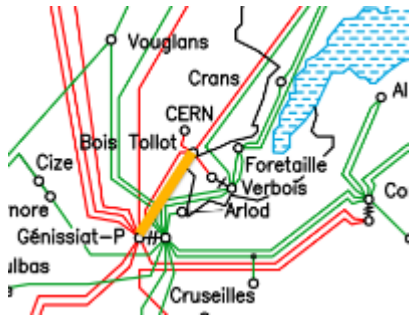



End Week 11 (March 18th 2012) – Status of Accelerators

TI (Peter Sollander)

day	events
Monday, March 12	<ul style="list-style-type: none"> 20:08 -- Electrical glitch on the 400kV network, confirmed by EDF (no detailed report with amplitude and duration yet). Tripped Linac2, Booster, POPS, SPS and LHC RF and 5 sectors. 
Tuesday, March 13	<ul style="list-style-type: none"> 15:34 -- Oxygen pre-alarm in US15. Fire brigade on site and want to go in to the machine. TI had a pre-alarm, but could read a good oxygen level of 21.4%. After discussion with EiC and gas detection people it was concluded that this was a false alarm. Fire brigade asked to reset the alarm remotely.
Wednesday, March 14	<ul style="list-style-type: none"> 10:17 -- Compensator P8 tripped. Unknown why. TE-EPC on site to switch back on. Switch on following the procedure. All OK by 11:20
Friday, March 16	<ul style="list-style-type: none"> Electrical switchboard (ESD104/85X), powering the DI OFF. Piquet intervention to switch it back on, only it took longer than 1 hour. If the DI is off for more than 1 hour it generates an alarm (manque secteur) which needs to be acknowledged. It's decided to wait until the LHC stops for something else, level 3 alarms would come through anyhow. ODM
Sunday, March 18	<ul style="list-style-type: none"> Fire alarms in BA3, after intervention with firemen, EL and RF it's discovered that the RF cavity TX4 is broken. It's possible to restart the SPS with this cavity, the intervention is forseen for tomorrow. See Major event 

LINAC2 (Rolf Wegner)

This week was not too bad. We had some problems with breakdowns in the RFQ of Linac2, 3 interruptions in total. The origin of the problem was found and solved (solenoid LI.SN01 focused the beam from the source too much so that some protons probably hit the wall of the RFQ causing the breakdowns).

There was another fault of the F. James amplifier of tank 1. This time, the problem could be tracked further. The tube seems to be the reason.

Although the fault rate is decreasing, the decision was taken to replace the tube during the intervention this morning (Monday 19th).

A quadrupole power supply had to be exchanged (LA1.QDN23S).

During the weekend, the watchdog cut the beam several times. The reason will be analysed today.

Booster (Giovanni Rumolo)

The beginning of the week was a little worrying, as all the optimizations done last week on the PSB beams seemed to have suddenly disappeared for no clear reason and in particular, the injection had again to be re-optimized on all beams. Checking the changes occurred during the time when the degradation occurred, the problem seems finally to have been tracked down to a change of setting in the RFQ voltage amplitude in Linac2, which was applied at the beginning of the week first to the ZERO user, but then copied to all users. After a detailed analysis, it was found that that the change of this parameter can significantly affect both the beam vertical emittance and its trajectory. Some dedicated MDs to study the sensitivity to this setting have been therefore envisaged.

The rest of the week has been quiet. The EAST beams, as well AD, have been set up. The LHC 25 and 50ns beams are ready in specs (apparently better than last year, as the sum transverse emittances of the 25ns beam is $\sim 4\mu\text{m}^2$), and also the high intensity variant of the 50ns beams has been set up and sent to the PS.

PS (Jakub Wozniak)

It was a work intensive week for the PS with beam setup for the LHC, CNGS, and TOF clients. Work has been done to use only PFW for the CNGS and TOF beams without a need for low energy quads. This has been accomplished with satisfactory results. Main disturbance came from POPS going down very often causing downtime of around 2 hours on Monday, Tuesday and Friday. The last fault resulted in a decision of putting POPS in a degraded mode allowing for better understanding of the problems with a faulty DSP1 DC/DC converter. Experts (Fulvio Boattini) are still working on this problem.

On Thursday we had DSO security tests for the TOF and TT2 zones with around 1 hour of downtime. Those tests will be also done today for the AD zone in the shadow of the morning SPS intervention for the faulty 18kV power cable.

SPS (Django Manglunki)

On Monday the SPS was stopped to let LSS1 cool down for the vacuum intervention. The CNGS DSO tests took place in the shadow. A glitch occurred on the electrical network at 20:08.

The vacuum intervention took place on Tuesday morning, and the valves were opened on Wednesday morning and beam was back after a short reconditioning of the MKP.

The probe beam was delivered to T18 in the evening; for T12 it had to wait until a problem was fixed on MKE6 (change of a controls card). In the night the beam was delivered to both LHC rings.

On Thursday the first CNGS beams were extracted with low intensity towards the target. On Friday CNGS setting up went on, with a single batch from the PS, at half intensity. The last beam position monitors do not work. There was already an intervention on Friday but at least another one will be needed to fix the problem. From Friday the LHC started to take the indiv beam.

On Saturday there was a 10 hour long breakdown on MSE4, eventually fixed by the piquet and several specialists from TE/EPC. Since Sunday at 8:00 TRX4 is down because of a fire in the transformer.

It turns out it is still possible to deliver the LHC probe and indiv beams without disconnecting it from the cavity. TRX4 is thus only bypassed, which avoids two 4 hour interventions to disconnect and reconnect it for the repair.

All beams will be stopped on Monday morning for a fault search by ERDF on a 18kV cable for the spare of SMB1. A lot of other interventions will take place in parallel, throughout the accelerator complex (Linac2 RF tube exchange, nTOF DSO tests, CV in PS ring...)

LHC

First beam into the machine late Wednesday evening. Re-commissioning going well with beam ramped to 4 TeV and taken through the squeeze to 60 cm. Full details:

<http://lhc-commissioning.web.cern.ch/lhc-commissioning/>