

Lab Status/ AEM Meeting Notes

Monday Dec. 4, 2017

<https://indico.fnal.gov/conferenceDisplay.py?confid=15841>

Incidents:

- On Nov. 21 during Ross Shaft rehab work at SURF, two steel shaft guides became unsecure during transport to the worksite and fell off the north skip work deck. No injuries. Work stopped immediately and a SURF investigation began. A Fermilab HPI investigation will also be completed.

Accelerator Operations:

- MI52 Septa problems: shorted and broken wires. Access on Wednesday to fix. Back Thursday.
- Linac running well; LRF3 still sparking. Booster tuning continues. RR slip-stacking.
- ~550kW with switchyard.
- NUMI: 8.6E18; BNB:1.25E19; Muon: 3.98E16 p; MTest: 2.61E13, MCenter: idle.
- PIP-II injector test back and studies ongoing.
- CMSTS1: LCLS-II F1.3-05 in cooling down.

MicroBooNE:

- Stable running.
- 93% BNB uptime, DAQ uptime 97%. POT recorded: 1.20E19.
- Job success: 94%; CPU efficiency: 20%; inefficiency due to several factors.
- Reconfigured VNC to reduce network loads; continue monitoring network traffic to see results of reconfiguration and would like to understand cause of router crashes.

Minerva:

- Minerva live time 97.7%; Minerva with MINOS 97.3%.
- DAQ stopping frequently...cause not known yet. Takes 20 minutes to recover. Investigating.
- Job success rate 96%, CPU efficiency 54% but much improved efficiency since Nov. 28.

NOvA:

- Instabilities during the weekend due to memory leaks in buffer nodes. Will restart this Wednesday and diagnose further.
- ROC at University of Pittsburgh to begin shadow shifts this week.
- ND running well; 8.33E18 delivered and recorded.
- FD recorded 7.7E18 of 8.33E18.
- Job success rate 87%; CPU efficiency 63%, inefficiency due to a few local user jobs.

g-2:

- Inflector—replaced control board, improved trip electronics. Significant work on kickers and quads. Quads operated stably at 20.5 kV.
- Work continues on commissioning of detectors. Operating 24/24 calorimeters; 16/16 trackers, services installed, DAQ integration in progress.
- Partial field map made with trolley.
- Beam tuning -- peak performance of 35% w.r.t. design.
- Plans: Vacuum work and completing cryo infrastructure. More iterations on beam, detector and injection tuning.

Special Report:

- [Monthly CMS Report](#)

PPD Operations:

- Safety: No incidents.
- Mu2e
 - Accelerator
 - Setting up for the 300 Hz AC dipole test. Expect to receive the toroidal vacuum qualified ferrites this week.
 - Solenoid
 - GA did not VPI the PS/DS model coil last week due to problems with a VPI pump. Pump to be replaced this week, VPI re-scheduled to Dec 11.
 - ASG is preparing to do the coil insertion for the TS first article. Dry runs done, insertion scheduled for this week.
 - Tracker
 - Tested ~100 straws from Batch 1 production of ~14,000 straws. “Bad” straw rate, based on the spec on leak rate, ~15%. Planned for <20% failure, so the rate is fine. Batch 2 production happening this week.
 - Successfully shipped a v1.5 prototype tracker panel from Fermilab to Duke for x-ray wire position testing – test of the shipping box design and the shipping company. No wires were broken in shipment. The panel will be shipped back to Fermilab, and reshipped to Duke for a re-check of the wire positions.
 - Finished fabricating the second type A assembly plate with shimming to achieve the flatness spec that is needed.
 - Preliminary vacuum tests of the prototype opto-links show that they can survive $1E-4$ torr. The plan is to do additional testing with multiple devices over the next few weeks.
- Astro
 - DESI had a successful Installation and Safety review last week in Tucson. The review covered the disassembly and reassembly of the Mayall telescope scheduled to begin Feb. 12, 2018. Fermilab (Gaston Gutierrez and Guiseppe Gallo) designed the new top end of the telescope.
 - At SiDet:
 - SPT-3G(CMB): Completed 2 more Detector packages
 - DESI: Completed 1 CCD package
- Test Beam
 - MTest: T992 experimenters will wrap up on Tuesday and a new group arrives Wednesday. They will be primary users until T1409 starts on the 13th. T1041 (Jim Freeman) and T1409 (CMS Timing) will be parasitic at that time. Typical run runtime is 8am to midnight, depending on shifters. Beam studies (by Ewa) in the morning on Thursday and Friday (~7:30 to 9 or 10).
 - MCenter: PixLAR will take beam this afternoon. They will run 24/7 once they get started.

- CMS:
 - The timing layer, proposed for HL-LHC under Fermilab's leadership, received positive comments at the LHCC meeting last week, and the LHCC recommended to proceed with in depth review of the proposal.
 - The Precision Metrology group completed profile measurements of a HGCal copper plate in both free and constrained states.
 - HGCal: Setup 1st copper cassette on CMM at SiDet for measurements
 - 2S tracker module: Ongoing Chiller tests at minus 25 C.
 - The thin-films group is working on CMS HE-HB cable fabrication and QC which will continue for the next 8 weeks. This includes modification and calibration of CMS cable QC transmission test setup for different connector type.
 - Advanced materials group completed layup and cure of one carbon fiber sheet for HL-LHC prototype
- Work for Neutrino Program
 - At SiDet finished aligning a laser setup to the arc center point on a recently modified and improved wire folding device for SBN.
 - Thin Films group starting work on protoDUNE "Arapuca" design- TPB coating on 5 Vikuiti sheets (20 units)
- Electrical Engineering
 - Harriet Kung, Associate Director of Science for Basic Energy Sciences at DOE, gave a talk at the HEPAP meeting last week noting the ASIC group's work.
 - Support continues (Mike Cherry) for LCLS-II Project "magnetic hygiene" including demagnetization and verification cycles for vacuum vessels at the Magnet Storage Building once received from the vendor, measuring / characterizing cavity magnetic shields and demagnetization and verification cycles for fully assembled cryomodules at the Cryomodule Test Facility
 - MicroBooNE collaborators released preliminary results of the analysis of "Zig-Zag" noise observed on the TPC wires. The work supported by Mike Matulik has led to grounding improvements, significantly reducing the noise.

ND Operations:

- LAr Detector Engineering:
 - Beginning discussions on logistics for SBN-FD cold shields.
 - SBN Cryo system: Continue design work support structures for proximity cryogenic vessels for SBND and SBN-FD. Preparing to move control cabinets to SBN-FD building.
 - SBN Detector Integration and Installation: Continued design work for CRT integration for FD.
 - SBND: Continued work on designing exterior signal cable layout and cable trays.
 - Operations: Replaced N2 gas getter and calibrated. Assisted LArIAT with fill.
- SBN:
 - Lots of ongoing activities.
 - Detailed planning for the remaining activities for ICARUS installation prior to cold vessel installation in progress.

- DUNE:
 - Second APA unpacked and moved into the clean room last week. Tension measurements and visual inspection complete.
 - Photon Detector bars for APA #2 have been scanned in the clean room at CERN. Assembly of bars for APA#3 is underway at Colorado State University.
 - UK APA#1 has completed winding and tension testing.

LBNF Project:

- No report.

TD Operations:

- No report.

Computing Operations:

CCD:

- Good week.

SCD:

- Good week.

Office of Communication:

- No report.

Directorate:

- No report.