

End Week 39 (October 2nd 2011) – Status of Accelerators

TI (Peter Sollander)

• Tuesday,

- Problems following reconfiguration of electrical network after problem last Friday and repairs on Monday: ATLAS cryo problem caused magnet slow dump.
- North Area power cuts due to maintenance work on fire detection
- ALICE magnet trip due to TE/EPC intervention (measurement) on power supply

• Thursday

First UPS problem took out the LHC for most of the day

• Saturday

- UPS fails again and most of the day lost while UPS being replaced by spare from BA7
- North Area fire alarm stops physics for most of the day. Turns out to be an ion pump smoking.

<http://wikis/display/TIOP/2011/09/28/TI+summary+week+39%2C+2011>

ISOLDE (Didier Voulot)

GPS+REX:

After the second intervention on the EBIS electron gun last weekend we had a quick bake out Mon-Wed and we could restart the electron beam on Wednesday afternoon. REX was quickly set-up on Thursday and the run for Miniball (IS504, 66Ni) started Thursday evening. They will run until Thursday morning (run prolonged by three days).

There was a first RF failure on Friday afternoon (IHS feedback control) which could be repaired by the linac RF team. Then a second RF problem appeared last night at 3 am (intermittent fault with 7gap3 timing). The RF team was called three times already for this problem. The problem is not solved but the amplifier is working for the moment.

The solid state physics team is doing sample collections on GLM when the beam is not available for REX.

HRS:

There was a target change on Thursday (target #461 Ta/W/Ir). There was a problem with the robot calibration which could be solved remotely, then a failure of the front-end Faraday cage door. An access to the target area as been requested by EN/STI for an intervention on the Faraday cage door next Thursday (ALARA).

LEIR (Christian Carli)

During last week, LEIR has been again running smoothly without particular problem.

The intensity available for the NOMINAL beam has increased almost to the expected values. Unfortunately, it is not completely clear what improved the performance. Already during the week before, adjustments had increased the intensity available significantly, but not yet to the values we had last week. With an injection every 200 ms, we clearly lose a (small) part of the stack during injections.

An attempt to increase the electron cooler current did not yet improve, but this should be pursued.

Booster (Klaus Hanke)

Good week with few severe problems but nevertheless a lot of activity.

Monday 26 September

The specialist fixed a problem with the NMR, still a follow-up of the big power cut during the preceding week.

Tuesday 27 September

Scheduled stop to switch back to normal electrical configuration. MPS and BTP and BTP line switched off. Booster ready 10:15 but there was still an intervention in the PS ongoing. Protons back 11:09.

The head amplifier of BT2.UES00 has lost its calibration functionality and needs to be replaced.

Wednesday 28 September

Checked the 25ns beam for the upcoming LHC MD, all in specs.

During an MD it was found that 2 PUs were not working correctly; L. Soby contacted.

In the evening BI1.DISP tripped, called specialist.

Later on there were 400 (false) alarms on Laser, CO contacted...

Thursday 29 September

01:25 the specialist changed a thyatron on the distributor, all OK

08:37 beam stop for planned PS intervention; 11:06 all back.

Friday 29 September

06:10 LA1.QDN19S down; piquet called, OK 06:36.

Big campaign to measure the emittance vs intensity of the 50 ns beam simultaneously in all injectors.

In the afternoon all Laser alarms disappeared following a concerted effort ("Jean Michel Nonglaton strikes back")

23:40 LI.CBVU2 in fault, our operator went locally and found the rack off; J.Broere came in and fixed the problem; 01:12 all back in operation

Saturday 30 September

14:28 PAXS22 showed high losses; the L2 safety chain did not trip although it should have; they switched off all beams and the situation recovered, eventually they switched back on all beams.

17:00 losses in BTY due to BTM QNPO20; the EPC piquet changed to the spare power supply; 19:02 all OK.

PS (Simone Gilardon)

The PS had a good week. All the operational beams were produced with only minor problems, including the ions. During the entire week the OP crews continued the optimisation of the injection of the LHC-type beams, in particular on Monday-Tuesday and after the stop on Thursday. At the beginning of the week, the injection tuning was made difficult due to a bug in INCA-YASP. During the deployment of INCA-YASP in the PSB, some PS functionalities were corrupted. This could be corrected by CO but the diagnostics of the problem was not easy. After the restart on Thursday, all the beams were performing at injection worst than before, for a not clear reason. The operators had to retune the injections.

An access was done on Tuesday morning to diagnose the problem of one of the 20 MHz cavity. The expert could install a temporary fix for the problem, but the issue would require an intervention possible only during the winter technical stop. The temporary fix should allow normal operation until the end of the run.

As mentioned, we needed an access, planned at the FOM, on Thursday morning for a problem with one of the 10 MHz cavity. An amplifier tube was changed. Later in the week was noticed that some of the trips of the cavities were also due to vacuum spikes. Those spikes seem to be not real but wrongly generated by the vacuum equipments. VAC is following this problem with the RF experts.

On Thursday there was a problem with the air conditioning in the room hosting the power converters of the injection quadrupoles. Apparently after some maintenance in the morning the air conditioning was not re-started, causing a too high temperature and triggering the thermal protection of the power converters. This delayed the fill of the LHC in the evening.

During the entire week the operators also optimised the slow-extraction, drifting in particular after the long stops for the accesses.

SPS (Karel Cornelis)

We had an eventful week for the SPS. The commissioning of the ions continued on the parallel MD cycle and on Wednesday the very long LHC injection cycle was commissioned with 12 injections of two bunches each.

The MD on long range beam-beam was cancelled because of hardware issues and physics was resumed on Wednesday at eight in the evening.

On Thursday morning the SPS profited from a CPS stop at 8:30 to have some interventions in the tunnel: BTV repair in TT60, monitor and BBLR checks in LSS5 and an RF pick up in LSS3. During the interventions an enormous water leak was discovered on an enlarged quadrupole in LSS6. The leak could be repaired in situ and the beam was back by 15:00.

On Saturday morning we had a smoke detection alarm in the splitter-target zone of TT20. The fireman had an access in full battle dress and breathing apparatus and they came back with a report

of blue smoke. Because of the radiation they could not stay long enough to find the origin. It was decided to put the ventilation in the access mode and to wait until the afternoon for new access. In the mean time the TT20 equipment was kept on (without beam) in order to see whether anything was failing but from our side everything looked OK. At 13:30 the fireman went in to check and the smoke had disappeared. The vacuum and magnet piquet went in to check their equipment. The guilty equipment was a mobile pumping unit on a vacuum tube behind the target. The reserve pump was put into service and beam could be resumed in the north at around 16:00.

As from then onwards, the weekend was stable and very productive.

LHC

Some steady running punctuated by extended timeouts: UPS problems – one unit UJ56; 90 m optics attempt (not particularly successful); visit by Indian president. Back-to-backs fills each of > 100 pb-1 Saturday to Monday. LHCb now over 1 fb-1 for the year.

<http://lhc-commissioning.web.cern.ch/lhc-commissioning/>