End Week 10 (May 9th 2010) – Status of Accelerators

SPS (Django Manglunki)

In addition to CNGS production, the SPS has been delivering alternately the probe and indiv beam to the LHC. Whenever the LHC did not need the beam, the cycle was removed from the supercycle in order to maximize the CNGS production.

The slow extraction for North Area has also been set up this week. The extracted beam has been given on Thursday and Friday to EN/MEF for setting up the secondary lines, then turned off for the week-end. The machine is ready for physics startup on Monday morning.

On Thursday CNGS was stopped from 7:00 till 13:00 for an access asked by radioprotection. The RF high level team took the opportunity to exchange some tubes on TRX6, while TE/EPC worked on the MSE4.

On Wednesday at 11:00 the mains tripped several times, causing a total breakdown time of about 4h40'. The SMQD power suypply had to be replaced the SMQS in spare; it is being repaired and will be put back in operation on Wednesday morning 12/5, just before the long ascension week-end.

The BBQ tune measurement system has been repaired but there are still issues on the crate configuration.

LINAC2 (Giulia Bellodi)

Linac2 had a week of smooth running, with no major problems to report.

Source intensity dips are still present, at a rate of a couple every 90min-2hrs with quite a reproducible pattern. More investigations have been carried out during the short stop on Thursday morning, but no clear understanding has been reached as yet.

TI (Peter Sollander)

• Tuesday 4, point 2 cooling towers stop due to a human error. Consequences on cryo and Alice. LHC stopped for 18 hours.

• Wednesday 5, compensator tripped and electrical fault on SPS power supply in BA3. Unclear if the power supply fault was the origin of the first trip or if it was an external perturbation. Pending information from EN/EL and TE/EPC.

No other major events this week.

Booster (Bettina Mikulec)

On Tuesday the GPS and HRS lines were set up and alignment of the beam on the targets was optimised. An interlock on the bending magnet BTY.BHZ301 avoided sending the beam to HRS Tuesday evening, which could be cured by the specialist Wednesday morning.

Apart from 2 resets of the recombination kicker BT.KFA20 and an addressing problem of 3 ISOLDE quadrupoles (still controlled via CAMAC), the week was absolutely calm.

Concerning beams NORMGPS and NORMHRS were set up, steering done and archived.

Comparative transverse emittance measurements with wire scanners and SEM grids were done with a MD version of the ultimate LHC beam and in addition with NORMHRS over the weekend; the measurements yielded differences in the normalised emittance values up to 20% depending on the ring and wire speed, and for smaller beams up to 56%. This should be followed up.

ISOLDE (Erwin Siesling)

Monday till Wednesday: Setting up of the proton line(s) to the Isolde semgrid-target. Data taken. All normal with regard to beam shape and position.

GPS:

As of Wednesday: Target development tests on GPS: Probles getting the Sm out of the Ta target. Unforeseen change/refill of the massmarker was done. Laser ionisation did not have the effect we were hoping for (waiting for conclusions from the RILIS team).

Target-tests at GPS with protons from friday-afternoon and weekend after which solid stat physics took over with implantations at GLM.

Two issues over the weekend:

Friday-night GPS HT stopped working and we couldn't extract the beam anymore. Problem was solved after calling in the specialist Jan Schipper on saturday-morning. We found a loose contact in a Burndy connector of the power cable from the control rack to the ASTEC tank. Many thanks to Jan for his help. It was impossible to localize and slove it otherwise.

Sunday-afternoon: Vacuum stopped in the GLM line for unknown reason. Could open the valve between the user side and the line with good vacuum on both sides. Found a workaround to continue. Investigations with vac specialists today.

HRS:

When starting pumping after changing the semgrid at HRS for the first production target all vacuum in the facility dropped when pumping on a leak. This was due to filling up the exhaust system too rapidly. Alarm has been implemented on the specific sectors by S. Blanchard to prevent this from happening again.

HRS target was de-coupled two times after which the leak disappeared. To be closely surveyed at next target change.

Despite the problems a good first week for the facility considering the amount of changes which have been taken place during the shutdown.

PS (Rende Steerenberg)

Last week was a rather good week. More and more beams reach their final setting up phase as many of the experiments the start taking beam. The East Area is delayed until 19th of May because of the magnet replacement in primary beam zone.

The LHC has been taking predominantly the LHCINDIV beam, which has a good availability on of which the beam characteristics are well maintained.

During the whole week the MTE extracted beams for fixed target physics setting up and CNGS neutrino production were provided to the SPS. The Fixed target beam at 1.6E13 is rather stable. However, the beam for CNGS suffers from more important losses as a consequence of the periodic

instability that is still under investigation. On Thursday morning during a planned access the radio protection technician made dose rate measurements around the SMH16 and found high dose rates. At the same time they had a quick look around the machine and found that everywhere else the dose rate is lower than usual. This is the result as predicted of the MTE extraction. All the losses are now concentrated on SMH16 and to these intrinsic losses we now also have to add the extra losses due to the periodic instability and the setting up. Discussion on how to proceed with MTE and the SMH16 activation are ongoing.

On Saturday night the RF specialist was called in and replaced the gap relay of the C96.

Early this morning the power converter of one of the TT2 quadrupoles suffered from an earth fault, which was repaired by the power piquet, but caused a 1 hour 15 min down time.

LHC – full details under coordination at:

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

Working through prerequisites for intensity increase plus stable beams over the last weekend.

Looking for first step up in intensity later this week and then steady running over the long weekend.