

End Week 30 (July 27th) – Status of Accelerators

Summary

ISOLDE	Good run without any problems
LINACS	Quiet week without problems
AD	Good week
PSB	Good week with few smaller problems
PS	Fairly good week with some smaller problems (see details below)
SPS	Good week despite the longer intervention on CNGS (details below)
TI	Quiet week. Main transformer EHT5 back in service – no more power restrictions
LHC	

Linacs (C. Dutriat)

Linac2:

Very quiet week without any problems.

Linac3:

Very quiet week with only one small problem (1h) caused by a water leak in the plasma chamber.

PSB (B. Mikulec)

Good and busy week.

There were only usual operational problems that could be solved rapidly by the operators.

Some CO issues with supercycle editor, window manager, update of Java WebStart files and scripts avoiding to launch any JAVA application during a short period or Linac2 RF failures (after the Thursday network glitch) not showing up in LASER. Friday morning the IT-CS intervention for a network router firmware upgrade went well (beams were stopped during 10 minutes).

Friday evening the access TIM viewer got frozen; a reboot didn't help and it was impossible to determine the status of the security chain. A beam inhibit was immediately issued. The access piquet instructed the TI operator to reboot the server, which solved the problem (~20 min lost).

The PSB delivered beams for the PS and SPS parallel MDs last week. There were also 3 parallel MDs going on in the PSB:

- LHC75 single batch transfer to the PS: the 75 ns beam is ready and could be used from now on in operation. As positive side effect this will free one user in the PSB. This week studies will continue with the 50 ns variant, more demanding in terms of bunch density.

- Measurement of the chromaticity: -1.0 (hor.) and -2.1 (vertical). The PSB is an incredibly linear machine, and the measured chromaticity values correspond perfectly to the MADX simulations.

- Measurement of resonance losses in the 2-dimensional tune diagram at 160 MeV (in view of Linac4). Measurements have been performed with a pencil beam and a high intensity beam; still to be done with 13 turns injection and using the sieve. Data is being analysed.

ISOLDE (P. Fernier)

GPS:

Target 406 - surface Ta - run @30kV via Rex complex.

Stable beam setup, Rillis setup (lasers), rex setting-up, proton scan and beam to users; no problems until Sunday night.

HRS:

Target 405 Uc2C - run @30kV - users = IS490.

No major problems, beam time extended until Friday morning without any problem.

Other:

The turbo pump TP31 on HRS.VS80 was changed: no beam time lost for this intervention.

PS (G. Metral)

The PS machine had a fairly good week with some smaller problems. Ions were injected in the PS

Monday: setting up of LHC pilot beam OK. During the night a problem of the transition doublet power converters stopped the beams for 2 hours – resolved by the Piquet.

Tuesday: setting up of the LHC probe beam for the SPS. Installation of PS cycles for ion operation: MDION (long flat bottom for lifetime measurement) and LHCION for ion operation. A timing cable for the ion injection septum SMH26 was repaired.

Wednesday: 2 hours of beam stop to work on the kick enhancement quadrupole converter QKE16. Difficulties for regulating the synchronisation of the MTE bumps because of bad quality of the OASIS signals. Problems also with the “Q-meter” stability and timing. Some difficulties also with the orbit and trajectory measurement where no specialist was available.

Injection of ions in the PS and life time measurement: 1.88s for 7.2E9 charges injected 2.4E9 survive after 2065 ms.

Thursday: Sublimation pumps were switched on for ion operation. New lifetime measurement of ions shows 3.1 s lifetime.

Friday: 1 h beam stop to change the broken gap relay on cavity 86. 10 min beam stop due to a problem with the access system for reboot.

Ions in PS (D. Manglunki)

Ions were originally planned to be injected in the PS in week 31.

However, on request of TE/VSC, the startup has been advanced in order to measure the beam lifetime before and after sublimation. The Pb54+ beam has been injected for the first time on Wednesday 22/7 in the afternoon.

The lifetime at injection energy was then 1.8 seconds. The first sublimations were programmed for Saturday 25/7 but took place on Thursday afternoon, to avoid calling a piquet for a programmed operation. Sublimations are now programmed automatically every 24 hours, around 16:30. The lifetime has since gradually improved; on Friday evening it is 3.3 seconds.

SPS (J. Wenninger)

Overall a good week for the SPS, with a CNGS efficiency around 85% for the week (despite the stop described below). The usual MPS, TRX and controls issues, but none of them very severe.

The only major stop concerned CNGS. The beam had to be stopped for almost 12 hours (from 02:00 to 13:30) on Saturday 25th to intervene on a water pump. During the next long MD the radioactive water must be emptied into canisters that will be kept in the radioactive storage.

On Friday we reached the $1E19$ protons on target mark for CNGS. Today we have $1.07E19$. There were 578'000 extractions with a mean intensity of $1.84E13$ protons.

AD (P.Belochitskii)

Monday: o.k.

Tuesday: fault of BHZ6045 magnet in injection line. Fixed by firstline.

Wednesday: problems with access door into ALPHA experimental area, solved by D. Chapuis. Late evening: fault of deceleration cavity CO2, solved by M.Haase (thanks for coming).

Thursday: early morning: fault of DE4.BVT25, o.k. for the rest of the day.

Friday: o.k., except of time when no beam from PS was available

Saturday, Sunday: o.k.

TI (P. Sollander)

Quiet week.

The only larger problem concerned the CNGS facility where beam operation had to be stopped to intervene on a water pumping system (see also SPS).

The main transformer EHT5 (400 to 66 kV), is back in service after repair since Friday. Therefore there are no longer any power restrictions.

LHC

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CTF (P. Skowronski)

On the beginning of the week the gun was unstable, what made any progress impossible. On Wednesday morning access was made in order to repair the device. Connectors to the cathode were cleaned and squeezed to assure good contact and out-of-order fans on electronics boards and racks were replaced. During the afternoon we reestablished the circulating beam in the Combiner Ring and the beam transfer to Two Beam Test Stand. On Thursday morning 3A was delivered to TBTS for decelerating structure tests. After lunch recombination factor 2 was established in CR, and 4.5A beam was delivered in order to further condition the decelerating structure in TBTS. On Friday optics with smaller maximum dispersion was implemented in TL1 what enabled lossless transmission of 1.3us pulse to CR. Also combiner ring optics was updated in order to improve isochronicity of the ring. The circulating beam was setup and measured proving that the situation is improved compared with the previous setup.