

End Week 39 (September 30th 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>

BOOSTER@40 (Alan Findlay)

In the week we celebrated 40 years of our dearest of all PSBs, the old girl remained on excellent form with nothing more than a few minor issues to remind us not to forget her.

The foreseen intervention by SIG on Tuesday afternoon had us cut the beam shortly before 16H00, and beam was back to all users just after 19H00, after some concerns with the Meyrin filters slowed down the re-start.

On Friday morning a PSB lift intervention was requested by David Hay, as the lift needed to be taken down to level -3 to reset the interlock that was blocking it. The safety people threatened to stop the work being carried out for the installation of the new PSB access door if this was not done before the following Monday. The beam had to be cut to let the lift go down, and then a quick patrol was done before it was closed up again. The beam was cut at 09H00, the intervention finished by 09H20, but the beam stopper LT.STP refused to open, hence the specialist was required to intervene. All beams were back by 10H25 after their intervention to adjust the "end switch" for this stopper.

Late on Friday evening the R4 beam was seen to be destroyed for most users on the extraction flat top, and after a quick chat we decided this was probably due to a low level problem, so the PiLLRF was called in to take a look. Fredi found a dirty potentiometer in the synchro loop that he cleaned up and that brought the beam back in order after an hour.

In other PSB news this week, work continued with the 160MeV flat cycle by a number of users, the Digital Beam Control work continued with a 100ns H2+1 H9 type user for synchro studies, then we finished the first setup of LHC_Nom_EI_H9_A for the PS. The latter was a request to supply the maximum intensity we could with $E_h+E_v=2$ and $E_l=0.9\text{eVs}$ (was 0.7-0.8eVs up until now), and we managed $75\text{E}10$ with only a question mark remaining for the R2 E_h which seems to be 20% larger than the others. This will be investigated next week to see if its real or a measurement error.

So I think we can say that we're doing our bit to keep the old girl in the rudest of health while she is in our care.

LINAC2 (Richard Scrivens)

Very calm week for Linac2 this week

ISOLDE (Pascal Fernier)

GPS : target #491 SnHp - run @30kV for GLM/GHM lignes - run Cadmium for Solid State Physic studies.

Beam setting-up, proton scan and yield check - Few problems to focus the beam into the detector but everything went fine on Thursday and experiment could start.

Problems : target heating stopped again during the Thursday night.

HRS : target #490 for LA1 lign and Isoltrap - run @50kV

Experiments are still taking the beam and they are quite happy with beam intensity - Run will continue this week.

Problems : beam lost due to Faraday cup 490 broken in the separator zone --> we changed it on Thursday - Then vacuum stopped Thursday evening and restarted; beam was available Thursday 22H30. Water leak in the Rex RF room and in the entrance - these problems are increasing with HIE building construction.

AD (Lars Joergensen)

The AD had another really good week and only lost 4 hours Friday due to a septum power supply problem plus a couple of minor problems that resulted in almost no lost beam

FAULTS					
Date	Start/Duration	Symptom	System	Resolved	Comment
25/09/2012	18:35/20"	E-cooler HV not coming back on after power cut	E-cooler HV	YES	Manual reset
26/09/2012	23.04/40"	Problems switching destination	Switching program	YES	
28/09/2012	11.43/4H17"	No beam to experiment	Septum magnet power supply	YES	Complete manual reset of the system

Machine Tuning and General Comments			
Date	Start/Duration	Sub-system	Comment
24/09/2012	Morning	Target	Pbar yield vs. target z-position
24/09/2012	Afternoon	E-cooler	Bunched beam cooling tests at 100 MeV/c
24/09/2012	Afternoon	INCA tests	Test failed – system not ready yet

PS (Alexej Grudiev)

First half of the week there were number of downtimes related to failures of different equipment. Second half PS run smoothly.

Monday 20:30-21:10 POPS down, PIPO was called and had to come to fix it.

Tuesday 15:45-19:00 no beam due to intervention on SIG.

Wednesday PICO was called to solve the problem of the bump 16-12 sporadically pulsing with the values from different cycles. It took some time before the problem has been fixed in the afternoon. Each bad pulsing means that the beam is lost at extraction.

At 8:00 EAST beams were stopped for radiation cool down before the intervention to fix the water leak on the Magnets ZT10.BHZ01 & ZT11.BHZ01 in the north branch of the EAST zone. The intervention took place till 16:30, when the water leak was fixed.

Thursday 20:35-23:00 Problem with the cavity 40-77 which was tripping before ejection. Specialist was called and fixed the cavity.

The rest of the week was calm.

SPS (Yannis Papaphilippou)

The SPS had a good week with most important highlights the operational deployment of Q20 optics for the LHC 50ns beam, the MD with the same optics for LHC 25ns beam and delivering beam to the HIRADMAT experiment.

The week started with the final setting up of the beam transfer from the SPS Q20 optics to the LHC, during Monday. Since then, the SPS has been delivering steadily beam with these optics during LHC setting up, intensity ramp-up and physics. The latest fill (3114) achieved an excellent peak luminosity performance (above 7e33) with injected bunch intensities lower than before the technical stop (slightly below 1.5e11ppb).

On Tuesday, last weekend's problem, on the function generator of the injection septum of LHC point 8, was solved by the EPC expert. In the afternoon, after the recommendation of the TI crew, the beam was cut for 3.5h during the SIG electrical intervention.

During Wednesday morning, a 10h floating MD took place, for the setting up of a 25ns beam with the Q20 optics. Although a significant amount of time was lost due to frequent LHC fills, the beam is in good shape (1.2e11ppb with emittances below nominal). Some further time for longitudinal optimization is needed. During the evening, one of the CNGS line dipoles (RBI.410010) was on fault and the PIPO solved the problem by changing a card in the power convertor (~2h without CNGS beam).

Beam to HIRADMAT was delivered during Thursday and Friday.

The weekend was quiet apart from a fault in a TI2 bending (RBIH.29314) on Saturday night. The PIPO was called but suggested that this seemed like an EIS interlock, which was finally fixed by the piquet access (faulty contact in the LHC access loop).

TI (Jesper Nielsen)

Summary of the week:

<http://wikis/display/TIOP/2012/09/24/TI+summary%2C+week+39+2012>

Tuesday, 25 September

- Intervention on the SIG transformer started at 17:06. The filters in LHC2,4 and 6 as well as Meyrin tripped. ATLAS Toroid magnet also tripped and requires 7 hours down time. Cryo in P2 tripped when the filters were restarted at 17:47.
- GSM problems site-wide. Calling GSM's close to impossible. It turned out to be a general problem with Sunrise. See [minor event](#)

Saturday, 29 September

UPS breakdown in US85. Alarms at 7h30, piquet called in, APC contacted. After first repair (Changed capacitors) it was discovered that a circuit breaker for the batteries also needed changing. It was taken from the spare in BA7. Back in service at 16h30. See [Major Event](#)

LHC

Very rocky week – main issue: conditioning of new MKI in point 8.

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