

## Accelerator complex status

### End week 22 (Sunday 5<sup>th</sup> June 2016)

#### TI (Jesper Nielsen)

Finally a more or less quiet week in TI:

<https://wikis.cern.ch/display/TIOP/2016/06/06/TI+summary+week+22%2C+2016>

#### AD (Carlos Oliveira)

Last week we had several minor issues with power supply's (DI.BHZ6045 at injection and DE0.QN10 at ejection)

Saturday night we had a "timing" issue. CO people had to replace a "white rabbit" switch and a timing delay module. It took 8 hours to fix this. Most of the time was lost trying to find someone from CO to fix the problem. We have no more piquet CO. People come when/if they can.

#### LEIR (Maria Elena Angoletta)

A lot of progress on LEIR this week

The main highlight of the week has been the beam extraction to the PS. Our PS colleagues have asked to receive a beam earlier than expected to start with the setup in the PS. On Friday 3 June evening the LEIR extraction was successfully setup and then a single bunch (EARLY-type) beam was injected and accelerated in the PS and ejected on D3 in less than one shift.

During the week, the work also continued on YASP to measure the kick response in the ring. The chromaticity measurement system got back into operation and the first chromaticity corrections were done. The new version of the Transverse Feedback is not yet fully operational (more work to be done this week) so the current one was still used. Over the weekend the gates for the LEIR extraction line transformers were checked and the settings corrected, so that the beam can now be seen on the transformers in EE and ETP. More work on this will be done today (Monday June 6th).

Concerning the technical stop planned for Tuesday June 7th, the Linac3 will profit to refill the source.

#### Booster (Elena Benedetto)

Very smooth operation and no major issues to report, until yesterday (Sunday) morning when the Wire Scanner in Ring4 Vertical plane, broke. The repair would require a stop of ~24h.

Otherwise lots of MDs taking place this week and fine tuning of the OP beams (mainly MTE, BCMS and Isolde).

The injection with new Linac2 RF settings (to reduce the power demand from the debuncher) has been checked for the key users and then the settings have been propagated to all the beams.

## PS (Rende Steerenberg)

Following the restart of the PS with POPS in week 21 a reduction of 30% in the number of cycle was applied. This limit was lifted on Monday, but nevertheless unnecessary cycles need to be removed from the super cycle.

The PS was running well last week with a high beam availability.

Initial complaints about satellite bunches content on the 25 ns LHC beam, causing high losses at LHC injection turned out to be an issue in the LHC itself. Nevertheless, this initiated more detailed investigation on the satellite production in the PS and a possible reduction scheme. The extraction kicker was already closed around the batch and the triple splitting process was verified. The satellite content is less than 0.5% which is according to specification. The 2nd instance of the KFA71 was successfully used to test the cleaning of the gap after the triple splitting, but revealed an issue with one of the kicker modules that was repaired in the meantime. A reduction in the number of satellites surrounding the batch in the LHC was observed.

The LHC 25ns 48 bunch BCMS beam is about ready from the PS with transverse emittances of around 1.4 micrometer.

The intensity of the SFTPRO beam for the SPS fixed target physics was also increased to  $1E13$  ppp with an interlock to prevent extraction of higher intensities in view of the SPS internal dump issue.

During the weekend the first Pb ion beams, delivered by LEIR, were injected accelerated and extracted on the TT2 D3 dump. This is of course a good start, but substantial work is still ahead to setup and optimize the beams.

## SPS (Django Manglunki)

The SPS runs in degraded mode due to the TIDVG vacuum issue. The fixed target cycle is presently operated at a maximum intensity of  $2e13$  ppp and a reduced duty cycle of only one SFTPRO cycle in a 48s supercycle.

The nominal 25 ns beam delivered to the LHC is presently limited to single batches of 72 bunches. The vacuum level at the TIDVG is still stable at  $1.7e-7$  mbar.

With that in mind, it was a pretty good week for the SPS, most beam downtime due to the CPS and, until Friday morning, LHC fillings preventing us from delivering the fixed target beams.

On Tuesday 31/5 morning at 10:00, the SFTPRO intensity was raised to  $2e13$ .

On Thursday 2/6 morning at 6:30, an FEI interlock on MSE4183 prevented from sending the beam to the LHC, although the power supply seemed to pulse normally. It turned out the fault was due to a wrong configuration of the new power supply in TT41 that were added the day before (~3h beam downtime)

Thursday 2/6 afternoon we observed again a lot of spikes on QF during the SFTPRO extraction.

On Friday 3/6 morning at the IEFC it was decided to authorize delivering the SFTPRO beam during LHC fillings.

Over the week-end 4-5/6 a lot of work was done by the operations teams (PSB, PS, SPS) on the SFTPRO beam to equalize the rings, the islets, and optimize the spill.

On Monday 6/6 from 3:00 a problem on the DC BCT acquisition caused all SFTPRO beams to be dumped at 400GeV. No expert was available to solve the problem before 6:00, when the SFTPRO beam was stopped to start the 24h UA9 run.

## **LHC**

75% in Stable Beams over the last week – remarkable.