

End Week 16 (April 19th) – Status of Accelerators

AD (Tommy Eriksson)

We aim to close the ring 20/4 and then start HW-checks.

LINAC2 (Giulia Bellodi)

The RF problems observed during the Easter weekend continued at the beginning of the week. On Tuesday pm all through Wednesday morning there were repeated Hezemeyer faults (one every 3-5 hrs), with average beam unavailability of 15-30min each time (due to the fact that a remote RF reset also turned out not to work in these cases, so either myself or an operator had to go on site to make a manual reset). The problem was eventually traced to a faulty threshold detector module (Tank3 line voltage) that triggered the interlock; once this was replaced normal operation resumed. The RF controls software has also been changed and a remote reset should now work from all tanks.

No beam was delivered on Thursday daytime due to the PS alignment access.

ISOLDE (Emiliano Piselli)

HRS:

Last Thursday morning we put the semgrid target on the front end and same day, in the evening, we did some measurement from the CCC steering the beam into the target. Target change done on Friday.

GPS:

Semgrid target on the front end since the week before. Last Wednesday, after a problem with the ISOLDE watchdog, we did some measurement from the CCC steering the beam into the target.

New target on since last Thursday.

REX:

General check of all the machine with stable beam.

Booster (Bettina Mikulec):

This week was mainly characterised by the preparations for ISOLDE physics (to start Monday 20th), i.e. beam steering down the ISOLDE transfer lines to the GPS and HRS targets (replaced by an exchangeable SEMgrid target).

Main problems:

- On Tuesday the **ISOLDE watchdog reset didn't work** (neither via knob nor via LASER). BI and CO had to collaborate to solve this problem by Wednesday (the ISOLDE watchdog prevents beam being sent to ISOLDE).

- ppm problem of 2 power supplies in the ISOLDE line (BTY.BVT101 switching between the PSB dump line and ISOLDE and BTY.BHZ301 switching between GPS and HRS); solved by CO Wednesday.
- For almost 1 day and 1 night we were fighting with losses in the transfer line limiting the intensity sent to ISOLDE to $\sim 400E10$ p. The suspicion was a quadrupole not pulsing correctly or an obstacle in the line. Our operator could finally identify **the quadrupole that caused the losses in the ISOLDE transfer line, BTY.QDE151, which showed the correct acquisition value, but was not following the CCV once it was changed.**
- After the problems mentioned above were solved, steering to GPS continued on Wednesday, but the watchdog triggered almost each shot. **The main reason was that the transformer BT.BCT (at PSB extraction) was not correctly calibrated.** All transformer specialists were on vacation, but one agreed to come in to help. The calibration issue could be solved before midnight and the GPS SEMgrid measurements could finally be concluded on Wednesday to allow for the SEMgrid target change to HRS on Thursday during the PS access.
- After PS access steering to HRS started. Friday morning we were informed that the ISOLDE proton integrator was not working correctly. This integrator is required to normalize each physics experiment and is therefore an indispensable item for ISOLDE. **Since certain changes in the software architecture this shutdown the concerned FEC is overloaded, but it seems that no new DSCs will be available for the coming years.** Some temporary improvements were performed and CO is working on a more efficient solution for the run. HRS SEMgrid measurements finished.

Otherwise normal operation with a few calls of the piquet PO and CO, some CO problems (context, server reboots, middleware problems, LASER issues).

No emittance measurement possible yet with new wire-scanners; application debugging underway.

We were suffering from frequent Linac2 problems throughout the week (several local resets done by our operators required, plus several RF tuning problems with automatic resets cutting the beam for around 5 minutes each time).

Beam preparations this week: high and lower intensity CNGS beam, SFTPRO beam, EASTB beam and LHC25 nominal beam. NORMGPS/NORMHRS beams OK.

PS (Alexej Grudiev)

During the week RF experts from the Central Building worked on TSTLHC25 (splitting etc...). Setting up of EASTA, EASTB and low intensity SFTPRO has been done. EASTA and EASTB are ready for users.

No major faults. Some smaller ones to be mentioned: 1. CODD vertical PU20 shows always +20 mm and is under investigation by the expert. 2. PE.BSW57 (CT extraction bump) had the wrong polarity. It has been exchanged during the magnet realignment access and verified afterwards. 3. A number of issues with BFAs for CT extraction, still to be investigated by the expert who will be back from holiday this week.

Finally, beam based realignment of PS main dipoles went very good. The results summarized: Horizontal improved from 3.68 mm rms to 1.84 mm rms where we expected 1.75 mm rms; Vertical improved from 0.79 mm rms to 0.58 mm rms where we expected 0.58 mm rms.

SPS (Karel Cornelis)

SPS is still in the cold check out phase. Problems are still encountered with new FESA equipment. The re-cabling and the new FESA classes on the motorization of the anodes in LSS2 still give some bugs which are being worked on.

A problem was identified on the current-measurement cards of the main power supplies. The card gives a higher noise level than there is in reality on the QF2. The problem is being worked on.

The main compensator was stopped by an “emergency stop” last Friday. The SPS was giving access at that moment and no harm was done.

This Monday we will do the DSO tests in order to prepare the SPS for beam which we still hope to take before the end of this week.

TI (Peter Sollander)

A few events this week:

- 14/4: Compressed air leak on EHT1 (one of the main 400kV transformers). EN-EL isolates EHT1 for repairs. Back on EHT1 Wednesday 15/4.
- 17/4: Emergency stop cuts compensator 3. Alarms in CCC, but no AUG button found to be pressed on site.
- 18/4: Another emergency stop on BEQ3 Saturday evening. Piquet called out. EL is investigating.
- 19/4: EHT1 compressed air alarm again Sunday morning, but no problem found by EL piquet.
- 19/4: SPS BB3 RF demi water circuit stops on a leak. A pump is leaking. Temporary solution found by-passing this pump. We are waiting for feedback from CV as to when the repair will take place.

LHC (Mike Lamont)

Last dipole down – still 2 SSS to go. 3 dipoles last week. SSS344 down mid-W18. Some difficulties with SSS279 – quenching, correctors. Off the benches middle this week – a few days behind the other one.

Unblocked situation with electrical NC. Difficulties with US welding machines – caught by QC.

Splice Megger measurements – warm over 16 cm. Outlying at 12.4 nano-ohms. Less of an outlier given more measurements. Systematic measurements of available splices start W17.

Similarly quadrupoles. Outliers but there with old splices.

56 completely closed except CC. 12 starting a bit ahead of schedule – coactivity difficulties.

End DN200 – this week. Impressive.

Cryo

2-3 floating

45 warming QRL. Worsening leak handable but in triplets – vacuum to go in and try and find it.
Delay 2 weeks.

8 – emptied before Easter – cooling for PIMs – 81 no access for a week. Two tanks full and working fine.

Vacuum – working hard on PIMs

QPS

Radiation tests successful.

Power supplies doc to finance.

Chassis tender – tech spec should go out this week to finance.

QSYM cards – collaboration with PH – progressing well.