

Accelerator complex status

End week 33 (Sunday 21st August 2016)

TI (Ronan Ledru)

Summary for the last week:

<https://wikis.cern.ch/display/TIOP/2016/08/19/TI+summary+week+33%2C+2016>

LEIR (Django Manglunki)

It started as a good week for LEIR. EARLY and NOMINAL beams to the PS. Instabilities studies on ANOMINAL, new optics on MDOPTIC.

Monday 15/08 morning the beam was taken by Linac3 team for their weekly half-day dedicated MD. During that time Alan and Matthias worked on the RF and ion pump ER.VCH40-S5 was repaired. The beam was back at 14:00. ER.QFT23 tripped several times and C.Mutin was called directly. He found some loose clamps and soldered them, which seemed effective as the fault which kept occurring the previous week did not happen any longer this week.

On Tuesday 16/08 the EARLY beam was not injected in the PS. It was found that the quads in ETP had been set to zero current, probably a collateral of the generation of the MDOPTIC beam (studies of new working point). In the afternoon once again the RF cavity ER.CRF41 tripped with no possibility of a remote reset, so it had to be restarted locally.

On Wednesday 17/08 the EARLY beam was delivered to the PS for the SPS dedicated MD. Unfortunately, the SPS could hardly take it because of the LHC fillings.

On Thursday 18/08 the new controls for the transverse feedback were tested again, but until the programmer of the new Java app is back, the old Xmotif app will still be used.

On Friday 19/08 morning the beam was only available after 9:00 because of an RF breakdown at Linac3 which had occurred the previous evening (one 48V power supply on the debuncher). Also on Friday, there was from 13:00 to 14:00 a fault on the injection fast bumpers (ER.DFH) which could eventually be reset remotely. The injected beam on MDOPTIC is almost completing a full turn with the new optics.

A power cut caused by an emergency stop button affected the whole PS complex on Sunday 21/08 morning. The PS operators have called the vacuum piquet to check that the LEIR vacuum was preserved. After the return of the cooling water, most of LEIR could be restarted remotely, except for the electron cooler, the extraction kickers, the electrostatic septum and the extraction magnetic septum. The relevant specialists have been notified and asked to intervene as soon as possible on Monday morning. In the meantime the beam stoppers and the vacuum valves are left closed as the LINAC3 source is still stopped too.

ISOLDE (Eleftherios Fadakis)

Very smooth week at ISOLDE.

ISOLTRAP took beam on GPS until Wednesday when at the same time there were some tests with radioactive beam on the new tape station.

From Wednesday on CRIS took beam from HRS, they work with Ra.

No serious issues to report.

Booster (Alan Findlay)

A few, wee niggles this week, but enough to cut our beams for a reasonable amount of time.

Wednesday, 30 minutes lost for all beams destination PS, as a DAC card in BTP.QNO40 had to be changed by PiPO.

Thursday, first we had the BT2.BVT20 that died around 17H45, requiring intervention by the PiPO and TE/EPC_CO support. It took until 22H30 for the problems to be solved by replacing the power supply and R2 beams were back.

Then at 18H45 BE.SMH15L1 dropped out taking the remaining rings with it, this was due to the cooling electro valve once again. J. Borburgh was called and came in to access the machine. The access successfully fixed the problem and the R3 beams were back at 20H50.

Sunday morning around 07H00 the LINAC went down and this was found to be due to the fire brigade having to hit the emergency stop due to a rack fire in one of the PS buildings. Jose took care of resuscitating the LINAC plus PSB, and he had the beam extracted from the PSB once more by 11H45.

MDs continued through the week, predominantly by Elena and Alan.

Otherwise we managed to polish and supply the beams requested, as is our want.

PS (Ana Guerrero Ollacarizqueta)

The week was quiet and all beams were delivered as expected until Sunday morning. A fire in a rack of building 241 started round 7am. The firemen pressed the emergency stop so the 18KV were cut together with all the systems in PS. The PIVAC was called since there was no controls available on vacuum, the pumps could be restarted by 11h. By 13h most of the crates were up and POPS could be restarted. PIPO was called for several correctors too. EPC-CO was called for a septa power crate and a problem with LHC beam second injection that was found to be a wrong initialization setting not accessible from operational controls.

The MTE kickers could not be restarted and PIKick was called as well as E. Carlier. They had to bypass an equipment in fault to let the timing signal arrive to the kickers. The septa specialist A. Prost had to come twice for a temperature interlock issue of SMH57. LL RF piquet and HL RF specialist were called for the RF system. There were issues on the controls and three cavities could not be restarted once the controls over the equipment came back. The TOF beam could be finally injected by 18h30. The internal dumps were found to have stayed slightly in the way of the beam disturbing the injection of all beams. The one injection LHC beams and AD followed. The EAST beams were ready at 20h30

when the SMH57 interlock issue was solved. MTE came back with the kickers before 21h and finally the 2 injection LHC beams round 21h30, a setting not accessible from the operational controls was found to have initialized incorrectly. All beams were back after 14h of beam stop. Several other equipment issues have been left to deal with during working hours: orbit measurement and wire scanners among them. During the night First line had to be called to for a corrector and a bending in the east line.

The ion life time has increased a lot since last week and has been measured round 3s as the vacuum gets better. Ions were sent to SPS for set up again this week.

The issue of MTE injection efficiency diminution in SPS mentioned last week has been found to be a problem of beam stability due to the intensity raise (threshold of stability reached at around $1100e10p$), solved by using the transverse feedback at injection.

Requested MD cycles for LHC have been prepared.

SPS (Karel Cornelis)

For the SPS the week was not so good, but this was mainly due to the injectors which accumulated about 20h down time, a big chunk coming from the rack fire in the PS. On the SPS side things worked pretty well. In the beginning of the week the 10Hz ripple on the FT spill was rather bad, but it improved considerably towards the end of the week. There is still a 2h intervention needed on the QF in order to reduce the ripple, once the experts are back from holidays.

The vertical orbit at high energy keeps changing, mainly on the LHC cycle due to the lower tunes. It looks like QD5.11 is sinking slowly. At the moment, a kick of 36 microrad is needed to compensate the error.

Towards the end of the week we started to have more and more erroneous interlocks from the SIS, due to data published a cycle too late. It concerned mainly the BLM's in LSS4, UA9 collimators, and TBSE in tt20. Especially on Saturday things became really hectic and some 'non-essential' were bypassed. At this moment, experts are trying to understand what is happening.