

MicroBooNE Update

All Experimenters' Meeting - 9/12/2016

Matt Bass



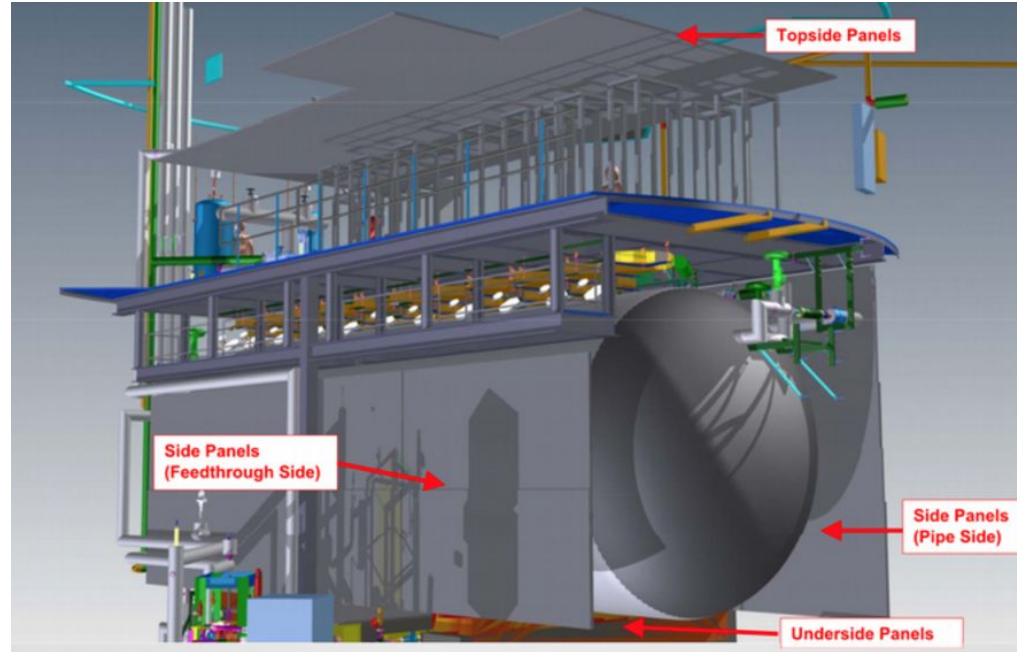
Operations Summary for August

- **Nominal** operations: taking cosmics to fill in background samples
- **Special calibration** runs:
 - Drift HV variations studies
 - Laser runs
 - External muon tracker runs
 - Transparency condition study
 - Supernova readout (continuous) testing
- **Series of upgrades** ongoing over the shutdown:
 - Have been reviewed by **tech boards** to evaluate the plans and scope of each upgrade
 - Making good progress and staying on schedule
 - Currently planning towards beam being back in Week 9
 - **We will be ready for beam when it returns!**
 - Brief overview of a few upgrades follows...
 - Not covered: SN stream, beam timing, AC power redistribution

Upgrades: Cosmic Ray Tagger

Cosmic Ray Tagger (CRT) installation ongoing:

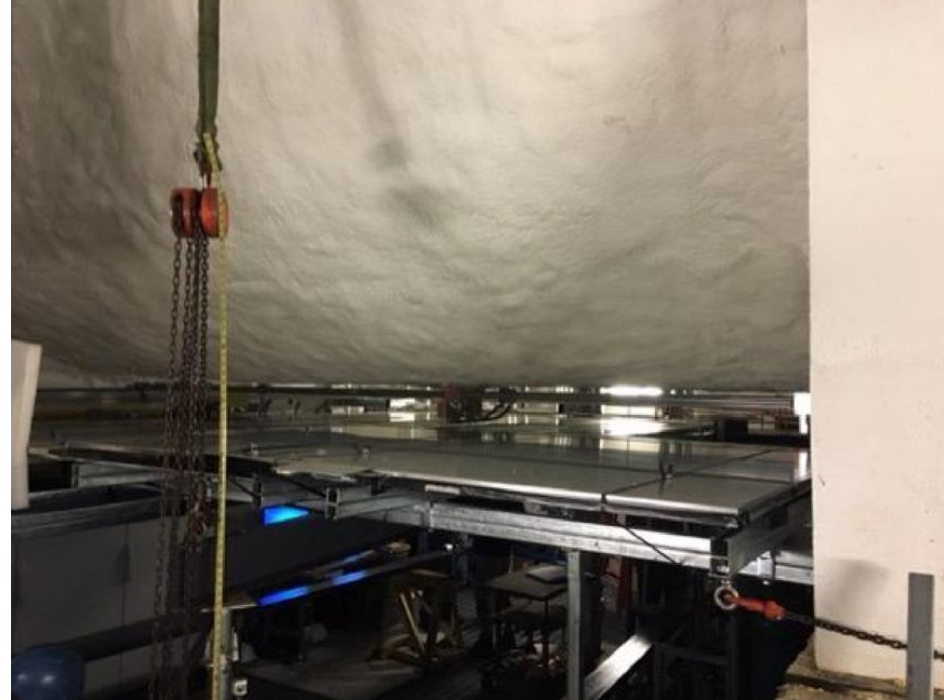
- Bottom panels in place after some delays
- Side panel installation is ongoing
- Top table will be constructed but panels not installed until a later date
- Electronics racks being built and ORC'ed; cabling to start soon; DAQ integration in progress



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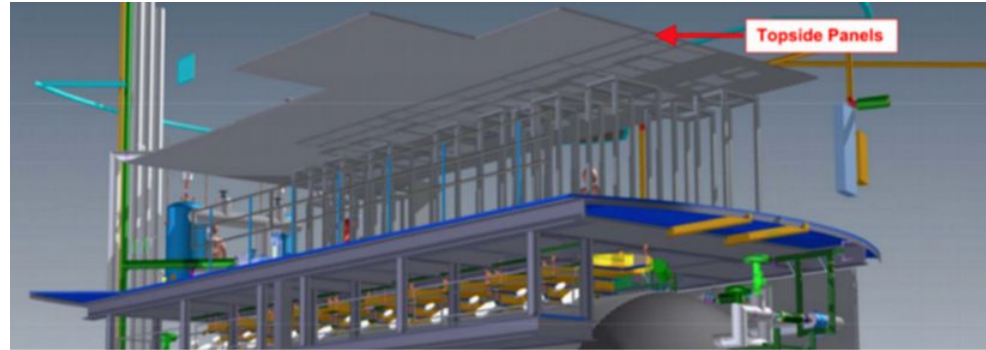
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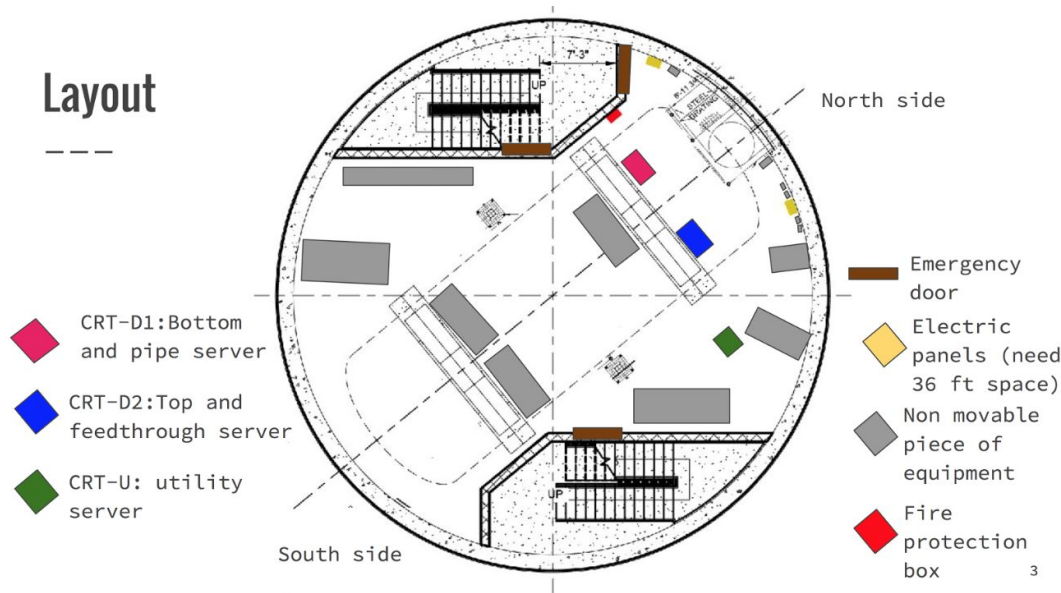


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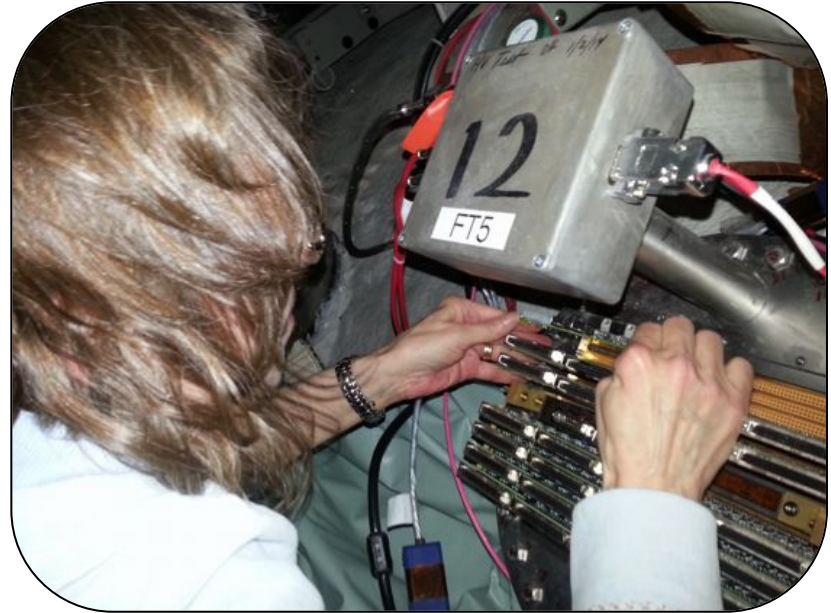
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Layout



Upgrades: Service Board Replacement

- Multiple upgrades underway to eliminate noise sources in MicroBooNE
- Service boards provide the LV to our analog readout electronics inside the TPC
- After testing a few different prototype service boards, a version of the board was selected
 - This board adds an upgraded **voltage regulator** to reduce noise levels in the 10-30 kHz range
- Boards are being **produced** now; expect delivery on 23 Sept.
- **Installation** will take over 3 days: 27-29 Sept



Second HV Filter Pot

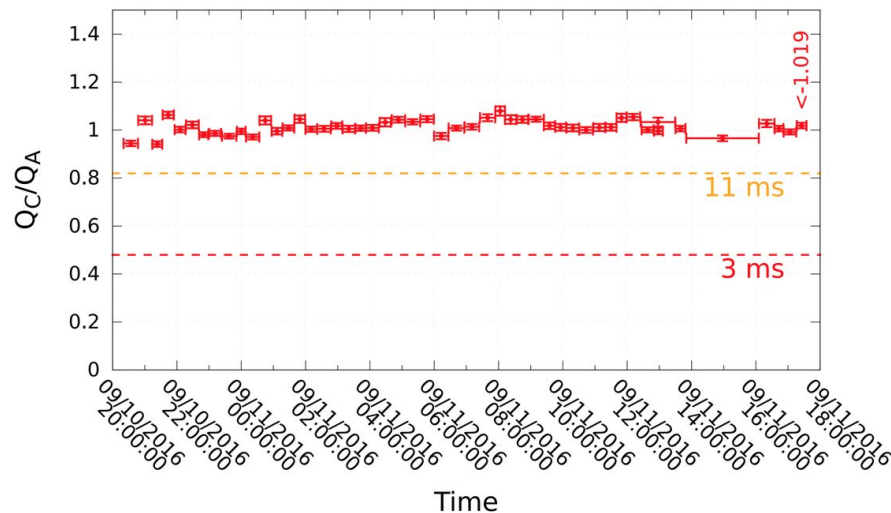
- Will be installing a second drift high voltage **filter pot**
- Pot + cable acts as a **low pass filter** with the goal of further filtering $n \cdot 36$ kHz switching power supply frequencies
- To be **installed** in next few weeks
 - Pot ready/tested
 - Enclosure rack in progress



Resistors

Nearline Purity Monitoring

- **Reminder:** we initially relied on in-vessel purity monitors to measure LAr purity but they were deactivated after being recognized as a noise (light) source
- Have had great success working with our data management (e.g. POMS) and detector physics groups to develop a nearly online (nearline) **LAr purity measurement**
- Now have **purity** measurements with a 2-3 hour delay
 - Based on TPC track sample that goes through a streamlined analysis path



Average Jobs Running Concurrently [🔗](#)

518

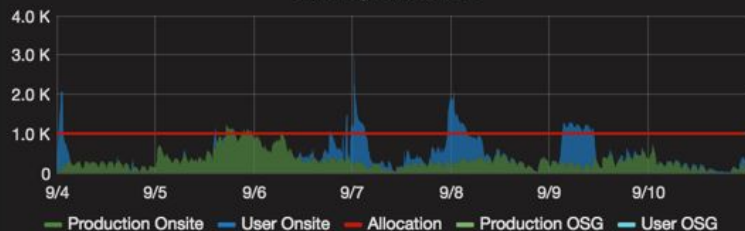
Total Jobs Run [🔗](#)

84581

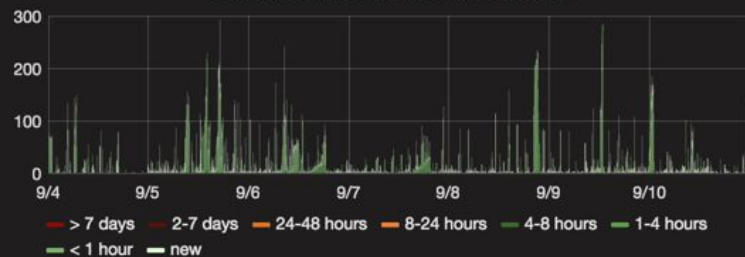
Average Time Spent Waiting in Queue (Production) [🔗](#)

4.2 min

Running Batch Jobs



Queued Production Jobs by Wait Time



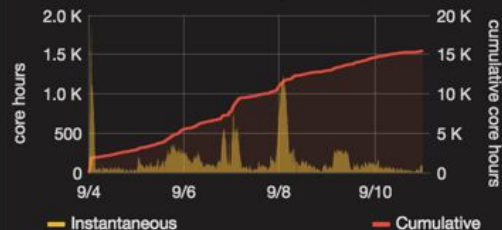
Job Success Rate



Job Success & Failures per Day


Overall CPU Efficiency [🔗](#)


Total Time Wasted by Running Jobs


New Data Cataloged [🔗](#)

70.4 TB

Total Data Cataloged [🔗](#)

4.6 PB