

MiniBooNE Report

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for the MiniBooNE collaboration

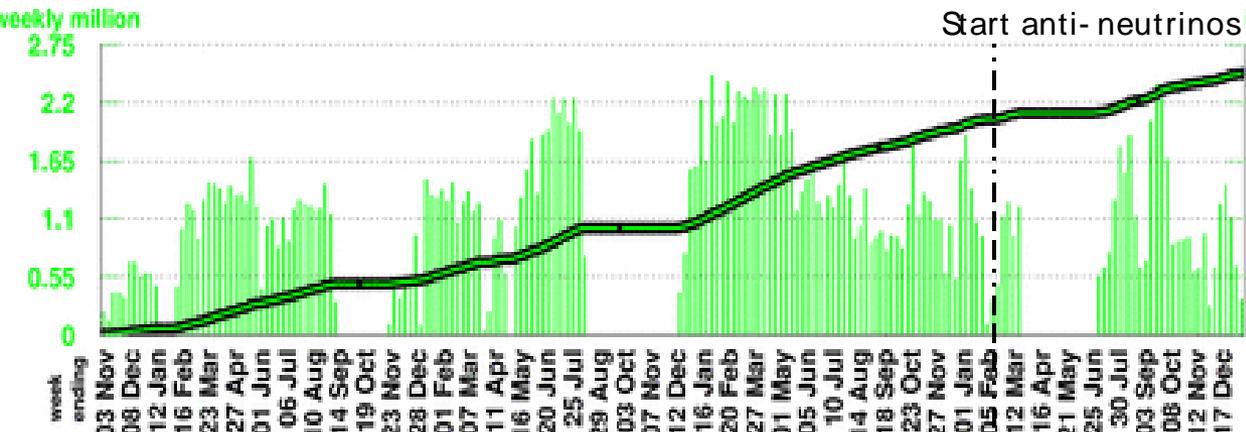
18 December 2006

Week Summary 11 Dec – 18 Dec

0.43E19 POT, 80% Uptime

- Linac+Booster continues to run well
 - Last five weeks around 5E18POT/week with NuMI running. Two times better than previous running.
- Horn off running (Dec 7-Dec 15) to study missing nu/POT problem.
- Major Downtime:
 - 24 hrs, MI12 power outage test, RAW pumps repair, MI and Booster work (Dec 12/13).

11 Dec - 18 Dec



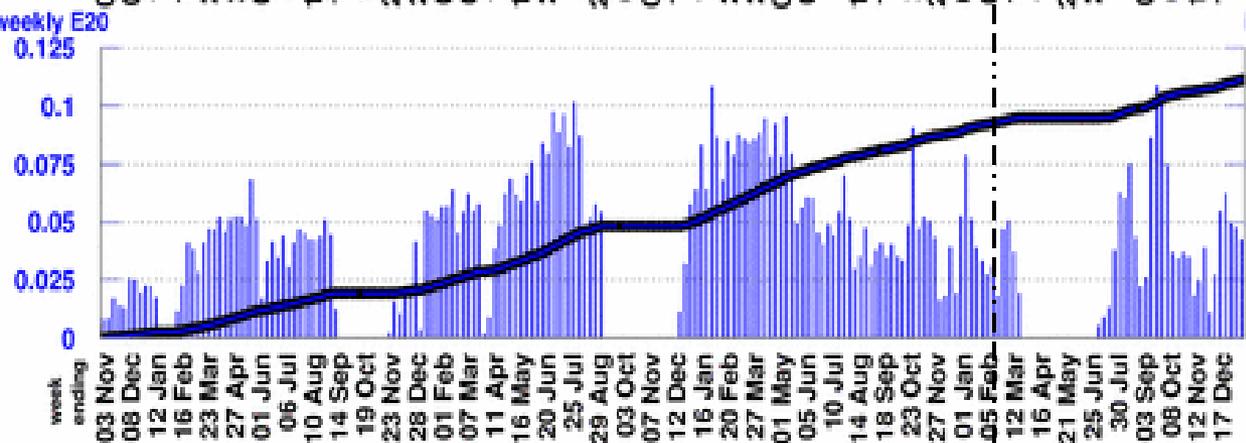
Number of Horn Pulses

To date: 206.55 million

Largest week: 2.46 million

Latest week: 0.34 million

With Beam Information Cuts

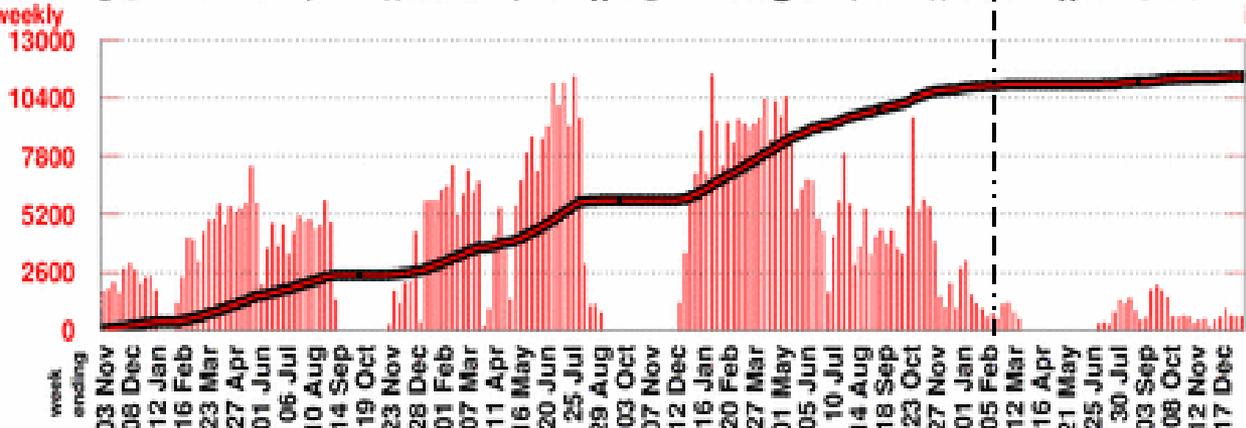


Number of Protons on Target

To date: 8.4485 E20

Largest week: 0.1085 E20

Latest week: 0.0425 E20



Number of Neutrino Events

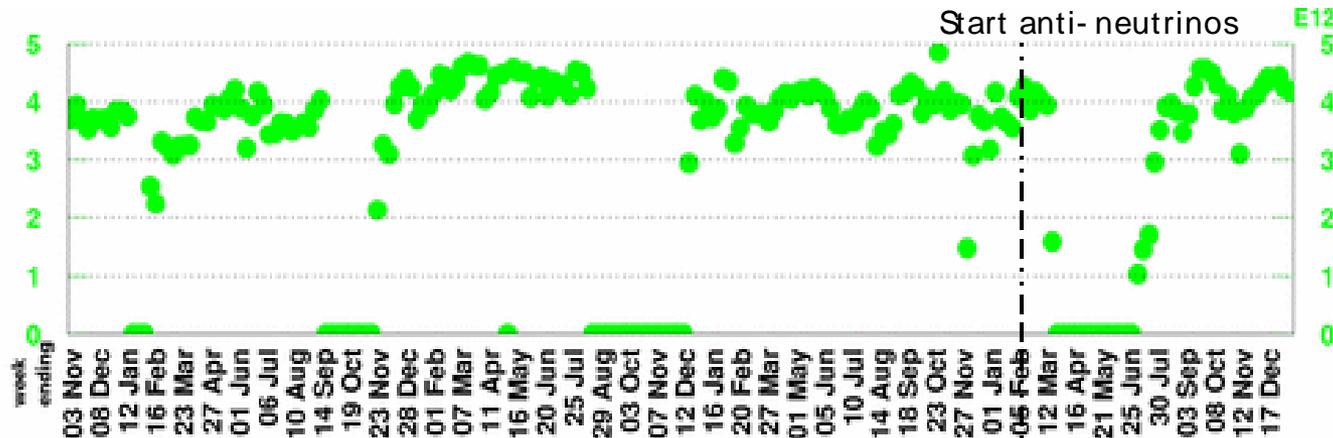
To date: 742998

Largest week: 11447

Latest week: 619

11 Dec - 18 Dec

E12

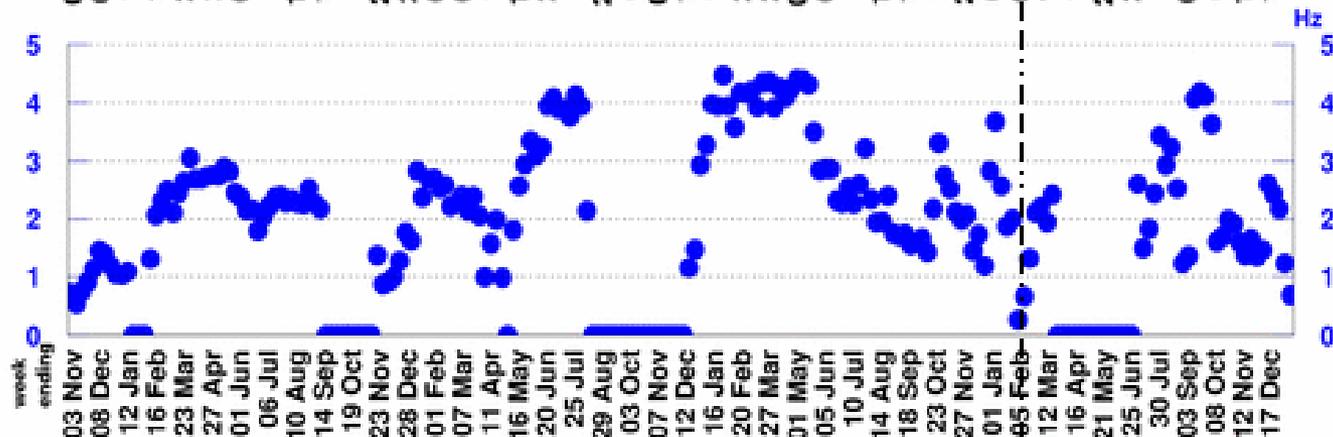


POT per Horn Pulse

Largest week: 4.85 E12

Latest week: 4.19 E12

Hz



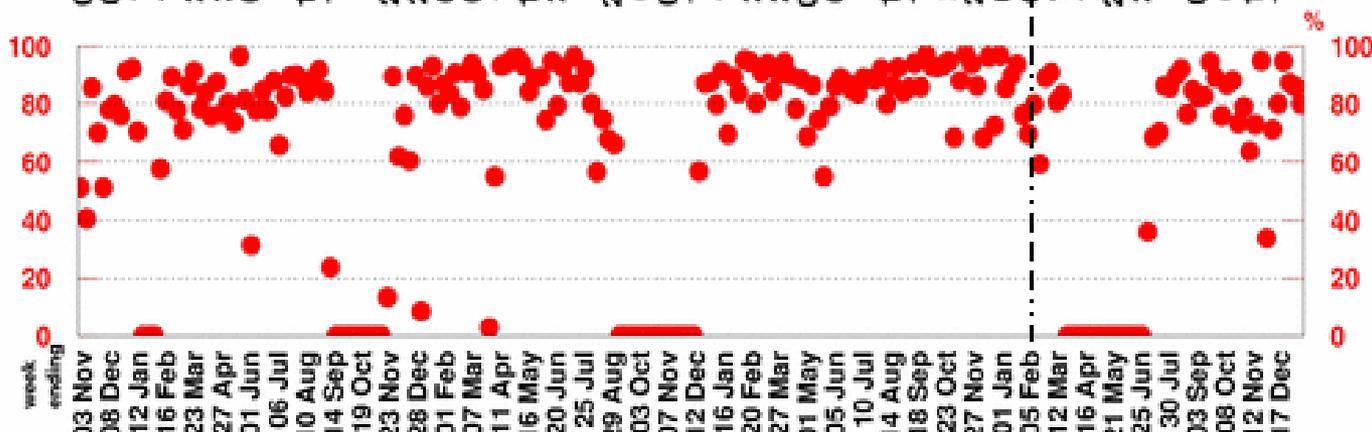
Horn Rate

(for time periods with beam)

Largest week: 4.48 Hz

Latest week: 0.68 Hz

%



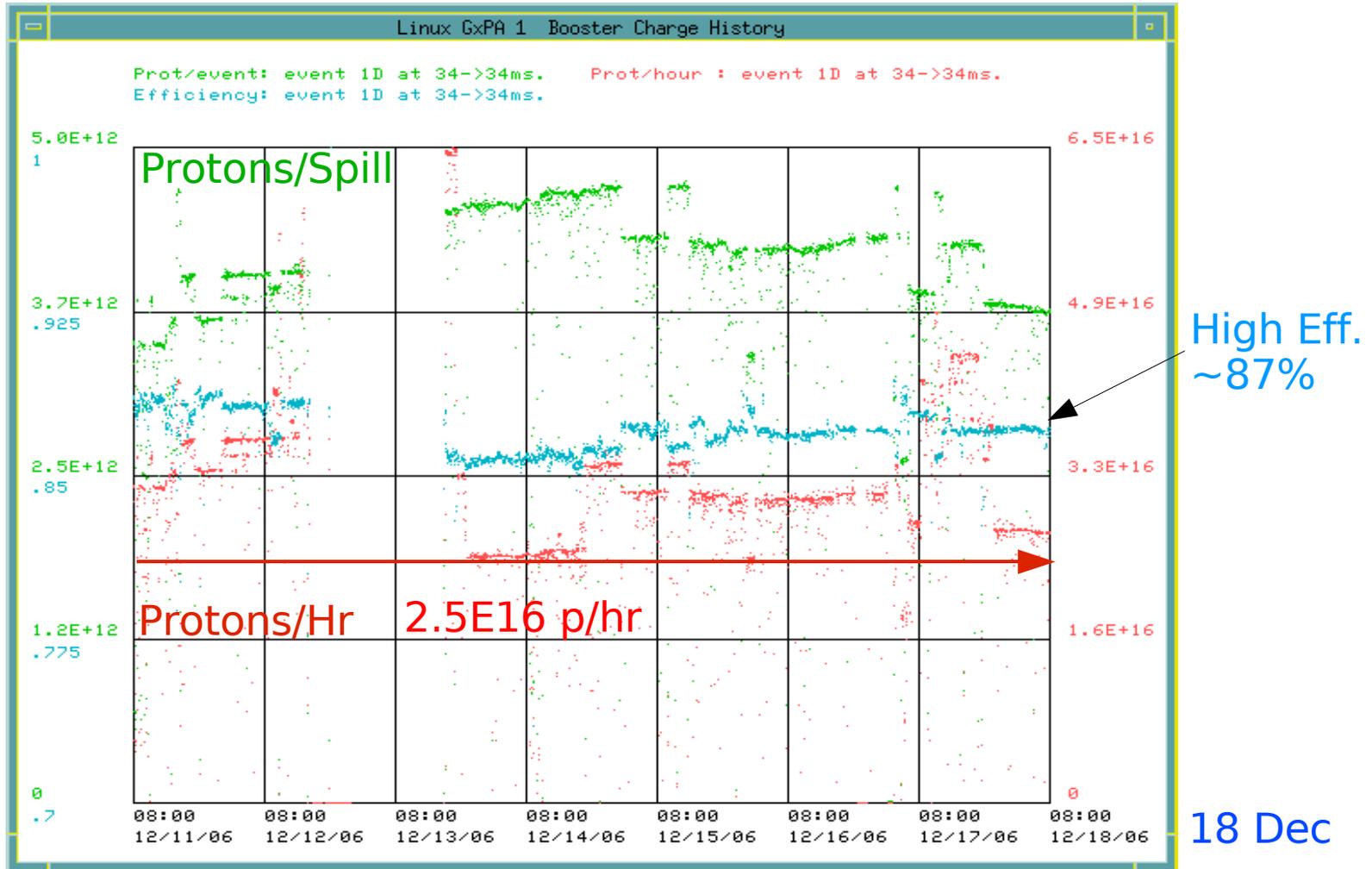
Beam Uptime Fraction

(fraction of time with beam)

Largest week: 97.4 %

Latest week: 80.2 %

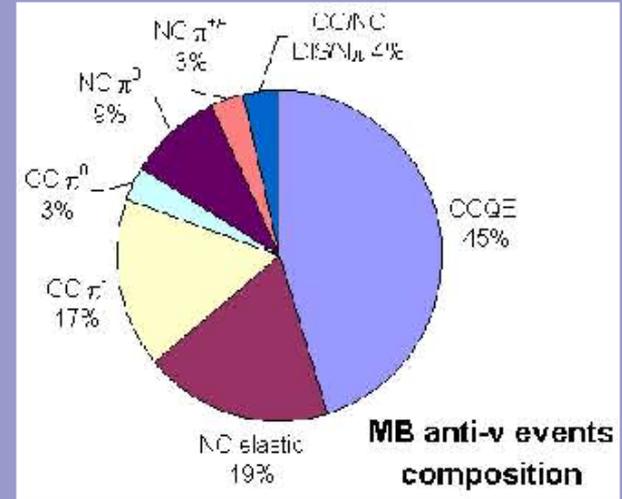
One Week MB Proton/Hr Summary



Running at 10-11 turns, high efficiency.

Antineutrino Scattering with MiniBooNE

- $\bar{\nu}$ events expected in next year:
- from $2E20$ "protons-on-target" (POT)
 - with fiducial radius of 500cm
 - before cuts
 - ν event (wrong-sign) contribution not included



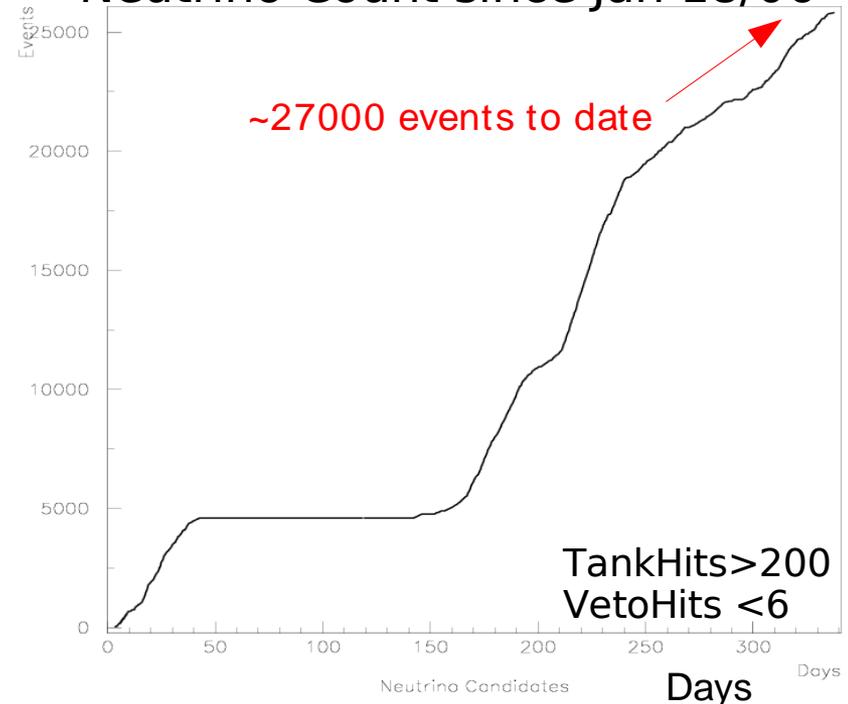
$\bar{\nu}$ channel	events
all channels	54k
CC quasielastic	24k
NC elastic	10k
CC π^-	8.9k
CC π^0	1.7k
NC π^0	4.9k
NC $\pi^{+/-}$	1.8k

"CC" =
charged current
"NC" =
neutral current

1.45E20 POT collected so far....

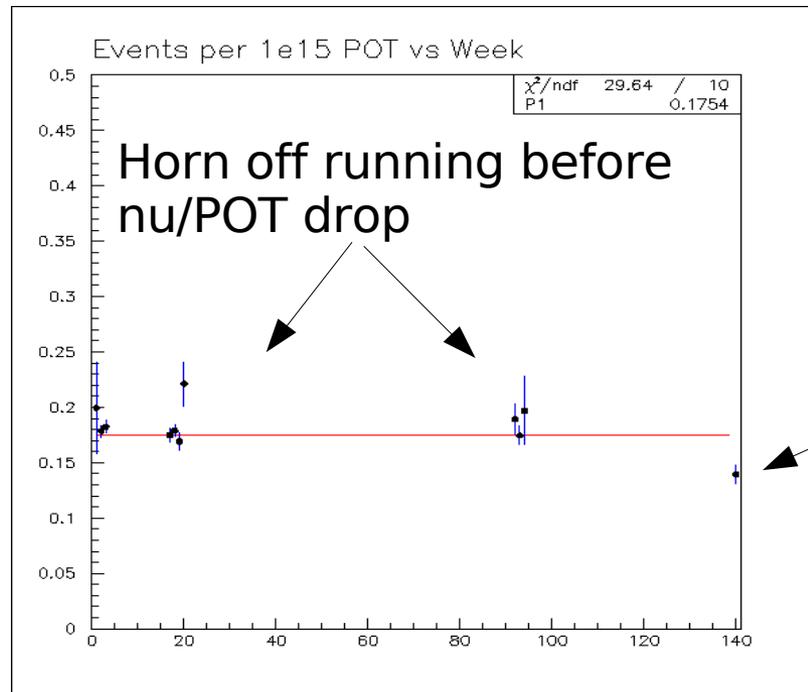
$2.5E16$ Pr/Hr \Rightarrow $1.5E20$ POT/yr

Neutrino Count since Jan 18/06



Horn Off Running.

- We have observed $\sim 25\%$ drop in event rate during anti-neutrino running.
- Horn off running shows a drop that is consistent with horn on. Rules out horn.

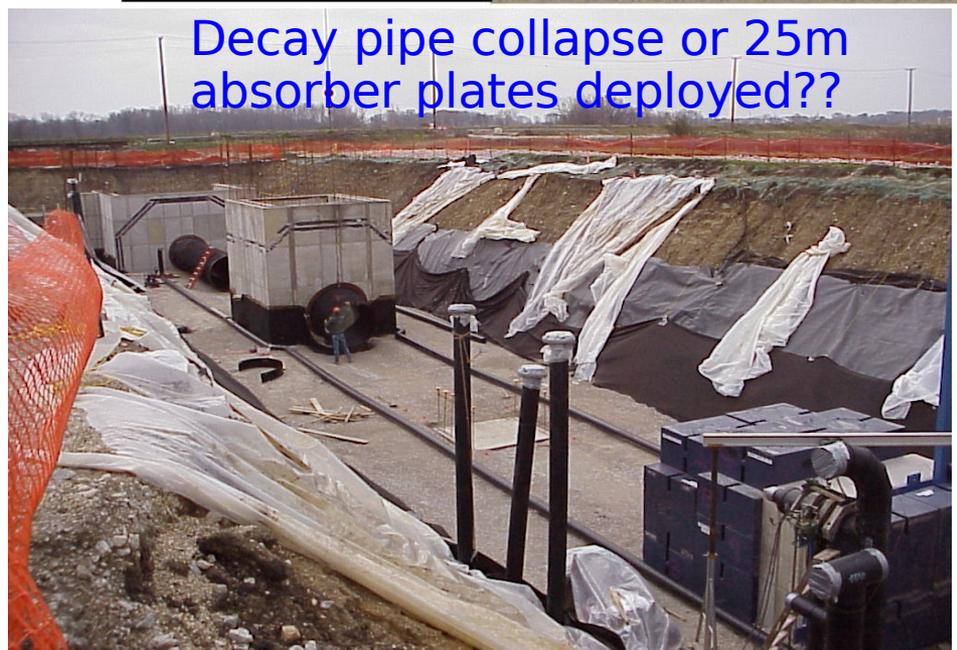
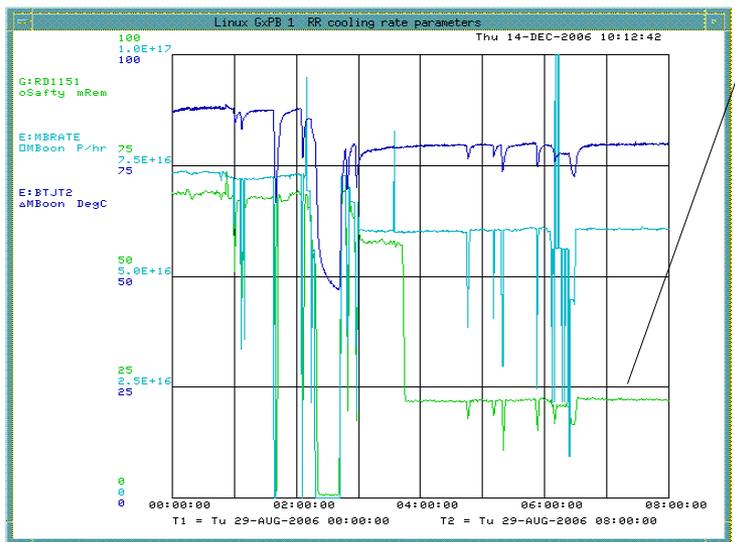
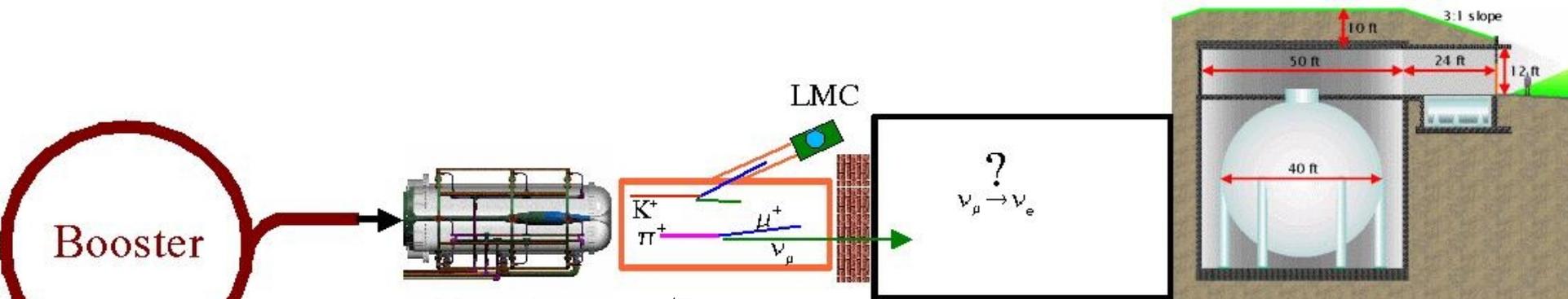


Other Tests

- Beam line
 - Booster and MB toroids consistent with each other $\sim 3\%$ level.
- Horn
 - Horn current and timing nominal. Horn off running rules out horn.
- Target
 - Preliminary analysis of target temperature and air flow shows no significant changes correlated with time.
- Detector
 - Low level quantities, energy scale, etc, constant.
 - NuMI nu/POT constant.

New Evidence...

- LMC, MI13 chipmunk, and dump muon monitors show rate decrease correlated in time with nu/POT changes.



This Week's Plan

- Focus investigation into the decay region:
 - Crane will be available in the new year to look into 25m absorber region for problems, e.g. absorber blocks dropped into decay region.
 - Make rad measurements along decay pipe.
- All day Tuesday (Dec 19) MI12 power outage for SciBooNE power tie-in.
- Maintain high uptime to take advantage of good Booster output.