

## End Week 16 (April 25th) – Status of Accelerators

### Booster (Alan Findlay)

A fairly mediocre week for the PSB, with quite a few small problems keeping us busy and messing up our beams.

A couple of recurring problems are being followed up by the specialists, a LINAC interlock that stops the beam and needs a local reset, and the BE.BSW14L4 also cut the beam and will only be reset locally. Both are under surveillance by the equipment specialists, and the latter was more stable towards the end of the week.

Work was required on SFTPRO and CNGS in view of the MTE beam specifications that are now required. SFTPRO is now up to spec for MTE, but we'll need more time next week to work on getting the CNGS intensities up and running with the required emittances. The PS continues to take the beam as it is, while we work on another user to bring the modified beam up to spec.

We had an intermittent problem above all on R3, where the beam was lost at capture and a large change in the Q Strip values was required to get the beam back, after which the original value was returned and all was well. The CO specialists reckoned the GFASs lost their memory, and so had proposed to change them in the shadow of a machine stop, which we did on Friday afternoon. Some tricky cabling on the equipment meant we were not fully operational when the PS came back online, but we were there 20 minutes later.

Sunday morning the R2 C04 cavity died due to a faulty amplifier, which was diagnosed by the specialist. As this did not have any impact on the LHC beams and with the OK of the PS & SPS, we took the decision to leave the intervention until Monday, when there are interventions planned for both PS & SPS. RP have been informed and the specialist should require around 30 minutes to replace the amplifier.

That's it for this week, but I reckon we could get a C+ or B- overall!

### TI (Peter Sollander)

- Monday, April 19: Electrical perturbation on 400kV EDF supply stops the accelerators for an hour and a half.

- Friday, April 23

O In the night (02:00), demi water station FDED-00065 fails and stops the PSB for an hour. It was in fact an alarm on a valve. While the piquet was on site, a valve closed and stopped the circuit. The start-up was quick thanks to the piquet being on site already.

O At 8.30, EL piquet called for a UPS alarm in RE78. The UPS has a problem charging the battery (electronics problem). The same problem caused the UPS in RE12 to fail in January this year. EL asked for access to go in and fix the problem. The LHC was stopped at 12.00 and the intervention took place. LHC back up and running only at midnight due to some problems with the injectors.

## SPS (Karel Cornelis)

A busy week for the SPS. We continued to send the probe beam to LHC and on Tuesday we started with the commissioning of the CNGS extraction- and transfer using the MTE beam from CPS. In spite of some initial stability problems with the MTE beam, the setting up of CNGS was finished by Thursday and a steady beam of  $2.5E13$  protons per cycle was provided to CNGS during the night of Thursday to Friday, already used by opera. The MD1 cycle was used to set up the 25nsec beam as a preparation for the MD this week. A lot of time was spent to set up the transverse damper with this beam and also the longitudinal loops (one turn feedback and longitudinal damper).

On the night from Thursday to Friday, **a vacuum problem developed in the middle of the arc 2-3**. The vacuum problem could be correlated to the pulsing of the SPS, indicating a magnet problem. A leak detection was done on Friday, in the magnet patrol mode, and the leaking magnet could be identified by Friday afternoon. It was decided to keep on running throughout the weekend, with a minimum of pulses, only for the LHC. The CNGS and 25 nsec beam were stopped, and we only had to provide two fills for the LHC throughout the weekend. The SPS just survived and at this moment (Monday morning) the intervention to change the leaking magnet has already started.

## PS (Rende Steerenberg)

Last week was smooth running for the PS with only minor issues that were solved quickly and efficiently by the different specialists.

The MTE beam was delivered in a stable manner at  $1.6E13$  to the SPS who sent it on the CNGS target. The MD2 cycle in the PS is used to increase the intensity further to the one required for CNGS ( $2.5E13$ ). The Beam is extracted at  $2.2E13$  on a regular basis and the cyclis instability that caused a slightly higher 5th turn is under investigation.

For the long standing GFAS problem, where from time to time the required function is not executed, a fix was put in place on the GS.RPOS GFAS. No missing functions were observed since then. We will now have to evaluate together with CO on a real fix and applying this to all front-ends containing GFASes.

Friday afternoon in the shadow of the SPS vacuum leak detection the PS fire detection system in the tunnel was repaired. Now the PS is again under full surveillance from fire detection system point of view.

The setting up of the east area beams was started too.

This Monday morning the PS beam production will be stopped at 8:00 for an intervention in the tunnel on one of the two 40 MHz cavities at 8:30. The INCA MD will also start at 8:00 and might be perturbed by this.

## LHC – full details under coordination at:

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

Of note: successful run with beams squeezed to 2 m in all IPs. This combined with a 3 bunch scheme has increased peak luminosity by a factor 10.

Technical stop Monday to Wednesday 26<sup>th</sup> – 28<sup>th</sup> April