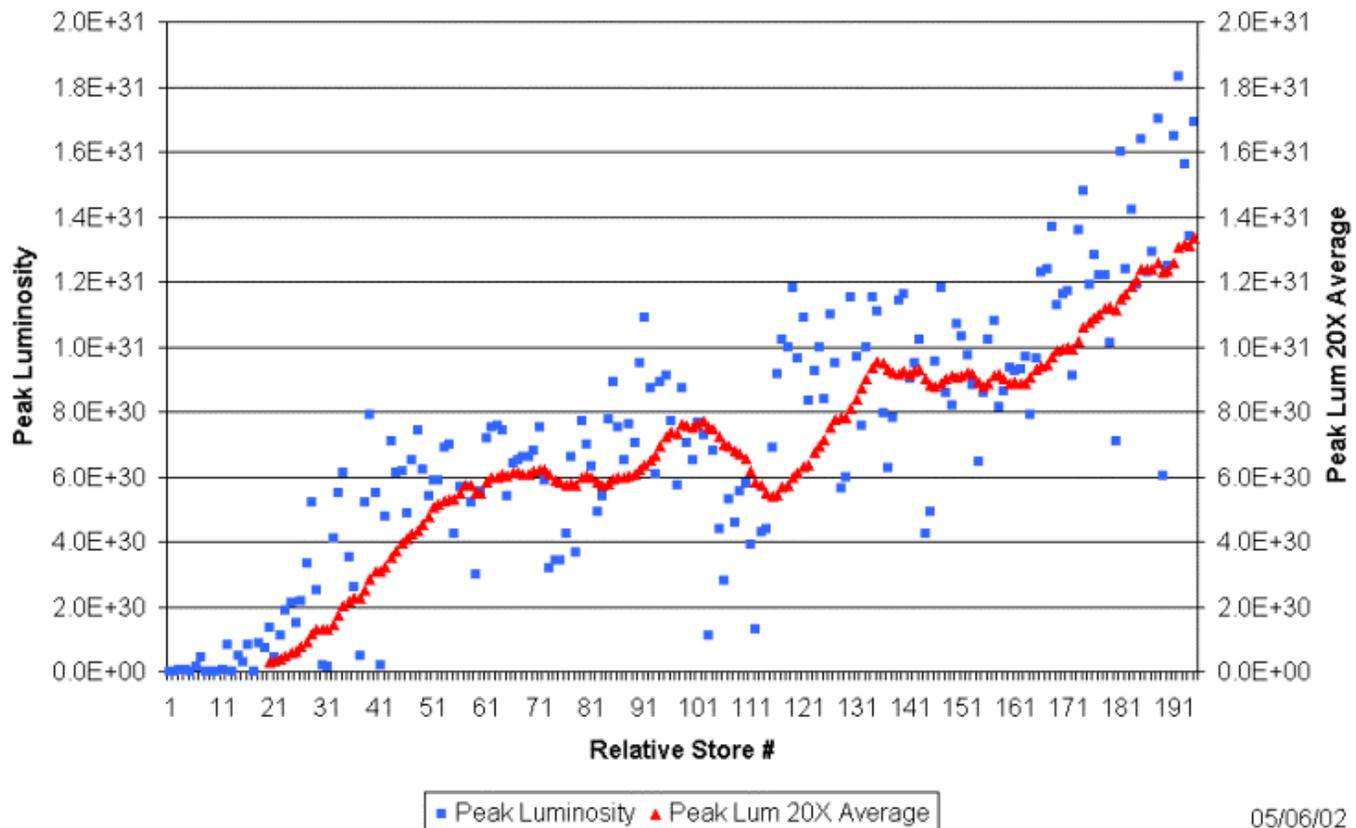
Collider Run IIA Integrated Luminosity



Peak Luminosity

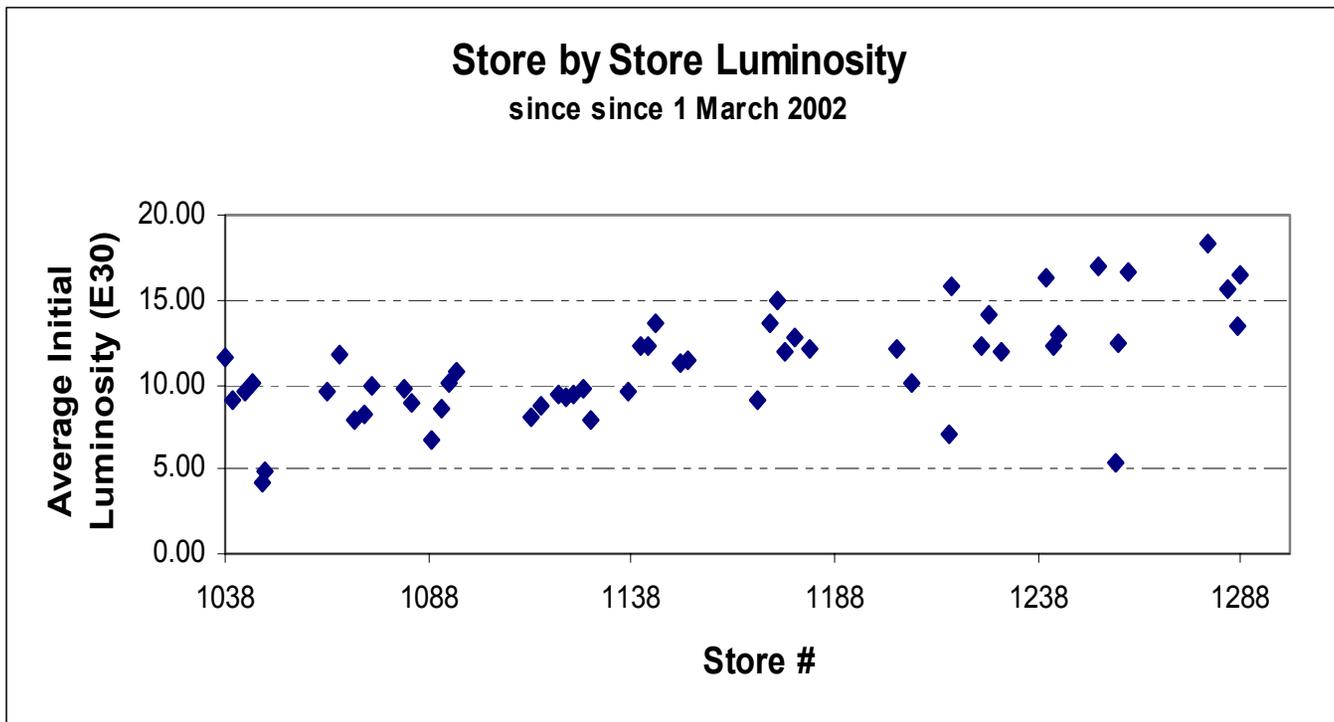


Collider Run IIA Peak Luminosity



05/06/02

Initial Luminosity

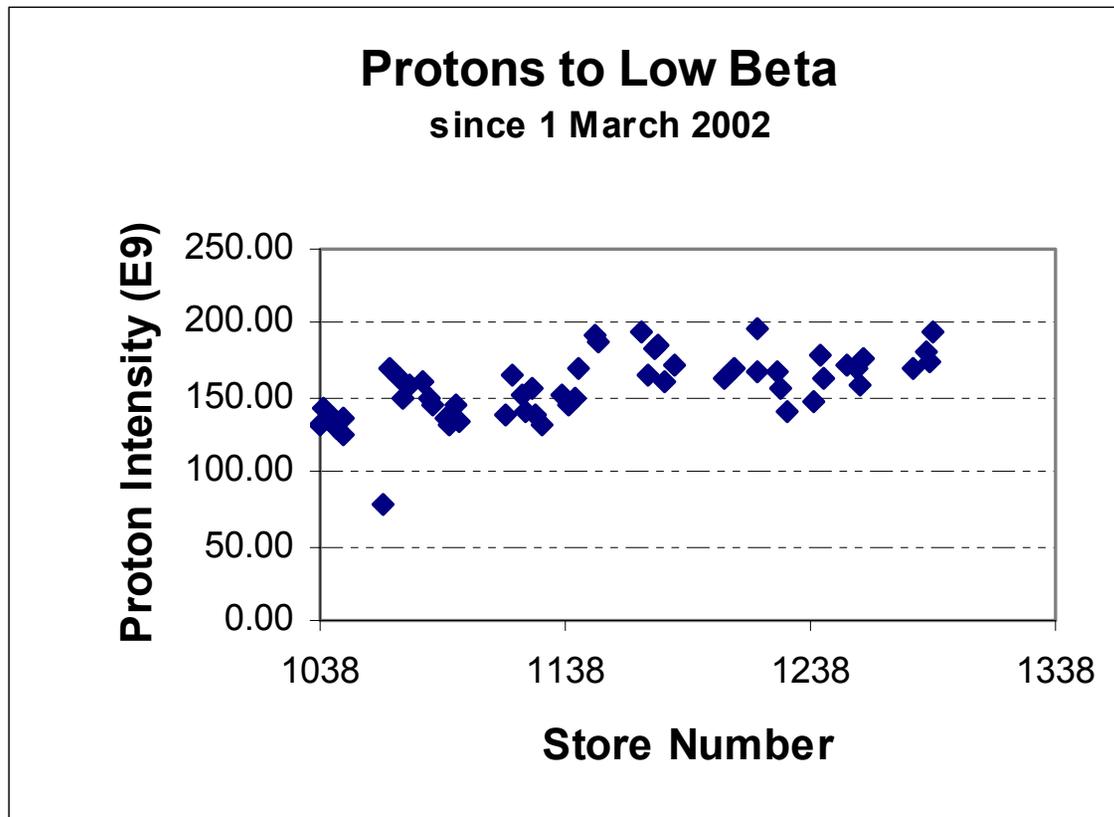


Initial Luminosity

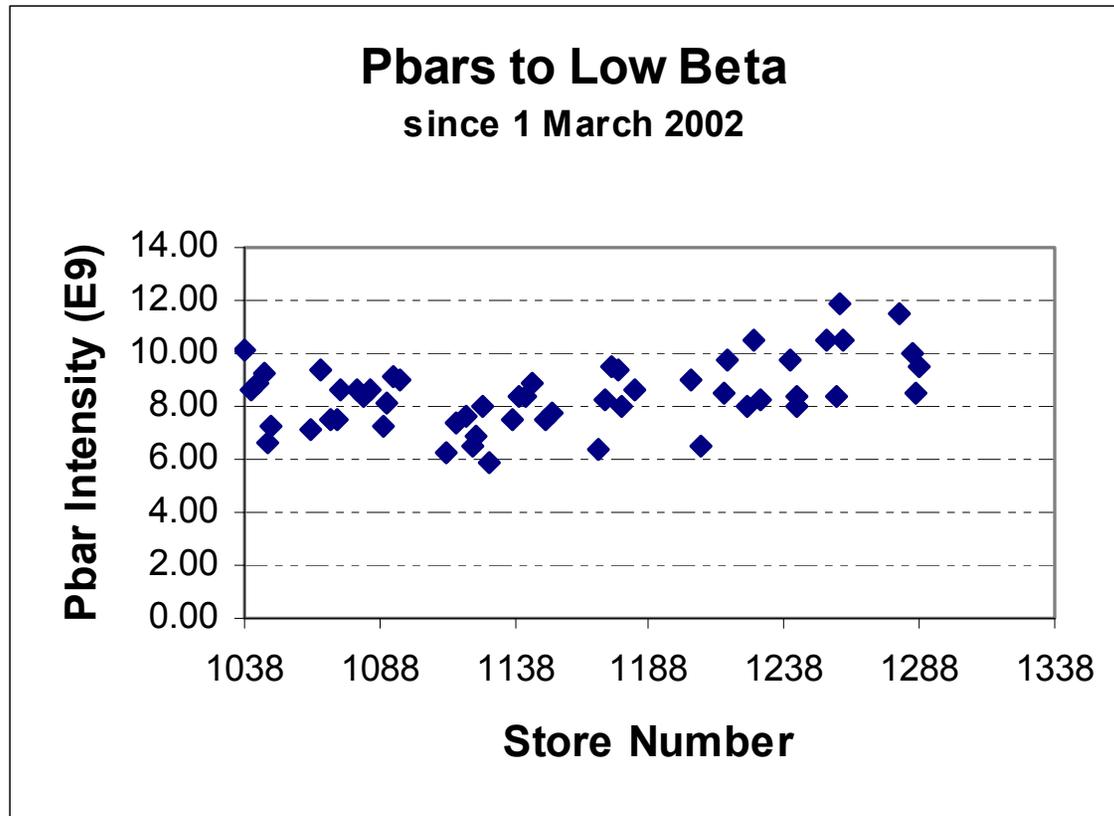


- Reasons for Recent Improvement
 - Tevatron octupole at injection
 - MI coalescing/feed forward compensation
 - More Pbars used (trying for 90% of stack & larger stack)
 - Tighter Accumulator momentum width

Protons to Collision



Pbars to Collision

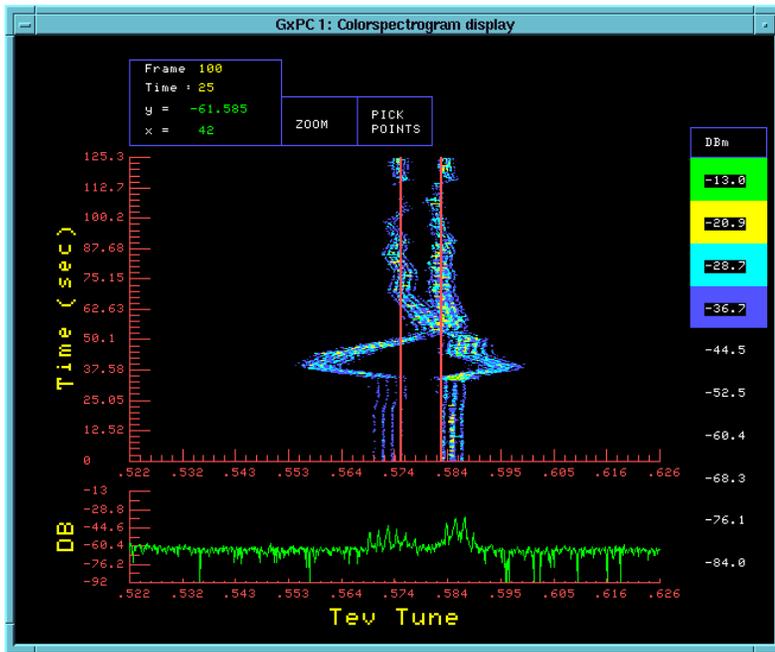


Tevatron Studies Summary

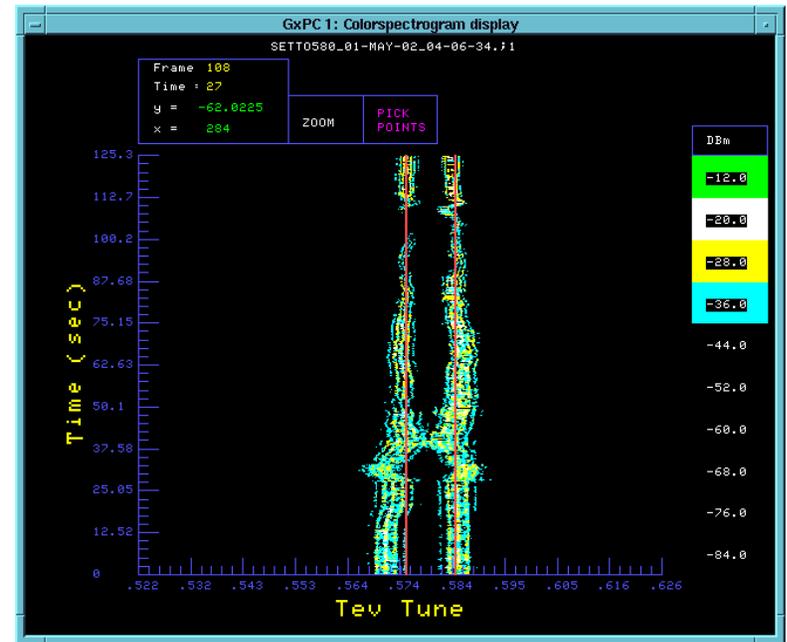


- New break point installed at 153 GeV and will be helpful in keeping ramp tuned up.
- Octupoles – Now on at injection. This greatly improves lifetime but still being used with experts' help.
- Synch light calibration – not able to use the technique. Still only have Pbar light.
- Injection matching – normal injection not stable enough to collect experimental data.

Tevatron Studies Summary

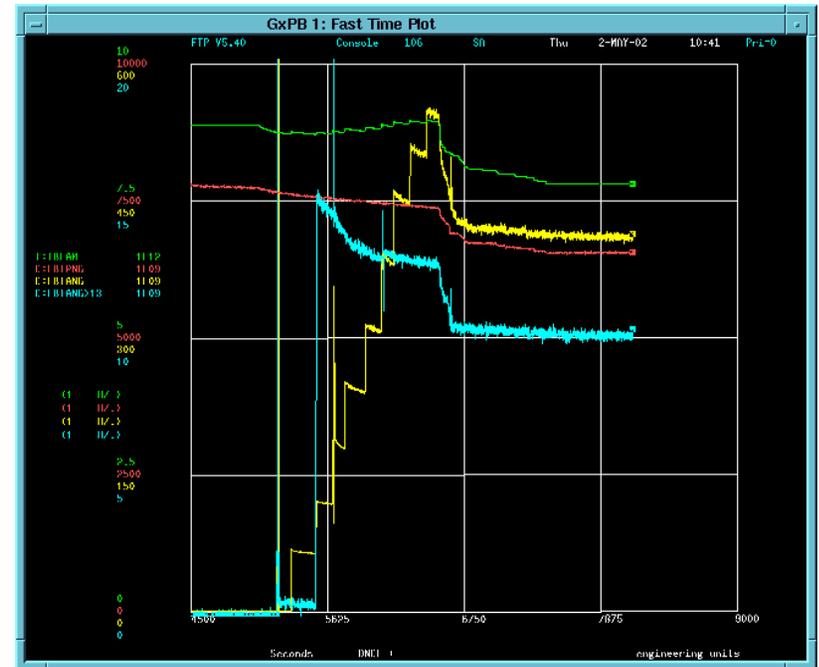
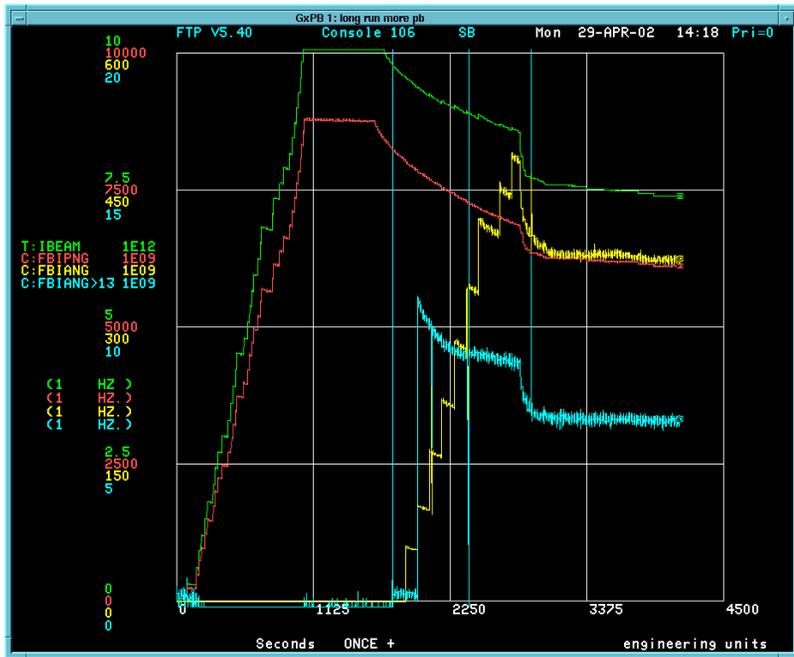


Tunes before break point addition



Tunes after break point addition

Tevatron Studies Summary

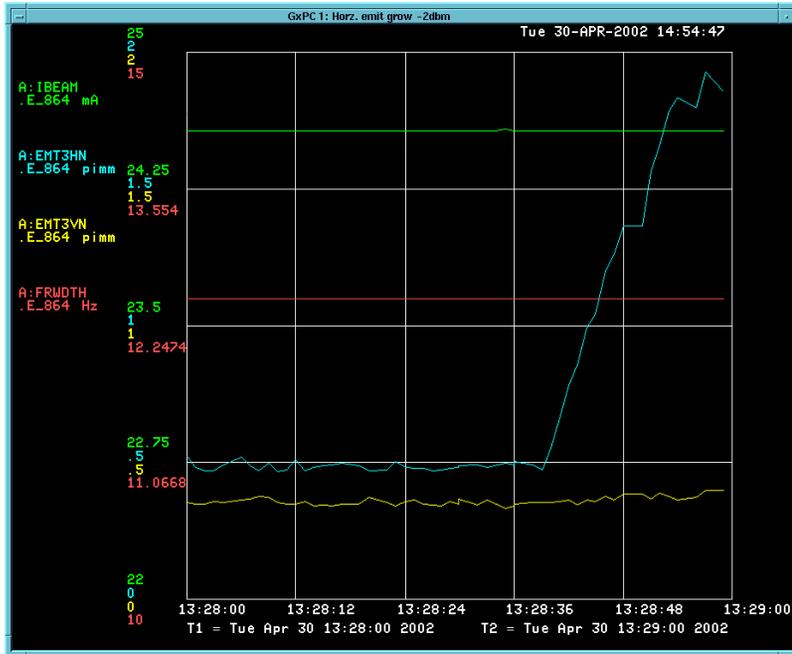


Pbar Studies Summary

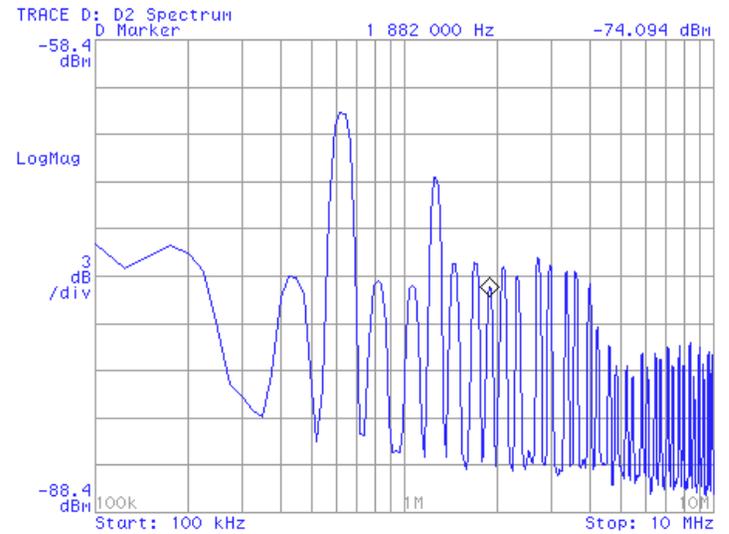


- Orbit shift study
- MI to Accumulator lattice matching
 - continued refinement, but no clear result
- Accumulator Tunes vs. $\Delta p/p$
 - as expected
- Accumulator Beam ‘buzzing’
 - The emittance growth rate on the damper from an external noise source is 0.5 - 1.0 (pi/hr)/(μ W/hz) on a single betatron line
 - If an external source is concentrated over only a few betatron lines, we can clearly see the excitation
 - If the an external noise source is broadband, it will be difficult to see

Pbar Studies Summary



Date: 04-30-02 Time: 01:25 PM



MI Studies Summary

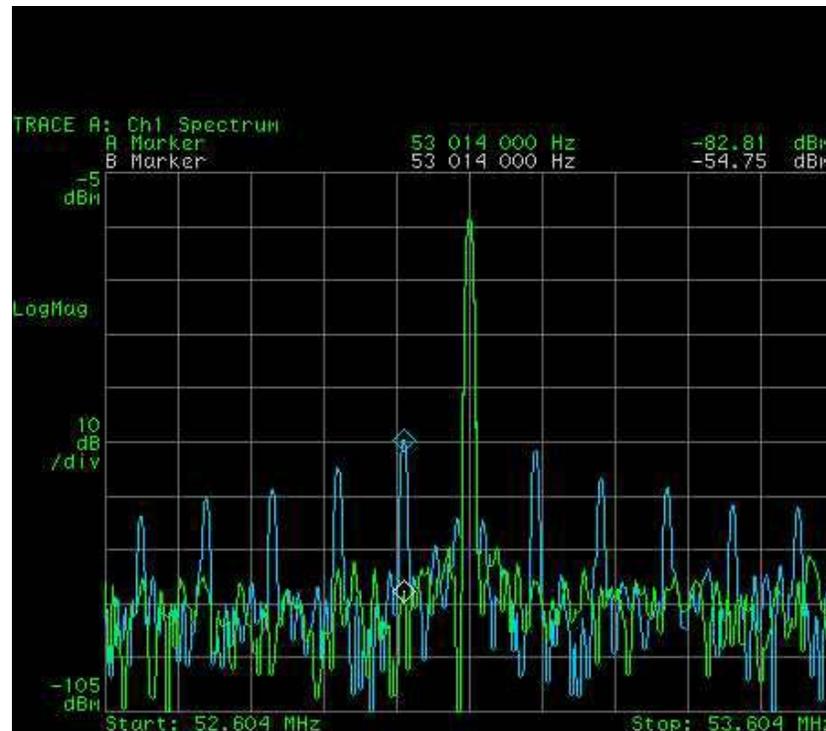


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- 53 MHz Beam Loading compensation (continued)
- \$2B Emittance in MI
- Transverse (revisited)
- Longitudinal (revisited)
- Tune Measurements using TBT program
- BLT

MI Studies Summary

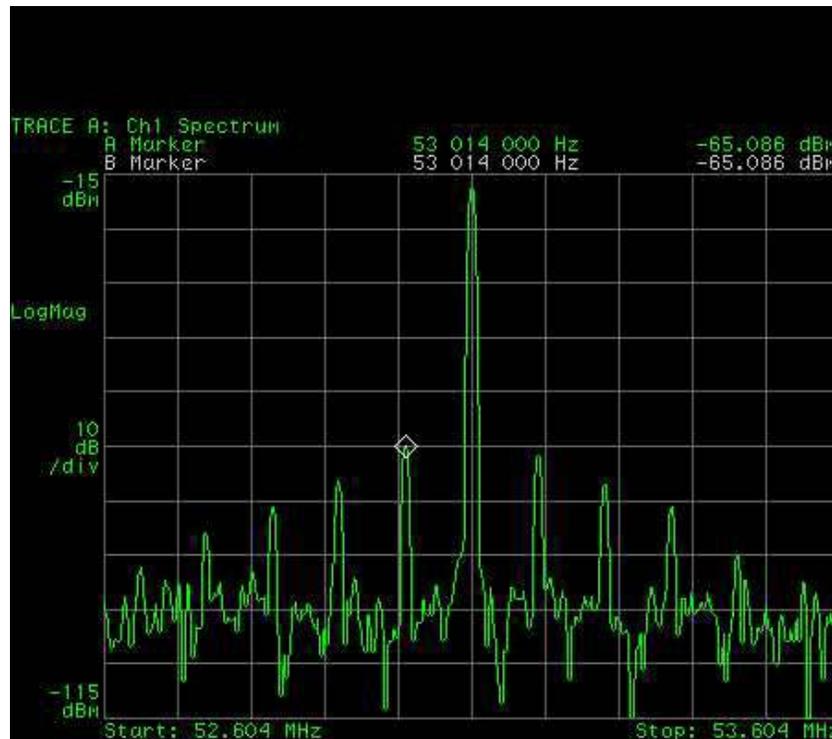
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Typical suppression – 28dB

MI Studies Summary

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Pbar transient beam loading

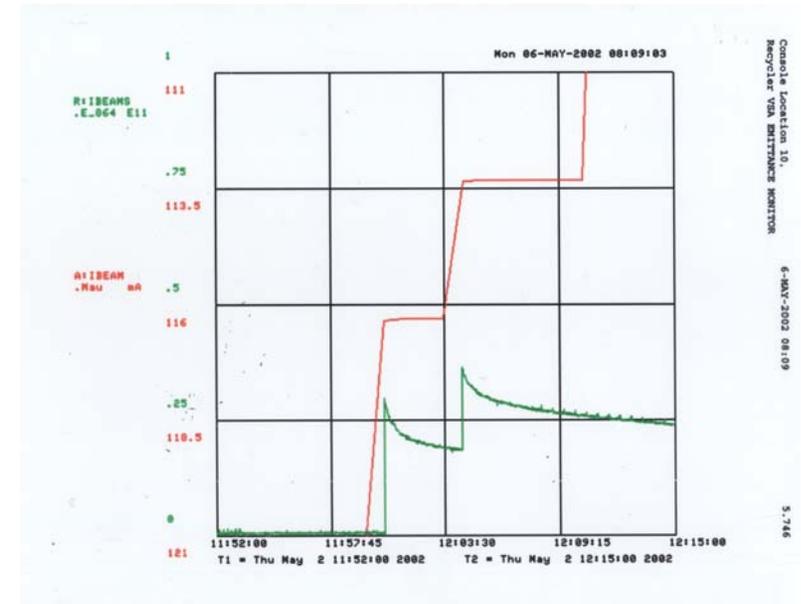
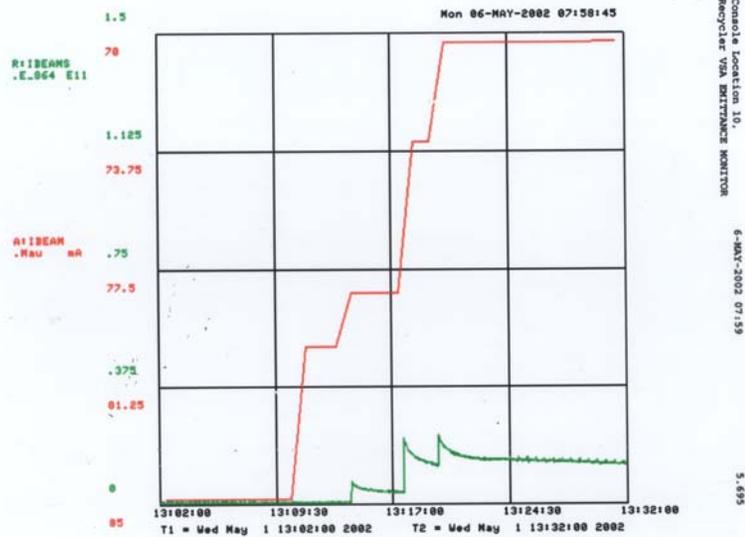
Recycler Studies Summary



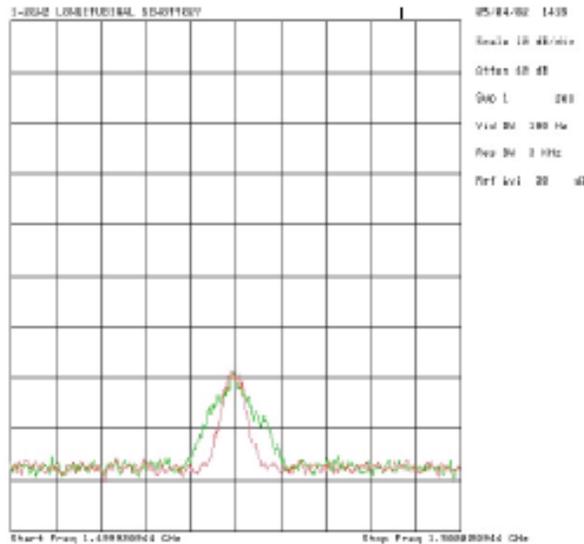
- Reintroduce Pbars (first since January)
- Improve efficiency
 - Tune counter-wave bump
 - Adjust RF
 - Injection tuning
- ‘Skim’ Pbars before loading Tevatron
 - routine
- Stochastic cooling

Recycler Studies Summary

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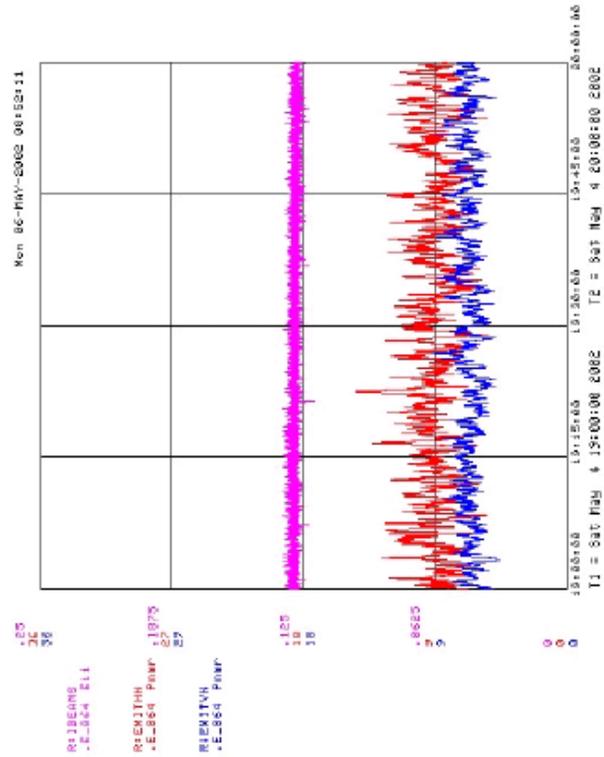
Recycler Studies Summary



~10 minutes of momentum cooling

$$\Delta p/p = 8E-04$$

Recycler Studies Summary

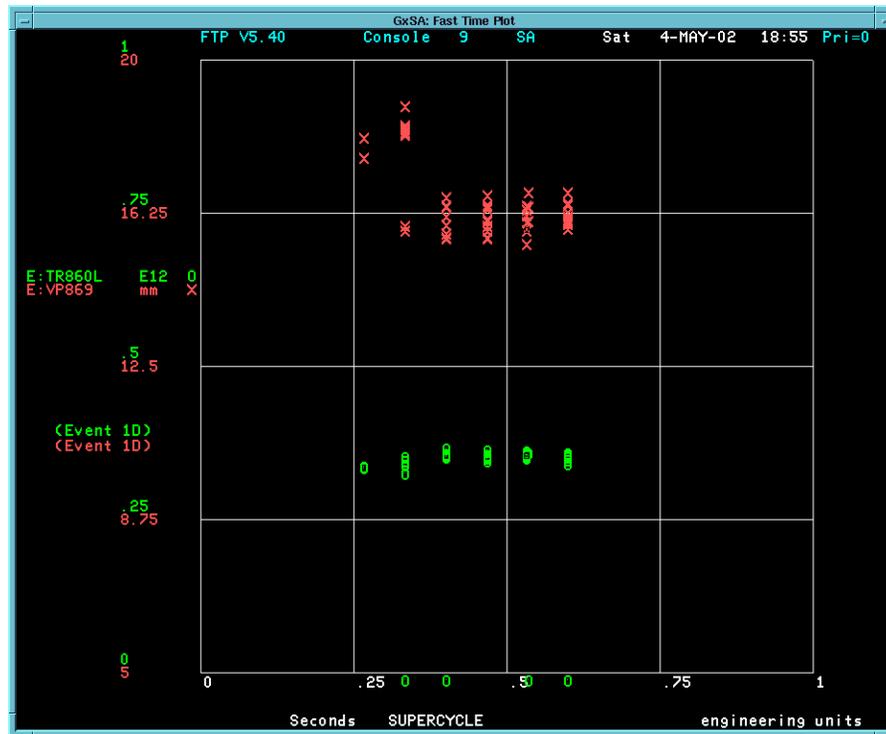


MiniBooNe Studies Summary



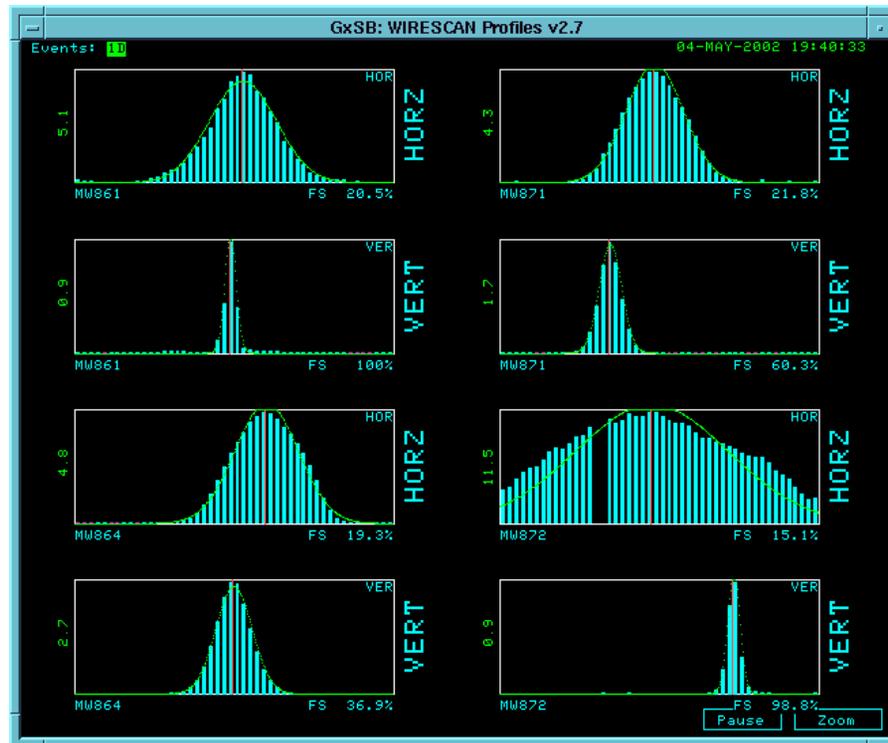
- Operation in parallel with Stacking
- Beam to dump, continued tuning
 - Reduce losses
 - Lattice matching

MiniBooNe Studies Summary



15 Hz operation

MiniBooNe Studies Summary



14 Booster 'turns'