

## Accelerator complex status

### End week 38 (26th September 2010)

#### LINAC 2 & 3 (Richard Scrivens)

Linac2 operation was not as smooth as usual.

On Monday, a switch to the spare Hazemyer supply (the pulsed power convertor feeding the RF tubes) due to some failed protection capacitors took much longer than foreseen as the 380V phase neutral could not be connected by EN/EL. Both problem are now resolved.

The increased radiation levels around Linac2 were investigated, but not rectified. The zone around the source sometimes above 10uV/hr (when the full intensity of CNGS, SPS fixed target and ISOLDE beam are produced).

Linac3 was running as normal until Thursday night, where a leak developed on a bellows on the beam line after the source. The bellows is part of a recently modified vacuum system, and it seems the bellows has been placed in an unknown high beam loss area. It has been temporarily varnished, which is hoped to allow beam production early next week for the SPS, while a spare chamber is fabricated (as of Friday, the chamber had gone for cleaning). As a longer term solution, some internal beam screens may be necessary.

#### Booster (Jocelyn Tan)

Basically a very smooth run for thePSB this week, with a few technical hitches to report.

Wednesday

In the mornnig, upon RP request the operator has cut the beam for Isolde. It was unfortunately due to a faulty ventilation monitor giving a wrong information. This was fixed but Isolde has lost about 4h of physics.

Afternoon

The beam was lost on ring4 for 4 users : likely a poor RF connection of the cable supplying the RF frequency to the Delay Word Generator. The problem was fixed by the RF specialist. 23mn of down time.

Friday

Afternoon :

NORMGPS : C02 on ring 4 dropped from time to time due too short (230ns) bunch length causing beam loading. The problem was fixed by shaking the beam with the C16 cavity.

At 5PM Alan spotted a water leak under the spare power supply of BTY.BVT101. With D.McFarlane they identified the problem to be a leaking hose within the power supply. With Firstline they cut the water. Right after the operational device went off, stopping the Isolde beam. At 6PM Piquet Firstline was called but the person who came was not the one who cut the water. The problem was fixed after 1h45mn.

Sunday

Early morning :

The BT3.DVT40 went off and all the beams were cut by BLMs. OK after a reset. The BT.KFA20 went off and all the beams were cut by BLMs. OK after a reset. A few mn of down time.

## **PS (Simone Gilardoni)**

The PS had a pretty calm week.

On Monday there was an access to change the relay-gap of the 10 MHz cavity in SS36.

On Tuesday, the radial position GFA declaration was changed to allow the proper integration in INCA. All the beam radial position had to be revised during the week to take into account the new way to manage the GFA. The application to tune the low energy working point has been INCAified.

On Wednesday there was a new INCA release to control the radial position.

On Thursday the PO expert changed the cycling of the F16.QFO225 in TT2. In some cases the power converter could not do the de-magnetization cycle correctly, causing losses on TOF at the end of TT2.

With the new INCA release, some application could not work correctly any longer, like the OP display, and the settings of some timings could not be changed. The problem was solved on Friday.

On Saturday, the BWS was not working. Apparently this was a problem related to the application and not the instrument itself. The application was not working on all consoles. Then there were some doubts on the measurement precision.

During the night the piquet CO had to change a TG8 card of the control of the KFA45 (injection).

Concerning MTE, different measurements continued plus the steering with the SPS. The steering, as last week, was done without YASP. A problem has been found in YASP for the MTE user. J. Wenninger is investigating it.

## **SPS (Karel Cornelis)**

The main perturbation on fixed target physics came from LINAC and PS last week. The SPS itself had no problems with this beam.

The CNGS beam suffered from problems with the ventilation system in the target area. Already last weekend problems were reported. An access was given on Thursday during the floating MD, in order to fix the problem. However, the same evening already, the ventilation stopped again and another access had to be made on Thursday night before giving beam back to CNGS. From 2:00 till 7:30 on Friday morning CNGS was happily running until we had to stop again for an intervention on the same problem. CNGS was restarted on Friday evening but during the weekend the ventilation problem came back. CNGS kept running during the weekend while keeping an eye on the temperatures. We will have to decide today, with the experts what to do about this.

Since Wednesday, LHC has been taking 150nsec bunch trains for physics. So far they did not complain about satellites and they seem to be happy with the beam quality.

Ions were taken on Wednesday and Friday. On Friday we had to work on the RF hardware without beam since there is a problem with the vacuum of the LINAC source. This is hoped to be fixed this Tuesday.

## **LEIR (Django Manglunki)**

LEIR restarted without major problems on Monday morning. The only problem during the week was a corruption of the control value of a magnet in the ETL transfer line, which happened twice. BE/CO is following this up. LEIR was stopped on Friday as there was a vacuum leak next to the source. Meanwhile RP has finished analyzing the measurements taken on the platform; the result is a recommendation to keep it accesible to the public even in case of circulating beam [see below]

## **ISOLDE (Erwin Siesling)**

Isolde had a very good week despite a few problems.

Excellent run at on Be for Miniball involving the GPS separator, RILIS laser ionisation and REX trap/Ebis and Linac. The yield from the target was 2x higher than expected and the users were very happy. During the weekend GPS has been running for collections and Collaps.

HRS has been in standby last week. Target change was on thursday, now setting-up ongoing.

Few issues:

Ventilation: Ventilation the Class A labs and target-tunnel went down on wednesday morning causing 3 hrs downtime (no protons allowed). Was due to a broken flow detector.

Target cooling water: At HRS side still problems with fluctuating water-flow. Not fully understood. The effect is not seen at GPS which has the same source. CV is on it.

Target valve at HRS: The target valves at HRS don't seem to close fully. Some mm's missing which causes a problem during target-changes. Richard Catherall and team are on it (checking compressed air, etc)

High Voltage at GPS: Unfortunately the change of the electrode tip some weeks ago had not the effect we were hoping for. Going higher than 40kV still is a problem. For the REX/Miniball run at 30.2keV this was not a problem, for the Collaps run (50keV) it will be. The holder of the electrode is probably dirty which might be the cause of sparking inside the front-end.

## AD (Kari Mikluha)

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## TI (Peter Sollander)

Here's the TI summary for last week:

Monday 20/9: Linac2 power supply trips. TE-EPC on site to try to switch to spare supply, but the spare is not operational due to the input voltages.

Intervention by EN-EL to repair spare. TE-EPC intervention on power supply was quicker than EN-EL for the spare feeder. Both repaired finally and we are now in a good situation where the spare is operational.

Wednesday 22/9: ISOLDE stopped for 6.5 hours due to a ventilation problem. EN-CV piquet intervention to repair.

Thursday 23/9: CNGS stopped and intervention for ventilation problem. As planned, EN-CV changed motor and belts on the unit UACV1-00230 and restarted it. This unit is used for dehumidification and is not critical for operating the CNGS like the other units which are cooling the target, horn etc. The unit was restarted in the afternoon on Thursday and ran for 6-7 hours when it failed again.

Another access was scheduled for Friday afternoon.

Intervention took place in the afternoon as planned

Saturday, the unit failed again in the beginning of the afternoon. It was decided to leave it off.

The TI operators are monitoring the dew point in the area until the unit can be fixed.

## LHC

Commissioning and qualification of crossing angles finished opening the way for operation with bunch trains. Physics re-established at 24, 52 and 104 bunches per beam. Peak luminosity now  $3.5e31 \text{ cm}^{-2}\text{s}^{-1}$  - integrating  $1 \text{ pb}^{-1}$  in a single fill.

Full details at:

[//cern.ch/lhc-commissioning](http://cern.ch/lhc-commissioning)