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# Summary of the 12<sup>th</sup> FOM Meeting

Held on Tuesday 13<sup>th</sup> June 2017

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Agenda (<https://indico.cern.ch/event/645622>)

- 1. Follow-up of the last FOM*
- 2. Status of the machines*
- 3. Schedule updates*
- 4. 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.

## 2. Status of the machines

### Linac2&Linac3

**R. Wegner** reported ([Annex 2](#)) that both Linac2 and Linac3 had an excellent week with 100% availability. Linac3 was delivering 35uA Xenon beam.

### LEIR

**S. Jensen** reported for LEIR ([Annex 3](#)). A good week with 96% availability. Only on Monday there was an issue with LN3 cooling.

### PSB

**K. Hanke** presented the status of the PS Booster ([Annex 4](#)). Very good availability of 99.6%. The RF specialist investigated throughout the week on the R2 C02 cavity, which needed a beam stop on Thursday. All problems could be understood and fixed (several actions taken, in the end the problem was related to a faulty insulation on a few cables, which was difficult to find as it was hidden). In this context the Finemet cavity was also revived in order to be put in operation (was in the end not done, but it is good to have it available as backup).

The only other real issue of the week was a fault of BE4.DHZ11L1; the piquet was called, but the power supply came back by itself before the piquet arrived.



M. Gašior *et al.* fixed the tune measurement, and systematic measurements were done with the wire scanners (R3 vertical shows jitter), and the BI team worked on a noisy pickup (BTP.BPM20-H).

On Sunday evening there were a few resettable trips of the extraction kickers. Only a few minutes downtime.

All beams were delivered within specification and PSB started the setup of the LHC50 beam in view of the LHC MDs.

## ISOLDE

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

ISOLDE low energy:

- HRS: Last Wednesday COLLAPS finished their run on 27Al.
- GPS: Delivered radioactive beam (51 to 61Mn) on Thursday to users (both GLM and GHM lines).

A few issues:

- The high tension was tripping above 30kV on Tuesday. By careful conditioning managed to ramp it to 40kV, which was acceptable for the users, although they had requested 50kV for this run. Investigation on site by experts ruled out some possibilities, but could not identify the issue.
- Suffering from RILIS instabilities, mainly due to the issue with the air conditioning in the lab that causes temperatures fluctuations, which in turn cause wavelength fluctuations. This lowers the beam efficiency.
- Target front-end PLC malfunctioned. It is responsible for all interlocks and it caused the interlock for vacuum to not be sent. It led to a decrease of target and line heating and to an HT trip. After a power cycle the expert needed to manually load the configuration values, as they got lost.
- GLM deflectors got stuck and their stepper counter needed to be restarted in order to move them again.

REX/HIE-ISOLDE:

- First beam through CM3.  $E=1.88$  MeV/u (7gap2 energy)  $A/q=3.5$ .

**Question** from **B. Mikulec**: The ventilation issue with RILIS room was already reported before the Technical Stop and it was supposed to be fixed during the TS. Could this not be done?

**Answer** by **S. Deval**: The problem with the RILIS air conditioning is followed by EN-CV, but the system is working really at the limit (design problem). A working solution has been found and since last weekend conditions inside the room are more stable.



## ISOLDE Users

**K. Johnston:** This week ISOLDE was running solid state experiments with Mn beams for two different types of spectroscopy: emission channelling and Mossbauer spectroscopy. Emission channelling went very well, excellent new data on topological insulators was obtained, the experimental team is very happy. For Mossbauer it was not so straightforward, in addition to the problems over the weekend at ISOLDE there were issues with their setup in terms of alignment and detectors. Nonetheless, good data were obtained in the end, although the full physics programme wasn't possible.

## PS

**H. Damerou** reported the status of the PS ([Annex 6](#)). Good week with about 93% of beam availability. The main issue was due to the amplifier on the 40 MHz cavity in SS77 that had to be exchanged on Friday, which took 5h30. The remaining issues:

- Transition crossing triplet down – 1h20 downtime for all beams (above 5.7 GeV)
- Circuit breaker on 10 MHz cavity in SS76 – 0h40 downtime for all beams
- Tuning issue with C40-78 – 1h40 intermittent LHC beam with 25 ns spacing
- Fault of power converter of ZT8.QDE01 – 2h25 downtime for EAST\_IRRAD (relay card changed)
- Fault of ejection septum PE.SMH57 (due to warm weather?) – 1h00 downtime for EAST beams
- Fault of power converter of FTN.BHZ403 – 0h55 downtime for TOF

Available user beams: LHCPROBE, LHCINDIV, LHC25#12b, LHC25#72b, LHC25#12b\_BCMS, LHC25#48b\_BCMS, AD, EAST, MTE, TOF.

Recent updates:

- LHC-type beams: Trying operation with both 40 MHz cavities
- MTE: Intensity increase to  $1.7 \cdot 10^{13}$  ppp
- 8b4e: Basic check with 32 bunches at extraction
- Xe setting-up: Basic RF setting up, bunch length at extraction ~4 ns

## East Area

**B. Rae:** Nothing to report

## East Area Users

**H. Wilkens:** All fine, happy users.

## nToF

**M. Bacak:** Everything was going fine.



## AD

**L. Bojtár** reported on the AD status ([Annex 7](#)). Availability was 95%.

The issues:

- 09/06 afternoon: power supply DR.SCOMP2607 needed a repair (1.5h downtime)
- 12/06 evening: the beam request server was not working correctly. The beam destination was changing on every second cycle by itself.
- Power supply DE.QDE7030 had a control problem and it was oscillating between positive and negative currents. This was only a problem for the ELENA transfer line MD.
- Problem with ATRAP access system, solved quickly.
- ATRAP super conducting solenoid magnet quenched and steering of the Alpha line had to be adjusted.
- Red radiation alarms when the injection kicker trips.

**T. Eriksson** said that ELENA started the regular operation. The beam is not yet circulating. The beam control is difficult due to very limited number of beam instrumentation, especially in the transfer line.

**Question** from **B. Mikulec**: Did you ask BI for additional instruments in the transfer line?

**A.:** The new devices are ready, but they are waiting for vacuum acceptance tests. Also their installation will take some time because they need to be baked out.

## AD Users

**H. Wilkens:** The requested amount of liquid He by the AD experiments exceeded the production capacity of the central liquefier plant. TE-CGR specialist (Johan Bremer) will join the AD user meeting this afternoon to discuss solutions to arrive to a smoother profile in the liquid He request. The peak in request might be related to the ATRAP magnet quench last week.

## SPS

**K. Cornelis** reported the status of the SPS ([Annex 8](#)). It was a good week with 90% availability. The main activity was the production of the beam for the LHC scrubbing, which was initially troublesome. Low thresholds on BLMs, difficulties with the 40 MHz in the PS and occasional transverse instabilities in the SPS were at the origin of these troubles. By the end of the week the situation improved and LHC filling went much smoother. On Friday morning access was needed for an intervention on the TI2 beam loss monitors while the PS was off for the repair of a 40 MHz amplifier. Fixed Target intensity was increased Thursday morning to  $3 \cdot 10^{13}$ . It took until Friday to achieve good transmission by carefully trimming both CPS and SPS. During the LHC filling the SPS suffered sometimes from a vacuum interlock and high spark rates on the ZS. On Wednesday there was a successful MD using the SHIP cycle for short slow extraction studies.



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The intensity on the fixed target cycle was increased by a total of 50% and the AWAKE operation continued.

### North Area

**B. Rae:** Good week. During the weekend there was an abnormal consumption of CO<sub>2</sub> and the storage tank was emptied. CO<sub>2</sub> was available again yesterday with low pressure. The cause is not yet understood, but it is likely due to a safety valve.

### North Area Users

**H. Wilkens:** Happy users, COMPASS finally at nominal intensity.

### HiRadMat

No report.

### AWAKE

AWAKE continued measurements of the self-modulation instability of the proton beam in the plasma with different beam intensities, different plasma densities, different timings of the laser w.r.t. proton beam.

A lot of time is needed for laser and proton beam alignment and whenever the proton trajectory changes also the laser has to be realigned. AWAKE suffered as well from the long super cycle in the SPS with only 1 AWAKE cycle. There are quite some fluctuations of the beam intensity, up to 50%.

It is planned to re-fill the Rb flasks on Monday, a procedure that takes 3 days. However, on Sunday an electric heater of the Rb flasks broke and an access was required. The system was switched off already on Sunday, advancing the re-filling by 1 day.

The SMI measurements will restart on Thursday, when the plasma cell is operational again, running until Monday (included).

In parallel SPS RF MDs were performed on the AWAKE cycle on Monday and Tuesday, introducing the bunch-rotation at flat-top and improving the longitudinal bunch-length.

**Comment from V. Kain:** the LHCINDIV beam, which is delivered to AWAKE, is known to be fluctuating. To find a solution for more stable beam conditions discussions might be needed. For example, the SPS could block sending the beam to AWAKE if the intensity is not within the specs. It should be understood in which machine the major contribution to the instability is originating.

### LHC

**R. Steerenberg** reported for the LHC. There was a very successful scrubbing run. Sector 12 that was vented due to a magnet intervention is now back to the past year condition. 2820 bunches were filled, what is a new record.



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After the scrubbing finished the LHC is back to intensity ramp-up. The last point was 600 bunches per beam and the next step would be 900.

Last night cryogenics tripped due to a compressed air pressure sensor.

TI

**No issues.**

### 3. Schedule Updates

**B. Mikulec** presented a proposed [injector schedule](#) update (version 1.2).

The COLDEX run, which was scheduled for week 25, is proposed to be moved to week 50. It needs to be confirmed by RP if this is compatible with the shutdown interventions that would start the week after.

**Question** from **K. Cornelis**: What would be the exact required beam parameters for COLDEX? The same as for the LHC scrubbing?

**Comment** from **H. Bartosik**: We need to meet and discuss the parameters in detail before judging if there are any extra limitations.

**Question** from **M. Gourber-Pace**: For the Technical Stops in July and September, are the Friday afternoon restarts confirmed?

**Comment** from **L. Fadakis**: We would like to restart earlier because ISOLDE operation is not running 24/7 and it would be unfortunate to lose whole the weekend of physics beam.

**Question** from **H. Bartosik**: Before next Technical Stop there is a 24h cool down period. Could we use it for low intensity coasting beam studies?

**Answer** by **R. Steerenberg**: In the past RP always asked to stop the high intensity beams 10-16h before the start of the interventions and it is reflected now in the schedule. I think that low intensity beams should be permitted longer.

**Answer** from **B. Mikulec**: The exact times can be defined only when all the details of the planned interventions are available, but it would be very helpful to obtain as soon as possible an estimate from RP.

**Comment** from **H. Bartosik**: Concerning the dedicated MD tomorrow in SPS: there will be no beam to the North Area apart from isolated short periods, only if the situation permits.



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#### 4. AOB

**D. Chapuis** requested to perform the maintenance of the LEIR access point YEA01.LEI=150 from June 14 08h30 until June 16 17h00. During this time no access through this point would be possible.

Comment from **D. Nicosia**: We will access LEIR today and it is fine for the maintenance from Wednesday to Friday.

The intervention has been approved.

**Next Meeting: 20<sup>th</sup> of June 2017.**

Minutes reported by P.K. Skowroński on 13<sup>th</sup> of June.