

Minutes of the 18th FOM meeting held on 05.08.2014

Agenda:

- 1) Status of the Machines
- 2) Schedule Updates
- 3) AOB

1 Follow-up of the last meeting

Concerning the minutes of the 17th FOM meeting, R. Scrivens asked to rephrase the sentence “D. Manglunki asked why the beam current from Linac3 was unstable.” in “D. Manglunki asked why the beam position from Linac3 was unstable”. G. Sterbini will correct the minutes.

The minutes of the 17th FOM meeting were approved.

Pending actions:

There were no pending actions.

2 Status of the Machines

Linac2 (R. Scrivens)

During the week there were problems with the emittance measurement on Linac2. The front-end (cfv-363-bispem) was regularly crashing. The problem was solved after changing the CPU card (Rio3).

On Wednesday the Central timing was stopped for an update. The Linac RF and Linac3 source were put into standby during this period (it was found out afterwards that putting the Linac RF in standby was not mandatory).

The outgassing from the slits in the LBE is being followed up with additional measurements, and will be further discussed with EN-STI.

Pushing up the level of the RFQ during the week improved the intensity by about 7 mA.

Concerning the RF controls, tests will be made on an updated version of the Linac RF controls FESA class, at the RFQD in AD. If successful, the new release will be propagated to Linac2 and Linac3. J. Betz asked about the alarm problem in Linac3 of the RF FESA classes. R. Scrivens answered that alarms are not correctly appearing in LASER and tests could be made in the following week to verify correct statuses and the propagation of alarms.

LA1.QFN10 power convertor needed an intervention on Monday (4 August).

PSB (E. Benedetto)

The two main problems, which appeared at the end of last week to send beams to ISOLDE

were fixed.

- 1) For the beams to GPS: the SIS tail clipper was not cutting the Linac2 beam. It was due to a timing issue.
- 2) The second issue concerned BTY.BHZ301 and BTY.BVT101. For USER NORMGPS the power supply was taking the value of HRS, but for two subsequent cycles with destination GPS the second cycle was not correct. After lengthy investigation it was found that the power converter was evaluating a wrong condition from the Telegram and it was decided to add the following conditions: FIRSTISO, ISOCONSECUTIVE, FIRSTHRS, HRSCONSECUTIVE to correctly deal with switches between GPS and HRS and to consecutive cycles to one destination. The release of the MGT and the changes to the magnets FESA class were eventually deployed on Friday. The involved specialists were acknowledged.

On Tuesday afternoon (29 July), SEM grid measurements to HRS were done (following the SEM grid measurement of last week in GPS). The SEM grids were removed on Wednesday morning (30 July), after cooling down during the night. ISOLDE was then ready to start taking beam. There were problems with all high intensity users due to beam losses on the flattop before extraction in Ring 4. They were fixed by slightly modifying the working point.

On Wednesday morning, an access was organized in the PSB to investigate a water leak. A problem with a pump was found. In the meanwhile there was a new release of FGC3, a restart of the central timing and the deployment of a new version of the MTG. Due to a bug in the access system, the beam was back only at 11h30 (instead of 10h30).

During the week it was observed that the AD beam sent to the PS had no orbit correction. The beam was cloned and the setting up was done in the PSB, while providing the “old” AD beam to the PS. Yesterday (4 August) the correction was propagated to the “old” AD cycle.

Test of the new LHC-type BLMs took place on Wednesday. The acquisition for the time being is done with an expert application, while waiting for the new electronics. First results look promising. An inversion of polarity of LTB.BPM10 was found and fixed.

On Friday morning the new version of the MTG and the FESA class were deployed to solve the problems for BTY.BVT101 and BHZ301.

On Friday afternoon, losses were found on NORMGPS right after injection. Finally it was discovered that the cavity C04 was on fault but no alarm was shown on LASER. It happened again during the weekend (no alarm shown).

On Sunday there were problems with BTY.QFO184 (several trips). It was also found that the MPS was pulsing even for the ZERO cycle since 2 weeks. It was put back to zero.

The goal for the next week is to increase the intensity of AD, TOF, ISOLDE and start preparing the SFTPRO and LHC beams (LHCINDIV is ready).

[PS \(A. Guerrero\)](#)

The PS has been delivering the EAST and TOF beams as requested the whole week. On Friday a low intensity AD beam was sent to the target.

This week there was one access of three hours on Wednesday. Switching the beam on again was long due to a radiation monitor not in the appropriate mode to set the beam back. Switching back POPS was also longer than expected. After discussion between G. Métral and J. Vollaire, an action was open for RP and ACCESS to solve the issue of the radiation monitor in the Switchyard by modifying conveniently the software.

On Friday POPS tripped after a reboot of an MTG crate as consequence of a misunderstanding. The incident was due to a lack of communication (1h30 no beam).

The TOF beam was down over 6 h due to a kicker problem. The EAST1 beam was down around 4h30 in total due to an external condition cable crossing between two stoppers and also due a quadrupole power supply failure. On top of that all beams were down over 1 h due to 10 MHz cavity failures.

Both TOF and AD beams follow the new fast extraction schema with an increased number of elements. The EAST with parasitic TOF is underway.

The week has been mainly devoted to set-up the AD beam that still needs to be worked on. For nominal intensities the emittance grows along the flattop and the losses at extraction are too high.

Radiation monitor PAXP502 has been seeing 2.5us/h instead of last year maximum of 1us/h. In a first approximation these losses seem to be related to a continuous screen presence though it remains to be confirmed.

The main issues hampering the PS operations are

- the kicker 21 instability (trips, amplitude not nominal).
- available of the orbit system with the batch compression in AD.
- emittance growth in AD after the batch compression (under investigation)
- B-train reproducibility along the supercycle.

G. Métral commented that the absence of the orbit measurement at AD extraction limits the optimization of the beam. L. Soby will follow-up the problem.

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

The EPC tests are continuing. Some accesses are given in the morning.

Next week several important interventions are planned: three magnets and the high-energy internal dump replacement.

[ISOLDE \(M. L. Lozano Benito\)](#)

The last week was the first week with proton in ISOLDE GPS (accordingly to schedule).

It was a very intense week at ISOLDE.

On HRS we are still working to get the RFQ going and preparing the rest of the machine.

HRS: On Tuesday the SEMGRID target tests and RFQ replacing of the ejection side insulators were done.

On Wednesday the target change (#509) was performed together with an access to HRS separator to increase the air compressed pressure for the frontend. First part of the front-end HT tests took place during the afternoon.

On Thursday the front-end HT tests repeated during the morning. Target and line cooling PLC got stuck and the specialist has to reset it. New reset button will be installed on the PLC touchscreen to reset it in case it happens again. The second part of the HT test took place in the afternoon during the afternoon. During these tests the target HT power supply broke (the reason of the break is not known).

On Friday the spare power supply was installed on HRS and the HT tests could continue.

On Saturday one of the knobs could not be set to the required value due to a wrong upper limit set on the software. INCA support called but not reachable. Users managed for the weekend with the FESA navigator.

GPS: On Tuesday there was the Faraday cup intervention (GPS.FC20). Some problems with the vacuum system and the clamping and unclamping of the target occurred.

On Wednesday the GPS.FC20 intervention continued. Connectors were replaced and now the device is working as expected.

On Thursday, GPS target and line heating were dropping due to sparks on the target. This issue will need investigations as soon as the expert is back to CERN. Some beam tuning was done for GLM and GHM.

On Friday, operation continued to be perturbed by trips of the HT and the target and line heating. After some investigations it was discovered that the target Faraday cage door was creating some intermittent interlocks.

Proton scan was done in the afternoon and after a long and difficult week, beam for users was sent around 16h00.

A couple of radiation alarms went on as soon as target started taking protons. RP was contacted and proton beam current needed to be lowered to 1 uA during the weekend. J. Vollaire commented that this year additional RP monitors were installed and the old ARCON monitors were replaced with the new RAMSES ones. They have still to be adjusted. The problem will be followed-up.

There were some problems during the weekend with the GLM/GHM deflector plates and

knobs but nothing that prevent users to continue physics.

ISOLDE Users (M. Kowalska)

GPS physics started. The experiment taking data is related for cancer treatment research in collaboration with PSI. HRS is waiting to start its physics program soon.

nToF (S. Montesano)

nToF took some beam but it has to stop for a vacuum leak. It was not easy to intervene but the problem seems almost solved.

Concerning the access system there are problems for the commissioning since access in one single sector perturbs heavily the commissioning in all other sectors.

East Area (S. Mataguez)

There were two calls to First Line over the week-end for ZT9.QFO4 and ZT10.QDE5 respectively. Both were fixed rather rapidly.

East Area Users (H. Wilkens)

The users are satisfied with the beam quality delivered.

AD (L. Bojtar)

The beam commissioning is hampered by the problem connected to central timing. M. Gourber-Pace asked for more detail. L. Bojtar answered that the OP team needs to readjust all time settings to take into account the change in the central timing.

The bunch rotation cavity reached only 350 kV out of 450 kV nominal. At the moment the problem is not critical (it will be important to solve the issue before the AD physics start).

The horn is working correctly after the LS1 repair.

T. Eriksson added that the Schottky diagnostic is not operational and the responsible will be back next week. L. Soby asked about details. M. E. Angoletta reported that there is a problem in the signal post-processing (under BI responsibility) and not to the low-level electronics (under the BE-RF responsibility). L. Soby will follow it up.

Linac3 (R. Scrivens)

It was a quiet operation week.

On Monday and MD was made to go to Pb settings, at 5 Hz. The ITF pulsed magnets did not warm up as much as feared, and the ventilation showed a slow temperature rise (0.5 °C), which did not saturate in the 6 h. EN-CV and TE-MSD specialists need to complete analysis to draw a proper conclusion. The outcome will be relevant for LIU ion program.

Moving to 5 Hz created radiation alarms (higher radiation from the Linac3 RF was expected), alarm levels were adjusted for the test and returned to normal this morning.

Slits after the source are often blocking. EN-STI is working on the problem.

A solution was put in place for the PPM copy of timing settings for the BCTs, but the PPM copy did not work when returning to Argon settings after the MD yesterday. It was urgently solved by hand yesterday, but will be checked again and an issue reported.

Need to plan a Friday stop to install the pepper pot: a Friday was proposed to profit of the week-end for the vacuum recover. It would be good to synchronize with a PS access if planned to minimize LEIR downtime.

LEIR (D. Manglunki)

During the week the cabling inversion on the semi-fast transformer was corrected. The transformed gives now a positive signal for the Ar beam and negative for secondary electrons when the beam hits the chamber - as it should.

The hardware and software upgrade of the Agilent signal analyzers proved to be problematic due to license issues. J. Axensalva is following up the issues.

The longitudinal tomoscope is now working.

In collaboration with Linac3 team, the tuning of RF ramping cavity and de-buncher was done; the injection/accumulation were optimized but so far still a factor four in intensity is missing.

The first capture and beginning of acceleration achieved last week by the RF team.

Problems continued with the Low level RF front-end computer (cfv-363-all1). The 5th CPU and the crate changed yesterday. M. E. Angoletta added that the situation is not yet clear and that the follow-up will continue.

ETL.BHN20 developed problems on Friday (freezing to a single value instead of following its double PPM cycle). Probably it is due to a bad contact.

There is a status acquisition error on ER.QDN2040.

Yesterday evening (4 August) after MD's and tests, beam was back from Linac3, injected and circulating but there was no signal on semi-fast transformer, only noise. An intervention is ongoing.

The plan for LEIR still aims at delivering beam to PS in week 35 (25 August), and possibly RP measurements on the visits platform on week 35 too (sufficient advance notice will given to RP). The support of all the specialists especially from BE/RF was acknowledged.

TI (P. Sollander)

Saturday night there was a glitch of the power network. The perturbation affected PSB (30 min stop).

3 Schedule Updates

B. Mikulec presented the Injector Schedule (v1.6). It can be found at

https://espace.cern.ch/be-dep/BE/DepartmentalDocuments/BE/2014-injector-schedule_v1.6.pdf

There were no changes on the schedule to report. G. Rumolo informed that concerning Wednesday MD, BE-ABT requested a special EAST1 cycle to measure their extraction equipment.

After discussion it was requested to plan for next Friday the pepper pot installation in Linac3. If needed, the access for PS should be combined with the Linac3 intervention to minimize the downtime of LEIR.

To be compatible with the LHC MD in PS, it is important to change the electronics card for the PFW rms control. At the moment the time window considered for averaging the rms is 4 s and has to be modified to 30 s. This intervention does not require access and should it be done before the next week MD session (13 August). C. Mugnier will follow it up.

AOB

A. Bland reminded and informed that:

- There will be a TN disconnection test on Monday 8th September.
- As part of the preparation, new DHCP servers (which supply IP addresses to computers when they boot) will be deployed by IT/CS on the TN on Monday 11th August if the TIOC approves the corresponding IMPACT request. P. Sollander will report to the FOM¹ and B. Mikulec commented that FOM would endorse the TIOC decision.

The next FOM meeting will be held on the 5th August. The agenda will be communicated in due time.

Minutes edited by G. Sterbini.

¹ After the FOM, P. Sollander informed that the TIOC approved the IMPACT request.