

Minutes of the 38th FOM meeting held on 08.12.2009

Agenda:

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

1. Follow-up of the last meeting

The minutes of the 37th FOM meeting were approved.

Open actions from last FOM:

- a) Follow up with RP specialists radiation alarms linked to PS extraction.
S. Gilardoni mentioned that the measurement campaign is progressing and data analysis ongoing.
- b) Communicate the availability of the Access System experts during the Christmas break.
A memo with the expert list is available [here](#).
- c) Check with GS the AD problem with the tests of the fire detection system.
K. Hanke mentioned that, after few investigations, it was possible to agree with GS that in the future this type of interventions will be coordinated with the AD operation.
- d) Plan the January restart. See the Schedule section.

The weekly FOM meetings will continue unless explicitly cancelled.

2. Status of the machines

Linac2 (D. KUCHLER):

The power cut on Wednesday on the Meyrin site caused the trip of the Linac. The main difficulty to put back the Linac in operation was the restart of the vacuum equipment. The beam from the source was ready at 9:00 a.m., later it was possible to switch on the RF and to re-condition the RFQ. The beam could be delivered at about 13:15.

On Thursday, the door of the Linac has been found block open with visitors in the area. D. Manglunki will remind the visit service that the guides have to close the Linac area doors after every visit.

On Thursday and Friday there were few discharges of the RFQ, with decreasing amplitude.

On Monday, the power converter of the LA1.QFN02 had to be replaced.

PSB (A. FINDLAY):

The PSB has a good week. The recovery from the power cut of Wednesday was not too problematic. After the power cut, the PSB was ready for beam at about 12:30.

The only real problem was the restarting of the PVSS vacuum control system. The piquet intervened but the problem could be solved only on Thursday.

During the week the use of the archives was not possible until Friday, when CO fixed the problem.

On Thursday, C. Dutriat did an access in the shadow of a PS intervention to fix the SEMGRIDs, since one of these did not work correctly after the power cut.

During the entire week the LHC beams were delivered to the PS for the LHC within specifications.

PS (G. METRAL):

On Tuesday, a problem with an 80 MHz cavity caused a stop of one hour and a half of the LHC type beams.

On Wednesday, the recovery from the power cut was without any major problem.

On Thursday, the PS stopped for one hour to repair a cavity during which the LHC was not requesting any beam.

On Friday, the 50 Hz noise, sometimes present on the MPS, has been reduced to a minimum. This reduction is particularly important at low energy for the LHC25 beam. The magnetic cycle of this beam feature a 1.2 s long flat bottom to allow a double batch PSB injection.

Two problems remain open: a) it is still not possible to monitor an eventual bucket jitter of an extracted LHC bunch; b) it is very difficult to measure the emittance of the LHCPROBE in TT2, i.e. the only transverse emittance measurement can be done 5 ms before extraction by the BWS, but an eventual emittance blow up at extraction cannot be quantified. This has been noticed already when the SPS found large emittances at extraction during the week. After few investigations, it was found that large injection oscillations in the SPS were the cause of the emittance blow-up.

K. Hanke added that, as mentioned in the FOM and before in the ABOC many times, it is fundamental to be able to measure the emittances at every stage of the injector complex, otherwise it is difficult to identify the source of emittance blow-up.

East Area (L. GATIGNON):

The CLOUD run was concluded successfully. The power cut did not cause any particular problem to the experiment that was not taking data during the period when the machines were off.

East Area Users (H. BREUKER):

CLOUD ended their run and are very happy.

AD (C. OLIVEIRA):

The AD had a good final week.

The full recovery from the Wednesday power cut was possible only on Thursday.

AD users (H. BREUKER):

The users were very happy, in particular the ALPHA experiment.

SPS (D. MANGLUNKI):

In the North Hall, the beam was delivered for AMS setting up on Thursday and Friday. The beam is ready whenever requested by AMS.

The main activity of the SPS was to deliver the LHCPROBE beam to the LHC, with an increasing intensity along the week, up to $8 \cdot 10^9$ /bunch on Sunday.

Normalised rms emittances are regularly measured around $2 \mu\text{m}$ at 450 GeV/c, once the injection oscillations were corrected (it was noticed that a slight mis-steering can yield a factor 10 blow-up in emittance, as mentioned in the PS report). The controlled transverse blow up is now available to obtain larger emittances.

Monday morning there were accesses in TT20 for a magnet patrol and BA5 for a vacuum intervention.

The LHCINDIV beam has been prepared in the SPS, with up to $2 \cdot 10^{10}$ protons/bunch. For the moment the vertical emittance is too large ($5 \mu\text{m}$) whereas the horizontal one is within the specifications ($2.6 \mu\text{m}$)

Apart from a 18kV power cut on the Meyrin site which caused a 13 hour beam stop on Wednesday, the main problems encountered in the week were RF related: a bad contact in the low level creating satellites around the LHC bunch, the trips of transmitters TRX5 and TRX8, and a phase jump of 180 degrees at injection of the LHC beam.

There are still problems with TRX5.

J. Borburgh mentioned that the radiation surveys indicate high dose levels in LSS2.

This will be followed up with RP.

K. Hanke asked if the SPS was affected by the power cut. D. Manglunki replied that there was a power glitch after the power cut on the line when the auto-transfer put back the Meyrin site on the normal network. The glitch caused the trip of the RF.

SPS North Area (L. GATIGNON):

B. Chauchaix mentioned that the setting up of the line for AMS has been done but the experiment was not ready to take any beam yet. The experiment is likely to ask for a run during the week 1 of 2010 (see Schedule section).

K. Hanke asked if the SFTPRO beam has to be kept operational in case of a request from the experiment. K. Cornelis replied that this is the case.

SPS North Area Users (H. BREUKER):

See report from L. Gatignon.

LINAC3 (D. KUCHLER):

Source MDs are ongoing.

CTF3 (D. MANGLUNKI):

Monday and Tuesday were dedicated to beam optics measurements in the machine; in particular dispersion was measured and corrected up to TL2.

Wednesday was lost due to the power cut. On Thursday after recovery the measurements mentioned above were continued.

Friday was dedicated to bunch length measurements in the combiner ring.

In addition a water leak was found in CLEX apparently related to the power cut. A substantial amount of water in the cable channels in CLEX had to be evacuated by the fire brigade.

G. Vandoni commented that in such a case TE/VSC should be informed to check the ion pumps for possible damage

Monday morning operation restarted smoothly.

This will be the last week of CTF3 operation, most likely the beam will be stopped Friday night (at the latest on Monday morning).

TI (P. SOLLANDER):

Except for the power cut no problems to report.

LHC interface with injectors (M. LAMONT):

M. Lamont presented the status of the LHC commissioning.

During the last week and weekend, work concentrated to get stable beam for the experiments at 450 GeV/c. In this way, during the weekend the experiments could turn on all the sub-detectors for the data taking with collisions.

The plan for the coming week is to increase the intensity and try to qualify the machine for the new conditions.

LHC PROBE with up to $2 \cdot 10^{10}$ p/bunch will be taken. In the meanwhile, LHC INDIV will be taken by the SPS to be ready whenever requested.

It was confirmed that the LHC will not re-start after the X=mas break, but at the earliest on 4 February.

3. Schedule / Supercycle / MD planning

The 2009 schedule (V3.7) is available at:

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

The 2010 schedule (V1.2) is available at:

https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/2010-injector-schedule_v1.2.pdf

This schedule has been approved by the research board.

The updated detailed schedule of the activities until the Xmas stop are available [here](#) and the list of the activities has been included in the intervention agenda accessible at <https://espace.cern.ch/be-dep/FOM/Lists/Agenda/calendar.aspx>. The schedule and the intervention agenda will be kept up to date as things evolve.

The injectors will run until the 16 December for the LHC, for the MTE commissioning and few MDs. Depending on whether AMS requests a run in the first week of 2010, the machines will restart either rapidly after the X-mas break for one week of AMS run, and then stop until the 25 January, or go directly into a technical stop until the 25 January (see discussion below).

K. Hanke discussed a possible source of interference between the activities foreseen for the X-mas stop. D. Chapuis clarified that the maintenance for the emergency doors of the PSB is compatible with the magnet patrol at the beginning of the X-mas stop.

K. Hanke mentioned that the AMS experiment is likely to ask for a run during week 1 of 2010. In this case, the machines should be ready to restart on the 4 January. This would require that the interventions of cooling and ventilation should be finished and the water-cooling re-established well in advance. Also in this case, the piquet services, the shift manning in the CCC, and equipment experts should be available starting from the 1 January.

The Linac and the source should restart immediately the 1-2 January.

K. Hanke will follow up the organisation of the possible rapid restart with M. Lamont.

M. Lamont mentioned that the final decision for the AMS run will be taken on 16 December. In the meanwhile, a preliminary planning for the machine restarts with or without the AMS run is available [here](#).

G. Roy mentioned that, in case of the machine restarts for the 4 January, no DSO tests will be done if the machines will be kept in operational status with supervised accesses during the X-mas stop. This means that the interventions for the access system should be postponed to the technical stop after the AMS run. D. Chapuis agreed with this.

It was agreed that the DSO tests will be postponed to the end of the technical stop.

In case of the AMS run, the short shut-down activities could start on Monday of week 2. The beam will be stopped on Friday 8 January and the weekend be used for radiation cool-down. S. Gilardoni mentioned that the SFTPRO should be delivered for AMS, as now, using the fast extraction instead of the usual CT to minimise the irradiation of the machine.

B. Mikulec added that in case of the AMS run, there should be no update of the control system before the 8 January. A. Bland replied that the first update will be planned for the period after AMS. K. Sigerud added that a detailed list of activities concerning CO will be communicated in due time.

4. AOB

5. Next meeting

The next meeting will be held on Tuesday, 15 December 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

Minutes edited by S. Gilardoni