

Accelerator complex status

End week 40 (Sunday 4th October 2015)

TI (Jesper Nielsen)

TI summary of the week:

<https://wikis.cern.ch/display/TIOP/2015/10/01/TI+summary+week+40%2C+2015>

Sunday morning at 2AM a problem occurred on a bus bar in building 269: the electrical substation ME24 tripped and propagated to electrical station ME9 that power the pulsed loops. Complex back up late morning Monday.

LINACS (Michael O'Neil)

Linac 2

A good week, just one fault, an aging tube in the debuncher amplifier (LT.CDB10) was replaced (45 minutes).

Linac 3

Also a good week with a very stable beam of 20-22uA out of the Linac. A scheduled oven refill is now under way (Monday morning).

LEIR (Maria Elena Angoletta)

Beam setting up and optimisation has continued throughout the week for all users.

In particular, the settings for the new user BIOMD (which had been automatically generated) were corrected and the beam could be captured and accelerated.

On Wednesday several elements (ITH.QDN08, FN09 and DN10) went incommunicado and required the attention of a power supply specialist, who solved the problem in a couple of hours.

As planned, on Thursday and Friday SPS took the beam, which for LEIR meant providing four consecutive EARLY cycles with a typical intensity of 1×10^{10} charges per cycle.

Unfortunately on Thursday evening the PS stray field compensation application failed, with the result that only the first of the four EARLY cycles sent to the SPS could be used. As it was not possible to solve the problem with the stray field compensation application, Jerome Axensalva stayed until late on Thursday evening and managed to make operational a script changing the values of the element ITE.BHN40 for the EARLY cycles sent to the SPS. This allowed also on Friday during the day a satisfactory and reliable intensity to be sent to the SPS.

Michael Bodendorf came in during the weekend to keep working on BIOMD.

Finally, on Monday morning the source will be refilled; beam is expected to be back to LEIR on Tuesday afternoon.

Special thanks to Jerome, who saved the situation when the stray field compensation program failed and allowed LEIR to send good beam to the SPS as planned.

ISOLDE (Eleftherios Fadakis)

Relatively quiet week at ISOLDE with smooth operation and happy users.

IDS continued taking beam on HRS with bunched mode until Wednesday.

Thursday IDS taking protons for 51-53K. On Saturday they switched to HRS with continuous mode and will continue until Monday morning.

On Monday morning a target change for GPS and depending on radiation levels a wire scanner (BSC482) replacement. (according to RP they will not have dropped below ALARA3 until then so we might have to postpone).

REX

The renovated application to control the consolidated electronics of the RexEbis is fully verified and already we achieved almost nominal transmission in much less time compared to using the function editor (tool provided by CO).

On Friday we met with Steen Jensen (BE-CO) to explain to us how to use the ramping functionality of the new electronics of the RexEbis.

This is the only part that is not integrated in the new application but it seems extremely time consuming to use for REX. Investigating possible integration to the RexEbis application.

Issues:

Vacuum incident on MSW10. when the Faraday cup, BFC5580 is in the pressure is good(1E-6 mbar) when is out it goes to 9E-6mbar and triggers the interlock. Had to force the valves and allow the sector to be pumped from the neighbouring pumps. Thus allowing the power supplies of several electrostatic elements to be turned on and users to continue with beam.

YCC0.BFC.0900 and YRC0.BFC.0900 seem unable to perform measurements and responsible will investigate on Monday morning.

High Tension FEC was down once on Wednesday and once on Saturday. Fortunately the power supply continued sending correct voltage and once the FEC was rebooted the errors on the application were removed.

Update following electrical fault:

HRS target appears to have developed a leak after the power cut. Un-clamping and clamping did not resolve the issue so an unplanned target change is scheduled for tomorrow.

Several FEC needed rebooting. Three needed more attention.

Cfc-197-rplc (responsible for controlling all electrostatic elements) the responsible said that he found the PLC running with an unknown version of the software and he needed to roll back to previous version to make it work. This needs to be followed.

cfv-170-borex (Rex Beam instrumentation) The CPU module had to be exchanged.

Cfv-170-mkiso (responsible for HT of the targets) needed ABT to come and locally check the power supplies. They rebooted the computer in the HT room and it works fine.

For HIE the cryo plant has not yet recovered. The thermal shield went up to 150K but now is close to nominal temperature (~70K). We lost all the LHe in the reservoir and the cavities. The temperature of the cavities went up to 25K. The amplifiers for REX all tripped. A power supply of the controls of LLRF of the 7gp3 amplifier needed to be replaced.

In the morning, vacuum came back to nominal values in all sectors of low energy part, rex and HIE.

Our vacuum controllers lost their hardwired thresholds during the power cut so Vacuum expert needs to insert them.

While taking care of all the points mentioned above we did a target change on GPS and are now heating up the new target (#545) to continue with our schedule.

Booster (Jean-Francois Comblin)

We had a calm week for the Booster until Sunday morning at 2AM when a problem occurred on a bus bar in building 269: the electrical substation ME24 tripped and propagated to electrical station ME9 that power the pulsed loops. At this time the situation is not recovered.

Except from that, only 2 minor problems to report:

1/ Thursday, the transverse feedback was down with water fault, exactly like the week before. The specialist suspects that someone was working on an equipment that share the same water cooling. This is under investigation. 35 minutes of downtime. LHC not affected.

2/ Linac RF crew changed a tube on the debuncher. It was planned to not affect the LHC. 40 minutes of downtime.

PS (Ana Guerrero Ollacarizqueta)

As usual all operational beams were delivered as requested. There were only a few issues that caused a total beam downtime of 5 hours. There was one hour stop for EAST beams due to an electrostatic septum fault. Also one hour stop for LHC and ion beams due to a long restart of 40 and 80MHz cavities. On Wednesday during the PS MTE dedicated MD, an access had to be scheduled for an amplifier exchange of 10MHz cavity C66 that lasted 1h30m. It was followed by a difficult POPS restart that took another 1h30m. A fault in KFA4 affecting the SFTPRO beam took 45mins to be reset.

All the week the MTE beam has been sent to SPS and the North area. The work on this beam has continued regarding the SHM16 shadowing, extraction efficiency (currently 98%) and spill optimization.

The new TOF extraction schema is now implemented on all TOF beams. The extraction is done on the internal side of TPS15 with only Kfa71.

Ions were sent to SPS on Thursday for setting up.

The LHC100ns beam has been prepared as requested. Intensity approx. 8 – 10 e10p/b

Since Friday at midday after a TOF intervention, the radiation monitor PMIBL03 is constantly on the limit of 1400uSv/h, 200uSv/h more than before the intervention. The intensity had to be decreased not to overpass the threshold. The reason of this radiation level increase is not clear, no particular issue has been found in the line, the beam is well centered on the screen before the target.

SPS (Karel Cornelis)

Fixed target physics continued with MTE during last week. Reasonable transmission could be obtained but still about 5% worse with respect to CT.

On the night from Tuesday to Wednesday, a switch on MKDV had to be changed. The conditioning of the switch continued during the morning in the shadow of a PS dedicated MD. On Friday the FT beam was lost at the start of the ramp. The RF specialist diagnosed a problem with the phase loop. The problem disappeared without a real repair and the expert thinks there might have been a bad contact, so the problem can come back.

During the weekend a new batch spacing (1 microsecond) was set up for the LHC beam. At 2 o'clock on Monday morning an electrical power problem stopped PSB, Isolde and also some PC's in TT2. There is still no beam from PS at this moment.