

End Week 29 (July 24th 2011) – Status of Accelerators

TI (Jesper Nielsen)

TI summary week 29

<http://wikis.cern.ch/display/TIOP/2011/07/25/TI+summary+week+29%2C+2011>

ISOLDE (Emiliano Piselli)

GPS:

Beam to users without any major problem since Tuesday afternoon. We have had two users: Isoltrap ended on Friday morning and IS511 in LA1 from Friday morning till Monday lunch time.

To mention: Radiation alarm in the hall on Wednesday. RP came to check radiation level and they found about 450uS/h in contact with a diagnostic box. This was due to a faraday cup left in for about 5min to measure the beam with/without laser ionisation. The FC got contaminated with ^{208}Fr (60sec half life). Situation got normal after some time, but we couldn't use anymore this faraday cup.

The area around this beam diagnostic box has been fenced.

HRS:

Target change done on Thursday and first stable beam tuning started on Friday.

AD (Pavel Belochitskii)

All the week no beam for physics due to vacuum leak in feed trough of ion pump in AD sector 1A.

Leak was detected on Monday, feed through was corroded by water. It was replaced with spare one. During the replacement the the vacuum chamber was vented with nitrogen at atmospheric pressure to eliminate or strongly reduced the pollution of the elements in sector 1A, particularly septum which was very close to leak.

Pumping after intervention, unfortunately show very slow vacuum improvement. Wednesday morning the decision was taking for bakeout of the sector. this goes well, and Monday afternoon the dismantling of bakeout equipment is expected.

Unfortunately, Friday morning the bad connector (feedthrough) in injection kicker KFI56 was discovered, too late to be replaced because bakeout was in progress. Another solution was proposed by kicker section people, to repair it temporarily. This reparation is expected on Monday.

If everything will go well, Tuesday we restart with beam. More precise estimate will be done on Monday afternoon.

Booster (Giovanni Rumolo)

a couple of hiccups in the PSB operation during this week, which are worth mentioning.

First, on some shots we have noticed losses at extraction for the ISOLDE beams, due to a debunching beam coming from Ring 1. It seems that the phase loop goes off shortly before extraction for this high intensity. This issue is still being pending and followed up by Alan Findlay. Then, as you know, the MPS did not have a smooth restart after it was switched off and consigned for Friday morning 1h intervention (water leaks at QDE16 and QFO21). It required first line intervention, as the TRIM QFO and QDE kept the MPS in external fault and not remotely controllable. Finally, today (Sunday) the intervention of the kicker specialist was needed to exchange a thyatron for the extraction kicker in Ring 4. Thus, the beam in ring

4 had to be stopped for several hours.

PS (Yannis Papaphilippou)

It was a quite week for the PS machine with no major beam faults. Here are some events worth mentioning:

- On Monday while delivering the LHC beams it was found that, intermittently, the 4th batch of the LHC 36 bunches beam had the first bunch cut, indicating some fine delay issue for the ejection kicker pulse. Although RF experts spent quite some time investigating, the problem was not identified, and did not repeat for the rest of the week. At the same time, the PFW settings were optimized in order to give the same trajectory for both LHC 12 and 36 bunches beams, stabilizing thus the trajectories as received from the SPS.
- The beam was cut twice on Tuesday and Friday morning for diagnosing and intervening on a faulty magnet of the ETP line (LEIR to PS). During the 2nd intervention the piquet control changed a card of the ejection elements processor (dcpsej1), which was suspected to be the origin of certain bad ejections observed last week.
- On Thursday afternoon, the Septum 57 tripped twice with a resettable temperature interlock fault. On the other hand, the external condition did not present any fault and the piquets control and power were called to investigate. The problem was traced to a faulty cable and fixed the next day during the morning stop.

SPS (Django Manglunki)

An eventful week for the SPS

Since the beginning of the double batch operation, there had been differences between the 12- and 36-bunch LHC beams both in transverse and longitudinal planes. On Monday evening, after the PS had set the transverse settings of the 12- and 36-bunch beams in conformity, the 36-bunch beam had to be retuned completely in the SPS, and the 12-bunch beam was exactly similar. The following day, the PS RF team fixed the problem of the difference in injection phase. Since then, there is nothing to retouch in the SPS when switching between 12 and 36.

Tuesday night H8 was down for 4.5 hours because of BEND02 and QUAD09, fixed by first line.

Wednesday evening there was a problem with Bend01 in H2 tripping often by overheating, and it first seemed to come from the magnet, which sits in a hot zone. The beam was stopped for 2 hours for cooldown and a short access took place, revealing no fault. As it was then possible to restart the power supply, it was decided to try and live with it for the night. The next morning it appeared there was a timing pulsing to start pulsing H2 during the LHC cycles.

On Thursday morning there was a first problem with MKD whci was fixed be the piquet, then a ring access was needed for a water leak on QF50610.

In the afternoon there were more and more resettable trips of MKD, until eventually an intervention was needed. The machine was stopped at 18:30, to change the switch of PFN3. It took a bit more than 3 hours, as reconditioning the kicker turned out to be slower than anticipated. The beam was back at 23:00.

On Saturday afternoon H2 and Compass asked for more intensity. In order to satisfy them, the intensity on CNGS had to be decreased as the PS was getting close the the radiation alarm limit and could not increase the total amount of beam delivered to the SPS.

On Sunday CNGS had to be turned off from 14:30 to 19:00 as a ring was missing from the Booster, randomly tripping the BPM authorisation to extract, which reluted in too much dumped beam. The North Area only suffered from a lower intensity.

On Sunday night DREAM on H8 asked for more intensity which had to be taken from Compass.

There have been several problems with the access system, the most serious one happening this morning (Monday 25th) where H8 was set to access but TAX02 did not move in. Fortunately the users saw beam on their counters and did not enter their zone, they called the CCC instead. The OP team the put the TAX in manually. This serious safety issue is currently under investigation by CO and GS/ASE.

LHC

Back into business with 1380 bunches per beam.

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