

## Accelerator complex status

End week 41 (11<sup>th</sup> October 2009)

Week totally dominated by PS injection septum change – no beam to PS from Friday 2<sup>nd</sup> October to the evening of Sunday 11<sup>th</sup>.

Beam to Isolde when possible during the week.

Good re-start of PS Sunday evening, SPS running with lower intensities overnight Sunday to Monday.

### PS (Alexej Grudiev)

Several interventions took place from Monday till Sunday in the PS:

- Injection septum SMH42 replacement and bake-out
- Bus-bar of MU23 replacement and audio and visual control in the ring with pulsing MPS and PFWs.
- Sextupole for slow extraction XDE in SS7 replacement and interlock check.
- Fast wire scanner FWS64 replacement.
- C80-08 cavity tuner replacement.

Sunday after SMH42 become operational at 16:23 setting up of different users started. Vacuum is good  $\sim 1e-8$  mbar.

Several problems were solved during restarting PS:

1. By PIPO: power supply of F16.BHZ117 (thyristor card has been changed) and F16.BVT173 (thermostat problem) were fixed.
2. Injection kicker specialist had to come in to fix the injection kicker KFA45 (problem with application, we could not select kicker modules to pulse).
3. PICO had to come in and exchange fine-delay card in order to fix the problem of generating T-FID timing for extraction to SPS and AD.

After these problems have been solved all users for physics were made operational after some adjustments:

18:30 EASTA and B were ready for users.

19:30 All other users (SFTPRO, CNGS and AD) were ready for SPS and AD, respectively.

### ISOLDE (Pascal Fernier)

HRS : target #413 U<sub>c</sub>2C - run @60kV - beam for IS467 (Louvain) run correct pour les physiciens, Isolde a fonctionne correctement; les coupures de protons n'ont pas permises d'effectuer toutes les mesures souhaitees.

Problemes: changement de la bouteille de gaz He sur le RFQ dimanche @21H00, puis retour du faisceau quelques claquages de la Haute Tension.

GPS: machine en preparation cette semaine.

- target change jeudi 08/10 (target #414 surface Ta)
- setting-up du faisceau stable ( run @ 30kV pour Rex)
- previsions pour lundi : des que HRS a libere la ligne CAO --> MD avec la nouvelle tape-station, puis protons scan et mise a disposition du faisceau pour Rex trap.

## SPS (Elias Metral)

The SPS was stopped during the whole week (until yesterday 11/10/09 evening) due to the PS injection septum (PI.SMH42) failure on 02/10/09 (at ~ 23:05). We took advantage of this long stop by making several interventions in the SPS: (1) the dipole MBA23230 was changed; (2) the quadrupole QD13510 was repaired in situ; and (3) the pumping port close to the magnet MBB51530 was replaced by a carbon-coated one (for ecloud studies).

Furthermore, we also took the opportunity to perform a magnet patrol, during which a problem was revealed on the dipole MBB20270 (broken tie-plates), which was finally also changed. Known issues with end shims were followed-up as well.

On Friday the SPS was ready for the beam but the MPS was switched off for full economy.

On Sunday, all the conditions to inject beams were checked and the SPS was ready to take beam at the beginning of the afternoon. The beams were available from the PS at ~18:45. We started first to work on CNGS and had to modify the injection B field (which modifies in fact the injection frequency) from 628.1 to 628.4.

Then, abnormal losses were observed in the extraction line, which were finally traced back (thanks to Jorg) to wrong settings on the extraction kicker MKE4 (in particular the kick strength was 30 kV instead of 50 kV).

Afterwards, CNGS beam was fine and the PS steadily increased the intensity during the night. The intensity was ~ 3.6E13 p/p at 01:00. On the SFTLONG side, it was first not possible to make trims to modify the sharing at the splitters. Once this issue was solved (thanks again to Jorg), we started to correct the line (as the extraction channel was fine) and adjust the sharing but we rapidly found that huge (and therefore abnormal) corrections had to be implemented.

After a closer look to all the operational PCs on T2/T4/T6, it was found that the quadrupole QM2117 (before splitter 1) was at 0 while the required value is -1400 A. The piquet was called at ~ 22:40 and at ~ 00:20, the quadrupole was back (the piquet had some problems with the polarity switch and had to change the polarity). Around 00:30, the SFTLONG beam was back and the usual

adjustments could take place. At ~ 00:45, nominal intensities were seen on the 3 targets: (T2, 65), (T4, 40) and (T6, 145).

## Booster (Jocelyn Tan)

Very quiet week (PS septum exchange, and technical stop) , the PSB served only ISOLDE till yesterday afternoon.

Monday and Tuesday :

No beam during daytime for the advanced technical stop and two PS accesses.

Tuesday

Thanks to V.Prieto and E. Effinger, the 4 BLMs which were not operational seem to be back to business (at least with test signals).

Isolde took the beam at 7:15PM.

Finished test on FSW.

JJ.Gras tested the new filters system on ring2 (with NORMGPS and LHC PROBE).  
The new filters seems to work correctly.

BTY.DHZ211 : The operator had to reset it 5 times during his last shifts.

Wednesday

The beam was cut at 7AM for the 2-day cleaning of the Linac power converters

Thursday

The cleaning of the LTB.BHZ converters has been completed in the morning but we couldn't provide beam as there was a PS access foreseen in the afternoon.

Isolde took the beam at 6PM.

Friday

No beam from 7:30AM till 11:30AM for a PS access.

Saturday

Two PS accesses : No beam from 10AM till 13:10PM, and at 5:45PM for 45mn.

Isolde took the beam between these time slots.

Sunday

The PSB beam was cut twice to allow access to the PS (from 8AM till 9:25PM, and the last one from 13:30AM till 15:40PM).

in the afternoon, the PS septum was operational : the beam was sent towards the PS at 5:20PM.

During the week

BI.BVT had to be reset many times : to be followed up.

## TI (Peter Sollander)

Events of the week:

Wednesday 7/10: Power cut at LHC point 4 during Diesel generator test. Apparently, bad synchronization before coupling with the network caused over current and 18kV breaker trip. Problem solved and tested on Friday 9/10 afternoon

Saturday 10/10: Detector cooling problem at CMS. Several circuits stopped. Interventions by CV piquets who leave the circuits off over the week-end.

Other than that, rather quiet week in the TI corner.

## CTF (Piotr Skowronski)

The last week we spent on further improving and documenting fully recombined drive beam (28A). The main accent was put on the beam stability measurements. We had one technical problem: on Thursday afternoon water station for RF pulse compression system tripped. The reason was a filter that got blocked. It was quickly cleaned and the station was back in operation on Friday.

In CTF2 the measurements and studies of PHIN (Photo Injector) were continued, revealing very good results.