

## End Week 7 (February 22<sup>nd</sup> 2010) – Status of Accelerators

### Summary

<b>LINAC 2</b>	Very good week without problems
<b>PSB</b>	Smooth week without any major problems to report
<b>PS</b>	Good week without particular problems
<b>SPS</b>	Good week with LHCPROBE and LHCINDIV beams. No problems to report
<b>AD</b>	
<b>TI</b>	Some problems due to electrical network perturbations.
<b>LHC</b>	Sectors 1-2, 2-3, 3-4, and 5-6 quasi ready. QPS activities and powering tests ongoing in remaining sectors.

### Linacs (G. Bellodi)

#### Linac2:

Linac2 had a very smooth week, no issues to be reported so far.

### PS Booster (J. Tan)

#### Tuesday 16<sup>th</sup>

Follow-up of BT.BVT20 : the spare power supply cannot be connected to OASIS. In the afternoon the PICO and the specialist swapped to the normal one. The signal was also available on OASIS after a short while. However, when setting-up the MTE beam, some instabilities were spotted : the ejection trajectories were systematically different when the MTE user was followed by a ZERO user in the supercycle. In fact this power supply started to pulse with the timing of the next user (BEX.F900-CT) : fault diagnosed thanks to OASIS. JM Nonglaton has changed the timing to BX.WCY200-CT.

BTM.BHZ10 was off, causing losses nearby. It was found in “internal fault” state and in “local mode”. The PIPO could solve the problem.

The RF specialist has adjusted the RF parameters for the MTE beam with nominal intensity. The settings of the transverse plane went smoothly thereafter :  $E_H/V(1\sigma \text{ norm}) = 12.7/6$  with  $1.7e13$  total intensity.

#### Wednesday 17<sup>th</sup>

The beam was cut for 43mn by a PS safety interlock (Lift).

The PIPO was called for many multipoles in default : he has changed the regulation board.

#### Thursday 18<sup>th</sup>

AF could hear that one of the ONO311L1 was changing polarity : it was the ring3 for the AD user : he has changed the CCV value to the correct one. Thanks Alan

MTE beam was sent to the PS.

### **Friday**

The RF specialist has adjusted the RF parameters for the AD beam, and after steering, the beam was sent to the PS machine on Sunday.

**The week end** was very smooth.

It was found that the setting of some pulsing magnets (septa in the PSB recombination line) on the user ZERO was strongly disturbing the ejection trajectories. They were set as the other users. The trajectories are stable now.

Beams : LHCPROBE, AD, MTE have been archived, and sent to the PS

NORMGPS : setting-up on-going.

### **PS (S. Gilardoni)**

The PS had a good week without particular problems. The MPS is working without any problem. The frequent trips of the PFW of last week did not reappeared after the intervention of the specialist.

The week was dedicated to the LHC beams setting up and the preparation of the MTE beam.

The orbit was also subject of a lot of work. Compared to last year, the H orbit at 10 GeV/c is quite distorted, whereas the V is pretty much the same. Since the main magnets were not touched during the last shutdown, the source of distortion is not clear yet. In any case, this is not a problem for the LHC beams: it will be for the high-intensity ones due to the reduction of the available aperture. The idea we will discuss during the PSS meeting is to monitor the orbit and, in case, to correct the orbit with the magnets displacement during the next technical stop in March. There were few problems with OASIS followed with the specialists, i.e., noisy signals on the extraction bumps, saturated signal on the injection septum, broken converter on the orbit pickup rack.

#### **Available beams and status:**

LHCINDIV, LHCPROBE: ready and taken by the SPS.

LHCPILOT: prepared.

SFTPRO: low intensity for the PS and the SPS orbit measurements.

MD1 (MTE): beam setting up in progress. Intensity injected up to  $1900 \times 10^{10}$ .

Accelerated and fast extracted with slow MTE bump and fast MTE kickers.

Program for next week: resume the capture and the MTE extraction.

AD: setting up of the injection.

#### **Status of the instrumentation:**

Orbit: operational with few hiccups followed with the specialists.

BWS: offset of the position for the H scanners. Specialist informed. The measurement of the emittances is coherent with the measurements in the SPS.

BBQ: frequent resets needed of the transverse damper used as exciter for the BBQ. To be followed-up with the specialist next week.

### SPS (D. Manglunki)

The SPS ran all week with the LHCPROBE and LHCINDIV beams, respectively on LHCFast1 and LHCFast2 users. During the night from Thursday to Friday, between 22:00 and 6:00, the probe beam was extracted into TI2 then TI8. For TI8 the intensity had to be decreased down to  $3E9$  using the horizontal scraper on request of LHCb. From Friday onwards, in order to save electricity, both beams are only switched on for about half an hour per shift, to measure the transverse emittances just before extraction (probe:  $eH=1.1\mu m$ ,  $eV=1.3\mu m$ ; indiv:  $eH=1.3\mu m$ ,  $eV=1.9\mu m$ ). The rest of the time, the magnetic cycle is left not pulsing.

### TI (P. Sollander)

This week, the main problems have been electrical perturbations:

- Wednesday a UPS problem in LHC point 7
- Thursday, 400kV perturbation seen by all UPS and apparently also by the LHC collimators
- Friday morning, perturbation first in point 8 due to UPS being connected to the Pays de Gex 20kV network, 15 minutes later, general perturbation at CERN seen by most UPS
- Friday evening, another perturbation seen.

These perturbations have an impact on PIC and QPS. Investigations are ongoing.

On Friday there was another problem at point 2, where a cooling PLC did not communicate any longer. After having planned an intervention rapidly (stopping the Alice solenoid, investigating for Cryo impact etc), CV intervenes and finds that the problem was really with a network equipment. IT had not seen this problem. Investigation is ongoing, more news about this on Wednesday.

### LHC

Sectors 1-2, 2-3, 3-4 and 5-6 quasi ready, precycle done in 1-2, 2-3 and 3-4, heat run done in 5-6.

QPS activities and powering tests ongoing in sectors 4-5, 6-7, 7-8 and 8-1.

Circulating beam expected towards end of the week.