

End Week 26 (July 1st 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>

ISOLDE (Miguel Luis Lozano Benito)

It has been a very good week at Isolde. All experiments got beam according to the schedule.

Beam from GPS to miniball (140Sn and 142Sm) and some beam from HRS to Cris when the central beam was free.

No major issues to report.

Only one intervention after a call this morning at 7.30 AM. Some elements went down due to some controls communications problems. Beam was back to experiment after two hours.

AD (Bruno Dupuy)

Return to normal operation - 100MeV.

Beam is used by ASACUSA and ALPHA.

Monday 25

Back to the normal configuration extraction at 100MeV.

Specialist RF recovering the RF system for 100 MeV.

FirstLine was called on DR.BHZ20+21

20H00 The beam was not used by ASACUSA because they had some networks problems.

Tuesday 26

Technical stop. Op/ and OP9 Total have been done.

Wednesday 27

Technical Stop.

Thursday 28

End of technical stop. The PS beam expected round of 08H00 finally arrived at 19H00 .

Friday 29

The beam is used by Alpha from 8H00 to 13H00 Therefore, we continue the studies of the line Alpha.

18H00 Some complaints by Alpha about the vertical beam position and shape. Survey has been done on Ring and Alpha line power-supplies without any success. The observations show that the shape visible by longitudinal Pickup is very strange. The temperature in ACR and in building 193 is very high (door opened). Some Alpha line adjustment has been done.

Saturday 30

11H00 Alpha is not happy. They observe a different vertical profile at each extraction.

Indeed when the extracted bunch is not 'Gaussian' at extraction, the profile is rather potatoid.

It seems more stable if the cavity voltage is set at 500Volt and when the overlap timing between E-Cooling and RF at extraction is changed.

More accurate observations are to be performed, to understand why sometimes the beam is very good in the last round of the machine, and other times very distorted. (longitudinal instability?)

Sunday 31

8H00 Horn and Cavity C02 were started by CCC crew after a power-cut.

9H00 First Line was called for extraction power-supply DE1.DHZ25 malfunctioning.

19H00 called by CCC, The intensity is not stable for Alpha.

- Restoring RF voltage and timing than before the hight temperature.

- Adjustment of cathode voltage for extraction at 100Mev.

Correction QMain1 and QMain2 to restore nominal intensity at 100Mev.

Booster (Bettina Mikulec)

Last week was characterized by the technical stop, the two MD days and various small problems.

* All beams have been stopped on Tuesday at 5am for the technical stop. There was a little hiccup, as the announced hardware upgrade of the ACCCON cluster started earlier than foreseen, and the machine wasn't yet completely switched off. Nevertheless the RP piquet could do his survey as foreseen. It took a while to have working sets again functional and to switch off correctly all equipment.

* Brief summary of the main technical stop items: Besides routine work, laser scan of injection area, test of BR2.DVT3L4, BLM checks, distributor tests, increase of cooling water for transverse feedback and recabling of extraction train distribution (broken LEMO connector found for BAX.TRF) took place.

* Beam was back in the PSB around midnight on Wednesday. After midnight, the linac watchdog triggered frequently. Investigations showed that this was due to the angle/position dipoles at injection that triggered with the CCV of the previous cycle. The piquet CO was informed, and at 11am the problem was solved by the CO specialist who went back to the previous CBMIA mil1553 driver version for cfc-361-ringrg. CO will investigate why the new driver version caused these troubles (took too long to send control values).

* Thursday morning beam was inhibited during ~10 minutes for some MPS tests (new alarm implemented). Later in the morning, an access had to be organized, as somebody had accidentally pushed the red button on BTY.QDE151.

* In the evening it was noticed that the HRS vistar showed varying values of the integrated current although no beam was sent to HRS. This has been followed up on Friday by the BI specialist, who could identify in the afternoon a bad contact at the input of the transformer BTY.BCT325. Timber data and ISOLDE logging should now be corrected.

* On Friday afternoon, there were some problems with the extraction kickers, leading to ~40 minutes of perturbed operation.

* During the night, some problems occurred with losses on ring 1 during acceleration for the ISOLDE beam, which continued until Sunday. It is expected that this is related to the C02 cavity of ring 1 and will be followed up with the specialist on Monday.

* Sunday at 1:55am all beams were stopped to avoid issues during the leap second change. Beam was back at 2:10am; only the fixed displays couldn't be brought back to life.

*A power glitch occurred at 6:45am. 15 minutes later beam was re-established.

MDs: On Thursday space charge MDs continued, and on Friday Finemet tests were successfully finished for now. Work will be ongoing on the digital LL-RF, and after analysis on the obtained data, the Finemet team might come back with additional MD requests.

PS (Alexej Grudiev)

High intensity beams were stopped on Monday morning. All beams on Tuesday morning at 5:00 for the injector Technical stop started at 8:00. Restart of PS began on Wednesday evening. RF specialist had to intervene to fix C10-96. PIPO had to fix number of power supplies. One in particular caused a lot of problem: BSW16-14 which is necessary for extraction to TT2. The problem was related both to power supply and to its control. Both PIPO and PICO had to work on it. Finally, specialist(s) fixed the problem at about 17:00 on Thursday, so that CT and LHC and ToF beams could be extracted in the usual way. During the afternoon on Thursday a temporary solution had been implemented to extract beams to SPS for the MD using DHZ15-EJ and modification of bumps BSW16-(12,20,22). Finally, stable beams has been established at 19:30 with no cut by BLMs on any beam.

On Friday slow extraction quadrupoles PR.QSE had big ripples PIPO had to exchange control card to fix it.

At 2:00 on Sunday night Leap second had to be added. No beam. MPS on stand by during Timing modification.

Sunday morning at 6:00 power cut. Electric problem caused few RF cavities and POPS down. One fault remaining on POPS, PIPO has to come to refill the water and reset the IGBT1 fault. Beams were back in 1 hour.

SPS (Yannis Papaphilippou)

The main events of the week were the 48h technical stop and the two 24h MD sessions: one on Monday dedicated to e-cloud, longitudinal stability and space charge studies and the second one on coasting beams for UA9. The recovery from the technical stop was somehow longer than expected due mainly to a slow vacuum pressure recovery, because of the exchange of two dipoles in LSS5 and a leak in a BCT in the same area. At the same time, the PS had problems with an extraction bumper which were finally solved on Thursday afternoon.

After the end of the MD on Friday morning, the TE-MPE team made successful tests on the sextupole interlock system. After high-energy orbit measurements, an horizontal movement of QF514 by -0.3 mm was effectuated in order to correct the orbit error due to the newly installed dipoles.

All SPS beams were operational on Friday afternoon. Apart from a short Sunday morning power glitch, the only remaining weekend issue was due to the leap second that had to be inserted in the timing system. This mainly affected linux servers and consoles, that had to be rebooted (1.5h without beam during Saturday night).

LHC

Technical stop all week. Back into Stable beams early Monday morning after an interesting weekend which include Roman pot set-up and validation.

More details:

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