Minutes of the 28th FOM meeting held on 29.09.2009

Agenda:

1) Follow-up of the last meeting (K. Hanke)

2) Status of the machines (supervisors)

3) Report on TI2/TI8 tests (J. Wenninger)

4) Schedule (K. Hanke)

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

6) AOB

1. Follow-up of the last meeting

The minutes of the 27th FOM meeting were approved.

Open actions:

a) Complete list of EIS elements: S. Hutchins has received some information concerning the EIS, but many fields are still empty. As the IEFC has been displaced to the 9th of October, there is still about a week left to gather this information and transmit it to S. Hutchins.

b) Clarify continuation of roof repair works (building 355) after fire: a VIC (visite d'inspection de chantier) has taken place. Additional protection for the equipment in the rooms beneath will be added and work is about to be continued.

c) OP password change for the 8th of October: still under investigation.

It has been clarified that operation this year will stop in the evening of the 16th December in parallel with the LHC cryogenics. The machine will be put in 'standby' mode; what this means exactly will be explained during the FOM in 2 weeks time. M. Lamont noted that there might be an extension in case the LHC would be ready for 3.5 TeV collisions.

D. McFarlane confirmed that PSB and ISOLDE would still be supplied with chilled water during the technical stop next week (information from S. Deleval).

LTB.BHZ30 (G. Le Godec): The damaged (spare) power converter will be removed today. Re-cleaning of the room will resume soon. Another equivalent power converter could be found, but it has been in storage for 5 years. This converter needs to be re-assembled and tested; a control crate is also available. Tests should first be done on a dummy load. A time estimate for the commissioning is about 1 week after the technical stop. In case this power converter should not work, another solution has been identified, but it would require adaptation work.

Cleaning of the affected power supplies after the fire (M. Vadon): Two days are needed to clean the room and 2 additional days for the equipment. Two teams of 6 people each will do the work. It will not be possible to deliver beam to ISOLDE during the night between the 7th and 8th of October.

2. Status of the machines

LINAC2 (C. DUTRIAT):

In total 1h20 were lost last week.

On Tuesday afternoon Linac2 was stopped during 1h10 due to a breakdown of the LEIR water station. A fault occurred on the primary pump #1; once switched to the pump #2, the demineralised water was back.

Wednesday 5 minutes were lost because of an interlock on the power supply door of LTB.BHZ30.

Another 5 minutes were lost on Thursday because a cable was found disconnected on the power supply door of LTB.BHZ30.

Besides from a reset of tank1+2 yesterday the week was calm.

PSB (G. RUMOLO):

The Booster had an excellent week.

There were only 2 problems worth mentioning: a problem of a DSC affecting the extraction bump on Wednesday and an issue with the B-train measurement on Thursday. The specialists could solve both problems rapidly.

ISOLDE (M. ERIKSSON):

Very good week.

GPS: COLLAPS asked for the maximum possible voltage, but 60 kV proved to be very difficult. Starting from stable running at 30 kV, the voltage was later increased to 50 kV, corresponding to the low limit set by COLLAPS. This was only possible while running in non-protected mode, as there were still HV trips. The users had to closely monitor the HV and stop it in case the target current would exceed a certain value. Conditioning of the HV electrode was tried before as such a problem is often caused by dirt on the extraction electrode, but did not improve the situation. The extraction electrode will be changed as usual during the shutdown.

HRS: ISOLTRAP took data from ^{80}Rb and ^{93}Rb. MAG60 was once stuck and the NMR cable had to be reconnected. The run finished on Wednesday. Since then the target is in cool-down; a target change is planned for today 3pm.

ISOLDE users (A. HERLERT):

The users are very happy. There were only some small problems related to the frequent HV trips.

For the next HRS converter run from Friday 9th until Monday morning 12th 8am the users have the special request for the supercycle composition not to use the 1st and the last cycle and to avoid consecutive cycles. R. Steerenberg will do his best to fulfill this request. He will make a planning with the max. number of cycles attributed to ISOLDE; then the users can remove cycles they don't want to use. It should be noted in the consignes to call the ISOLDE users before each supercycle change.

PS (R. STEERENBERG):

The PS has been running quite well and provided beam to all the users. On Tuesday and Wednesday (MD days) and over the weekend (TI2/TI8 test) the different LHC beams were provided to the SPS. Friday afternoon and over the weekend the MTE beam was send to the SPS on the 4th CNGS cycle with ~1E13 protons per PS cycle.

The testing of the spare F16.BHZ377 power converter during the technical stop of 7 and 8 October was discussed with G. Roy, as a there is a potential conflict with access in the SPS. It was agreed that this test could be done if OP will take care of the consignation the septum PE.SMH16 on the 7th and if the F16.BHZ377 condition is bypassed in the SPS access chain.

A TG8 problem resulted in a MPS trip on Wednesday.

The video streaming of the access control system blocked several times. Since GS/ASE has been working on it the situation has improved, but the problem is still present. Another application can be used as backup in case of problems.

From time to time the internal dump gets stuck in the beam and has to be removed by the operator.

On Thursday F16.QFO215 tripped twice, but could be remotely reset. Since this happened already a few times, next time the problem appears during working hours the piquet power will be contacted to verify locally before doing a reset.

On Friday around 4pm the PS lost control over the accelerators due to a problem with the IT database server. Beam production was continued as all the running diagnostics were still working. However, it was not possible to launch applications and change parameters for about 1 hour.

On Sunday morning around 1am the KFA21 for MTE tripped and could not be restarted. As the equipment specialist could not be reached easily the MD1-CNGS2 cycles were replaced by normal CNGS cycles until the next morning when the specialist could come in. He replaced a power supply, after which the KFA21 worked again and MD1-CNSG2 operation could be resumed.

During the whole week there were many different problems with DIAMON. The piquet CO intervened several times, but in the end provided a recipe to the CCC to deal with this problem. M. Buttner is aware of this issue and is working on it.

Sunday around midnight the DIRAC spectrometer tripped on an external fault. The piquet first line was called, came in and diagnosed an external fault on the magnet. The magnet specialists had to intervene and could solve this problem by Monday morning around 10am.

During the week additional pulses were sent to NTOF when CNGS was not requested. This allowed crossing the line of desired integrated intensity. But now there are some concerns about air activation outside the tunnel. Therefore the limit of 1.8E12 ppp had to be lowered to 1.3E12 ppp. This removes the integrated intensity margin. During the technical stop an attempt will be made to improve the air tightness of the tunnels.

Concerning the MTE improvements could be made on the island capture and the steering. Further work is needed. Once a good situation will be reached, the settings will be copied onto MD1. The MTE cannot yet be considered as operational.

East Area (L. GATIGNON, email):

The only issues to mention are some freezes of the access video in DIRAC (see PS report) and the replacement of a compressor in the DIRAC ventilation system Friday evening.

East Area Users (H. BREUKER, email):

After the compressor exchange DIRAC had a problem to bring up the electronics; after 2 days of work they could run again on Sunday morning. DIRAC then lost Sunday night because of the trip of spectrometer magnet (see PS report); this was fixed during the morning. Then they suffered from another cooling water interlock, now facing the same problems to restart their electronics as last Friday evening.

T9: COMPASS ECAL finished fine; new users are assigned for the period from Thursday 8th to Tuesday 13th of October.

T10: CALICE-MMEGAS are doing fine and are asking for a second EASTA cycle if possible.

AD (K. MIKLUHA):

Pretty good week.

On Tuesday the help of First Line was needed to fix DR.DVT5408, which did not follow the GFA function. There were also problems with the vertical predriver power supply for the stochastic cooler, which was tripping off.

On Wednesday the injection kicker was missing some timings, which could be solved by reloading a DSC.

At the ramp between 2 GeV/c and 300 MeV/c intermittent losses were observed on Thursday. After tuning of the stochastic cooler in all planes the problem disappeared. Since then the machine has been running in a stable and efficient way.

AD users (H. BREUKER, email):

ALPHA is running fine.

ATRAP was suffering from vacuum problems during about 4 days after some ‘upgrade’ work. On Saturday cool-down could successfully be done, and ATRAP could restart their measurement program on Sunday.

ASACUSA have still no ‘clear’ signal of trapped antihydrogen, but the users are confident. For one more week the Mushashi/Cusp trap will be kept going, then they will switch to the ‘Brescia’ antiproton nucleon scattering experiment.

NTOF ():

No report. During the technical stop the tunnel air tightness should be improved.

SPS (J. WENNINGER):

SFT and CNGS beams ran smoothly for most of the week (except for a lengthy MD recovery on the SFT).

On Saturday evening the SFT and CNGS beams were suddenly lost at injection with strange signals on the phase loops and abnormal injection positions on the FBCT. T. Bohl and U. Wehrle fixed the problem about 1 hour later: the cause was a burnt inductance in the phase loop electronics (a smell of burning in the Faraday cage was reported by the power piquet just before).

The CNGS beam was stopped around 22:30 on Sunday because a target ventilation unit seems to have stopped. No abnormal temperatures were recorded, but it was decided that it would be safer to stop the beams and prepare for an inspection on Monday. An access was organised on Monday.

The SFT beam was stopped for 5 hours on Monday (5pm-10pm) because of a problem on the bypass of a power supply in the North Area.

The MD period with coasts at 120 GeV for UA9 (Tuesday) and BI studies (Wednesday) was rather efficient and successful.

In parallel good progress was made on the MTE beam. On Friday the MTE beam was extracted to the CNGS target in the morning, and despite the unfavourable beam structure the BPMs did trigger and measure correctly. In the evening the MTE was put in production with ~1/3rd of the nominal CNGS intensity on the fourth CNGS cycle for the weekend to gain some experience. The MTE had to be stopped in the night to Saturday due to the PS extraction bumper problem, but it could be put back on Saturday morning. The typical intensity on target was 1.5E13 per cycle. It had to be stopped on Sunday night due to the problem on the CNGS ventilation. An intensity increase is not yet evident as the core is still too dense.

P. Sollander mentioned that there was a trip of BA4 yesterday afternoon and asked for the reason. J. Wenninger replied that this was not the first time it happened – the problem occurs when certain power supplies are programmed for a long flat top (e.g. as used for the ion cycle). The trip happened when a wrong trim was sent, but in such a case there is no time to correct the error. Due to power limits in BA4 one has to be very careful with the programming of the cycle, and help from specialists is needed. P. Sollander said that it might be possible to change the protection settings, but first one has to understand what is currently programmed. After the meeting P. Sollander found out that the protection on the circuit breaker EMD302/A4 is 800 A during 3 s. SPS operation has been informed of this protection setting.

TI2/TI8 tests (J. WENNINGER):

Friday saw the preparations for TI2 and TI8. Everything went smoothly except for a few difficult hours in the afternoon when IT made an unannounced intervention on the CCDB (Controls Configuration database). This brought down the console managers, the elogbook and other applications. First beams were sent to TI2 around 6pm, and to TI8 shortly after 7pm. So far the tests went smoothly.

CNGS (E. GSCHWENDTNER, email):

On Sunday ~10:30pm the CNGS beam was switched off due to an alarm in the ventilation unit which cools the CNGS target. Investigations on Monday morning indicated that there was a problem of the V-belt. Hence access to the CNGS area was required. During access preparation the shielding plug PPG TSG4 stopped halfway because its rail detection sensor was broken. This failure happened at a connection between two rails that were not well aligned in height after the civil engineering work done for the condensation water tube modifications during last MD. During the access on Monday the shielding plug sensor was exchanged. The rail alignment was

improved. The V-belt of the ventilation unit could finally be exchanged. CNGS beam was resumed on Monday, 8:15pm.

During the technical stop next week the rail alignment will be further improved.

The hadron stop sump TNM41 will be emptied. This needs access through point 8. The water will be transported from TNM41 via TI8 to ECA4.

North Area (L. GATIGNON, email):

In the North Area several doors went into free access mode simultaneously on Thursday evening without apparent reason. The reason for this is not understood. S. Hutchins agreed to investigate this behaviour with GS.

Otherwise smooth operation.

Next Thursday around 9am (tbc) COMPASS plans to go back to a hadron beam. Consequently the intensity on the T6 target can be reduced from 240 to 145 units of 1E11.

North Area Users (H. BREUKER, email):

H2: CREAM (Antarctis balloon experiment) has been installed; they expect to start taking data today.

H4: NA63 is doing fine. An extension for their run was granted until 15th October.

H6: ATLAS BCM is doing fine; they can be controlled remotely.

H8: UA9 is OK. They have set up a new beam telescope and are testing different types of crystal materials and geometries.

COMPASS: the muon run will be finished successfully next Thursday, after which they will return to take data with hadrons.

LINAC3 (R. SCRIVENS):

Tuesday last week the oven was refilled. However, only 100 mg had been consumed in the previous week, and just 50 mg could be added. It should be just enough to run until the 7th of October. In the afternoon the LEIR/Linac demineralised water station went down, but it was possible to deliver beam out of Linac3 by 5pm.

On Thursday it was investigated with BI why the Linac3 BCTs returned the beam intensity value one cycle too late (on the following user). One of the consequences of correcting this is that the Vistar does not receive the data via the GM2FESA adapter in time, displaying no beam. CO are working to use directly the FESA interface.

Friday work was done with RF on the ramping and debunching cavities, but only resulted in the discovery of a bug in the front-end software. dlinpow crashed twice, and the CPU card was replaced. Since then it has not crashed again.

On Sunday the intermediate extraction electrode of the source was found to be shorted (in the vacuum chamber). Attempts to run without it were reasonably successful, and a tuning point was found with the Linac producing about 90% of the intensity of earlier in the week. A repair of the short will be planned.

On Monday the PS chilled water arrived at Linac3 10 degrees warmer than usual. The source tuning radically changed and eventually the Linac RF tripped when the tanks became too warm

to be tuned. The reason was a problem during emptying of the cooling water tower. The tower had to be refilled, after which it was possible to switch back to chilled water.

With all the above points it was not possible to try and push the source / Linac intensity any more.

The beam is now switched to ion desorption measurements. Approximately 2 hours will be necessary next Monday (5th of October) to reconfigure the Linac back to LEIR injection. It should be checked how this integrates into the MD planning. The ion desorption measurements will continue in week 42. The Linac3 crew might like to tune the source in week 43, but D. Manglunki mentioned that they would perhaps like to have ions injected into LEIR. As this is a new request, the concerned teams should prepare a coherent proposal and planning.

LEIR (M.E. ANGOLETTA):

LEIR has been running reliably and has provided beam to the SPS as required last Wednesday afternoon, Thursday and on Monday 28th of September.

Some operational problems were experienced. In particular, on Tuesday 22nd of September there was a water cooling problem, and some effort was required from the LEIR crew to recover from it. Several power supplies would restart only with a local reset, not remotely. Experts were called in to restart some quadrupoles and the electron cooling water pump.

On Sunday the machine status was checked in view of Monday's run, during which it was discovered that a badly working FESA class did not allow reliable control of the LEIR main magnet. Additional control system problems (DIAMOND, LASER,...) were experienced, originating very likely from Friday afternoon's database problems.

PS WITH IONS ():

No separate report.

SPS WITH IONS (D. MANGLUNKI):

Once again, thanks for the great support and collaboration from the Linac3 crew all week and thanks to the PS OP crew who agreed to check the ions on Sunday night, inserting it in the supercycle from time to time. This ensured the ions were immediately ready on Monday morning.

On Thursday ions were again extracted to the TT60 TED, but this time with full rephasing to the LHC.

On Monday the extraction to TI2 & TI8 took place at nominal intensity of 7E9 charges (9E7 ions) despite the Linac3 source problems and with smaller transverse emittances (0.6/0.5 mm mrad in the hor./vert. plane). Synchronized ions were sent to the TI2 TED for ALICE on Monday until midnight.

CTF3 (D. MANGLUNKI for S. BETTONI):

On Tuesday it was more or less impossible to run because of some necessary safety tests.

Wednesday morning has been dedicated to consolidate the bunch length measurement started last Monday (21st of September). From Wednesday afternoon it was attempted to eliminate a spike at the beginning of the pulse present since a few days. After this was successful, the delay loop was optimised (magnetic injection, orbit correction, dispersion measurements and check of

the beam after the loop). Finally, today the RF injection has been set up with successful recombination (about 6.7 A; in the past the maximum was about 6 A). A spike at the beginning of the pulse already in the loading of the first subharmonic buncher does not allow having a perfect recombination for the entire train. This is still under investigation.

On Friday evening some beam for the 30 GHz run has been set up. In the afternoon controls problems didn't allow to run: knobs could not be opened, and timing for the fast phase switching was not working. The piquet control worked all afternoon to fix all the problems.

Also PHIN (photo-injector) started to run. CLEX is open for installation.

TI (P. SOLLANDER):

All the issues have been covered during the machine reports.

Some interventions are currently ongoing as announced on the Upcoming Interventions agenda.

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. There has been a MD planning meeting for the MD in week 41 on Monday. The machine supervisors and physics coordinators should consult the updated planning on the web. R. Steerenberg cautioned that there would be little physics beam availability during the upcoming MD except for ISOLDE.

In addition, starting from the 1st of October, there will always be a LHCFAST cycle in the supercycle in the evening on request. One LHC sector will be available approximately after the technical stop.

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

R. Brown presented the 'final' list of interventions per machine planned for the technical stop on the 7th and 8th of October (consult his presentation for details). Interventions added since the previous presentation are marked in blue.

G. Vandoni corrected that finally the sputter ion pumps will not be removed, only during one of the 3-day stops next year. The sieve in the BI line will be removed completely and replaced by a vacuum chamber.

K. Hanke added that the BI team wants to do BLM tests. E. Effinger should make an official request to R. Brown/D. McFarlane.

S. Deleval confirmed that there will be interventions on the LEIR water station in the morning of the 7th of October (cutting the demineralised water for LEIR and Linac). It has been clarified after the meeting that no PSB equipment should be affected by this.

Concerning the required cool-down M. Widorski said that the PS could run until 7am on the 7th of October in case of pure prior PS ion operation. RP will enter in the PS at 8am and work can

start at 8:30am. The PS septum strip line inspection will only be done in the afternoon and there will mainly be power supply tests in the morning not requiring access.

After the meeting a detailed schedule has been compiled defining the stop of each (proton) user beam:

Monday 5th of September: stop at 8am of SFTPRO, CNGS and the EAST beams

Tuesday 6th of September: stop at 6pm of AD, NTOF and the ISOLDE beams

Beams should be back on Thursday 8th late afternoon or early evening.

R. Brown will prepare an access list by the end of the week and send the names to CPS/SPS access. He will also organise a meeting to plan in detail all the interventions.

5. AOB

Nothing special to report.

6. Next meeting

The next meeting will be held on Tuesday, October 6th at 10:00 in 874-1-011.

Preliminary Agenda:

1. Follow-up of the last meeting
2. Status of the machines
3. Schedule
4. Outlook on the 2010 schedule (M. Lamont)
5. AOB

Minutes edited by B. Mikulec