

Accelerator complex status

End week 49 (Sunday 7th December 2014)

TI (Jesper Nielsen)

<https://wikis/display/TIOP/2014/12/08/TI+summary+week+49%2C+2014>

Linacs (Giulia Bellodi)

Linac2 and Linac3 had stable operation throughout the whole week.

A BCT acquisition problem developed at Linac2 on Friday afternoon, probably related to some controls timing error, and was solved by the experts in the evening.

LEIR (Sergio Pasinelli)

Nothing special for the LEIR this week.

Friday, the beam has been sent to SPS without problems and with the requested intensity.

During the rest of the week, the EPC & OASIS teams have spent time to do measurements on the noisy signals (main quads etc...) and some measurements & analysis have been done on the beam with a bare machine (without E Cooler, Quads etc..).

Booster (Elena Benedetto)

A good week for the PSB!

The beams required for the scrubbing run, which are ready since last week, have been regularly delivered to the PS. The BCMS (in the "desired" list for the scrubbing run) still needs some optimization, but a preliminary version is already sent to the PS.

Many MDs took place this week, in particular the Finemet Cavities team succeeded to accelerate 650×10^{10} protons (the max they expected) in a pure $h=1$ using only the Finemet system (ferrite cavities were disabled).

On Thursday afternoon we had (again) the issue of the BT Dump Fan External Condition FALSE: the ventilation was working fine, but a problem in the cabling to the Ext Condition prevented all the beams going to the Dump. The fault lasted for 4 hours. Beams going to Isolde or to the PS were affected for only 30min +15min to allow the specialist to do some investigation and then change a cable.

On Friday night, the extraction kickers BEi.KFA14L1 went down. The piquet finally found a problem on one detector in the Oil circuit. The fault lasted around 4 hours.

To finish with a positive one: during the week-end we finally found the source of large extraction trajectory fluctuations/drifts in Ring4, vertical plane, which were affecting us since >2 weeks, every now and then. The problematic equipment is the recombination septum BT4.SMV10. Piquet EPC changed regulation card and temperature compensation card, but didn't fully solve the problem. The Power supply specialist will further investigate tomorrow, Monday morning.

PS (Ana Guerrero Ollacarizqueta)

Last week has been mainly dedicated to prepare the LHC beams requested for the SPS scrubbing run:

- LHC25 72 bunches with high intensity $1.4e13p$
- LHC25 48 bunches BCMS
- LHC25 56 bunches with 8 bunches and 4 empty slots
- LHC25 80 bunches with damper

The work on the study of MTE island population stability has continued; around 3000 scans have been performed.

There have been no major issues. Worth mentioning, the four hour beam down due to a problem in one of the converters of POPS and half an hour due to RF front-end issue that stopped the 10MHz cavities.

SPS (Yannis Papaphilippou)

The SPS had a fairly good week with only one major stop due to the dump kicker MKDV thyristor, whose switch had to be changed on Tuesday morning, cutting the beam for 3.5h. Some other highlights of the week:

- On Monday night, intermittent losses were observed in SFTPRO and the OP crew observed glitches on the total RF voltage. At the beginning, TRX6 was suspected (and the specialist was called for investigation) but finally, next morning, T. Bohl informed us that the fault was most likely due to a bad cable connection, that was fixed.
- On Monday and Tuesday, some optimisation took place on the descent of the power supply current for the main bends and quads, in the LHC pilot, normal and economy cycles, in order to reduce their impact to the following SFTPRO cycles.
- The new Beam Energy Tracking (BETS) system was deployed on Tuesday and everything worked fine apart from some teething problems on the MD cycle (very slow ramp with doublets) of Wednesday and Argon cycle on Thursday. The specialist had to switch between the old and the new system in these occasions.
- On Wednesday, the doublet MD took place and succeeded accelerating 72 doublets with $1e11p/doublet$ (when injecting $1.3e11 p/b$). Work continued on setting of LL-RF, transverse damper, BQM, emittance blow-up and losses control. Work will be continued next week after the two days of scrubbing (starting tomorrow).
- Also during Wednesday, the tests of the full interlock chain continued in parallel during to the MD. They will be finalized next Wednesday.
- On Thursday and after the feedback of COMPASS, the OP crew tried to reduce as much as possible the 50Hz component in the spill.
- The HIRADMAT run of Thursday was postponed for next week. During this day, some polishing was performed on the Argon beam.

- The weekend was quiet with only one trip of cavity 3 (vacuum fault) which was reset remotely by the piquet. An LHC pilot beam was also given to the transverse damper and SLAC team for measurements. Also several orbits at the LHC pilot flat top were recorded for monitoring their stability.

ISOLDE (Eleftherios Fadakis)

HRS

Tuesday - Not used.

Wednesday Stable beam configuration through the ISCOOL for continuous and bunching mode with 39K, 138Ba and 238U. More details in the logbook (<http://ab-dep-op-elogbook.web.cern.ch/ab-dep-op-elogbook/elogbook/eLogbook.php?shiftId=1059766>).

In the evening, started cooling down target for target change.

Thursday Target change, old target #521 UC2-C received 5.412189E18 protons, 240.869 micro Amps and 190798# of shots, new target #528 in place and ready for Fridays stable beam setup.

Friday Stable beam tuning with 87Rb through the cooler in continuous mode.

Saturday Not used.

Sunday Not used.

GPS

Tuesday

- Tape-station repair in the morning.
- New turbo pump installed in CC010, had to exchange the controller of the pump so that it reaches nominal value.
- Yield measurements from target group in the afternoon.

Wednesday Protons to IDS until afternoon when target heating tripped. The expert said that the ramping card got a false off which caused the heating to drop. He changed the card with a spare and everything has been working since. Protons back to IDS.

Thursday RILIS optimization for Cu. HV dropped at the same time when we put the target area in access mode for the HRS target change. After physically resetting the power supply (by turning the key in the HV room) everything was fine. RILIS could continue their Cu optimization. Protons to IDS in the afternoon.

Friday HT dropped once more in the morning and we had to enter the HT room to manually reset the power supply. Protons to REX for the first test with radioactive beam. In the evening beam back to IDS.

Saturday IDS working with proton beam with a few problems from PSB. In the evening IS579 takes proton beam.

Sunday IS579 continues with proton beam

AD (Bruno Dupuy)

The AD had a good week with little down time.

Main problems were caused by power-supplies DE1.DHZ61, DE.DVT7013-2, and poor external condition on the target area.

Due to radiation alarms it was necessary to reduce the beam sent to ASACUSA. Indeed, the ASACUSA sensor PAXA601 is connected to the audio alarm in CCC.

The beam was stable for the experiments over the week with a steady $2.8-3.1E7$ extracted (Excepted for ASACUSA limited to $2.5E7$).