End Week 29 (July 22th 2012) – Status of Accelerators

Statistics

nTOF: https://espace.cern.ch/be-dep/OP/PS/default.aspx

CNGS: https://accstat.web.cern.ch/accstat/statistics/charts/2012/SPS/CNGS_Target_Cumul2012.jpeg

LHC: http://lhc-statistics.web.cern.ch/LHC-Statistics/index.php

TI (Peter Sollander)

Quiet week. No major events stopping physics last week.

A small problem with a UPS in point 5 needs an intervention planned coming Friday 27 July but should be transparent for the machines.

http://wikis/display/TIOP/2012/07/16/TI+summary%2C+week+29+2012

LINAC2 (Giulia Bellodi)

Linac2 had a very quiet week.

Operation was smooth and stable, and there are no significant problems to be reported.

ISOLDE (Erwin Siesling)

HRS:

In standby. Investigations ongoping on the low transmission of the RFQ/ISCOOL at lower masses by Tim Giles (stable beam).

GPS:

Whole week dedicated to 12Be run through REX to the MAYA experiment. Excellent setting-up was done by my Isolde colleagues (Pascal, Fredrik and Didier) resulting in an excellent run at 2.85MeV/u, A/q =3. GPS running at 30.2kV. From time to time RILIS optimised the laser to keep ionisation at the max. Message from the MAYA team: current stayed the same for 10 days!

Collections in GHM when MAYA was not taking beam.

As of Sunday-afternoon MAYA stopped taking beam and GPS was dedicated to solid state physics: collections of 140Nd and 155Tb in GLM and GHM.

Issues:

- GPS sector 10 (front-end) vacuum pressure went up suddenly to 9E-2mbar! on Saturday evening 18h25 dropping the target heating. Came in by which time the vacuum had restarted again and some E-7mbar were achieved in no time. Re-started HT and heating and by 20h30 beam was optimised and back at the REX experiment MAYA. Will contact vacuum to investigate: glitch on the vacuum gauge?
- GSP faraday-cup FC490 is not movable. It is out for sure but doesn't give the correct status - this causes an interlock on the low energy (GLM) deflector plates which cannot be moved into central beam position. No problem for the GLM: a few lower masses away from the central one can be taking into the GLM line by correcting kicker and bender values (= normal operation allowing parallel physics

with central- and higher mass beamline). Investigation on the GPS.FC490 foreseen today, possible visual inspection in separator zone on 6th Aug with possible intervention on 8th Aug.

All in all a very good week at Isolde with minor issues.

LEIR (Sergio Pasinelli)

The week was used to debug the B-train , to setup the RF and correct the bad acquisition on several devices.

We have spent hours to verify the cabling(CO,RF OP) of the b-Train (bad contact). We don't know if the problem is solved but the b-train now is correct.

The RF team has spent time to debug/repair the LLRF FESA class ,to adjust the RF and to setup the cavity CR 43 (loops Radial + Phase)

For the bad acquisitions CO are working on them.

During the week we had Linac problems:

- Ramping cavity in fault
- Source tuning
- RF Fluctuation in the tank 2
- Control faults on the solenoids in the LEBT

Wednesday afternoon the beam was ejected and Thursday we have sent the beam to PS for the setting up.

Currently the intensities are nominal for EARLY (with 2 injections) but 1/3 lower on NOMINAL.

Today (Monday) there is the refill of the source and the replacement of the RF tube in the tank 2. The beam will be available around 16h.

AD (Bruno Dupuy)

A quiet week with no major problems.

This week:

Beam is used by ASACUSA and ATRAP-1 or ATRAP-2.

Note that the switching between ATRAP1 and ATRAP2 is performed by team of ATRAP experiment.

Monday 16

- End of specialists interventions on DI.BHZ6025 power-supply.

Mean Beam extraction Morning: 3.23 E7 Afternoon: 3.11 E7 Night: 3.23 E7 pbar.

Tuesday 17

Mean Beam extraction Morning: 3.12 E7 Afternoon: 3.14 E7 Night: 3.14 E7 pbar.

Wednesday 18

- Beam steering is done for ATRAP-2 line.

Mean Beam extraction Morning: 3.13 E7 Afternoon: 3.13 E7 Night: 3.18 E7 pbar.

Thursday 19

- External condition secondary area secure is lost. Reset is done by specialist D.Chapuis.

- Beam steering is done for ATRAP-1 line.

Mean Beam extraction Morning: 3.11 E7 Afternoon: 3.11 E7 Night: 3.03 E7 pbar.

Friday 20

- Injection proton line adjustment.

Mean Beam extraction Morning: 3.15 E7 Afternoon: 3.22 E7 Night: 3.20 E7 pbar.

Saturday 21

Mean Beam extraction Morning: 3.25 E7 Afternoon: 3.28 E7 Night: 3.30 E7 pbar.

Sunday 22

Mean Beam extraction Morning: 3.32 E7 Afternoon: 3.32 E7 Night: 3.34 E7 pbar.

BOOSTER (Jocelyn Tan)

The Booster had all in all a good week.

- Tuesday
    - At 11h45 there was a 20mn beam-stop for POPS intervention.
    - S. Pittet has exchanged the converter for BR2.DVT3L4 (with BR1.DVT4L4) to check if the problem observed earlier when pulsing the FGC3 comes from the converter or the magnet itself. This time when cycling BR2.DVT3L4, it shows an effect only for the vertical plane, as expected. On the other hand, when cycling BR1.DVT3L4, we loose the full beam on ring 1; arbitrary position measurements in both planes as observed before on ring 2. Conclusion: there is obviously a problem with the power converter.
    - The total beam for Isolde was limited to 1.7microA due to the release of activated air.
- Wednesday
    - Early in the morning, there was a timing error on BT1.KFA10, BT2KFA20 and BT4.KFA10, activating BLMs and Isolde watchdog. The operator did a reset of DPSBKSU1, without succes. The issue disappeared spontaniously after 40mn.
    - At noon, BTY.DVT324 : On fault on LASER, but nothing displayed on GPS vistar even it's End_Line equipement. RESET done, then DVT cames OK.
    - The operator managed to reduce the losses on Ring1 for Isolde. It was a matter of fine tuning the RF capture, the radial position and the Qstrips. Still there are a few bad shoots, but they are with lower losses than before.
    - At 3PM, there was a vacuum leak on a below nearby BTP.DVT40. The beam was cut for an intervention by the Vacuum specialists. The leak was fixed in the early evening and the beams were back at 6:50PM.
- Thursday
    - RP has opened the external zone of the Booster dump, and asked us to reduce as much as possible dumping the beam. They have implemented a radiation monitor to check the radiation level there. The work was completed in the afternoon.
    - S. Pittet has gone back to the initial configuration with the problematic FGC3 power converter on BR2.DVT3L4. Now everything seems to work fine!
    - News on BEX.SSYNCFD from PICO : the module has been removed for lab tests and it worked. A test without beam was requested and granted at 11:10 for an hour. BEX.SSYNCFD worked at last.
- Friday
    - At noon, the intensity was not displayed on the OP display, although the intensity could be used for normalizing the injection trajectory, and we saw the signals on OASIS. The specialists

were called and it was more of a CO issue: Proxy issue. After Control-gateway + dpsbbdi reboot, we get all injected intensity acquisitions again.
    - RP gave the green light for the WE for a higher intensity threshold of 2microA. To be checked on Monday if we keep it this high.
- Saturday
    - There were 2 timing errors on the extraction kickers, 1 in the morning and 1 in the evening. The beam was back after a reboot, with a short downtime.

PS (Jakub Wozniak)

PS had a very good run last week with relatively few stops.

There was an 1.5h intervention of Tuesday to change the de-ionisation bottles in POPS and during the night a stop of 30 min due to booster KFA timing problems.

On Wednesday afternoon a vacuum leak was detected in the BTP line and followed up by an immediate intervention of the vacuum people.

The leak detection procedure showed a problem with the bellow of the high voltage magnet BTP.DVT40. It was repaired with the use of the special spray. This intervention caused 4h30min of downtime and it will have to be followed up during the next technical stop.

On Thursday operators set up the ion beams for EARLY and NOMINAL cycles.

The weekend was also very calm with just few minutes of stoppage due to booster timing issues. Otherwise the beams were delivered as expected.

SPS (Karel Cornelis)

Most of the week was spent on extensive emittance- and tail measurements on the LHC 50nsec beams which were triggered by difficulties in the LHC. These studies are still continuing but two conclusions could already be drawn: scraping measurements revealed non Gaussian tails at 450 GeV, and the longitudinal blow has an influence on the vertical emittance.

The north area was off several hours, on Monday, for an intervention on a micro collimator in H8.

Wednesday there was a 12hr MD for preparing 270GeV coasts with 25nsec bunches. The MD was cut short due to access in the PS.

On Thursday the SPS was stopped for 2 hours for an intervention on an RP monitor.

On Friday OPERA complained about not receiving our timing events. The CO specialist checked everything on the CERN side and communicated that the problems were on the receiving side.

Besides the fact that LHC fills were still painful, the weekend was smooth for the other SPS users.

LHC

VdM scans. 35 hours lost to technical problems, the RF M2B1 and a problem with oil in a cryo compressor at P18.

Friday, good start with beam for physics and a record peak luminosity for fill 2858 – peak L ~6.2 cm-2s-1.

Following 24 hours difficult with losses on B2 in adjust mode every fill. Fixed by lowering the fill intensity to 1.35E11. Since then, very good fills.

We have still not recovered the pre-TS2 peak performance, although ATLAS has made a record luminosity for one day this week.

This week coming up, more luminosity production, a couple of interventions planned for cryo filter in P18 and a UPS in point 5.

More details:

http://lhc-commissioning.web.cern.ch/lhc-commissioning/