Minutes of the 25th FOM meeting held on 19.07.2011

Agenda:

1) Follow-up of the last meeting (K. Hanke)
2) Status of the machines
3) Schedule (K. Hanke)
4) EL Report on the Major Event on 10/07/2011
5) AOB
6) Next agenda

1 Follow-up of the last meeting

The minutes of the 24th FOM meeting were approved.

Follow-up from the last FOM:

Pending actions:

Problems with POPS (3 actions)

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

2 Status of the machines

LINAC2 (R. Wegner):

It was a good week for LINAC2.

INCA deployment went without problems.

Source dips of 10% were observed, but cured themselves. Their appearance and disappearance are not yet understood.

Missing pulses were fixed by increasing the gas flow in the source.

RFQ and tank 3 RF tripped yesterday, but could be reset.

LINAC3:

Source MDs are finished. Beam is now prepared in the linac itself.

PSB (B. Mikulec):

INCA deployment in the PSB started on Tuesday 7am and went smoothly without major problems. The biggest issue was related to the tomoscope. Some problems could be fixed, but the application needs to be adapted. Other issues are being solved or followed up. The issue due to a missing library following a not INCA-related release on Monday and affecting many applications of all machines was fixed on Tuesday afternoon. INCA training sessions are organized by CO at 9:30 and 14:30.

On Tuesday evening, NORMHRS pulses following another NORMHRS pulse were lost in the line due to a wrong reference value for magnet BTY.BHZ301.

On Thursday, missing OASIS signals for the ejection pickups mentioned last week were available again and injection and extraction trajectory applications will have to be adapted.

On Saturday, BT4.SMV10 was fixed by the piquet following a bad shape of the beam out of ring 4.

Good progress was made on the digital beam control system by M-E. Angoletta. The LL-RF of ring 4 can now be controlled on ppm basis with an MD set up in the PSB cage. MDs are ongoing.

ISOLDE (P. Fernier):

GPS (Uranium Carbide target for ISOLTRAP): Setting up was performed on Sunday and stable beam was achieved yesterday.

HRS (Uranium Carbide target for MINIBALL through REX): Krypton run was correct and radon run satisfying. Several interventions on HRS and REX had to be organised yesterday for radiation alarms, the HRS separator, a stop of target heating, the power supply of REX (due to a water problem in the ISOLDE network) and a few RF problems.

ISOLDE users (M. Kowalska):

It was a very good week for the 2 MINIBALL experiments with more intensity quicker than expected. HRS was very happy. For GPS, a lot of target contamination does not yet enable to see the beam of interest.

PS (G. Métral):

It was a quiet week.

INCA release perturbed a bit the operation, as the online check did not work. It was put back in place during the weekend.

The DSC for the PS extraction trips regularly and causes significant radiation alarms (consecutive loss of the 12 CNGS cycles). Something should be done. The septum was blocked on a certain control value. D. Manglunki asked whether BLM thresholds could be decreased. G. Métral answered that it is not that simple as the intensity is already high and may trigger the alarm in an unwanted manner. The threshold is now at 8 consecutive cycles and a tradeoff should be found. K. Kostro said that the circuit should be replaced and it is being followed up.

H. Vincke asked whether these losses were indeed the ones observed in SS16.

An element was still in local control following the storm last Sunday. A new firmware was made available for orbit measurements. Now all the bunches are measurable. There are still some issues to guarantee that the measurements correspond to the same turn.

During the weekend there have been some worries with an instability at low energy on the LHC beams. A series of quads had circuit breakers that failed. This was finally fixed, but this kind of issues is difficult to diagnose as it is not visible in LASER.

SPS said that trajectories of LHC50 12 bunches and 36 bunches were different. Indeed the working points on the flat top were found to be different.

The injection phase is different by 80 degrees (1ns) for the two beams. S. Hancock could see a difference on the control of the cavity 40 MHz, but this issue is not easy to see on Oasis. G. Métral said it would be useful to have better diagnostics. D. Manglunki asked whether this could be observed in the SPS and G. Métral agreed, but added that it is preferable that each machine has its proper diagnostics.

A stop this morning was planned to investigate the cause of an interlock on several magnets in the ETP transfer line, and this stops is also used for PSB access.

East Area (L. Gatignon):

On Friday the North target was changed on request of the T9 user from the electron enriched target to the hadron target, leading to a 25% intensity increase for CLOUD.

But on Friday evening the CLOUD flux dropped by a factor of two. This could be attributed to a re-steering on the North target. The solution was to steer the beam on the TV screen instead of using the telescope as usual. This is therefore now the recommended procedure until the end of the CLOUD run on the 26th of July.

East Area Users (H. Breuker)

IRRAD in T7 starts next week.

CLOUD submitted a new beam request.

TOF (H. Breuker):

Had to exchange a pump, but it is a minor issue. Users are happy.

AD (C. Oliveira):

It was a difficult week.

On Monday the restart after the power cut was very late with no Schottky (failing power supply) and a failing extraction transformer (burnt electronics).

On Thursday new electronics were installed. Unfortunately, the injected intensity was very low.

On Friday: a vacuum issue occurred at the location of the injection septum (4 10^{-8} mbar). The vacuum Piquet performed a sublimation, but they had to be called back the next day, which meant there was a leak. The vacuum Piquet was again called for the power supply of an ion pump and another sublimation. Yesterday the vacuum Piquet found a bad ion pump ceramic connector. The connector was repaired and the vacuum is being pumped. In the best case, beam could be put back during the afternoon. P. Chiggiato said the time estimate is probably a bit too optimistic.

AD Users (H. Breuker):

Obviously the running efficiency has been very low this week...

Time was lost, but the good news is that the work for the AEGIS control room restarted (it was stalled due to a possible irradiation problem).

SPS (K. Cornelis):

It was a normal week.

On Thursday a problem occurred with the RF transmitter TRX4. A cable needed to be changed in the power amplifier (3h downtime).

On Friday there were problems with a magnet in the H8 line, which was overheating. The magnet experts changed a thermo switch, but the problem came back. The line was put to pulsed mode in order to reduce heat dissipation, but the users complained about stability. The problem disappeared during the weekend when the experiment started to run with a lower energy secondary beam.

On Friday afternoon we had to stop CNGS for a couple of hours in order to give access. A valve on a pump for water evacuation was closed following the technical stop. CV mentioned that no intervention was done on that pump.

On Saturday it was rather hectic with problems with the North Area access system (chain 11) for which the Piquet had to come in to change a cable. There were also problems with intermittent disconnections in the Faraday cage. T. Bohl said that modules where the problem is visible had been identified.

North Area (L. Gatignon)

H2 was suffering from too low intensity, and it was increased.

Rectifier problems occurred throughout the week and it was solved this morning.

H8 operates in strange conditions: particles are not produced by the primary target, but users are happy.

North Area users (H. Breuker)

H2: CMS calorimeter. Too low intensity yesterday (due to H4 IRRAD which is taking muons).
H6: 2 ATLAS installations are taking place.
H8: CALICE finished and DREAM wishes a clean electron beam.

CNGS ()

CNGS has now accumulated more than 3E19 protons on target (above the line).

CTF3 (S. Pasinelli):

J. Barranco sent an email.

Monday was spent recovering from the power cut.

The breakdown rate was measured and recombination re-established.

A record gradient of 150 MV/m was achieved with a real bunch, but not with the full recombination.

TI (E. Liénard):

M. Lamont provided the link to the report of J. Nielsen (link).

LHC interface with injectors (M. Lamont):

LHC was hit hard by the power outage Sunday afternoon. Rocky recovery from this and from the technical stop. Many UFOs have been observed over the last weekend. Back in business Sunday with 1092 bunches per beam.

Physics with 840 to over 1000 bunches. Operation was affected by UFOs and cryo was lost last night. Double batch is used at the moment. With 1.3e11 p/b and 1380 bunches the vacuum kicked off. LHC rolled back to 1.2e11 p/b. Emittance looks good (2 microns). A new record peak luminosity was obtained.

ALICE is colliding with satellites as they are looking at very low luminosity. M. Lamont inquired if satellites can be generated on demand. S. Hancock answered that it is not available, but it could be with a couple of days of effort, M. Lamont said it is not urgent and LHC operators will use the classical method instead (large separation).

Upon a question from V. Chohan, the plan after Mini-Chamonix is to push down emittance, push up intensity and probably reduce the beta*. LHC 25ns will not be used.

LEIR (D. Manglunki):

Hardware tests were finished and operation has now control of the machine. DSO tests took place on Thursday morning. Septa, bumpers, kickers and most magnets have been tested in local and should now be switched to remote control.

Yesterday 2 circuit breakers were replaced.

An access is taking place during the FOM in ETL/ETP where several magnets give an interlock and need inspection. S.Pasinelli called during the FOM to draw attention on the fact that no problem was found on these magnets, so the problem was not solved.

Next week, tests will occur on LINAC3, and a special cycle will be needed in the PSB (MDION).

3 Follow up of the power cut (R. Grimand - slides)

R. Grimand reported on the sequence of events that caused the power cut for the LHC and the Meyrin site on July 10th 2011.

The thunderstorm caused an EMC perturbation that lead to a false intertrip of the MP7 link (18 kV) that feeds the LHC (this is the second false intertrip in 3 months). To try to restore the power in LHC, an autotransfer system was immediately switched, but an earth fault caused a protection trip on the common line that feeds LHC and Meyrin. Another autotransfer system restored the power in Meyrin through the Swiss network 21 s after the initial EMC perturbation (50% of the voltage was lost over a time of 60ms.).

Among the decided correcting measures, EL decided to deactivate the MP7 intertrip on 12/07/2011 and studies are ongoing to install fiber optics or use other cables. In addition, 18 kV protection problems, which caused the stop of Meyrin site, are followed up.

Upon a question of V. Chohan why the UPS failed, R. Grimand said UPS autonomy is in general 30min (depending on the load), and the LHC was cut for more than 2 hours.

4 Schedule / Supercycle / MD planning

The 2011 schedule (V3.1) 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

5 AOB

K. Kostro said that IT Windows support are moving home directories (in particular Windows OP directories: LHCOP, SPSOP, CPSOP, TIOP, cryolhc).

If there is any problem with this move, please contact K. Kostro or Bruno Lenski (IT).

6 Next meeting

The next meeting will be held on Tuesday, 26th July at 10:00 in 874-1-011.

Preliminary Agenda:

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Minutes edited by B. Salvant