

Accelerator Complex Status

End week 26 (Monday 4 July 2016)

TI (Jesper Nielsen)

Thursday 30/06 at 03:38: Electrical perturbation : Short circuit on the 400kV between Chamoson and Bois-Tollot; -39.5% during 80ms.

Thursday 30/06 at 12:00 3 hours for fixing lift AS 711 at PM76.

Thursday 30/06 at 15:10: Stop of all fine water circuit in BA6 due to a false leak detection.

Thursday 30/06 at 15:37 Stop of "Aimant PS" Fine water Circuit (FDED-00032). The fan of the cooling tower N°1 failed, the chilled water circuit was started during the fixing time

<https://wikis.cern.ch/display/TIOP/2016/07/03/TI+summary+week+26%2C+2016>

LINAC2 (Detlef Kuchler):

The beam quality is OK since the removal of the current boost module in the arc supply last Monday

75 min downtime in the night to Thursday due to power glitch.

LINAC3 (Detlef Kuchler):

In average good beam intensity and stability (30+ μ A in BCT25).

also affected by the power glitch Thursday.

Friday the Dressler amplifier of the de-buncher had to be replaced (overheating), no more spares available!

LEIR (Steen Jensen):

- Tuesday, 28 June
 - 8h00, 7h – LN3 MD, beam back ~15h00
 - 15h35, 1h – LLRF bad connector in RF train distribution
 - 16h52, .h – OASIS multiple triggers missing. Configuration problem
- Wednesday, 29 June
 - 14h54, .h – RF cavity 43 down. A blown fuse.
- Thursday, 30 June
 - 3h30, 15h – Power glitch caused many elements to fail and require reset. A connector for the e-cooler filament came loose, diagnostics/repair done efficiently by A. Frassier.
 - 20h37 – EARLY-type beam accelerated with the new LLRF
- Friday, 01 July
 - 10h26, 1h – change of overheating amplifier for LN3 debuncher
 - 17h54 – Further progress on the new LLRF (MDRF synchronized)
- Saturday, 02 July
 - Nothing to report
- Sunday, 03 July
 - Nothing to report

PSB (Alan Findlay):

A good, quiet week for the PSB, beginning to smell a lot like summer holiday season methinks. There was the electrical glitch early Thursday morning that took down the complex, but the PSB team had the machine back up after 3 hours. Otherwise, there have been plenty MDs to keep people busy and beam preparations have been ongoing all week, notably for the 1.5eVs BCMS variation.

ISOLDE (Eleftherios Fakadis):

Quiet week for ISOLDE as well. Taking protons on both HRS and GPS all week. Thursday's glitch was almost transparent to us, an intervention was needed for a very old FEC of the HT of the targets. After a power cycle it came back to life. On HRS users performed a 1st ever, scan of ²¹⁷Bi (very exotic isotope). On GPS the BIO physics users had vacuum issues with their collection chamber which was outgassing. Users improvised by using sugar to implant the samples instead of ice (very sweet experiment). STAGISO beam from PSB provided with no issue..

PS (Rende Steerenberg):

With a 90% beam availability on average for all users, the machine has been running quite well. The Thursday morning at 3:40 a power glitch caused the trip of a large fraction of the PS equipment. The recovery from the glitch was then followed by a planned intervention on POPS, for verification of the filter capacitors. Beam was back at 11:11, meaning a total down time of about 7.5 hours. On the side of POPS all seems to be ok and we can continue running. The next verification is planned for sometime early September.

Later on Thursday, around 15:40, the PS water cooling station had a problem and the inlet water temperature was 35 degrees causing an interlock on POPS. The situation was fully reestablished around 19:30. Sunday afternoon and early Monday morning POPS tripped again. These trips will closely be followed up with TE_EPC.

Un related, but important, the PS rotating machine is available again as back up in case of serious problems with POPS.

Much work went into the setting up of various cycles among which the LHC BCMS, the various ion cycles and some cycle for MD's. One of the cycles setup is an ion lifetime measurement cycle on which the ion lifetime was measured to be about 4.8 seconds, which is considered good.

AD (Bruno Dupuy):

The extraction intensity was around $3.0E7$ antiprotons, and the bunch length is nominal at 130 ns.

Monday ADE-MD 7H-15H

- Refilling cryogenic cooler on CCC transformers (The refill of the CCC didn't go well, they could not cool it down after. It is heating up now can't measure the beam current).
- FirstLine called for restart quads.
- AD Target is beam condition lost due to the ASACUSA zone.

Tuesday and Wednesday

- There was a problem with the extracted bunch lot of intensity variation and

bad longitudinal position. A. Findlay fix this problem by a discerning adjustment on the RF offset on FT4B, RMP9 & FTSP3.

- A new steering of ALPHA line was done Wednesday. Since then the ATRAP magnetic background was changed, the steering was not fully steady.

Thursday

Electrical cut at 3H39. Many AD equipments was affected, Notably the Electron-Cooler filament was off. After 6h00 of filament formation by the specialists, the beam was back at 13H30.

SPS (Django Manglunki):

Considering it is still running in degraded mode because of the vacuum leak on TIDVG, this was a pretty good week for the SPS, with 88.5% availability for SFTPRO and 90.4% for the LHC, and most down time due to the injectors or external causes (EDF glitch).

The LHC is currently filled with trains of 2x48 bunches (25ns spacing). On SFTPRO, the spikes on QF are still a concern.

On Monday 27/6, it was confirmed that the amplitude of the satellite bunches observed by the LHC is of the order of $1e-3$ of the nominal ones, i.e. very low with respect to previously observed beams used for LHC filling.

During the night from Tuesday 28/6 to Wednesday 29/6, the LHC filling was delayed by 1h due to a front end problem on BCT4.

On Wednesday 29/6 the fixed target beam was stopped at 8:00 for the dedicated MD. The beam was back at 18:30.

On Thursday 30/6 at 3:36 a glitch on the mains affected the whole accelerator complex. The SPS recovered quickly and was ready at 5:00, but the PS was still down at 8:00 when an intervention had been planned on POPS. During the POPS intervention, several interventions took place on the SPS: modification of the QF regulation (swap DCCT1 and 2), tests of MST & MSE in DC, reconditioning of ZS, and RF power (cavity3). This latter intervention took a bit longer than anticipated so the SFTPRO beam was only back at 12:00.

On Thursday 30/6 afternoon, 30' of beam down time were due to a cooling water fault in BA6. Also 2h20' of beam time was lost due to two breakdowns on the PS (POPS and extraction kicker).

On Saturday 2/7 it was decided to inhibit the fixed target beam during the LHC filling as there were too many dumps.

On Sunday 3/7 beam was stopped at 19:45 due to a problem on POPS, fortunately just after filling the LHC. The beam was back at 21:00. There was another POPS interruption during the night, only affecting SFTPRO for 1h10'

LHC (From the 8:30 meeting):

The LHC had a productive week with 2.4 fb⁻¹ integrated and 59% in stable beam. The peak luminosity for each fill was at or just below the design luminosity. Main problems occurred on Thursday morning when due to a power glitch all experiments and all RBs etc. went down.

Since the recovery of the CMS cold box would take some time, a high beta (2.5 km) commissioning session was inserted to bridge the repair.

Presently we have integrated 9.5 fb⁻¹, meaning that we should reach 10 fb⁻¹ sometime this week.

Since the we are filling with the 2 x 48 bunches there is no longer the need to trim the vertical Q'.

Also the heat load it seems to be constant or even decreasing very slightly.

The commissioning of the high beta cycle has been completed last weekend and is now ready for first collimator and roman pots tests.

Friday an access was required to point 6 due to an LBDS beam 1 fault on a trigger synchronisation card (TSU)

Saturday morning there was an LDVT fault on a TCGS in IR3 collimator. The signal was masked.

Next is luminosity production with fill lengths aimed at 24 hours if possible.