

## End Week 32 (August 12th 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](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 rather short TI summary is in the usual

place: <http://wikis/display/TIOP/2012/08/06/TI+summary%2C+week+32+2012>

Day	Event
Thursday, August 9th	<ul style="list-style-type: none"><li>11:55 -- Trip of two switches in the CCR Star point causes a dump of the beams and a loss of part of the technical network. About one hour lost for PSB, PS and LHC. See <a href="#">Major Event</a>.</li></ul>
Friday, August 10th	<ul style="list-style-type: none"><li>Stop of CMS due to problem with cooling towers and increase in primary water temperature. Still being investigated. See <a href="#">Major Event</a>.</li></ul>

### LINAC2 (Giulia Bellodi)

Linac2 had another quiet week of smooth operation.

Half an hour beam time was lost on Saturday afternoon due to a fault on LA1.QFN44S and PIPO intervention to replace a power supply module.

### ISOLDE (Miguel Luis Lozano Benito)

It has been a good week at Isolde. All experiments got beam according to schedule.

Only some vacuum problems at sector GPS20 (separator magnet) due to some damages to the laser window created by the lasers.

Alara3 procedure has been launched in order to replace this damaged window. Intervention will take place next week as soon as there is a slot and the cooling time is defined by RP.

Many thanks to the Vacuum and RP group for the fast intervention.

### LEIR (Django Manglunki)

The Linac3 beam was back in on Tuesday morning after the source had been refilled, and in the middle of the afternoon LEIR was again delivering beam after all the equipments which had tripped over the week-end were restarted with the help of TE/EPC and BE/CO piquets.

The week was spent trying to recover the intensity on the NOMINAL beam (currently 3.5E10 or 70% of 2011 performance), while delivering the EARLY beam to the PS. On Thursday the EARLY beam was eventually delivered to the SPS.

The new frontend for the tune measurement is now operational.

There is currently a problem with the standalone scrubbing sequence, tested for the first time this year on Thursday evening. It was not possible to investigate further during Friday as it is obviously incompatible with the delivery of beam to users.

## AD (Bertrand Lefort)

This week we have lost 15 hours due to a failing power supply in the ejection line: The power supply power stage was going on and off continuously, and it was impossible to detect using only the software.

FAULTS					
Date	Start/Duration	Symptom	System	Resolved	Comment
08/08/2012	11:00/1H26	Electron cooler solenoid does not start	EC / water interlock	YES	Water leak. We also detected that BBC1 and BBC2 interlocks system are switched.
08/08/2012	12:40/30'	No injection	Power supply not starting	YES	Those 2 power supplies were badly declared (no-ppm instead of ppm). with this setting, they were only able to receive OFF command... not ON.
08/08/2012	20:00/3H30	Beam is moving horizontally	Unknown	NO.	I changed the kicker timing and the problem seems to solve.. but I was wrong..
09/08/2012	15:00/6H45	Beam is moving horizontally	Unknown	NO.	The beam was moving horizontally even with all the ejection magnets turned OFF. The problem SEEMS to disappear after switching to ASACUSA experiment...
10/08/2012	9:00/5H40	Beam is moving horizontally	DEO.DHZ35	YES	Finally we found that a power stage of a power supply was going OFF and ON continuously. The failure was intermittent and not reflected in the working-set.
12/08/2012	14:59:1H31	No injection	193-RPOW1	YES	Front end computer plug fuse was blown.

Machine Tuning & General Comments			
Date	Start/Duration	Sub-System	Comment
08/08/2012	10:00/2H45	AD	OP7 Exceptional. Objective debugging a failing XGEM.
09/08/2012	10:00/2H00	AD	OP7 Exceptional. Electron cooler water ion filter replacement. Vacuum group checked experimental areas and proceed to some sublimation process nearby the septum.

## BOOSTER (Klaus Hanke)

Eventful week.

After the successful optimisation of the injection matching on the LHC 50 ns user, the settings were propagated to all other PSB users.

Trip of the vertical distribution septum on Tuesday, required piquet intervention (26' down).

Wednesday early morning faulty transformer measurements started, they triggered the watchdog (which assumed beam loss) and perturbed operations. There was a suspicion that this was correlated with a faulty B-train measurement. The specialist investigated and fixed the problem permanently on Thursday.

Also on Thursday there was an intervention on door D31 in the shadow of an SPS/PS stop. Furthermore there was a temporary loss of TIM.

A small problem with the multipole power converters was corrected (one user had a different polarity); this was corrected but illustrated the necessity to renovate the multipole power converters.

Friday Diamond was instable, the CO piquet found out that a test program was messing up things, stopping this cured the problem.

Saturday there was a ~30' stop due to the MPS, the Power piquet fixed the problem. Also on Saturday a problem with the stray field compensator was fixed.

Around noon the real problem started with the recombination kickers (timing error). The problems came and disappeared by themselves throughout the afternoon. All reboots ect done by the OP team did not permanently fix the problem. Eventually the CO piquet was called, later the kicker specialist. The problem was not understood but we managed to run through the weekend, to be followed. In parallel to this there was a problem with a Linac2 quadrupole power supply as well as with the distributor, both fixed.

Monday morning timing jitter problems re-appeared, the CO piquet intervened and confirmed that the problem is at the level of their equipment (not the kicker itself). A number of things were replaced and they managed to reduce the amplitude of the jitter such that we can deliver some beam. Investigations continue and an intervention is to be scheduled to fix this problem permanently before we can deliver all beams up to specs (there is a risk to make a hole in the vacuum chamber if high intensity bunches are badly kicked).

## PS (Gabriel Metral)

Environ 5H30 d'arrêt faisceaux du a des problèmes cavité RF cette semaine.

Les experts BI ont profité de l'arrêt SPS pour changer les filtres des OTR de TT2

Toujours quelques soucis avec la mesure des faisceaux MD MTE (faible intensité envoyées dans 1 ilots).

Problème avec le système d'accès pendant l'arrêt de Jeudi, des personnes se retrouvent bloquées dans TT2. Une sortie type 'Blind acces' doit être faite pour libérer nos collègues.

Enormément de perte faisceaux dans le transfert PSB PS. Les timings des kickers de recombinaison ne sont pas stables

## SPS (Karel Cornelis)

We had a very eventful week in the SPS. On Tuesday a new vacuum leak developed in the splitter region of TT20. Leak detection took place during the 24h MD on Wednesday and the leak was located on the bellows in front of the collimator, between the two splitter magnets. An ALARA meeting on Thursday decided to proceed with the replacement of the bellows, which will take place this week.

On Thursday, the SPS was stopped for a couple of hours for a fault detection on a 18kV cable. At the same time we also suffered from a computer network problem, due to some power failures in the CCC computer room.

On Friday the CMS solenoid went down and it was decided to suspend LHC physics for a couple of days. Since the north area was still out of business, we took the opportunity to repair the vertical wire scanner in 4.16. The intervention started on Friday at 10:30 and at about 01:00 on Saturday morning the beam was back for CNGS and studies in the LHC.

Part of the MD on Wednesday consisted in preparing the Q20 cycle for LHC injection. During the weekend, profiting from the CMS down time, beam could be injected in the LHC with the Q20 cycle.

This week we had also a collimator experiment in HiradMat. Beam was taken on Tuesday, between LHC fills and the experiment could be concluded on Sunday.

Last week we also started with the Pb-ion commissioning in the SPS. In spite of the many perturbations, we managed to obtain circulating beam in the SPS. The acceleration still needs commissioning.

## LHC

Hectic week – stability investigations; octupole polarity flip; lost CMS solenoid Friday; operational development over the weekend. More details:

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