

## End Week 10 (March 13th 2011) – Status of Accelerators

### PS (Simone Gilardoni)

**The PS had a good week.**

The beams available were:

CNGS up to  $2.3 \times 10^{13}$ , TOF up to  $850 \times 10^{10}$ , LHCINDIV, LHCPROBE, LHC50 (sb), LHC75 (sb), LHC25 (db), MD4-MD1 (MTE), EASTC, EASTB.

Highlights of the weeks.

POPS continued to work without any particular problem. A minor issue with the water cooling had to be fixed on Saturday night by the piquet.

The slow extraction was prepared during the week and spill data were taken on Saturday to determine if the noise observed on the Bdot or if one of the frequencies proper to POPS can be found on the spill. The analysis is still ongoing.

The mentioned LHC beams were produced without any particular problem, and delivered to the SPS or the LHC whenever requested.

The CNGS beam was set-up with a pretty good spill and good extraction efficiencies for high intensity. Once sent with reduced intensity to the SPS, a synchronization problem appeared. At first the problem was cured by changing a timing at the PS, but on Sunday the problem appeared again. It is not clear if this is generated by the SPS or by the PS, the follow-up will be done on Monday.

Another synchronization problem appeared between the PSB and PS on Saturday, but this was cured by changing a timing at the PSB extraction.

The MTE setting-up continued, first by re-building the RF tree corrupted for an un-clear reason last week. The first tests of jumping the electrostatic septum were not too conclusive for two reasons: a) the orbit system was not working correctly all the time, problem fixed on Wednesday; b) the test is done only with the core, since the capture could not be resumed yet due to a problem in generating the new 2 bp cycle.

At the beginning of the week, the BWS and the SEMGRIDS in TT2 were not working as the orbit system on some of the users.

The experts could solve the different problems by Wednesday.

### Booster (Bettina Mikulec)

Busy week for the PSB, both in terms of small faults here and there, but also beam setting up.

- Some Linac2 watchdog issues: the watchdog cut the beam on a certain user because there were too many subscriptions to a frontend. Moreover there are some timing issues. This will be followed up by CO and the diagnostics improved.

- BT4.SMV10 tripped twice - the specialist will have a look.

- Between Saturday and Sunday there has been a problem with beams injected into the PS due to a jitter on a timing signal that is re-generated from the PS rf train. Sunday morning the problem suddenly disappeared. The LL specialists will try to understand today what had happened...
- On Saturday around 23h20 many devices tripped (quadrupoles, correctors and cavities) with a water flow fault, but TI didn't observe anything abnormal. A reset could bring the beams back 10 minutes later.
- Sunday evening LI.SN02 tripped (Linac2). The piquet PO exchanged the VERO power supply (1h downtime).
- Early this morning the PS stray field compensation stopped working. Rebooting DSCs didn't help; the PS field can still not be acquired by the PSB. A workaround is in place to limit the losses and fluctuations in the PSB injection line until the problem will get solved by the specialist.

Beams:

- Fine-tuning of the CNGS beam.
- Setting up of the double-batch 50 ns beam and the 2/3 and 1/3 of the nominal intensity 25 ns double-batch beams. Special care has been taken to minimise the transverse emittances.

## SPS (Django Manglunki)

The SPS has delivered the probe, indiv, and 75ns beams to the LHC, and started preparing the CNGS beam.

During the whole week, whenever possible, access was given to BA7 for HiRadMat installations.

On Monday at 23:45, the horizontal injection oscillations on all beams had to be retuned with very strong corrections on MAL1029 and MSI1183. At the time the cause was not understood as there was no change of position in TT10 and no alarm on any element. On Friday it turned out that it was impossible to inject the CNGS beam. The explanation came on Saturday when the kicker specialist, originally called by the OP team for an analog signal observation problem, diagnosed that one PFN from generator 1 was broken. Since it was still possible to deliver the LHC beams, it was decided to plan the intervention for Monday morning, right after filling the LHC.

More work was carried out on the transverse damper during the week; the power amplifier H1 was replaced by the old type on Thursday, but the problem with the unit H2 is not yet understood.

## TI (Peter Sollander)

Here's the weekly summary:

Wednesday, March 9, a cooling problem on RB.A81 causes interlock during ramp down. No major consequences though. Piquet sent in to adjust flow.

Monday 14, electrical perturbation dumps the beams. From first investigation it was an over voltage due to RTE (french electricity distributor) switching off another client. The over-voltage was seen by LHC (FMCM) and dumped the beam (as it should)

## LHC

- Collimator set-up
- Injection set-up for bunch trains
- Commissioning continued
- Stable beams 18:05 Sunday

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