

## End Week 44 (November 6th 2011) – Status of Accelerators

### TI (Peter Sollander)

<http://wikis/display/TIOP/2011/11/07/TI+summary+week+44%2C+2011>

Events of the week: no major events stopping the accelerators this week. A false ODH alarm in RE72 on Saturday could be reset remotely by fire brigade. An intervention to check on the ODH sensor is foreseen Monday 7 November.

### LEIR (Maria Elena Angoletta)

Finally a quiet week for LEIR (thanks God for small favours!). Beam was available the whole week for those wanting it. In particular, from Saturday onwards it was successfully sent to the LHC. The typical EARLY intensity available at extraction in LEIR was 1.5 E10 charges with two injections.

### ISOLDE (Erwin Siesling)

It has been a good week at Isolde. Very few technical problems.

#### GPS:

Run stopped last Tuesday morning. We are preparing for a target change today for a new CaO target.

#### HRS:

Running with a UC target. Radioactive Fr beam was delivered to the CRIS experiment at 30kV and stable beam tuning at 50kV was done to COLLAPS in between and after the CRIS run for the beta NMR setup.

Now in radioactive cooldown to prepare for the target change on Wednesday.

Few hick-ups with the penning gauge in the HRS ISCOOL RFQ sector (HRS40) which would switch itself off for no reason. Restart was easy. Will address this to the vacuum group.

#### REX:

Stable beam from EBIS was delivered to the bNMR setup at the end of the LINAC at 300kV/u. RFQ amplifier was down on thursday. Tube has been changed Friday by Vince Cobham (BE/RF) and by friday-evening the NMR people could take stable beam from the ion source, TRAP and EBIS through the LINAC at 300kV/u (low energy).

In between the WITCH experiment (Martin Breitenfeldt) has been taken stable 39K from the ion source into their setup to prepare for their upcoming radioactive run this week from GPS.

## Booster (Klaus Hanke)

Last Monday afternoon the EPC piquet was called for a problem with BT.BHZ10 (“Specific Interface Malfunctioning”). He found that the power converter and its spare were plugged to the 1553 loop with the same address. This has been fixed; about 1h down time.

During the rest of the week excellent availability, no problems worth mentioning.

## AD (Bruno Dupuy)

It was a very quiet week for the AD. No hardware failures.

- Several setting of the injection line in order to optimizing proton on AD target.
- Bunch rotation phase adjustment, on cavities C10.

Average intensity were around:

Injected  $1533.3E10$  proton per injection

Ejected  $3.01E07$  anti-proton per extraction.

## PS (Rende Steerenberg)

The PS had a week with very smooth running and high beam availability and only minor issues that could be solved quickly.

For the ion operation the F16.QDE217 quadrupole in the TT2 line trips very often, but the power converter specialist will solve his during the technical stop of 08/11.

TOF went back from low intensity to the nominal intensities again for the last period of the run. At the same time RP asked us to reduce the maximum flux from  $1.66E12$  p/s to  $1.4E12$  p/s as the levels around the target water cooling station are otherwise too high for the classification of the zone concerned.

The very low emittance 50 ns double batch LHC beam with  $1.5E10$  protons per bunch was tested successfully in the PS. At extraction the beam has 1.07 mm mrad in the horizontal plane and 0.84 in the vertical plane

## SPS (Ioannis Papaphilippou)

SPS operation this week was dominated by the dump kicker fault which stopped the machine for almost 48h. More specifically, on Wednesday evening, there was a failure of the vertical dump kicker MKDV2.

The problem was traced to a burned ceramic high-voltage feed-through which had to be replaced by the ABT team by late next morning. In order to avoid a possible vacuum contamination from an old local vacuum group, a group further away was used, putting in atmospheric pressure not only the vertical but also the horizontal dump kickers. This slowed down the pressure reduction and delayed significantly the conditioning of the equipment. In addition, the voltage rise had to be stopped during Thursday night due to sparking and restarted at reduced voltage with much lower speed.

During Friday morning, we tried to accelerate the conditioning by using the beam (LHC 50ns with short bunches) and indeed observed some vacuum activity, but there was no significant increase of the pressure slope. Conditioning continued during the afternoon and resumed when the voltage reached around 40kV, i.e. 15% lower of the nominal value, which is considered by the ABT experts sufficient for safe beam dumping.

Beam was back at 7pm, initially testing the positioning of the dumped beam with low intensity, at different energies. Gradually beam was made available for the SPS users, CNGS (4 single bunches) and LHC beams (mostly single, 12 bunches and ions on Saturday and Sunday). Conditioning with beam (50 and 25ns with up to 4 batches) was performed during Saturday, always controlling not to exceed a pressure threshold of  $10 \times 10^{-7}$  mbar.

Other events worth mentioning:

- On Monday morning, the mains tripped due to a failure of SMD4 (broken thyristor to be changed) and operation resumed after switching to SMD14 (1h without beam).
- On Tuesday afternoon and with the agreement of the CNGS coordinator, the CNGS beam was stopped for around 1.5h for checking the wave form of the MKE4 extraction kicker.
- On Tuesday evening, a delay in the SPS RF clock was discovered explaining the low muon yield of the CNGS 4-bunch beam.
- On Wednesday midday, the beam was cut for 3h for an intervention on the vertical transverse dumper 2, due to a damaged amplifier.

## LHC

End proton running 17:00 last Sunday 30<sup>th</sup> October. MD program perturbed by two big stops: cryogenics and SPS dump kicker. Reasonable progress nonetheless including encouraging first look at P-Pb. Aperture measurements in IR2 for squeeze to 1 m reveal aperture restriction L2 – not too serious but important to follow-up. Lead commissioning progressing well – good for stable beams after this week's technical stop.

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