

Minutes of the 27th FOM meeting held on 22.09.2009

Agenda:

- 1) Follow-up of the last meeting (K. Hanke)
- 2) Status of the machines (supervisors)
- 3) Schedule (K. Hanke)
- 4) Preliminary list of interventions for the technical stop on 7th of October (R. Brown)
- 5) EIS inventory (S. Hutchins)
- 6) AOB

1. Follow-up of the last meeting

The minutes of the 26th FOM meeting were approved.

Open actions:

- a) Status of SPS BWS414: no BI representative present. K.Hanke found out after the meeting that only the horizontal plane is not working, but that no repair is foreseen for the moment due to missing resources. The action will be closed.
- b) Complete list of EIS elements ([see presentation of S. Hutchins](#)): a lot of information is still missing and is required for the IEFEC on 9th October. All equipment specialists and OP is asked to transmit rapidly the missing data to S. Hutchins.
- c) Investigation on the hot spot found at the position of the repaired SPS magnet: D. Manglunki has questioned K. Cornelis on this subject who said that there has always been a hot spot at this location. → it was proposed to close this action.
- d) Status of the AD extraction transformer: T. Eriksson explained that the reading of the extraction transformer was actually correct as it was found that they were loosing beam at extraction ([see AD report](#)). → close action.
- e) Send the list of interventions for the next technical stop to the machine superintendents ([see presentation of R. Brown](#)): in case an intervention is missing on the list that R. Brown presented during this meeting, it has to be added urgently (before next week's FOM). Otherwise no access can be granted during the technical stop.
- f) Check the LHC beams for the TI2/TI8 tests this weekend ([TI2TI8W39.xlsx](#)): the requested beams are LHCPROBE, LHCINDIV, the 25 ns LHC beam and the ion beam. They will be checked/prepared during this week.

2. Status of the machines

LINAC2 (M. O'NEIL):

Pretty good week except for Friday afternoon.

At 2pm on Friday a fire broke out on the roof of building 355, where contractors were re-tarring the roof. Burning plastic skylight fell onto the spare LTB.BHZ30 power supply, damaging it badly. C. Mugnier added that this power supply is definitely broken.

White powder from the 2 extinguishers (mono ammonium phosphate) used to put out the fire filled the room and was entering into the operational LTB.BHZ30 and 40 power supplies as well as the PS supplies and the MPS room. Specialists mentioned that this powder was corrosive over time. The power supplies were provisionally cleaned and a de-humidifier installed. The machines could be re-started around 20:00. Nevertheless cleaning will have to be repeated at the technical stop. C. Mugnier explained that the room will be cleaned once more before the technical stop, and on the 7th and 8th of October the power supplies and their electronics parts will be cleaned by a specialised company. B. Mikulec asked whether this would compromise ISOLDE running overnight. C. Mugnier promised to clarify for the next FOM meeting if selected power supplies could have priority to allow the linac sending beam to the Booster that night.

K. Hanke pointed out that LTB.BHZ30 is required to work in order to send beam to the PSB. Therefore a solution has to be found to prepare a spare power supply. Currently there is no 100% compatible spare power supply available. The potential spare does not survey the current ‘fourchettes’, which generate a source interlock to prevent the beam hitting the vacuum chamber if the current is out of the specified range. C. Mugnier said that TE/EPC are planning to equip this power supply with new electronics. He will give an estimation of the feasibility and delay during the next FOM.

K. Hanke questioned how the roof renovation should continue. S. Hutchins said that it was under GS/SEM responsibility and that he will follow up the issue (→ action S. Hutchins). Precautions have to be taken to avoid additional damage, in particular if work has to be done on top of rooms with equipment needed for beam operation.

PSB (J. TAN):

The Booster had a very smooth run.

On Thursday early morning at 0h40 beam was lost after extraction when the AQN of BT2.DVT10 went to 0. No error message was visible on LASER and remote resets didn't work. The piquet PO had to change a board in the power supply (1h15 downtime).

On Friday afternoon the PSB was stopped due to the fire mentioned above.

A short electrical power glitch on Sunday morning affected 2 cavities, but they could be quickly reset.

ISOLDE (E. PISELLI):

Very good week without problems. REX got beam one day ahead of schedule.

ISOLDE users ():

No report, but very positive feedback from the users.

PS (Y. PAPAPHILIPPOU):

The PS had a good week except for 2 stops.

The first stop was due to the fire on top of the roof of the MPS building (~5h30 lost). After the cleaning campaign all affected power supplies were confirmed to work without problems before restarting. Re-cleaning is required and will be done during the next technical stop. For the moment the hole in the roof has been covered with a plastic foil fixed with heavy stones, and a dehumidifier has been installed in the power supply room.

On Sunday morning and after an electrical network glitch, the MPS went down without a possibility of reset. The piquet PO was called and subsequently called an expert. The problem was found in the hydraulic resistance for the speed regulation of the rotating machine. It was restarted and the beam came back after ~4h.

Following the replacement of the tuner of an 80 MHz cavity (80-08), another intervention of ~2h is needed for optimisation. This cavity is required for ion operation. K. Hanke asked if the intervention had to be urgently done or could wait. It was decided to add the intervention on the waiting list for PS accesses, as it is possible to run like that for the moment. In case the situation would change, the intervention would be scheduled on short notice.

Regarding the bad spill observed by the SPS machine for the high intensity beams, a jitter was found in the PS at the start for the BFA21 stair. In addition, the module 3 was not pulsing with its correct value, sometimes not pulsing at all. L. Sermeus had a look on Monday and decided to change the power convertor of the module. TE/ABT are still investigating the matter, as it is not clear if that solved the problem.

East Area (L. GATIGNON):

Smooth running of EASTB and EASTC.

After the long MD there was a problem restarting EASTA due to wrong settings of F61S.BHZ01. As in parallel there were problems with the reading of the North target telescope F61.MTEL01, it took some time to resolve. From then on smooth running of the EASTA branch.

In T9 COMPASS is running smoothly.

In T10 ATLAS/GOSSIP could essentially complete their 2-week program in time in spite of having started with more than a week delay.

East Area Users (H. BREUKER):

DIRAC is running fine.

ATLAS/GOSSIP has managed to obtain good results.

There are no problems to report.

AD (T. ERIKSSON):

AD was running the whole week for ACE.

On Tuesday a scan of the ejection trajectories was made resulting in good efficiencies (and proofing that the extraction transformer is working correctly).

AD is back to normal operations as of yesterday, with the machine running fine.

AD users (H. BREUKER):

ACE finished their program, during which they could test several types of new detectors.

ATRAP used the week for and upgrade and repairs.

ASACUSA is doing fine; they will start a second series of attempts to trap antihydrogen.

NTOF ():

No report. H. Breuker mentioned that NTOF runs on iron until end of next week, then switch to nickel.

SPS (D. MANGLUNKI):

It was also a pretty good week for the SPS with 80% beam availability for CNGS and 82% for Fixed Target.

Last Tuesday the last two proton MD's (LHC sequencing & electron cloud studies) could run well, but had to finish earlier (5am instead of 7am) because of an increased MKE4 temperature.

Wednesday morning the ion cycle was set up, but there were some problems with the extraction septum.

The recovery from the MD on Thursday morning with a higher intensity on the Fixed Target cycle was eventful: LSA problems (mode could not be changed until CO expert intervention), CNGS horn in local control, TT40 TED unmovable, faulty MKE4, spurious water interlock on TBSM & TBSJ, RBAC preventing access to interlock masks, TRX8 tripped... Finally the beam was back at 10am and almost tuned towards the North Area at 2pm, when the MKD tripped. It could be fixed 3 hours later.

On Friday morning the injection phase had to be modified from the Faraday cage for the Fixed Target cycle and CNGS; the origin of the drift is unknown.

At the time of restarting a BIC interlock from BA3 stopped the Fixed Target beam. Fortunately T. Bohl was still present in the Faraday cage and realised that the problem was coming from a beam quality monitor interlock, which had been worked on during the afternoon beam stop.

On Sunday morning (7h38), a glitch on the mains caused the trip of all transmitters (except TRX6). The transmitters were up within 10 minutes, but the PS MPS was still down. The OP crew was unable to stop the SPS's MPS to save energy as the CIS application requested a specialist confirmation, which was eventually provided by Y. Gaillard being on site for the MPS of the PS. He had to reboot the old HP computer in BA3. Upon questioning of this method, A. Bland replied that a new system replacing the obsolete HP power supply is under preparation (PVSS application) and will be implemented during the next long shutdown. It is planned to let it running in parallel with the old system during 2010 once ready.

During both weekend nights, the CPS spill for CNGS suffered from an occasional bad structure, causing losses in the SPS and no extraction to the target. The CPS crew traced it back to a bad synchronisation between the pedestal and staircase parts of the extraction fast bumpers (BFA9-21).

Yesterday 1h30 was lost when at 4:30pm a circuit breaker cut the current in BA4 following a trim on CNGS.

The Fixed Target and CNGS beams were turned off at 8 this morning for 32 hours of dedicated MD.

The PS team confirmed that the CNGS cycle has been copied onto the SFTPRO cycle in the PS to provide increased intensity for SFTPRO. The SPS confirmed that the intensity is now satisfying.

CNGS (E. GSCHWENDTNER):

Beam operation is fine. Once more an access was given to empty the sumps. One sump has been completely emptied (water and petrol). Upon a question of K. Hanke, E. Gschwendtner confirmed that the tritium is still present and that they will try to find a solution during the winter shutdown.

North Area (L. GATIGNON):

As COMPASS changed from hadron to muon beam after the long MD, the intensity on T6 had to be increased substantially. They are now running at the requested proton flux of $2.4E13$ ppp on T6, and the rates and muon beam performance are satisfactory.

In the H6 beam a quadrupole QWL434 had to be replaced on Wednesday and Thursday. Beam was back by Thursday lunchtime. There are also occasional problems with the current of Bend4 in the same beam line.

In the H2 beam NA61 planned to take secondary proton data at 10 GeV/c. However, due to the low proton flux at that momentum and stability problems they decided to go to 20 GeV/c instead.

North Area Users (H. BREUKER):

H2: NA61 prefer to run at 20 GeV/c due to better stability. The cooling of their electronics racks is now under control.

H4: the NA63 physics run can be extended by 3-4 days.

H6: everything fine for RD42 (tracking with diamond detectors)

H8: UA9 is running fine.

Also the COMPASS users are happy.

First line has to be contacted to change the polarity of a spectrometer.

LINAC3 (M. O'NEILL):

Linac3 was running quite stable throughout the week with intensity around $20 \mu\text{A}$. There have been minor problems with the VME crate of the ramping cavity and the electrical distribution to the ITL/ITM power supplies.

An oven refill is scheduled for this morning (ongoing).

D. Manglunki and the LEIR team expressed his special thanks to M. O'Neill and J. Broere for the excellent support and response to problems (also outside working hours) during last week.

LEIR (M.E. ANGOLETTA):

LEIR has been running pretty well for the last week.

Last Monday there was the oven refill, and already on Tuesday beam could be injected into LEIR.

On Tuesday evening the source dropped out. M. O'Neill kindly agreed to restart it and was also present before 7am next morning, when beam was supposed to be sent to the SPS.

On Wednesday morning there was a water leak, so the beam could finally be sent to the SPS only at 10am.

On Friday evening the injection efficiency to LEIR was very poor due to problems in the Linac3 debuncher. J. Broere kindly agreed to come and change the failed power supplies. This allowed LEIR to be ready on Monday morning.

On the LEIR MD side, two MDs should be mentioned:

- a) R. Scrivens tried to increase the injection efficiency into LEIR by varying the LINAC3 aperture slit. The results were not conclusive as it was not possible to correlate a variation of injected beam intensity to a varying aperture.
- b) RF system: The system has been commissioned to its full capabilities. Tests were made to improve the capture and acceleration efficiency with the new RF system, however losses are still present. They have been present since 2006, and it is not clear what their origin is. Additional MDs are planned in LEIR to address this issue. The last things to add to the RF systems are cavity slow protections. They will be important not only for LEIR, but also to gather experience for a possible future second phase in the PSB LLRF consolidation, where it should be clarified whether the system performance could be improved by implementing the cavity voltage and tuning loops in the LLRF part.

PS WITH IONS (D. MANGLUNKI):

The MD was started last Wednesday.

During the beam non-availability Friday afternoon work was done on the ion cycle without beam.

SPS WITH IONS (D. MANGLUNKI):

On Wednesday the ion MD started at 10am instead of 7am because of an extraction septum problem in LEIR. In the end it was quite successful: after PS-SPS energy matching, tunes and chromaticity adjustments were done and quite some work on the RF side. Four batches could be injected, accelerated up to 177 GeV/u and rephased.

On Friday afternoon there was no beam from the PS between 14:15 and 19:45 because of the fire on the roof of building 355; during that time the RF experts worked on the ion cycle in the SPS with a short supercycle (CNGS+LHCION1) .

Ions could be extracted on Monday into TT60 with nominal intensity (1 bunch of $9E7$ ions, $7E9$ charges) and small emittances (1 mm mrad horizontal, 0.7 mm mrad vertical, instead of 1.2 in both planes); therefore the PS-TT2 dispersion mismatch becomes low priority.

With the source refill this morning, more ions in LEIR Wednesday and in PS and SPS on Thursday, the ion chain is in good shape for the TI2/TI8 tests on Monday the 28th.

CTF3 ():

No report.

TI (P. SOLLANDER):

There are two major event reports under preparation concerning the power glitch on Sunday morning and the 80 kV trip on the SPS yesterday.

Yesterday there was an incident with the air conditioning in the computer room in building 874, when the chilled water became too warm. CV could solve the problem. K. Hanke pointed out that this could bring down the facility.

3. Schedule / Supercycle / MD planning

The 2009 schedule (V3.6) is available at:

<https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/Schedule2009.pdf>

The supercycle composition is available at [this web page](#).

The schedule of the MDs can be found on the [MD web page](#). Currently there is an injector MD ongoing. R. Steerenberg said that it should be feasible to provide beams to users as usual, only during the night the number of EAST users has to be reduced.

The detailed planning for the TI2 and TI8 tests on 26th - 28th of September with protons and ions has been laid out by M. Meddahi (see [linked file](#)).

A 2h intervention of the 80 MHz cavity in the PS would be needed in case conditions change, at which point it would not be possible to retune the cavity as the tuner is blocked.

The new version of the schedule reflects the change of date of the technical stop. A preliminary list of interventions planned for this stop will be presented in this meeting (see below) and the final list at next week's FOM meeting, after which no more interventions can be granted. A first RP estimate for the required cool-down time is 2 hours, which would mean to stop the machines at 6am. This number has yet to be confirmed.

4. Preliminary list of interventions for the technical stop on 7th/8th of October (R. Brown)

R. Brown presented the preliminary list of interventions per machine planned for the technical stop on the 7th and 8th of October (consult [his presentation](#) for details).

L. Gatignon asked whether an intervention was needed for the F61 magnet, but this seems to be fixed.

R. Steerenberg will check if a wire scanner needs repair, but he said that anyway no spare was available.

Under the PS RF interventions, an intervention on the 80 MHz cavity is mentioned involving breaking the vacuum. R. Steerenberg will check if this would also be the case for the 2h intervention request on the same cavity (see PS report) – if yes, the intervention should not be done before the technical stop as it would compromise the ion run.

EN/CV plans to stop the cooling circuits of several zones during the technical stop. There might be a conflict with some septa power supply tests in the PSB. K. Hanke will check this with J-M. Cravero. The stop of cooling will also affect the PS central building. The PS rf experts will be informed about this.

For the TT2 security chain tests a consignment of the septum is needed. R. Steerenberg will take care of this.

G. Vandoni made the remark that 2 vacuum interventions in LINAC2 should be added to the list. The first concerns the change of ion pumps at the RFQ. During the second intervention the sieve

at the start of the BI line has to be removed. The vacuum team was asked to start these interventions as early as possible in the hope that vacuum conditions can be recovered to allow for an ISOLDE run during the night.

5. EIS inventory (S. Hutchins)

S. Hutchins has prepared an Excel sheet summarising information linked to all EIS (Eléments importants pour la Sécurité), which can be found at this [link](#), and a steadily updated version on his NICE public directory. He will present this list to the [IEFC](#) this Friday, but is still missing a lot of information. He asks all equipment specialists and the operation team to check this document and send him before Friday any additional missing information.

6. AOB

K. Kostro reminded everybody of an announced intervention on 2 storage switches tomorrow (see <https://espace.cern.ch/be-dep/FOM/Lists/Agenda/calendar.aspx>).

Also tomorrow there might be a problem logging off from the consoles. Due to an IT update of the NVIDIA graphics driver the error message ‘X-server cannot be started’ might show up during logoff. A. Bland asked everybody not to call CO, but simply to reboot the machine.

S. Hutchins transmitted the complaint of D. Vaxelaire (GS/ASE) about slow network performance of the technical network. A. Bland explained the problem and said that this concerned only 2 consoles dedicated to the NA access, where timeouts are possible (in particular on the upper console). He invited D. Vaxelaire to send a request to the IT/CS network team to monitor this specific traffic, but he mentioned as well that it will be difficult and very time consuming to identify the problem through analysis of the network data buckets. A very simple solution to stop the timeout is to close the window and restart it.

A. Bland proposed to change all OP passwords on Thursday 8th of October in preparation of the LHC run. R. Steerenberg and K. Hanke will propose new passwords.

7. Next meeting

The next meeting will be held on Tuesday, September 29th at 10:00 in 874-1-011.

Preliminary Agenda:

1. Follow-up of the last meeting
2. Status of the machines
3. Final list of interventions for the technical stop on 7th/8th of October (R. Brown)
4. Schedule
5. AOB

Minutes edited by B. Mikulec