

End Week 30 (August 1st 2010) – Status of Accelerators

ISOLDE (Pascal Fernier)

GPS

Target #430 PB

Mardi : intervention sur le switchyard et reparation GLM.DP10 avec modification de pieces mecaniques pour les remettre conformes au design initial.

Mercredi : stand-by

Jeudi : changement stepping motor GLM.DP10 et tests; faisceau @ 50kV pour IS487; notez que DP10 doit dorénavant être mis à la position 245 au lieu de 150 pour diriger le faisceau sur Glm (modification suite à l'intervention et mismatch sur la position des encodeurs.)

Vendredi : problem de watch-dog booster de 09H à 14H00; puis impossibilité d'utiliser tape station car la ligne CAO est utilisée pour le setting-up de Rex.

Lundi : protons scan et faisceau pour IS 487 & IS 491.

HRS

Target #431 UC2C

Mardi : et mercredi : setting-up faisceaux 83Kr, 86Kr, 92Kr, 94Kr, 96Kr vis Hrs, Rex, puis Miniball

Jeudi : mauvais résultats pour Miniball qui trouve très peu de 96Kr, l'isotope qui les intéresse.

Vendredi : setting-up Hrs et Rex pour Radon

Samedi : mesures Radon (202Rn) très satisfaisantes mais malheureusement la cible a cassé @19H00 (impédance de la Line a augmenté à 5.1 ohms) - fin de la physique HRS.

Problèmes technique : reparation switchyard GPS et coupures faisceau par watch-dog (5heures)

TI(Peter Sollander)

Only one major problem: yesterday morning, a problem with a valve on a demineralized water circuit in sector 56 stops the LHC. After intervention by CV, the valve is left in manual mode (no spares available). There's no problem to run the machine like this, but if the circuit stops for any reason, the restart must be done manually by CV experts. New alarm limits defined for low level on the expansion vessel (demi water fill).

PS (Yannis Papaphilippou)

The PS had a very good week delivering all beams with almost 100% availability.

Only a couple of issues to report:

- Since last Sunday, a problem appeared with the injection kicker KFA45 which was not pulsing from time to time. The equipment was put in surveillance by both the OP crew and the equipment specialist and a timing problem was suspected. Finally, on Thursday, it was found that the culprit

was the prioritization of a real time task of the central timing running in almost all the dscs since a few weeks. Although this was transparent in most cases, it was blocking from time to time the kicker pulse execution.

The problem was solved by setting back the original priority to the task.

- On Friday morning and for around 3h all the beams were delivered intermittently, due to problems with the injection septum SMH42. It was observed that the septum was not pulsing depending on the composition of the super-cycle and more specifically the destination of the previous PSB user.

Colleagues from power, control and beam transfer investigated, but the problem disappeared without clear explanation.

SPS (Karel Cornelis)

The main event in the last week was the water leak in the BA80 cooling system, which took most of the day on Wednesday to repair. During the stop of the north area beam, a tube on the damper amplifier was changed in the tunnel. The horizontal damper is now fully operational again.

On Wednesday night and Thursday we suffered from frequent MSE interlocks on the second CNGS extraction. This could be correlated with a change in the main power supply configuration. In the past we already suffered from this problem due to changes in the power distribution. After changing back the MPS configuration the problem disappeared, but we are clearly too sensitive to the network and something should be done about this.

The weekend was pretty smooth except for some problems with TRX3.

PSB (Jocelyn Tan)

Tuesday

In the night, the Isolde watchdog started to cut the HRS beam, although : *the number of protons measured at HRS ' BCT was larger than the one measured at the PSB extraction.

*the losses were below the threshold (60%).

Wednesday

The BI specialist was called for the watchdog problem.

Alan found that QDE on OASIS had a negative polarity. He called the OASIS team to invert the signal.

The trajectories for STAGISO at extraction was available thanks to the new ADC. But this feature had to be removed a couple of days later due to a timing mismatch between the calibration and the extraction events which are now too close. The system is being debugged by BI.

In the evening the watchdog specialist was called again, as the HRS beam was cut too often, but he could not find any problem in situ.

In the ring1, CO2 voltage often dropped for 20ms at C650, causing beam loss. The RF specialist was called and he has changed the gain of an amplifier : this cavity requires higher current to accelerate high intensity beams.

DPSBKSU1 "has left the network" (how ?), and cut the beam. A remote reset reminds it to come back after 10mn.

Thursday

The beam was lost shortly in the morning: A controls specialist has restarted all DSCs on which 'get_tgm_tim' had the wrong priority. Unlike his expectations this operation was not transparent beam wise.

During the night the beam loading effect occurred again on Ring1 : we cannot inject more than 11.5 turns.

Friday

The RF specialists have fine tuned the cavities so that the CO2 was stable enough to accelerate 860 - 910E10.

One Isolde problem has been understood : the watchdog trigger is not PPM. CO was asked to change this. In the meantime, the new electronic was disable, so that both HRS and GPS (staggered beam) could be served.

Sunday night

At ~2AM, all C16 cavities went off, with an "unresetable fault in specific" : 800Volts DC screen.

After a few unsuccessful remote reset, the operator has called the specialist. The fourth on list answered and came to fix the problem. Down time : 1h15'.

AD (Pavel Belochitskii)

Monday morning poor deceleration efficiency between top energy and 2 GeV/c, about 8% to 10% losses (should be about 2% to 3%).

The horizontal emittance after stochastic cooling at top energy was o.k., the vertical emittance was found about 3 times bigger than normally it should be.

It was found (R. Louwerse and Fritz Caspers) that the switching for the delay adjustments after the transverse drivers for all the stoch cooling power amps was not operating due to the fact that somebody had ripped off the controls wire. The wire was soldered on again. Stochastic cooling at top energy was improved, but total performance (including 2 GeV/c cooling) still need investigation (access into AD ring is required, intervention foreseen during MD time on Monday August,2.

It was found as well that CRYOREADINGS stochastic cooling system not available. CO piquet called, everything was o.k. from his side.

Tuesday afternoon the proper connection of HP34970A multiplexer was restored to DADEEC (instead of being connected to DADEBDR), and most of the CRYOREADING for stochastic cooling system became available. Their setting still need to be analyzed.

Thursday morning MTG problem in PS, solved in a fast way.

Friday morning Schottky PU UHM3106 was found off. Reset o.k.

Weekend was o.k.

LHC – full details under coordination at:

Difficult recovery from the technical stop, but stable beam running established with 25 bunches per beam and peak luminosity of $2.8 \times 10^{30} \text{ cm}^{-2}\text{s}^{-1}$

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