

End Week 47 (November 28th 2010) – Status of Accelerators

Proton operation finished at 8:00 Monday 22nd November.

Ions only in the complex.

Source and LINAC3

Ups & down. Transmission into LEIR optimized in middle of week. Short circuit on intermediate electrode Sunday – intensities down – will try and struggle through week 48 like this (would take around two days to fix).

LEIR (Django Manglunki)

LEIR delivered the EARLY beam for the LHC and the NOMINAL beam for fragmentation tests in the North Area.

On Thursday morning, the intensity delivered dropped due to a lower injection efficiency. The problem seemed to originate from the linac beam properties but with no clear diagnostics. With the help of Christian the beam was re-steered in the injection line and some of the performance restored. Finally the linac stripper was exchanged and the standard performance of $1.2E10$ charges delivered to the PS was retrieved.

The week-end was very smooth, with a few modifications of the intensity of the NOMINAL beam to try different settings for the fragmentation tests.

PS (Alexej Grudiev)

Smooth week providing ion beams to SPS and LHC.

One issue to be mentioned is related to 80 MHz cavity. At the beginning of the week only one cavity was available: C80-88 no hot spare. The second cavity (C80-89) has been tuned for ions during the week as a hot spare. In general, the 80 MHz system is fragile, several trips per day occur and typically multiple resets are necessary to restart the cavity. It happened two times during the LHC filling on Saturday evening, 6 minutes no ions for LHC each time. Operation had to go to the spare cavity C80-89 for some time on Sunday, since C80-88 could not keep the voltage program.

SPS

Good delivery of ions to LHC. Good progress on fragmented ion tests in the North Area.

On Monday morning the proton run was stopped, and the setting up of the fixed target Pb82+ beam at 80GeV/u for the fragmentation tests started. This cycle uses 9 injections of the NOMINAL ion beam for the LHC. The setting up was interrupted many times for several hours to fill the LHC, so the extraction had to be prepared during the night, and was only ready by 6:00 on Thursday morning.

After filling the LHC, all beams were stopped on Tuesday at 14:00 for the radiation survey. During the survey a leak was detected on quadrupole QMA11910 close to the dump, and it was decided to repair it, which was done very quickly. Beams were back at 20:30

On Wednesday evening the LHCION beam suffered from bad injection efficiency for the last 3 bunches of the batch. This was solved by increasing the MKP kick for these bunches; the next day

E. Carlier showed that the first bunch - which is the reference for the correction of the injection oscillations - actually received a stronger kick than programmed, due to the residual voltage loaded from the previous cycle. This was corrected and the programmed kicks on all bunches are now equal.

On Thursday the setting up of the fixed target Pb82+ beam at 13GeV/u for the fragmentation tests started, once again perturbed by the LHC fillings, so the setting up of the extraction had to be done by night, followed by the setting up of the H2 line.

On Saturday afternoon a power supply tripped in TI2 because of a door interlock. It tripped again in the evening and the piquet eventually had to tape one of the microswitches which was giving a bad signal.

On Saturday afternoon, setting up of H2 resumed after LHC fill.

During Sunday several modifications were tried on the SFTION cycle (decreasing bunch intensity, delay the extraction, ...), to try and decrease the bunch structure seen by NA63.

LHC is being filled regularly, with about 7.5×10^{10} charges/bunch, normalised emittances respectively 0.5 (H) and 0.8 (V) micrometers normalised rms.

TI (Peter Sollander)

Quiet week. Only one major event to report for Friday when a suspected electrical perturbation stopped the LHC for about one hour (10 to 11 in the morning). We are still waiting for the details on the perturbation from the EL group, but it looks like the one we saw on November 15.

LHC

Steady ion running. Full details under "coordination" at

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