

MINOS Operations Notes Oct-Nov-Dec Quarter 2 2005

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Horn problems starting Oct 2, no Ops notes

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MINOS Operations, Oct 17, 2005

Beam (Sam Childress)

After the horn problem got fixed and the normal running resumed, the target hall chiller system has not come back ok. It has been determined that the compressor has failed and has to be replaced. New compressor has been ordered today and will be shipped overnight from the East coast - will be on site tomorrow. An estimate for repair time ranges from the Tuesday evening (the most optimistic) to some time Thursday. We can take beam without the chiller system running - the temperature gradient is 2 dec C/day although humidity is rising to a significantly higher level than when running with the chiller system on. The plan is to do some beam running at night.

(Dixon) Is the shaft crane operational? Some electronics has been borrowed from it to operate the target hall crane. Sam is not sure of the answer.

We will have less numi only time from the accellerator complex and thus be down 15-20% in beam power. Won't see those $7e17$ days for a while.

There is a plan for an accelerator complex shutdown on Thursday to work on booster problems.

Two horn ground faults occurred over the weekend, the reset procedure worked both times and there was only negligible downtime. Sam thinks that this is a result of the nickel flakes falling and burning. (Discussion between Sam and Dixon how serious of a problem these flakes pose - both agree that is not likely to be a serious problem)

Tass requests that a central electronic board be made with the announcements on the planned (and unplanned) downtime so that some useful work can be planned and done. Sergei thinks that that's what the run coordinator is for - action items have to be requested the run coordinator has to inform people who requested them when an appropriate downtime happens. (right, as it turns out)

Far Detector (Alec and Bill)

Alec suggests that the control room shifters do special CI runs when the downtime is during the evening or night hours. The goal for these runs is ~once in two weeks and the minecrew normally does them unless there is a long period of stable beam. Probably should be made a shift checklist item - to check the date of the last special CI run and take one if its more than two weeks. Giles has php driven webpage where anyone can check results of these runs at <http://farweb.minos-soudan.org/vaspecial/>

Tass suggests that there needs to be a reminder for the shifters to restart run sequences when the beam status changes.

Tass and Geoff ask that shifters should try to contact daq experts (yell-daq) in case there are daq errors before trying to reset it in cases when the beam is down and it is not time critical to resume running. Having a look at the error state helps them in debugging these errors.

Near Detector (Alysia, Peter)

Electronics - 2 channels with CAPID errors. After the coil magnet was turned back on - a checkcal run was taken (90 minutes after mag on) - 10-12 channels had to be recalibrated based on those results.

Discussion (Niki, Peter, Alysia, Brian) on how soon channels with observed capid errors should be swapped. All agree that if they don't go away after 1 day - they have to be swapped.

Bill Luebke - his MCC firmware upgrade was successful (5 days ago) still waiting for the first error - they used to be happening ~once a week.

Al Erwin wants to take radon pedestal measurement by temporarily turning off the airflow in the detector hall. Al needs to be retrained before he is allowed underground. [As it turned out, you can't turn off the airflow in the Hall because it is a safety system - just like you cannot turn out all the lights]

Peter is going to arrange the halogen light bulb replacement via the Building Mgr (a missing light bulb in one of these Hall fixtures has been causing the noise spike in the ND).

Simona (speaking for the calibration group) requests that the ND gain curve be extended from 20 to 40 points to improve the nonlinearity fits. It will extend the gain curve from ~6 to ~12 hours but it is only taken once a month. No downtime necessary - Lisa can edit the configuration file and the change will be picked up starting the next gain curve. There were no objections to this request so it has been given ok.

DAQ (Tass, Geoff) Tass will need time to do some daq debugging - he was given priority and will try to fix during the chiller induced downtime. All ND electronics work has to be coordinated with Tass for the next couple of days.

Computing (Art, Liz)

FNAL wide 5 min network outage is planned Thursday at 6:00-6:30. (Need to make sure that shifters are aware of it and not panic when they see spill server errors). Dave Saranen reported that they are experiencing some flakiness in DS3 network connection. Time goblin errors were probably caused by it.

Database - Liz reports that someone (who she doesn't want to identify) started 200 batch jobs simultaneously that hogged all the db server connections and resulted in long CRL hangs. Liz is going to look into setting up a special db server for online purposes only with more restricted access so that problems like this don't happen. Art also questions why the db connections stay open for hours at a time and overloading the db server - this is a question for Nick West.

MINOS Operations , Oct 31, 2005

Beam (is back)

Shot setups have more cycles - getting more efficient meaning less dead/empty cycles affecting NuMI. 12 turns from Booster for NuMI cycles were pretty successful. ACNET Datalogger failed at 1:00 Sunday morning for about 3 hours. The Target Hall Chiller worked well through weekend. Tripped this morning just before 9. Debugging currently.

There will be a four-five hour maintenance Weds. or Thurs. but won't involve MI areas - we might run with low beam power. Standing request from NC group would be to run at 6 E12. Remember to have shift crews start new run sequence.

Far Detector

Time change (from Daylight to Standard) made for a DCS problem - naive SQL timestamp handling. Will be repaired by this time next year. (but I don't think it was...)

Work list:

- Two hot chips in crate 1. Will run during low intensity but can fix with brief real downtime.
- Fire alarm checks today and tomorrow.

Network outage was longer than expected. Generated a bit of overtime. This is the second time Frontier has had problems.

Near Detector

4 CAPID errors were changed. Peter changed another minder on Saturday. 7 spare minders underground. About 6 channels are requiring periodic recalibration. The Master which sees lower rates - master 3-11 - has probably got a PMT problem somewhere down its readout chain. This PMT has an unusual data in its tests.

Note now 40 points per LED being done for LI at near.

MINOS-ACNET got to where only 1 screen was working. Removed bad ones from the xconfig file. Urish attempted to debug but failed. Hardware problem likely. Need to take system down to see if we can fix it.

MINOS Operations Nov 7, 2005

Beam

Two NuMI down time incidents over the weekend. First worked was required on the target hall chiller. It wouldn't stay on or keep running. Tripped on oil level. Found a defective o-ring due to poor install. Fixed o-ring and now it's working well and is recovering its oil. The Horn had ground fault on Sunday morning. Fixed by running up voltage slowly. Probably one of the nickle plating flakes that we have seen earlier. Last fault was at 550V, nominal is 630V. So they adapt the process to start at 100V, increase by 100V steps. Caused a 3 hour downtime.

More cycles now coming to NuMI during shot setup. 160-65KW during this period is the norm now. [reminder - at start of NuMI Operations, early 2005, extracting to NuMI during Shot setup made Ops nervous, so they just wouldn't do it - causing a few hours of deadtime in every 24hrs or so for NuMI; as NuMI operations continues Ops has gotten more comfortable with how NuMI extraction affects other activities]

MI group will try slipstacking, NuMI only mode, to try getting towards 3E13.

Far Detector

Changed 2 hot chips, to no effect, so they will put them back at an opportune time. The noise problem is probably due to tubes, then. CNA will come sometime this week to check a crack in ceiling, no impact on running.

Near Detector

Pretty quiet week. 1 intermittent CAPID. Flash writing process had some problems when asking it to do 5 at a time. Did these individually, and then later it all worked as a group of 5 again. A handful of channels in Crate 5 and 6 have to be recalibrated because they drift. There are 6 Spare minders available. There are 2 CAPID currently need changeout.

Computing/DAQ

One day spill server and eventually GUI lost contact with Soudan. Restarted tunnel and GUI, which fixed it, so it was probably a network problem. Can we have a DAQ independent network monitor? That tests the packet level.

One ROP did not reply to a control message, then had timeout, error. Shift people reset and restarted and it went OK. LAN glitch is likely cause.

Had to reboot minos_evd because the freeze-up which is caused by Tri-D. Probably due to OpenGL version.

For MINOS Operations, need to review and re-write the Shifters Guide process restart procedure to make it more clear. Many Shifters do not understand how the Helper GUI works. Will try to task Shifters to write down improved beam_data instructions, and incorporate into Shifters Guide.

MINOS Operations Nov 14, 2005

Beam

Midweek last week, an "orbit verifier" system in the MI gave wrong information by 5mm and inhibited the NuMI permit (the beam wasn't actually off by that amount). This was followed by actual MI orbit problems due to damaged timing cables. They ran without the orbit verifier protection some of the time. But NuMI beam hit the baffle with one errant pulse and tripped off on losses. This hit increased the external leak rate of helium but had no effect on the target. The helium leak rate went up on Thursday night by factor of 2, but there were no unusual conditions at the time, running at 150 kW. Probably need to do target scan.

There will be a MI shutdown tomorrow to fix the causes of the orbit problems. NuMI will do a target scan after startup. There were Target profile monitor problems towards end of last week. Ended up rebooting front end which fixed it. On Friday had beam of 3.0 E13 using 13 turns out of the Booster - as an experiment. Target Hall Chiller tripped on Saturday, diagnosing.

Far Detector

Power outage on Wednesday, lasted 1/2 hour. Started to shut down some time into it but it was already too late. Shut down procedure will be modified. Probably have to shut down starting at 5 minutes into the outage. Most important is to power down the magnet using VNC connection which is an icon on desktop. Have to contact experts for turning off DAQ (but perhaps this isn't possible within a 15-min response time??).

On startup, the Time goblin cloned itself and came back to interact with itself afterwards, making for some issues. Need to remember to restart R_C server as part of startup process. Need to add a DCS monitor thing to the web page that will tell CR Shifters if there is a power failure in progress at Soudan.

They need to replace a flow valve in the upstairs chiller that failed during the power outage. Will perform DCS database maintenance during an opportune beam downtime. Long term: work on PMT gains during the shutdown in March.

Near Detector

Gary is prepared to put resettable fuses on the menus. We request to get a mark of some kind on the minders which have been changed (it's a small yellow dot). Changed 7 minders during the week. (5 Monday, 2 Wednesday). On Monday one new board would not calibrate so had to use a second spare. Not loaded to flash yet. There are 7 spares currently. On Thursday could not communicate with MainFrame 9. Could not ping. Found that the VDAS box was not powered because the switch had been turned off. Believe PEANUT people did this by accident.

New shift system taking effect this week - 4 per day, 6hrs each, 1 shifter.

MINOS Operations Nov 21, 2005

Beam

During the weekend NuMI only got 12 turns about 60% of the time. This is due to the quality of beam coming out of Linac - amount is restricted in the booster because of losses from fat beam, which come and go and need to be tuned out. The Target Hall Chiller tripped off once on low oil level and was reset after letting the oil settle out. The Helium flow through the Target has gone out of range of the flow monitor. We now monitor the backpressure to keep track of flow. Recall that the flow through the target went up a week ago. Not known how much or if the leak hole is getting bigger, but something is changing. The target scan was done on Friday - looking at near detector data spectrum to see if one can deduce the condition of the target.

MI wants to try slip-stacking to NuMI, in NuMI-only mode, which will put us at $3E13$.

The Machines were down parts of Tuesday and Wednesday for safety system testing, and on Friday there was a sump problem in the MI tunnel.

Far Detector

One noisy PMT or VFB in the shield; they will swap the VFB to see if it's the problem. A DAQ error state developed during LI running - one channel was so noisy that it blew away the buffers. Email sent to LI people. Checking now to see if there is a localizable channel will consider changing the limit in the VARC plot.

Near Detector

Electronics problems: 3 CAPID errors last week, one bad spare board. 3 current CAPID. We will try to write to flash more consistently after board swaps.

Ops this Week

Special run request: 20-30 minutes study with low intensity and cosmic trigger. Can turn down beam either way. Will provide request for exactly which intensity.

Beam Monitoring - the NuMI Beam Mon group wants to begin testing using new software written by Tom Osiecki - represented by new icons on MINOS-ACNET. A review of Beam-Data files shows 3% lower numbers from monitoring files compared to acnet data logger files - investigating. MINOS-ACNET crashed last night - investigating but appears related to JAS. Recommendation is to restart JAS every day after shift plots done at 0800.

Computing/DAQ

dcache had a problem - we ran so many reco jobs that it clogged. The issue was the size of files with only cosmics, so we made lots of little files.

5 minute network outage at 0600 will affect the logbook.

MINOS Operations Nov 28, 2005

Beam

TeV is down until Dec. 6. Pbar source is broken. Booster is broken, with a bad RF station and an busted injection kicker, both in tunnel. NuMI requests a special run of low intensity if we get a 6 hour window once the Booster is fixed.

Far Detector

Weekend call-ins to the underground due to DAQ. They rebooted a crate 0430 Sunday. Replaced a ROP Sunday afternoon. It crashed again this morning at 0530. Beam was off due to the Booster problems for some of this, but still lost about 4.5 hours of beam time, and are down as of this meeting time. They have changed 2 ROPs and other components so far.

Chiller problems generated additional call-ins during the Holiday. They will try to get better monitoring information from the compressor (currently just shows if mains power is on). The problem occurs when the system shifts from direct air cooling to using the compressor. Flow switch problem. Will replace them.

Still have hot shield channel.

Near Detector

3 CAPID errors changed out. Only one pending at present from the holiday weekend. Several channels in crate 6 will not calibrate. There were several clock happy errors, but no timeframe errors. Bill will figure out which MTM is causing this. There have been several resettable fan errors, not bad enough to change out a fan yet.

Operations

Special run request: 20-30 minutes study of run with low intensity and cosmic trigger. Can turn down beam either way. Will provide request for exactly which intensity.

Beam Monitoring - Want to begin testing using new software on MINOS - call Brett to do this test. JAS filled up its home disk with log files. Mary will clean it up.

New shift system seems OK so far.

Computing/DAQ

YUM updates. Discussion of whether to keep doing them automatically. Resolution may be to do reboots after sensitive components are updated. RC gui freezes x-windows once per week. Root user can reset fine. Sergei will contact Geoff and Tass for a recommendation.

MINOS Operations Dec 4, 2005

ES&H

After a discussion of an incident at LBL involving glue, Rob recommends that we use safety glasses to work on the detector, even if only swapping boards?

The MINOS Building Front entry door needs to be locked if the building is vacant! There's a damn big hole in the floor! [we had the Locksmith make the doors so they were always locked and always require a key to open]

Beam

Last week could have been the best week for NuMI, since the Tevatron is down. But many Booster problems and their repair cost at least 48 hours. Then there was a NuMI power supply failure at V118 which cost 4 hours last night. We are currently running at $9.87E19$. $1E20$ tomorrow! PBar is back up and mixed-mode cycles will make NuMI beam power to go down to 160 KW. It's been 240 KW when PBar was off. Some dipole instability in our beamline but it got better at the highest beam intensities. Slip stacking studies should happen in MI this week - they are waiting for Booster to be more stable.

Far Detector

Two dead channels appeared in the detector late Thursday. VFB fuses broke and had to be taken out of readout. They will contact an expert to reconfig. the system around the bad area, so as to take data with a partial detector. Once repaired the VFBs will be put back into the readout, requiring a restart of the run sequence - do this when we are at 160 KW during the PBar studies.

New sensors have come for the chiller.

Tass is testing ROPs and PVICs from the crate 8 problem at ANL.

Near Detector

7 minders swapped last week. CAPID errors for all, except one replacement due to calibration failure. Some "write to flash" runs have crashed. One current CAPID error. We approve an MTM swap during the lower beam power period.

Pending Special run request: 20-30 minutes study of run with low intensity and and cosmic trigger.

Computing/DAQ

There were pnfs problem on Friday. Computing folks will discuss these meltdowns during one of their own scheduled meetings.