

Accelerator complex status

End week 21 (Sunday 29th May 2016)

The week was dominated by the fault of the PS main power supply. Thanks to the effort of TE-EPC the machine could be pulsed again on Thursday afternoon.

TI (Jesper Nielsen)

Here's the TI perturbations of the week:

<https://wikis.cern.ch/display/TIOP/2016/05/30/TI+summary+week+21%2C+2016>

The last one was a bit exotic, since it was on SWISSGRID, and seen by us via the French network.

LEIR (Django Manglunki)

A lot of progress on LEIR this week

The Pb beam was back in LEIR on Monday afternoon after the source refill; it was interrupted on Thursday afternoon from 14:00 to 18:00 for a Linac3 MD. When the beam came back the injection efficiency had dramatically dropped, possibly due to a drift in phase of the ramping cavity. The efficiency slowly increased during the night without any intervention.

- Trajectory corrections: YASP successfully implemented by Verena & Jorg on the injection line.
- Tune measurement mystery explained: the wrong frequency was being sent by LLRF to BI, resulting to a measured tune value twice the actual one. Once corrected, it was confirmed the tune was correct on all cycles, and behaved according to imposed trims.
- Electron cooling: there had been several times when the repeller gave high voltage spikes and had to be reset. The focusing/steering of the electron beam was retuned on Wednesday morning.
- New modifications implemented in LSA database, allowing proper control of physical parameters. MDEARLY beam has been generated and optimized.
- Extraction septum ER.SMH40 now pulsing ("unresettable" magnet fault disappeared - to be checked; specialists informed)
- Start of horizontal Schottky measurements. Very low signal-to-noise ratio for coasting beam, but for the bunched beam, the tune can be measured without excitation.

AD (Lajos Bojtar)

There is not much to mention, the AD was working pretty well during this few days when we got protons. There was only one issue with the access system Thursday night, when the beam stopper went in during the night in the DE0 zone apparently without any reason. Had to search the zone to open it, despite there was no indication of any fault or alarm on the zone. This might be related to the security tests which was done at the afternoon.

Booster (Bettina Mikulec)

Not much to report for the PSB, which was running smoothly last week.

- On Wednesday, we profited from the PS still being down and performed two dedicated MDs that were both quite successful despite the short preparation time. In general, our MD users were extremely satisfied last week due to the many cycles they had at their disposal...
- The higher intensity version of the MTE was revived and has now to be checked with the PS.

We keep our fingers crossed that the PSB will stay the only machine this year without serious troubles...

PS (Guido Sterbini)

The week was dominated by the fault of the PS main power supply. Thanks to the effort of TE-EPC the machine could be pulsed again on Thursday afternoon.

On Monday it was decided to anticipate as many activities as possible scheduled for the next June Technical Stop. The access in the PS Ring started on Monday afternoon. In the shadow of the stop a repair of a water leak on MU41 and an intervention on the figure-of-eight circuit took place. The commissioning of the FGC3 power supply for one of the PFW continued.

POPS restart was initially foreseen on Wednesday afternoon but needed to be postponed by 24 h in order to complete the necessary checks.

The main magnets started to pulse again on Thursday afternoon around 16h00. At 16h30 most of beams were back.

During Thursday night oscillations were observed on the MTE beam (poor splitting efficiency and jitter in the TT10 trajectories). Investigations are ongoing.

On Friday morning, POPS was in fault for 20 min due to a trip on an IGBT. Following this episode, EPC specialists asked to reduce by 30% the number of cycles and suspend the all MD cycles in order to monitor the situation with a reduced cycling load. During the night First Line intervened on a quadrupole in the T10 line (ZT10.QF004).

The situation was calm until Sunday morning when the EPC piquet was called for a problem with the Septum 16 (1h40 downtime).

SPS (Hannes Bartosik)

Due to the fault on the MPS the PS was not able to deliver beam for the first half of the week. This time could be used for performing most of the interventions originally planned for the injector technical stop in week 23.

The PS came back online with POPS on Thursday afternoon and the restart with beam was rather smooth. However the SPS still needs to be run in degraded mode due to the TIDVG vacuum issue. The fixed target cycle is presently operated at a maximum intensity of $1.5e13$ ppp and a reduced duty cycle. Furthermore, the fixed target beam is not played during LHC filling. The nominal 25 ns beam delivered to the LHC is presently limited to single batches of 72 bunches. In these conditions the vacuum level at the TIDVG is stable at around $1.7e-7$ mbar.

A few hours downtime for the fixed target beam were accumulated due to a trip of the RF power caused by a thunderstorm, a problem with the PS extraction septum and due to the LHC filling periods. Otherwise no major issues were encountered.