



Summary of the 30th FOM Meeting

Held on Tuesday 17th October 2017

Agenda (<https://indico.cern.ch/event/673244>)

1. *Follow-up of the last FOM*
2. *Status of the machines*
3. *Schedule updates*
4. *AOB*

B. Mikulec chaired the meeting.
The list of presence can be found in [Annex 1](#).

1. Follow-up of the last FOM

Minutes of the last meeting were approved.

2. Status of the machines

LHC

J. Wenninger presented the status of the LHC ([Annex 2](#)). A good week with an average of 0.5 fb^{-1} delivered per day. Availability was 87%; there were some minor issues with cryogenics. Today CMS measured a world record instantaneous luminosity of $2.12 \text{ cm}^{-2}\text{s}^{-1}$. Until now the LHC delivered integrated luminosity of 37 fb^{-1} , what is 10% ahead of the schedule. If this rate is kept until the end of the run then it is likely to overcome 50 fb^{-1} , whereas 47 fb^{-1} was scheduled. The 36 hours Xe run was very successful.

Linac2&Linac3

R. Wegner provided by email the status of the linacs ([Annex 3](#)).
*‘Excellent week for Linac2 with 100% availability.
For Linac3 a good week, only the source’s Thomson RF generator tripped several times.’*

LEIR

S. Pasinelli reported for LEIR ([Annex 4](#)).

Issues:

- Missing BTrain (no Bup & Bdown), fixed by a crate reboot.
- ETL.BHN10 interlock; the investigation is still on-going.



- ETL.QNN60-EJ was not following the reference setting because the defined MAX value was not correct and the current asked for the power supply was too high.
- Several CRF41 trips, sometimes the remote reset didn't work and a specialist had to intervene.
- E Cooler in Local mode and OFF due to glitches on the power network.

Main activities:

- EARLY Beam to LHC for Xe collisions and crystal collimator MD.
- EARLY beam to SPS for partially stripped ion Xe³⁹⁺.
- NOMINAL beam for instability studies reached $7.4 \cdot 10^{10}$ injected ions with 7 injections.
- Investigation on Flat & Wobbling bunches. Two different types of oscillations have been seen: dipolar and quadrupolar. The dipolar one comes from the difference between the RF frequency and the beam frequency. The quadrupolar mode (the donut effect) is not yet clear.
- Investigation on fluctuation of the extracted intensity: the efficiency of capture and acceleration in LEIR increases when the IPM (Ionization Profile Monitor) is switched on.

PSB

G.P. Di Giovanni presented the status of the PS Booster ([Annex 5](#)).

A good week and RF problems during the weekend. Availability was 95%.

On Saturday, the 8b4e_BCS beam was lost sometimes in Ring2 at capture. The RF piquet replaced few components of the HLRF to try to disentangle the origin of the problem causing some downtime for the PSB or having the PSB running in degraded mode. Finally, the RF experts could not find anything unusual and the problem seems to have disappeared.

On Sunday, the 2 MHz cavity in Ring3 started tripping regularly. A coupler was exchanged by the expert, but it did not solve the issue, as around 3AM on Monday the problem re-appeared. An access Monday morning was needed, and the exchange of the final blower solved the problem.

The issue of the drift of the BT1.SMV10 power converter is still not solved. This requires continuous monitoring of the extracted trajectories, re-steering or calling the TE-EPC expert to retune the converter. This is likely the cause for the blow-up of R1 emittance reported by the LHC. TE-EPC will attempt the repair during next week's radiation survey.

A first version of the VdM beam with 4 rings for the LHC special run was prepared and transferred to the PS. The high-intensity MTE beam (up to $2.5 \cdot 10^{13}$ ppp) for a special run to test the equipment with SHIP-like intensities in the PS and the SPS was optimized.

ISOLDE



E. Siesling reported the status of ISOLDE ([Annex 6](#)). Very busy, as all the lines were running in parallel.

GPS had 96% availability. Vacuum gauge for sector GLM10 had to be exchanged.

REX-HIE had also 96% availability. 7GAP2 preamplifier broke and was exchanged.

HRS had 98% availability. Trips of HRS.QP330 and HRS series 700 and 800.

ISOLDE Users

K. Johnston provided the report by email.

'On GPS STAGISO protons were taken on a Sn target for Cd beams which were delivered for solid state physics. This was an excellent run with many systematic measurements taken on multiferroic, solar cell and semiconductor materials. Although the data will take a while to analyse, the users are extremely content with the physics output from this week.

On HRS NORMHRS beams – in a batch mode – were taken for the production of Sn beams for HIE-ISOLDE/Miniball. This was quite a tough setup – the first on HRS this year for HIE-ISOLDE – and the laser ionisation scheme took longer to find the desired efficiency than usual (an alternative scheme was tested which should have been more efficient but there were errors in the literature, so the traditional scheme was in the end favoured). Once beam was delivered to the experiment the intensity has been excellent, although some problems at the experiment have been an issue.

Nonetheless, by taking one more night tonight (Monday) they should be able to essentially complete the planned programme. The users would like to especially thank the support received on Friday night for the work on the 7-gap which saved the run. The RF group – and Erwin - did a great job. In addition, many thanks to the booster for delivery of two different type of beams within the constraints required for the experiments. This week has been the 50th Anniversary of beams at ISOLDE and it has been a demonstration of the diversity of the experimental programme and also the terrific technical support that all users at ISOLDE receive to achieve their physics goals.'

PS

F. Tecker reported the status of the PS ([Annex 7](#)). A relatively good week with 91% availability.

Faults:

- During the maintenance of the access system one of its fuses blew (most probably unrelated to the maintenance works) and a patrol had to be redone.
- A spare 10 MHz cavity broke, and to avoid running without any spares over the weekend it was decided to fix it on Friday, what required access.
- FTN.BHZ403 power converter (affected only nTOF)
- POPS, PFW

Activities:

- Beam for scrubbing sent to SPS.
- Xenon (fully stripped) sent to EAST dump.
- Optimisation of MTE with $2.5 \cdot 10^{12}$ ppp.



- VdM beam has higher emittance than requested: $2.4 / 2.1 \mu\text{m}$ at injection and $2.5 / 2.1 \mu\text{m}$ at extraction.

Comment from **J. Wenninger**: These numbers have to be confirmed because on yesterday's meeting with the experiments new values were quoted.

Comment from **B. Mikulec**: Maybe the setup should be started later, when the requirements are stabilized.

Comment from **J. Wenninger**: I will try to write the values down and we stick to them.

Question from **B. Mikulec**: Is the PS currently running on White Rabbit B-train transmission?

Answer from **F. Tecker**: We are using still the old transmission of the B-up-B-down signals. **A. Beaumont** had informed me that they were not able to reproduce the problem on the WR transmission. Therefore he proposes to switch back during this week to the WR transmission in order to investigate if the rare problem of a missing POPS cycle would reproduce.

East Area

B. Rae: All good.

East Area Users

No report.

nToF

D. Macina: Nothing to report.

AD

T. Eriksson on behalf of **B. Lefort** reported on the AD status ([Annex 8](#)). Nearly perfect availability this week (above 99%). Injection septum had to be reset several times. Some instabilities detected on ALPHA's line that were corrected by steering.

ELENA

T. Eriksson: It was not so good at ELENA. Attempted to improve stability and intensity of the H⁻ beam from the source, including help from the Jülich experts, who built the source. The new settings seem to increase the rate of breakdowns. In turn, they lead to failures of the filament power supply. Already a few units had to be exchanged and there are not many spares left. Currently restarting the source to continue ELENA commissioning, which on certain days will be also done with p-bars.

AD Users

No report.

SPS



V. Kain reported the SPS status ([Annex 9](#)). Availability was 92%. The biggest issue was the interruption of the chilled water for the septa (2.1h downtime).

BCMS beam with the pushed intensity for high intensity run had issues:

- Losses at transfer, injection and flat-bottom of 15%.
- Emittance blow up.

For partially stripped Xe ions (Xe39) only 8% survive acceleration.

On the other hand, the fully stripped Xe was very efficient and thanks to a small emittance the intensity was reduced to 1.5×10^{10} ions per bunch.

HiRadMat finished its last run yesterday.

North Area

B. Rae: A good week.

North Area Users

No report.

HiRadMat

No report.

Comment from **V. Kain:** It was the last HiRadMat run this year that just finished.

AWAKE

No report.

Comment from **B. Rae:** AWAKE will have DSO tests for the electron source/line on next Monday (October 23) afternoon. Hardware commissioning of the electron source/line will then start end of next week for several weeks.

TI

J. Nielsen: The issue with the BA2 chilled water was due to a high temperature interlock. It was longer to restart because there was another interlock on the user side that had to be reset manually. During the weekend there was a strange problem with a server delivering data from the Technical Network: data packages were not arriving and causing communication interruptions.

3. Schedule Updates

B. Mikulec presented the latest version of the [injector schedule](#).

In the SPS a UA9 run is ongoing.

G. Rumolo reported that on Wednesday, in the SPS there will be a dedicated MD, during which there will be no NA beams.



On Monday, there is the end of the proton run for the NA. All proton beams will be stopped at 6am with exception of LHC fills. On Tuesday, also the ion beams are stopped for the radiation survey. Please keep in mind to avoid sending beams to the dumps before the radiation survey.

4. AOB

Maintenance of the access point YEA03.PSR=151 from 08h30 October 19 to 17h00 October 20 was **approved**.

There will be interventions on Telecom and Tetra from Thursday 19 October to November 17 with exception of October 24, when the radiation survey is scheduled. In case an access is needed please call the TI operators who will inform the installation team that will immediately put it back to operation. The system will be off only during working hours (during the nights and weekends it will be operational).

Next Meeting: 24th of October.

Minutes reported by P.K. Skowronski on 18th of October.