Minutes of the 14th FOM meeting held on 20.04.2010

Agenda:

1) Follow-up of the last meeting (B. Mikulec)
2) Status of the machines (Supervisors)
3) Schedule (B. Mikulec)
4) Special topics: Status of the magnet replacement in the EAST hall (L. Gatignon)
5) AOB
6) Next agenda

1. Follow-up of the last meeting

The minutes of the 13th FOM meeting were approved.
S. Hutchins noted that a correction to the CTF3 part should be implemented. The cables mentioned in the last minutes were not 400 kV ones, but in total there are about 400 cables to repair.

Follow-up from the last FOM:

a) Status of the PS B-field fluctuations. S. Gilardoni reported that the problem is still present. More measurements were taken on Monday with the PFW power converters OFF to determine their eventual influence on the remnant field.

b) PS radial steering GFA replacement/repair. K. Kostro said that the problem has not been solved yet, but progress was made in the understanding of its source.

f) EAST area magnet water leak status. See report from L. Gatignon under special topics.

g) Linac2 source intensity fluctuations. A. Lombardi reported that the fluctuations are still present.

2. Status of the machines

Linac2 (A. LOMBARDI):
On Wednesday, a problem with the tunnel air temperature appeared.
The CCC received an alarm that the structure cooling water temperature was too low.
In this case, the RF tuners move to compensate for the temperature variation, and risk to fall off the end-switch or get blocked. CV switched off the air cooling to raise the tunnel temperature.
The problem was initially due to the heating of the air in the ventilation which failed.
For nearly 5 days the Linac tunnel temperature has been falling until the water alarm was sent to the CCV as there was no alarm on the air temperature implemented.

For the future: a) an alarm will be added to survey the air temperature so that if it changes too much CV is informed; b) the threshold of the cooling water temperature

alarm will be increased; c) an access will be done in the tunnel as soon as possible to carry out the modifications.

PSB (Y. TAN):
The PSB was running without any mayor problem.

On Tuesday, the extraction trajectories in BT-BTP could not be correctly measured due to a problem with the acquisition timing.

On Monday, the BE.BSW14L4 tripped quite often. During the night, the specialist intervened. Finally, it was found that the magnet was pulsing on the zero cycle. This is however not considered to be the real cause of the trips. In total this caused a loss of 4 hours of beam time. After the meeting it turned out that the survey signal of the equipment was badly terminated in a local scope.

Concerning the beams, the AD beam has been improved. The transverse damper was found OFF due to a water fault. Most probably this was a result of the interventions during the last technical stop. Once the damper was back in operation, the losses decreased noticeably.

PS (S. GILARDONI):
Concerning the PS beam availability:

- The CNGS (CT extracted, 2.4E13) beam has been prepared, optimisation ongoing.
- The MD2 (MTE extracted, high intensity, 2.5E13) is being set set-up and it has been sent to the SPS.
- The SFTPRO (MTE extracted, 1.5E13) has been delivered regularly to the SPS.
- The LHCINDIV, LHCPROBE, LHCPILOT were delivered regularly to the SPS
- AD (up to 1.5E13 in nominal condition) has been delivered regularly to the AD.
- The LHC25 (nominal) was prepared for the SPS scrubbing run.

On Monday the AD operation started, but an access was needed to unblock a beam stopper in TT2.

On Tuesday the EAST area has been patrolled.

On Wednesday the safety tests of the EAST hall took place.
The same day a minor problem with the power converter of the F16.QFO225S was solved by the piquet power. He had to re-intervene later in the week for the final fix of the converter.

On Thursday, the setting up of the CNGS beam with the classical CT extraction started. This was done in order to have a fallback solution in case the high intensity MTE beam would not be considered stable enough to start the regular operational period with the high intensity.

The same day, an RP survey took place on top of the extraction septum during MTE operation. The measurements were done to check the shielding on top of the region where there are most of the MTE losses.

On Friday, the MTE extraction was set-up with 2.5E13. LHC25 setting up.

On Saturday, there was a problem with a radiation monitor in the North-South Hall (PAXS42). According to the RP piquet, operation could live without it until Monday since there is another PAXS installed just nearby (PAXS43), and the supercycle was not filled by high intensity beams.

Concerning the observation of power converters from the CCC, it was noticed that the samplers have a time jitter from cycle-to-cycle. This is due to a missing synchronism of the acquisition at the level of the power converters. The problem is followed up with the PO experts, since it is difficult due to this to understand if a power converter is fluctuating from cycle-to-cycle.

For MTE, the commissioning continued for the entire week. 1.5-1.6E13 (extracted) were regularly delivered to the SPS on the SFTPRO user in the PS onto a CNGS cycle in the SPS. Also according to the SPS supervisor, the spill at 1.5E13 was sufficiently stable with good transmission in the SPS. Also double batch injections with good transmission took place.

On Friday, the extracted intensity was increased up to 2.4-2.5E13. Unfortunately in this case, a fluctuation of the spill quality was observed. On Friday the spill was pretty nice, flat, with only few rare bad shots. Then it degraded on Saturday, with less regular spills. There are periods of few ten minutes were the spill is very nice (more than 60 consecutive good flat spills), then it degrades for few minutes, and then it recovers again. Investigations are ongoing to try to correlate this behaviour with some HW fluctuations or beam instability. S. Hutchins commented that it might be useful to survey the cooling temperature in this context.

For the worst case, a CT extracted beam is being prepared in parallel.

EAST AREA:
See special topics.

AD (T. ERIKSSON):
The AD is entering in the second week of operation.
On Tuesday, the beam could be decelerated down to 300 MeV/c. The momentum cannot be further reduced since the e-cooler is not yet operational.

There were few minor problems typical of a normal start-up. T. Eriksson wanted to thanks all the colleagues intervening in this period to fix the different issues.

All the high-energy part of the cycle has been optimised.
The 300 MeV/c settings of the machine have been improved. The beam trajectory of the bare machine, without the solenoid and skew quadrupoles compensating for the e-cooler magnetic elements, has been optimised to improve the machine tunability.

The e-cooler has been re-assembled. The first tests did not show any particular problems. The control problems have been fixed. After the safety visit scheduled for Tuesday it will be possible to power the HV on Wednesday.

The start of the physics program is scheduled for the 10th of May.

In the meanwhile, a lot of works have been done in the experimental hall to re-open the zone to the public for visits. The visit service will most probably have to take care to buy a certain number of helmets for the visitors. A. Findlay wanted to know if people working in the hall would therefore also wear helmets. This has not yet been confirmed, but might well be the case.

S. Gilardoni asked if the proton primary beam was fine. T. Eriksson replied in the positive.

SPS (D. MANGLUNKI):
On the LHC front, it was an uneventful week for the SPS, which supplied the LHCPROBE beam without any problem.

On the CNGS front:
- the zone was closed and the beam permit signed;
- W. Hoefle has set up the dampers with intensities up to 2x1.8E13;
- BT has reconditioned the MKE4;
- J. Wenninger has tested the extraction timings;
- the MTE beam at 1.6E13 was reasonably stable;
- the high intensity (2.2E13) MTE beam has been taken from Thursday onwards on user CNGS2, including for some periods during the week-end, but there is still a lot of work needed, both in the PS and the SPS, to make it operational;
- for setting up of the extraction, user CNGS3 has been set up with a single turn fast extraction from the PS (2E12/batch);

LHC MD started this morning (12 bunches).

The problems of the week were:
- fake RF alarms were generated; apparently this has been solved since Monday morning;
- the main power supply tripped on Monday evening. The piquet restarted it, but the current configuration is not correct. This would need an intervention by a specialist (1 hour without beam, which has to be scheduled).

D. Manglunki added that the SPS is confident to start with the MTE extraction. In any case, a CT extracted beam has been prepared in the PS.
Answering a question of B. Mikulec, K. Cornelis said that there is not a clear dead line to decide to use or not the MTE. The limiting factor is the eventual high intensity beam instability at high energy. The beam, in fact, cannot be dumped too often. K. Cornelis added that it was fine to operate with reduced CNGS intensity for a while to acquire the experience with MTE, and in the meanwhile to make the high intensity in the PS extraction more stable.

CNGS (E. GSCHWENDTNER):

The CNGS facility is ready according to schedule.

CTF3 (D. MANGLUNKI):
The cleaning should be finished by Monday 26/4. Afterwards, the cabling works will start. This last intervention should be finished by the end of May.
S. Hutchins commented that the fire detection must be fixed before the restart of CTF. This could not be done in parallel with the cabling work, as the facility should be entirely powered.

TI (P. SOLLANDER):
There were a few events during the week. First, there was the trip of the SPS MPS compensator. This will require an intervention for the final repair during an LHC stop or whenever possible. The SPS is currently running on a redundant configuration. K. Cornelis will organise the stop in accordance with the schedule and TI.

Then there was a fire alarm in ISOLDE caused by a problem with the air pumps of the fire detection system itself. S. Gilardoni mentioned that apparently the fire brigades had some difficulty to enter in the zone.
Some investigations immediately after the FOM clarified the situation (email from M. Tavlet):
"Dear all,
during our meeting today, about this subject, the following actions were agreed:
- The operating mode of the cameras inside the radiation area of the Isolde Target area will be written by Richard and displayed close to the screen at the entrance.
- Richard will also prepare a clear list of persons to be called (by CCC-TI) in case of a problem, and wrt different operating modes.
- Ana-Paula will check the "Fiche Reflexe" of FB**, and update it if needed.
- Pierre will also prepare kind of a "Fiche Reflexe" for the RP piquet.

+ Ana-Paula has already requested a review of the fire-detection system (in particular the faulty motor) by GS-ASE (the same problem happened ~6 months ago).

** It is to be noted that the FB is regularly visiting the area to improve their knowledge of it. This is very good and needs to continue.
It is also to be noted that the info given at the FOM was wrong: the FB do have the key to enter the area. This Saturday, they did not enter because there was no visible sign of a real fire, so no emergency."

LHC interface with injectors (M. LAMONT):
The LHC is progressing very well. The machine has an excellent beam availability and everything is progressing according to schedule. The commissioning of the squeeze is ongoing to increase the luminosity.

The beam required from the injectors will be the LHCINDIV.

There will be three days of LHC technical stop next week.

3. Schedule / Supercycle / MD planning

The current 2010 official schedule (V1.6) is available at:

https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/2010-injector-schedule_v1.6.pdf
In particular, in the new schedule it is included that the ions run start-up has been shifted by two weeks.

R. Steerenberg asked when the SPS will require more CNGS-MTE extracted cycles. K. Cornelis replied that this should be before the end of the week with the goal to run during the week-end as during a normal physics period.

On Thursday morning there will be a second part of the RP radiation survey on top of the PS-SMH16, during which the Supercycle will be maintained as constant as possible. The survey will start at 9:00 and will last about 1 hour.

K. Kostro mentioned that there will be a deployment of a new version of RBAC in the LHC plus some other CO interventions. These have been included in the Agenda web page.

The AUG tests in the POPS area will be organised for the next technical stop. R. Brown will be contacted to coordinate the tests.

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. Special topics: Status of the magnet replacement in the EAST hall (L. Gatignon)

L. Gatignon reported on the status of the works for the replacement of the T9.BHZ01 Magnet (MNP23). The slides are available here.
The magnet that was found with a water leak is situated in the EAST hall primary zone. This magnet type is known to be weak. Already few of them were changed in the F61 line. The work is complicated by the high radiation in the zone. Basically, the protons not interacting with the primary target hit that magnet.
Only one spare magnet exists, which has been tested for few months in the T7 line. However, considering that another magnet failure would be a catastrophe for the EAST hall physics, the magnet insulation at the coil ends will be reinforced and the connections modified. The planned modification will increase the distance between adjacent conductors, thus increasing the break down voltage level and the insulation resistance. The magnet should be ready for installation the 28th of April.
Another magnet, a quadrupole, was found with a water leak. A lot of spares exist and the magnet is in the secondary zone. The only difficulty would be the removal of the Cherenkov counter located just nearby the magnet.

A detailed planning, both for the work as for the user schedule, can be found in the slides. The only user really suffering from the delayed start of the facility will be T7 (IRRADIATION).

L. Gatignon wanted to stress that this problem underlines again the importance of the renovation of the EAST hall.
R. Steerenberg asked what would happen if this magnet would break once installed. L. Gatignon explained that spare parts exist, but it would be wiser not to install again a magnet of this type.
P. Collier asked if another entire spare could be built. L. Gatignon said that investigations are ongoing to see if it would be possible to use another magnet with similar characteristics. However, seen the tight space available for installation, this could be very difficult.
S. Gilardoni asked if it would be possible to install the roof in a different way to speed up the removal process in case of another failure. L. Gatignon replied that, seen the dimension of the roof used for radiation shielding, this was not possible.

5. AOB

6. Next meeting

The next meeting will be held on Tuesday, 27 April 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