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# Summary of the 20<sup>th</sup> FOM Meeting

Held on Tuesday 8<sup>th</sup> August 2017

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Agenda <https://indico.cern.ch/event/657912/>

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

## 1. Follow-up of the last FOM

**B. Mikulec** chaired the meeting.

The list of presence can be found in [Annex 0](#).

The [minutes of the 19<sup>th</sup> FOM](#) were approved.

## 2. Status of the machines.

### Linac2 & Linac3

**JB. Lallement** reported the status of the linacs ([Annex 1](#)).

It was a very good week for the Linac2 with 100% availability and only one non-blocking fault. On Thursday afternoon, the intensity sent to ISOLDE was limited for 1 hour as long beam pulses entailed losses in the DTL with radiation level going above the first alarm level at the control room and at the PAD. It was caused by some of the tank1 quadrupoles current ramping down before the end of the pulse. The reason for this timing change was a power converter current flat top length reduction due to high temperature. The evolution of the flat top duration will be monitored in the coming weeks for confirmation. The power converters will be upgraded during the next technical stop in order to avoid such behaviour in the future.

It was also a very good week for the Linac3 with more than 99% availability and only two resets of the source.

**D. Kuchler** added that there is no way for the linac team to be informed of 1<sup>st</sup> level radiation alarm except being present in the linac2 control room at the time of the alarm. **J. Vollaire** answered that 1<sup>st</sup> level radiation alarms are treated by the RP group every morning and they then decide to take action if necessary.

**J. Ferreira** said there is a concern about a pumping group on tank2. An access is required as soon as possible to check it.



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## LEIR

**S. Pasinelli** reported on the LEIR status ([Annex 2](#)).

The LEIR team continued Xe beam setting-up with the optimization of the NOMINAL cycle (multiple injections), the EARLY beam was sent to SPS for setting up and NOMINAL multiple injections studies took place (orbit adjustments at the injection, optimization on the E Cooler, adjustment of the capture of the beam). It resulted in 7 injections and  $6.5 \times 10^{10}$  charges.

There were few faults over the week:

The rack which contains the DSC of the DFH bump was OFF. The specialist has been called and found the "Disjonteurs" of the rack and of the start point OFF.

The cavity CRF41 went OFF and could not be reset remotely. The specialist has been called.

The beam after a NOMINAL cycle was not injected. It was found that the ejection value of the ETL.BHN10 on the NOMINAL, with the wrong polarity (291 A instead of -291 A).

## PSB

**B. Mikulec** presented the status of the PS Booster ([Annex 3](#)).

It was a smooth week apart from a few resets and 2 short interventions of the Piquet for the ring 1 extraction kicker. An important ripple on the main power supply for the defocusing quadrupoles was observed, which seems to be due to a problem with the active filter of the spare QDE power supply, in operation since June. The specialists propose to switch back to the operational power supply this week, which will require a stop of  $\sim 1.5$ h, also because first the electromechanical switch that allows the configuration exchange, broken during a piquet intervention in July, has to be repaired.

There were a lot MDs:  $h=2$  cycle with  $h=1$  synchronisation, longitudinal blow-up using phase noise, bunch flattening through triple harmonic operation on ring 0 (Finemet), emittance measurements along the cycle taking into account scattering on the wire, dispersion measurements.

**F. Boattini** confirmed that EPC needs a 1.5h access. They first have to identify the broken part before repairing as the diagnostic was not done yet.

## ISOLDE

**E. Siesling** reported the status of ISOLDE ([Annex 4](#)).

HRS ran with Ar beams for the VITO experiment the all week.

On the GPS side, the week was dedicated for the preparation of the upcoming Sm run (REX/HIE) consisting in RILIS laser tuning, proton scan and yield check as well as Sm injection into Trap/EBIS to define best charge state all done in preparation of the very dense schedule for the coming week.

The week was reasonably calm except for a few issues: On Tuesday evening all vacuum sectors went down due to a short circuit created by one of the users. Normal situation was quickly recovered with help from TE-VSC (and luckily the target vacuum sectors were not affected). On Wednesday evening the HT2 high voltage power-supply broke (swapped for HT1 since GPS was not taking beam). On Thursday afternoon HT2 was repaired by TE-ABT. During the intervention all power in the HT room



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were lost bringing down the target heating of both HRS and GPS and causing the CPU card of the high voltage FEC to break. BE-CO helped to replace the broken card. The power trip itself is not fully understood but suspected to be related to the repair on the HT2 (the circuit breaker seemed to have tripped when restarting after the repair). ISOLDE did not suffer from the 1 hour long Linac2 intensity limitation. During the weekend a few times (3 times in 48 hours) some of the CAO sector elements went down. A reset put them back on.

VITO is very satisfied with the running of ISOLDE. They do have a few issues with their set-up, mainly polluted crystals.

### ISOLDE Users

**K. Johnston** could not be present at the meeting. He sent the following report:

*IS601 took 35Ar to the VITO beamline last week and finished this morning. From a technical side the experiment went smoothly, ISOLDE delivered good beams with only some small downtimes. This is a difficult experiment and a lot of new data were obtained on the asymmetry of polarized Ar in a variety of crystals. The aim would be to have asymmetries of the order of 5-10% for an accurate measurement of the Vud CKM matrix element, but this has not yet been reached. The experiment will need to revise their setup to see what will be possible to realize this measurement in the future.*

### PS

**A. Guerrero** reported the status of the PS ([Annex 5](#)).

It was a smooth week with 99% availability. The main faults being related to the power converter of PR.WFW which had to be exchanged by the spare on Sunday afternoon (1h15 downtime) and the PIHLRF who was called due to a C11 fault. The piquet concluded that there is probably a piece of seal in the water cooling circuit (2h access needed but the cavity is back on).

On the beams side, all operational beams have been delivered as requested. Since Friday a new version of the BCMS beam keeping a constant bucket almost up to the 2Gev flat-top and with 10% lower emittance (now 1.5um per plane for 640e10p) is sent to LHC. One by one, operational beams are being prepared to use the new multi-harmonic source for test with SPS. The new B-train was tested on the BCMS beam. Whereas all other operational beams have seen the change of trains transparently this beam will require further study (what corresponds to a drift of field of ~1gauss was observed on the flat bottom).

### East Area

**B. Rae** said that it was a good week for the East Area.

### East Area Users

**H. Wilkens** said the users were happy.



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## nToF Users

**D. Macina** said it was a good week for nToF.

## AD - ELENA

**B. Lefort** reported the status of the AD ([Annex 6](#)).

It was a very good week for the AD with 100% availability (5% in degraded mode). A large vertical instability was observed on the ASACUSA beam. As this instability disappears after few shots, it is pretty difficult to diagnose. Partial beam losses at 300 MeV were solved by reducing slightly the cavity voltage.

**T. Eriksson** reported that the ELENA experimental connection work was on-going. The tests of access system were performed. The DSO test is scheduled on Thursday.

## AD Users

**H. Wilkens** said that the AEGIS beam time was rescheduled. ATRAP will take the beam instead. There is an AD users meeting in the afternoon during which the beam time rescheduling will be discussed.

## SPS

**H. Bartosik** reported the status of the SPS ([Annex 7](#)).

The beam availability was 90% over the week. The beginning of the week was rather smooth with only minor interruptions of machine operation. Significant downtime was however accumulated in the second half of the week: On Wednesday night the beam production had to be stopped due to spurious beam dumps. After about 5 hours without beam the problem could be solved by the kicker Piquet by exchanging a faulty MKD receiver card. On Friday an issue with the pulse forming network PFN6 of the MKP injection kickers was encountered. While first only a degradation of the kicker waveform was noticed on the fixed target beam, the PFN6 broke down completely during the LHC filling preparation at lunch time. Fortunately the LHC beam could be injected with a large horizontal closed orbit bump to compensate for the missing injection kicker strength and the LHC could be filled before launching an intervention. After inspection the ABT experts found a damaged brazing and a destroyed resistor. The repair works could be completed by the early evening. In parallel to this intervention the photomultiplier tubes of the wire scanners 416 and 519 were exchanged in order to improve the signal to noise ratio. There were no major problems during the weekend.

Since Friday the BCMS beams are delivered to the LHC with about 10% smaller transverse emittances following optimisations on the PS side. The setting-up of prototype Xe-cycle for FT ions is well advanced.

**J. Borburgh** asked that whenever a kicker is reset a note is written in the elogbook.

## North Area

**B. Rae** said it was a good week.



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## North Area Users

**H. Wilkens** said that the users were very happy with the pretty high duty cycle. HiRadMat will be moved to a different date.

### HiRadMat

There was no report.

### AWAKE

There was no report.

### LHC

**R. Steerenberg** said that the LHC had very long fills with pretty short turn over. The week-end was excellent with  $1.3 \text{ fb}^{-1}$  accumulated (up to  $0.5 \text{ fb}^{-1}$  per fill). Investigations are on-going on the kicker heating issue.

### TI

**J. Nielsen** said that there was no major event.

## 3. Schedule update.

**B. Mikulec** presented the injector schedule version 1.2 ([Annex 8](#)).

The HiRadMat and AWAKE runs will be rescheduled.

**H. Bartosik** said that there will be dedicated MD in the SPS (coast) and in the PS tomorrow (no beam for NA and no beam for PS physics).

Concerning the access requests: for the Linac2 pumping group check, the PSB QDE power supply switch 1.5 and WS repair and the PS RF cavity water cooling issue, the stop is scheduled on **Thursday from 9.00 to 10.30** (could be rescheduled in case of LHC fill). **J. Vollaire** asked all the teams requesting an access to contact RP in order to inform them on the location of the intervention.

## 4. AOB

### Open questions on ITS3

**J. Coupard** presented the impact of an ITS3 shortening or cancellation ([Annex 9](#)).

It was requested at the LMC to evaluate the possibility to cancel the LHC TS2 and extend the YETS by one week (could be beneficial for the HL-LHC Crab-cavity). The ITS3 is presently scheduled on week 38 for 36 hours with COLDEX and UA9 runs preceding. A cancellation of the ITS3 would postpone the



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AWAKE electron acceleration program to Q2 2018. The list of main injector impacted activities was given. There are especially PSB and PS LIU interventions that if postponed would have a serious impact on the YETS.

**D. Kuchler** said that the Linac3 source will be replaced during the ITS3 and that one week is foreseen to recover the ion beam out of the Linac.

**J. Ferreira** said that the vacuum will have to be broken for the WS change in the PSB (24 hours).

**A. Bland** added that the CO team needs to do regular security fix. If the ITS3 is cancelled, there will not be any security patch applied to the control system from July to the end of the year.

**R. Steerenberg** reminded that the COLDEX run and the ITS3 are linked. **K. Cornelis** added that the UA9 is generally used as cool down time prior the technical stops.

**Next Meeting: Tuesday 15<sup>th</sup> August 2017** (Chair: **K. Cornelis**, Scientific secretary: **G. Sterbini**).

Minutes reported by [JB. Lallement](#) on 10<sup>th</sup> August.