

Accelerator complex status

End week 15 (Sunday 17th April 2016)

TI (Jesper Nielsen)

<https://wikis.cern.ch/display/TIOP/2016/04/18/TI+summary+week+15%2C+2016>

ISOLDE (Eleftherios Fadakis)

Short summary

Problems with the GPS front end. Intervention planned tomorrow morning to evaluate the situation.

On HRS both amplifiers of the RFQ were not working but were quickly replaced. We delivered beam to the users on time.

They have been taking radioactive beam almost nonstop since Thursday.

Booster (Alan Findlay)

Another decent week for the PSB with no major issues to report.

We recovered from the technical stop a little later than expected, but the beams were all available by 19H00.

Work continued throughout the week on fine tuning the beams and trying to make inroads into some of our persistent issues. The AD beam has been improved already, but will still benefit from some further tweaks to remove losses during acceleration. High intensity on R1 is still not as good as the other rings and work continues.

Various MDs this week to help understand and fix issues, notably the unreliable longitudinal blow-up which was tied down to the C16 phase not being reset correctly and then drifting during harmonic number changes. A fix is in place for the longitudinally shaved beams LHC PROBE and LHC INDIV, and there are good ideas for a fix for the longitudinal blow-up for the other beams. The firmware is being developed by the RF gurus and a final fix for both cases is expected for test soon.

Work also continued to work on the slight jitter observed on the synchro of R1 & R4, but the source of this is not yet properly understood.

PS (Guido Sterbini)

All in all it was a good week for the PS. On Tuesday/Wednesday night an access in the PS Ring was organised to repair the C80-89 (replacement of a faulty power supply). This was needed for filling the LHC before the TS.

Starting from 04h00 the beams were switched off to prepare for the TS accesses. Among the main activities during the TS, the faulty POPS DC/DC converter was replaced. The TS ended at 16h00 but the restart was not smooth. All PS Ring/Switchyard patrols needed to be redone, the injection

septum card needed to be replaced and the LLRF restart was difficult. Perturbations were minimised since in the shadow of the SPS stop. Beam was back for TOF at 19h00.

During the week the optimisation of AD continued (good condition at $1400e10$ ppp) and the East North spill was sent to the target ($30e10$ ppp).

On Friday afternoon a problem with the a communication card on the TOF switching magnet (FTN.BHZ403) produced 3 h downtime for TOF.

On Sunday afternoon several problems affected the LHC beams: the LHC1 extraction synchronisation was not properly working due to an error in radial position program (spotted and solved by D. Perrelet). The LHC beam could not be sent to the SPS since the fiduciary SPS RF train used for the extraction synchronisation was not correctly transmitted to the PS (solved by the SPS team).

On Monday morning SPS asked for the MTE beam (low intensity, one turn) to restart the NA commissioning.

SPS (Karel Cornelis)

Having detected an aperture restriction, at the end of last week, between ZS1 and ZS2, all activity was stopped on the fixed target cycle in order to let LSS2 cool down for an intervention planned on Wednesday. During this intervention, it was discovered that one of the suspension points of the ZS2 anode was broken and that it came down by about 15mm. ZS2 was replaced, and by Wednesday afternoon the pumping could restart.

On Thursday around noon the sector valves were opened and low intensity beam operation could be resumed for LHC. The HV conditioning of the new ZS could only start on Saturday, due to the slow descending vacuum.

The hope is to be ready on Monday to resume FT setting up. On the LHC side, we encountered two problems in the beginning of the week. The 'probe beam flag' was set to OK, due to a faulty zero reading of BCT4. The problem was temporarily fixed by forcing the BCT to give a high reading when it is zero. For the future a second BCT is needed for redundancy. There was also a problem with the so called 'new' BPM readings for the east extraction interlock. They were finally taken out of the BIC and we are relying the old BPM system as we have been doing until now. On Friday, a cable was found broken in the RF feedback system. It is a 400m long delay cable which was found damaged close the end. The repair was done in the shadow of the LHC cryo problems.

LHC

Good progress with commissioning although some questions still remain about the aperture in IR1 at 40 cm.