

Minutes of the 35th FOM meeting held on 02.12.2014

Agenda:

- 1) Follow-up of the last meeting (K. Hanke)
- 2) Status of the Machines (all)
- 3) Schedule Updates (K. Hanke)
- 4) Activities to be scheduled during the YETS (technical coordinators)
- 5) AOB

1 Follow-up of the last meeting

The minutes of the 34th FOM meeting were approved.

Pending actions:

The open action concerning the recombination kicker rise-time in the PSB is being followed up by the ABT, OP and LIU teams. The action is closed for the FOM.

2 Status of the Machines

Linac2 (M. O'Neil)

It was a quiet week for Linac2. The vacuum valve LI.VVS10 in front of the RFQ closed following a HT flashover of the source. It was re-opened by the PSB operator (2 min downtime). The problem is known and some long-term solutions are under study.

PSB (J. L. Sanchez-Alvarez)

It was a good week for the PSB with no major issues to report. There were several MDs and steering-related activities.

The MTE user with very large horizontal emittance was setup ($\epsilon_{H,1\sigma} = 12$ mm mrad and $\epsilon_{V,1\sigma} = 7$ mm mrad).

The BT.BHZ10 was found to be responsible of the instability in the ejection line depending of the previous user. K. Hanke added that for the moment there a software solution will be implemented. The magnet will be replaced during the LS2.

ISOLDE (E. Siesling)

HRS: Has been running with an uranium carbide target (#521).

The CRIS experiment has successfully been taking radioactive Fr beam during the week.

On Friday the run finished according to the plan and the central beam-line start serving GPS users. A few more hours could be taken by the CRIS experiment on Saturday evening when GPS users were preparing for data acquisition.

GPS: Has been running with an uranium carbide target (#525).

The target was set-up at the beginning of the week and several mass scans on stable beams were carried out for TISD (Target & Ion Source Development). Preparations were carried out to send beam to the newly installed VITO experiment in the RB0 line.

On Friday morning ISOLDE was ready for the proton scan on the GPS target. The PSB needed some hours to set-up the proton beam in the BTY line. Unfortunately during this time VITO could not run. However, successful beam tuning of stable beam into the new VITO experiment was achieved later in the afternoon and the proton scan carried out in the early evening.

On Saturday morning the TISD measurements were interrupted when the tape of the tape-station broke. The schedule was adapted and beam prepared for the IDS (ISOLDE Decay Station).

Unfortunately in the CCO line to IDS the turbo pump was found broken. With the vacuum piquet a workaround was found on Saturday afternoon by using the sector before and after to pump down CCO. This worked and beam could be send to IDS later in the afternoon. Since IDS was not ready yet HRS (CRIS) could take a few hours of beam. Yesterday (Monday 1st December) the turbo-pump was replaced.

On Saturday night the scanners after the CCO line were not responding at all. The switch on one of the PAM (Pico-ampere meter) boxes was wrongly set and hence the daisy-chained bus for communication was interrupted. Switching it in the right position solved the problem.

On Sunday night the GPS HT went down and the target heating dropped. A remote assistance to the operators was enough the get the HT and target heating back.

The repairing work of the tape-station is ongoing.

[ISOLDE Users \(M. Kowalska\)](#)

The ISOLDE users are satisfied.

HRS is suffering from lower transmission due some cooler-related problem.

On GPS there were some misunderstandings for the commissioning of the BTY trajectories. K. Hanke explained that the orbit steering in the PSB was completed but to steer the trajectory on the BTY line, dedicated time had to be allocated. In fact, during the setting up of the trajectory the beam stability is not compatible with data acquisition.

[PS \(J. Wozniak\)](#)

It was a good week for the PS with all the beams delivered as expected.

On Tuesday there was a problem with a crate for F16.BHZ117 (30 min downtime). POPS was also down for around 45 min. This was due to an MTG central timing problem sending a start cycle event to the B-train in a wrong moment.

The same problem repeated on Thursday. This weakness of the system was there before but only now was exposed by the suppression of the lead-in/lead-out ZERO cycles when changing the super-cycle. R. Steerenberg added there is a workaround to avoid the problem. When a new

sequence changing the number of the basic period delays between the machines is programmed, POPS has to be put in stand-by mode.

The weekend went smoothly with only one stop for 1h15m due to POPS. This was tracked down to a cooling pump problem on DC5.

East Area (L. Gatignon)

Smooth running for all beam lines. In T9 a photomultiplier tube of the second Cerenkov detector had to be exchanged. In T11 the CLOUD run has come to an end and, upstream, an experiment, P349, has been installed and already started the data-taking on Wednesday evening.

East Area Users (H. Wilkens)

The users are satisfied. There was one cancellation in T9 and the schedule was modified by extending the run of the present experiment.

nToF (S. Montesano)

A new version of the DAC was installed and now two consecutive nTOF pulses can be acquired.

During the week there were three interventions. At the moment the dummy samples are irradiated to study the background. New samples will be installed on Thursday.

CTF3 (L. Navarro)

In CTF3, the week was devoted to the phase feed-forward tests during the day and the dog-leg operation during the nights.

Regarding the XenericSampler process problem, J.M. Nonglaton increased the size of the core files to be able to investigate the problem. Problems on the new passerelle are still being worked on.

During the week CGAFG_DU_M process did not restart after a reboot of the FECs. S. Jensen was acknowledged for its intervention on Friday night. He solved the problem and operation could continue during the weekend.

The main issue of the week was the intrusion of two technicians in the tunnel underneath the Delay Loop and the Combiner Ring on Thursday around 17h00. They ignored the warning lights and all signals forbidding the access and they tripped the whole security chain. The resulting downtime was 15 hours. On top of this, they were not equipped with dosimeters. L. Navarro reported that it is the second time that someone ignores RP alarm signals in the last year. After the FOM it was found out that the technicians tripping the chain belong to the TE-CRG team. They wrote a report and informed the group leader and the DSO the same evening. No further follow-up by the FOM required.

AD (L. Joergensen)

It was a very good week with limited downtime for AD.

The only major problem of the week was the AD target horn chariot interlock. This needed an intervention in the target on Tuesday morning. It was due to a drift of the position resolver and not an actual movement.

The electron cooler was dropping about 2 shots per hour. There were a few minor problems with the CO2 cavities and some minor magnet issue.

Due to radiation alarms it was necessary to reduce the beam intensity sent from the PS (especially for the BASE experiment). The PAXA0607 alarm goes off at injection for PS beams beyond $1600E10$ ppp. After reducing the intensity to $1400-1500E10$ the problem was solved, but this led to a campaign to optimize the injection line to avoid these losses on the first few turns after injection. So far the line 9000 has been optimized. This also resulted in the beam being stable for the experiments over the weekend with a steady $3-3.1E7$ pbar extracted.

Further progress was made on the beam position jitter observed on extraction and attributed to the septum. Changing the rise-time of the pulse reduced the jitter from 3.3 mm average to 2.1 mm and synchronizing the septum trigger to the machine RF during the yesterday (1st December) MD reduced it furthermore. Investigations are continuing to solve the problem completely.

[AD Users \(H. Wilkens\)](#)

ASACUSA users confirmed that the orbit jitter was significantly reduced.

[SPS \(D. Manglunki\)](#)

It was a good week for the SPS. During the week, 2 batches of $1.7e13$ protons were injected the to SFTPRO users per SC.

On Monday the doublet LHC beam was tested in a parallel MD. From Tuesday 06h00 to Wednesday 10h00 coasting beams were given to UA9. Machine development on 800 MHz followed until Wednesday at 20h00.

Beam was sent to HiRadMat on Thursday. FEI were tested on Friday and are ready for high intensity beam to HiRadMat next week.

The week-end was quiet except for trips of TRX6 which necessitated the intervention of the RF power piquet.

[North Area \(L. Gatignon\):](#)

The start-up after the MD and UA9 run was hampered by a problem related to the beam files setting. Thanks to a quick reaction of the CESAR experts this was rapidly solved. NA62 suffered from a severe 48 V power cut in ECN3, which stopped essentially all power, including the lights in their control room. After recovering they were worried about faulty readout of the vacuum status from CESAR but in fact all was fine as confirmed by TE-VSC. The reading of K12 collimator positions was only recovered on Thursday morning.

On Friday early morning the 50 and 75 Hz ripple was significantly improved by the OP beam, but it comes back after each machine reconfiguration.

The intensity on T6 was increased to $10E13$ ppp and COMPASS is now running, with RP agreement, at nominal intensity for their Drell-Yan run. Also NA62 wants to increase the flux on T4 after the scrubbing run. However, to reach nominal flux on T10, the characteristics of the incoming beam on T4 have to be better understood (tails), as the transmission from T4 to T10 is still too low.

P. Sollander asked if the reason of the power cut was understood. L. Gatignon answered that investigations are still ongoing.

North Area Users (H. Wilkens):

The beam was sent to a large number of different users. The running was successful.

IONS

Linac3 (M. O'Neils)

It was a very quiet week. There were no incidents to report.

LEIR (J. Axensalva)

The LEIR machine was stable during the whole week and especially when delivering beam to CPS and SPS (apart from some random very short drops in intensity from Linac3).

On Friday there was a meeting between EPC-CO, BE-CO and BE-OP concerning the OASIS measurement problems on the main dipoles and quadrupoles of the machine. The Oasis signals is still up to ten times noisier than what can be measured at the output of the power converters. EPC-CO and BE-CO will perform exhaustive measurements before the Christmas stop to understand the source of the problem.

The stray field compensation studies are also ongoing.

PS (J. Wozniak)

There was a problem with the C80 cavity.

D. Manglunki asked if a LEIR MD could be organized tomorrow (3rd December, no beam to PS). J. Wozniak and R. Steerenberg agreed.

SPS (D. Manglunki)

The argon beam was accelerated through transition up to 150 AGeV/c for the first time this week, with over $2e9$ ions at the flat top. This validates the strategy for the February run (4 injections, acceleration on fixed frequency to a 2 second intermediate flat top for debunching, recapture, and final acceleration on fixed harmonic) and allows to start designing the six physics cycles, up to 3 of which will be tested during the last week of the year.

The SPS will not take the ion beam this Thursday.

Also the first global tests of the full interlock chain took place in parallel during the dedicated MD on Wednesday. Some teething problems are being solved (spurious trips of the interlock

due to a voltage too low on the twisted pair loop). More tests will take place during the next two Wednesday MDs (December 3rd and 10th).

[TI \(P. Sollander\)](#)

There was no major problem to report.

3 Schedule Updates

The Injector Schedule (v1.7) is available at

https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/Injector_Schedule_2014.pdf

There are no updates with respect to the schedule.

K. Hanke presented the draft Injector Schedule for the 2015 (v0.6). It is available at

https://espace.cern.ch/be-dep/FOM/Presentations_2014/Forms/AllItems.aspx

- The linacs will restart on the 19 January.
- The LHC beams will be available from the 21 February and the LHC commissioning will start on the 9 March.
- The Ion North Area run will start on the 16 February and stop on the 6 April.
- The Meyrin Site proton program will start on the 7 April.
- The North Area proton run will start on the 27 April.
- The LHC Ion Run will start in the 16 November and end on the 14 December.
- Two technical stops are planned (8 April and 26 August).

4 Activities to be scheduled during the YETS (technical coordinators)

The technical coordinator of Linac2, PSB, PS, SPS, Linac3 and LEIR presented the lists of the activities foreseen during the YETS. The exhaustive list of the intervention can be found at

https://espace.cern.ch/be-dep/FOM/Presentations_2014/Forms/AllItems.aspx

All intervention should be transparent for the January restart of the Ar beams and in particular the venting of the machine vacuum sectors has to be minimized and scheduled before the Christmas stop to have more time to recover the vacuum level.

The most critical interventions with respect to the machine venting are:

- The repairs of the two WS in the PS
- The repair (if needed) of the PS 80 MHz tuner
- The UA9 related installation in the SPS
- Two interventions on the Linac3 (stripper and pepper pots installation).

At the moment there are no requests of magnet exchange in the SPS but most likely they will be submitted after the first inspections.

R. Steerenberg informed that the installation of the PS Wall Current Monitor would be done during the first 2015 TS (8 April) to limit the PS venting in view of the Ar run.

There will be no alignment of the machine except for the PSB.

5 AOB

K. Hanke and P. Sollander informed about the CCC Switchboard Maintenance request from 12 to the 15 January (IMPACT 58837). This can potentially limit the number of available consoles in the CCC. The intervention was approved by the FOM but K. Hanke observed that the approval of the LMC is required too.

K. Hanke informed about the request for maintenance on the PS access system (Windows servers upgrade). There is no impact on the beam but during the intervention period (2 hours) the use of all PS complex access points in "restricted mode" will not be possible. The proposed date is the Thursday 4th December between 12h00 and 14h00. The intervention was approved.

K. Hanke informed about the request for maintenance YEA01.LEI=150 (D.401) from the 3 to the 5 December (IMPACT 58848). The intervention was approved.

There was a request of 1.5 h beam stop for the intervention in the PS 200MHz (cavity 206) and for an intervention in the PSB. The intervention was approved and scheduled on the Wednesday 10th December from 17h00 and 18h30.

S. Deval informed that there were some modifications on the TE-CV interventions during the YETS and the restart. The detailed dates are available at

<https://espace.cern.ch/be-dep/FOM/Presentations 2014/Forms/AllItems.aspx>

K. Hanke added that if there are conflicts with the proposed schedule, a second iteration will be done on the next FOM.

C. Mastrostefano asked if the supervision of cooling station of the Linac3 will be done by OP-TI during the Christmas stop. P. Sollander answered positively; OP-TI will be in charge of the supervision.

A. Bland informed that the operation passwords will change during the change on the "CO red days".

K. Hanke informed about the end-of-year drink on the 17 December at 16h30 in CCC.

The next FOM meeting will be held on the 9 December. The agenda will be communicated in due time.

Minutes edited by G. Sterbini.