

## End Week 46 (November 16th) – Status of Accelerators

### Summary

<b>ISOLDE</b>	
<b>LINACS</b>	OK
<b>AD</b>	Good performance with some interruptions.
<b>PSB</b>	Good
<b>PS</b>	Very calm week
<b>SPS</b>	Very good week – CNGS target reached and passed
<b>TI</b>	No major events

### PS (Alexej Grudiev)

Extremely calm week.

All nominal beams have been provided to the users: EACTA, EACTB, EACTC, AD, SFTPRO, CNGS, TOF.: Some work has been done on the LHC beam by RF experts.

Two beam stops related to the exchange of gap-relays for 10 MHz cavities: C56 on Monday evening and C51 Thursday afternoon, have been granted of ~1 hour each.

### TI (Peter Sollander)

It was a week without any major events to report.

Saturday evening there was a Thunderstorm generating some perturbations on the electrical network, but no real problems or downtime.

### SPS (Elias Metral)

It was a very good week for the SPS (except on Tuesday) and transmissions up to 99% on SFTLONG1, 97% on CNGS1 and 94% on CNGS2 (MTE cycle) were achieved. Furthermore, on Monday 09/11/09 (i.e. 2 weeks ahead of schedule), the end of the 2009 run expected number of protons on CNGS target was reached:  $\sim 3.2E19$ ! (Reminder:  $1.78E19$  pot were delivered in 2008).

On Tuesday the beams were stopped between 07:00 and midnight. The stop at 07:00 was foreseen due to a CNGS access but the beams should have been back around 18:30. Unfortunately, at that time both SFT and CNGS beams could not be injected correctly and a magnet problem was rapidly suspected around 226. The magnet piquet was then called to make an inductance measurement. However, no problems could be identified. Fortunately, Gianluigi was around and discovered that it was in fact the corrector MDH.22607 (indeed in 226!) which was oscillating and which was the source of the bad injection. After having put it OFF, both beams were back with good transmissions. The COD MDH.22607 was finally changed by the PO piquet on Wednesday.

On Wednesday, frequent position interlocks in TT40TT41 on MTE and a large trajectory and muon chamber position difference could be traced back to an orbit correction on the flat top (and no orbit corrections should be done on the CNGS & SFT flat tops).

On Thursday, horizontal and vertical CNGS target scans were performed with 2.5E12 p/batch and one extraction. Moreover, during a PS access stop, O. Michels made an intervention on the QS.

On Friday, the chain 12 tripped (with a problem on MBE2103). We tried to rearm it by moving key 12 in access mode and then moving it in beam mode, but the key was not released. It was thought that maybe it was the key, which was blocked in the rack. The access piquet was finally called and bypassed the keys rack No2 in BA81.

The week-end was quiet.

## **AD (Kari Mikluha)**

- We had extremely good intensity and efficiency (4.23e7 and 90% at the end of 100MeV/c) during the week, despite a couple of problems we had during the week

- Early Tuesday morning the ATRAP had problems with their access system, so the access piquet was called in, who solved the problem shortly

- Later in the same day we had great losses after the second ramp making the beam unusable for the users, so Mr Reinier Louwerse was called in. He identified this to be caused by an overheating Stochastic Cooler pickups' power supply, its cooling fans were broken and not rotating. First he tried to solve the problem temporarily by opening the front panels in order to increase cooling, and when it did not help enough he installed an external fan. Later also this was seen insufficient, so he replaced the supply unit, and since then the Stochastic Cooler has been working without interruptions. Due to this problem, our users lost 24h of beam time.

- On Friday night the injection line bending magnet DI.BHZ6044 was having 0 AQN while being on, so the Firstline was called in

- Also on Friday night the ejection kicker started tripping off, and it's been keeping doing it since then. The problem seems to be caused by a module number 3

- On Saturday evening the users found a water leak in the AD hall, so the TI sent a piquet to fix it

- kicker did this several times during the night. Many thanks to the CCC crew, who fixed all these problems

## **Booster (Bettina Mikulec)**

Last week was quite OK for the PSB although there were a few issues throughout the week, mainly with the distributor.

Tuesday (10/11):

G. Ravida was called to take a look at the distributor level 4 (BI4.DISP) that tripped several times last week due to a HV interlock. The symptom was that the CCV value couldn't be reached and the beam for ring 4 was partly lost. The exchange of the thyatron didn't help. During subsequent checks a sparkover happened and a resistor of the voltage divider that measures the PFN got burnt. After exchange the checks continued. The system started to work after disconnection of the head cell, but in the end everything worked with the original components. It is not clear what the reason was of the original fault. 6h30 were lost for rings 3 and 4 (the rack is common for both rings); OK around 5:30pm.

After 5pm a water leak has been discovered on the BT.BHZ10 power converter (was probably present since a while; water dripping slowly on vacuum racks and small crack formed in ceiling). The leak is in a small plastic piece that needs to be replaced. The piquet power changed to the spare in the meanwhile. Beam back at 6:20pm.

Thursday (12/11):

Around 3:30am ring 1 was in a bad shape. The piquet LL RF was called. After investigations he exchanged a NIM module (digital loop processor). Nevertheless after 8am losses on ring 1 continued. A waterflow alarm was discovered on the transverse damper, but this was not the reason for the problem (the damper worked correctly and the water was flowing as well; finally the level of the waterflow meter had to be adjusted). The reason for the ring 1 losses was an insufficient current supply of the NIM power supply for the ring 1 RF generation (overload). The problems disappeared after exchange of this power supply. At 2:20pm losses reoccurred on ring 1. The same NIM crate as in the morning had to be reset.

In parallel to the ring 1 problems early in the morning the ring 4 transformer wasn't working correctly anymore. This could be seen on the samplers after  $\sim c=600$  and on the Vistar where it looked as if no beam was extracted. This problem could be solved in the afternoon by P. Odier who carried out a demagnetization of the transformer (no beam during 10 minutes).

PAXS51 alarm due to BTP.QNO50 not pulsing at the correct value. The piquet PO had to change a DAQ board (25 minutes lost).

Friday (13/11):

Just after midnight the ring 1 losses reappeared. The piquet LL RF had to change again the power supply for the ring 1 RF generation crate. He also disconnected the DDS module installed for the BBQ measurement earlier this week, which was suspected to be at the origin of the increased power consumption (1h30 lost for ring 1). Nevertheless it should be mentioned that a DDS unit is installed since many years on ring 3 in an identical crate without problems.

Saturday (14/11):

Around 11pm the ring 2 distributor failed several times with a HV interlock. The specialist had to be called and effected a thyatron exchange ( $\sim 1h$  lost for rings 1 and 2).

Apart from additional short resets and usual beam adjustments this was all to be mentioned for this week.