

# The MINER $\nu$ A Operations Report

## All Experimenters Meeting

Howard Budd, University of Rochester  
Aug 25, 2014

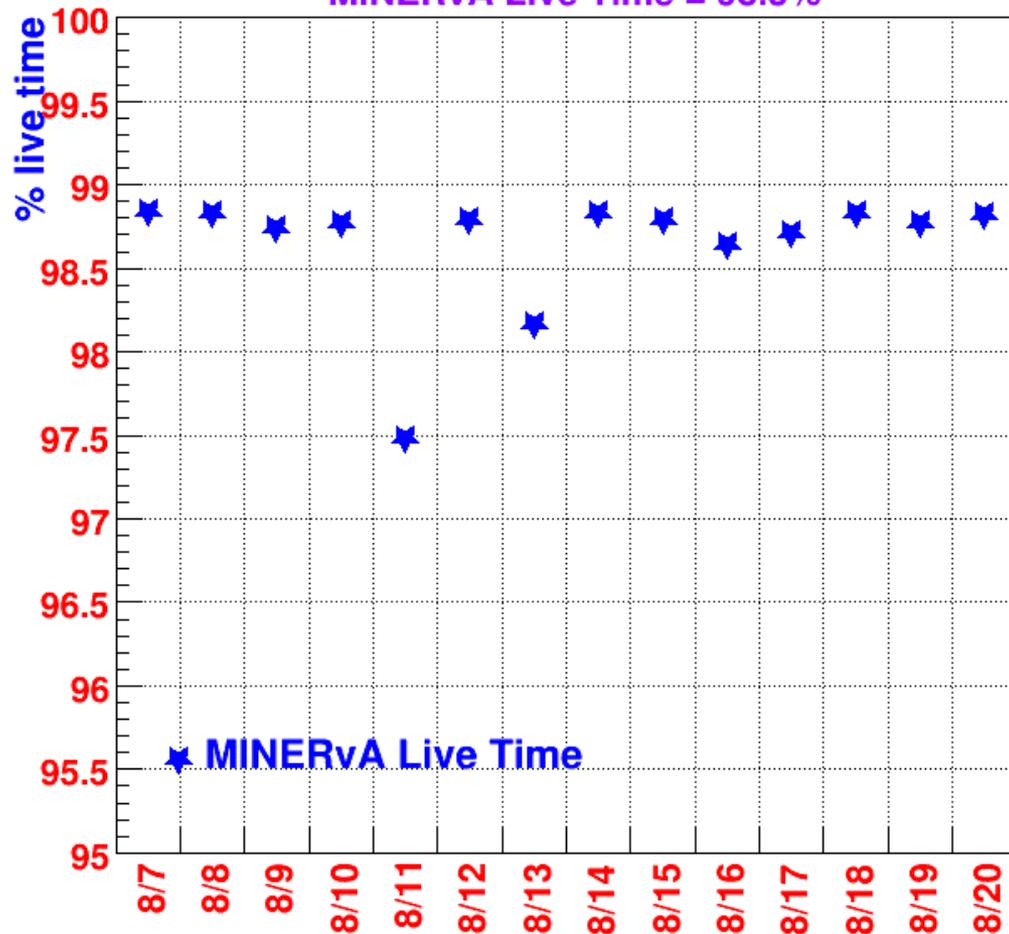




# v Data



Aug 7 to Aug 20,  $1.77 \times 10^{19}$  POT Delivered  
MINERvA Live Time = 98.5%



- Live time Aug 7–20.
- Live time of 98.5%
- Last week “Keep Up” had not run for a 24 hour period on Aug 9-10. Not clear why. Hence, the calculated efficiencies were low. Last Monday the jobs were resubmitted and the live times were what we expect



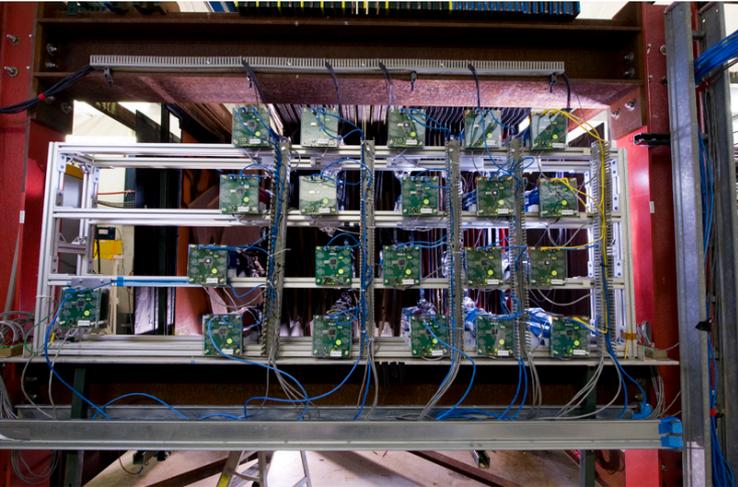
# Shutdown



- We will have a ~ 5 hour day shift, Monday – Friday, to ensure the detector stays operating. Should an element fail we will replace the element.



# Shutdown Tasks Testbeam Module



- Week of Sep 15 – Install test beam frame & cosmic ray (CR) trigger hodoscopes.
- Sep 22 - start plane installation
  - 8 planes & absorber Sep 22
  - 2 weeks to fully readout 8 planes with CR trigger.
- Oct 4 - start install 4 planes/day
  - 4 planes on east side, then 4 on west
    - Once a set of 4 planes on a side is installed, it is difficult to work on the previous 4 planes
  - Readout with CR trigger
  - 8 installations days, 33 more planes
- Oct 20 & on, run entire system to find the weak siblings & test the system.



# Shutdown tasks

## Firmware Upgrades



- These upgrades will be installed first on the readout of the test beam. After ~ 1.5 weeks of tests on the 8 plane test beam detector they will be installed in the detector in the MINOS Hall.
- The CROC-Es will have to be brought to the 14<sup>th</sup> floor for the upgrades
- Firmware upgrade for the CROC-Es.
  - Checks the CRC word
    - Goal: The CRC word (cyclic redundancy check) for all the frames will be passed to the offline to check that there is no problem with the header information and data.
    - Requires changes to the DAQ & offline.
  - Should the communication line of the FEB chain fail, a feature which causes error lights to go on a FEB which causes the problem as long as the clock is being passed through the chain.
    - Right now sometimes the error lights go on, but not always. The software will sometime tell you which FEB fails, but software is often wrong, since it is a readout chain.



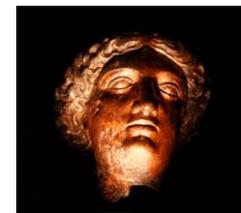
# Firmware Upgrades



- Enables the CROC-E firmware to be upgraded without pulling the CROC-Es out of the VME crate.
- FEB Firmware upgrade
  - Increases the number of times a FEB can store its data from 7 to 19 during a spill. A discriminator hit in one channel causes  $\frac{1}{2}$  of the channels (32) in a FEB to store its data.
    - Important upgrade as the intensity increases.
    - This upgrade can be done without removing the FEBs, but will take about 18 hours to do.
    - This will require changes to the DAQ and offline.
- We would like to thank – Christian Gingu, Boris Baldin, Paul Rubinov, Donatella Torretta, & Bill Badgett.



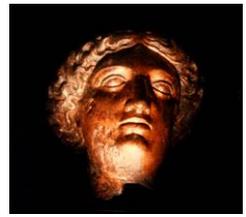
# DAQ computers



- During the shutdown we will change from using the old DAQ computers to new DAQ computers running SLF6.
  - Only 1 DAQ computer is required to run the detector.
- Two computers are installed. The software will be installed on both computers. Either can be the DAQ computer.
- The old DAQ computers will be left in place ~ couple months.
- We have a new method of running the LI boxes which can run both LI boxes from 1 computer instead of 2
  - This will be first tried at the 8 plane test beam module.
- Software to run VETO HV supply will be upgraded to run on a SLF 6 computer. The old SLF4 computer died.
- Thank Geoff Savage & Jason Harrington.



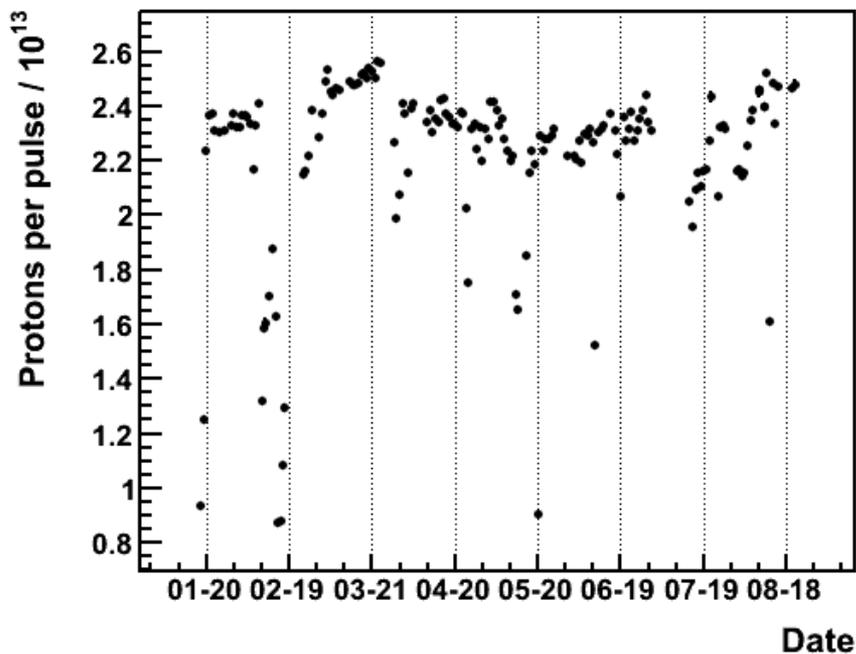
# Replace a PMT



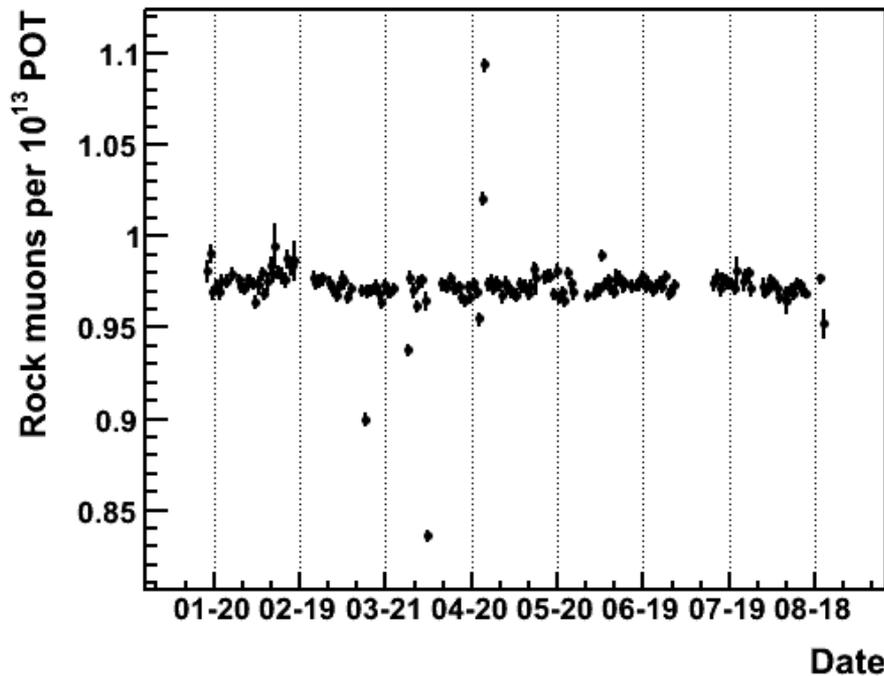
- We will replace either the FEB or PMT for a tube with the HV a little low. In addition, the frequency of the Cockcroft Walton for this tube is high.
  - We will first replace the FEB & if this doesn't fix the problem then the PMT.
  - This will require removal of only one roof panel out of the 3.
- Hope to do this during the first week of the shutdown.
  - Replacement done by FNAL tech



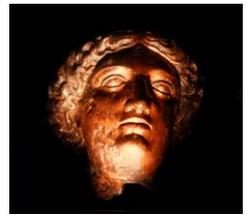
# Rock Muons/POT



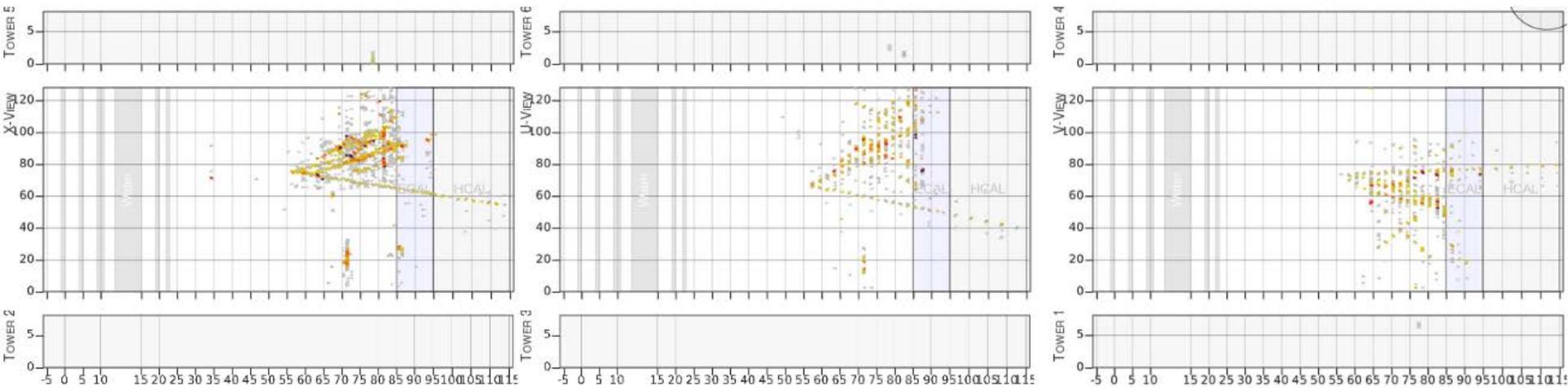
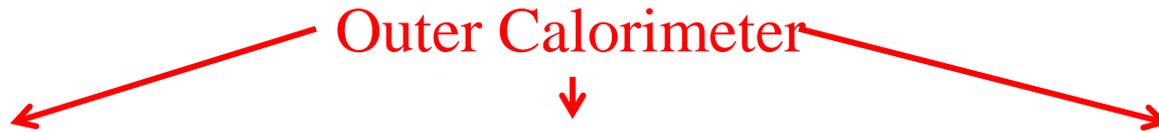
POT/Pulse



Rock Muons/POT



# Event Display



X View

U View

V View

DIS event

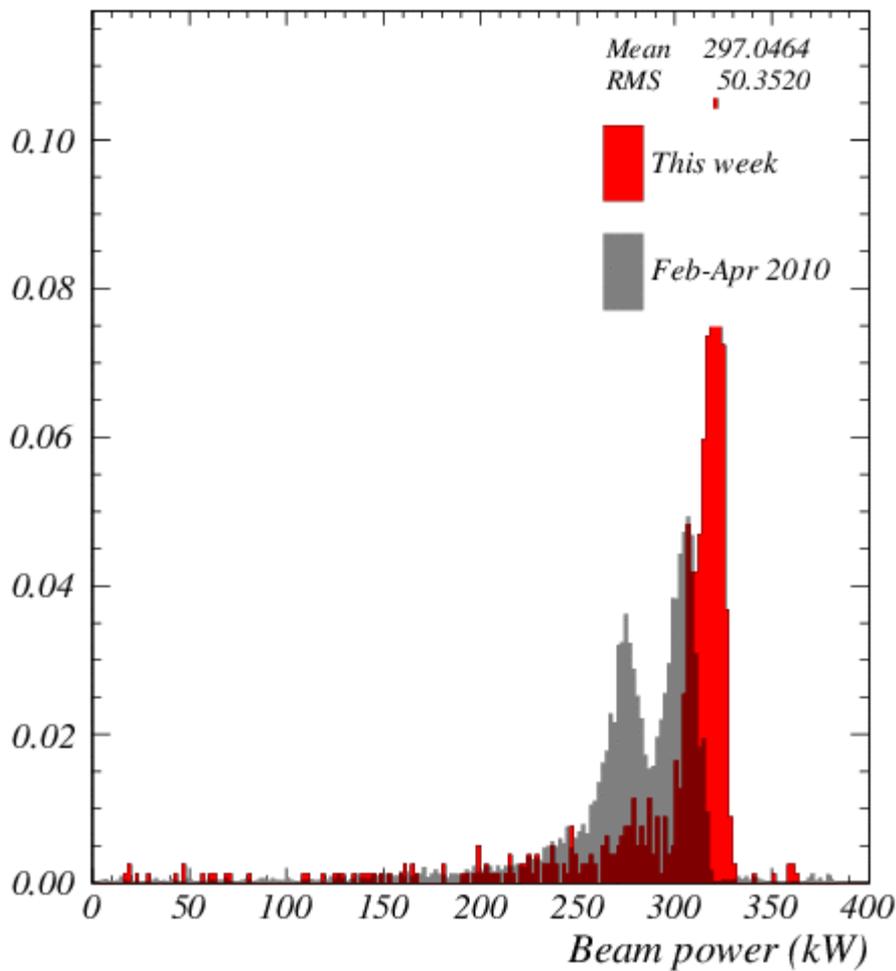
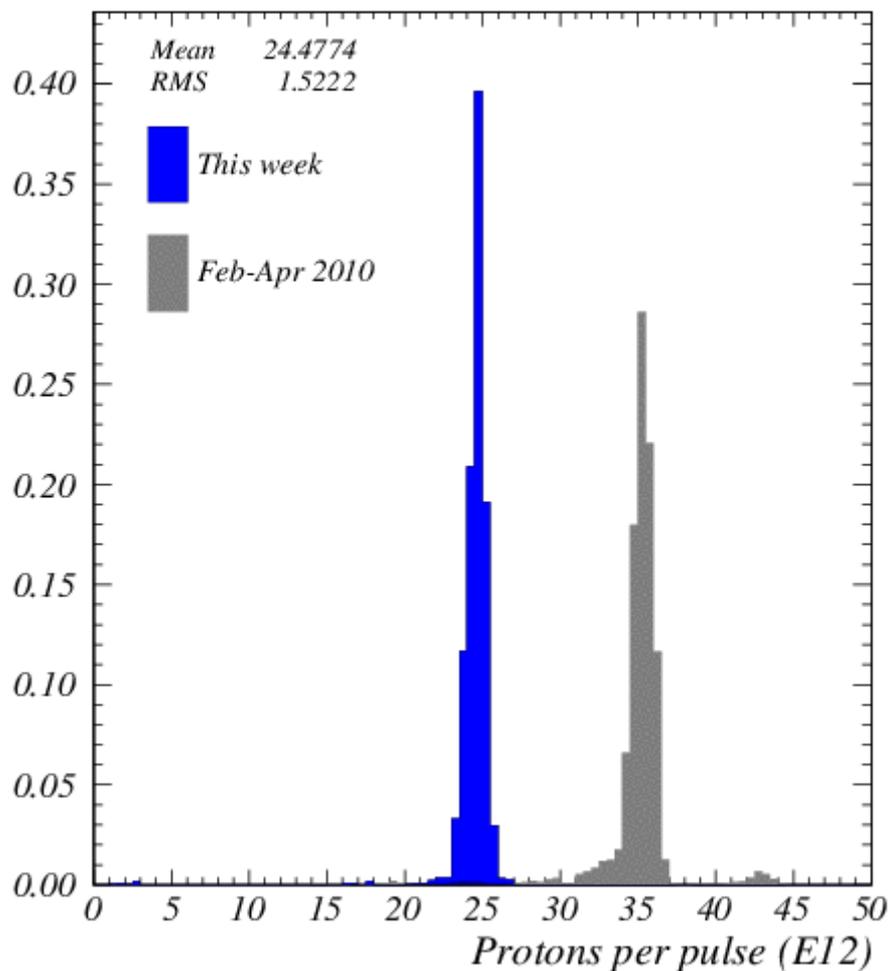


# NuMI Beam Plots



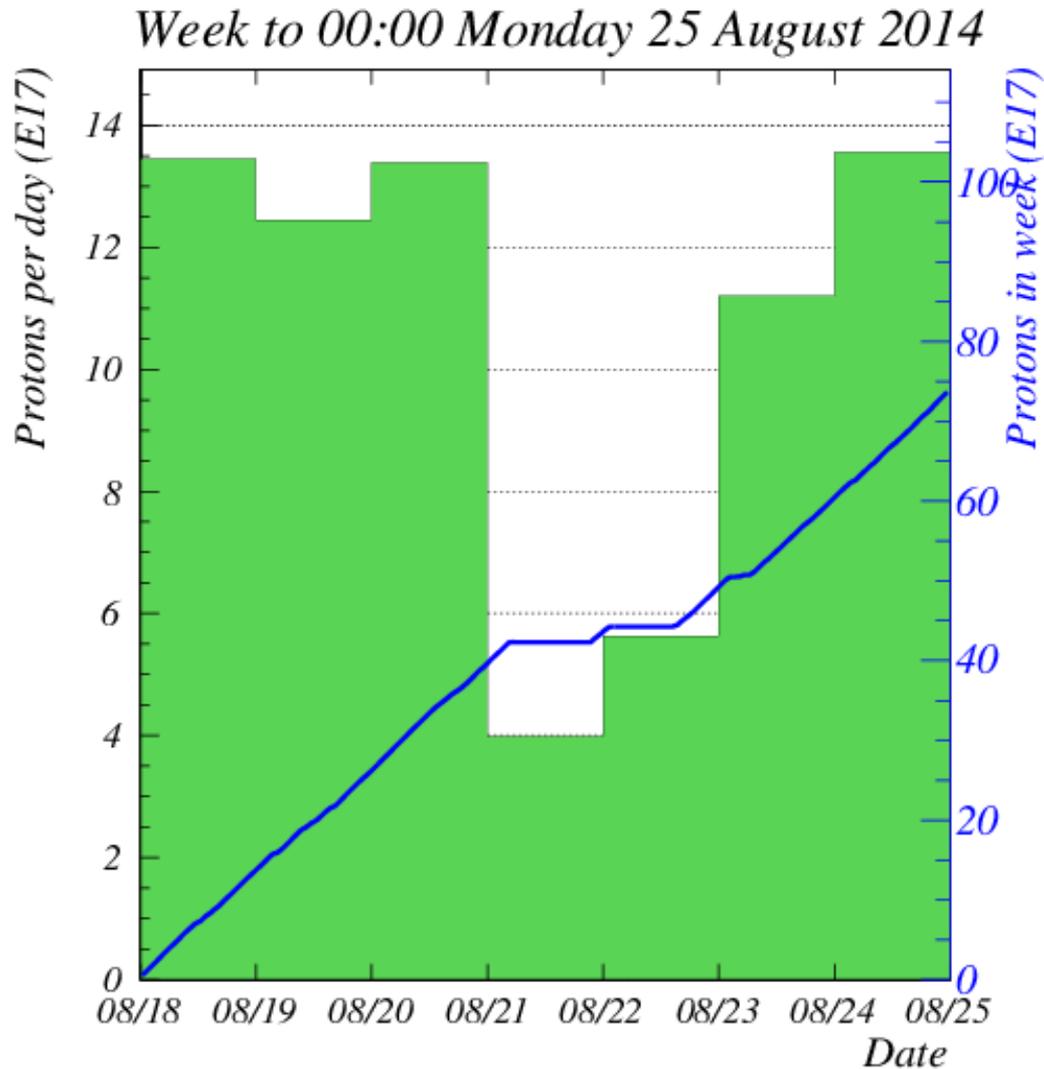
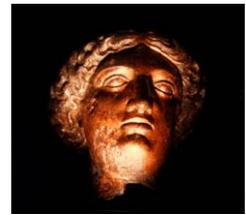
Week ending 00:00 Monday 25 August 2014

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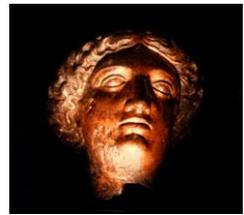
# Protons for the Week



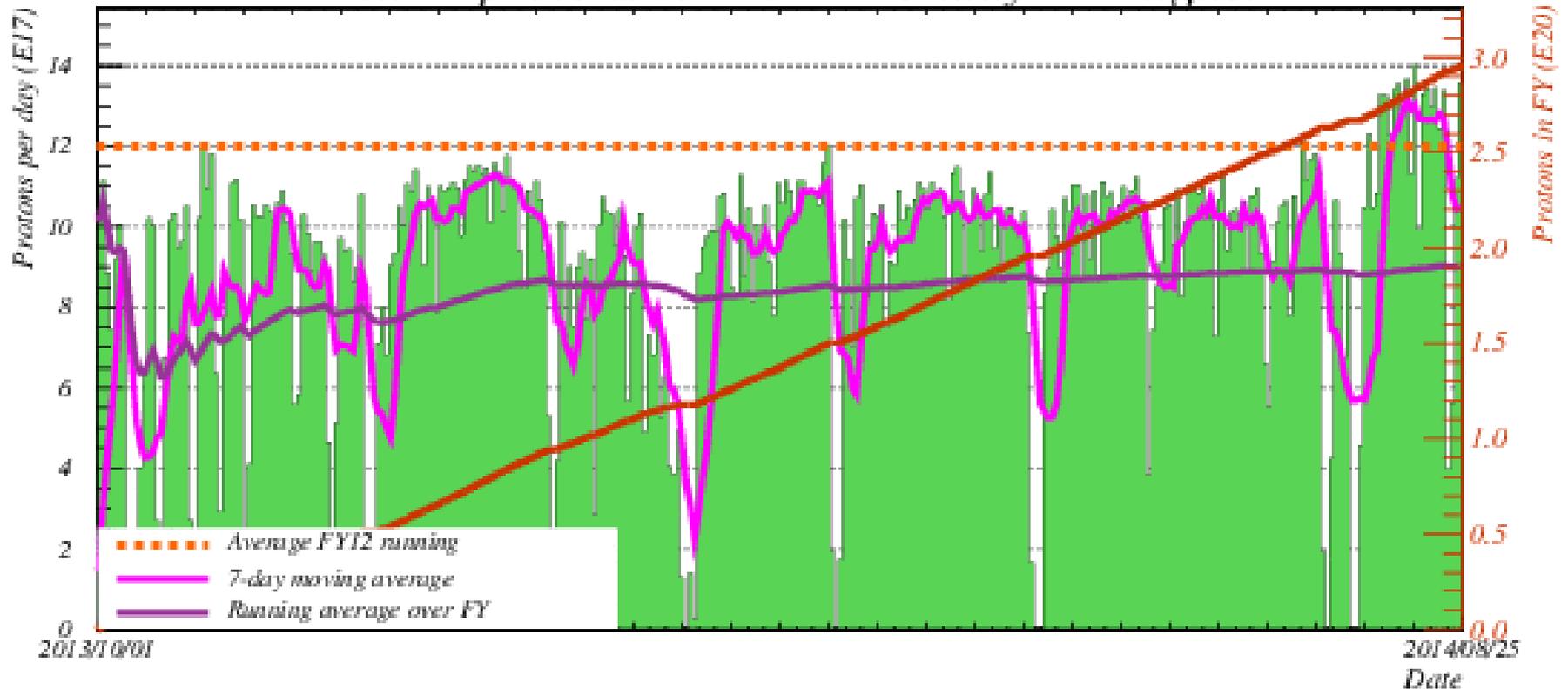
$0.74 \times 10^{19}$  POT  
Aug18-24, 2014



# FY2014 Protons



*FY14 NuMI protons to 00:00 Monday 25 August 2014*

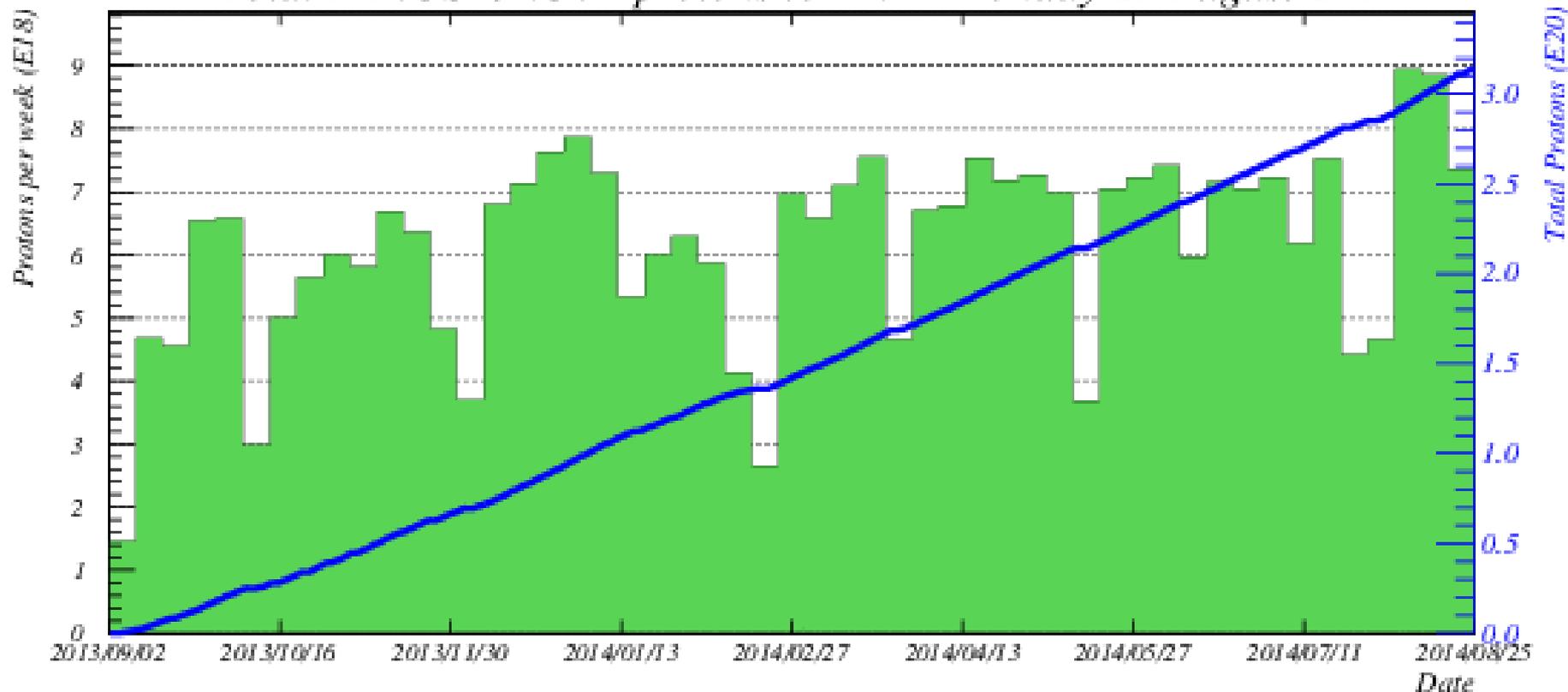


$29.59 \times 10^{19}$  POT  
Oct 1 2013- Aug 24 2014



# Protons for ME Run

Total MINOS+/NOvA protons to 00:00 Monday 25 August 2014



$31.37 \times 10^{19}$  POT

Sep 6, 2013 at 15:00 – Aug 24, 2014