

Minutes of the 20th FOM meeting held on 19.08.2014

Agenda:

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

1 Follow-up of the last meeting

The minutes of the 19th FOM meeting were approved.

Pending actions:

There was no open action.

2 Status of the Machines

Linac2 (M. O'Neil)

It was a quiet week for Linac2. There are no major problems to report apart the one related to the PAXS23 radiation monitor.

D. Küchler presented in more detail the problem of the PAXS23 radiation monitor. The slides can be found at

<https://espace.cern.ch/be-dep/FOM/Presentations%202014/Forms/AllItems.aspx>

Present alarm limit of this monitor are 12 $\mu\text{Sv/h}$. This limit was surpassed several times with high intensity beams. As the detector is in a supervised area a further increase of the alarm limit is not advisable. Helmut Vincke agreed on that point explaining that an increase on the alarm limit is not a long-term solution whilst the option of additional shielding can be considered. K. Hanke will transfer the information to the IEFC.

PSB (K. Hanke)

It was an intense week for the PSB. Throughout the week there were substantial efforts in increasing the intensity on the ISOLDE beams by optimising steering and resonance compensation. This was difficult as the transformer read-out on the Operation Display is inconsistent with the Oasis signal. Probably there is an issue of gating/timings, which needs to be understood and fixed. Work has also been done on setting up h2 SFTPRO, STAGISO and a large emittance beam for MTE.

On Tuesday a kicker problem (BT2.KFA10 and 20) took many hours to be identified and fixed by the expert (bad contact in a pulse repeater).

On Wednesday at 14h00, there was a 2 h scheduled stop to allow the EPC group to do powering tests with the main quadrupoles. EN-STI did in parallel tests of the beam stoppers, prolonging the stop slightly longer than the scheduled 2 h. At 17h00 beam was back. The test of the beam stoppers was successful.

On Thursday a trip of BTP.DHZ40 required a piquet intervention.

Saturday early morning, the TFB went down with a water fault. The expert came in and fixed it.

Sunday evening during 20 min all control acquisitions stopped to run. INCA support did not answer the phone and eventually E. Roux could be reached. He suggested restarting the INCA server. This cured the problem.

On Monday, the C16 cavities were adjusted and the pulse intensity exceeded 3000E10 on an ISOLDE user.

This morning (19th August) there were two more trips on the kickers. The expert has been contacted to check the hardware.

In summary, the operational beams for TOF, EAST, AD are delivered to the PS. The next beams to be commissioned will be the LHC beams and SFTPRO.

[PS \(J. Wozniak\)](#)

The PS can deliver the three operational beams EAST, TOF and AD with nominal intensities. The start of the week was problematic with problems on Sunday evening with a vacuum leak. The end of the week and weekend was quite good with all the beams delivered as expected. Today morning (19 August) there was an access to fix on the EAST Area magnet.

On Sunday there was a large vacuum leak in SS70 (ion pump clamp problem). There was no beam until Monday evening, sublimation was done but pumping was rather slow. A vacuum interlock coming from the pumps on the KFA (5E-7 bar) prevented the full restart of all beams.

On Tuesday afternoon there were problems with the PSB recombination kickers (timing module had to be replaced). There were around 4 h of downtime.

During the night POPS was interlocked with external relay fault (Magnet Water Flow) which was not correctly diagnosed until Wednesday morning. It was related to a wrong manipulation on the cooling for PS magnets by a member of the TI team when fixing the problem on EAST cooling (10 h of beam stop).

On Wednesday an MD for SMH57 RMS current took place with access for TOF and other zones. In the evening, the SMH57 went down for 2 h with a power converter problem.

There was another problem with restarting POPS, which showed a 'Magnet Fault'. It was tracked down to a magnet temperature interlock produced by a rapid rise of the temperature due to the high load of cycles in the PS. The regulation of the water-cooling can deal with it but it needs around 5-10 minutes of adaptation when PS gets restarted with high-energy cycles rapidly.

On Thursday morning we still had some issues with the vacuum valves in SS70. A glitch in the vacuum pump caused an interlock for 30 minutes. The PS also suffered from the PSB MPS and dipole problems resulting in 1h30 minutes of no beam.

Friday was fine with the AD intensity increased to 1050R10 and TOF around 600E10.

The weekend was quiet without major problems (2 h of downtime due to KFA13).

S. Gilardoni reported that during the week there was significant progress on the MTE.

[SPS \(D. Mcfarlane and D. Manglunki\)](#)

Between Monday (11th August) and Wednesday (13th August), three magnets were exchanged (MBB11470 for a vacuum leak, QF12010 for an earth fault and MBB22290 for a water leak). In addition the old TIDVG was removed and the new one installed. The dump bake-out at 120°C is currently ongoing. During the transport of the TIDVG there was an incident where the drainage channels could not support the weight of the trailer, which became unstable and risked, capsizing. Transport resumed thanks to the use of steel sheets as floor reinforcements.

On Tuesday (12th August) the primary ion interlock for the North Area was supposed to be tested. The test could not take place because of the magnet exchange in BA2: there was no water in the ring magnet circuit, which created an interlock inhibiting MST and MSE from pulsing. However thanks to the preparation of the test, MSE and MST power supplies are now ready.

On Thursday (14th August) an earth fault on QD circuit was repaired (faulty bus-bar clamp in 119). On the morning of Friday 15th, the HV tests were successful.

Next week:

All main magnets should be ready for pulsing on Monday using LSA references. The broken wire scanner 519 has been scheduled on Monday too (over lunch time).

A water leak has to be fixed on the MKP. A possible date is Thursday 21st August (to be confirmed) as the main magnet water circuit in BA1 has to be purged.

[ISOLDE \(E. Fadakis\)](#)

HRS: A water cooling problem stopped HRS on Monday morning. On Tuesday the target UC509 was installed bunched beam from ISCOOL to CRIS and stable beam.

On Wednesday ISCOOL was set up in bunching mode. On Thursday and Friday a proton scan and tape station test took place. Air activation and RP tests were foreseen for a MEDICIS target but were cancelled due to steering problems on one of the deflectors in the BTY line (deflector had an inverted polarity).

There were problems with the mass control for both magnets, one could not reach the field required and had to restart the FEC in order to make it working. The problem was followed by EN-STI and TE-MS, the situation is still not stable enough and investigations are continuing.

There was an HRS timing synchronization missing and is now corrected. The original patch panel configuration for HRS was restored.

Today (19th August) there was a target change.

GPS: The installed target is #508-Re for parallel collection at GLM/GHM for IS528 occasional stable beam for IDS. GPS coupling of the target is looking fine. J. Vollaire is constantly being informed about the situation.

On Tuesday the GLM/GHM deflector controls (correct limits and interlocks) were configured and tested. A GLM vacuum pump was exchanged.

The line/target heating, transform and HV was dropping repeatedly over the weekend. It was a penning gauges problem, which was solved by TE-VSC.

On Wednesday all controls (working sets + applications) were lost for 1 hour. BE-CO solved the problem but I asked to be informed on what exactly was the problem.

There was also a large water leak solved on Saturday.

The thresholds of two RP monitors that were giving unjustified alarms at the RILIS barrack and route Democrite were raised.

[ISOLDE Users \(M. Kowalska\)](#)

The GPS physics program is progressing as scheduled. Concerning HRS there is no physics yet.

There was no beam during the weekend. M. Kowalska reported the disappointment of the users. M. Lamont asked to E. Siesling to comment. E. Siesling informed that all available experts are on the issues trying to deliver the beam as soon as possible to HRS.

[nToF \(S. Montesano\)](#)

nToF is taking beam during the night and completing the installation during the day.

The shielding installation was completed yesterday. Presently there is a problem with a sensor (oxygen sensor to evaluate the target corrosion) but the device will be replaced later since the monitor system has some redundancy.

East Area (S. Mataguez)

On T9 there is a problem of cable interlock on a quadrupole. The cable was accidentally removed. RP asked to reduce the intensity to limit the beam losses. More news will be available during next week.

East Area Users (H. Wilkens)

The users are satisfied of the quality of the delivered beam. Experiments are making good use of the available protons.

AD (T. Eriksson)

It was a difficult week for AD. Some time was lost due to PS (vacuum) and PSB (kickers).

The stochastic cooling setting up is on-going. The Schottky system is operation since Thursday and now the intensity can be measured correctly.

The first injection scans took place ($2E7$ at 3.5 GeV/c with $850E10$) in the PS.

The main issue that is affecting the beam commissioning is a strong EM signal perturbing the stochastic cooling. Probably the interference is probably due to the GSM network.

The GSM gain has been reduced by 25 dB to minimize perturbation. This is what we had in the past and it has mysteriously been forgotten.

The injection BCT are now working as expected.

Initial setting up of the RF for capture and deceleration from 2 GeV/c – 300 MeV/c has started. The capture is lossy and the beam is lost during ramp.

Much time spent on debugging stochastic cooling controls, electronics and microwave circuitry. Concerning the stochastic cooling, there is a problem of the movement of the PU. J. Betz asked if the problem is related to the FESA class. T. Eriksson asked positively, the problem is related to the FESA class.

Last week the AD physics start was delayed from 19th to 26th August.

K. Hanke asked if there is an impact on the schedule. T. Eriksson answered that there will be more news by the end of this week.

IONS

Linac3 (D. Kuchler)

There were no problems in Linac3 during the week. The intensity of the delivered beam was significantly increased (more than 50% increase).

The installation of the pepper pots has been rescheduled for the next Friday (22nd August).

The new FESA class for the RF has been deployed and it is working as expected.

LEIR (M. Bodendorfer)

It was a difficult week.

A bare machine setup was prepared with the minimal number of elements required to run the machine (main bending magnets and quadrupole, injection bump and cavity).

About 50% of the nominal intensity was injected. The intensity was kept until RF capture, where most was lost within a time span of about 100 ms. The beam is not cooled hence retains its original large momentum spread and therefore RF capture is not expected to be successful at this point of the restart.

The machine reproduces a programmed tune of 1.82 (H) and 2.72 (V) as measured 0.8 (H) and 0.63 (V).

There were numerous trial and errors with cable changes and oscilloscope tests on the main power supplies. They have shown that the digital signal transmission between GAFs and power supply is sometimes faulty, producing spikes on top of the programmed GFA function, and interpreted by the power supply to produce a low-pass filtered oscillation in the current, sent to the magnets.

The minimal setup increases significantly the stability of the machine. Investigations will continue. The beam will be injected to the PS on the 26th August.

PS (D. Manglunki)

The set-up of the ion cycle using the Ar parameter has started.

TI (P. Sollander)

P. Sollander reported on the water station stops in the PS. An unfortunate human error during intervention stopped another water station for the night causing the PS to be down for the

night and most of Wednesday. The problem is now understood. Operator training and diagnostics tools will be improved.

During the week a glitch on the main network perturbed marginally the PSB and PS operation.

3 Schedule Updates

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

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

K. Hanke reminded that the 28th August there will be a stop with access in the machines (together with the SPS DSO test). To access the machines, IMPACT requests have to be submitted by the end of the week. Depending on the IMPACT requests, RP will inform OP teams about the needed cooling time.

AOB

A. Bland informed that there will be an official request to the TIOC (tomorrow, 20th August) to replace several network switches. The intervention can potentially impact LHC, Linac4 and CTF3 (the supervisors will be informed). TIOC will decide and inform the FOM.

The next FOM meeting will be held on the 26th August. The agenda will be communicated in due time.

Minutes edited by G. Sterbini.