

Minutes of the 17th FOM meeting held on 29.07.2014

Agenda:

- 1) Status of the Machines
- 2) Schedule Updates
- 3) AOB

1 Follow-up of the last meeting

The minutes of the 16th FOM meeting were approved.

Pending actions:

There were no pending actions.

2 Schedule Updates

K. Hanke presented the Injector Schedule (v1.6). It can be found at

https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/2014-injector-schedule_v1.6.pdf

There were no changes on the schedule to report.

3 Status of the Machines

Linac2 (M. O'Neil)

It was a quiet week for Linac2.

On Thursday there was a trip of the RF affecting the PSB operation. The RF could be reset remotely.

PSB (B. Mikulec)

Last week was mainly dedicated preparing the beam for ISOLDE.

The orbit correction and resonance compensation helped increasing the intensity, but there is still some way to go to reach 900E10 per ring.

On Ring 4 there are losses observed for all users above 350-400E10, mainly at extraction. It was found that a change of working point at extraction could cure a big fraction of the losses. Further investigations are on going.

The beam permit for ISOLDE was signed Wednesday (23 July) at lunchtime. The SEM grid target was installed on GPS. When trying to send beam to GPS, the tail clipper engaged due to some bad External Conditions: BY.VV, BY.VENTIL and BTY.BVT101. The problem was difficult to diagnose, as the MTG Diagnostics was not available. The vacuum piquet

could solve the problem with the valve that was stuck in the BTY line.

On Thursday morning (24 July) the remaining two bad External Conditions concerning the ISOLDE ventilation and the vertical bending magnet BTY.BVT101 were addressed. The specialist put back the connections for the External Condition of BVT101 that had been removed during LS1 (in the belief that it was replaced by the BIS) and adjusted the window thresholds. Concerning the ISOLDE ventilation, it was finally removed from the External Condition after agreement with M. Tavlet, as this condition is already taken into account in the PASS of the new access system. Beam could finally be sent towards GPS in the afternoon.

At 15h15 also on Thursday, TI reported a lower voltage for a short time, but it was sufficient to bring down a lot of equipment in the PSB and the Linac2 Tank 3 RF. Beam was back again after 35 min.

ISOGPS was sent down the line to GPS, but the beam was completely lost somewhere at the separation wall between the PSB tunnel end and the start of the ISOLDE tunnel. All the elements have been checked, but no fault could be identified. Friday morning A. Newborough was asked to check the polarity of the BTY quadrupoles (PSB side). He found the issue for the beam loss: the polarity for BTY.QDE151 was inverted. This happened most probably after the installation of the new pickup BTY.BPM152, for which the magnet had to be removed.

Finally GPS beam was steered for the SEM grid measurements, but there was an acquisition problem with the grids: only for every 6th shot an acquisition was done. A. Guerrero solved this problem in the evening. In addition the last pickup in the line showed only acquisitions for Ring 1 (the problem was solved quickly by A. Topaloudis).

At 15h38 on Friday (25 July) there was a radiation alarm, as the PSB extraction kickers were not firing for NORMGPS. It was observed that the acquisition of BTY.BHZ301 was showing the value for pulsing towards HRS, which triggered the extraction BIC (Beam Interlock Controller). The whole evening was spent investigating the problem (D. Calcoen) without success. It was decided to put BTY.BHZ301 in standby during the weekend.

Saturday the beam could not be sent to GPS because the watchdog was systematically triggered. Finally it was found that BTY.BHZ301 needed to be switched off instead of putting it to standby. This is not yet understood.

It was also observed that the tail clipper had a timing problem; it did not cut the beam even when the SIS (Software Interlock System) triggers correctly. On Monday (2 July) timings were adjusted in order to have the SIS tail clipper functioning as desired.

Horizontal beam position fluctuations are observed at extraction for all users. It is still not clear which element is responsible for this behaviour.

Finally on Sunday afternoon beam steering to GPS could be carried out and the SEM grid measurements done.

The SEM grid target was changed from GPS to HRS on Monday afternoon.

During the whole day the BTY.BHZ301 problem was investigated. It was observed that the same problem also affected the other triple-PPM converter BTY.BVT101 and came along with the change of FESA class during LS1. Finally it was decided to add three more conditions to the COMLN of the PSB telegram to treat correctly these use-cases. J-C. Bau will implement these changes and prepare a release for tomorrow (30 July); also the FESA class needs to be adapted. In the meanwhile a temporary solution was found to continue to work with GPS and HRS.

The SEM grid tests could still not be done to HRS because the SEM grid at the end of HRS is not acquiring the beam signal. An access is planned for this morning (29 July). A. Guerrero confirmed.

PS (G. Métral)

The EAST beam was delivered to the users during the last week without major problems even if there were a lot of interventions (water leak on the internal dump in SS47, on the extraction line 16 and for the extraction bump 16).

The week was dedicated to the setting up of the TOF and AD beams. These beams were prepared with the dummy septum in place and being extracted with the new scheme. There were several problems with the kicker KFA21 (several interventions of the specialist were required). π

There are problems with the trajectory and orbit measurement during the AD batch compression. The TMS (Trajectory Measurement System) is not working after the first harmonic change and the specialist is on leave. Therefore the new extraction scheme has been commissioned without batch compression with significant difficulties. Despite the problems the AD was prepared during the WE and extracted on the external dump D3.

Yesterday (28 July), there was problem with a beam stopper on the F61 (few shots were sent on the stopper). The stopper was still on the software external condition: now it is correctly set to the hardware external condition.

There is still a problem with the PFW: the rms value considered for tripping the circuit is averaged along 4 sec that is operationally too short. O. Michels will install a new card before leaving for holiday to average along 30 sec.

K. Hanke asked if the AD beam would be ready for next Friday. G. Métral answered that at the moment there is an issue with the synchronization between AD and PS and beam will be ready if a solution will be found.

SPS (V. Kain)

Last week was dedicated to the preparation of the single tests for the power converters of the main magnets. Several problems could be solved: there are still issues with controls of PLCs

(CIS), one bus-bar switch (the one in BA1) needs still a cable for the remote control of the motorization (the cable will be pulled during the magnet exchange). Single tests will be carried out until 8 August.

At the same time hardware tests of the circuits in TI 2 and TI 8 were ongoing. Apparently there is an issue with rodents having eaten some of the cables on power converters in TT60/TI 2. This is being sorted out. TI 8 tests are completed. Polarity checks finished for most of the circuits. Today the shift crew will do the polarity checks of TI 8.

On Friday there was access all day long.

The magnet with a water leak (MDLH.1028) in TT10 was exchanged. The security rails were installed around the dump kickers (already done earlier around MKP during the week). Controls cables were connected together with terminating resistors for MKPs to start conditioning in pulsed mode. Small other installations and checks took place (like cable rack installation in BA3, leak check at septa in BA2 and BA6).

A date was defined with all the people involved for the magnet exchange and installation of the TIDVG. This will be done together to optimize the time spent with the Chain 1 open and therefore reduce the impact on the EPC tests.

Preparation will actually already start next week on Thursday early morning with a load test of the goods lift in BA3. MKE4 finished conditioning whilst MK6 just started its conditioning.

A water leak was recently discovered in MBB222. It will be exchanged with the spare magnet.

K. Hanke asked about the impact of the planned activities on the schedule. V. Kain answered that the present schedule could still work out.

[ISOLDE \(P. Fernier\)](#)

GPS: the test with RILIS lasers ended. A turbo pump and controllers on the GHM line were changed. The SEMGRID target was positioned on the front-end and the PSB team steered the line; there were problems with a magnet in the BTY line (polarity inverted) and the air conditioning interlock was missing. The new target #508 was positioned on the front-end to start physics. The Faraday cup FC20 will be repaired in the next days.

HRS: The beam is not transmitted through the RFQ. After several tests a capacitive coupling between injection electrodes due to bad isolators was found. New isolators are under construction.

A high-voltage spike on the RFQ destroyed the He injection control system: the damaged system was replaced with a manual device.

After the severe thunderstorm, there are two serious water leaks in the ISOLDE hall; the Fire

Brigade was called and the problem has to be followed up. K. Hanke will report the problem to the IEFC.

K. Hanke asked about the schedule. R. Catherall answered that if the present issues are readily addressed ISOLDE can start as scheduled.

nToF (S. Montesano)

nToF received the first beam on Friday. During the weekend there were the first signals on the detector, but due to a problem on Sunday the beam had to be stopped (vacuum leak in the vertical EAR2 line).

Beam will be requested again tomorrow evening (30 July).

East Area (L. Gatignon)

The PLS selector was fixed by BE/CO in both T9 barracks on Tuesday. The long-term evolution of timing units in the East Area will be discussed in a separate meeting later this week.

On Tuesday evening the First Line was called for ZT9.QFO4, which was fixed within half an hour. On Friday morning, in the shadow of a PSB stop a leak on a cooling pump in F61 had to be repaired. After the repair ZT10.QDE1 and ZT9.BHZ02 did not restart. ZT10.QDE1 was repaired early afternoon. For ZT9.BHZ2 an intervention in the primary zone was necessary with some cool-down time beforehand. The intervention was finished in the later afternoon and beam came back in the East Area by 18h30. For T9 this was in the shadow of the foreseen user change, but T10 lost the full afternoon.

The beam PC in the T9 control room was replaced again and made operational on Thursday morning. The BE/CO team was acknowledged. This allows moving from working sets and knobs to CESAR as the main control system of the East Area beam lines.

AD (L. Bojtar)

The setup of the AD machine is in progress.

The target will be ready for tomorrow afternoon (30 July).

There is a central timing problem. This is a serious obstacle, because the machine cannot start unless it is fixed. Equipment tests are also not possible without it. The central timing specialists are working on the problem.

A temperature difference was noted on a magnet connection close to the target (QFO9052). One cable connection is at 30 °C while the other one is at 20 °C. This temperature is not too high but, due to the target proximity, the temperature evolution has to be followed-up with special care.

The bunch rotation cavity for the injection has to be conditioned since it was vented during

LS1. This is not a problem for the starting phase of the beam commissioning.

Linac3 (M. O'Neil)

On Tuesday (22 July) the Source Extraction 35kV power supply failed. It was replaced by the spare.

On Friday (25 July), there was an ITL slits problem (shutdown due to motor and encoder being out of synchronization). Investigations are on going.

On Monday (28 July) the source intermediate electrode was switched off as it started to draw an excessive current.

Some source tuning improved beam intensity. An MD confirmed that beam is stable in position on the SEM grids.

LEIR (M. E. Angoletta)

It was a very intense week in LEIR, as the ones before, with lots of debugging.

The B-train was not correctly received by the BCT MTR12 owing to a faulty distribution module. The 8-channel repeater has been changed and, after that, the scaling of the measured charge seems to be more meaningful.

The PowPLC Deploy_M FESA class crashed several times thus bringing down the e-cooler. D. Calcoen then downgraded the FESA class version, from PowPLC 3.3.1 (FESA3 fwm 2.0.0 RDA3) to PLC 3.2.7 (FESA3 fwm 1.3.3 RDA2), and the problem did not happen again since then.

There are problems with other elements. On Friday afternoon (25 July) the element ETL-BHN20 was operational on less than 50% of the cycles and the corresponding Oasis signals are not available. An issue was raised.

G. Kruk implemented the desired changes in the Trim Editor correction (target and value issue). These were deployed and validated in the CCC.

The tune measurement does not work and no BI people knowledgeable about it could be reached on Friday. Problems with the Tomoscope application program and with the charge-over-mass ratio as read by the LLRF were solved.

On Friday afternoon the capture and acceleration was tried, but so far without success. This will be the highest priority this week.

D. Manglunki asked why the beam position from Linac3 was unstable. R. Scrivens could not answer, but commented that the issue is currently solved. M.E. Angoletta added that M. Bodendorfer and D. Küchler optimized the RF and this improved the situation.

D. Manglunki informed that the RP survey on the LEIR visitor platform has been delayed

since the LEIR beam did not yet reached its nominal parameters in terms of energy and current.

TI (P. Sollander)

The problem with the water circuit for Linac2 (see 16th FOM minutes) is presently followed up.

A perturbation on the French network disturbed Linac2 and PSB operation for about 30 minutes last Thursday.

AOB

K. Hanke informed that tomorrow (30 July) there will be 1 h stop for an intervention in the PSB (from 9h30 to 10h30). R. Scrivens asked to inform Linac2 just before stopping the beam. L. Soby asked if the machine would be in general access mode. K. Hanke answered positively and underlined that if additional interventions will be requested they have to fit in the 1 h slot allocated.

The next FOM meeting will be held on the 5th of August. The agenda will be communicated in due time.

Minutes edited by G. Sterbini.