

## End Week 6 (February 13<sup>th</sup> 2011) – Status of Accelerators

Preparing for new run, restarting the injector complex and performing LHC powering test

### Linac 2 (Richard Scrivens)

Linac2 started up during the week.

The SISWatchdog (beam survey) system went through a lot of testing, it passed very well the critical tests, only requiring non-critical bug fixes. A quadrupole power convertor failed 2 times during the week, and the new watchdog stopped the beam on both of these occasions.

An initial test of high intensity was made, and showed some RF tubes need to be exchanged to get to higher intensities.

Beam was ready to be delivered on Tuesday afternoon to the PSB, and was actually delivered on Wednesday.

### PSB (Klaus Hanke)

After finishing the hardware test and cold check-out, the Booster has taken first beam from Linac2 on Wednesday 9 Feb as scheduled.

Beams were immediately injected and accelerated. With first priority SFTPRO beam was set up to be passed on to the PS-SPS for SPS magnet alignment. Then work continued on the LHCPROBE and LHCINDIV, the first two beams requested by the LHC, and work has started on the 75 ns beam (single batch). So far we are on schedule / ahead of schedule. Rapid start-up without any particular problems.

### PS (Rende Steerenberg)

The Start-up of the PS is progressing very well.

The last two weeks were dedicated to the commissioning of POPS and the cold check out of the PS.

Last Wednesday POPS was used for the very first time in B regulation and after a joint BE-OP and TE-EPC validation of the cycles we decided Friday to stay with POPS for the start up with beam, roughly 1.5 month earlier than initially anticipate. On Friday at 11:11 the beam was for the first time accelerated up to 14 GeV/c with POPS.

The beam priorities after having delivered the low intensity SFTPRO to the SPS are:

- LHCPROBE (already accelerated up to 26 GeV/c, but without the RF gymnastics)
- LHCINDIV
- LHC75 single batch

## SPS (Django Manglunki)

The SPS started taking the CT beam with 2E12ppp from the PS on Saturday evening at 19:30, after the LHC transfer lines DSO tests, and only slightly delayed by a breakdown on MAL1001's power supply. Setting up of TT10 was straightforward, but then the injected beam was lost in about 150 turns. It turned out the controls of one stepping motor screen (BOSTEP4219) were inverted so that one had to send the IN command to set the screen out of the chamber. After that the beam went around, but still with losses in 218. At low energy, these losses could be avoided by a bump towards the outside of the machine around 218. Acceleration took place on Sunday and by 16:30 there was beam on the 400GeV flat top. In order to avoid the losses in 218 at high energy, the radial steering is used to displace the beam towards the outside.

After calibration of the MOPOS, orbit measurements were performed on the flat top, followed by computation of the corrections needed (momentum offset subtracted). Hence, two interventions will take place on Monday morning:

- moving the identified quadrupoles according to the computation performed on Sunday evening
- examination of the alignment and dimensions of the new chamber in 218, to try and identify - and hopefully remove - the obstacle.

In the mean time beam has been turned off for the night in order to minimize the radiation during the intervention, according to the ALARA principle.

## LHC

The machine was closed last Friday evening and DSO tests carried out on Saturday. Powering tests continue this week.