Accelerator complex status

End week 27 (Sunday 10th July 2016)

TI (Jesper Nielsen)

Here's the summary of the week for TI:

https://wikis.cern.ch/display/TIOP/2016/07/11/TI+summary+week+27%2C+2016

Linacs (Richard Scrivens)

Linac2
Quiet week.
A failure of the RF reference amplifier happened on Wednesday night, but was quickly repaired.
The source started missing pulses on Sunday night, and was tuned.

Linac3
Smooth running.
On Wednesday the oven was refilled
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LEIR (Django Manglunki)

A very productive week on all fronts for LEIR, no major breakdown to declare. The EARLY beam was delivered to the PS for lifetime measurements, and the NOMINAL to continue setting up the 4 bunch beam which will be used for the p-Pb run in the LHC. All through the week including the week-end, on user MDRF, the commissioning of the new low-level RF system went on. The spare cavity, ER.CRF41, is now permanently controlled by the new low-Level RF system. It looks possible to switch to the new system as early as next Thursday, July 14th. However some OP software such as Tomoscope and Chromaticity measurement would need to be adapted to the new FESA classes and properties, provided the authors can be available during this holiday period.
- Monday 4/7 & Tuesday 5/7: tests of 10Hz injection rate on user AMD, and RF studies of flat bunches on user AMDRF.
- Wednesday 6/7 &Thursday 7/7: works on damper (PLC control of power amplifiers). During those days only low intensity, single bunch beams were available from LEIR.
- Wednesday 6/7 Source refill; beam back at 16:00. The next refill should take place on 25/7.
- Thursday 7/7 morning: Linac3 dedicated MD. The beam was back at 14:00 but the damper was still not operational as the works were "not completely successful" (sic). A roll back was performed the following day.
- Friday 8/7 High intensity beams were available again after the rollback of the damper amplifiers PLC control. In the morning, there were tests of the new PS Stray Field Compensation, which trims in real-time the K function of ETL.BHN10 according to which cycle is played by the PS. These tests will continue on Monday after a new version of SIS has been delivered. Also on Friday 8/7, more tests of 10Hz injection rate on user AMD. Electron cooling MDs are ongoing to try with higher electron current (420mA so far, possibly up to 600mA next week) to lower the cooling time down to 100ms.

- During the week-end the NOMINAL and AMD beams were kept for stability check. EARLY was delivered to the PS for once-a-shift lifetime measurements. MDRF was used all week-end by Maria Elena who kept working on the commissioning of the new LLRF.

AD (Bertrand Lefort)

It was a very good week for AD. We had only one issue with the MIL1553 field bus that controls the DEO ejection line magnets but we were able to fix it without the users noticing it. The detail of the intervention can be accessed at **https://issues.cern.ch/browse/APS-6003**

Booster (Bettina Mikulec)

Excellent week.

On Wednesday a dedicated MD for the PSB took place. The MD was successful - we managed to dump 80% of a 60E10 p beam at 160 MeV on the PSB dump (study for commissioning phase when connecting Linac4 to the PSB). Many thanks to all the involved equipment groups (TE-EPC, TE-ABT and BE-CO) who made this MD possible. Beam was back in time before 18:00.

The wire scanner ring 1 horizontal shows strange spikes since a while. The usage of the wire scanner has been restricted while waiting for new recommendations from BI (danger of wire breakage). BI has been asked to prepare both a vertical wire scanner (to replace the broken one in R4V) and a horizontal one for R1 for the next Technical Stop.

The BCMS beam was tuned and successfully sent to the LHC.

PS (Matthew Alexander Fraser)

Apart from temperature related POPS trips it was a good week for the PS. Priority for LHC ion set-up was decided and the 4-bunch variant took precedence. A solution for the noise on the ion lifetime measurement in the PS was found and is now being made every shift, as requested. Throughout the week the LHC BCMS blow-up variant was worked on and delivered on Friday.
On Tuesday evening POPS tripped due to a temperature interlock on its transformers that connect it to the external grid. The super-cycle load was pulling a reasonable 5.2 MW, which is above the physics baseline load of 4 MW (when not filling LHC) because of MDs and LHC ion set-up. POPS was up and running after 100 minutes of downtime. POPS suffered another couple of minor trips during the week and again tripped on Friday evening due to the temperature interlock at a load of 5.3 MW. In view of the temperatures forecast over the week it was decided to limit the load to 4.5 MW, which will limit beam availability for MD's and setting-up. LHC filling was not affected. Still, POPS tripped again this evening (Sunday) with the load at 3.9 MW for most of the day, except for LHC filling after mid-day (4.3 MW) and was down for about 1 hour.
During the dedicated PSB MD the SMH57 issue of the previous week was confirmed as the input water temperature of the cooling water circuit. The problem with the water-cooling station is now resolved and the septum itself does not limit EAST operation and up to 7 cycles per SC tested. T9 reported the vertical beam position as unstable throughout the week. A First Line intervention on ZT9.BVT.01 improved situation for a short while but the problem persists, to be followed-up.

SPS (Karel Cornelis)

A good week for the SPS, efficient LHC filling in between long coasts and 90% availability for fixed target. During the dedicated booster MD, the Qsplit cable was disconnected from the QF bus bar in the hope to cure the QF glitches. Unfortunately, the QF glitch continued to manifest it selves this weekend. Thursday morning we had some problems with damper due to some unfortunate software changes. On Friday the FT duty cycle was increased. We run now with on FT-cycle every 18 seconds. The beam dump vacuum and temperature are still stable. Also on Friday we started to fill the LHC with the blown up BCMS. The beam is not as clean as the nominal one (a bit more satellites and tails) but acceptable for LHC fillings over the weekend. During the week we will try to optimize things.