MINERνA Operations Report
Fermilab AEM

May 3, 2010

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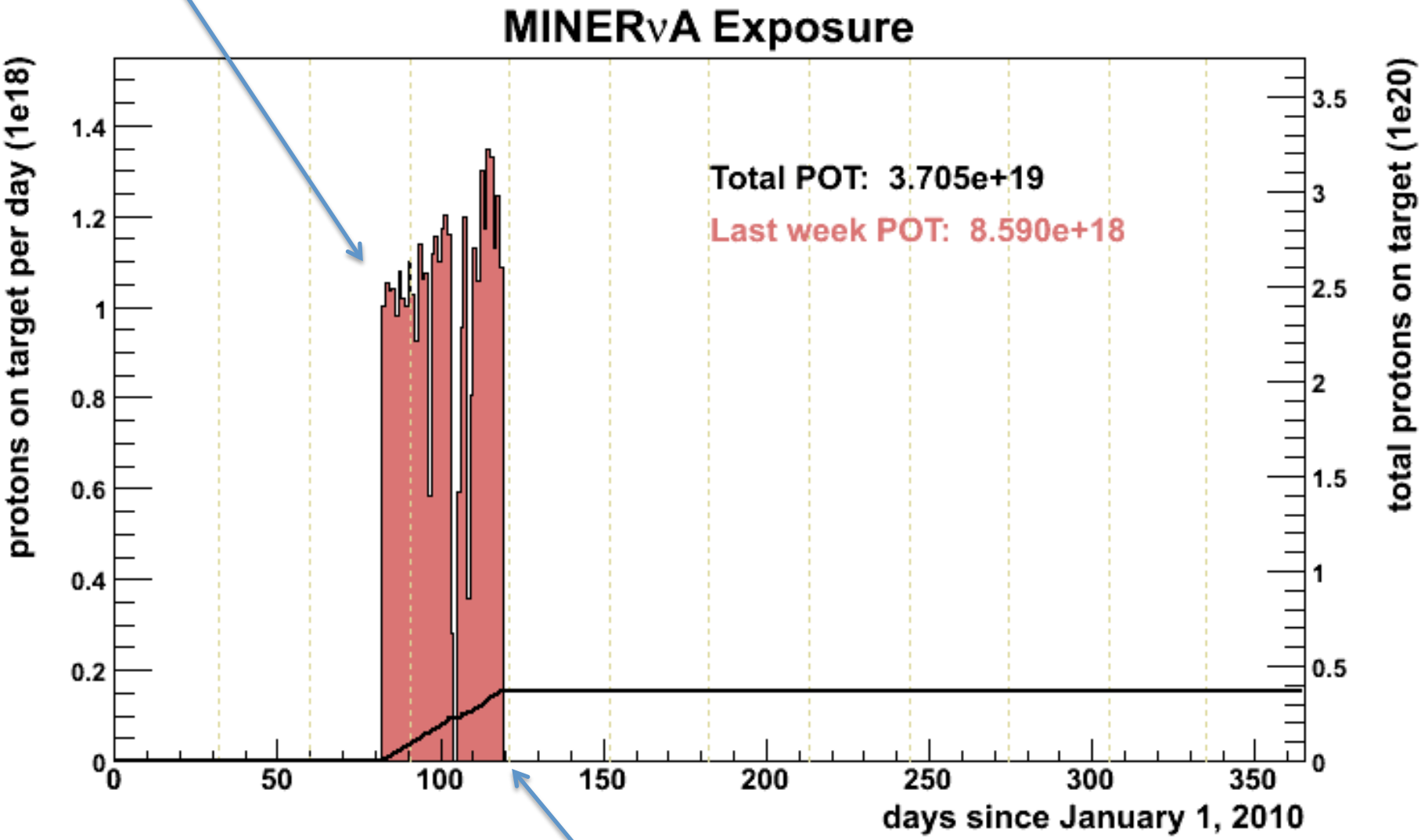
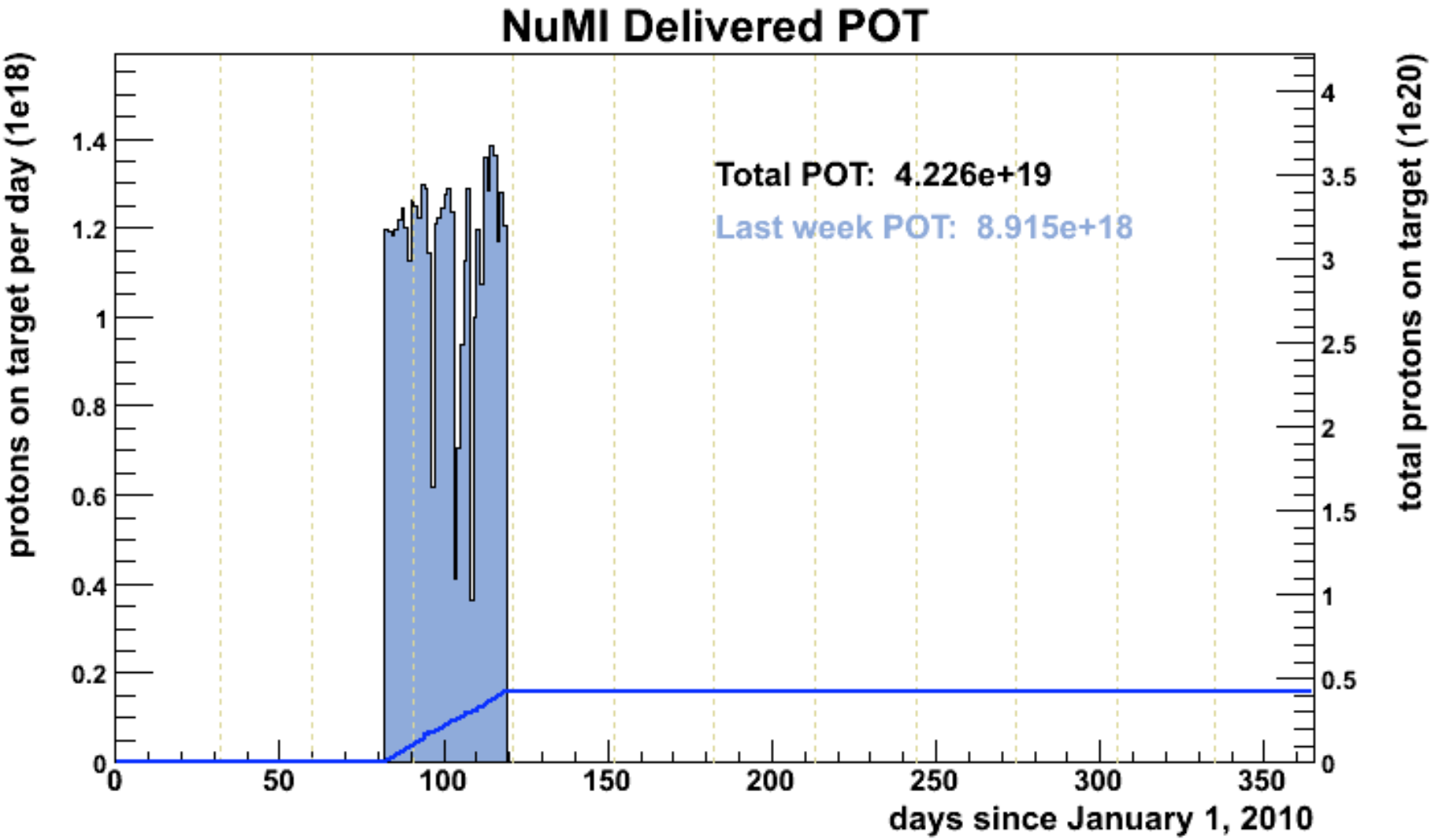
monitoring the detector

- In general, continued smooth 24x7 running
- Work continues on improvements to monitoring tools and automation of data processing with faster turn-around
  - we generate monitoring histograms and data ntuples in real time within the online system sufficient to diagnose sudden detector issues
    - real time monitoring of hit occupancies on all 491 PMTs
    - summary plots of basic variables generated after each subrun (~50 minutes of data)
    - Event Display available for completed subruns
  - offline processing of data sufficient to calculate exposure still lags a few days behind, but has seen significant advances in recent weeks
- For example, today's numbers show exposure up through April 28 (last Wednesday)

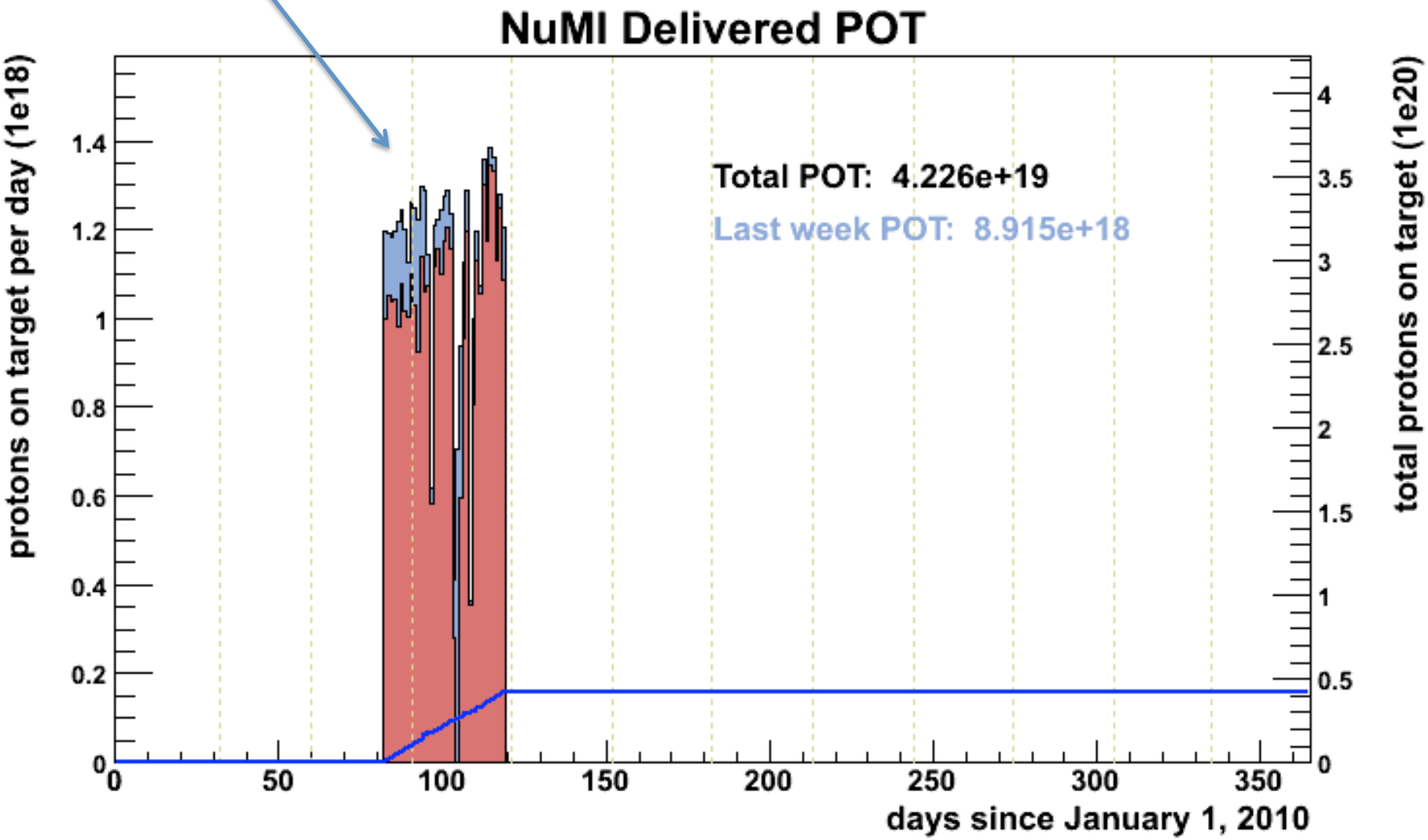
March 23 – start of neutrino beam running

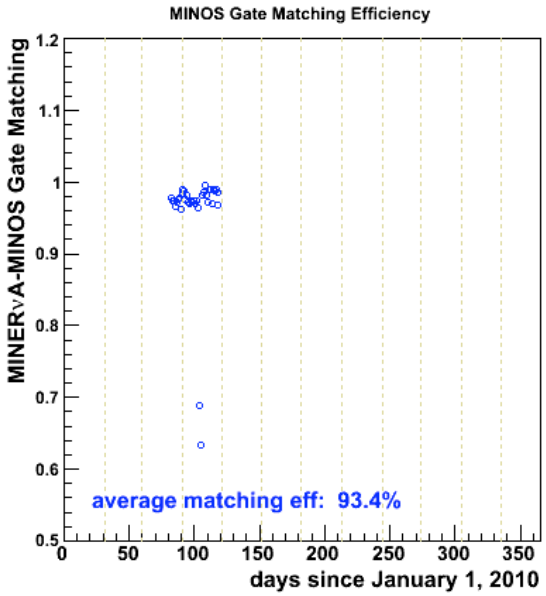


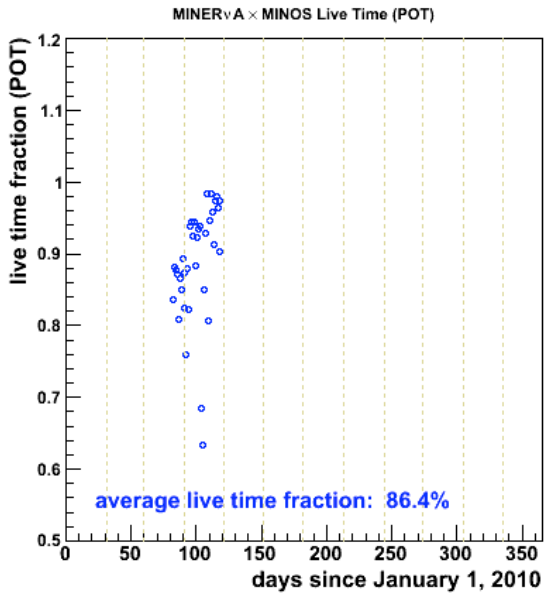
April 28 – state of keep-up data processing and matching with MINOS/NuMI data

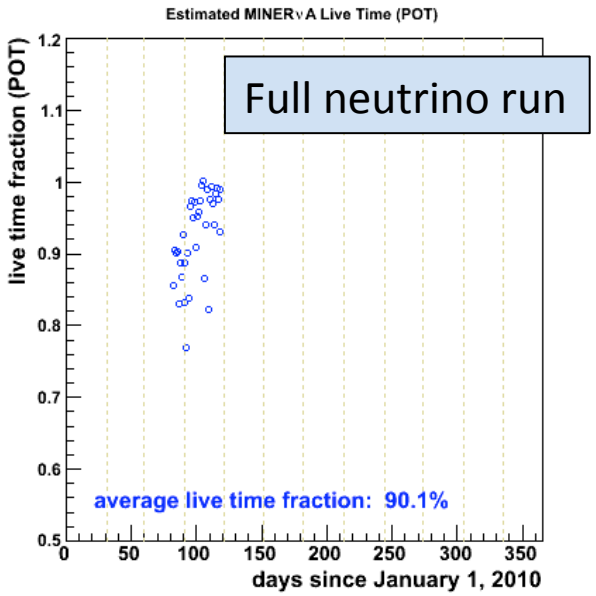

NuMI Delivered POT
Total POT: 4.226e+19
Last week POT: 8.915e+18
protons on target per day (1e18)
total protons on target (1e20)
days since January 1, 2010
0
0.2
0.4
0.6
0.8
1
1.2
1.4
0.5
1.5
2
2.5
3
3.5
4
50
100
150
200
250
300
350

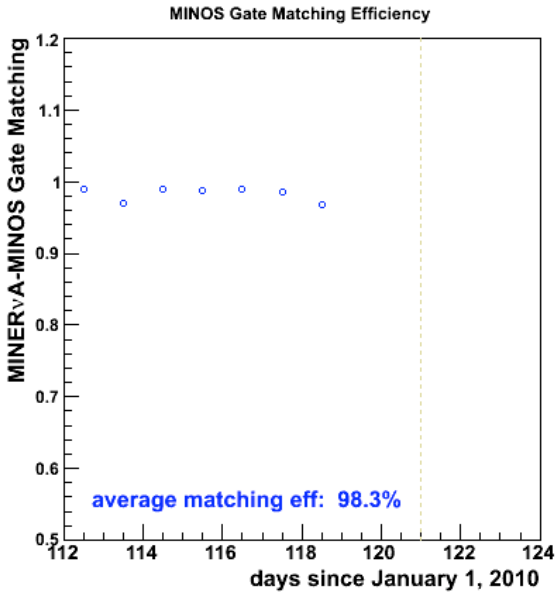
noted improvement in our operation stability over first few weeks

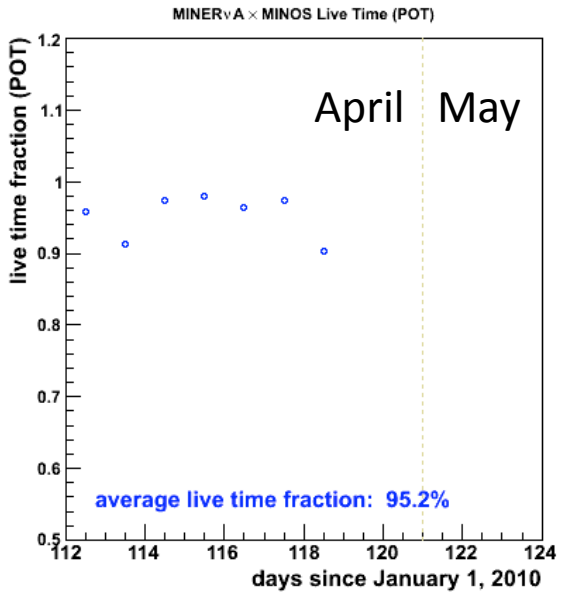


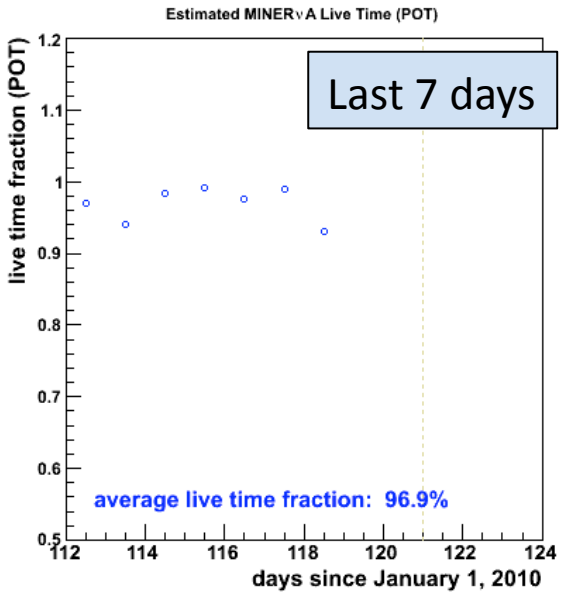

MINOS Gate Matching Efficiency
MINERνA-MINOS Gate Matching
average matching eff: 93.4%
days since January 1, 2010


MINERνA × MINOS Live Time (POT)
live time fraction (POT)
average live time fraction: 86.4%
days since January 1, 2010


Estimated MINERνA Live Time (POT)
live time fraction (POT)
Full neutrino run
average live time fraction: 90.1%
days since January 1, 2010

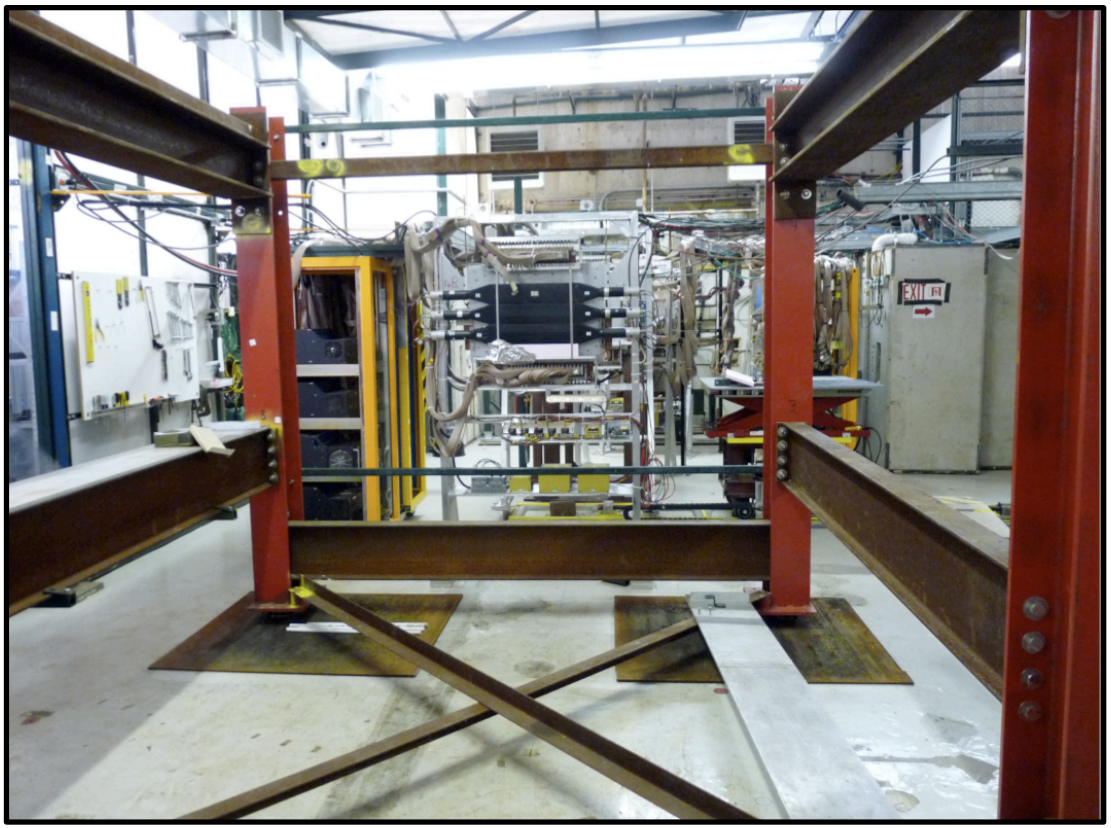

MINOS Gate Matching Efficiency
MINERνA-MINOS Gate Matching
average matching eff: 98.3%
days since January 1, 2010


MINERνA × MINOS Live Time (POT)
live time fraction (POT)
April May
average live time fraction: 95.2%
days since January 1, 2010


Estimated MINERνA Live Time (POT)
live time fraction (POT)
Last 7 days
average live time fraction: 96.9%
days since January 1, 2010

MINERνA Test Beam Detector

- MINERνA includes a test beam program at MTest facility where a tertiary beamline has been set up with a small scale MINERνA detector



System includes:

4 MWPC + 2 magnets for momentum reconstruction

ToF system for PID

Replica MINERνA detector with up to 40 planes

MINERνA Test Beam Detector

- Currently in the midst of a two week engineering run
- April 27 – May 10
- 8 MINERνA planes installed and instrumented
- Pb and Fe sheets
- MWPC and ToF systems being read out
- Testbeam detector read out by same DAQ system as main detector. Triggered by chambers and ToF beam detectors.
- Final installation of 40 planes begins around June 1 followed by a physics run until the shutdown in July

Summary

- MINERνA detector has recorded **3.7e19 POT** worth of physics data with completed detector between *March 22* and *April 28* (horn polarity switch occurred on March 22)
- Estimated detector live time in the latest week **97%**
- MINERνA test beam effort currently in 2 week engineering run at MTest with physics run sheduled for June and July