

Lab Status/ AEM Meeting Notes

Monday March 5, 2018

<https://indico.fnal.gov/conferenceDisplay.py?confid=16567>

Safety Incidents:

- An FE employee's head contacted duct work bracket causing a scrape. First aid.
- An AD employee felt pain in his arm while maneuvering a compressed gas cart. First aid.

Accelerator Operations:

- NUMI: 1.98E19; BNB: 9.95E18; Muon: 5.26E17 (tuning/tests);
MTest: 133.9 hrs, MCent:0 hrs
- Linac: Laser notch operational.
- Booster, MI/RR: tuning continues
- NUMI: >710kW w/o SY, ~650kW w SY.
- BNB: Stable operation, DI bottles replaced; Horn PS trip.
- SY: Meson Test taking beam. EDIT program this week.
- Muon: Tuning and studies for g-2.
- PIP-II injector Test: ORC complete. Condition New Buncher Cavity. Start beam and work toward CW operation. April/May Cryo work shutdown.
- FAST: IOTA magnet prepped for field mapping and installation. Other installation work ongoing.
- CMTS1: LCLS-II F1.3-09 in test cave and cooling.
- Schedule: <http://www-ad.fnal.gov/ops/schedule.html>

MicroBooNE:

- 0.95E19 of 1.02E19 to tape
- POT weighted uptime 93.8%.
- DAQ updated to run at 16 Hz instead of 7 Hz for BNB external trigger. DAQ efficiency drops from 97% to 93% but get twice off-beam data.
- Computing -- Job success: 99%; CPU efficiency: 63%. Experts submitting jobs improved job success rate; low cpu eff. due to MC recalibration over the weekend which is cpu-inefficient.

Minerva:

- Minerva live time 96.2%. MINOS-Minerva live time 95.5%.
- Power outage on Feb. 25, DAQ in LI mode when beam came back, Switched to beam mode ~1.5 hours later.
- Job success 82%, CPU eff. 49%. Started using pnfs area to improve work flow, but efficiency got worse; investigating with SCD.

NOvA:

- Smooth running, Four week DAQ rate average: 98.9% (ND), 99.1% (FD).
- Job success rate 97%; CPU eff. 56%. Low cpu eff. because the current workflow runs very quickly over large input files.
- Power outage on Feb. 25 caused PLC issues, and subsequently PLC being automatically blocked by SCD. Recovered fully 5 hours later. Total downtime 7 hours.
- Total POT delivered: 124.06E19 (nu), 63.8E19 (anti-nu).

g-2:

- Repairing and recovering from the vacuum related incident.
 - Quads repair completed, cleaned, pumped down and started conditioning Friday. Expect stable operation soon.
 - Kicker 3 reassembled and conditioned to 55 kV.
 - Operating 24/24 Calorimeters; made capacitor boxes to improve gain stability.
 - Trolley and plunging probe ok.
- Main clock running at “Blinded” frequency.
- Aim to re-establish nominal beam and switch to production in mid-March.
- Job success rate 95%, cpu eff. 56%

CMS: Special Report

See <https://indico.fnal.gov/event/16567/contribution/15/material/slides/0.pdf>

- Mid-week global runs concluded. Cosmic runs at zero tesla beginning.
- HE Endcap upgrade fully installed.
- Replaced all Pixel DC-DC converters; 97% active channels.
- Computing: MC for 2017, 2018 analyses ongoing. New nanoAOD format ~1kB/event.
- New spokesperson Roberto Carlin (INFN) elected to succeed Joel Butler this fall.

PPD Operations:

- CMS: LHCC endorsed science case for Endcap Calorimeter; Director’s Review of CMS HL-LHC April 4-6.
- Mu2e: Mu2e Collaboration meeting last week. Project management team at BNL for a DOE review, will head to Genoa next week to discuss cost/schedule with ASG management and visit calorimeter team at Frascati. Solenoids work continuing. TS first module crated and ready to ship to Fermilab. Expect delivery later this week/next week.
- Astro
 - DES: Y5 finished strongly. Planning for Y6.
 - Axion: ADMX will continue to take data through August. Magnet workshop April 13 at Fermilab. Will discuss options for high field solenoids. Open to Fermilab community-- contact Andrew Sonnenschein. ADMX collaboration meeting April 25-27 at Fermilab.
- Test Beam: Splitting time between EDIT and experiments.
- Electrical Engineering: “first draft” of the core of the colData chip completed last week. This week begin verification to prepare for a 2018 submission. Work progressing on Silicon Muon Scanner project, R3N101 (collaboration) with NSTec for homeland security. Finished testing of 12 FPHX wafers for S-Phenix.
- Advanced Detectors: Work progressing at Extruded scintillator, Optical fibers, Scintillator, Thin films and Wire-winding facilities.

ND Operations:

- SBN:
 - Aluminum extrusions for ICARUS cold shields are due to leave Turkey on March 5; delivery to Chicago scheduled for March 28.

- Good news! The U.S. Dept of Commerce has approved the application for duty free admission of ICARUS. This retires a risk for the program that duty will need to be paid on the ICARUS deliverables from CERN.
- protoDUNE:
 - All TPC elements for the first drift volume are now inside the cryostat! End wall #2 has been moved into the cryostat. Cables for ProtoDUNE APAs 1-3 dressed on the cable trays inside the cryostat and routed through the feedthroughs to the top of the cryostat.
 - APA4 moved into the clean room last week. Visual inspection, tension testing and installation of photon detector modules and cabling accomplished.
 - Two more APAs – one from UK to be shipped soon, another from Wisconsin – the third plane winding nearly complete.
- DUNE: Prep for DOE IPR on March 20-22. LBNF/DUNE interface meeting March 22. Lot of work ongoing on the Technical Proposal. First draft due last week.
- R&D: Arapucas - Good coating results after new cleaning protocol. No deterioration of the coating was seen after soaking the filter in LAr for 24 hours.
- LArIAT: Detector paper undergoing review.

LBNF Project: No report.

TD Operations:

Magnets:

- AS – Disassembly of IQB310 and IQB169 for MI. Parts for the Booster biased cavity solenoid available. Stacking and bonding the rectangular lamination blocks is complete. Preparing to measure sextupole MSD184, and MI quadrupole 7346
- HL- LHC, AUP – Coil fab for LHC inner triplet quads in progress. A short model shell in IB1 for test prep.
- LCLS II – Tests and qualifications of quads continue.
- Mu2e : First TS production module completed. Paperwork being done to air ship to the US. Work on second dish-head at HAB. Potting for faux DS2 done at GA in Tupelo.
- G-2 – Winding of the inner coil for inflector done, outer coil parts being modified at the machine shop.
- MDP 15 T dipole R&D making progress. Coil fabrication and winding underway.

Cryo Sector:

- PIP-II, LCLS-II and Mu2e procurements.
- HL-LHC AUP generating resource loaded schedule.
- Meson Controls Project underway. Shutdown in June to switch to new control system.
- Various sub-kelvin cryo activities for SuperCDMS, ADMX, Nexus & Quantum Lab.

SRF Sector:

- R&D - N2 infusion; quantum computing measurements; Nb3Sn cavity prep and coating, preparing for tests; Plasma processing continues; Nb/Cu vacuum chamber installation is in progress.
- LCLS-II – Problem reported with BPM studs and nuts last week; new studies show good results; LCLS-II cryomodule assembly started briefly, but stopped again. A Quality Assurance Audit mandated in the week of 3/5; CMOn cavities (n=2, ... 12) in various stages of processing.
- PIP-II: Spoke cavity tests. One assembled with a unite coupler and being installed at STC. Another being processed for qualification tests.

Computing Operations:

CCD: Good week. No issues.

SCD:

- Good week.
- CMS operations – cluster still in transition with rolling upgrade of nodes to SLF7 and docker containers.
- Continue to work with experiments to address inefficiencies and improve workflows.

Office of Communication:

- Test of the tornado warning system this Tuesday. Lab cell phones might get calls.
- 8 new members join the community advisory board. Total of 25 members, mostly from the near neighborhood, and two from Chicago, one from Barrington. Next meeting is on March 22.
- Tickets still available to this Sunday's Gallery Chamber Series concert.

Directorate:

- Nigel visited India last week and in U.K. this week – two important collaborating countries. .
- Still waiting for the federal budget for the current FY!
- Fermilab community visit to Washington D.C. this week.
- New Undersecretary at DOE to visit the Lab this Thursday.