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# Summary of the 37<sup>th</sup> FOM Meeting

Held on Tuesday 5<sup>th</sup> December 2017

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Agenda <https://indico.cern.ch/event/685535/>

- 1. Follow-up of the last FOM*
- 2. Status of the machines including 2017 fault analysis*
- 3. Using dashboards for AFT reporting*
- 4. Schedule updates*
- 5. 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 36<sup>th</sup> FOM](#) were approved.

## 2. Status of the machines and 2017 fault analysis

Linac2 & Linac3

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

The Linac2 availability was 97%. A tank1 quadrupole power supply front panel had to be replaced on Monday (20 min downtime). During the night from Friday to Saturday, the power supply of a PLC dealing with the security of the modulator room and the access system failed. The diagnostic of the fault and the replacement of the PLC required the presence of 2 RF specialists (4-hour downtime).

It was a quiet week for the Linac3 with only two source RF generator trips (on Sunday and on Friday). On Friday, the LEIR injection efficiency was improved by adjusting the tank3 field amplitude. The stripping foil was changed yesterday.

**D. Kuchler** presented the 2017 fault analysis ([Annex 2](#)).

Over 234 days of operation, the Linac2 uptime was 99.1% with a total of 62 faults dominated by RF and power converters. No recurrent blocking fault requiring action was identified. It looks like the replacement, last year, of the leaking vacuum valve on the source was efficient as there had been no source fault this year. The good statistics for this year are also mainly due to the regular maintenance of the machine.

Over 38 operational days, Linac3 had an availability of 99.8%. The source microwave generator trips were identified as recurrent faults and the generator will be replaced next year. Note that during the



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setting-up, the Bertronix amplifiers of RFQ and tank1 had substantial downtime. Their replacement is under study.

## LEIR

**S. Hirlander** reported on the LEIR status ([Annex 3](#)).

It was a very good week for LEIR with 99.4% availability and beams for physics delivered as expected. The set-up of h1/h2 and h3/h6 cycles was done on Tuesday and are ready to be tested on the PS. MDs on second order instabilities and transfer function took place.

During the 2017 run, operation was mainly perturbed by faults on extraction kickers and on the ER.CRF41 RF cavity. The overall availability was 95%.

## PSB

**V. Forte** presented the status of the PS Booster ([Annex 4](#)).

The availability of 95% was dominated by the Linac2 long-lasting fault on Friday evening and the week was pretty good for the PSB. There are still some issues with the R1H TFB. Concerning the noise on the R2 phase loop, a 1 hour stop will be needed to investigate the problem. The high intensity beams were stopped yesterday at 6.00 (just ISOLDE having 24 hours extra run for MEDICIS).

The 2017 average availability was 97% (98% if excluding downtimes due to Linac2 and PS accesses). There were mainly faults related to C02 and C16 cavities and TFB and to the extraction system (extr./recombination kickers).

## ISOLDE

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

At REX/HIE ISOLDE, the last MINIBALL run on 28Mg at 5.5MeV/u from HRS finished on Wednesday morning at 9.00 after which the target was changed for the existing #618 UC and set-up started immediately to provide the VITO experiment with Na beam. In the meantime the RILIS lasers which were running for the HRS/MINIBALL Mg run were prepared for the TISD run at GPS.

On GPS the target had been changed on Monday for a TISD MD. The setting-up was done very quickly and the GPS run started on Wednesday. The first irradiation of a MEDICIS target started yesterday. The ISOLDE consignment was done yesterday at 10.00.

The yearly fault analysis report was not available yet.

## ISOLDE Users

**K. Johnston** could not attend the meeting. He sent the following information.

*It was quite a busy week. On the GPS a prototype target was studied for the production of molecular beams, this was not so successful but in parallel a modified ion source shows great promise for the so-called "VADLIS" mode of producing beams. On HRS Na beams were taken to VITO for biophysics studies.*



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*This was a very successful run with a definite resonance signal seen in an ionic liquid held at vacuum, a major milestone for IS645. In addition, the ISS spectrometer saw its first stable beam with magnet field applied, again a major milestone and a very good way to finish 2017.*

## PS

**K. Hanke** reported the status of the PS ([Annex 6](#)).

It was a reasonable week for the PS with 95% availability. There were frequent trips of the POPS and of the KFA71 throughout the week. Both issues are being followed up by the responsible groups. Although the downtime associated to this is not too significant, both are long-standing issues and need to be understood. During the week-end there was a trip of the PE.SMH61 power supply (not resettable); the piquet and expert had to come in. A 10 min stop has to be schedule to fix the POPS issue (a PBL card change needed).

Over 2017, there was no major fault, but a large number of small faults. Mainly related to power converters (POPS trips and PFW converter), RF system and extraction systems. The Linac2 and PSB downtime contributed to a third of the total downtime.

## East Area

**B. Rae** said it was a very good week and a very good year. CHARM started taking ion beams.

### East Area Users

**H. Wilkens** could not attend the meeting. He sent the following information.

*The East Area proton-run completed, users were happy. Good beam availability.*

### nTOF Users

**D. Macina** could not attend the meeting. She sent the following information.

*On the behalf of n\_TOF, I would like to thank the whole operation team for the great year. The remarkable performance of the n\_TOF beam has not only allowed us to complete the challenging physics program but also to shuffle our planning and cope with experiments being late and others ready to take data at an earlier stage.*

## AD - ELENA

**B. Dupuy** reported the status of the AD ([Annex 7](#)).

It was a good week with 99% availability. On Saturday, from 19.00 to 20.00, the Ecooler failed suddenly on interlock. The fault was due to an issue with the demineralized water circuit that had to be refilled. There was also a small degradation of the performances due to an issue with the stochastic cooling (9 out of 48 amplifiers failed).



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**T. Eriksson** reported the status of ELENA. There was quite a lot of progress on ELENA, both with p-bar and H-, on the RF system, orbit response measurement, tune measurements... Some p-bars were decelerated down to 100 keV. The machine was locked out yesterday. The Ecooler will be installed tomorrow. The restart is scheduled for February.

**B. Mikulec** asked whether the AD team could think about using AFT from next year. **T. Eriksson** said it will be discussed with the operation team.

Upon a request from **M. Gourber Pace** the 2017 AD statistics will be given at the next FOM.

### AD Users

**H. Wilkens** could not attend the meeting, but informed us that there was nothing special to report.

### SPS

**F. Velotti** reported the status of the SPS ([Annex 8](#)).

It was a good week for the SPS with about 93% availability for the NA. The main downtime was accumulated due to power converter issues in TT20, injector complex (PS) and main PC. The week was very busy due to the LHC MD, change of energy for SFTION and re-start of AWAKE. Despite the tricky filling schemes requested for the LHC MDs, all beams were delivered as requested with no major issues. The energy of the beam delivered to the NA was efficiently changed to 95.6 GeV on Wednesday morning, as requested by the experiments. Physics started at about 14:00 already, and running smoothly since then. On Friday, the AWAKE zone was patrolled by the SPS operators, RP and laser experts. The deployment of the proton beam permit followed, allowing extraction from 15:00. The extraction setting up and the steering of the line was smooth, allowing the beginning of the commissioning of the proton-laser synchronization.

In 2017, the SPS availability was 91.4% (larger than the usual ~85%) and the integrated intensity delivered to T6 was 10% higher than scheduled. The downtime was dominated by the injectors' availability (64%), converters faults (11%), RF faults (4%) and operation (4%).

**B. Mikulec** concluded that 2017 was an excellent year for all the LHC injectors.

### North Area

**B. Rae** said it was a very good week with a very quick energy change. The last change of momentum is scheduled for Thursday.

### North Area Users

**H. Wilkens** could not attend the meeting. He sent the following information.

*In the North Area the Pb-run (remark: Xe-run...) is progressing well. There was last week a demi-water problem in EHN1 which brought down the NA61 VTX-1 & 2 magnets. By Thursday the problem was still unexplained. Is there any news on the cause?*



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**S. Deval** commented that the fault on the water cooling was due to a faulty level sensor in addition to two water leaks that were repaired in the meantime. The level sensor issue was not fixed yet, but the magnet is cooled and can be powered.

#### AWAKE

**S. Gessner** reported that they were taking electrons this week and starting with protons from Friday. They will then be interrupted by the COLDEX and UA9 runs.

#### LHC

There was no report. LHC finished the 2017 run.

#### CLEAR

**A. Curcio** reported on the CLEAR status.

It was a very good week. The plasma lens was installed.

#### Linac4

**G. Guidoboni** reported the status of the Linac4 ([Annex 9](#)).

It was a pretty good week with 94.3% availability. The chopper now allows for 600 us beam pulses. Systematic stripping foil efficiency measurements are now taken during nights and weekends. There were MDs on the source, on ToF, on Laser emittance meter and BSM.

#### TI

**C. Wetton** said there was nothing special to report.

### 3. Using dashboard for AFT reporting

**C. Roderick** gave a demonstration on how efficiently to use the AFT dashboard.

<https://aft.cern.ch/dashboard?timePeriodType=dynamic&start=04122017090000&end=11122017090000&before=7-d&timeRef=closest-Mon-09:00&after=0-d&children=false&tab=82>

He explained and showed different possibilities and available options to personalize and create dashboards.

In 2018, one of the biggest add-on will be the cross accelerator search and the link between accelerator faults.



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**V. Kain** commented that the statistics on beam performances are still missing and should be added. Regular discussion between the operation and CO teams could help in integrating better such statistics.

#### 4. Schedule update.

**B. Mikulec** presented the [injector schedule](#) (version 1.8). She reported that J. Vollaire gave his green light for the MD planning. Losses should be limited as much as possible and the number of cycles to the dumps limited. The MDs will stop at the end of the week. COLDEX and UA9 runs are scheduled on Monday-Tuesday next week.

The 10-minute stop for the intervention on POPS should be scheduled as soon as possible.

**H. Bartosik** presented the [schedule](#) for the COLDEX and UA9 runs.

24 h COLDEX run

- Stop SPS NA beam on Monday 8:00
- Access for COLDEX Monday 8:30
- Then COLDEX RUN
- Stop COLDEX beam on Tuesday 6:30
- Access for COLDEX Tuesday 7:00

24 h UA9 run with ions

- SPS ready for UA9 run Tuesday 8:00
- SPS UA9 run until Wednesday 8:00

#### 5. AOB.

**A. Bland** commented on the decision of the IT department to remove all analogue phones during 2018 ([Annex 10](#)). He encouraged groups and people concerned (working in local control rooms or technical buildings equipped with analogue phones) to attend the meeting organized by IT: <https://indico.cern.ch/event/685578/>.

**J. Devine** presented the cabling work needed for the resupply of the BE-RF Finemet test bench ([Annex 11](#)). The work will take place during the YETS and there will be no work under the false floor. Under the condition of a positive conclusion of the safety inspection visit, the FOM approved the intervention.

**D. Kuchler** said that, to allow for MDs, the Linac3 stop was postponed to 18.00 on Monday 18/12 (instead of 6.00 in the morning).



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**Next Meeting: Tuesday 12<sup>th</sup> December 2017.**

Minutes reported by [J.B. Lallement](#) on 7<sup>th</sup> November.