

Accelerator Complex Status

End week 21 (Monday 25 May 2015)

(following the long Whitsun weekend)

TI (Peter Sollander)

Monday 18/06:

- 18kV cut of EFC102*4 in ME4. Caused by a short circuit on the light in the "pump room". The breaker for the lights was isolated and 18kV restored rapidly. See [Minor Event](#).
- BEQ3 compensator tripped due to two faulty capacitors. They were replaced within 2 hours. See [Major Event](#).

Thursday 18/06:

- Problem with a RTU which transmits alarms and measurements for the electrical network in RE88. The LHC was stopped to allow access for rebooting the PC. See [Major Event](#).

Sunday 24/06:

- Small electrical perturbation on the 400kV network "*400 kV Monophasé de la liaison "Creys - Grande Ile"*". See [Major Event](#).

Short summary from TI in the usual place::

<https://wikis.cern.ch/display/TIOP/2015/05/18/TI+summary+week+21%2C+2015>

LINAC2 (Detlef Kuchler):

we had in general a good week.

Linac2 lost in total 10 minutes (one RFQ problem on Wednesday, a reset of a quadrupole on Thursday). In parallel we are still working on the linac intensity issue.

LINAC3 (Detlef Kuchler):

In Linac3 we are continuing the source commissioning. As we got a problem with one of the source PLC's and the expert will be back only today, we set-up some oxygen beam that the commissioning of the pepper pot could be continued..

PSB (Klaus Hanke):

An eventful week in the PSB.

On Tuesday we spent some time to investigate the BTY trajectories, which had all of a sudden changed. Using the Trim History we could find out that somebody had started the emittance measurement program and not closed it again correctly, which had left the optics in a strange state.

Throughout the week there were issues with two steerer magnets in the ISOLDE line which did not follow the CCV value, still not permanently fixed.

The power piquet had also to intervene on several other occasions to fix problems in the BI and BTP lines, but all could be fixed within reasonably short down time.

As for our beams, good progress was made by E. Benedetto to reduce transverse emittances of the 25 ns beam. We also checked that our 6-bunch 50 ns beam was in specs in order to be available for the LHC. During the weekend the operators

did a great job in setting up / checking the various beams required for the upcoming scrubbing run.

ISOLDE (Pascal Fernier / Erwin Siesling):

GPS:

Till last Thursday running with the used Ta target #508. Yield from the target on the wanted isotopes was an order of magnitude lower below last year's current but users got some results but not successful on the ^{11}Be run (with RILIS lasers) (to be commented by Magda).

Line heating dropped once on Wednesday but could be re-heated.

Unwanted the proton current limiter setting of 2uA was exceeded during the run: This was caused by a disabled comparator at the PSB side (found by Fabrice). Now ok.

Target change on Thursday for target #524. Proton scan on Friday to be ready for the long weekend.

Successful physics running over the long weekend at different energies (50keV, 30keV) at the GLM and GHM lines.

On Monday one of the steerer quads in the GHM line broke and was replaced (GHM.QS50-NEG).

HRS:

Target change last Tuesday for the Ta target #532.

Several investigations on the vacuum leak in the HRS30 and MSW10 sector. Both related to leaking faraday-cup bellows/pistons. In HRS30 an additional leak was located around Turbo Pump 32 as well as an issue on the sector valve between sector HRS20 and 30 is which is misbehaving (not opening/closing properly).

Both faraday-cup/scanner units in the HRS30 (FC690) and MSW10 sector (FC748) replaced by BI on Tuesday after which the leaks were gone.

Unfortunately the faraday-cup FC690 replacement did not work.

Successful setting-up of Be beam (with RILIS lasers) through the separator and RFQ at 40kV.

Proton-scan done on Thursday/Friday with problems for BTY.DHZ323 and 324 dipoles. First-line and specialist were called in and BTY.DHZ323 was repaired.

Over the weekend problems with 0A settings for the last two BTY dipoles: The aqn gives random values (up to 200A – not even possible for these steerers).

Solution was to switch them off (best proton impact found for 0A anyway) and disable the comparator (Fabrice). We will continue the investigation this week.

Successful Be run over the weekend until Monday when the transmission went bad. Due to a problem with the sector valve between HRS20 and HRS30 which stays now closed no-more beam could be send down the line. The experiment was about to finish anyway and we decided to stop and tackle this problem as of today (Tuesday 26th)....

PS (Ana Guerrero):

Two accesses to the machine had to be organized producing a total down time of 3h. The first one, due to recurrent faults of F61.QF001, was scheduled on Wednesday. The water pressure was increased but no other problem was found. The second one, on Friday, to exchange an amplifier of 10MHz cavity C86. The intervention did not solve the issue that was tracked later on to a cable.

All operational beams have been played without major issues. In particular work has been done to increase the intensity on the SFTPRO beam, now up to $I=1600e10p$. Nevertheless, the work needs to continue in order to fully understand the role of the new TPS15 in the extraction losses.

The work on the new T8 optics has continued during the week and a fine tuning will be done during the starting week.

The working point of LHC beams at flattop has been revisited to come back to basic function tunes. The work on the extraction is still on going.

Now that the capture is stable within the 1%, work has continued on the MTE beam extraction.

The BCMS beam is ready with an $I=1.6e11ppb$. Transverse emittances are $E_h=2.2$ $E_v=2.3$ mm mrad

The LHC50ns 6b beam has been played for LHC with transverse emittances $E_h=1.3$ and $E_v=1.4$ mm mrad.

AD (Tommy Eriksson):

AD HW-tests are finished and the ccc installation ongoing.

CCC Vacuum tank/main unit was installed Friday, next is vacuum eq. installation and then pump down and bake out.

Start-up schedule still on-time.

DSO tests 10/6.

First beam on target 10/6.

Kickers ready 17/6.

SPS (Django Manglunki):

A pretty good week for the SPS, the only long beam down time being due to external causes (compensator & CPS access).

On Monday 18/5

- RBI.610405 tripped and caused 1:30 of down time for the North Area.
- at 15:00 the compensator tripped, causing 3 hours of beam down time, delaying LHC filling.
- In the evening work resumed to try and understand the losses in LSS6 on the HiRadMat beam.

On Wednesday 20/5 took place the dedicated MD for the low-level RF team to optimize the 800 MHz during ramp.

On Friday 22/5 at 14:30 the beam was stopped for 1:30 for a CPS access (intervention on an RF cavity). The 6 bunch 50ns beam was prepared on Friday evening and extracted to the TED on Saturday morning. It is now ready for the LHC to take on Whitsun Monday.

The rest of the week-end was quiet, apart from a 40' fault on MKD (bad acquisition of vacuum fault). During the whole week took place a parallel MD to study coupled resonance, measurement of fix lines by Hannes & Malte.

In spite of the progress made (elimination of most of the uncaptured/recaptured beam, centering the kicker pulse, chromaticity optimization,...) there are still too many losses in LSS6 on the HiRadMat beam to extract more than one batch.

The SFTPRO fixed target beam is still limited by the PS intensity ($\sim 1.5e13$ /batch instead of $2e13$ required).

LHC (From the 8:30 meeting):

Good progress last week also thanks to the rather good machine availability.

The highlight of the week was the successful test collisions at 6.5 TeV.

Over the long weekend a 6-bunch injection was attempted, but when sending them on the TED the QPS suffered from an SEU. Also during the weekend the ULO caused twice a beam dump during the ramp at about 5.1 TeV.

The ADT is now setup for individual bunches throughout the nominal cycle.

Next will be to get the nominal bunches through the squeeze, validate the collimator setup and confirm aperture with squeeze.

For details: <https://indico.cern.ch/event/388605/>