

End Week 25 (June 24th 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)

The weekly summary:

<http://wikis/display/TIOP/2012/06/25/TI+summary,+week+25+2012>

Monday, June 18 09:03 -- Water problem in the North Area cuts physics for about two hours. Piquet intervention to start a spare pump eventually fixed the problem. Two hours lost for Compass

Tuesday, June 19 04:15 -- Electrical trip in UA23. 400V breaker EBD123/25 trips on I0. UA23 UPS go on batteries and send the PIC signal stopping the LHC. Intervention by EN/EL who could only find the breaker tripped. Switched back on without problem. An intervention is foreseen during the technical stop to change the breaker preventively and to have it tested. The problem might well be on the equipment, though.

LINACS (Richard Scrivens)

For Linac2 there was nothing to mention for the past week.

For Linac3, the start-up has been very difficult.

The ECR source failing high voltage plastic insulators (which also transmit the microwave power) has been mostly solved - the microwaves were running at too high repetition rate (the timing renovation had some unforeseen and undesirable consequences).

The RF controls have also stopped working, CO are investigating this.

ISOLDE (Emiliano Piselli)

We have had a very good week at ISOLDE. Nothing to mention, beam to users according to the schedule without any problem.

AD (Betrand Lefort)

This week, we work with modified magnetic cycle in order to eject toward ACE experiment at 500 MeV/c.

ACE users seem to be satisfied. Beam was stable and narrow... They even asked for a lower intensity!!

Globally, It was a good week with no noticeable down-time (few hours due to PS access/problems, and less than two hours due to an intermittently failing power supply)

| FAULTS | | | | | |
|------------|--------------------|------------------------------------|---------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Date | Start/ Duration | Symptom | System | Resolved | Comment |
| 18/06/2012 | 09:15/4:30 | ACE Cycle incorrect | Cycle Editor | YES | Cycle Editor is using a library not compatible with SLC6. Temporary solution found (pointing to an older version of the library). More info: Lajos. |
| 21/06/2012 | 01:11 / 20' | No beam | PS | YES | PS Sequence was omitting AD. CCC tell us that they do not know the ACE control room phone number. The Number is on the AD web page. |
| 22/06/2012 | 12:10 | Scrapper not moving. | Fast Scrapers | YES | Scrapper System not working. Matthieu Donze come at AD, reboot the PLC and recalibrate the scrapper position. now everything is working. |
| 23/06/2012 | 14:30 / 15" | Beam position unstable. | DE.DVT7043 | YES, PARTIALLY | Power supply is going ON/OFF repetitively. power supply reseted! |
| 23/06/2012 | 18:50 / 1:50" | Beam position out of the detector. | DE.DVT7043 | YES. | FL change the 5V power supply of the DE.DVT7043. The DVT is on again. ACE confirmed that the beam is back and centered. |

Booster (Giovanni Rumolo)

The PSB had a good week with no major issues.

In the night between Friday and Saturday high losses triggered the ISOLDE watchdog and cut the beam a few times. This was found to be due to the fact that the kickers were fired sometimes in the middle of the passing bunch because of jittering RF references (only for beams with destination ISOLDE). The LLRF piquet suspected some loose connection in the RF ejection distribution area. In fact, the problem disappeared while he was checking these cables. He couldn't ultimately find where the bad connection was, but the issue will be followed up on Monday.

Saturday night a problem with the RP control system caused about 1h downtime for all beams.

The beams for the LHC MDs were provided all the week with the required characteristics and also the low emittance 50ns beam was sent to the PS/SPS.

PS (Simone Gilardoni)

The PS had a good week, with only one fault that required an access. The 10 MHz cavity in SS51 was in fault on Monday morning. An access was done on Monday and a second on Tuesday to fix it. Unfortunately the fault could not be repaired but the pre-drive had to be brought to the laboratory for fixing. To avoid a third access, it was decided to postpone the final intervention to the forthcoming technical stop.

In meantime, the spare cavity 11 run without any problem.

All the operational and MD beams were delivered as requested.

The slow extraction suffered from few trips of the magnetic septum 57, probably due to the large number of EAST cycles in the supercycle now that we have all the EAST users plus DIRAC with the long extraction flat top. A follow-up with the experts will be done during this week. The DIRAC beam was delivered from Monday night and the optimization continued until Friday.

The CNGS beam still causes few radiation alarms, due to the fluctuation of the extraction losses and the fluctuation of the extraction trajectories, with net reduction of the SPS injection efficiencies. A part of the

fluctuation/losses was due to the bad functioning of the electrostatic septum 31 power converter. The spare is currently in use.

The investigations to understand the fluctuations are still ongoing.

We suffered also from three short stops of the order of one-two hours, one on Tuesday due to a faulty timing controlling TT2, one on Wednesday due to a faulty communication rack of the vacuum system, one on Saturday due to a problem with a small power converter of RAMSES.

SPS (Karel Cornelis)

The SPS has been running very well during the past week. The main problems to report came from the North area. Problems with a collimator in H8 caused a 10 hours stop on Monday of the Fixed Target beam, while the collimator was repaired. On Tuesday we had problems with the movement an XTVD in H4. The element was temporary inactivated, by re-configuring the access chain, until it was repaired on Wednesday.

During most of the week, the SPS has been sending different beams for the LHC MD. Some special beams to mention are: 50nsec beam with 1.65×10^{11} per bunch (only 36 bunches), single bunches of 2.5×10^{11} protons in $1.7 \mu\text{m}$ emittance and, we had also protons injected in the LHC with the $Q=20$ optics.

On Thursday the SPS tested a new type of 50 nsec beam, 32 bunches, obtained by a new 'batch compression' technique in the PS. For 1.2×10^{11} protons per bunch, we obtained $1 \mu\text{m}$ emittance at the SPS flat top.

On Friday, we sent beam to a new experiment in HiRadmat. The shots were limited to probe intensities, but, during a next session the experiment will take very intense bunch trains.

LHC

Closed books at the end of the first running period on Monday 18 June with: 6.6 fb^{-1} delivered to ATLAS; 6.8 fb^{-1} delivered to CMS; 0.65 fb^{-1} delivered to LHCb; and a little over 1 pb^{-1} delivered to ALICE.

The rest of the week was spent in MD which progressed very with very good availability.

More details:

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