



Summary of the 25th FOM Meeting

Held on Tuesday 12th September 2017

Agenda (<https://indico.cern.ch/event/664556>)

- 1. Follow-up of the last FOM*
- 2. Status of the machines*
- 3. Schedule updates*
- 4. Update on Injector Technical Stop 3 list of interventions*
- 5. 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.
Beam stop times for the forthcoming technical stop will be defined at point 4 of the meeting.

2. Status of the machines

Linac2&Linac3

R. Scrivens (replacing **F. Di Lorenzo**) reported the status of the Linacs ([Annex 2](#)).
Linac2 availability was 100%. There was a single 3 minutes interruption of the source, the cause was not identified.

Linac3 had 0% availability due to the continued Tank1 RF amplifier repair, which is down since 30th of August. The old tube is being fitted back and it should be ready by today night.
Otherwise, the RF source generator tripped twice, on Thursday morning and Sunday evening.
There will be no beam next week due to the planned source maintenance.

LEIR

N. Biancacci reported for LEIR ([Annex 3](#)). LEIR was off all the week because of the Linac3 unavailability.



PSB

G.P. Di Giovanni presented the status of the PS Booster ([Annex 4](#)).

Availability was 98%. There was only one important downtime due to PS access on Friday morning to investigate a potential water leak. Otherwise only minor failures could be all quickly reset. There is a BI issue with not yet available MRP and orbit in ring4. A broken electronics card arrived at CERN, but was not yet delivered to the experts. It is a potential issue if orbit diagnostics is needed in case of problems.

Question from R. Steerenberg: There was no spare at CERN?

Answer: No compatible spare could be found. Another batch of spares was ordered already some months ago, but for some reason there was this large delay in the delivery.

ISOLDE

E. Fadakis reported the status of ISOLDE ([Annex 5](#))

Busy week because several experiments were running in parallel and at the same time new beam for the following HIE run was being commissioned:

- In GPS collections on GHM (172Lu, 155Tb, 149Gd16O), GLM (152Tb, 155Tb) and ISOLTRAP takes stable beam from GPS(50Ti).
- On HRS COLLAPS takes stable (58Ni, 60Ni, 61Ni, 62Ni) and radioactive (56Ni, 66Ni, 67Ni, 68Ni, 70Ni) beams.
- On REX-HIE preparation for next HIE run with 94Rb23+ ($A/q=4.0$, $E=6.3\text{MeV/u}$)
 - Intervention on REX amplifiers for longer RF pulses (1.6 ms).
 - Re-phasing of all 15 SRF cavities was needed.

Issues:

- On 1 occasion all GHM, GLM and most of GPS electrostatic elements went off simultaneously, even though the valves for GHM and GLM were closed. To be investigated.
- Circuit breaker EXD12.10 tripped and with it all electrostatic elements. Further investigation needed by EL technician.
- HV for HRS tripped once. Target heating tripped but restarted by users.
- Issue with water flow for IHS required RF experts to enter the HIE tunnel to resolve it (4 hours intervention).
- When the CCV of BTY.DHZ323 is 0.0A the AQN goes to either 40A or 23A and the beam is lost. If 0.01A is chosen then the AQN is ok. Issue created yesterday [APS-7094].

Comment from B. Mikulec: It is a well-known issue for this type of power supplies that they cannot regulate with a 0.00 A CCV.

ISOLDE Users



K. Johnston (delivered by email): It was a busy week on GPS with beam development and physics alternating throughout the week. The production of Ti, Sc and Se beams was examined using the ISOLDE lasers, the ISOLDE target group and ISOLTRAP. Se and Ti do not look possible using this target and ion source combination but radiogenic Sc was confirmed for the first time.

In addition, collections of rare earth isotopes for medical physics and biophysics took place. ^{155}Tb , ^{152}Tb were successfully collected and shipped to PSI (CH), NPL (UK) and Helsinki. The ISOLDE side of this work went very well, it's too soon to say about the experiments in the various institutes as these have just started.

On HRS over the weekend it was a difficult Ni beam time for the COLLAPS laser experiment, the yields of the isotopes were not as expected and it is unlikely that the collaboration will get the data that they were looking for on ^{70}Ni and ^{56}Ni .

PS

A. Guerrero Ollacarizqueta reported the status of the PS ([Annex 6](#)).

Availability was 98.4%. Only one important stop due to cooling water issue. It was thought that there was a leak, but it turned out that it was only a not working pump.

Activities:

- Switched POPS to B-train transmission via W-R.
- Operational beams OK, in particular, delivered $8b4e$ $12-13e10\text{ppb}$ to the LHC.
- Work on LHC MD beams:
 - LHC $8b4e$ HI ($18e10\text{ppb}$)
 - LHC50ns for $6b6e$ request
- Prepared a $8b4e$ BC beam: $32b$ ($12-19e10\text{ppb}$) with $E_h/v \sim 1.7\mu\text{m}$

Special beam requests for LHC MD came too late. The cycle priorities need to be defined on the management level and more guidance is needed from the LHC side.

Question from **H. Damerou**: Does the LHC MD beams have higher priority than the physics beams?

Comment from **K. Hanke**: Depending on which forum is inquired the priorities are different (IEFC or LMC), and a decision from the hierarchy at the department level is needed.

Comment from **B. Mikulec**: **R. Steerenberg** seems to be the proper person to bring up this question.

East Area

B. Rae: A very good week.

East Area Users

H. Wilkens: The experiments are very happy thanks to the relatively large amount of spills delivered.

nToF



No report.

AD

B. Lefort reported on the AD status ([Annex 7](#)). 95% availability. The long-standing issue of beam position instability was finally traced back to the DE0.DHZ45 power supply that was not following the requested value. Power cycling fixed the issue. Cavity C10-26 tripped several times due to the grid power supply, which is at the current limit, and the specialist has increased the current limit. Also the injection kicker tripped several times and the specialist changed a faulty thyatron and masked a sensor in the hydraulic group.

Question from **B. Mikulec**: Concerning the power supply, the tolerances were not defined in the control system to trigger an adequate alarm if the acquisition is too far from the setting?

Answer: I am not sure, we will check if the numbers were defined correctly.

AD Users

H. Wilkens: All liquid Helium was delivered last week, despite the Jeune Genevois interruption. Thanks to the cryolab organising 2 empty dewar collections a day, and the experiments being diligent in returning the dewars. The ASACUSA collaboration is reconfiguring the apparatus from the p-bar/He experiment to the CUSP experiment. Their allocated beam time was used by the ALPHA and AEGIS collaboration. ASACUSA will restart Monday 18th.

ELENA

B. Lefort: ELENA has been taking p-bars last week and this Monday. This beam time has been used mainly to check the machine optics. The H⁻ source stability study is still ongoing.

SPS

K. Cornelis reported for the SPS ([Annex 8](#)). It was a very good week with 97% availability. Beam for HiRadMat on Monday and Tuesday morning with INDIV and 288 bunches. On Wednesday evening there were difficulties with the transmission of the FT beam (grids in TT2), now it is up to 96%. 8b4e is in use for LHC filling. On Friday its intensity was increased to 1.23e11, but on Saturday it was requested to bring it back to 1.1e11. AWAKE was running all afternoons and evenings with problems, mostly due to 800MHz. It was caused by a faulty isolating transformer, which was exchanged on Monday. QD circuit had 600Hz ripple.

North Area

B. Rae: COMPASS suffers with its magnet, which will be fixed during the forthcoming Technical Stop. There were some other minor faults that could be quickly reset.



North Area Users

H. Wilkens: Experiments are very happy as they profited from the great availability of the machines.

HiRadMat

No report.

AWAKE

E. Gschwendtner: AWAKE yesterday finished the run and started an installation period. Will ask for beam at the end of October or in November.

LHC

R. Steerenberg reported for the LHC. Successfully running with the 8b4e beam, at the moment with 1900 bunches. The BCMS version of 8b4e is in preparation in the injectors. It would have a more favourable filling scheme and would deliver smaller emittance.

Comment from **B. Mikulec:** Concerning the beams to be prepared for the forthcoming LHC MD, it seems there were some modifications to the list presented last week.

Answer by **G.P. Di Giovanni:** On Saturday came a new request for a Van der Meer type beam with 4 bunches, and this morning this request was again changed for a 6b6e beam.

Comment from **B. Mikulec:** If there is any change in the requested list of beams it should be circulated to all machine supervisors.

R. Steerenberg: The reason for the change was that high intensity MD requests could not be fulfilled due to the LHC 16L2 problem.

Question from **R. Alemany Fernandez:** Which MD user requested that?

Answer: MD2167.

Comment from **K. Cornelis:** Not all the combinations are possible in the SPS.

Comment from **V. Kain:** That is why it is even more important to know the requests early because if it is impossible to fill in SPS it is a waste of time to work on it in PSB and PS.

Comment from **G. Papotti:** Also the filling scheme cannot be changed quickly because it requires modification of a software application that can be done only by one person, and if he is busy on his shifts he cannot work on this at the same time.

Comment from **K. Cornelis:** Discussing with us may help to find a much easier solution. The requests always demand an ideal beam, but very often there is already another beam that in principle fulfils the requirement.

There is an ATLAS intervention during the technical stop that is scheduled to finish in time for beam on Thursday around 08:00. However, it is not excluded that their intervention might take a bit longer, which would mean that the LHC restart with beam might also be later Thursday morning. Irrespective of that the injectors should get ready to deliver beam to the LHC as of Thursday morning 08:00.



Question from G.P. Di Giovanni: Is the 8b4e the new 2017 standard LHC beam?

Answer: Yes, at least until the end of the year, until the 16L2 issue is solved.

CLEAR

P. Skowronski (in place of **D. Gamba**, [Annex 9](#)). CLEAR had its first beam on August 18th. Last Friday the first beam was transported to the end of the CALIFES injector. Still fighting with many operational issues due to the upgrade of RF network and control system, big thanks for the continuous CO support. This week there are installations for the first experiment, which should be completed by Friday when the beam operation shall restart.

TI

J. Nilsen: Concerning the suspicion of water leak PS, past weeks alarms on the water system were recorded, but they could not be detailed because of a an ongoing at that time a control system update. It was verified locally that there was higher consumption of the cooling water. That is why we communicated to PS that there is a potential water leak.

There was electrical perturbation on Sun morning 6AM confirmed by EDF.

3. Schedule Updates

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

LHC MD this week, UA9 and Coldex run next week surrounding the Injector Technical Stop 3.

The beam stop times before the Injector Technical Stop 3:

- Monday 18/09 16:00: Stop all high-intensity and high-loss beams (EAST area beams, ISOLDE, nToF, SFTPRO)
- Tuesday 19/09 5:00: Stop all remaining proton beams except the COAST beam for UA9
- Tuesday 19/09 7:30: Stop COAST beam and ion beams

RP will enter for the RP survey in the injectors at 8:00, general access for ITS3 activities from 8:30. The machines will close as soon as all interventions will be finished, but in any case before 21:00 on Tuesday 19/09.

Linac2 will restart with beam in the late afternoon/evening of Tuesday 19/09 after the end of the controls upgrades.

PS and PSB will restart with beam once vacuum conditions permit, presumably early Wednesday morning (20/09).

All p injectors have to try to restart as soon as possible to allow for a successful COLDEX run Wednesday morning.



4. Update on Injector Technical Stop 3 list of interventions

Linacs

Presented by **A. Berjillos** replacing **C. Mastrostefano** ([Annex 10](#)).

For Linac2 4 new IMPACTs were created

- Installation of N2 bottle in intersection tank 1
- Maintenance of ventilation and change of filters
- Control of the regulation FTEF-00216
- Urgent intervention on the control access, which is created only in case of troubles with the access system.

For Linac3 there is 1 new IMPACT for magnet inspection.

LEIR

Presented by **D. Nicosia** ([Annex 11](#)).

2 additional IMPACTs created

- Change of SEMgrid electronics of ETL.MSF30
- Maintenance of 2 PUs in the ITE line

Both will finish by 5PM.

PSB

Presented by **D. Hay** ([Annex 12](#)).

1 new request to install two LHC type BLMs at BR.BHZ52.

Comment from **B. Mikulec**: The BLMs are installed to better understand the losses in this area, which made it quite radioactive, so it needs to be checked by RP.

Safety team approved works for cabling installation.

Concerning the replacement of a pickup coil in the reference magnet, it was agreed that it will be locked out and not disconnected what is easier from an operation point of view.

PS

Presented by **F. Pedrosa** ([Annex 13](#)).

Several new IMPACTs created

- Calibration and installation of 3rd chain WR B-train; around the the reference magnet, but transparent for the re-start
- LEIR ITE line BPMs
- Reparation smoke detector in TT2; transparent for access and re-start



The replacement of PS SS64 WS has the biggest time constraint due to the long vacuum recovery time and similar activities in other machines. It is the only activity that might finish after 5PM.

Comment from **P. Demarest**: We should be out of the machine by 5PM, but the vacuum will not recover before 21h.

SPS

Presented by **F. Pedrosa** replacing **D. Mcfarlane** ([Annex 14](#)).

More than 20 new IMPACTs.

In BA1 all accesses are in the afternoon because in the morning the lift will be under repair. If it is not finished then accesses will be via BA6.

Also BA2 accesses are only in the afternoon.

Concerning BA5

- Access has been granted by RP for IMPACT 99570 to access at 08:00 (via stairs at BA5)
- Lift repair will start at 07:00 (hopefully will only last 1 hour)
- If the lift repairs are not complete then access will be via BA6 or BA4
- It is not allowed to open the doors between ECX5 and ECA5!!! Otherwise patrol to follow takes a lot of time.
- New IMPACT: Exchange of failing PU jack on QD52310 or neighbouring magnets. The exact position needs to be determined

Question from **B. Mikulec**: There was a question if pulling of cables can be approved, was it clarified?

H. Vincke: The IMPACT never came, so it is not possible to discuss without details. What I understood it dealt with a highly radioactive area, therefore I would recommend to postpone it to the shutdown.

Question from **M. Gourber-Pace**: Until when the control system needs to be functional on the day of the technical stop?

Answer by **B. Mikulec**: Until 8AM.

Question from **B. Mikulec**: For Linac2, when the control need to be back?

Answer by **M. Gourber-Pace**: Controls will not restart earlier than 18h. Most of the systems should be back earlier, but it will not be in a state valid for operation.

Comment from **R. Scrivens**: RF system of Linac2 needs the control system 2h prior to when the beam can be restarted.

5. AOB

D. Chapuis requested maintenance of the access point YEA04.PSR=353 ([Annex 14](#)) from Thursday 14th September 8h30 to Friday 15th September 17h00 (IMPACT No. 100007).

The intervention was approved.



Next Meeting: 19th of September.

Minutes reported by P.K. Skowronski on 13th of September.