

## Accelerator complex status

### End week 41 (Sunday 11<sup>th</sup> October 2015)

#### TI (Jesper Nielsen)

TI summary of the week:

Incoming!

#### LEIR (Django Manglunki)

A pretty good week for LEIR

- On Monday after the general power cut which affected the whole complex, LEIR was restarted in the shadow of the oven refill in the Linac3 source.
- The beam was back on Tuesday afternoon.
- The highlight of the week was the dedicated RF MD on Wednesday where M.E.Angoletta, helped by M.Haase and A.Findlay, finished the LLRF setting up on the long MD cycle ("BIOMD"), solved the recurrent "spike" problem on the LLRF, and tuned the CRF41 as a spare in case of failure of CRF43. In parallel C. Carli started to study the injection transfer line optics and trajectory, to be continued next Tuesday.
- The EARLY (single bunch) beam was delivered to the SPS on Thursday and Friday for the setting up of the North Area beam, and of the LHC pilot beam. In parallel we did optics measurements and intensity optimisations on NOMINAL (J.Axensalva, M.Bodendorfer).

#### Remaining issues:

- 1.4kHz difference between the optimum capture frequencies for EARLY and NOMINAL; investigations going on
- EE.QDN20 was uncontrollable last Monday. This is the long-standing problem of legacy G64/Pow1553 equipment in TE/EPC
- trips of RF cavities are still not reported in LASER but this will be fixed after the conversion to FESA3.

#### ISOLDE (Miguel Luis Lozano Benito)

It has been a quite smooth week at Isolde. No major problems to report. Experiments took beam as scheduled.

Target change on Tuesday on HRS and beam setup on Friday.

Collaps has been taking Ca beams from GPS since Friday.

#### Booster (Alan Findlay)

The PSB had a good week with only one problem to report. Wednesday evening the distributor went down and it took the piquet about 3.5 hours to get it back on its feet. The following morning they decided to replace a thyatron that they could see was at the end of its lifetime, but this was completed in 30 minutes.

Otherwise, we carried out yet more MD sessions ourselves throughout the week and delivered the MD beams required by the rest of the complex.

### PS (Jakub Wozniak)

It was a rather good week for the PS apart from Monday morning power cut that caused around 13h of perturbations.

The origin of the cut was humidity in a circuit breaker in the ISOLDE area. This, due the fast circuit breakers triggered before the slower ones, took out the Meyrin site.

During Wednesday night the booster had a problem with a distributor thyatron that created problems for 2h.

It was changed Thursday morning generating another hour of downtime for intervention.

The weekend went without major troubles with only 30 minutes of problems due to KFA45 module 3 & 4 down.

Otherwise all the operational beams were delivered as expected.

### SPS (Benoit Salvant)

It was a busy week for the SPS, with simultaneous setting up of many beams towards the end of the week (8b+4e, 100 ns and ions for the LHC, a coast for an emittance preservation MD at 270 GeV as well as MTE and ions for the North Area).

Laborious setting up of MTE around the clock by the SPS-OP teams together with the ABP specialists of MTE in the PS allowed gaining a couple of percent of transmission, now reaching between 93% and 95%. The short test to increase the intensity from  $2.8e13$  to  $3.2e13$  was not successful and should be redone when the situation is more stable.

Here are the noteworthy issues of the week:

- On Monday afternoon, the BI specialist was called for a problem on an interlocked BPM (42408H). When LHC needed beam 3h later, the crate for that BPM was in a non-operational state and the specialist was unreachable. Another BI specialist advised to restart the crate and beam could be extracted (30 min downtime for LHC). The following day, an electronic card was replaced and the BPM was put back in the interlock chain.
- During the night from Monday to Tuesday, an FEI interlock was preventing injection into the LHC from TI2: the RQIF.29400 was not following the reference. The piquet FirstLine intervened and put a temporary fix in place to allow extraction to LHC (2h downtime). On Tuesday morning, the FirstLine and EPC teams intervened and said they had solved the problem. The SPS-OP crew checked that it was the case. When the LHC requested beam 30' later, the problem had reappeared and FirstLine (as well as TE-EPC one hour later) were called again to intervene and they fixed the problem that did not come back since (1.5 h downtime).
- On Wednesday, the coast for the MD was not perturbed by LHC injections. To note that the linear wire scanner status indicated that the wire was broken, when in fact it was not true.

- Setting up of the ion beams (for both LHC and North Area) was continued on Thursday and Friday, and LHC complained that the LHC filling was too long on Friday (both because of the supercycle length and recurring BQM issues).
- The main issue of the week was the trip of the RF transmitter TRX6 in the night from Friday to Saturday that prevented producing beams for about 6h. The RF power piquet helped by 2 additional RF specialists intervened as it would not restart due an undervoltage fault. After many tests and exchanges, the TRX6 could be restarted by reducing the undervoltage level. The issue is therefore not yet understood and should be followed up. Half an hour later, TRX6 tripped again for a different reason and fortunately the piquet was still there and they put a tube offline.
- SMD4 could not be restarted when restarting the mains, and the piquet First Line had to put that station out of the loop. Fortunately, this intervention was in the shadow of the RF intervention since the mains were restarted in advance to check if the INDIV could be produced.
- On Saturday afternoon, a series of small issues occurred: chain 11 tripped during a manipulation on XTDV.041.528 by the EN-STI piquet as it was blocked. Chain 11 was rearmed with the key, but a few seconds after, the chain tripped again. At the same time, the TED in TT20 was moving and its circuit breaker tripped, and the EN-STI piquet had to rearm it in BA2. While rearming chain 11, the key cylinder broke and the Access piquet was called. He put a temporary fix in place so that beam can be taken before coming back to fix that cylinder as well as a neighbouring one that had a similar issue. The other key cylinders of the panel should be checked for similar issues during the YETS.

Finally, there were quite a few occurrences of QF ripple again this week.