

## End Week 22 (June 5th 2011) – Status of Accelerators

### LINAC

Nothing untoward reported.

### ISOLDE (Pascal Fernier)

**GPS** : changement de cible #443 TaW surface; probleme de pompage du front-end qui ne veut pas redemarrer; probleme sera inspecte lundi matin puis chauffage de la cible et setting-up.

**HRS** : utilisation de la meme cible # 442 pour run @30kv; run pour Miniball via Rex (run Pb)

mardi et mercredi setting-up HRS et Rex, faisceau disponible mercredi @19H00; aucun probleme technique durant ce long week-end (excepte quelques reset classiques); faisceau abondant et peu contamine, physiciens contents.

### Booster (Jocelyn Tan)

#### Wednesday

At 1PM Alan has fine tuned the ring 3 of LHC\_A (knob BA3.PSYNCOFFSET ).

Later on, the longitudinal beam shape was ugly again. Finally the culprit was a Phase Loop Amplifier which was changed.

At 3PM, there was an intervention on the Linac2 for replacing the RF tube of Tank1. The beam was cut for ~1hour.

#### Thursday

Early in the morning, there was a trip of the Linac tank, it was resettable.

In the evening there was a water flow problem, which caused BR3.C16, BR4.C16, BT3.dvt40 and BTP.QNO40 to trip.

The fault was resettable.

At midnight, the ring 3 distributor dropped. Most of equipment specialists could not be reached. Finally E.Carlier and T.Fowler came and fixed the problem by replacing the thyatron. The beam was cut for 3h40'.

#### Sunday

In the evening, same water flow problem as last Thursday. The fault was resettable but the beam was cut for ~15mn.

### PS (Yannis Papaphilippou)

The PS machine had an eventful week with quite a few problems mainly related to RF cavities. More specifically:

- During Tuesday night, the PS had 1h of unstable beam due to a problem with 10MHz cavity 91. Continued with spare cavity 11 and the equipment specialist (M. Haase) passed by to repair the faulty cavity.

- During the whole week, there were a lot of mostly resettable faults of 10MHz cavity 51. It was first thought that this may come from a badly programmed timing, but the cavity continued to trip. On Thursday evening, C61 tripped (replaced by spare) and then C51 also, so again the equipment specialist had to come and repair both cavities (50min without beam). During the next day, several resettable faults of C51 occurred but in the afternoon the cavity tripped again without possibility to reset and the specialist had to come and changed a fuse. Since then, the trips were more rare, and disappeared after another intervention of the specialist on Saturday.

- During Thursday night, and while the PSB was down due to the distributor fault, the 200MHz cavity 204 was on fault and no reset was possible. Since then, the PS runs with the spare 201 cavity.

Some other events:

- On Monday at around 17:00, the MPS came down with a cooling water problem. The problem was traced not to a loss of cooling water but to a fault of the sensor controlling the water level. After the sensor was changed, the MPS still did not come back with a voltage gain fault, which was traced, to a fuse in the interlock system.

- On Wednesday morning, on request of RP, a radiation test in TT2 line similar with the ones of last week was performed followed by an RP access in the line, in the shadow of the SPS stop (EDF tests on 18kV line).

- On Thursday afternoon, all beams were down for 30min due to a PFW control fault. PICO was called but the problem disappeared without any intervention.

- A document named "Week 22 Measurement Campaign for the Injectors Wire Scanners" describing a series of measurement for the qualification of the wire scanners across the injector complex was produced by BI and a number of measurements were made also in the PS since Thursday night.

- On Saturday, EAST beams were cut for 45 minutes due to temperature interlock of the septum 57. The fault was handled by a temporary reduction of the threshold until the temperature was reduced. The equipment specialist was informed.

- On Saturday night the injection septum SMH42 came down without possibility to reset. PIPO was called but the septum came back without intervention after 40min. A further optimization of the injection settings helped to gain some margin in the septum current, which was close to the maximum.

## SPS (Karel Cornelis)

The main activity in the SPS for the last week was the setting up of the fixed target cycle. The DSO tests for the north area took place on Monday and Tuesday. The slow extraction was set up on Wednesday and the beam was sent to the TED in TT20. The optimisation of the extraction continued on Thursday and the beam was transported to the targets. Optimisation continued throughout the weekend.

The SPS was stopped on Wednesday for a couple of hours in order to do a fault detection on a 18kV cable to BA5. The fault was found close to the CCC.

The LHC beam was optimised several times last week in collaboration with the PSB operators. For stability reasons we limited the average bunch intensity on the 50nsec beam to  $1.2 \times 10^{13}$  (We found it often at  $1.4 \times 10^{13}$ ).

From the SPS side the long weekend was pretty stable: a few RF trips, a vacuum spike on MKE6, a fault on MSE4, and few MPS trips.

## LHC

Running with 1092 bunches per beam, peak luminosity of around  $1.2 \times 10^{33} \text{ cm}^{-2}\text{s}^{-1}$ . High intensity effects cutting into machine efficiency (SEUs and UFOs), but still over 200 pb<sup>-1</sup> for the week.

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