Minutes of the 41th FOM meeting held on 26.10.2010

Agenda:

1) Follow-up of the last meeting (B. Mikulec)
2) Status of the machines (Supervisors)
3) Schedule (B. Mikulec)
4) AOB
5) Next agenda

1. Follow-up of the last meeting

The minutes of the 40th FOM meeting were approved.

Follow-up from the last FOM:

a) Status of the PS B-field fluctuations.
No news.

b) Status of Linac2 beam stopper. The stopper was tested, but the problems could not be reproduced. In case the stopper would be blocked again, it should be left in the wrong status and D. Chapuis should be contacted.

c) LEIR vistar status. Further investigations showed that there is a problem with the DSC of the transformers. C. Carli mentioned that the problem is being investigated.

d) Status of CNGS ventilation. S. Deleval reported that the belt driving the big wheel of the ventilation system was replaced. B. Mikulec said that this part of the ventilation system seems to be weak, since it broke down repeatedly. S. Deleval replied that further investigations will be done in the next Xmas technical stop.

e) INCA status. S. Gilardoni reported that the INCA deployment is progressing. In particular, there is an on-going discussion between CO and the RF experts about the LKTIM. There were also few problems after the last INCA release with some of the applications.

The beam statistics can be found here.
A new web page with the accelerator statistics (beta version) is available here.

2. Status of the machines

LINAC2 (D. KUECHLER):
The Linac had a good week.

On Wednesday, R. Scrivens made a few tests for the new watchdog.
There was also some sparking from one of the tank3 final amplifiers.
The RF experts found an overshoot in the anode voltage on the tube, which they managed to stabilise with the length of the coaxial line to the tank.

PSB (G. RUMOLO):
The PSB had a good week.

Thursday night, the start up after the technical stop was delayed by a couple of hours due to some dipole power supplies in BT - BTP that couldn't be restarted remotely, and also to the ejection kickers, which could not be put back into operation due to missing external conditions. The first problem required the intervention of the EPC piquet and the second one was solved by switching off the kickers and rebooting their FECs, according to the indications given by the CO and kicker experts.

On Saturday night the vertical shaver in Ring 4 failed and was repaired by the piquet EPC on Saturday early morning. While the shaver was not working, the LHCPILOT (150ns beam) could however still be delivered also on ring 4 by decreasing the number of injected turns.

ISOLDE (P. FERNIER):
Isolde had a good week.

GPS: the target used was of UC, target number 438, at 40 kV. The run was successful, with only minor problems with the watchdog.

HRS: the run was for Miniball using also REX post acceleration, with a UC target, target number 439, at 30 kV.
A proton scan was done on Friday, with the beam delivered on Monday. A pre-amplifier of the 7-gap cavity had to be changed.
The target heating tripped twice without any apparent reason.

ISOLDE users (M. KOWALSKA):
The users were happy. There was a run of solid-state physics that had not been repeated since the last 25 years.

The REX run was very good, with good yields and very pure beam. The proton intensity was limited to 1 muA due to the large background on the detector.

The next run will use a high density UC target. RP will communicate the maximum intensity deliverable on the target.

PS (S. GILARDONI):
The week of the PS was pretty good.

The major problems were related to the scheduling of the operation due to the advanced block of MDs and the technical stop and to the 80 MHz cavity in SS08.

Concerning the schedule, in agreement with the physics coordinator we tried to deliver the maximum possible beam to EASTA (CLOUD) and to the AD. The activities of the technical stop could proceed according to the program.

Concerning the 80 MHz cavity in SS08, this cavity is used for the production of the LHC proton beams. Since a while it was giving some problems. The intervention to

repair it was scheduled for the technical stop on the 1 November. This intervention could not be advanced to last week's technical stop due to the absence of the specialist. On Friday it was decided to re-tune the 80 MHz cavity used for ions to be used for protons, and leave the 80-08 cavity as a spare, since there will be no ions until Wednesday. On Monday it was decided to carry out a series of tests to decide if an access would be necessary for further investigations. In that case the access will be scheduled for Wednesday morning.

Concerning the ion operation, the test on Wednesday showed that it is possible to extract 11 consecutive ion cycles without any particular problem.

Concerning MTE, it was decided to avoid extracting or using the beam the days before the technical stop to be able to do some work around SMH16. In this way, BI could install a new BLM that can be tested in a high-loss environment and that could help in the setting up of MTE. In general, the fact of not having the CT extracted beams and MTE before the technical stop produced a significant reduction of the dose taken by the colleagues intervening in the tunnel.

On Sunday the program foresaw the restart of the MTE tests for the steering in TT10 and in the SPS to reduce the emittance blow up due to the different trajectories of the islands. This was not possible due to the fact that currently all the pickups in TT10 were not working any longer for all the beams.
On Monday the expert found that the PU acquisition was left in calibration mode. K. Cornelis confirmed that the PUs are now operational again.

The specialist of the PFW changed the control of one power converters to improve its stability. Data were taken instead of the steering to check the influence of the new setting on the capture.

On Monday, the EPC experts drastically reduced the 50 Hz noise on the MPS.

Concerning the long-standing problem of the B-field oscillation, on Sunday H. Genoud observed that if the CNGS cycles are preceded by an EAST, there are more losses in the SPS, in particular at transition. A meeting is foreseen during the week with the magnetic measurement experts to continue the investigation on the problem.

Concerning the INCA deployment, as observed by R. Steerenberg recently, there are few new problems showing up at every update, but they are promptly attacked by the CO experts. Unfortunately it is not possible yet to correct the second injection of the LHC25 with YASP, but the source of the problem has been identified by the expert.

Beams: all the beams could be delivered within the specifications when requested, including the beams for the MDs.

EAST AREA and USERS (L. GATIGNON):

The East Area is again fully occupied with EASTC cycles for IRRAD as main user and CALICE/WHCAL parasitically in the T7 secondary zone (using stray muons), DIRAC in T8 and all three North branch beams active. There was beam during most of the long MD, with obviously an exception of Thursday (technical stop). However,

IRRAD stopped on Wednesday at 13:00 for cool-down in preparation of an intervention on their MTVs during the technical stop. DIRAC has a combined HV/DAQ (electronics) problems, which stops them from taking beam. On Monday evening it was not yet understood, but many people were actively working on it.

The CLOUD experiments started last Wednesday. Initially their beam flux was three times lower than usual, but after re-steering onto the North target, all became normal again. On Wednesday a fault occurred on ZT11.QFO04, where a small water leak led to an overflow interlock of the water recuperation pot. A provisional fix was made on Wednesday and the sealing clamp was tightened properly during the technical stop on Thursday. Since then they have been running smoothly. CLOUD gets normally 3 EASTA cycles, at the cost of EASTC.

In T9 the MNP17 magnet was installed last Wednesday for the FACTOR group, a day earlier than foreseen due to the earlier departure of KLOE2, who had a very successful run. The magnet installation and its re-commissioning went smoothly and FACTOR has been running fine.

In the T10 beam SuperB is running smoothly.

Both T9 and T10 are very happy to profit from the increased number of EASTA cycles.

TOF (L. GATIGNON):
After a long intervention last week, nTOF was smoothly running on a “sandwich target” with several layers of different materials.

AD (L. BOJTAR):
The ACE run started on schedule.
The set-up was done on Monday, with the beam delivered to the experiment by 6:00 PM.
There were few problems at the beginning due to the archive system. The archive prepared in June was recharged, but it did not work for all the settings. After few trials finally the settings were almost correct, but the machine needed some tuning.

On Sunday night, the beam was lost suddenly just before extraction. The Firstline piquet was called and it was found that some GFAs were not following correctly the programmed function. In fact the GFAs had a delay of 1-2 s. The piquet CO intervened to debug the problem.
Unfortunately, those GFAs and power converters do not have samplers to help in debugging this kind of situation.
B. Mikulec added that some problems with the GFAs have been mentioned already in the past. K. Kostro said that this problem is not the same as in the past.

There was also a fault on the water interlock on the target, that could be solved by restarting a pump.

On Sunday, the beam position suddenly changed without any apparent reason. The re-steering of the line solved the problem.

Concerning the problem of the archiving, B. Mikulec suggested that some time should be dedicated to the testing of the archives.

Concerning the problem with the target water cooling, B. Mikulec asked if the problem is followed up. S. Gilardoni added that in the past FOM the problem was already mentioned, adding that a renovation of the system was mentioned to be planned for the next technical stop. S. Deleval replied that the CV expert was not contacted for the problem and that, as far as he knows, no renovation is foreseen for the system.

AD USERS (L. GATIGNON):
ACE has finished for this year, and the experiment was quite successful. The operation is now back to 8 hour switching between ALPHA, ASACUSA and ATRAP.

SPS (K. CORNELIS):
The operation of the week was dedicated to the MD and the mentioned technical stop. The beam could be available to the users later on Friday.
On Thursday there was the UA9 run with the coasting beam.

The technical stop on Thursday went quite well. The magnet inspection revealed some water leaks. The leaks were reduced and some drain installed to delay the magnet exchange until the Xmas technical stop.

On Friday evening there were some problems with the extraction septum. In fact, the cooling water circuit interlock was triggering because the septum was too cold and the septum pulsing was interrupted by the interlock before being able to increase the temperature of the device.

There was an electrical problem in BA4. The source of it was not clear, since it was at first thought to be related to the large number of CNGSs in the Supercycle, whereas there were on two of them.
There was also a problem with the PC controlling the horn and the reflector. K. Kostro mentioned that the support should have been called for this problem, i.e. IT-CO and not the CO piquet. There is in fact a best effort support offered by the IT-CO-FE. K. Cornelis said that many colleagues were called without success before contacting CO.

H. Vincke asked how much water has been lost in the tunnel due to the leaks. K. Cornelis replied that this is not known.

CNGS (K. CORNELIS):
The ventilation has been repaired and the facility is back into operation.

NORTH AREA (L. GATIGNON):
The North Area was stopped from Tuesday morning until Friday evening due to the last-minute shift of the long MD. This made a number of users very unhappy, including NA61 (which lost the last few days of their run, a loss of 1 Mevts per day) and COMPASS (which lost 3 days of repolarisation, scheduled now in a very inconvenient moment). Also the MD planned originally was important for the NA61

ion beam test and needs to be recuperated. In the H4 beam RD51 lost a good part of their short running period. Some re-sharing with ALICE/VHMPID may be necessary. DREAM lost again 2 days of their run.

The restart on Friday evening was difficult due to controls problems, which took some time to resolve. At 1:00 AM the EN/STI piquet had to be called for a TAX stuck in the M2 beam line for COMPASS. The motor stopped due to over-current, it could be fixed rapidly.

On Sunday the Firstline had to be called for BEND05 of the H8 beam line. After a first fix, it tripped again and a fan had to be exchanged. Two hours were lost in total. Otherwise H4, H6 and H8 users are running fine.

A T2 wobbling change was made on Monday to give negative beam to CREAM in H2, which started with beam on Monday evening. A large Transition Radiation detector will be installed soon.

CTF3 (D. MANGLUNKI):
The facility was not running during the last week.

LINAC3 (D. KUECHLER):
The Linac was running without particular problem.

On Thursday the oven was refilled. The cooling water filters of the ventilation system were dismounted and found very dirty. D. Kuechler asked if the maintenance is done only every year. S. Deleval replied that the maintenance is done at least every six months and that new filters will be installed during the Xmas technical stop.

The beam was back on Friday. On Monday the stripper was exchanged. The intensity delivered by the Linac decreased, but the injection efficiency in LEIR increased.

The next oven filling periods have been added to the schedule.

LEIR (C. CARLI):
LEIR performance has somewhat degraded over the last weeks. In particular, the efficiency has dropped and could not be brought up to typical values from end of August or September by empirical adjustment of standard parameters. As mentioned in the Linac3 report, the change of the stripper foil allows improving (extrapolating from an empirical observation last autumn) the situation.

In addition, an intermittent partial beam loss close to ejection occurred since the beginning of last week. On Friday, it was found that for the user EARLY this loss does not occur when the damper is switched off without any other observation so far indicating instabilities. The equipment experts have been contacted and will have a look on Wednesday when both experts will be back at CERN.

Unfortunately, it was not possible yet to deliver the nominal intensity to the PS, due to some losses in LEIR and the low intensity provided by the Linac. In any case, the current intensity should be fine for the LHC run.

PS-IONS (S. GILARDONI):
The ion beam is running fine in parallel to the other normal PS users.

There is however a serious concern for the future runs due to the status of the 08-88 MHz cavity.

SPS-IONS (D. MANGLUNKI):
There was a dedicated MD on Wednesday to tests the possibility of having more than 4 injections in the SPS. In particular the tests foresaw the injection of 15 consecutive PS cycles. Finally it turned out that the SPS could take only 7 injections due to a limitation on the beam definition in the control system.
Unfortunately the tests were not very conclusive: some beam was clearly out of the buckets in the injection flat bottom. There were also some intensity fluctuations bunch-by-bunch.
It is therefore recommended to use only 4 injections per SPS cycle as LHC filling mode.
There are some more tests foreseen during the next week.

TI (E. LIENARD):
The mentioned power cut in BA4 was due to a "test program" loaded in the power converter. The program allowed a too high current in the power converter, which caused the protection of the cable to trip. No damage on materials was found and thus a quick recovery could be possible.

LHC Interface with Injectors (M. LAMONT):
M. Lamont mentioned that, due to an obstacle found in the aperture of one of the injection septa, the technical stop programmed on week 44 has been advanced to the current week, as mentioned during the last FOM. M. Lamont wanted to transmit the apologies to the injector complex for this sudden change in the schedule and to the users.

The LHC will pass from 312 bunches to 368.
The 50 ns beam will be taken by the end of the week until the end of the proton run.

D. Manglunki asked if the start of the ion run has been confirmed.
M. Lamont replied that for the moment it is confirmed for the 3 November, provided that the proton run will reach the scheduled integrated luminosity.

3. Schedule / Supercycle / MD planning

Version 1.9 of the 2010 injector schedule is available at:
https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/2010-injector-schedule_v1.9.pdf
The schedule includes the ion oven filling.
M. Lamont asked if the filling in week 46 will be sufficient until the end of the run. D. Kuechler replied in the positive.
The future MDs will be floating and will be revised according to the needs.

M. Lamont presented a draft of the schedule 2011. The slides with the schedule can be found here.

The end of the Xmas run could be delayed due to some electrical tests in the LHC, up to the 18 February. This will be confirmed soon. The schedule 2011 foresees HC technical stops of 4 days every 4 weeks.
The decision to install the missing TOTEM detector is still pending.
It is not clear yet if the run of 2012 will take place or not.

B. Mikulec added that the end of the technical stop should be decided soon, since this will have an impact on the interventions in the machine, but also on the commissioning of POPS.

The research board will decide in November about the schedule.
The 48 hours stop required by the maintenance of the SPS RF will be confirmed soon.
Some equipment responsibles have requested the 24 hour long technical stop to be maintained to have more time for the interventions.
D. Manglunki said that the NA61 run should be also analysed. It is in fact not possible to send primary proton beams to the NA area while sending also ions.

M. Kowalska asked if the technical stops of next year risk to be floating as some of this year. M. Lamont replied that hopefully this should not be the case.

D. Kuechler asked why in the schedule there are 10 weeks foreseen for the SPS ion setting up. M. Lamont replied that this was a cut-and-past from the 2010 schedule.

All planned interventions for the injector complex are available via the on-line agenda:
https://espace.cern.ch/be-dep/FOM/Lists/Agenda/calendar.aspx.

B. Mikulec mentioned the scheduled intervention on the 7 December concerning the 18 kV network. K. Cornelis said that the intervention should be postponed since immediately after the machine stop, the magnets are pulsed to check their status.
The intervention on the 18 kV network should be coordinated with D. Mcfarlane.

4. AOB

B. Mikulec commented about the intervention on the LEIR shielding mentioned during the last FOM. Apparently the work was organised with the RP agreement and after the usual VIC. Unfortunately, no representative of LEIR operation could be present to propose the intervention during a machine stop. C. Carli commented that he would have wished that at least the concerned colleagues of LEIR were informed about the results of the VIC before the intervention. A better coordination should be considered for the future to avoid civil work on a running machine.

5. Next meeting

The next meeting will be held on Tuesday, 2 November at 10:00 in 874-1-011.

Preliminary Agenda:

1) Follow-up of the last meeting
2) Status of the machines

3) Schedule
4) AOB
5) Next agenda

Minutes edited by S. Gilardoni