Minutes of the 23rd FOM meeting held on 22.06.2010

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 22nd FOM meeting were approved.

Follow-up from the last FOM:

a) Status of the PS B-field fluctuations.
Analysis and measurements are ongoing. An MD is scheduled for Wednesday 23/06.

b) Duration of intervention for replacement of TOF transformer. L. Soby said that the replacement of the transformer cannot take place before week 35, since a vacuum chamber has to be manufactured. Moreover the intervention needs a stop of 24 hours of all beams to the SPS. R. Steerenberg added that the total intensity to be delivered by the end of the year has been computed assuming a pulse of 700E10 protons. At this intensity, the transformer does not saturate. However, the PS could deliver more and the experiment would like to cumulate by the end of the year more intensity than what has been scheduled.
As a temporary solution, a wall-current monitor of the experiment will be calibrated with respect to the PS transformers to measure intensities beyond 700E10.

c) Fencing off the NA water station. D. McFarlane reported that the area will be properly fenced during the winter technical stop.

d) Modification of schedule v1.7. See schedule section.

e) Power converter in T11, status. L. Gatignon reported that none of the T11 power converters tripped again.

f) Status of AD bunch length at extraction. L. Bojtar reported that the bunch length is still too long, by about a factor of 2. Unfortunately, the experiments are suffering for this problem. Data about the optics of the machine have been also taken and P. Belochitskii is analysing the data. On Tuesday 22/6 an MD was done to study the issue.

g) Duration of intervention for replacing SPS vacuum chamber for e-cloud studies. See schedule section.

h) Status of access problem in NA area. L. Gatignon reported that the problem was solved by replacing a cable. There is still one door not working correctly due to a bad contact. K. Hanke added that the system should be renovated soon. L. Gatignon replied that the renovation will start next year and will take few years.

i) Status of the TOF transformer. See point b).

2. Status of the machines

Linac2 (G. BELLODI):
The Linac2 week was fairly uneventful until Friday evening, when all the RF dropped around 20h because of a fault on the Hazemeyer power supply. The RF specialist, who could not come to CERN immediately, tried to aid over the phone the PSB operator through first investigations and a local restart procedure. This was unsuccessful and the problem was located in the main control crate (the main switch having tripped off and being unresponsive), requiring access to the Faraday cage to inspect the module and connections. Some time was lost trying to find somebody with access rights to the cage. Eventually M. Vretenar offered to come in. During the access the main switch of the multi-socket feed line inside the rack was found to be OFF; when switched back on, everything restarted smoothly. Since this switch is connected to a circuit breaker, the most probable cause of the fault was a surge/overload in the circuit. Total beam unavailability was approximately 3 hours.
The problem underlined two issues:
a) The portable phone of the PSB operator could not call private numbers in France. The operator had to rush back and forth from the technical gallery to the phone in the linac control room to communicate with the specialist. It turned out, for future interventions, that the TI operator can call outside CERN and re-route the call to the operator portable phone. K. Hanke will take care to enable the operator portable phones to allow calling outside CERN;
b) The linacs RF specialists call-out list is currently quite thin due to absences (support is only given on a best effort basis; no piquet service is available due to manpower shortage). Out of a total of 3 experts, two were on holiday and the third could not come immediately to CERN for private reasons. A forth one has been recently hired and still needs training.

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

On Saturday the C02 cavity of ring 1 tripped. The expert had to repair the control system of the power converter.

On Monday, a thyratron powering the distributor (ring 4) had to be exchanged.

Some work had to be done on the bunch shape of the CNGS beam.

ISOLDE (D. VOULOT):
The target of HRS had a failure on Friday night. The physics run had to be cancelled. A series of tests were done to be sure that the new front-end was not damaged and to confirm that it was not the cause of the failure.

During the week, a water interruption caused a trip of the REX vacuum system. By chance this was noted as the vacuum pumps are behind the REX shielding wall, and the vacuum level is not visible from outside or online, since the REX vacuum controls was not renovated yet like the rest of ISOLDE. An access was needed to diagnose and solve the problem.

K. Hanke asked if there are plans to upgrade also the REX vacuum controls to PVSS. J. Hansen will confirm this and report back to the FOM.

ISOLDE Users (A. HERLERT):
The users were not happy due to the target failure. It was also unfortunate to have the failure on Friday night, a moment when a target exchange to resume the run was not possible.

PS (S. GILARDONI):
The PS had a quiet week. All beams are operational. The LHC150 ns beam, on the LHC75 user, was sent to the SPS.

The TOF intensity has been limited to 700E10 to avoid saturation of the transformer in front of the target used to normalise the experimental data. This intensity seems to be compatible with the physics program that started on Wednesday.

Concerning MTE: tests are progressing on the multi harmonic RF source to damp the longitudinal coupled bunch instability. The beam was not sent to the SPS until Monday to recover some of the CNGS integrated intensity lost during the technical stop. In the meanwhile, a single MTE cycle was taken in the PS to investigate the spill oscillations. K. Cornelis requested the beam not to be sent the SPS in order to understand a hot spot found in TT10 during the last radiation survey. The MTE should be sent back to the SPS as from Wednesday-Thursday, following a renewed radiation survey of TT10.

On Monday, an access took place in the TOF zone to check again the faulty transformer, but nothing could be found to explain the transformer saturation.

On Tuesday, faults occurred on KFA4 (MTE), which triggered more investigations throughout the week. On Friday it turned out that apparently there are discharges on the connector in the tunnel. This is a single turn kicker and the voltage can be limited without too many problems. The final check requires an access but MTE can continue in the meanwhile.

The same day, tuning of the TOF beam lead resulted in an increase in intensity of up to 900E10 accelerated protons.

On Wednesday, a problem with the access video signal was solved by the expert.

The same day, there was a problem with the GFAs of the PFW programmed on the slow extraction (EAST beams).
The application used to tune the slow extraction was not programming the virtual PFW-GFAs but directly the physical ones, causing an inconsistency in the GFA programming. The application will be corrected to avoid the same problem in the future.

On Friday, the MPS went down without apparent reason. The problem did not re-appear.

During the night there a problem with the active filter on the SMH42 (injection) septum required intervention of the piquet. In total, about 2:30 hours were lost. The power converter has been working fine since, but the expert will check the power converter.

EAST AREA (L. GATIGNON):
The T9 line has no more users. The line has been powered off.
Concerning EASTA: the CLOUD experiment needs to run under conditions as stable as possible. For this reason, they should not receive more pulses than allocated, even if the supercycle would allow for more spills during the day.
The target used for EASTA should be target 4 or 6. Recently a wrong target had been used.

EAST Users (H. BREUKER):
IRRAD is running without any problems. At the next stop the CMS crystal will be changed.
DIRAC is running without problems.
T10: the ALICE run on the Time-of-Flight had a problem with their electronics.
CLOUD is running.

TOF (H. BREUKER):
TOF accepted to run with an intensity limited to 700E10. It should be seen if this would be acceptable in the medium term or not. The problem will be discussed at the forthcoming INTC.

AD (L. BOJTAR):
An MD was done to understand the behaviour of the cooling, which is suspected to be the cause of the problems with the extensive bunch length. One possible explanation could be a misalignment between the pbar and the electron beam.
The automatic beam steering for the trajectory correction does not converge, which indicates that most probably the optics is not correct.

A problem with the power converter of one of the extraction magnets was solved by the piquet.

On Thursday night, there was beam loss in the extraction line. It was found that the program switching from one experiment to the other had been closed by the operators before the de-gauss cycle was completed. This put the magnets in an un-known configuration. The application will be changed to avoid this problem in the future.

On Friday, the ventilator of the target area broke down. A new part had to be produced at short notice by the CERN workshop to fix the ventilator.
Re-starting after the stop required intervention of the controls piquet on some injection elements.

AD Users (H. BREUKER):
ASACUSA: The Danish group finished their program.
ALPHA: An article on anti-hydrogen trapping is in preparation.
ATRAP: No news.
ICE: Data taking is starting.

SPS (D. MANGLUNKI):
The SPS had a good week.
The LHCPROBE was delivered regularly to the LHC.
The CNGS integrated intensity reached 1.1E19 protons.
On Monday, the LHC 150 ns beam was taken on user LHCFAST. The setting up of the RF was done. Afterwards, a radiation survey in TT10 was done to understand the hot spot recently found. The radiation levels are decreasing, but not as fast as expected.

During the floating MD, the cycle for the UA9 coast was completed. Preparation of the cycles for coast at 55 GeV/c and 120 GeV/c started.

On Friday, there was a 1-hour stop for a water problem.

On Saturday the MPS tripped. The piquet changed the QD by the QS to restart the machine. Time should be found to switch back to the QD.

North Area (L. GATIGNON):
The run was very smooth. The access system problem could be solved (see follow-ups). The piquet had to intervene on Monday to solve a problem with the water circuit.

COMPASS complained about imperfect de-bunching of the slow-extracted beam.

North Area Users (H. BREUKER):
H2: A CMS combined calorimeter slice is under test.
H4: CALICE was running fine. RD51 could start the run in parasitic mode 3 days in advance.
H6: All ok.
H8: UA9 is running to test a British telescope.

CNGS (E. GSCHWENDTNER):
CNGS is running well.

CTF3 (D. MANGLUNKI):
The facility is restarting.

LINAC3 (G. BELLODI):
The Linac has been powered OFF.

LEIR (S. PASINELLI):
In the preparation of the restart of LEIR, the water circuit should be filled again to check for leaks. This has a potential impact on the operation of Linac2, which is sharing the same water station. There are two possible procedures:
a) Flush the water circuit to clean it and release the water into the drain. This would clear the circuit very effectively, but needs the authorisation of radioprotection. RP is currently analysing this proposal. Once the circuit will be clean, it would be closed for leak detection. In total this would take about 2-3 hours;
b) Do the cleaning of the circuit in closed configuration. This would take about 5 hours. The first option is the preferred one. Both operations can be done at very short notice. It is preferred to test the cooling circuits rather soon, in order to have sufficient time for repairing leaks if required. The next technical stop is considered too late.
For the planning of this intervention, see the Schedule section.

TI (J. NIELSEN):
A few power failures occurred in LHC point 2 and 4 without affecting the injector operation.
The nTOF water station stopped during the week and the specialist had to reset is locally.

LHC interface with injectors (M. LAMONT):
The LHCINDIV beam was used for the MD period. The current operation is focused to achieve collisions with nominal bunch intensities.

3. Schedule / Supercycle / MD planning

A new version of the 2010 official schedule (V1.7) is available at:
https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/2010-injector-schedule_v1.7.pdf

A 24 h dedicated PS MD had originally been planned for Thursday 24/06 in the shadow of a stop of the LHC cryogenics. This intervention was advanced to Wednesday 23/06 between 6:00 AM and 2:00 PM. The PS MD on the MPS and B-field fluctuations was rescheduled at short notice to take place during this LHC stop. The originally planned installation of the SPS electron cloud monitor cannot be done as this would require a 24h stop.

In addition the following interventions were scheduled to take place during the LHC stop:

- Repair of a water leak in SPS LSS1
- Radiation survey in TT10
- Flushing of the LEIR cooling circuits for leak search, pending confirmation of the Linac specialist
- Maintenance on SPS compensator and switch back to QD power supply.
- Access to CNGS to change water filters

The SFPRO and CNGS beams will be stopped at 22/06 midnight to allow for radiation cool-down before the accesses in the SPS and in CNGS. There will be no beam for the PS users during the MD. ISOLDE will continue to receive beam.

S. Hutchins asked how long the intervention in TT10 to repair the broken camera near the hot spot would take. K. Cornelis replied that the intervention will be fast. The pick-up nearby the camera will be visually checked. A meeting with RP and BI will take place after the FOM to coordinate and plan the interventions.

After the meeting the LHC cryogenics went down, and the list of interventions planned in the LHC was worked off. Expecting re-start of the LHC during the night from Tuesday to Wednesday, the dedicated PS MD was cancelled. The various interventions listed above were maintained as scheduled.

After the meeting it was confirmed that flushing the LEIR water circuits during operation of Linac2 constitutes a severe risk of bringing Linac2 down for a substantial amount of time. The intervention will therefore not be done during the LHC stop/PS MD. It will be tried to identify an alternative time slot.

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.

4. AOB

5. Next meeting

The next meeting will be held on Tuesday, 29 June 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 S. Gilardoni