

End Week 40 (October 10th 2011) – Status of Accelerators

Linacs (G. Bellodi, D. Kuchler)

Linac 2:

Linac2 had a very quiet week.

A high intensity beam (~175mA) was produced on Monday for MD injection studies in the PSB.

LTB.QFW50 went on fault on Tuesday evening (~21h) and a PIPO intervention was needed to resume operation (total of 50 minutes beam downtime).

Operation was smooth otherwise during all week.

Linac 3:

Normal operation, no problems to report.

PS Booster (B. Mikulec)

The operation of last week was busy but smooth, interleaved with a few stops to different power supply trips.

Monday last week the outstanding Linac2 high current MD took place. The aim was to see whether by increasing the Linac2 current we could inject less turns and thus decrease the transverse emittance for LHC beams. The Linac2 crew managed to increase the current by ~7% (to ~175 mA), but the gain in emittance decrease for the LHC25ns beam was only between 1% or 3% (depending if one measures with the wire scanners or the SEMgrids).

Wednesday afternoon another INCA release took place.

After an electrical fault at 7am on Wednesday, a few cavities tripped and had to be reset. The MPS had tripped as well and needed a local reset by the piquet (1h lost).

Thursday afternoon the ISOLDE beamstopper entered into the beam due to a yet unknown reason and led to an ISOLDE watchdog alarm.

On Friday A. Findlay could solve the problem on the SFTPRO beam that showed a ~50 ns jitter on ring 3 after synchronisation; after adjustments the jitter could be reduced to the usual one of ~10 ns.

Saturday afternoon ring 2 was unavailable during ~1h due to a trip of BI2.QNO60 (the piquet had to exchange an auxiliary power supply).

Another piquet intervention was required on Sunday afternoon to repair BTM.QNO05, which had no influence on beam availability.

ISOLDE (P. Fernier)

GPS :

Target # 460 U_c2C Ta run @30kV: faisceau 65 Ni pour Miniball via Rex pour experience IS504 + IS 453 dans Glm; faisceau arrete jeudi matin, aucun probleme serieux a signaler, physiciens contents.

HRS :

Target #461 Ta surface - run @30kV pour experience Isoltrap. Setting-up de la machine + proton scan + yield check, faisceau stable et radioactif disponibles vendredi apres-midi, depuis aucune panne.

PS (R. Steerenberg)

Last week was a week with very smooth running and only a few minor problems.

The situation around the 10 MHz cavities has improved following some interventions. However, at present the 10 MHz cavity in straight section 81 keeps on tripping and needs frequent resets.

Friday night the PS has reached the intensity goal set for nTOF and has in the meantime passed the line of $1.55E19$ protons on target.

nTOF will continue running with low intensity of $1E12$ per pulse until the end of October and then increase the intensity again to nominal. we did not only reach this goal early, but also managed to catchup from the two week stop early in the year Thanks to the higher than anticipated beam availability out of the PS, together with the continuous optimization of the super cycles and the intensity on the nTOF cycles (dedicated and parasitic).

AD (B. Lefort)

It was a good week for AD with no noticeable down-time.

LEIR (S. Pasinelli)

The LINAC 3 refill has started at Monday 8:00 and the beam has been available in LEIR Monday at around 19:00.

Tuesday, an alarm on the water level of the ECooler has been detected by the specialist. A water leak detection was done by the specialist around the ECooler who found a small water leak on the "Joint" of the collector. He has ordered a new "Joint". While waiting for the new "Joint", the specialist will have a look on the water level.

Thursday morning, glitch on the EDF network: Linac 3, source has tripped, LEIR, some elements were in fault.

Scrubbing Wednesday and Thursday nights.

SPS (D. Manglunki)

Protons:

Up to 4 batches of 72 bunch/25ns beams as well as single bunch high intensity ($2.2E11$) beams were prepared on Monday and Tuesday, and sent later in the week to the LHC for machine developments.

On Wednesday morning a vacuum leak was found on a bellow on the TED in TI2; the intervention took place in the evening and TI2 was operational again on Thursday at noon. In the mean time beam was sent on the TI8 TED for TI8 studies.

On Thursday morning at 7:00 a glitch on the electrical network tripped the whole complex; beam was again available from the SPS at 8:15.

However, a consequence of the power cut was a breakdown of the movement of the CNGS plugs, which prevents access. The intervention is postponed to take place during the next SPS Pb ion MD.

On Saturday a high voltage supply broke down on the beam loss monitor station in long straight section 5. Those BLMs are momentarily masked to allow beam, and the intervention will take place on Monday morning. The situation is deemed safe as neither UA9 equipment nor the scraper in LSS5 are used.

On Sunday morning at 6:30 a problem on MKE6 necessitated the intervention of the kicker piquet; beam was back shortly after 9:00.

Later on Sunday chain 11 tripped again on a communication fault; as the OP teams are now well trained to this spurious behaviour, the beam was back quickly. In the evening the RF high power piquet was called for

TRX6 and had to change three tubes.

Since this week, LHC fillings are done without a Pb ion cycle in the SPS supercycle as tests could show it was not necessary. This allows more production towards CNGS which operates again with nominal current on both horn and reflector since Tuesday afternoon. CNGS has now accumulated 4.55E19 p.o.t so far, 6% above expectations.

Ions:

On Monday the ion source was being refilled so the ion beam was only taken for checks around 23:00. Ions were not taken in the middle of the week due to the special LHC requests for MD beams. On Friday ion setting up resumed, after TE/EPC fixed the power supply for one of the stripper low beta quadrupoles in TT2, F16.QDE217. The setting up now continues with the "intermediate" beam (2 bunches, 200ns spacing), with a single injection on the short cycle in parallel, and with 12 injections on the 40BP cycle during dedicated MDs, the next one taking place this coming Wednesday, October 12th.

LHC (R. Assmann, E.B. Holzer)

Main issues:

- Beam conditions: Highest peak lumi 3.4×10^{33} , 120 pb⁻¹ in 17h, total during week: 400 pb⁻¹, total integrated 4.6fb⁻¹
- Stable beams 52 h out of 168 hours
- MD 12 for 25 ns operation (up to 700 bunches)
- OP commissioning (6h) abort gap cleaning.
- 29 hours lost due to TI2 TED repair

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

TI (P. Sollander)

Only one major event on Thursday, a perturbation on the electrical network hits all the injectors.

- Thursday, October 6th, 07:00 -- Electrical perturbation takes out the injectors for about one hour. LHC was off due to T12 vacuum intervention at the time. ALICE dipole tripped. TE/EPC piquet on site to fix ALICE dipole, but unfortunately a global OFF command was sent to all power supplies, including the ones for the experimental magnets.