

Accelerator complex status

End week 9 (Sunday 2nd March 2015)

Summary:

- Steady operation with argon to North area (last energy change Monday 23rd).
- Difficult week for the Booster, however the only proton users for the moment are PS and SPS for set-up.
- Proton set-up continues in Booster, PS and SPS. Probes ready for the sector test this coming weekend.

TI (Jesper Nielsen)

Nothing special to report from last week. No major events recorded.

<https://wikis/display/TIOP/2015/03/02/TI+summary+week+9+2015>

Linacs (Richard Scrivens)

Linac2

On Wednesday morning there was an exchange of the RFQ tube amplifier.

On Saturday, the RFQ amplifier chain was again causing problems and could be recovered by the RF experts, but they would like to make further investigations this week.

Otherwise work was done on beam diagnostics (pick-ups and measurement lines) to solve some small issues.

Linac3

Very smooth running all week, with no significant faults.

LEIR (Django Manglunki)

A good week for LEIR.

The beam was stopped on Monday 23/2 from 11:30 to 14:30 because of a PS access, but was restored without problems.

On Tuesday 24/2, the PS Stray Field Compensation (SFC) system which had been tested before the week-end was put successfully in operation. From then on, any PS cycle can be placed before the ones sending ions to the SPS, without perturbing the LEIR injection.

The beam was stopped again on Thursday 26/2 from 08:30 to 10:30 for a PS access, and was restored without problems.

The week-end was quiet.

Booster (Klaus Hanke)

A difficult week for the PSB. Apart from the usual setting up and debugging work, the main events are listed below. I'll send an update tomorrow morning in case there is a major event during the night.

Wednesday there was a fault of the Linac RF, the Linac supervisors requested a 1h stop for the intervention.

Thursday the EPC expert changed back the Trim A for the Trim B power supply (it had been left inverted after an MD, that is not a problem as both are identical and one is the spare of the other one).

Unfortunately about 1h later the MPS went down. The piquet tried different things, eventually they changed back the two Trim power supplies as apparently the one put in operation was not OK. It is now being repaired, in order to have a real spare.

Friday BI2.QNO60, after several resets OK. However it continued tripping throughout Friday and Saturday, the EPC and magnet piquets tried different things, and both claim that the power supply as well as the magnet are OK. Saturday evening an access was organised with the magnet expert A. Newborough to check the magnet, all was found OK. Also the interlock seems to behave correctly. At this point the cause is unclear, there is a remaining possibility that the cabling between the magnet and the power supply is not OK. As our only proton users are at the moment the PS and SPS (for setting up), I decided to run for the remainder of the weekend without R2 and to organise an investigation on the cables for Monday morning.

While work on the BI2.QNO60 was ongoing, the Linac RF tripped again Saturday morning. The Linac supervisor and an expert intervened and the linac was back after about 3 h of down time.

Monday morning cavity BR4.C02 tripped with internal communication error, unresettable. Expert will intervene this morning. We will as far as possible synchronise the interventions on the injection magnet, the cavity and the Linac RF.

PS (Guido Sterbini)

During the all the week the ions beam was regularly delivered to the SPS (except for the Monday and Thursday accesses). The commissioning of SFTPRO, TOF and LHC beams continued.

On Monday the PS access started at 11h30 and lasted for 2 h. There was an intervention on the cavity C56 amplifier, a replacement of a cable for POPS and a vacuum leak detection in SS8.

No evidence for a vacuum leak was found: the source of the pressure rise of the SS8 seems to be internal and can be controlled by regular sublimations. Further investigations will be performed during next Technical Stop. During the access, due to some maintenance work, the monitor of the switchyard (PATP501) went offline and the switchyard zone went in fallback mode, preventing the PSB operations (2 h unforeseen stop).

In the afternoon the SFTPRO setting up continued (perturbed by some problems with the BFAs).

The phasing of the 200 MHz cavities was performed.

On Tuesday TOF setup continued (the orbit was minimised and low energy quadrupoles replaced the PFWs at injection). The transition jump was optimised but the intensity was limited to 600e10 ppp due to losses at transition.

On Wednesday a tube of the C202 amplifier was changed.

Significant progresses were done on the PSB side on the longitudinal reproducibility and quality of the TOF beam. On late afternoon the C40-77 went down and could not be restarted.

On Thursday an access was required to address the C40-77 issue (1 h 30 min access). POPS could be restarted only 60 min after the end of access but as soon POPS was back it was realised that TT2 went in fallback mode (septum 16 down). After investigations, it turned out that, due to the works in the AD hall, one EIS of the AD Ring became unreachable (DR.MTV5303) and TT2, as expected, went in fallback mode.

The DSO and the security representatives decided to solve the problem by consigning the AD target switching magnet (BTI.247) and bypassing, from the security point of view, TT2. TT2 was recovered after almost 3 h (5 h 30 min total downtime for the ions). Due to a problem with the PSB MPS, proton could be injected to the PS only at 16h30.

A problem with the synchronisation of the simulated frequency for ions was discovered and solved late in the afternoon.

During the night some work was done on the SFTPRO MTE beam.

On Friday preliminary measurements with the wire scanner on the MTE capture took place. After a scheduled power cut in the EAST zone a patrol was lost since the UPS units discharged before the power cut end.

The weekend was quiet. Studies on the MTE continued. An important ripple on the PFW circuits was measured and requires further investigations.

SPS (Verena Kain)

Main activities:

The SPS efficiently switched to 28.9 GeV for Ar ion fixed target beam on Monday and ran like this for the rest of the week. At this low energy the spill quality suffers. The power converter noise is partly larger than the current set values in TT20. The spill regularly had to be re-optimized as far as possible with radial position and tune adjustments.

Since Wednesday the pilot beam is ready again in the SPS. Preparations started for the sector test. All power converters in the LHC transfer lines have been tested and repaired where necessary. The access interlocked power converters will be tested from Monday next week. Friday afternoon the pilot beam was extracted to TT40 and TT60 TEDs with SPS mastership. All power converter interlock issues had been resolved. No masks were needed. A new RF re-phasing system had been deployed.

Down time:

- No down time caused by SPS equipment this week.
- Monday: 3h no beam due to PS cavity intervention.
- Thursday: 5h 1/2 no beam due to PS cavity intervention followed by AD EIS issue that stopped the PS.