



Summary of the 4th FOM Meeting

Held on Tuesday 18th April 2017

Agenda (<https://indico.cern.ch/event/632087>)

- 1. Follow-up of the last FOM*
- 2. Status of the machines*
- 3. Report on ISOLDE / REX-TRAP / REX-IBIS start-up status*
- 4. Schedule updates*
- 5. AOB*

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

1. Follow-up of the last FOM

The minutes of the last FOM were approved.

2. Status of the machines

Linac2 & Linac3

G. Bellodi reported the status of the linacs.

Linac2 started delivering beam to the PSB on Monday 10th of April in the afternoon, after the Switchyard permit was signed.

There was 1h stop with machine access on Monday to pull a vacuum cable.

On Tuesday morning a RF intervention was needed on a faulty amplifier of the LI.CBU02 buncher cavity (50°).

On Wednesday afternoon, there was a planned intervention of the VSC team to install a secondary vacuum system at the Tank1 intersection to mitigate corrosion effects. This took 2 hours, though restart with beam was further delayed by a RF problem on the LT.CDB10 and 12 de-buncher cavities.

Studies of trajectory optimization at PSB injection were carried out during the week. BLMs were reconnected to monitor losses, but they will need further debugging with BI.



In Linac3 Xe22+ beam operation and further tuning was done. RP measurements were carried out that will allow sending the beam into the IH linac.

PSB

J.-F. Comblin presented the status of the PS Booster ([Annex 3](#)).

The PSB was restarted on April 10 at 13h without major problems. Ejection kickers tripped several times due to temperature, specialists are investigating.

Some connectors and cables were found broken. Affected devices: TFB, Wide band PU, radial PU. The TFB cables are already fixed. The BI cables will follow. The main concern was the commissioning of the new BTMS (Booster Trajectory Measurement System). The specialists managed to fix most of the problems and this allowed to do orbit corrections. Thanks to the BI team.

LHCINDIV and LHCPROBE beams are within specifications. The AD beam is nearly within specifications, but a final check of the RF specialist is needed. NORMGPS and TOF beams are being set up and their intensities are increasing.

Question from **D. Hay**: The broken cables were due to the de-cabling campaign or due to some other reason?

Answer by **A. Findlay**: It was either due to the PSB repowering or due to the transport of the BSW power supplies (in the case of the TFB racks).

PS

M. Fraser reported the status of the PS.

HW checkout tests were carried on throughout the week with many piquet interventions needed to get equipment up and running. EPC worked on POPS most afternoons and evenings around which access was organised. EPC also worked on the regulation of the figure-of-eight loop (W8L) and the PFWs, which is needed to compensate the inductive effects of POPS pulsing. This issue is on-going and caused problems for most of the week and over the weekend.

Polarity corrections were made and final polarity checks were completed in PSR and TT2. It was decided not to re-measure the polarity of PR.DHZ27 as it is in the Switchyard: if the beam shows an inversion for this element, it will be fixed during TS1. The checks showed the cable connected to XNO (newly installed for MTE) has an earth fault.

RF 10 MHz cavities (phasing) were readied during the week with the 200 MHz cavities (not needed for first beams over weekend) left in local before LLRF tests later next week.



The missing extraction timings/triggers were fixed on Thursday with new cables being laid by EN-EL on Thursday evening.

The DSO test for nTOF primary area was completed on Thursday afternoon, finishing with the beam permits for PSR and TT2 being signed before 19h.

A vacuum valve in the BTP line would not open, preventing injection and needed an intervention.

The PFW and W8L regulation faults made the acceleration of beam challenging. EPC worked on Friday and Saturday to find a solution so that the 10 GeV beam for the closed-orbit measurements could be set up. Despite this issue low intensity versions of MTE and TOF could be accelerated and put onto D3.

The W8L did not hold regularly for AD or LHCINDIV beams, but at different times over the weekend each beam made it to D3. Closed-orbit measurements using the 10 GeV cycle were made and a set of YASP corrections on the MU proposed: planned alignment intervention tomorrow morning, exact manipulations to be confirmed by ABP.

Comment by **B. Mikulec**: ISOLDE Sem-grid tests will be postponed to tomorrow afternoon due to the access for magnet alignment.

SPS

H. Bartosik reported the status of the SPS. Hardware tests are progressing well. New digital regulation of the main power supplies shows some issues, but these should be solved until Friday.

3. Report on ISOLDE / REX-TRAP / REX-IBIS start-up status

M. Lozano Benito gave the presentation ([Annex 4](#)). The start-up this year was much easier than the previous year. The beam was started almost right away.

In the following, the main winter activities were listed.

Vacuum system:

- Turbo-pumps greasing campaign.
- Moisture found in the primary vacuum system. Roughing pumps oil replaced.
- Vacuum connections crossed found at the RFQ pump. It was the most probable cause for the moisture in the system.
- Vacuum leak found and fixed at MSW10 sector.
- RA0 turbo-pump replaced.

BI:



- YCC0.BFC0900 faraday cup found connected to a different location.
- YRC0.BFC0160 faraday cup PAM replaced.
- Air compressed leaks found and fixed.

Works on the Front-End:

- Target water cooling leak found and fixed.
- Electro-valve replaced on extraction electrode due to its movement problems.
- Gas injection system of the ion source on the target refurbished. Leak detection done.
- PLC for the target water cooling crashed with un-acknowledgeable alarms.

Other works:

- Frontend (cfc-197-bisobeam) computer overheats due to dirty air intake filters. OK after filter replacement. This is a recurring situation after every shutdown period. **It would be good to envisage filter cleaning for all the computers in the zone during every winter shutdown.**
- HRS.TCS.SL2400 got stuck in close position. A mechanical part had to be repaired.
- GPS laser window with new flange design was installed.
- HRS90 separator magnet current reading was double of the real value. The origin of the problem was quickly determined and the element replaced.
- RFQ RF FESA class was updated to 64 bits.

DSO test was done on April 11 and since then ISOLDE is ready for protons.

Today evening the Sem-grid target should be ready for the beam to start setting up the BTY line.

The list of the activities in REXTRAP and EBIS:

- Beam emittance campaign continued during Jan and Feb.
- TRAP tested on the 03/02/2017 using the local ion source.
- Had to reload the PLC program on cfv-170-arextrap FEC.
- New EBIS cathode installed and conditioned 09/03/17.
- First beam from GPS injected into REX (TRAP+EBIS) the 30/03/2017.
- New cathode not performing well due to its displacement when heating and another cathode had to be installed on the 03/04/2017. Its bake-out will take 10 days.

Activities at HIE ISOLDE

- New cryo-module installed (number 3).
- All cryo-modules cooled down and RF conditioning done at normal temperature.
- RF works continue at the LINAC low energy part. Commissioning will start this week.
- New software for HIE ISOLDE beam diagnostics in development. Tests on going.

Question from B. Mikulec: When do you plan to start the first physics run this year?

A: Monday or Tuesday, if we can get stable beam from the target on Friday to do the steering.

Comment from B. Mikulec: It has to be seen whether this will be possible with the beam preparations, steering and Sem-grid target tests.



4. Schedule Updates

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

Tomorrow morning there will be access in the PS to perform the magnet alignment and some additional interventions.

Start of ISOLDE physics and first beam to the SPS is planned for Monday next week.

1st of May East Area AD, East Area and nToF physics will start as well as the LHC commissioning.

5. AOB

No AOBs.

Next Meeting: 25th of April.

Minutes reported by P.K. Skowronski on 19th of April.