

Lab Status/ AEM Meeting Notes

Monday April 3, 2017

<https://indico.fnal.gov/conferenceDisplay.py?confId=14144>

Incidents:

- An FESS employee was moving a heavy load (~300 lbs) on a dolly and onto a trailer. He slipped on the trailer, fell backwards and the dolly hit his left knee and righted itself (load stayed on dolly). First aid.
- A student on Saturday Morning Physics tour fainted in the D0 control room. She cut the bridge of her nose as she fell. Staff on hand helped her to a chair and applied pressure to stop the bleeding. The fire department responded but needed to take no action. Her parents were notified, and they promptly retrieved her.

Accelerator Operations:

- Weekly integrated intensities: NuMI 1.86E19, BNB 9.77E18, NMuon 4.25E16 (155.3 hours), MTest 9.04E14 (106.4 hrs), MCenter 3.00E+12 (58 hrs).
- All machines running well. Goal is to staying above 641 kW with SY.
- No SY beam since ~4:14 pm today and no SY beam overnight due to MI52 extraction septa problem (B tank).
- F2 manhole sump discharge found damaged and leaking underground, temporarily moved into the sump pit.
- One-day maintenance downtime planned for late April maybe moved up by a week. Interlock safety system tests to be done. Linac and Booster tests done Friday.
- Future schedule: <http://www-ad.fnal.gov/ops/schedule.html>
- PIP-II Injector test: Commissioning studies ongoing. Install more of MEBT.
- FAST: 300 MeV beamline upgrade continues. Beamtube installation, assembly of the vacuum and TPM stands ongoing. Electrical ORC review for the proton source today. Vacuum certification of components continues.
- CMTS1: Waiting on deliver of LCLS-II proto-type CM. Testing in early April.
- Please look at the slides available at the agenda link at <https://indico.fnal.gov/conferenceDisplay.py?confId=14144>

MicroBooNE:

- DAQ uptime 97.7% for the week. Running stably at 70kV.
- POT delivered: 9.8E18, recorded: 9.6E18.
- Computing: Job success rate 85%; CPU eff 82%.
- CRT top panel fully commissioned and operational.
- Planning special calibration runs during beam downtime in April for multi-mode fiber cable replacement.

MINERvA:

- Uptime 99.9%, with MINOS ND 90.7%; POT delivered = $1.76E19$ (March 23-29).
- Computing job success rate low (87%), overall CPU efficiency 70%. Low numbers due to a user job.
- Test stand machines used to check firmware changes and Event Display machines granted permission to run SLF5.
- Planning to replace one unresponsive FEB tomorrow.

NOvA:

- POT delivered $18.48E18$.
- POT-weighted Uptimes: 98.9% for FD and 99% for ND (Last 8 weeks)
- Network connection between Fermilab and FD increasingly saturated from Friday through Sunday causing spill triggers to be not received at times. Switched to an alternate network link at 1 am today.
- Computing: job success rate 89%, CPU efficiency 88%. Running ND reconstruction and simulation. Good progress over the weekend.

SeaQuest:

- Taking good data with liquid targets and Iron, with St 1 included.
- Occasional DAQ hiccup due to TDC; replace TDC and repair offline.
- Preparing offline code for processing data taken through summer 2016.

PPD Operations:

- Muon g-2:
 - o Magnet quench early Thursday morning since the wet engines in the muon campus cryo plant tripped off. No damage to the magnet, the operator responded quickly to get the engines back online (the magnet only heated up to 38K). Cause appears to be a new power-monitoring box for the line power in and out of the engines that is too sensitive to fluctuations in line voltage. Engineers are looking into a long-term solution to fix the box, an automated procedure to do auto restart and to reset valves to allow passive flow if recovery fails.
 - o The NMR trolley was read out for the first time in situ in the storage ring attached to the cable that propels the trolley and provides the data path.
 - o As of the end of March, 6/8 quad extensions have now been installed.
 - o Kickers have been installed and are being tested. Currently having problems getting up to full voltage, work-in-progress to understand the issue.
- Astro
 - o Astrophysics Department hosting an LSST-DES hack week this week. About 50 participants are writing code to connect DES and LSST analysis.

- CMS
 - Phase-1 installations are complete. The detector is being closed up.
 - Phase-2 upgrades having a pre-PDR review at NSF April 12-13. The review will cover the HL-LHC Muon upgrade subsystem and project management. Project got a first round of questions today (April 3) and will respond to them with a phone meeting with the reviewers this Friday (April 7) to discuss issues and answer questions. OPSS reviews of the sub projects continue with Project Office; Muons and Outer Tracker completed; Barrel Calorimeter and Trigger/DAQ this week; and Endcap Calorimeter (large DOE subproject) next week.
- Test Beam
 - Problems with water in the F2 Manhole area from the rains last week. Otherwise the experiments have been taking good data. MTest will continue for the next three weeks with the ATLAS Pixel group. LArIAT continues at MCenter.
- The ASIC group is contributing towards RD53A pixel chip in several areas.
- The ASIC group is also participating in the Accelerator and Detector Research (ADR) Comparative Review: Detectors in Germantown DC 4-5 April 2017 with talks on VIPIC-L and FLORA.

ND Operations:

- DUNE:
 - Production Readiness Review of end-wall field cages to be held in Louisiana State University this week.
 - For protoDUNE, winding of the U-plane for APA#1 is underway.
 - Progress being made on the 35 ton; filled with LAr. Noise studies of electronics on-going at DAB.
 - LArIAT came back up after filter regeneration with no problems. Full recovery of all systems expected today.
 - Filters in TallBo at PAB also regenerated; TallBo should be refilled today.
- SBN:
 - Still awaiting completion of the CERN-DOE neutrino protocol addendum. In final stages of review at OMB and the State Department. Techs from CERN scheduled to arrive on May 1.

LBNF Project:

- Ross shaft renovation progressing.
- Pre-excavation design almost complete.
- Will be working on procurements and construction as soon as funding comes in.

TD Operations:

- The cryo plant ran well, but a relief valve developed a leak above a certain pressure. Running below that pressure yields lower operating efficiency, but sufficient for the current testing needs. Valve will be replaced during a planned maintenance period in May.
- Tested SRF cavities last week -- a mix of LCLS-II production and general R&D.
- The Mu2e splice test magnet test completed successfully. Source of measurement discrepancies mentioned last week identified. All joints tested at the expected current and field during Mu2e operations. Additionally, the critical surface of the PS cable was measured. Reached 100% of the short sample limit for the PS cables, as compared with the extracted strand data, which corresponds to the critical current of 76 kA at 5.0 T and 4.2 K (15% higher than the cable specification).
- On the warm magnet testing side, a big effort is underway to review the cross-calibration of multiple rotating coils and to look at the long-term strength/stability of our reference Recycler magnets.
- The prototype module for the Mu2e Transport Solenoid (TS) is being fit up to the “top hat” at the HAB test facility. The plan is to retest it to commission the new test stand starting in the next few weeks. System documentation work continues, with engineering notes being reviewed. All vendors continue to require constant attention.
- First production LCLS-II cryomodule should ship from ICB to CMTF this week. The schedule shows an asymptotic rate of one per month over the next few months. The cavity and quadrupole vendors are vying for the distinction of limiting the cryomodule assembly rate.
- Seventeen crates of magnets and frames for P2IE have arrived from India. Magnets will receive a standard inspection, be assembled onto frames, and have magnetic alignment checked. Will make detailed measurements on a sample to cross-calibrate with BARC measurements.
- All other balls are still in the air. LCLS-II, LARP, HL-LHC-AUP, Muon g-2, Mu2e, PIP-II, accelerator operations, magnet and SRF R&D, and multiple partnerships.

Computing Operations:

CCD:

- NOvA network glitch yesterday caused some data loss. ~15 min data lost. Temporarily moved to Lab’s general traffic 100G link. Investigating network problems from Friday.
- RedHat SLF5 machines being blocked by security. Number of SLF5 nodes down from 150 last week to 20 now.

SCD:

- FIFE
 - o Monitoring probe outage due to certificate expiration. Only monitoring affected.
 - o Bot failure causing some delays in file delivery.
- CMS
 - o Borrowed slots moved back from LPC to Tier 1.
 - o Last period of light usage since Moriond conferences are over.

Office of Communication:

- Employee art gallery exhibit in progress.
- Educational office has STEM expo for high school students on April 19th.

Directorate:

- Joe mentioned that there is 50-50 chance that the FY17 budget will be passed. Will see what happens by April 28th. No info expected on the FY18 budget until mid-May.
- DOE HEP hosted an International Neutrino Committee meeting at the Lab last week that went very well. Support from international entities remains strong.