

End Week 37 (September 20th 2010) – Status of Accelerators

Linacs (A. Lombardi)

Quiet week without any problems to report on Linac2 and Linac3.

PS Booster (A. Findlay)

The week went well, with smooth operation allowing the time to do operator training for the new guys, and the PS crews covering the PSB.

Early Saturday morning the R3 C02 cavity was breaking down, requiring the equipment specialist to access the machine to fix it. After replacing an optocoupler the cavity was brought back into service giving us about 3.0 hours later. Later on in the morning the distributor for R4 went into fault and after changing a thyatron, the beam was back around 1.5 hour later.

Overlooking the 4.5 hours of beam down time, it was an excellent week.

ISOLDE (E. Piselli)

Everything went very smoothly this week. No items to report.

PS (Y. Papaphilippou)

The PS had an excellent week with only two issues worth reporting:

- During Tuesday early morning, a strange jitter of the RF train at extraction was observed. All beams had to be stopped as a number of timings were not stable producing radiation alarms. This disappeared in a couple of hours without any intervention. The piquet low level RF who was called put some signals on local surveillance but still without any clear indication of the cause.
- During Wednesday night, the high-intensity beams were stopped for a couple of hours, as it was found that since the INCA problem 2 weeks ago (number of users were corrupted after a ppm copy), the low-energy tunes were not programmed correctly, thus producing higher losses than expected. The problem was solved by recharging the “nominal” values from the “varilog”.

LEIR (C. Carli)

Calm week and without main issues. The early LHC beam was provided on request.

As scheduled, beam from Linac3 has been available from Tuesday on after the source refill and then LEIR has been running well and smoothly to provide from Wednesday to Friday the EARLY Pb ion beam for SPS setting up.

None of the few equipment faults (requiring resets of a cavity and a quadrupole in the ITE line, reboot of the electron cooling DSC) are worrying. Work on the interface between the low level RF system and OASIS has continued (mainly aimed at allowing simultaneous display, via OASIS in the same window, of traces provided by the RF system and from "normal" OASIS crates).

AD (P. Belochitskii)

Excellent week for the AD.

- Today morning we had a problem with the e-cooling, due to a bad contact, solved now.
- Bunch length problem is still there. Monday we had an MD on this, we found something interesting, but no conclusion yet, we need more MD time.

SPS (E. Metral)

Last week-end, it was found out that there was a small slope on the flat top of the LHC3 cycle. More quantitative data were required by the LHC and it was found that due to the slope the extraction was done with a momentum of 451.15 GeV/c instead of 451.19 GeV/c, i.e. the beam momentum was lower by $\sim -9E-5$. Furthermore, the batch spacing was updated from 390 to 400 5 ns RF buckets (to keep the 1st bunch of each SPS batch at the same place as for the nominal 25 ns beam).

On Monday we tried to install the new MD1 cycle for the low gamma transition (with an integer part of the tune of 20 instead of 26) but this cycle was not ppm and perturbed the following cycle. It had the same ramp down as the previous cycle, which was already used (and worked) in the past, but this was due to the large differences in QF and QD.

Thierry Bogey discovered that the last 5 monitors of the TT10 line (between 1024 and 1029) were not working anymore. An access of at least 4 hours is still needed without beam. This considerably perturbed the steering of the MTE beam in TT10 and its injection into the SPS, which was finally done (with low losses in TT10) only on Saturday.

On Wednesday, the early LHCION beam started to be taken and adjusted by the RF specialists. Furthermore, a problem with the rephasing on the LHCFast cycle was discovered, which was due to the preceding MD1 cycle: the RF team solved the problem by enabling the Start Flat Top timing event on the MD1 cycle. In fact, the rephasing depends on the B train measurement. On the MD1 cycle the RF B Stop event was not coming because the Start Flat Top timing was disabled and the next B train measurement on the LHCFast was not correct.

On Saturday around 15:00, TI reported a CNGS ventilation problem. The CNGS beams were stopped and the access finally took place on Sunday between 00:27 and 03:14. CNGS beams were back around 04:00.

On Sunday morning (around 07:00), the LHCFast2 beam was lost during the ramp, due to the horizontal scraper, which was not moving correctly. At 12:36, all the beams except LHC were stopped to cool down the machine. At 13:15, Alessandro Masi entered in BA5 and changed a cable. The access was finished at 14:39 and the beams were back around 15:00.

TI (P. Sollander)

For TI it was a rather eventful week:

- Monday 13/9: Human error during an EN-EL maintenance operation cuts BB3, and thus the SPS for an hour and a half. The technician pulled the wrong switch and there was a simultaneous fault that caused the 18kV breakers to open (see also major event report, [Read the report](#))
- Tuesday 14/9: PM25 patrol lost stops the LHC for 3 hours. This is another case of an access "glitch". It is unclear what the problem with the access system was, investigations are being done by GS-ASE, major event reports have been edited [Read the 1st report](#), [Read the 2nd report](#),
- Thursday 16/9
 - PM25 patrol lost again. This time during an access.
 - Short stop of nTOF due to the water cooling. This problem was thought to be solved. A remote reset by the TI operator fixed the problem. Only 12 minutes down time counted.
- Friday 17/9
 - Cooling problem on converter PMBB.UA87.RCBXV2.R8 requires LHC access. TE-EPC and EN-CV piquets sent in. CV pushes up the pressure a little which solves the problem.
 - SPS stops 20 minutes due to SEPTA cooling circuit (414). CV was on site to inspect this pump because it was making a noise and could quickly restart the circuit.
- Saturday 18/9: 12 hour stop of the CNGS due to a problem with the ventilation (9 hours waiting for radiation cool-down) caused by a breaker that tripped on unit CV1-00519. The breaker was switched back on and the unit is running since. No real cause for the trip was ever found.

LHC (J. Wenninger)

Full details under "coordination" at

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