End Week 21 (May 30th 2010) – Status of Accelerators

TI (Peter Sollander)

Tuesday 25 May: False oxygen deficiency alarms in the LHC tunnel when the lights are switched off and then on again in sector 67. This was unknown to the safety people and will be looked into during the technical stop.

Wednesday 26 May:

05:36, fuse blown on power supply(?) in LHC point 8 requires an access by TE-EPC.

21:47, Electrical perturbation stops the LHC. No problem for Cryo, but beams are lost.

Thursday 27 May: Thunderstorms bring down first the SPS at 7:58, then LHC and ALICE and LHCb magnets at 08:50. Weather forecast says thunderstorms will last throughout the morning and it is decided not to restart the machines until noon.

Friday 28 May: Late evening, 23:20, EMD404/E9 fails and takes out North zone, SPS, injectors and all LHC cryogenics except point 6. Autotransfer kicks in and power is restored quickly. Restart work through the night.

Saturday 29 May: Recovering from the power cut Friday night. No additional problems.

Sunday 30 May: No major problems to report

PS (Alexej Grudiev)

Smooth running during the whole week except for the two major MPS fault related to the power glitches.

EASTB and EASTC beams have been further optimized on the request of the users also using their equipments for beam quality control.

Day by day:

Tuesday: SMH57 intermittent tripping from 11:00 to 12:00 was solved by PIPO who changed the analog acquisition card for SMH57. (1 hour of practically no beam for the EAST zone)

Thursday: 9:00-13:00 (4 hours no beam in the PS) Power glitch caused interlock on MPS -> Voltage source problem. PIPO solved the problem by exchanging burned auxiliary power supply.

Friday-Saturday 23:22 POWER GLITCH!!! PSB MPS grounded. PR.MPS: VS_INTEXTLOCK. PIPO called. Another non resettable fault is on the BFA9/21 pedestal. And no cooling water in the EAST hall. All problems were solved by the PIPO or relevant experts and finally, MPS started to pulse and all beams were back at 15:53. (16.5 hours no beam in the PS)

AD (Tommy Eriksson)

A much more interesting week than previous.....

Machine running with good performance except:

- ADS called in Tue at 05:00 for C10 RF-problem, had to call eq. specialist for repair.

- Wed morning:got help from RF-group to repair the ASACUSA RFQD.

- ADS called in during Wednesday evening to restart various equipments with the help of FL.

- Some downtime Thursday morning due to PS.

- Malfunctioning of part of the stoch.cooling pickup movement system meant 25% less intensity Thu to Friday afternoon.

- Power glitch on Friday at midnight: all AD down. Manual re-start by ADS of many systems including the e-cooler cathode lasted all night (ADS present).Target area interlock due to target water cooling system failure. Specialist came in on Saturday evening and worked all night (with ADS and me) then had to call in help - problems solved Sunday pm. Long repair due to malfunctioning of the water temperature regulation system + a broken relay for same system.

-Beam back Sunday pm

SPS (Karel Cornelis)

SPS has been running smooth during last week until the power cut on Friday night. An attempt was made to improve the ripple on the MSE4 on Tuesday while the PS was off. The situation improved a little bit but we kept on having interlocks on CNGS extractions. On Wednesday the north area was perturbed for couple of hours due to problems with bend 3 of the T2 wobbling which was giving the wrong current.

On Friday evening, at 23:20, a short circuit on a cable going to a north area transformer, provoked a general power cut affecting all machines. All vacuum pumps, cooling water and power supplies went down together with a lot of computers and equipment controls. Piquets and specialists were called in to restart the different systems and it was soon realized that the power cut caused some collateral damage : a water leak in LSS1, LSS6 and on the SMQS power supply, probably due to brutal switching off/on, but also the main compensator was damaged. We also suffered from problems with the access system controls, perturbing the interventions. By Saturday afternoon the water leaks were repaired and most essential systems were back on, except for the compensator which took until Saturday evening around 19:30 to be ready. There were still some computer and controls problems, mainly due to jumpers on local 220V feeders being off, and by 22:30 the interlocks were ok to send beam to CNGS. The north area took longer to get on. There were problems with the access system. The TAX movement was blocked because the access chain was broken but access condition for patrolling could not be established because the TAX could not be moved in the right position. This and other problems in the north area were due to PLC's being upset by the power cut. After several iterations, the PLC's in the north area were OK and the beam could be send to the targets at around 1.00 in the morning. Unfortunately, the SPS suffered from another 1 hour's stop during the night due to a problem with the QD power supply.

The SPS was stopped for fixed target and CNGS physics on Sunday at 9 a.m. and continued to work with LHC beam until 5 a.m. this morning.

Booster (Bettina Mikulec)

The PSB was running will last week except for the problem with the 18 kV cell Friday night.

On Friday a problem showed up with the supercycle change: after each change, the second SFTPRO is lost in the ring during the first supercycle. This issue has to wait for the return of the CO specialists today.

A dipole (BTY.DVT212) in the PSB to ISOLDE transfer line dropped out almost 10 times last week - the specialist will follow this up.

After the fire of the 18 kV cell on Friday night, the Booster compensator failed. It took ~6h20 to restart it as the ST/EL piquet was busy with the LHC (question: was this justified as normally the piquet should restart the machines most upstream first???). In parallel, the machine was brought back to its operational state, requiring some power piquet interventions. After this, beam was back, but only in ring 3. Ring 1 required additional piquet PO intervention for the injection septum, and the high-level RF specialist solved a low-level RF problem (reset of 2 NIM crates) to bring back into operation the C02 and C04 cavities for rings 2 and 4. This took an additional ~2h.

At 5am this morning all beams were stopped to prepare the technical stop.

BEAMS:

- Last week ISOLDE took for the first time this year a staggered beam on their target.

- The parasitic TOF beam (on the EASTC user) and the nominal TOF beam have been optimised.

AOB:

Investigations continued on the wire scanner measurements as some inconsistencies have been found with different wire speeds on certain rings.

LHC – full details under coordination at:

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