End Week 27 (July 8th 2012) – Status of Accelerators

Statistics

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

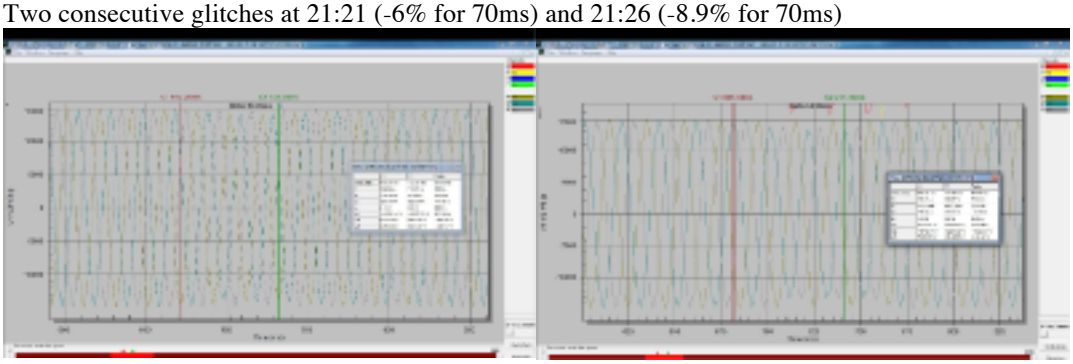
CNGS: https://accstat.web.cern.ch/accstat/statistics/charts/2012/SPS/CNGS_Target_Cumul2012.jpeg

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

TI (Peter Sollander)

Thursday, July 5

- Two consecutive glitches at 21:21 (-6% for 70ms) and 21:26 (-8.9% for 70ms)



Friday, July 6

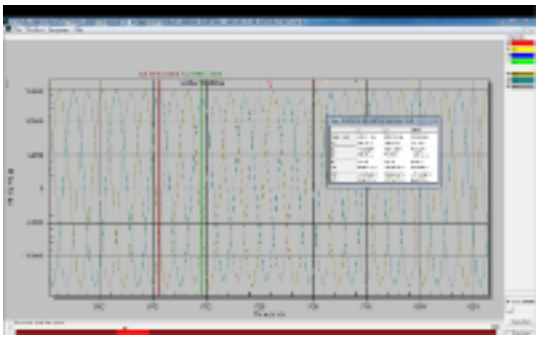
- 16:10 -- Large water leak in US15. The ATLAS sniffer system had a fault requiring access. On site, the piquets found a water leak. Fire brigade, CV and EL in to stop water, clean up and reset.

Saturday, July 7

- 03:36 -- CNGS ventilation alarm. Called Ilias and CV who decide not to enter and wait until Monday with intervention. Finally, CNGS stopped Monday 9 morning 7.30. After discussion with CV it turns out that it is not necessary to stop. CNGS will be restarted and TI will monitor the dew point in the CNGS tunnel.
- 05:35 -- SPS down for computer network problem in BA6. Ti on site could reset switch P873-R-IPZ-SHPYM-5 after validation with the computer centre.

Sunday, July 8

- 05:27 -- LHC beams lost to thunderstorm and electrical glitch, -7.97% for 60ms.



ISOLDE (Didier Voulot)

Not a great week at Isolde. Since Wednesday the RFQ cooler does not hold more than 40 kV and at low energy it is difficult to operate the NMR probes for the field regulation on HRS. With 10% transmission through the RFQ and record low yields for 11Be, the beam intensity was way too low for any meaningful physics. On top of that, a faulty transfo on the BTY line (BTY.BCT325) prevented proton beam delivery to HRS on Friday night. The physics team (IS541) decided to give up on Saturday morning.

The problem on the RFQ cooler should be discussed urgently with the EN/STI specialists and physics as we may have to open the RFQ to fix it. The good news is that the next few runs are on GPS.

LEIR (Django Manglunki)

Not a great week for LEIR

Week 27 was supposed to be the first week with beam.

A reasonably intense beam (up to 22uA) indeed started to be available from Linac3 on Tuesday aftternoon. It was steered through the ITE, ETL and EI transfer lines, down to the entrance of LEIR, but we never managed to get it to circulate: the beam is lost within the first turn.

While trying to find the problem, we encountered numerous controls issues, solved or being solved by the controls piquet and other specialists (non-extensive list):

- wrong GDAC cards and cabling for the electron cooler power supplies (solved)

- exchange of controls between quadrupoles QFN1030 and QDN1030 (solved)

- no more remote reset of trim quad power supplies QDT20, QFT20,

QFT23/24 (new "feature", to be followed-up)

The source tripped during the night between Wednesday and Thursday, and since then, no usable beam was coming out of it. It was decided in common with the Linac3 team to stop the source on Thursday evening , refill it and restart it on Friday. We expect the beam back in LEIR on Monday around noon, in order to restart the commissioning. In the meantime various tests and interventions are taking place (modification of sextupoles temperature interlock switch, tests of alternative solution for CVORB/GDAC cablings...)

AD (Tommy Eriksson)

-Last Monday “parasitic” md to tune RF-parameters in order to try to improve longitudinal emittance of ejected beam. Some success but there is still room for improvement.

-Last Monday evening/night 6h down due to main ring quadrupole supply fault. Fixed by First Line.

-Tuesday ATRAP started for the first time this year, we tested/set-up the beamline to ATRAP zone1 which had not been used for many years. Setting off a few radiation alarms in the process but successful in the end.

-Today PS down since 9:00

The rest of the week was excellent…

BOOSTER (Klaus Hanke)

The Booster had all in all a good week.

Throughout the week we were annoyed by intensity dependent losses on R1 on both ISOLDE users. Ring 1 cannot go beyond 650E10 protons (normally 800-900). The problem is not yet understood, in spite of detailed

investigations by the RF expert. We will have a brainstorming session on Monday morning. ISOLDE had severe problems on their side so they were not really annoyed by this problem, but nevertheless it needs to be understood and fixed.

Other issues to report are a trip of the MPS on Wednesday for 2h, the power piquet was called in who called in the expert, they changed a card.

On Friday there was a 45 min stop for an intervention in the PS.

Starting from Friday there was an issue with a transformer in the ISOLDE line which triggered the watchdog, the expert was called in several times and performed several fixes, none of them could really cure the problem. “Fortunately” ISOLDE did not take beam over the weekend, so they were not affected. However the problem remains unfixed and needs follow up.

PS (Ana Guerrero Ollacarizqueta)

The PS had a pretty smooth week. The beam was down for about two and a half hours as a total during the week, mainly due to one cavity fault (C96), where an intervention in the machine had to be scheduled and also to a front-end fault, dcpsft16. The LHC beams were cut off on Saturday for one and a half hours due to a 40MHz cavity fault and an intervention was needed to switch to the spare. The LHC was not affected.

The problem of radiation increase/decrease without intervention in PAXS35 persists and investigations continue. The radiation increase comes apparently from losses in the CNGS beam extraction but all extraction elements pulse correctly and after a slight decrease of intensity the monitor comes back to usual radiation levels and the intensity can be increased again without repercussion in the radiation level.

The frequent trip of ZT9.BHZ01 affecting the east area has been tracked to a bad interlock connection to a power supply and solved.

It has been agreed that the EASTC beam slot will be used by DIRAC instead while the irradiation facility is stopped in July.

SPS (Edda Gschwendtner, Karel Cornelis)

Monday early morning vacuum piquet had to be called because the vacuum valve at TDC2 closed. However, there was no outflow problem seen and everything seemed to be ok.

The key of the H6B area was not returned by the users of last weeks and could not be found. After contacting these previous users the key could be found in a drawer in the EHN1 barrack.

Monday and Tuesday single bunch beam was sent to HiRadMat.

From Tuesday evening no further beam to North Area: Tuesday afternoon at 16:30 there was again a vacuum problem in TDC2 which did not recover. Beam to North Area was stopped. Due to high radiation levels access was granted for first inspection on Wednesday morning: the vacuum leak is located in the region of the 2nd splitter, either in the splitter, the bellow or the collimator.

On Thursday there was further access to TDC2 to better diagnose the location of the vacuum leak with the help of a robot. The leak was the finally localised on the collimator in front of splitter 2. An attempt to seal the leak with varnish failed on Friday. The leak is too important. On Monday we will decide on the course to take: running in degraded mode, trying a repair with another seal which is more difficult to apply (more radiation dose), or wait for a spare collimator.

During the weekend we had problem with the ventilation in CNGS. Ilias confirmed we could run until Monday morning without intervention. At 7:00 AM this morning CNGS beam was stopped for access, but, later this morning, we decided to carry on without intervention.

LHC

Mixed bag. Set-up Roman pots. Discovered Higgs. Dogged by some availability issues and beam losses in squeeze and going into collisions.

More details:

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