

# Minutes of the 34<sup>th</sup> FOM meeting held on 25.11.2014

Agenda:

- 1) Follow-up of the last meeting (K. Hanke)
- 2) Status of the Machines (all)
- 3) Schedule Updates (K. Hanke)
- 4) AOB

## 1 Follow-up of the last meeting

The minutes of the 33<sup>rd</sup> FOM meeting were approved.

*Pending actions:*

The open action concerning the recombination kicker rise-time in the PSB is being followed up.

## 2 Status of the Machines

### Linac2 (R. Scrivens)

It was a quiet week. On Thursday, a comparison of beam energy measurements between a new Time Of Flight measurement and the spectrometer line was successfully performed.

### PSB (A. Findlay)

It was a good week for the PSB with no major issues to report, but a lot of work by several people to improve the performance and reduce losses in the machine, mainly by steering the beam.

There was about one hour lost on Wednesday where an unexplained change in Ring 2 and Ring 4 perturbed the high intensity users causing losses at extraction and tripping the BLMs. The OP and LL RF teams investigated the issue but could not find the source. The problem disappeared as quickly as it had appeared.

In amongst the many MDs this week, work on the orbits paid dividends when the ISOLDE users got new orbits helping greatly reduce losses in the PSB hot spots. The model used for the orbit correction is describing with good accuracy the machine behavior. The cycles were also worked on to slowly bring back up the performance to the 3000E10 of the previous week and the steering was improved to reduce losses in the transfer line.

The optics was later updated for all operational users to reduce the losses in the hot spots at injection/capture.

Work was started to create the high intensity LHC25ns beam requested for the upcoming SPS scrubbing run.

K. Hanke informed that another alignment campaign will be done during the YETS.

### ISOLDE (P. Fernier)

**GPS:** It is running on Target #529 Ti at 30kV for the GHM line. Presently studies on  $^{27}\text{Mg}$  are performed. After the setting-up, the proton scan and the yield check, the beam was available on Friday afternoon. The data acquisition stopped on Monday morning.

**HRS:** It is running on Target #521 UC2C Ta at 40kV pour CRIS on LB0 line. In continuous mode the global transmission is around 70%. In bunching mode, tests with  $^{238}\text{U}$  showed a low transmission (20%) all over the machine, and 27% for  $^{221}\text{Fr}$ . The problem seems related to the RFQ but further studies are required.

From time to time the control of the HT was lost. The workstation needed to be rebooted frequently but at the moment the problem seems disappeared.

### ISOLDE Users (M. Kowalska)

HRS users are satisfied and GPS users are reasonably satisfied. During the week the users asked to reduce the intensity.

### PS (G. Métral)

There were no major problems during the week.

Due to the exchange of the power supply of the KFA13 and 21 there were 2 h of downtime.

At the moment the TPS15 is in the IN position and all extractions of the production beams are set to be compatible with its aperture restriction.

The B field at injection was adjusted to be compatible with the needs of the frequency program.

During the week there were several problems with bumper PE.BSW14 presently operating close to its limit.

There is a measurement problem with the trajectory on the second batch in the first turn. L. Soby will transmit the information.

### East Area ()

There was no report.

### East Area Users (H. Wilkens)

The CLOUD experiment is stopped at the moment. CBM in T9 and ALICE in T10 are running smoothly.

### nToF ()

S. Montesano sent an email before the FOM:

“[...] The situation in n\_TOF is quite stable without particular problems.

We are running the measurement of the  $^{240}\text{Pu}$  (plutonium) reactions cross section in EAR2 and the measurement of the neutron capture cross section of  $^{171}\text{Tl}$  (thallium) in EAR1.

Both samples are unshielded and radioactive, as a consequence both areas are classified as Class A and access is allowed only under the supervision of RP.

These measurements are scheduled to run until the stop of the beam in December.”

### CTF3 (L. Navarro)

The beam was successfully transported through the two-beam module and the commissioning of the phase feed-forward system was continued during the week.

Breakdowns were accumulated mainly without beam. This week more breakdowns with beam will be collected in order to compare the two rates at fixed accelerating gradient.

Almost every day the XenericSampler process has to be restarted on at least one of the front-ends. J.M. Nonglaton is looking into it. Problems on the new passerelle are still being worked on.

Concerning the planned electrical network tests on 16 December and the expected perturbation of CTF3 operation (running until the 17 December), F. Tarita informed that the test cannot be rescheduled. L. Navarro added that CTF3 will be put in safe mode during the test but that the recovery will take several hours. L. Navarro asked when exactly the test will be done and how much time will take. F. Tarita answered that it is scheduled between 6h00 and 7h00 and it should last for about 10 min.

### AD (L. Bojtar)

It was an overall good week for the AD machine.

Good progress was done on the problem with the orbit fluctuation: the source of the jitter is the extraction septum. To alleviate the amplitude of the orbit excursion some counter-measurements are under investigation, for example reducing the current slope on the septum and synchronizing its trigger with the machine RF (presently it is using a C-time trigger).

### AD Users (H. Wilkens)

ALPHA and ATRAP are continuing to take data. The He plant maintenance (2-3 weeks) is going to be scheduled for March 2015. H. Wilkens asked if the CV maintenance could be schedule in the same time slot. S. Deleval answered that it is possible.

### SPS (V. Kain)

The past week was a positive week for the different beams and activities.

The intensity on SFTPRO was increased to 600E10 on Monday to have more intensity on T6 for COMPASS. COMPASS was very happy with the quality of the beam during the week and asked for another intensity increase on Friday. At the moment SFTPRO is running with 1000E10 on T6. The spill was equalized along the flattop to have the same intensity for the whole spill duration by adjusting the momentum of TT20. The 50 Hz noise on the spill spectrum was also greatly reduced on Thursday. As usual the pilot cycle in the supercycle perturbs the following SFTPRO cycle. The reason seems to be related to the magnetic history of the main bends and main quads. The B field and tunes are different at injection and hence the spill and horizontal

trajectory in TT20. An adjustment of the functions during the beam-out was tested, but it could not improve the situation so far.

There was no significant downtime due to equipment faults (1 h for cooling issue on main bend power converters). There were 5 h downtime on Tuesday night due to a problem with the beam on SFTPRO. The origin of the problem was not understood and could not be reproduced. The injection kickers, which were suspected as the culprit by the shift crew, were not the origin of the problem. All checked beam parameters were ok: injection oscillations, tune, beam was not unstable on the BBQ. Dampers worked correctly as well.

LHC pilot beam is now available in the SPS. It was used during the transfer line tests. The tests were successful. The extraction septa jitter has been greatly improved (for both lines by about 50%). SPS orbit reproducibility can be still improved. The OP team will investigate the issue and try to improve it by correction with the bumpers.

There was a COAST MD for the button collimator test on Wednesday. The wire scanner 416 is ready for the scrubbing run with bunch-by-bunch acquisition.

D. Manglunki reported that there was a problem on one RF cavity: it was tripping continuously. T. Bohl explained that the problem is understood and it was related to a bad condition on a switch when the cycle is not played in a standard economic mode.

#### North Area (A. Fabich):

The users are happy and the systems are working as expected.

#### North Area Users (H. Wilkens):

The NA62 problem with the 50 Hz ripple improved significantly.

### IONS

#### Linac3 (R. Scrivens)

On Tuesday, the RF down went down due to a monitoring fault.

On Wednesday, the Linac RF test was done in conjunction with LEIR. The injected intensity was increased by more than 50%.

On Friday an RF instability was diagnosed and temporarily solved in Tank2 (that had been affecting LEIR stability for about a week).

On Monday an intervention on the compressed air on a sector valve and some tests on gas injection on the LEBT took place. The RF tube was changed on Tank2 to give a permanent fix to Friday's problem.

D. Manglunki commented that last year the intensity delivered by Linac3 was 50  $\mu\text{A}$  but at the moment is about 40  $\mu\text{A}$ . R. Scrivens explained that the Linac3 source after its recent maintenance did not yet fully recover the nominal performance.

#### LEIR (M. Bodendorfer and S. Pasinelli)

The LEIR electron cooler went in fault twice during the week. A. Frassier diagnosed a flow-meter alarm on a solenoid. The flow was increased and the issue was solved.

On Wednesday, the LEIR extraction kicker power supplies suffered from a PXI communication error. Whenever this error occurs, the kickers cannot be controlled remotely and a local reset is necessary. Specialists are aware about the issue and are planning to install a "remote relay". The LL RF main computer (cfv-363-all1) got stuck. The problem was solved after a local cold restart (OFF/ON) of the machine.

On Friday late afternoon, a Linac3 optimization on Tank 2 cured a strong shot-to-shot fluctuation. Since then LEIR worked flawlessly.

LEIR has regularly delivered Ar beam to the PS with extracted intensities ranging between  $1.5E10$  and  $3E10$  charges per bunch, depending on the state of optimization. The longitudinal emittance is larger than the nominal value. Currently more than 2 eVs (matched area) were measured. Investigations are ongoing.

Additionally, operation of four consecutive ANOMINAL (2.4 s) cycles were programmed and tested in preparation for the actual physics run in 2015.

#### **PS (G. Métral)**

There is nothing in particular to report.

#### **SPS (V. Kain)**

There were up to 4 injections of Ar on Thursday and Friday during the ion period. T. Bohl worked on the setting up of the longitudinal plane.

D. Manglunki asked for more MD time. H. Bartosik commented that this in principle possible. Discussions on this subject will continue off-line.

#### **TI (P. Sollander)**

There was no major problem to report.

P. Sollander informed that during the Christmas period TI-OP is the only team present in CCC. If there are special equipment surveillance requests, TI-OP has to be informed in advance.

### **3 Schedule Updates**

The Injector Schedule (v1.7) is available at

[https://espace.cern.ch/be-dep/BE/DepartmentalDocuments/BE/Injector\\_Schedule\\_2014.pdf](https://espace.cern.ch/be-dep/BE/DepartmentalDocuments/BE/Injector_Schedule_2014.pdf)

There are no updates with respect to the schedule.

## 4 AOB

K. Hanke informed that there was a request for maintenance of the door YEA01.TT2=269 (IMPACT 58027) from Wednesday 26 to Friday 28 November. RP is already informed. The intervention was approved.

Concerning the start of the YETS works in Linac2, C. Mastrostefano asked when the first part of the Linac2 could be accessed. J. Vollaire answered that this depends on the intervention type and some iterations need to be done. K. Hanke added that during the next FOM the technical coordinators will present the proposed YETS activities. J. Vollaire informed that the beam has to be stopped 30 h before the access to allow the usual end-of-run RP survey. H. Wilkens replied that this will reduce by 50 % the data acquisition of some AD users. R. Steerenberg commented that the impact of the total machine activation of the AD physics is limited, therefore one could envisage to keep running the AD cycle for longer time. A precise schedule will be prepared in the following weeks.

M. Gourber-Pace informed that there will be 5 min stop tomorrow (26 November) for the LASER and RAMSES applications. It is not needed to restart the applications.

S. Deval informed that an updated version of the CV maintenance dates is available. K. Hanke asked to present it during the next FOM in order to schedule consistently all other YETS activities.

The next FOM meeting will be held on the 2<sup>nd</sup> of December. The agenda will be communicated in due time.

Minutes edited by G. Sterbini.