

End Week 46 (November 18th 2012) – Status of Accelerators

Statistics

nTOF: <https://espace.cern.ch/be-dep/OP/PS/default.aspx>

CNGS: https://accstat.web.cern.ch/accstat/statistics/charts/2012/SPS/CNGS_Target_Cumul2012.jpeg

LHC: <http://lhc-statistics.web.cern.ch/LHC-Statistics/index.php>

TI (Peter Sollander)

Day	Events
Monday, November 12	<ul style="list-style-type: none">• Stop of CRYO in P4. Seems to be another SEU.<ul style="list-style-type: none">• See Major Event• Cryo Presentation• TI profits to switch back on compensator in P8, which caused more problems for LHCb than usual. Investigations ongoing with TE-EPC and EN-EL, the same problem has occurred in P2 recently.
Wednesday, November 14	<ul style="list-style-type: none">• Stop of POPS, due to a water problem. TI saw alarms on the water level, unfortunately not soon enough to react.<ul style="list-style-type: none">• See Major Event• Emergency stop in LHCb control room, several racks cut. Pending information from LHCb<ul style="list-style-type: none">• See Minor Event
Friday, November 16	<ul style="list-style-type: none">• CNGS ventilation stopped. Edda and SPS operator notified. Not possible to restart without going down. SPS and TI monitor the temperatures.<ul style="list-style-type: none">• See Minor Event
Sunday, November 18	<ul style="list-style-type: none">• Alice Detector Cooling stopped, problem with a PLC (loss of communication).<ul style="list-style-type: none">• See Major Event

LINAC2 (Jean-Baptiste Lallement)

It was quite a smooth week for Linac:

- On Wednesday afternoon, a problem of control on LT.BHZ10 bending magnet, triggering the watchdog, with intervention of piquet control and power. Stop of 40 mins.

- 2 short stops of 3 mins each on Friday and Saturday morning when occurred HT spark in the source inducing the closure of the LI.VVS10 vacuum valve.

ISOLDE (Emiliano Piselli)

It was a good week. All users got beam accordingly to schedule: WITCH users from REX and beam delivered to users in LA2.

LEIR (Christian Carli)

LEIR performance somewhat improved since the vacuum interventions.

For the EARLY cycle with one injection we had about 1.0E10 charges (design: 1.2E10 charges) extracted with less than 20uA from Linac3. This is acceptable, even though this is less than last year with the same Linac3 intensities (last year, we had exceptional injection efficiencies). With a second injection, it should be possible to generated more than the design beam.

For the NOMINAL cycle, we had only about 3E10 charges (design 5E10) extracted with 7 injections and, despite this low intensity, saw the typical loss with high intensities after bunching. Injection efficiencies were fine, but there is a significant loss (from the stack) during the raise of the injection bump. The fact that this loss could not be removed by adjusting the electron cooler gun voltage indicates that cooling is slow (does probably not mean that there is a problem with the electron cooler).

AD (Bertrand Lefort)

The AD had another really good week and only lost 4 hours due to minor problems that resulted in almost no lost beam (see attached report).

FAULTS					
Date	Start/Duration	Symptom	System	Resolved	Comment
13/11/2012	23:13/10'	No beam received by the ALPHA experiment	DE2.VVS42	YES	To go from an experiment to another we use a switching program that re-configure the ejection line. Sometimes, the vacuum valve VVS42 stayed closed at the end of the switching process and we have to manually open it. The problem is known and recurrent. We are now looking for the origin of this failure.
14/11/2012	10:23/1H18'	Beam is moving horizontally on the ASACUSA watchdog	UNKNOWN	"YES"	The beam is affected by a 5mm jitter. Despite of our effort we did not detected any instability in ours power supplies. We used the LINAC2+POPS downtime to turn off the mains magnets power supplies and the problem disappeared by itself.
15/11/2012	10:24/48'	NONE	RING	N/A	OP7 exceptional with magnets expert to check the water filtration problem on the north wall (see next section for details).
15/11/2012	16:08/1H32'	Losses at 100 MeV/c	Vero power supply.	YES	3 power supplies were not following accurately the GFAs reference. It was due to a 10V power supply feeding the GFAs. The problem disappeared changing this power supply.

Booster (Klaus Hanke)

The Booster had a good week with only the usual resets and reboots here and there.

The only problem worth mentioning was on Tuesday 13/11 08:55 when the distributor went down. The expert was called in, who called in another expert, and the problem could be fixed at 11:06 (2h down time respectively degraded operation). They switched to another cable; during the last intervention on the same issue they had wisely put in place a spare cable of the same length! May god bless the Beam Transfer group.

PS (Alexej Grudiev)

It was a good week in general. First half of the week there were number of downtimes related to failures of different equipment and two accesses in T7 line in EAST zone. Second half PS run smoothly.

Tuesday 14:15-15:18 beam stop in the PS for an intervention to repair 10 MHz cavities C91 and C51 successfully.

Wednesday 8:00-10:30 no beam to EAST zone due to access in T7.

15:45-17:00 no beam in PS due to POPS cooling water station went down, CV was informed and solved the problem.

Thursday 7:00-7:45 no beam in PS due to intervention on the PFW control card.

13:30-16:38 No beam in EAST zone due to access into T7.

The rest of the week was calm.

SPS (Yannis Papaphilippou)

After a few consecutive difficult weeks for the SPS operation, the last one was better, with only two major stops. The first one occurred on Tuesday evening, where the firemen accessed BA2 in order to pump out the water, which was still present after last weekend's flood, at the bottom of the elevator shaft, with both lifts being blocked. The beam was stopped for 6h during the intervention. The rest of the area is dry apart from several electrical cupboards, towards the bottom of BA2. The area was accessed again on Thursday morning just before the floating MD, during which EN/EL colleagues inspected the cabinets and the lift technicians put back in functioning the personnel lift but not the material one. This lift has to undergo serious maintenance during the Christmas stop.

The second long stop occurred on Saturday evening, when the beam was cut for an intervention in the dump kicker MKD, which started presenting problems already since the night before. The intervention took around 5h, the time to change the switch and condition it. Some other events worth mentioning:

- We explored the issue on frequent LHC line steering, especially for beam2, which appeared since a few weeks. After removing the satellites requested for ALICE (deliberately produced by the PS, during the bunch rotation), the LHC beam became much cleaner and the problem was partially solved. Investigations are on going to further understand the steering problem, which may indeed be a combination of several effects (SPS orbit, magnetic septum error, transfer line collimator settings, etc.)
- On Monday night, an LHC individual beam with the Q20 optics was extracted to the downstream TEDS in both transfer lines, in preparation for LHC tests and MDs.
- A floating MD took place on Thursday, where BI colleagues tested the matching monitor, and later RF colleagues measured and further optimized the LHC 25ns beams with the Q20 optics.
- The second fault on the 18kV cable was found and repaired on Friday, without stopping the SPS from pulsing. A short stop (30min) is needed to put back in service the corresponding circuit (SMD1).

LHC

Pretty good week: 1.2 fb-1 delivered. 2 fb-1 in 2012 for LHCb.

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