Minutes of the 14th FOM meeting held on 03.05.2011

Agenda:

1) Follow-up of the last meeting (K. Hanke)
2) LHC MD beam request for the injectors (G. Papotti)
3) Update on POPS (J.P. Burnet)
4) Status of the machines (Supervisors)
5) Schedule (K. Hanke)
6) Final list of interventions for the technical stop on May 10th (machine superintendents)
7) AOB
8) Next agenda

1 Follow-up of the last meeting

The minutes of the 13th FOM meeting were approved.

Follow-up from the last FOM:

1.1 Pending actions:

Problems with POPS (3 actions)

Studies will be resumed when POPS is back. Actions not closed.

Make the orbit measurement system work with the presently defined user files (PS supervisor/BI)

L. Soby and G. Métral said that work is ongoing. Action not closed.

Send the list of activities for the next technical stop to the machine superintendents

Deadline was this morning. Action closed.

2 LHC MD beam request for the injectors (G. Papotti)

See slides and the LHC-MD website.

G. Papotti said that it was decided to stick the MD schedule even if beam is not available.

In a BI MD, the LHC75 beam was indicated as potential requested beam. G. Métral said that it was agreed with the LHC to archive the LHC75 because it was not needed any longer and to install the LHC50 12 bunches on this timing user. Restoring the LHC75 user would take time, which should be properly allocated. K. Cornelis talked to F. Roncarolo and the MD will only need 12 bunches of LHC50.

In a beam-beam MD, high intensity single bunch was suggested to be prepared with the low gamma transition optics in SPS (referred to as Q20). K. Cornelis said that the injection and transfer line optics will not be ready. Nominal optics (Q26) will be used to prepare this single bunch with higher intensity.

As a consequence, G. Papotti will remove the LHC75 and Q20 requests from the request list.

The end of the LHC MDs is at 6:00am on Monday morning, followed by MDs in the injectors.

3 Update on POPS (J.P. Burnet)

See slides.

J.P. Burnet reminded the reasons behind the need to stop POPS: the failure of the two output filter damping capacitors. As he already mentioned during the 9th FOM, investigations point to an inappropriate design of the capacitor (DC type instead of AC type). There was no clear explanation from the manufacturer, but the manufacturer agreed to quickly do a new design and speed up the production of new units. J.P. Burnet explained the different technologies used for AC and DC capacitors.
The new capacitors (with two spares) are expected to be delivered at the beginning of May and POPS is expected to be ready by the end of May. At that moment, it would be possible to switch back to POPS, leaving the MPS operational in case of another failure.
After discussions with another manufacturer, there are worries about design with the current manufacturer, so that they will buy two other capacitors (different technology) from this new manufacturer.
J.P. Burnet stated that the restart of POPS should be performed as soon as possible, if possible before the technical stop in June. This will require a short stop of the PS. There is a need for 2 hours for mechanics and 2 hours to tune the feedback.
S. Gilardoni and G. Métral pointed out that at least the second injection of double batch beams would need to be readjusted. An estimate for the switch back to POPS is therefore a one day stop.
One of the worries is that the capacitors that store energy also fail, but J.P. Burnet said that (1) the mode of operation is very different and (2) diagnostics are available to detect a failure of the capacitors that store energy. It is planned to open one of those capacitors during the winter technical stop to check their integrity.

4 Status of the machines

LINAC2 (R. Wegner):

It has been a quiet week for LINAC2.

Two quadrupole faults (LI.QDN20 on Wednesday and LA1.QFN42S just before the meeting) required power supply change by the piquet EPC.

PSB (J. Tan):

Newly prepared beams were NORMHRS, 100 ns spacing for proton-ion collisions and MD4 for SPS/LHC MDs.

On Tuesday, the ISOLDE beam permit was signed. Beam was sent to ISOLDE and the watchdog was tested.

On Wednesday morning, all kicker timings were in fault. It is the second time this happens.
The vacuum piquet solved a problem that occurred with a LINAC vacuum valve (closed due to human error of the operator – no technical fault).

The EPC piquet had to do a local reset of BTY.BVT101, which displayed a wrong value.
Beam was sent to the HRS line, and setting up was completed after an hour. Both GPS and HRS lines were equipped during the winter technical stop with pickups to improve the beam steering.

On Thursday, SPS complained about uneven bunches on the LHC50. It was decided to de-balance the rings intensity to change the relative bunch population in the same batch delivered by the PS (see PS report).

On Friday power glitches due to thunderstorms caused 40 min accumulated down time.

The PSB had a quiet weekend, except for Sunday night when a longitudinal instability affected LHC_A and LHC_B. The piquet low level RF (helped by the RF specialist) could solve the problem (a drift of the phase offset of the 2nd harmonic RF system). The downtime was 2.5 hours.

On Monday, there was a problem to send the beam HRS BTY.BVT101.

G. Métral asked whether the ring 1 could be tuned for the LHC50 single batch beam to be used as a backup solution when another ring has a problem. K. Hanke answered that this will be done.

ISOLDE (E. Piselli)

It has been a smooth startup so far for ISOLDE. Semgrids were put in the GPS line on Tuesday and on the HRS target on Wednesday. Beam was sent yesterday to GPS users but a separator power supply tripped many times. A temporary fix was implemented. A more permanent repair is planned but it is not clear if there is a spare.

M. Kowalska said they expect a small delay on GPS, and to be on time for HRS (setup will finish early but there is a problem with the target).

PS (Y. Papaphilippou):

It was a quiet week for the PS.

Several radiation alarms occurred due to wrong pulsing of the ejection septum 16. The piquet CO found out it was due to an overload of DSCs (lot of subscriptions and samplers). A temporary fix could be performed by removing surveys and rebooting DSCs. This issue appeared again when restarting surveys, which means there is a need to upgrade the DSCs. CO is investigating.

On Wednesday, a problem occurred on ejection kicker BFA9P and the CNGS beam was affected during the night. A temporary fix was put in place by the Kicker specialists and the problem was permanently solved the following morning. The 10 MHz cavity C51 was not pulsing correctly, which needed an intervention in the tunnel to change gap relay. This caused a beam stop of 1h.

Some issues occurred when setting up east beams but they were all solved.

When the electrical glitch occurred, the PS recovered fast. Only the ejection kicker had to be worked on by the specialist (1h stop).

The quality for the LHC50 (12 and 36 bunches) was optimised for beam intensity homogeneity and satellites. There was a request from the LHC to homogenise bunch intensity within a batch by

unbalancing the PSB ring intensity, but this is not a good procedure as it causes the bunch splitting in the PS to not work correctly and to create satellites.

East Area (L. Gatignon)

Nothing to report.

East Area Users (H. Breuker)

The East Hall starts on Friday with T7, T9 (cabling is ongoing) and T10. DIRAC is delayed by about 10 days. L. Gatignon said that access system tests took place and everything is ok. An error of vistar was due to the fact that DIRAC is not mounted.

TOF (H.Breuker)

TOF is going well and asking for maximum intensity.

AD (T. Eriksson):

It has been so far a successful setup.

Zone DEM is now open for free access after successful commissioning of the AeGIS beamline. Installation work for the experiment and modifications to the access zone perimeter will be done throughout the summer. First pbar beams are foreseen for the end of the 2011 run.

Ring optics studies were performed at low energy and extraction was optimized. The next step is to tune the ASACUSA beam line optics using the newly installed GEM-detectors.

The synthetic Btrain generator was unstable and crashes often when trying to modify the AD cycle.

On Friday after the power glitch the electron cooler could not be put back on. The e-cooler filament power supply was replaced on Monday and the re-heating procedure was completed Monday evening.

Besides that the machine started up normally and physics are expected to start next Monday (on schedule).

AD Users (H. Breuker):

The first user meeting will occur this afternoon. The installation of the AEGIS control room has started outside the AD hall. A big truck and crane will be blocking the access street and, it should be ensured that the planned helium delivery can take place.

SPS (K. Cornelis and E. Métral):

Thanks to the increase of the maximum temperature on CNGS TT01 from 73 to 80 degrees, more CNGS cycles could be put in the supercycle and the SPS is now ahead of schedule for CNGS.

The Q20 (low gamma transition optics with integer parts of the tunes equal to 20) cycle setting up continued with single bunch and 12 bunches. It could be observed that the longitudinal instability that depends on the radial steering is present on both Q20 and nominal Q26 cycles and is still not understood.

The electrical glitch caused trips of many types of equipment. The SPS could not restart due to a BIS interlock in BA5 on the UA9 collimation system, which was solved. A fault on the new ZS installed in LSS6 fault could also be reset locally. Beam was back after 30 minutes.

The free running frequency of the 800 MHz drifted again (as last week) without a warning. It is suspected to be due to temperature variations.

The weekend was quiet.

On Monday, a terminating power resistance under one of the injection kickers MKP failed, which caused a stop of beams during the night. This was a frequent problem in the past, but not anymore. It was the magnet next to TIDV, where there was high radiation. The resistor was changed and operation restarted normally. In parallel to the intervention, J. Bauche found water leaks that should be fixed during the technical stop.

North Area (L. Gatignon):

A major failure occurred when the TAX (target absorbers) motors were started. Two TAX motors failed (replaced in 2000 and 2002). A sudden current rise indicated a short, which turned out to be in the motor itself. This needs to be fixed as the North Area cannot operate without them. A planning of the repair is being made but the 6/7 mSv/h dose requires an ALARA procedure. Retired experts are contacted to optimise the procedures. A spare motor was found, and more were ordered. See the memo from I. Efthymiopoulos.

This problem will have a significant impact on the schedule for the North Area.

This problem is not compatible with radiation damage only and may be due to an external cause. Investigations are ongoing and a test stand will be set up in BA80 with a spare motor.
It is difficult to draw an estimate but 5 weeks minimum time is expected to be needed for the repair, which means at least a 4-week-delay for the physics. A better estimate for the delay will be given in two weeks.

K. Hanke said that no change will be put in the schedule yet as the impact is not known yet.

North Area Users (H. Breuker):

This issue impacts Compass (which had already started shifts), not H2 (no users until the end of May), H4 (irradiation for HL LHC), H6 (not so serious), H8 (more serious: ATLAS and CALIFE).

CNGS

K. Cornelis said that CNGS is running well.

CTF3 (D. Manglunki):

During the installation of detectors, preventive maintenance was also performed to prevent a renewed fire caused by the modulators. Lots of issues were found, which is why CTF3 did not restart yet. The plan is now to restart by the end of the week.
CALIFE is running normally.

TI (P. Sollander):

An electrical glitch due to thunderstorms caused a short stop in all machines, but no major damage was reported.

LHC interface with injectors (M. Lamont):

A very good step up in LHC performance was achieved (0.8e33 to 0.9e33 $cm^{-2}.s^{-1}$ luminosity with 768 bunches) and the help and adjustments from the injectors are much appreciated.

5 Presentations of the list of interventions for the next technical stop

Linac2

See slides presented by M. O'Neil.
As already stated in previous FOMs, R. Wegner said that RF requests that the RF is kept on from 5:00am to 7:30am.

PSB:

See slides presented by N. Gilbert.
5 new interventions are planned:

- HV transformers
- 3 visual inspections
- Installing pick up amplifier.
- An intervention on the PFN of kicker KFA10 (out of the ring). Will last until 7pm or 8pm.

J. Tan informed that an inspection of the FWS would also take place.

PS:

See slides presented by R. Brown.
2 additional interventions:

- EN/EL cabling (need to open gates by 7h30).
- Cutting the grass of all fenced areas

G. Dumont said high intensity beams should be stopped 24h before for work, which means TOF needs to be stopped on Monday 8:00am.

SPS:

See slides presented by D. McFarlane.

Few additional jobs:

The conflict between CV and RF is solved as RF does not need water in BA2.
However a new similar conflict between CV and RF may come up during the meeting in BA3.
In BA5, water circuits will be stopped.
A leak on a quad in Sector 35 was found. A repair in situ will be tried next Thursday. If the magnet needs to be changed, there may be a conflict with lift maintenance (which would be cancelled in this case).
The RF requested interventions until at least 8pm.

Stop of beams

- TOF and CNGS will be stopped on Monday May 9th at 8:00am.
- All other beams will be stopped on Tuesday May 10th at 5:00am
- Access will be given to RP from 8:00am.
- Start working at 8:30am.

Restart of beams

There is a risk that the technical stop lasts 24 hours.

Plan A is a 24 hours technical stop and a restart of MDs at 8:00 on Wednesday morning
Plan B: if the technical stop ends earlier, then MD can get beam already during the night from Tuesday to Wednesday.

6 Schedule / Supercycle / MD planning

The 2011 schedule (V2.0) is available at:
https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/injector_schedule.pdf

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

7 AOB

A. Bland said usual reboots, upgrades and password changes will occur in the shadow of technical stop. This is in the calendar.
B. Mikulec asked if the Booster vistar will be done this time. A. Bland answered it will not be this time.
D. Manglunki said that CTF should run, and K. Kostro said to be careful of CO upgrades in that case.

8 Next meeting

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

Preliminary Agenda:

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2) Status of the machines
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Minutes edited by B. Salvant and S. Gilardoni