End Week 42 (October 23rd 2011) – Status of Accelerators

TI (Peter Sollander)

The major event, " Perturbation électrique durant les manoeuvres EDF - SIG "inserted on the 21-OCT-11 has been completed by the main group concerned. This event is now ready for the TIOC approval.

Short description of the event:

LE 21/10/11 à 17h40 les manoeuvres de réalimentation d'un transformateur à Verbois par EDF / SIG perturbent le PSB, PS et LHC

LINAC2 (Giulia Bellodi)

Linac2 had a particularly quiet week: there are no machine issues to be brought up.

ISOLDE (Miguel Luis Lozano Benito)

Very good week at ISOLDE without remarkable problems .Everything according to the schedule.

Protons for GPS and HRS during the week.

GPS.

Target 463 Pb-Hp .Stag-Iso beam (many thanks to booster) .Beam to GLM and GHM.

HRS

Stable beam for tuning REX and beam to miniball (72Zn) from Thursday night until Sunday night.

Very stable run.

Only 1 call from users on Saturday afternoon because they had some problems to steer the beam into the experiment.

LEIR (Christian Carli)

LEIR has been running again smoothly with good performance. The injection efficiency and accumulation rates are surprisingly high (with the available Linac3 beam current). Likely reasons are an exchange of the Linac3 stripper foil (from empirical observations, we know that this may have a direct impact on injection efficiency) and better life-time (may-be, contrary to my expectations, an effect from scrubbing).

With an injection every 200ms (highest possible injection repetition rate) we still loose a bit from the stack prior to injections. We have still not yet managed to do further tests with a higher cooler electron current aiming at reducing this loss.

AD (Bertrand Lefort)

This a "not so bad" week for AD. We had few glitches due to a failing timing interface that makes us lost less than 4 hours (< 2%). We also tuned the injection line to improve overall quality.

FAULTS					
Date	**Start/ Duration**	**Symptom**	**System**	**Resolved**	**Comment**
17/10/2011	14:50/36'	Beam in the injection line but no beam in the ring.	DI.BHZ6034/ 35	YES but not explained	Using OASIS, it was easy to detect that the DI.BHZ6034 was not responsive. The remote reset was not effective. I went to Building 370 to check the power supply. No fault was reported on the display but the associated timing unit seems to be OFF. I perform a hard reset on the power supply and everything went to normal...
22/10/2011	13:30/45'	Beam in the injection line but no beam in the ring.	DI.BHZ6034	YES but not explained	Called by CCC, same symptom than the previous fault, same solution applied, same result...
22/10/2011	14:30/45'	Beam in the injection line but no beam in the ring.	DI.BHZ6034	YES, partially	One hour later, the same power supply failed again. I started to do some workaround and found a bad contact in the timing unit. I solved the problem with a "gentle tap". I called the CCC and informed that this solution is temporary and if it fails again first line must be called to change the timing module.
22/10/2011	15:22/53'	Beam in the injection line but no beam in the ring.	DI.BHZ6034	YES.	As foreseen the "gentle tap" was not enough. First lime came and changed the timing board and everything went back to normality.

Machine Tuning & General Comments			
Date	**Start/ Duration**	**Sub-System**	**Comment**
19/10/2011 and 20/10/2011	14:50/8h	**TUNING** INJECTION LINE: FTA.DHZ9047 FTA.BVT9045 FTA.QFO9052	**Low intensity detected in the first flat top.** Intensity at the end of the first flat top is fluctuating and below 3.5e7. I decide to check the injection line (as far as a rookie can...) • Centering the beam on the target. Using FTA.DHZ9047 & FTA.BVT9045 I centered the beam not using the gaussian interpolation provides by the BTV that is skewed by the dead-area in the center of the BTV but using the barycenter of the point spread function. ➡ The mean intensity at 3.5 GeV/c is now above 3.5e7 • Increasing focalization before the target. The QFO9052 was way under its CCV and fluctuating . I called FL, they tuned the PID. the AQN is now equal to the CCV and the output current is now more stable. ➡The overall AD stability and efficiency seems to be better than the past week. We even make some ejection at 3e7 on TFA7949
20/10/2011	N/A	**CONTROL** BUG/FAILURE	**Some strange signals detected on OASIS.** Some problematic inputs has been found in the oasis acquisition system: It seems that a dead channel is used by the OASIS multiplexer. ➡ I sent an email to the OASIS piquet.

Booster (Alan Findaly)

A good week for the PSB, as we kept churning out those protons with only 3 hours downtime due to one of the Meyrin 18kV Compensator Filters getting damaged around 17H30 on Friday. We were told we were not allowed to run with a single filter, so all beams were stopped while the specialists worked their magic. The green light was given again around 20H40 and all beam were back in production.

The rest of the week was spent with setting up new beams and trying to keep established beams in spec. The much discussed high intensity(120E10 total), 4 ring LHCINDIV type beam for CNGS was ready on Thursday afternoon, and was passed from PSB to PS to SPS without any hitches. They, naturally, asked for more intensity than agreed as soon as they had the beam, but the known limit of 160E11 in the PS curtailed their fun, and we continue with this value.

PS (Gabriel Metral)

Semaine sans problème majeur.

le cyclage de démagnétisation du bending du bout de TT2 ne marchait plus. La trajectoire des ions dans TT10 a été perturbée jusqu'à la réparation de cet équipement.

Une modification va être faite par le CO sur le control des Gfas qui servent a piloter les alimentations de la transition. Des cycles MDs nécessitent qu'on puisse passer la transition après C700 sur 1 cycle de 1BP (ce qui n'est pas possible actuellement)

Vendredi, les machines du complexe PS ont du être arrêtées pendant 3H a la demande du service electrique (suite a un glitch sur le secteur qui a endommagé un compensateur)

A la demande de CNGS, le faisceau type LHCINDIV avec 4 bunchs haute intensité a été préparé et est envoyé au SPS depuis la fin de la semaine.

Lundi

Le redresseur des QD low energie 55-100 declenche plusieurs fois

Mardi

Les pompes ioniques du secteur 80 affichent un mauvais vide. Apres vérification par le piquet vide, les jauges montrent que le vide est correct, les pompes du secteur commencent a fatiguer. Une intervention est prévue lors du prochain arrêt technique.

Depuis quelques jours, un SCAN du bending F16.BHZ377 devait être fait régulièrement pour que les ions soient correctement centrés dans TT10. Le cyclage pour la démagnétisation de cet équipement ne fonctionnait plus. Apres intervention du spécialiste et changement de cartes électroniques, cet équipement fonctionne a nouveau correctement.

Plaintes des utilisateurs du User MD2 qui sont oblige de sélectionner le Bucket 8 du programme PS_Orbit pour régler leur injection. Apres verification, on voit que le bunch booster arrive réellement dans le bucket 8. Un réglage du délai (pix.ssync-fd) doit être fait pour recaler les trains rf distribués pour la synchro PSB et la phase du bunch est réajustée cote Booster.

Le timing utilise par la tache RT pour piloter les GFAs de la transition a été mal choisi. De ce fait, il est impossible de passer la transition apres C700 sur un cycle de 1.2s. Un changement de cet interrupt est prevu prochainement (px.elft). Le DSC sera reconstruit et redémarrer.

Mercredi

Quelques problemes avec les cavites 10Mhz. (76, 81 &96)

Beaucoup de faisceaux sont coupes par BLMs. Les pertes ont lieus pendant le process d'injection. La correction n'est pas possible cote PS, les trajectoires des anneaux Booster sont differentes (AD, CNGS, SFTPRO,..)

Jeudi

Reglage du ripple de la MPS par les specialistes. Le spill des faisceaux EAST était de mauvaise qualite. OK apres ce reglage.

Une nouvelle version du VistarPS est testée (pour garantir un cohérence des données)

Un premier test est fait pour extraire vers le SPS un faisceau LHCindiv avec 4 bunchs (pour les besoins de CNGS)

Vendredi

Intervention nécessaire des spécialistes pour que les mesures de trajectoire du PS fonctionne a nouveau. Aucune donnée n'était remontée sur aucun User.

Le faisceau type LHCINDIV pour CNGS est installe sur le User MD8.

Plusieurs reset nécessaires sur la cavité 200Mhz C204.

3H d'arrêt faisceaux suite a un glitch EDF. Arrêt des machines a la demande de l'équipe TI

Dimanche

Oasis : Probleme de connection du signal du QKE16. (ok au 2^{em} essais)

SPS (Django Manglunki)

From Monday onwards, the LHC-type beam for CNGS time of flight measurements has been setup on CNGS2 with 4 bunches of 2.5E11 protons/bunch, 500ns spacing. It was first extracted on Wednesday afternoon and is now used in operation since Friday.

On Wednesday morning, the machine was stopped for 2 hours on TE/EPC request in order to replace some thyristors on the sextupoles power supplies. Works on RF low level, and on the North Area access system took place in the shadow of this intervention.

Wednesday night a problem on the horn power supply necessitated the intervention of the piquet and the TE/EPC specialist.

On Thursday at 22:45 a general emergency stop tripped the power in BA4.

TI managed to restore power to BA4 by midnight so fixed target an LHC beams could be resumed. CNGS however was down for 14 hours as the reset of the AUG needed an access.

On Friday evening at 18:00 a glitch caused 3 hours without beam On Saturday afternoon, after increasing the bunch intensity to 1.5E11, the incoming bunch length from the PS seemed to have increased, creating lots of BQM missed shots.

As the intensity increase also triggeded some ZS sparking, it was decided to turn off the fixed target beams during LHC fillings.

On the ions front, the intensity of the "nominal" beam (4 bunch, 100ns spacing) was reached early this week, after a change of the stripper foil at the exit of the Linac improved the injection efficiency into LEIR. This beam has been taken from Monday through Wednesday on the short LHCION2 cycle where intensities above design are reached at the flat top. The same beam will be tried for the first time on the long flat bottom (LHCION1) during this coming floating MD on Wednesday 26/10.

LHC

Long week. Good running with peak luminosity up to 3.6e33 $cm^{-2}s^{-1}$ with 1.4 – 1.45 e11 ppb sandwiched around a 3-4 days special running period for TOTEM/ALFA and Van der Meer scans.

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