

Accelerator complex status

End week 36 (Sunday 11th September 2016)

TI (Chris Wetton)

Summary for the last week:

<https://wikis.cern.ch/display/TIOP/2016/09/09/TI+summary+week+36%2C+2016>

Linacs (Rolf Wegner)

Linac2 is running quite well. A few resets were needed during the week, 20 min downtime in total.

The cathode voltage is steadily increasing, a sign that the damage advances but we have good hope to survive until the technical stop on Wednesday.

The intensity to the PSB was typically between 135 and 140 mA.

Linac3 is running very well. Only 2 resets were needed during the week.

The intensity at the end of Linac3 (BCT41) was typically between 25 and 30 mA.

Booster (Klaus Hanke)

The Booster had mostly a very quiet week.

The only significant down time (1h38) was noted on Thursday when the C02 cavity of Ring 3 needed an expert intervention (two capacitors changed).

On Friday there was an issue with BT.BHZ10, which could be traced down to a missing synchro signal from the PS. Also on Friday there were 30 min of degraded operation for ISOLDE due to a steerer at ejection not following the ccv value. The problem disappeared by itself without having been understood.

PS (Matthew Fraser)

It was a very good week for the PS with 94% availability: only a few minor faults caused small amounts of downtime. The largest part was attributed to cavity faults in the PSB and PS. On Friday morning an intervention was made to fix a water-cooling problem on the C86 (10 MHz) in the PS. Re-starting the machine after the access was hindered by losing the synchronous timing frequency sent from the PS to the PSB. Once the problem was diagnosed it was resolved by rebooting the FEC connected to the frequency generator. In total, the PS was down for 3h.

POPS tripped twice and could be restarted within 20 minutes both times.

Throughout the week a fault on the cooling circuit of the internal dump TDI48 appeared intermittently. In agreement with EN-STI, and as a precaution, it was removed from operation whilst further investigations are made, including an inspection during the upcoming Technical Stop. TDI47 was invoked and operation was unaffected.

On Tuesday the intensity of the SFTPRO beam was increased slightly in accordance with the SPS to a limit of $1220E10$ ppp at extraction from the PS. nTOF requested beam when not making calibration measurements and the super-cycle was balanced to provide HIE-ISOLDE with the consecutive shots they requested.

MDs continued throughout the week. In particular, LHC25 long bunches (220 ns) created in the booster were successfully transferred and accelerated in the PS with some small transverse emittance growth to be investigated. Transmission of LHC25 to SPS with two 40 MHz cavities was further optimised and KFA45 waveform measurements were made.

SPS (Karel Cornelis)

The beginning of the week was a smooth continuation of a stable weekend. The intensity on the FT cycle was increased to 2.15×10^{13} protons per cycle on Tuesday morning.

On Wednesday however, trouble started. Several hours of the MD were lost due to a cooling problem on the compensator. The fixed target beam, which was supposed to restart at 20:00, came back only at midnight. The problem was a bad reading and control of the TBIU, TBID positions on the targets. The expert had to come in and after diagnosing a network problem, he had to re-initialise everything.

Next trouble came on Friday. When the beam came back after a stop in the injectors, the beam would only circulate for about 150 turns with high beam losses in 5.17 and subsequent BLM's. It turned out that during the beam stop a test took place with the prototype wire scanner in 5.17, and all suspicion turned to this. A long story short, we decided to open the vacuum chamber and found an obstacle in the form of an electrical wire, part of the current loop for the wire presence check. The beam was resumed on Saturday morning at 10:00 without difficulties.

Saturday evening, the TBIU, TBID problem came back. Some hardware in the network was changed, and the system was restarted. There was also a problem with the MKP during Saturday night. In the end interlock levels on the heater were changed. On Sunday evening the partial/total switch on the MBE2103 was out of control. It turned out to be due to a water leak, pissing in the power supply. The problem could be solved in less than 3 hours.

LEIR (Steen Jensen)

- Tuesday, September 6th 2016
 - Issues
 - 09:16, 45m - ER.ECN20 trip => reset => not ok => pipo => restart => ok
- Wednesday
 - Issues
 - 08:10, 5m - ER.ECN20 trip => reset => ok
- Thursday
 - Issues
 - 07:48, 5m - ER.ECN20 trip => reset => not ok => off/standby/on => ok
- Friday
 - Issues
 - n/a
- Saturday

- Issues
 - 07:09, 5m - ER.QFT20/ER.QFN2040 trip => reset => ok
 - Sunday
 - Issues
 - 08:03, 5m - ER.QFT20/ER.QFN2040 trip => reset => ok
 - Monday
 - Tuesday
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- ✓ Activities
 - BTV tests to identify damaged screens => ITE.BTV10 & EE.BTV10 to be replaced, ER.BTV12 to be checked again.
 - Development of new optics (MDOPTIC)
 - RF study, frequency modulation for longitudinal emittance blow up (AMDRF)
 - Beam to PS for lifetime studies (EARLY)