

## End Week 42 (October 24th 2010) – Status of Accelerators

LHC technical stop planned for W44 was shifted to W42. Injector technical stop and MD shadowed this move.

### Booster (Giovanni Rumolo)

This has been a pretty quiet week at the PSB.

Thursday night, the start up after the technical stop was delayed by a couple of hours due to some dipole power supplies in BT-BTP that couldn't be restarted remotely, and also to the ejection kickers, which could not be put back into operation due to missing external conditions. The first problem required the intervention of the PiPO and the second one was solved by switching off the kickers and rebooting their FECs, according to the indications given by the CO and kicker experts. Saturday night the vertical shaver in Ring 4 failed and was repaired by the PiPO on Saturday early morning. While the shaver was not working, the LHCPiLOT (150ns beam) could however still be delivered also on Ring 4 by decreasing the number of injected turns.

### PS (Simone Gilardoni)

The week of the PS was pretty good.

The major problems were related to the scheduling of the operation due to the advanced block of MDs and the technical stop and the 80 MHz cavity in SS08.

Concerning the schedule, in agreement with the physics coordinator we tried to deliver the maximum possible beam to EASTA (CLOUD) and to the AD. The activities of the technical stop could proceed according to the program. BI with the help of ABP could install two new BLMs, one in SS16 and one in SS42. The restart after the technical stop was pretty good.

Concerning the 80 MHz cavity in SS08, this cavity is used for the production of the LHC proton beams. Since a while it was giving some problems. The intervention to repair it was scheduled for the technical stop on the 1 November. This intervention could not be advanced to last week technical stop due to the absence of the specialist. On Friday it was decided to re-tune the 80 MHz cavity used for ions to be used for protons, and leave the 80-08 cavity as a spare, since there will be no ions until Wednesday. On Monday, when the specialist will be back, a decision should be taken how to proceed for the repairing, since in the current configuration it is not possible to produce protons and ions at the same time. According to Carlo Rossi, an eventual intervention in the tunnel might require up to 8 hours.

Concerning the ion operation, the test on Wednesday showed that it is possible to extract 11 consecutive ion cycles without any particular problem.

Concerning MTE, it was decided to avoid extracting or using the beam the days before the technical stop to be able to do some work around the SMH16. In this way, BI could install a new BLM that can be tested in condition of high losses and that could help in the setting up of MTE. In general, the fact of not having the CT extracted beams and MTE before the technical stop produced a significant reduction of the dose taken by the colleagues intervening in the tunnel.

On Sunday the program foresaw the restart the MTE tests for the steering in TT10 and in the SPS to reduce the emittance blow up due to the islands different trajectories. This was not possible due to the fact that currently all the pickups in TT10 are not working any longer for all the beams. The problem will be followed up with the specialist on Monday.

In the meanwhile, the specialist of the PFW changed the control of one power converters to improve its stability. Data were taken instead of the steering to check the influence of the new setting on the capture.

Concerning the long-standing problem of the Bfield oscillation, on Sunday H. Genoud observed that if the CNGS cycles are preceded by an EAST, there are more losses in the SPS, in particular at transition. A meeting is foreseen during the week with the magnetic measurement experts to continue the investigation on the problem.

Concerning the INCA deployment, as observed by R. Steerenberg recently, there are few new problems showing up at every update, but they are promptly attacked by the CO experts. Unfortunately it is not possible yet to correct the second injection of the LHC25 with YASP, but the source of the problem has been identified by the expert.

Beams: all the beams could be delivered within the specifications when requested, included the beams for the MDs.

## SPS

Effective MD period despite short notice including long UA9 run. 12 hour technical stop Thursday discharge without fuss.

## LEIR (Christian Carli)

LEIR performance has somewhat degraded over the last weeks. In particular, the efficiency has dropped and could not be brought up to typical values from end of August or September by empirical adjustment of standard parameters. I have agreed with Detlef to test whether switching to another Linac3 stripper foil allows improving (extrapolating from an empirical observation last autumn) the situation.

In addition, an intermittent partial beam loss (may-be once every 10th or 20th cycle) close to ejection occurred since the beginning of last week (... and I hope that this did not have too much impact on the SPS MDs). On Friday, we found that for the user EARLY this loss does not occur when the damper is switched off ... without any other observation so far indicating instabilities. The equipment experts have been contacted and we will have a look on Wednesday (when both experts are back at CERN).

## TI (Eric Lienard)

# Wednesday, October 20:

\* 09:39, intervention on electronics for chloride reader in point 8 stop the water towers SF8 and the cryo plant. A fuse on a PLC input board burned and stopped the regulation.

\* 14:50, evacuation of sector 12 after a maintenance intervention. When the CPU was reset after the intervention, three sensors were still inhibited which launched the evacuation signal. GS-ASE is investigating how to avoid this to happen again. A major event report was prepared.

# Friday, October 22:

\* 21:11, Powercut in BA4 due to a "test program" loaded in the powerconverter. The program allowed a too high current in the power converter which caused the protection of the cable to trip. No damage on materials, thus a quick recovery (In shadow of the CRYO problems in P8)

## LHC – full details under coordination at:

Wrong mounted vacuum assembly between septa in IR2 of the LHC has caused a worsening obstruction of the injected beam 1. Vacuum intervention was estimated to take 3-4 days; to avoid loosing this time, the technical stop planned for W44 was bought forward to W42.

Injection now good. LHC hit 2e32 cm-2s-1 early Monday morning with 368 bunches per beam (248 collisions per high luminosity IP).

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