Summary of the 47th FOM Meeting

Held on Tuesday 8th December 2015

Agenda (https://indico.cern.ch/event/467098/)

1. *Follow-up of the previous FOM*
2. *Status of the Machines*
3. *Schedule Updates*
4. *AOB (performace of the injectors in 2015, end-of-year stop piquets, use of personal storage in the TN)*

1. Follow-up of the previous FOM

B. Mikulec chaired the meeting on behalf of **K. Hanke**.

The minutes of the 46th FOM were approved.

There was no open action.

2. Status of the machines

Linac3 (O'Neil)

The oven refill was completed on Tuesday (1st December) and a reasonable quality beam was delivered by the late afternoon.

On Wednesday morning a change in the stripper foil improved LEIR extractions. In the afternoon, several HT flashovers occurred in the source and it proved extremely difficult to recover the beam performance. Oven 1 required much higher power than normal after just one day of operation after the refill and even then did not deliver sufficient lead for a stable beam. Oven 2 was therefore started in low power mode.

Throughout the week Oven 1 power was further increased, faster than usual, to its maximum (20 W) and with regular source tuning. Despite the Oven 1 performance, thanks to the Oven 2 and the new foil a good beam was delivered.

On Monday (7th December) the position of Oven 1 was mechanically shaken. This appears to have unblocked the oven and it is now again delivering lead to the source.

After some tuning the source is now giving a stable and good intensity beam. It is not planned to refill the ovens before the end of the run.

LEIR (S. Jensen)

During the ovens refill on Tuesday (1st December), an installation of FEC-controlled relays in the e-cooler was performed. This will allow a fast cut-off of the electron beam and was supposed to be transparent. At 17h00 the beam returned, but it took 5 h to recover the beam performance by lowering by 10 V the e-cooler gun voltage on NOMINAL (it seems that the e-cooler intervention had a side effect not fully understood). In addition, fine-tuning of the steps in the function for ETL.BHN10 increased the injection efficiency.

On Wednesday the LN3 stripper foil was changed increasing by 50% the LEIR output, possibly due to a change in energy spread and improved vacuum in the extraction region. In the afternoon operation was perturbed by Linac3 source sparks. Linac3 intensity could be partially recovered by increasing the Oven 1 power from 8 W to 13.5 W.

On Thursday afternoon a crate (cfv-363-all1) needed to be reset since the OASIS processes started to misbehave. The problem repeated later in the afternoon.

On Saturday a reset of two crates was necessary (dleibgen and bnldspGFAS_R).

During Saturday night the RF cavity 43 tripped. The expert was called and solved the problem (2 h 20 min downtime).

PS (G. Métral)

The PS is delivering the ions with good intensity (5e10 cpp).

There were no major problems during the week.

On Tuesday an access to repair a PU (PU93S, used in the radial loop for the low intensity) was carried out in the shadow of the oven refill. The PU is repaired but it is not yet use for the radial loop.

The nature of the transverse oscillation observed at injection is not yet fully understood.

An RF longitudinal blow-up was done to increase the stability of the beam at the SPS injection.

SPS (H. Bartosik)

The North Area ion run was completed on Tuesday at 08h30 when the beam was stopped for the planned oven refill of the Linac3 ion source. During this intervention, one of the thyratrons for the MKP injection kicker was exchanged in order to reduce the kicker rise time in view of further decreasing the batch spacing between two SPS injections. Some difficulties due to large transverse emittances on every other bunch and losses in the transfer line (in particular TI8) were encountered during LHC filling in the evening. The problem could be mitigated by adjusting the injection kicker delay and the settings of the transverse damper (the specialist was called and intervened during the night). Further investigations on the BE-ABT side on Wednesday morning revealed an issue with the synchronisation of the injection kicker generators after the thyratron exchange, which resulted in a large jitter of the kicker pulse.

After the kicker specialist re-optimised the synchronization of the MKP generators on Wednesday, a batch spacing of 175 ns (instead of 225 ns) could be achieved in the SPS with no measurable impact on transverse emittances and bunch intensities. This reduced batch spacing is now used by default for

LHC ion filling since the successful injection tests on Friday. **E. Métral** asked details about the gain of the transmission (from 60% to 80%) obtained last Monday 30th November. **H. Bartosik** explained that most of the gain was achieved by optimization of the longitudinal settings. **E. Métral** asked about the observable chosen in the optimization. **T. Bohl** explained that the transmission is the chosen observable. **E. Métral** asked if there is margin for further improvement. **T. Bohl** answered negatively.

Thursday and Friday were devoted to the UA9 run with coasting ion beams.

D. Manglunki informed about the results on the investigation on the EIS DCCT interlock. The interlocks were triggered by a temperature probe malfunctioning and a spike. The temperature probe will be repaired during the YETS. Concerning the origin of the spike, no clear source could be identified. The cable of the device was found not in the nominal position and, moving it could have induced a spike. **D. Manglunki** and **F. Pirotte** reminded to pay attention in the handling of the EIS device cables. **D. McFarlane** pointed out that the EIS device cables are critical items in view of the next cabling campaign. **B. Mikulec** suggested circulating the information to all the intervening teams.

UA9 (S. Montesano)

S. Montesano asked for 4 h of SPS coast for the detector calibration and diffusion studies in the next days. The FOM endorsed the proposal.

LHC interface with the Injectors (M. Lamont)

The LHC ions physics program is continuing with a very good pace thanks to the good condition of the source and the injectors. The users are very satisfied.

TI (J. Nielsen)

There was nothing to mention.

3. Schedule

B. Mikulec presented the Injector Schedule 2015 v1.12 (Annex 1).

The ion beams will be stopped next Monday (14th December) at 06h00.

M. Gourber-Pace asked when the CTF3 is going to stop for the 2015. CTF3 will run until the 16th December (included).

4. AOB

A. Bland informed that there was a TN WIN console infected with a virus due to a USB stick connection (Annex 2). **A. Bland** reminded that it is not allowed to connect personal storage units to the TN consoles. **B. Mikulec** suggested circulating the information to BE-OP.

M. Lamont presented some of the BE-OP main results and successes of the 2015 operation (Annex 3). Good running statistics of the different machines and for the various experimental areas could be achieved. **Helmut Vincke** asked if MTE was comparable to CT in terms of beam losses in the SPS. **V. Kain** answered positively.

J. Nielsen presented the piquet and best-effort list of the end-of-the-year stop (Annex 4). **D. Manglunki** informed that LEIR would not be vented and has to maintain a good vacuum level. A vacuum piquet will be available**. M. Gourber-Pace** informed that the Worldfip Piquet will be covered by BE-CO specialists and if interventions were needed the piquet would contact second line (FSU contractors). **D. McFarlane** informed that RP asked to access the SPS on the 23rd December**.**

B. Mikulec presented the Injector Schedule 2016 v1.1 (Annex 5). **R. Scrivens** informed that LEIR would restart on the 2nd of May (2 weeks later with respect to the initial schedule).

B. Mikulec informed that next FOM would be held on the 16th February 2016.

Next Meeting: Tuesday 16th February 2016.

Minutes reported by G. Sterbini on 11th December