End Week 40 (October 10th 2010) – Status of Accelerators

ISOLDE (Didier Voulot)

It was a very good week with almost no problems.

HRS

- REX delivering 44Ar beam to Miniball at 2.16 MeV/u since Thu night (30/9) and until Mon morning (11/10)

- smooth run, no problems

- only concern: REX-EBIS cathode (installed in June) is slowly dying -> will possibly change it before next REX run (to be decided)

GPS

- target change on Thu (7/10): UCx target for a run of 12Be for COLLAPS (laser spectroscopy) starting on Tuesday night

- separator set-up on Friday

LINACS (Giulia Bellodi)

LINAC2:

Linac2 had a very quiet week. Beam was only unavailable for half an hour on Friday morning during the exchange of a FJ tube on Tank2 (after the RF crew noticed that the gain was quite low and lifetime hitting the 9000hrs limit). Investigations are ongoing with loss tests to understand the increased radiation levels on PAXS23.

LINAC3

Overnight beam stability was fairly good during the week, with average current transmission on TRA25 of 20uA. The source had to be restarted after two trips on Monday morning and Thursday afternoon. Retuning of the source and Linac RF was carried out at several stages to fix intensity fluctuations and recover average transmission levels for LEIR.

PS (Alexej Grudiev)

Smooth week providing beams to the users and MD on Thursday. Only minor events to be mentioned.

We have reached the 2010 goal set for the nTOF integrated intensity early Saturday morning, as can be seen in the two most recent announcements on the PS web page:

https://espace.cern.ch/be-dep/OP/PS/default.asp

Monday-Tuesday: LHS75 (150ns user) has been cloned on a virtual user LSA:LHC_150. And then this user has been drived to LHCPILOT. Several INCA issues have to be addressed before LHCPILOT become operational at 18:00 when LHC has been filled with the new 150 ns beam user (LHCPILOT)

instead of LHC75 which is now available for the real 75 ns LHC beam. Setting up of 75 ns LHC beam is under way.

Thursday 12:20-13:36 C80-08 trips. Specialist (A. Marm.) was called. No protons for LHC for 1 hours.

13:45-14:13 F16.QFO215 is on fault. No beam to SPS for 30 min. fixed by PIPO. it is OK after but the status is not OK PICO had a look 17:00 status is OK as well.

Booster(Bettina Mikulec)

The machine was running fine, but with several different issues and lots of measurements and beam setup the week was very busy...

Issues:

- In the night between Tuesday and Wednesday we lost all beams with large MRP excursions. The LL RF piquet identified a pulse driver (B-up) of the B-train interface as being the culprit. The output of the unit was no longer capable of driving 50 Ohms. A quick fix was done during the night and the unit exchanged the next morning. This problem led to ~3 hours of important intensity fluctuations, during which we still tried to deliver correct beam for a LHC fill.

- General timing problem during Wednesday morning: the MTG had to be rebooted. The Linac2 beam stopper was put in during this operation; when trying to remove it, this operation had to be redone several times (this will be followed up as it has happened frequently in recent times).

- Early morning the BT.BHZ10 tripped. The operator tried to restart it locally, but without success. The piquet PO exchanged the power supply with its spare (downtime: 1h20).

- At 11:15 on Friday a beam stop of ~30 minutes was required to change a tube at tank2 of Linac2.

Just before the stop it was observed that ring4 is lost on the LHCPILOT (150 ns LHC beam). After a lot of debugging (no alarms), A. Findlay managed to identify the vertical shaver of ring4 as the source of the problem. This was not so easy as the beam was lost ~20-30 ms after the start timing of the shaver. The piquet PO changed in the afternoon a flat cable that transmits the ccv value to the DAC. In the meantime, the LHCPILOT could be delivered without shaving on ring4 and injecting less turns (no disturbance of LHC operation).

- Throughout the week there have been issues with the PS stray field compensation (SFC). The compensation wasn't working as it should, which led to large trajectory fluctuations for injected beams. During the weekend J-M. Nonglaton asked for a reboot of two servers, which solved the problem.

Beams and Remarks:

- Setting up of LHC75 by A. Findlay (75 ns beam for LHC injection studies), single batch transfer.

- Deliver beam (high intensity version of LHCINDIV) for SPS MDs.

- Wire scanner measurements following the PM exchange for all rings during the last technical stop.

AD (Pavel Belochitskii)

It was excellent week for AD with 100% uptime.

We had minor problems only.

Thursday during about 2 hours we had half of beam intensity from PS due to problems with pulsed quadrupole in PS ejection line.

Friday lunch time we had about 15% losses during deceleration due to fault of the horizontal stochastic PU movement.

LEIR (Sergio Pasinelli)

Commissioning of cavity 41 and various adjustments LLRF on the operational users EARLY and NOMINAL.

During the week, we have had some recurrent problems with Linac3: lower intensities, source tripped.

After an adjustment of the tank1/3 in Linac3, in order to increase the intensity, no more beams injected into the LEIR.

Back to the initial parameters. Need time to investigate.

TI (Peter Sollander)

- Tuesday 5/10: A water leak spotted in the tunnel sector 34 during an access. It turned out to be a problem with the drains for the water infiltrations. GS/SEM on site to clean out the drains. To avoid future problems SEM will put in place regular inspection and maintenance of these drains.
- Wednesday 6/10: Water cooling problem in the north zone during the morning. An auto-cleaning action on a filter failed and stopped the primary circuit. An intervention will take place to change the controls program to avoid stopping the circuit on this problem in the future.

Saturday 9/10: Electrical problem at LHC point 2, the local EDF Pays de Gex 20kV supply tripped two breakers, ESG102/2E and ESG103/2E. Perturbation seen on power supplies in UA23 and UA27, on the cryo in point 2 and, on the SPS main power supplies. This is a strange problem because we do not depend directly on the 20kV for power supply. Could it be the QPS seeing a perturbation? It is not understood how this problem affected SPS. EDF has not found the cause of of the trip for the moment. A major event report was created.

SPS (Karel Cornelis)

Monday and Tuesday the SPS has been running the normal production cycle for fixed target and CNGS, with a parallel MD cycle for studies with very high intensity single bunches. On Wednesday, the RF experts continued the commissioning of the ion cycle in the SPS. Thursday there was a 24hour MD during which the ion cycle with four injections was set up. During this time the ventilation in CNGS could be fixed and also a power convertor in TI2 (RBI.22134) which continued giving problems

since the previous weekend. Physics restarted on Friday morning at 8:00. We profited from a LINAC2 stop to fix a few pending problems in the SPS : a suspicious transformer in BA2 was taken out of the circuit and replaced by another, SMD1 was put back into service, the air filter above TT20 was changed, …

The weekend was very productive for fixed target and CNGS because of a long LHC stop. The kicker experts profited from this LHC stop to look at the oscillations of MKE6.

LHC – full details under coordination at:

Up to 248 bunches per beam; initial luminosity 8.8e31 cm-2s-1.

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