

## End Week 42 (October 18th) – Status of Accelerators

### Summary

<b>ISOLDE</b>	Mixed week.
<b>LINACS</b>	OK - Linac2: Friday early morning a quadrupole tripped in the Linac2 line; the specialist needed 2.5h to solve 3 parallel problems.
<b>AD</b>	Cool
<b>PSB</b>	OK – some issues – see below
<b>PS</b>	Good week, MTE coming on well.
<b>SPS</b>	Good.
<b>TI</b>	Some events – see below.
<b>LEIR &amp; Ions</b>	MD in LINAC3

### Isolde (Didier Voulot)

On Monday the REX-EBIS electron beam failed. We decided to change it to save the Be run on Miniball starting on Thursday. Most of the week was dedicated to the change of cathode, bake-out and quick REX set-up. The users started taking 11Be beam on Saturday night. The run was interrupted by a linac failure after about one hour but could be restart this morning. They will run until Wednesday morning.

Some solid state physics collections could take place in parallel on GHM/GLM Wednesday and Thursday.

Unfortunately the HRS target (which had been used quite a lot in the previous week) failed on Monday. So no alternative physics programme could be done on HRS.

### PS (Simone Gilardoni)

#### Monday

The bad generation of the fiducial RF train (T-FID) caused about 3 hours lost during the night. This train is used to generate the extraction timings and to synchronise the PS with the SPS and the AD. The piquet control had to change few connectors on the electronic rack. The same problem appeared on Sunday night.

#### Tuesday

Power piquet had to intervene to fix the power converter of the gamma transition doublets.

During the night, about 1 hour and half stop due to a problem with the regulation card of the injection slow bump.

#### Wednesday

Normal run

## Thursday

Few trips of the SMH57 (slow extraction magnetic septum). Seen the large number of EAST cycles it was suffering a bit. The function of the SMH57 has been shortened to reduce the RMS current without any impact on the spill.

Trip of the MPS due to a wrong manipulation during the installation works for POPS.

Setting up of the MTE extraction up to  $1900e10$  with about 16-17% perisland.

## Friday

Minor water leak solved in the EAST hall.

Problem with the MTE kickers. First a stop of the KFA21 due to a magnet sparking. Then the regulation card of the KFA4 had to be changed.

The external conditions related to the MTE kickers were not connected to the hardware.

## Saturday

No problem.

A couple of radiation alarms due to a fault of the figure of eight loop.

## Sunday

No problem

## MTE

The MTE extracted beam has been sent whenever possible to the SPS for the setting up on the CNGS2 cycle and sent to the CNGS target. The intensity extracted from the PS was about  $1400-1700e10$  depending on the intensity chosen for the day.

## SPS (Karel Cornelis)

The week started with a few pending problems which could be solved during the week : a blocked polarity switch on QM2117, an optical fibre problem on BIC and a broken COD in BA3. There was also a problem in the north area, caused by a PLC which was overloading a computer and blocking the movement of collimators in the COMPASS line. With the help of several CO specialists, this problem could finally be solved on Tuesday.

The night from Monday to Tuesday was dominated by the LHC-b test which could be qualified as successful. The only recurrent problem is the switching on of the RBI81607 where expert assistance was needed.

The rest of the week was rather smooth and the CNGS came back to a good production rate, especially during the weekend.

A lot of work was done on the MTE. The intensity was brought to  $1.5 \cdot 10^{13}$  per batch. The steering of the five individual turns was optimised and dispersion measurements were performed, showing an important mismatch on the four outer islands. An attempt was made to inject and accelerate  $1.9 \cdot 10^{13}$  per batch, but the high intensity in the 5th turn was causing too much problems for damper and RF. During the weekend we have been running a few hours per day with the MTE ( $1.5 \cdot 10^{13}$  per batch) on one of the CNGS cycles.

## Booster (Bettina Mikulec)

A problem occurred on Wednesday: The PS complained about bad bunch shapes of h1 beams coming from ring 3. Spikes were observed at the detected C04 voltage before extraction. The RF LL specialist managed to find a working solution by modifying the GFA function for C04, but suspected that the tube needed to be changed. The RF experts decided to only make an exchange between the C04 tubes of rings 3 and 4 to prove if it was indeed the tube causing the problems (it wasn't possible to prove that otherwise). An access was organized for 1:30pm taking in total 1h30. After restart it was obvious that the problem had moved to ring 4. This is slightly worrying as these 2 tubes are from a new supplier (Thalis; old tubes from Siemens) and have only worked for 1500h, too early to show ageing effects. To be able to continue working, the heating of the tube cathode was increased to provide the maximum current to the tube; in addition the workaround with the increased C04 voltage at extraction is required to stabilise high intensity h1 beams on ring 4. M. Haase will further investigate potential differences of the tubes from the 2 suppliers in the lab and obtain additional information from Thalis. There are only 2 (already used) Siemens tubes available as spares. The tubes of ring 4 need to be exchanged in the near future.

On Thursday half an hour was lost as a local reset was required in the evening for BR4.C04.

(Linac2: Friday early morning a quadrupole tripped in the Linac2 line; the specialist needed 2.5h to solve 3 parallel problems.)

During the night and on Saturday some losses showed up in the extraction, related to ring 4. The operators managed to reduce the losses, and finally the reason could be identified. The recombination septum BT4.SMV10 had an AQN value differing from the CCV value by ~250 A. This was difficult to find as the knob showed correct (green) values (tolerance defined too large). The piquet PO intervened on Sunday and adjusted the filter voltage on a control card.

Around 7am today the C02 cavity of ring 1 tripped around c=400 with an error message 'overcurrent'. M. Haase is investigating. Update Monday morning: Ring 1 is now back again - the tuning amplifier had to be changed.

Throughout the week the special MTE versions of SFTPRO and CNGS have been sent to the PS; adjustments have been made in line with the PS requests.

## Technical Infrastructure (Peter Sollander)

Here are the events of the week:

Tuesday 13/10: Limited power cut on ATLAS. Error on a PLC that decided to cut part of the load off the UPS. Major Event open, pending input from EN/EL.

Wednesday 14/10: Power cut in LHC point 2 stops the cryo. Faulty 400V breaker EQD131/2H. Electricians were already on site and had a spare breaker available. Very quick intervention and limited consequences on the cryogenics

Thursday 15/10: Trip of rotating machine stop PS for 1.5 hours during commissioning of S80 in ME6 (POPS). Reason, aged plastic insulation on test plugs broke when manipulated for the POPS commissioning and created a short circuit.

Thursday 15/10: EN/EL reports high peak consumptions (274MW) during LHC cycle and wants to know if this will continue since it is putting strain on the 18kV cables.

## **LINACS (Richard Scrivens)**

Linac2

Very calm week, the only fault being a tank 1 quad PC fault.

Linac3

Delivered beam to the Ion Desorption measurement (which was measuring a gold coated copper cryogenic target). The beam was fairly stable all week, except for the source and a buncher cavity during the weekend.