

Accelerator complex status

End week 48 (Sunday 30th November 2014)

TI (Jesper Nielsen)

The weekly summary can be found here:

<https://wikis/display/TIOP/2014/11/26/TI+summary+week+48%2C+2014>

LEIR (Jerome Axensalva)

The LEIR machine was stable during the whole week and especially when delivering beam to CPS & SPS (Apart from some random very short drops in intensity from Linac3).

Past Friday we had a meeting between EPC-CO, BE-CO & BE-OP concerning our Oasis measurement problems on the Mains and Quads of the machine. (Oasis signals up to 10 times more noisy than what can be measured at the output of the power converters). EPC-CO & BE-CO will perform exhaustive measurements before the Christmas stop to understand this problem (where, in the measurement chain, the signals get disturbed).

The "stray field compensation" project is also on going.

ISOLDE (Erwin Siesling)

HRS:

Running with a UC target #521.

The CRIS experiment has successfully been taking radioactive Fr beam during the week.

Friday the run finished according to plan when the central beamline was given to the GPS users. A few more hours could be taken by the CRIS experiment on Saturday evening when GPS users were getting ready.

GPS:

Running with a UC target #525.

Target was set-up at the beginning of the week and several mass scans on stable beams carried out during the week for TISD (Target & Ion Source Development).

Preparations were carried out to send beam to the newly installed VITO experiment in the RB0 line.

Friday morning ISOLDE was ready for the proton scan on the GPS target. PSB needed a few hours to set-up the proton beam in the BTY line. Unfortunately during this time stable to VITO (as planned) could not be taken due to perturbations at proton impact. However, successful beam tuning of stable beam into the new VITO experiment was achieved later in the afternoon and the proton scan carried out in the early evening.

Unfortunately on Saturday morning the TISD measurements were interrupted when the tape of the tapestation broke.

The schedule was adapted and beam prepared for the IDS (Isolde Decay Station) in order not to lose precious physics time.

Unfortunately in the CCO line to IDS the turbo pump was found broken. On Thursday vacuum concluded the pump would be ok and controller needed replacing but this unfortunately did not do the job.

With vacuum piquet (Sophie Meunier) we found a workaround on Saturday afternoon by using the sector before and after to pump down CCO. This worked and beam could be send to IDS later in the afternoon.

Since IDS was not ready yet HRS (CRIS) could take a few hours of beam).

Saturday-night the scanners after the CCO line were not responding at all. The switch on one of the PAM (pico ampere meter) boxes was set wrongly and hence the daisy chained bus for communication was interrupted. All ok after switching in the right position.

Sunday-night the GPS HT went down and target heating dropped. Guiding the users by phone got HT and target heating back and IDS was in business again.

AD (Lars Joergensen)

The AD had a very good week with very little down time.

The only major problem of the week was a AD target horn chariot interlock. This necessitated an OP-9 intervention in the target on Tuesday morning to verify that it was indeed just a drift of the position resolver and not any actual movement.

The electron cooler was dropping about 2 shots per hour. There were a few minor problems with the CO2 cavities and some minor magnet problems.

Due to radiation alarms it was necessary to reduce the beam sent from the PS - especially for the BASE experiment - but also in general as the

PAXA0607 alarm goes off at injection for PS beams of 1600 E10. After reducing this to 1400-1500 E10 the alarm no longer goes off, but this lead to a campaign to optimize the injection line better to try to avoid these loses on the first few turns after injection. So far the

9000 line has been optimized. This also resulted in teh beam being very stable for the experiments over the weekend with a steady $3\text{-}3.1\text{E}7$ extracted.

Further progress was made on the beam position jitter observed on extraction and attributed to the septum. Changing the risetime of the pulse reduced the jitter from 3.3 mm average to 2.1 mm and synchronizing the septum trigger to the machine RF during MD on 1 December has reduced a bit more. We are still continuing investigations into how to get rid of this problem completely.

Booster (Jose-Luis Sanchez Alvarez)

A very good week for the PSB with no major issues to report. A lot of MDs, a lot of steering.

Setting-up of the MTE user with very large horizontal emittance . Emittance H = 12 mm.mrad (1 σ); and Emittance V = 7 mm.mrad (1 σ).

And we have some instability in the ejection line depending on the previous user. The BT.BHZ10 seems to be the guilty party. Investigation is in progress...

PS (Jakob Wozniak)

It was a rather good week with all the beams delivered as expected.

- On Monday there was a perturbation from the recabling & steering in PSB ring1 that lasted around 8h. AD & SPS affected. There was also a problem coming from the gain amplifier of the cavity C36 - 1h30m downtime all beams.
- On Tuesday there was a problem with a create for F16.BHZ117 - 5V voltage broken. 30m downtime POPS was also down for around 45m - this is due to an MTG central timing problem sending a start cycle event to the B-train in a wrong moment.
- The same happened on Thursday. It under investigation by the timing team.
Issue is here: <https://issues.cern.ch/browse/APS-4303>
The problem seemed to be there before but only now it was exposed by suppression of the lead-in/lead-out ZERO cycles when changing the super cycle.
- The weekend went pretty smoothly with only one stop for 1h15m coming from POPS. This was tracked down to a cooling pump problem on DC5.

SPS (Django Manglunki)

A pretty good week for the SPS.

During the week, $2 \times 1.7 \times 10^{13}$ protons were distributed to SFTPRO users per supercycle. On Monday the doublet LHC beam was tested in parallel MD.

From Tuesday 6:00 to Wednesday 10:00 coasting beam were given to UA9.

Machine development on 800 MHz followed until Wednesday at 18:00 Beam was sent to HiRadMat on Thursday. FEI were tested (V.Kain, D.Perez) on Friday, ready for high intensity beam to HiRadMat next week.

The week-end was quiet except for trips of TRX6 which necessitated the intervention of the RF power piquet.

On the ion front, the argon beam was accelerated through transition up to 150 AGeV/c for the first time this week, with over $2e9$ ions at the flat top. This validates the strategy for the February run (4 injections, acceleration on fixed frequency to a 2 second intermediate flat top for debunching, recapture, and final acceleration on fixed harmonic) and allows to start designing the 6 physics cycles, up to 3 of which will be tested during the last week of the year.

Also the first global tests of the full interlock chain took place in parallel during the dedicated MD on Wednesday. Some teething problems are being ironed out (spurious trips of the interlock due to a voltage too low on the twisted pair loop). More tests will take place during the next two Wednesday MDs (December 3rd & 10th).