End Week 36 (September 12th 2011) – Status of Accelerators

Linacs (Rolf Wegner)

Linac2 was running very well last week, no major problems have been observed until Sunday.
After the power cut, a vacuum problem of the source has been fixed. Beam was back on Sunday at 4.15pm.

Detlef reported from Linac3 that it was running fine until Wednesday (Sep. 7th). From Wednesday afternoon onwards it has been difficult to produce a stable beam with good intensity. Friday afternoon, the current (TRA25) was 16 to 20 uA.

PS Booster (Alan Findlay)

A pretty good week for the PSB, well up until Sunday morning when we suffered like everyone else.
This week was full of normal operation, although trying to keep the proton distribution for the 2 ISOLDE lines with all the supercycle changes kept the operators very busy.
We had a number of INCA issues which were treated quickly by the support team, and we had to call on their help again when we realized we'd deleted an archive too many in our recent clean-up. The archive was required for Elena & Alex to do tune measurement studies in the PS, and the beam had maximum transverse emittances with nominal longitudinal emiattance. INCA support were very helpful, and within 24 hours had recovered the archive from the trash, and we could reload it and get on with the fine tuning.
The above MD beam was not right up to spec compared to the last time it had been used, as the users remembered a larger dp/p of 1.5E-3 in place fof 1.2E-3 we could generate this time. As we didn't have any doc for this beam, we did what we could and delivered the beam with the lower dp/p, and I'll check with the rest of the team next week what, if anything, we can do.
We also started on another MD beam requested by Elias, but this will take time to get up and running.
Sunday morning the power glitch took the PSB down too, but the operators did a great job and brought the machine back up to speed as quickly as possible. The PSB was down for about 6 hours in total, with beam available around16H30, and although the PS could not take the beam, it was taken by ISOLDE 40 minutes later.

ISOLDE (Emiliano Piselli)

Everything went very smoothly this week regarding Isolde operation till Sunday morning, when I was called in because of the power cut. We had some problem to restart water cooling and magnets separator.
Beam back to users after 19.00...

PS (Rende Steerenberg)

The Week started fairly good, but turned very bad on Sunday after the 400 kV power glitch.
In general there were unusual many resets and interventions required on the 10 MHz and 80 Mhz cavites. It would be interesting to investigate if there is something fundamentally wrong or could this be due to the long runs and short shutdowns we have the last years ?
There were also quite some radiation alarms due to the odd non-extracted CNGS beam for which the entire extraction from the Ps did not pulse. Diagnostics on the OP side were put in place to trace the origin of the problem. However, since the problem is intermittent diagnosis is hard to make. Nevertheless, the problem seems to be with the PEX.SSYNC timing that does not come out. This timing pulse has the SPS revolution train as clock and the warning 10 ms as stat. investigations continue.
Sunday morning there was a major 400 kV power glitch that brought down the PS. Specialists and piquet of nearly all domains were called in for support and interventions. The main problems were with the MPS, the PS extraction bump and a few quadrupole sin the TT2 line. The East Area beams were available again around 3:40 Monday morning, but the beams to the TT2 line were still not available at 07:00 Monday morning, the time this summary was written. The OP team would like to send a big thanks to all persons that came in on Sunday (day and night) for their help and flexibility.
In order to finish with a positive note: the PS did send the ions to the SPS on Tuesday, Both the Early and a low intensity nominal beam are available from the PS.

AD (Lajos Bojtar)

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SPS (Elias Metral)

For my last week as machine (SPS) coordinator, I had the pleasure to have a quiet week with no technical stop, no dedicated MD, no big problems in the SPS. I would like to wish all the best to Yannis for the future!
On Monday the ions commissioning started in the SPS as foreseen on the schedule. On Tuesday, the first ions of 2011 were injected into the SPS. The injection was done with 3 injection kicker modules (with 52 kV) instead of 4 (with 34 kV). The goal being to try and inject bunches spaced by less than 250 ns (200, 150, 100 ns? being discussed). On Wednesday the ions were accelerated up to the flat top.
The several recurrent trips of the week were: RF transmitters, chain 11 (communication fault, as usual, reset of the PLC in BA81), reflector (the EPC piquet only did a reset and restarted the reflector. He just noticed that the current is a bit lower than the reference, 178000 V instead of 180000V), wobbling power supplies (one of the fault status card of the NR22-007 had a bad contact, as a consequence, the readings of the connected power supplies were corrupted: EPC First Line had to change a card), lost communication with SIS

BA6 (a processor card needed to be changed). Furthermore, an energy-tracking card for the MKD has been changed, and a spare is now also available.
On Tuesday evening the beams were stopped for about 3 hours due to a sump intervention in BA3.
On Wednesday, it was asked by Ilias to increase the intensity on NA T4 to 30E11 p (usually at about 20E11 p), but it seemed that it was too much and we had to reduce the intensity a little bit.
On Friday, the transverse emittances of the 50 ns 36 bunches with ~ 1.2E11 p/b were ~ 1.1 microm in both planes. At the beginning of the LHC collisions it seems that they were around 2 microm. This means that there is some blow-up somewhere, which needs to be investigated.
On Saturday, the transverse emittances of the 50 ns 36 bunches with ~ 1.3E11 p/b were increased to ~ 1.6 microm, i.e. for an increase in intensity of ~ 8% (from 1.2 to 1.3E11 p/b) the transverse emittances increased by ~ 45% (from 1.1 to 1.6 microm). This reminds us that a constant adjustment through the whole injector chain is needed to try and produce the smallest transverse emittances when the intensity is changed.
On Sunday, there was an EDF power glitch at ~ 10:40, which cut the beams everywhere. It was not too critical in the SPS but it seems that the PS suffered much more as the SPS was still waiting for the PS beams at ~ 23:15 (time of writing)…

LHC (Bernhard Holzer and Jorg Wenninger)

The week started with recoverin from the technical stop and loss map measurements for the beams withg a beta* of 1 m.
On Friday a new luminosity record was broken using the beta* of 1m, 2.95E33 cm-2S-1.
On Monday morning September 12th the cryo S12 recovered and pre-cycling for injection was started.
A full report can be found at:
http://lhc-commissioning.web.cern.ch/lhc-commissioning/news-2011/LHC-latest-news.html

TI (Peter Sollander)

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