

Minutes of the 36th FOM meeting held on 09.12.2014

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 35th FOM meeting were approved.

Pending actions:

There were no pending actions.

2 Status of the Machines

Linac2 (G. Bellodi)

It was a quiet week for Linac2 apart for a problem with the BCT acquisition perturbing the operation on Friday afternoon and during the weekend. The problem seems related to a timing issue; investigations are ongoing.

PSB (E. Benedetto)

The beams required for the scrubbing run, which are ready since last week, have been regularly delivered to the PS. The BCMS (in preparation for the scrubbing run) still needs some optimization. A preliminary version is already being sent to the PS.

Several MDs took place this week, in particular the LLRF team succeeded to accelerate 650×10^{10} protons (the max they expected) in a pure $h=1$ using only the Finemet system (ferrite cavities were disabled).

On Thursday afternoon the issue of the BT Dump Fan External Condition FALSE appeared again. The ventilation was working, but a problem in the cabling to the external condition inhibited all beams going to the dump. The fault lasted for 4 hours. Beams going to ISOLDE or to the PS were affected for only 30 min and 15 min to allow the specialist to do some investigation and then change a cable. Helmut Vincke asked what would happen in similar case if an unexpected dump was triggered. B. Mikulec answered that in the PSB the external dump is not used to dump the beam in case of a sudden problem and the dump destination has to be programmed in the SC definition. K. Hanke and M. Gourber-Pace added that problem is being followed to have a permanent solution.

On Friday night, the extraction kickers BEi.KFA14L1 went down. The piquet found a problem on one detector in the oil circuit. The fault lasted around 4 hours.

During the weekend the source of the large extraction trajectory fluctuations/drifts in Ring4, (on the vertical plane) which were affecting operation since more than 2 weeks. The

problematic equipment is the recombination septum BT4.SMV10. The EPC piquet changed the regulation card and temperature compensation card during the weekend and on Monday the power supply specialist solved the problem permanently.

ISOLDE (E. Fadakis)

HRS: The week was dominated by the target exchange.

On Wednesday there was stable beam configuration through the ISCOOL for continuous and bunching mode with ^{39}K , ^{138}Ba and ^{238}U .

In the evening, the cooling down of the target started in preparation for its exchange.

On Thursday the target was changed. The replaced target #521 UC2-C received $5.5\text{E}18$ protons. The new target is the #528.

On Friday there was stable beam tuning with ^{87}Rb through the cooler in continuous mode.

GPS: On Tuesday morning the tape-station (a device used to observe the position of the beam with respect to the target) was repaired and the control of the turbo pump recently installed in CC010 was replaced. In the afternoon the target group performed yield measurements.

On Wednesday protons were delivered to IDS until the afternoon when the target heating tripped. The expert reported that the ramping card got a false off which caused the heating to drop. He changed the card with a spare and everything has been working since then.

On Thursday RILIS was optimized for Cu. The HV dropped at the same time when the target area was put in access mode for the HRS target change. After physically resetting the power supply (by turning the key in the HV room) everything was fine. RILIS could continue their Cu optimization. Protons were sent to IDS in the afternoon.

On Friday morning the HT dropped once the manually reset of the power supply was replaced. Protons were sent to REX for the first test with radioactive beam. In the evening beam was back to IDS.

On Saturday IDS was perturbed by a few problems from PSB. In the evening IS579 took proton beam.

On Sunday IS579 continues with proton beam.

E. Fadakis briefly described the VITO experience. VITO (Versatile Ion-polarized Techniques Online) is a new beamline at ISOLDE which has been commissioned during the year. It consists of a beamline with a beam polarizer and three experimental stations: 1) ASPIC dedicated to the surface and interface investigations with the PAC technique, 2) bNMR station dedicated to the chemical and biological studies in low vacuum and 3) an open-end station for travelling experiments. On November 28th the first stable beam of ^{27}Al was shot through the entire beamline reaching the transmission of 96% at the FC at the very end of the beamline. A week later, the beamline was commissioned with the first radioactive beam of ^{68}Cu which was used for the online PAC experiments. PAC is a well-established technique both in condensed matter and chemistry applications. The chosen isotope of ^{68}mCu was, however, never applied before due to unknown quadrupole moment. The preliminary results obtained from 4 different target

materials prove the feasibility of using such beam in future studies and they allow for extraction of the information about the quadrupole moment and the magnetic moment of the isotope.

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

The users are rather happy. Many users shared the beam time in an effective way.

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

Last week has been mainly dedicated to prepare the LHC beams requested for the SPS scrubbing run:

- 1) LHC25 72 bunches with high intensity $1.4e13p$
- 2) LHC25 48 bunches BCMS
- 3) LHC25 56 bunches with 8 bunches and 4 empty slots
- 4) LHC25 80 bunches with damper

The work on the study of MTE island population stability has continued. Around 3000 scans have been performed but today early morning the WS broke. At the moment all horizontal WS of the PS are broken. The WS 54H and the 65H will be replaced on the 16 December.

There have been no major issues worth mentioning except the four hours of downtime due to a problem in one of the converters of POPS and half an hour due to RF front-end issue that stopped the 10 MHz cavities.

E. Benedetto added that a new version of the PSB BCMS beams is under preparation and will be mapped to be delivered during the week.

[East Area \(L. Gatignon\)](#)

In general smooth running of all beam lines. CHARM and IRRAD run a dense program with multiple users simultaneously. On Friday the CRYOBLM cryostat was installed and successfully commissioned with a special low-intensity beam. In T11 the P349 experiment managed to improve its calibrations sufficiently to clearly separate the small fraction of antiprotons in their beam at 3.5 GeV/c, a necessary condition for measuring their polarization.

Since Friday only the CCC could control the T10 beam stopper (and later all stoppers) from the working sets, as the CESAR control for the users stopped working. A fix has been implemented in the front-end software this morning and must be validated in operation.

A sizeable amount of water lost the East Area. The leak has still to be found. The leak search and repair will take place during the YETS.

[East Area Users \(H. Wilkens\)](#)

The users are satisfied.

[nToF \(S. Montesano\)](#)

During the week a problem was found with the timing of the parasitic TOF cycles on the East cycles. A. Guerrero informed that the problem is solved.

[CTF3 \(\)](#)

L. Navarro sent an email after the FOM:

“The beginning of the week was devoted to set up the first factor 8 combination, achieving 28 A of beam at the combiner ring. The second half was devoted to the phase feed forward experiment.

The dogleg was collecting data at 61 MV/m unloaded gradient.

The XenericSampler process still stops from time to time. The expert is working on it. The problems on the new passerelle are still being worked on.

Operation was significantly perturbed by problems on the FECs dctfumar and dctfumad. BPM data was not sent around to clients. Even if XenericSampler seemed to work as expected the process needed a reboot to receive data again. After a few minutes it stopped again refreshing with new data. On top of this, BPM data is refreshed only every 15 seconds. W. Sliwinski was contacted but investigation will take place only after the YETS.”

[AD \(B. Dupuy\)](#)

The AD had a good week with little down time.

The main problems were caused by power supplies DE1.DHZ61, DE.DVT7013-2, and poor external condition on the target area. E. Said was acknowledged for his help in solving the problem.

Due to radiation alarms, it was necessary to reduce the beam sent to ASACUSA. The ASACUSA sensor PAXA601 is still connected to the audio alarm in CCC. Helmut Vincke will forward the information to the responsible.

The beam was stable for the experiments over the week with a steady $2.5-3.1 \times 10^7$ pbar extracted.

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

The horizontal fluctuations are significantly reduced but are still visible.

[SPS \(Y. Papaphilippou\)](#)

The SPS had a fairly good week with only one major stop due to the dump kicker MKDV thyristor, whose switch had to be changed on Tuesday morning, cutting the beam for 3.5 h.

On Tuesday, some optimization took place on the descent of the power supply current for the main bends and quads, in the LHC pilot, normal and economy cycles, in order to reduce their impact to the following SFTPRO cycles.

The new Beam Energy Tracking (BETS) system was deployed on Tuesday and everything worked fine apart from some teething problems on the MD cycle (very slow ramp with doublets) of Wednesday and Argon cycle on Thursday. The specialist had to switch between the old and the new system in these occasions.

On Wednesday, the doublet MD took place and succeeded accelerating 72 doublets with $1e11p/doublet$ (when injecting $1.3e11 p/b$). Work continued on setting of LL-RF, transverse damper, BQM, emittance blow-up and losses control. Also during Wednesday, the tests of the full interlock chain continued in parallel during to the MD. They will be finalized next Wednesday (70% done).

On Thursday and after the feedback of COMPASS, the OP crew tried to reduce as much as possible the 50 Hz component in the spill. A feed forward system is still needed.

The HIRADMAT run of Thursday was postponed for next week. During this day, some polishing was performed on the Argon beam.

The weekend was quiet with only one trip of cavity 3 (vacuum fault), which was reset remotely by the piquet. An LHC pilot beam was also given to the transverse damper and SLAC team for measurements. Also several orbits at the LHC pilot flat top were recorded for monitoring their stability.

G. Rumolo added that the scrubbing run is proceeding well. Yesterday was mainly dedicated to the high intensity scrubbing (a new e-cloud regime was explored) while today will be devoted to the acceleration of the doublet.

North Area (L. Gatignon):

In general smooth running of all beam lines. Mainly (but not only) at the end of the MD, several communication issues occurred in the access system. L. Gatignon informed that NA62 may request an increase of the intensity on T4 at some stage. COMPASS is running at nominal flux, in agreement with RP, but RP survey will confirm the intensity limit during the shutdown.

North Area Users (H. Wilkens):

It was a good week.

IONS

Linac3 (G. Bellodi)

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

LEIR (S. Pasinelli)

It was a quiet week for LEIR.

On Friday the beam has been sent to SPS without problems and with the requested intensity.

During the rest of the week, the EPC and OASIS teams performed measurements on the OASIS noisy signals on the beam with a bare machine. The OASIS noise source has been identified and a fix will put in place in during the YETS intervention.

PS (A. Guerrero)

Cavity 80-08 can now be tuned for proton and ions. At the moment is tuned for ions.

SPS (D. Manglunki)

D. Manglunki informed that next Friday SPS will take the Ar beam and test three different cycles and energies.

TI (J. Nielsen)

There was no major problem to report. J. Nielsen reminded to inform OP-TI of special monitoring request during the winter stop. R. Steerenberg reported that a list is under preparation.

3 Schedule Updates

The Injector Schedule (v1.7) is available at

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

The beam will be stopped on the 15 December at 06h00.

After 30 h of cool-down, the RP survey will take place. After the survey the interventions will start. K. Hanke reminded that on Wednesday (10 December) at 17h00 a 1 h 30 stop is scheduled to allow a PSB access and an intervention of one of the 200 MHz amplifier of the PS.

4 AOB

D. Macfarlane asked if the “red CO days” on January 2015 will affect the access in the machines. A. Bland answered that on Tuesday 6th January the access in the SPS will be strongly perturbed. The PS complex (except CTF3 complex) will be less affected. After discussion it was decided that on the 6th January no access will be scheduled in the SPS between 07h30 and 11h30.

A. Bland informed that in 2015 all TN computers will be migrated in JAVA 8. At the moment for each CCC islands there is a JAVA 8 machine for testing purpose. In addition to that, about a hundred machines in the CCC will be renovated. A. Bland reminded that only the “/user” subfolders are permanent and the “/home” will be not migrated in the new machines. The operational password will be changed on the 6th January.

Concerning the Electrical test in the second week of January, discussion are ongoing to evaluate the impact on the LHC hardware commissioning.

K. Hanke informed about a maintenance request on YEA02.PSR=352 (ex D.111) from Wednesday 10 December to Friday 12 December 2014. RP already approved the interventions (IMPACT 59245). The FOM approved the intervention.

B. Mikulec and M. Gourbet-Pace informed that the planning of the CO upgrade foreseen during the technical stop can be found at

<https://wikis.cern.ch/display/SUWG/Christmas+Stop+2014-2015+-+Planning>

Helmut Vincke reminded to submit the IMPACT request for the Wednesday intervention before the 15h00 of today.

K. Hanke informed that there will be no FOM next week. The FOM will resume the 20th January 2015. There will be a short report of the technical coordinators on the YETS activities. The detailed agenda will be communicated in due time.

Minutes edited by G. Sterbini.