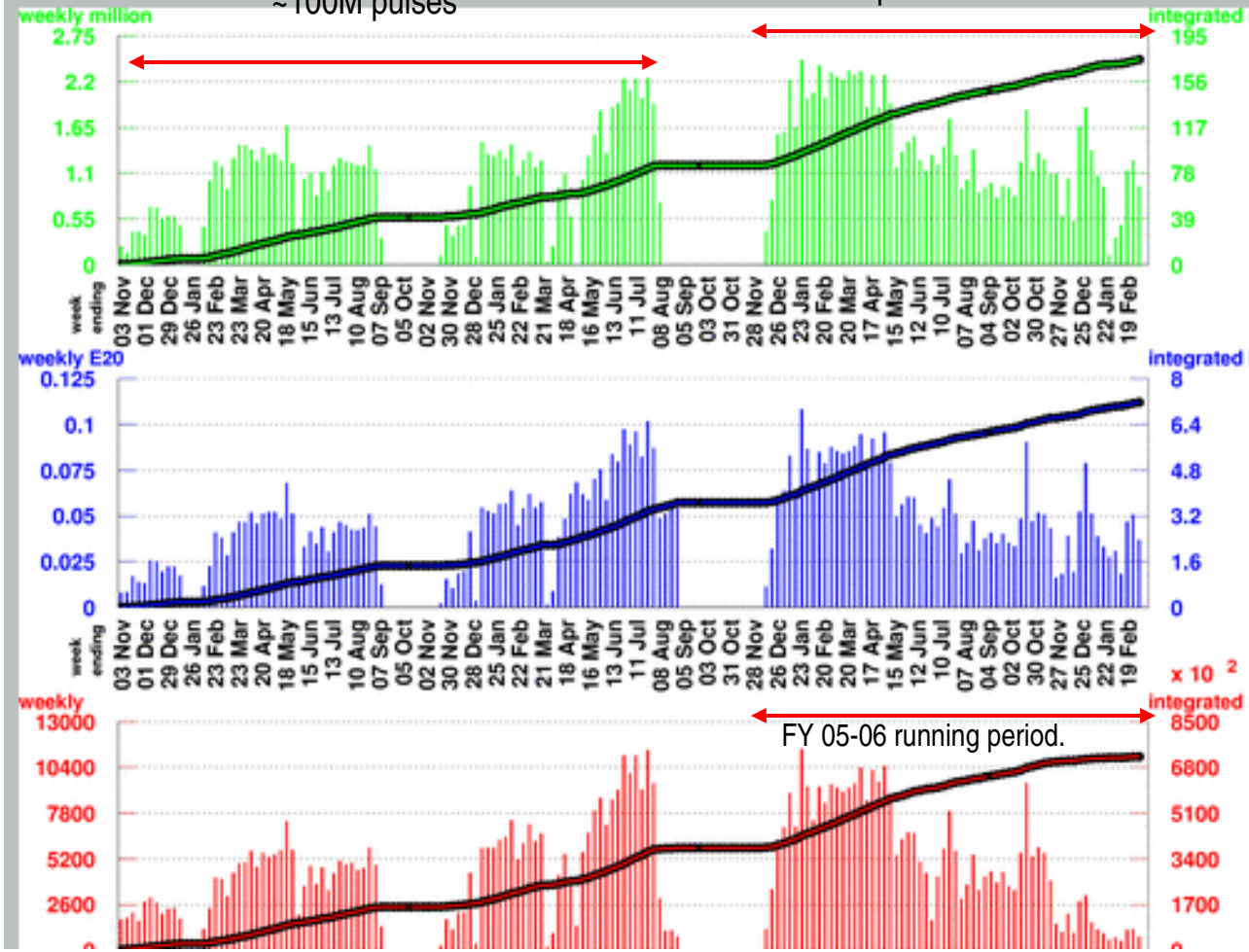
MiniBooNE

All Experimenter's Meeting

Ray Stefanski

February 27, 2006



Number of Horn Pulses

To date: 174.72 million

Largest week: 2.46 million

Latest week: 0.94 million

Number of Protons on Targe

To date: 7.1838 E20

Largest week: 0.1084 E20

Latest week: 0.0369 E20

Collected ~3.9 E20 POT during the run just ended.

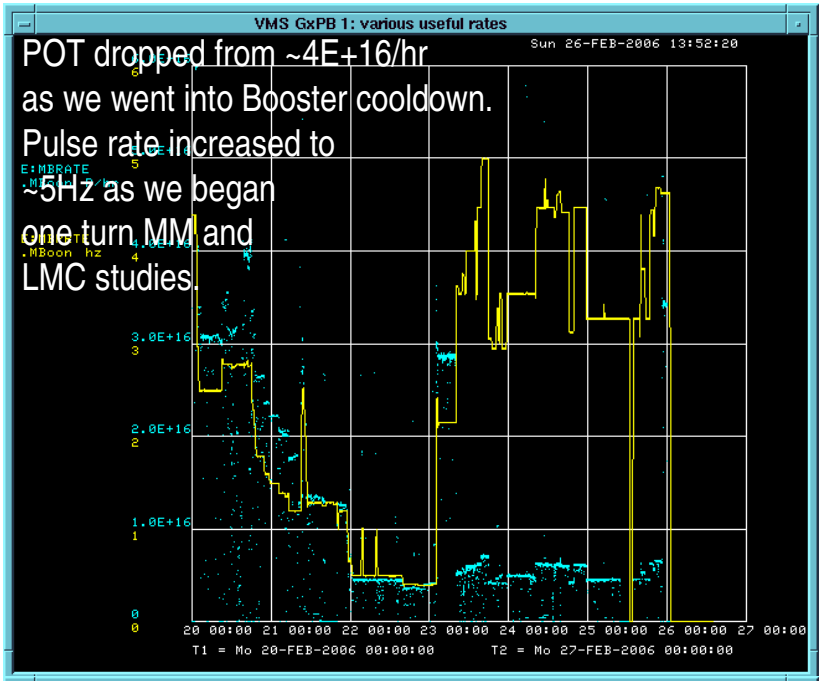
Number of Neutrino Events

To date:720181

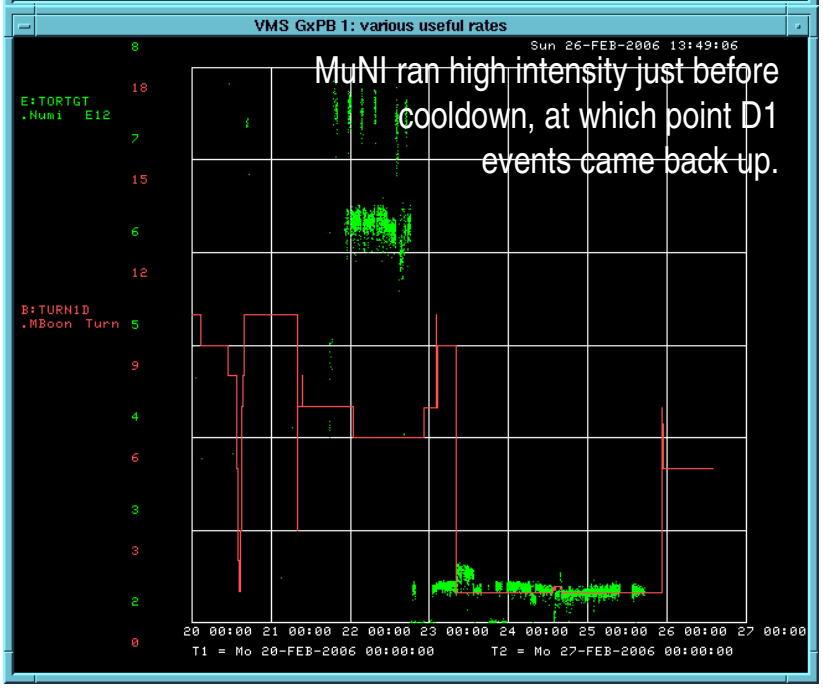
Largest week: 11447

Latest week: 775

Changed to nu^bar beam in 1st week of January.



POT dropped from ~4E+16/hr as we went into Booster cooldown. Pulse rate increased to ~5Hz as we began one turn MM and LMC studies.



MuNI ran high intensity just before cooldown, at which point D1 events came back up.

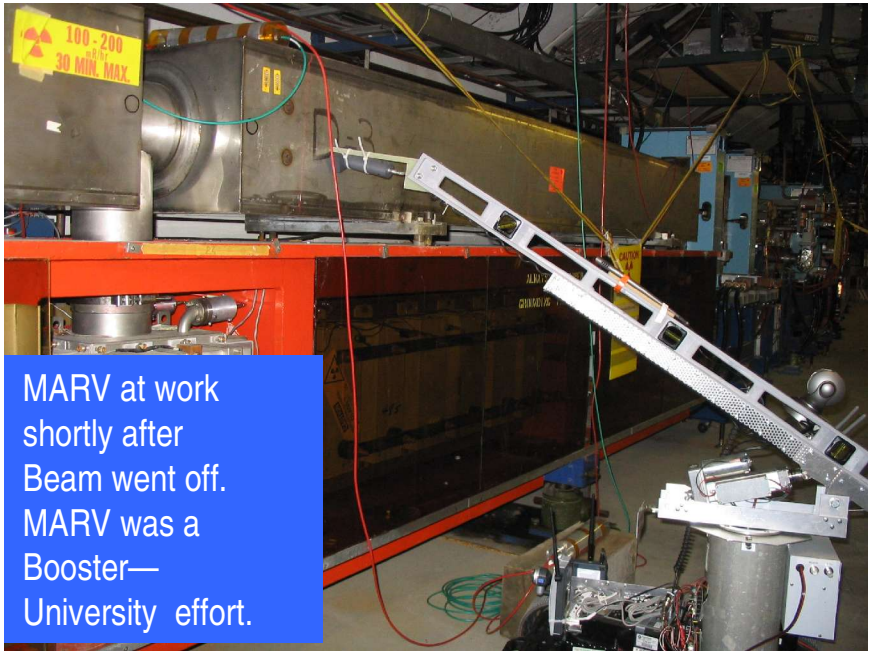
Summary

Summary for Event 1D
From 19-FEB-2006 10:25:00
to 26-FEB-2006 10:25:00

Beam stats for final week!

Percentage up time:	85.2	
Total Events:	1384064	
Total Protons:	1.86E+18	
Average Events/second:	2.68	
Average protons/Event:	1.34E+12	
Average protons/hour:	1.30E+16	
Maximum protons/hour:	5.98E+16	02/19/06
(protons out)/(protons in):	.824	
(Joules lost)/(1e12 prot):	21.7	

Beam on averages of collected data



MARV at work shortly after Beam went off. MARV was a Booster—University effort.

It's official: The paperwork is done!

MCR

MiniBoone
MI12A and MI12B
Exposed Bus Lockout Form

This form must be used to document proper lockout of the major exposed bus supplies prior to entering the MI12A and MI12B Enclosures.

MI12 Lockout

1. SWBD-MI12A #3 locked out using BDSP-05-1216 [X]

Place the key from step 1 in the MiniBoone Lockbox. Lock the lockbox with a Main Control Room Crew Chief padlock. Verify that the following key is contained in the Lockbox.

MiniBoone MCR LOTO [X]

Make a copy of this completed form and attach to the MiniBoone Lockbox. Put an electronic copy in the MCR E_Log.

2/26/06
Date

Signature of Lead Authorized Person

Signature of Verifying Person

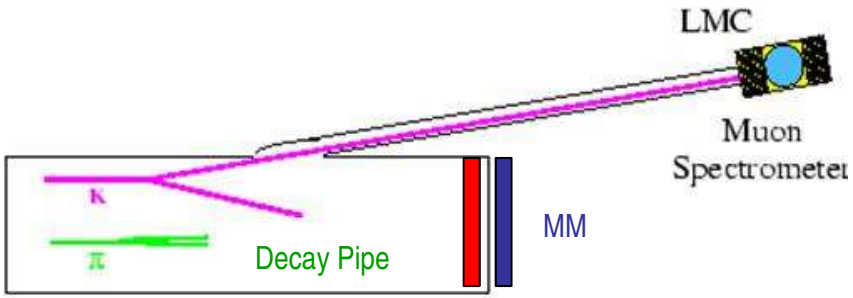
6-6-03
Approved by

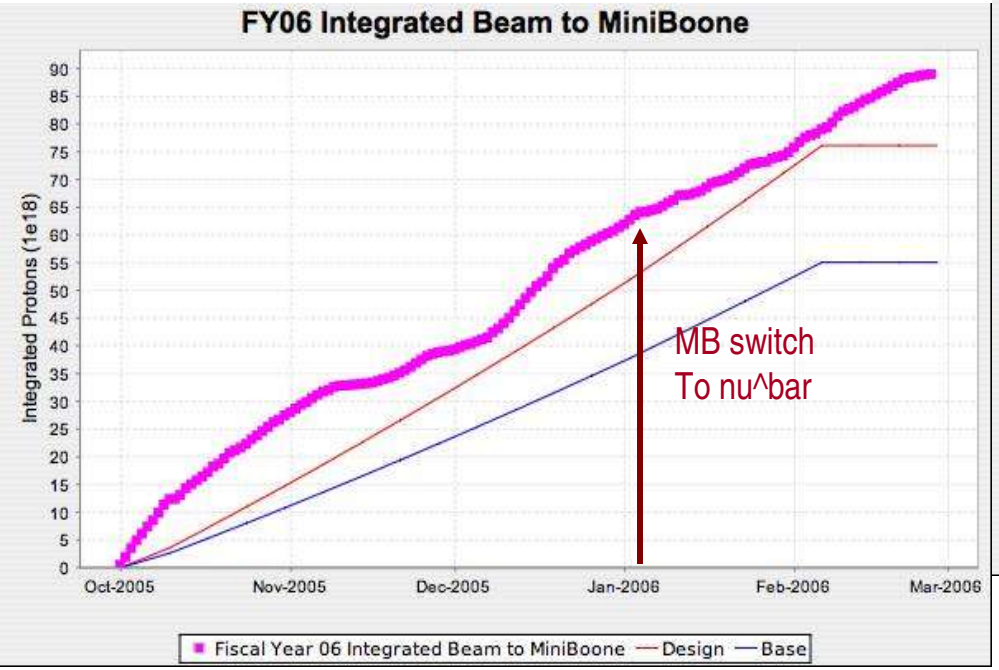
May 27, 2003

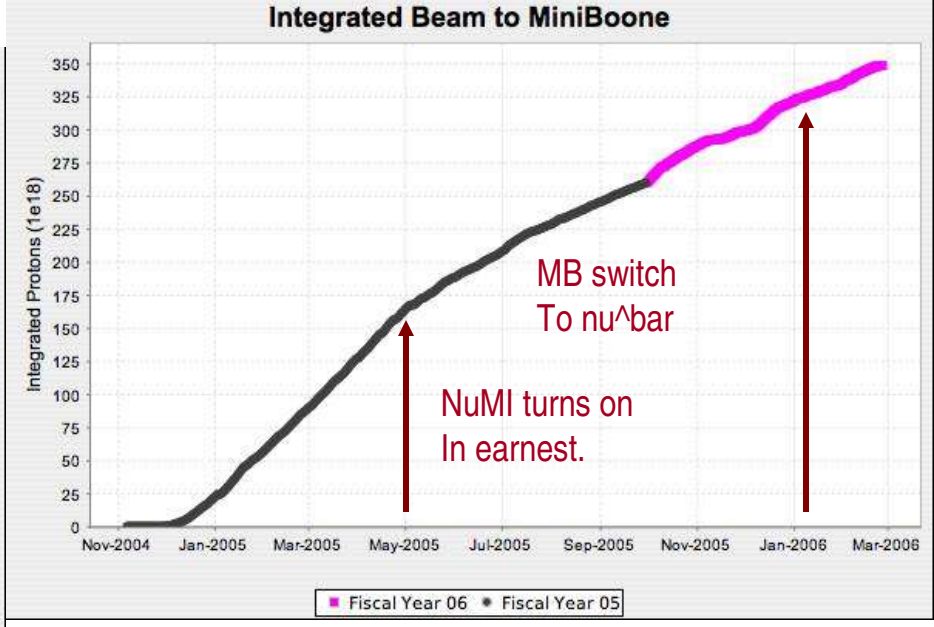
Specific accomplishments
For the week:

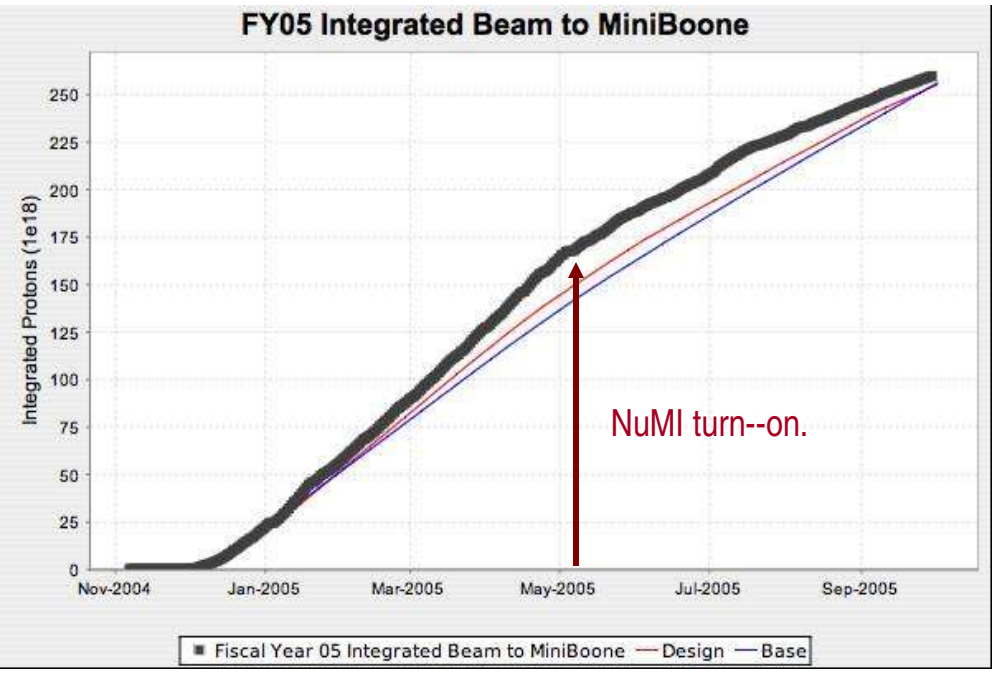
4. Calibration runs for the muon monitor, varying horn current and beam intensity.

2. First set of data runs for the LMC with the nu^bar beam.









The FY05-06 running period was very successful for both Fermilab – ran above highest expectations – and MB – more than doubled it's collected data set.

The MB collaboration expresses it's gratitude for all of the difficult, and at times innovative work that has gone into making this a successful run!!

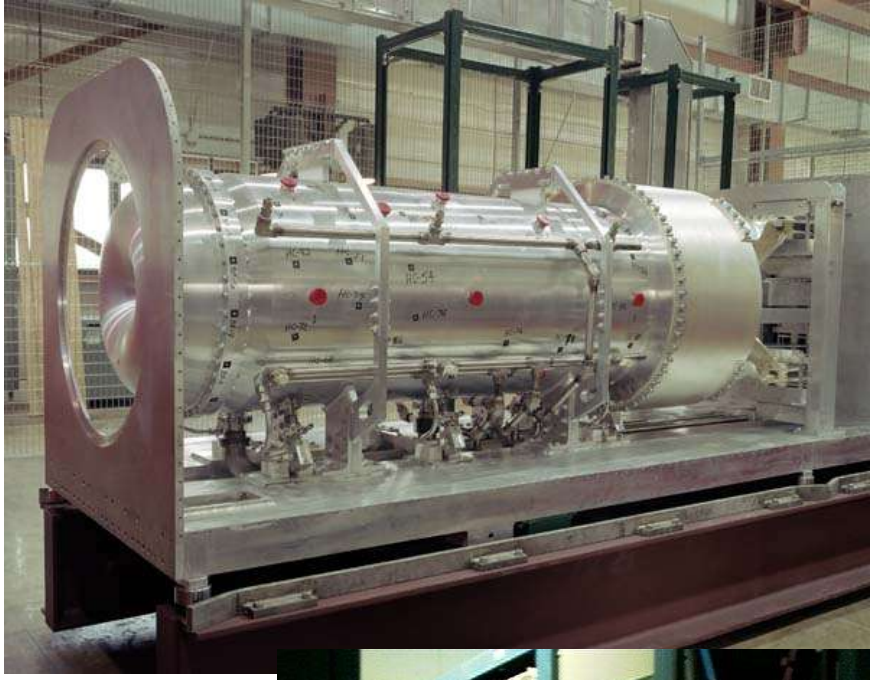
There are too many people to mention, but at least – AD:Booster and External Beams; AD:Operations and Rad. Safety group; CD and PPD.

Shutdown to-do list:

Checkout the spare horn – highest priority.

Upgrade DAQ front end computers.

Electronics improvements –
scalar readout, fix bad channels.



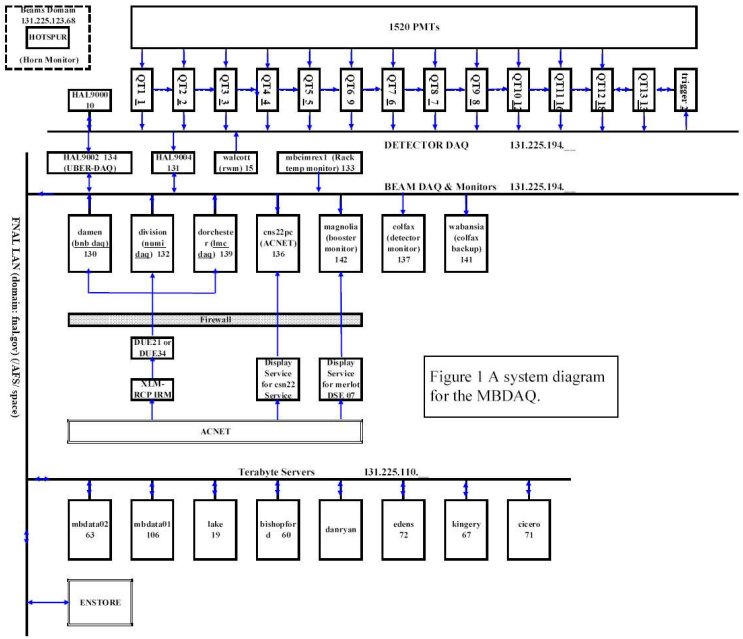


Figure 1 A system diagram for the MBDAQ.

Problems:
Analysis development.
Need more desktop computing: memory and processor speed.

Looking forward to the future:

Completion of BooNE analysis – cross- sections, nu_e appearance, etc.

Anti-neutrino runs will provide an opportunity to collect cross-section data, and combined with the neutrino data, may provide a clearer picture of neutrino resonant and coherent interactions in nucleii.

A long anti-neutrino run may begin to probe CP (CPT) violation.

SciBooNE will provide improved low energy cross-section data.

Analysis of nu_e from NuMI target, may present an opportunity to search for flavor dependencies in this sector.

Minos analysis of nu_e from the BooNE target may provide interesting look into another realm of physics.

$$\begin{pmatrix} c_{12}c_{13} & s_{12}c_{13} & s_{13}e^{-i\delta} \\ -s_{12}c_{23} - c_{12}s_{23}s_{13}e^{i\delta} & c_{12}c_{23} - s_{12}s_{23}s_{13}e^{i\delta} & s_{23}c_{13} \\ s_{12}s_{23} - c_{12}c_{23}s_{13}e^{i\delta} & -c_{12}s_{23} - s_{12}c_{23}s_{13}e^{i\delta} & c_{23}c_{13} \end{pmatrix}, \quad K = \begin{pmatrix} 1 & & \\ & e^{i\phi_1} & \\ & & e^{i\phi_2} \end{pmatrix}$$

$$\sin^2\left(2\,\boldsymbol{\theta}_{23}\right) \geq 0.92$$

$$0.72 \leq \sin^2(2\,\boldsymbol{\theta}_{12}) \leq 0.95$$

$$\sin(\boldsymbol{\theta}_{13}) < 0.23$$