

End Week 3 (January 20th 2013) – Status of Accelerators

Statistics

nTOF: <https://espace.cern.ch/be-dep/OP/PS/default.aspx>

CNGS: https://accstat.web.cern.ch/accstat/statistics/charts/2012/SPS/CNGS_Target_Cumul2012.jpeg

LHC: <http://lhc-statistics.web.cern.ch/LHC-Statistics/index.php>

TI (Jesper Nielsen)

TI weekly summary.

<http://wikis/display/TIOP/2013/01/16/TI+summary%2C+week+3+2013>

LINAC2 and LINAC3 (Rolf Wegner)

Linac2:

The electric glitch on Tuesday morning hit us quite hard. Besides the normal restart process (opening of vacuum valves, waiting for the cooling water and RF), a tunnel access was needed to unblock a drift-tube water flow meter and several power supplies for magnets had to be exchanged by the PIPO. Strangely, a number of power supplies failed on Tuesday afternoon after being found ok/repared in the morning (LT.BHZ30, LTB.BHZ40).

The rest of the week was quite normal. Some "normal" problems occurred and were quickly solved: vacuum valves LI.VVS10 and LI.VVS20 closed and had to be re-oped, power supply LA1.QDN21S tripped.

Linac3 (from Detlef)

The downtime on Tuesday after the electric glitch was used to refill the oven.

On Wednesday the source had to be rest after a microwave interlock.

The rest of the week, Linac3 run stably as desired.

LEIR (Maria Elena Angoletta)

Good week for LEIR. The LINAC3 source refill was anticipated to Tuesday Jan 15th morning to try to use the general downtime generated by a power glitch.

The LEIR machine recovered relatively quickly from the power glitch on Tuesday morning. The electron cooler expert restarted eth electron cooler. The MIL1553 problem came back but was cured by the piquets PO, CO and by the CO expert in the shadow of the LINAC3 source refill. The LEIR transverse damper didn't want at first to be restarted but finally got convinced.

Beam was back by the late Tuesday afternoon and has been mostly available since then. Occasionally the main magnet went down (likely owing to a change in the supercycle) and needed restarting, The intensity from Linac3 sometimes got lower hence requiring the adjustment of the frequency offset reference function in the LLRF, to improve the capture by compensating the different effect of the electron cooler on the beam.

Some MD time was dedicated to study the losses in NOMINAL at the beginning of the ramp. On Monday Jan 21st a LLRF MD will be carried out to improve the NOMINAL beam and its longitudinal parameters.

Booster (Bettina Mikulec)

Not an easygoing week for the PSB, but with good results. Please see below.

The PSB took quite a long time to recover from the power glitch on Tuesday (15/1) morning despite a big crowd of piquets working hard. Thanks to their concerted effort! Beam was back early afternoon (~5 hours downtime). In the afternoon a remaining problem with a ring 4 quadrupole at injection (BI4.QNO60) had to be solved to come back completely to the situation before the glitch.

Still Tuesday evening the piquet PO was again required to change an auxiliary power supply for a Linac2 bending (LT.BHZ30) that led to a source interlock and to reset a multipole of ring 2 in the PSB (in total ~1.5 h downtime).

Wednesday morning we were suffering of no acquisitions of the samplers of transformers and pickups. The piquet CO saw that there were too many subscriptions, but even a reboot of all workstations didn't help. Finally the culprit was found - a test program running on the INCA server saturated some frontends and was stopped.

On Friday A. Findlay tested the induced voltage of a high-intensity beam with the new relay gaps (replaced in ring 2). These tests were very successful. The relay gaps of the other rings will be replaced during LS1.

Saturday: a couple of resets of the extraction bumpers and the ring 3 distributor.

Beams have been delivered throughout the week for several MDs. Concerted effort between ABP, EPC and OP (particular thanks to Joerg!) is going into the preparations for an orbit correction using YASP and the FGC3-controlled orbit correctors with the aim of testing it before the start of LS1.

Proton beam for the LHC: During the last FOM, problems have been mentioned with the production of the proton beam for the LHC. The beam had been carefully set up before Christmas, but never came back to those characteristics after the short winter break. Severe intensity fluctuations for this low-intensity beam was one of the symptoms. One workaround that was proposed was to inject at constant (higher) intensity in the PSB and shave down the beam in the SPS. On Thursday afternoon the SPS complained about transverse tails of this beam, which are always present in such low-intensity longitudinally shaved PSB beams. Therefore we tried to inject even higher intensities and shaved those in addition vertically in the PSB. This allowed reducing significantly the tails and proved also to be nicely stable in terms of extracted intensity. This beam is now being taken by the LHC.

PS (Jakub Wozniak)

It was a good week for the PS despite a major power glitch and a water leak.

On Monday morning there was POPS down for 1h.

Tuesday morning there was a power glitch in Meyrin causing problems for 6h that continued till 15h00. Various equipment had to be restarted due to that. In the night Linacs caused issues for around 2h.

Wednesday morning PS had an access for a faulty amplifier for a cavity for 1h15 min.

There was also a water leak in the PS on Friday afternoon causing the around 4 hours of downtime.

The weekend was quite calm with no disturbance.

SPS (Yannis Papaphilippou)

The major event of the week in the SPS was the power-cut on Tuesday morning which affected all accelerators. It was then decided to advance the ion source filling during that day, and also try to provide protons for the MD scheduled on Thursday (coasts). The SPS was ready for beam at around midday, but the protons came back at 3pm and, after less than 1h, ions were available, so the MD was cancelled. The only worrying problem apparently related to the power cut, was that a sextupole PC (LSDB) was found off later in the evening, without any alarm or BIC interlock. On Thursday, the 12 injections for ions was set-up (orbit, tune, chroma, IIRF) with good performance (1.5e10 ions/bunch, with 0.8micron emittance) and finally delivered to the LHC on Sunday night, along with an improved version of the 12 injections proton beam coming from the PSB, with much smaller emittances (<1micron in both planes). Regarding the active filter problem of last week, it was found that no critical pulsed SPS power supply is associated to it. In this respect, the LHC50ns should be able to be extracted for the BI tests in the LHC at the end of run and a test will be done in the SPS next week to confirm this.

LHC

Commissioning for proton-lead. Stable beams Sunday after a long week.

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