Summary of the 45th FOM Meeting

Held on Tuesday 24th November 2015

Agenda (https://indico.cern.ch/event/463450/)

1. *Follow-up of the previous FOM*
2. *Status of the Machines*
3. *Schedule Updates*
4. *AOB (Access door maintenance)*

1. Follow-up of the previous FOM

The minutes of the 44rd FOM were approved.

There was an open action on the synchronization between PSB and PS. **A. Findlay** reported that the situation was significantly improved on the PSB side. **S. Hancock** commented that the quality of the synchronization could not be verified in the PS (end of proton run). **K. Hanke** suggested to close the action and to recheck the synchronization quality in 2016. The action was closed.

2. Status of the machines

Linac2 (D. Küchler)

On Thursday the Tank 1 RF tripped due to a "cavity vacuum error". No real explanation could be found. Vacuum and RF specialists are following-up the issue. **K. Hanke** asked more details about the problem. **D. Küchler** explained that it not yet clear if a spike in the RF system was the source of the vacuum error or vice versa.

A new SIS watchdog version (migration from FESA2 to FESA3) was tested. Some bugs could be identified and the system was reverted to the FESA2 version. **M. Gourber-Pace** asked who is following up the debugging of the FESA3 class. **D. Küchler** answered that **A. Poncet-Radeva** is following it up. After the meeting **M. Gourber-Pace** and **A. Poncet-Radeva** explained that the deployment at Linac2 of the new FESA3 version of the SIS watchdog was meant for test only. The commissioning of the new version (FESA3) will be performed in 2016. The exact planning will be agreed between **A. Poncet-Radeva** and Linac2 operation team.

Linac2 will continue to run for an additional week. Until Wednesday (25th November) the RF will stay on and the rest of the time only the source will remain on.

PSB (GP. Di Giovanni)

It was a good week for the PSB: on Monday (23rd November) the 2015 proton run ended.

There were few technical issues. The only one worth mentioning is the replacement of a faulty control module on BI3.DVT50 on Thursday, which anyway did not affect the LHC operations.

There were a lot of last-minute activities profiting from the LHC-type beams still circulating in the machine. The activities mostly focused on the commissioning of the 3 turn-by-turn pickups installed in Ring 2 and on the investigation of the open issues with the PSB-PS synchronization. Concerning the latter study, a lot of progress was done on avoiding the typical overshoots during the synchronization process, which could disturb the bunch structure. Moreover, with the help of the control group, there is a plan to improve the measurement of the synchronization frequency at the PSB, which is a precious tool to diagnose of any future problem.

The rest of the time was intensively spent on acquiring snapshots of the current system to serve as a basis for the PSB start-up next year after the YETS.

ISOLDE (E. Siesling)

The physics program ended as scheduled a week ago.

Stable beam operation and test will continue until the 14th December. One of the main activities focuses on the courses for the users.

ISOLDE Users ()

There was no report.

PS (R. Steerenberg)

It was a relatively quiet week with protons provided for LHC calibration runs and with a stop for the RP survey. The main issue this week was the rectifier PR.RQD06 and different cavity problems. The PR.RQD06 was in error on several occasions, which has not yet been fully resolved and was left in local on request of EPC piquet on Thursday. Most cavity interventions and investigations were carried out by profiting from the RP survey and LHC downtime. POPS tripped a few times but could be reset.

On Monday and Tuesday the C80-08 did not always follow its voltage program. On Tuesday the problem was understood and turned out to be related to the fine-synchronization gain that was too high.

The work on the 40 MHz cavity went on after the RP survey was completed, as the SPS was not requesting beam before 17h00 and the cavity could be repaired.

On Saturday **H. Damerau** and **C. Rossi** intervened to repair a problem on the C80-89. The HV power supply for the C40-77 was used to replace the broken HV power supply. Also on Saturday a problem was observed with the radial position on the LHC low intensity beam and the ion beam. **H. Damerau** came to the CCC and suspected an issue with the low intensity radial loop. After disconnecting the PU 93 that was giving incorrect values, the system worked again. An access is required to repair the pickup, probably in the shadow of the Linac3 oven change. PS presently run with a single pickup for the radial loop of the low intensity beams.

East Area (A. Fabich)

The operation stopped with end of proton run on the 16th November.

East Area Users (H. Wilkens)

There was nothing to mention.

nToF (S. Montesano)

During the YETS stop, EAR1 sample will remain installed in the experimental area. In this condition the ventilation has to remain operational.

AD (L. V. Joergensen)

The AD operation was smooth until the Friday when a vacuum leak developed. Thanks to the rapid reaction and effective support of the TE-VCS team the problem was temporary fixed and this allows serving the users for two more days. **K. Hanke** asked when a definitive fix will put in place. **L. V. Joergensen** answered that it will be fixed during the YETS.

Since yesterday the shutdown work already started.

AD Users (H. Wilkens)

H. Wilkens informed that during 2015 the experiments were served 405 shifts, about 95 shift for each of the experiments ASACUSA, ATRAP, ALPHA and AEGiS, and 25 shifts for the BASE experiment. Less than 4% off the shifts did not receive beam. All the involved people were acknowledged.

SPS (K. Cornelis)

A vacuum leak was noticed while moving the TED in TI2. In order to avoid further degrading it, the TED was blocked out and a special procedure was put in place to give access to LHC by cutting an upstream chain.

HiRadMat could profit from the protons still being available for a short experiment on Saturday during an LHC coast.

North Area and HiRadMat (A. Fabich)

HiRadMat completed the last experiment (BTV for AWAKE) on Saturday (21st November). The BE-OP group was acknowledged.

Concerning the ions, H2, H4 and H8 will be operational with ion until the 1st December morning. All other beam lines are in shut-down. There were major issues on the secondary beam lines except some power cut and cooling difficulty in the North Area to be covered by BE-TI.

North Area Users (H. Wilkens)

The 2015 proton run was successfully completed. All involved people were acknowledged.

LHC interface with the Injectors (M. Lamont)

The LHC proton run at intermediate energy for detector calibration was completed yesterday early morning. There was no need to use the two days contingency.

CTF3 (F. Tecker)

The quality of the drive beam is very good. Record phase stability was achieved by using the phase feed-forward system.

A new optics proposed by **D. Gamba** was deployed in the machine.

CTF3 will continue operation until the 16th December.

Linac3 (D. Küchler)

The source tripped a few times during the week. In the night to Friday a remote intervention was necessary due to the low beam intensity produced.

On Sunday the source intensity got low again. Remote interventions were necessary. Only in the evening and after starting oven 2 the normal intensity could be re-established.

As oven 2 had to be started earlier than foreseen it is likely that the oven refill (presently schedule on the 1st December) needs to be anticipated. **M. Lamont** asked if a better estimate of the new refill could be provided. **D. Küchler** explained that it is not possible to be more precise but there will be a pre-warning of 12 h. **R. Steerenberg** commented that as far as the PS intervention (in the shadow the oven refill), the 12 h pre-warning should be sufficient.

LEIR (M. E. Angoletta)

The focus of the week was the debugging and improvement of the BIOMD user, which continued also on Saturday. Problems with the extraction reference, due to incorrect timings, were solved as well as problems with the kicker length. As noticed for other beams, the BIOMD beam performance seems to depend on the previously played LEIR user and the accumulation on BIOMD was significantly improved after programming a NOMINAL in front.

RF studies have taken place on the capture of operational as well as MD beams with the help of **S. Hancock**.

The work on the automatic cycle generation is ongoing.

On Friday LEIR provided EARLY and NOMINAL operational beams as expected. There was a programmed interruption of about 45 min to allow TE/EPC colleagues to take some measurements on ETL.BHN10.

On Sunday afternoon the Linac3 source started to get weaker and the Linac3 supervisor came in and improved the situation.

PS (R. Steerenberg)

The PS has regularly problems at ion injection: the ion beam is not or badly injected depending to the super cycle configuration. For that reason any change in the SC should be done paying attention in ensuring equivalent magnetic conditions.

D. Manglunki asked to constantly maintain in the SC a NOMINAL cycle.

SPS (K. Cornelis)

After the proton physics end and the DSO tests on the primary ion interlock, ion beams were commissioned for both fixed target and LHC-injection. The ion beam setting up was hampered by RF-control problems in both SPS and PS.

By Tuesday morning the Pb-ion beam reached the NA targets (T2 and T4 only in use) and a Pb-probe beam could be sent to the LHC. All machines were stopped for the RP survey on Tuesday afternoon. Fixed target ion physics started on Tuesday evening and LHC turned back to proton filling for the rest of the week.

On Friday afternoon, a lot of time was spent on setting up the very long ion filling cycle (12 injections) for the LHC. Early Sunday morning the NA physics was stopped for several hours because of an ion primary beam interlock. The electronics of one of the two BCTs had stopped with a temperature reading out of range. The specialist was called in to repair the BCT and the system could be restarted with the agreement of the DSO.

Yesterday for a problem with spurious signals, the TT20 shaft trap interlock disappeared. An intervention was required to fix the problem.

It was asked if the RF 800 MHz is needed during the ion operation. **K. Cornelis** and **T. Bohl** answered that the system is not used during for the ion beam production.

TI (P. Sollander)

Before the meeting, **P. Sollander** informed that an accidental cable cut resulted in a black out in the North Area last Tuesday (17th November). **F. Tarita** explained that the UPS battery lasted only two minutes and the diesel was out of service. He added that consolidation work is needed but the consolidation plan needs still to be finalized.

There was also a cooling issue in BA81. **S. Deleval** explained that the main cooling tripped most probably due to an erratic problem therefore difficult to diagnose.

3. Schedule

K. Hanke presented the Injector Schedule 2015 v1.12 (Annex 1).

M. Lamont informed that a new LHC 2016 schedule was released. The injector schedule will be modified accordingly.

4. AOB

K. Hanke informed that the access door YEA02.PSR=352 will undergo special maintenance from Wednesday 25th to Friday 27th November (IMPACT 71579). RP approved the intervention.

Next Meeting: Tuesday 1st December

Minutes reported by G. Sterbini on 26th November