Minutes of the 19th FOM meeting held on 25.05.2010

Agenda:

1) Follow-up of the last meeting (B. Mikulec)
2) Status of the machines (Supervisors)
3) Schedule (B. Mikulec)
4) Special topic: Final list of interventions during upcoming technical stop
5) AOB
6) Next agenda

1. Follow-up of the last meeting

The minutes of the 18th FOM meeting were approved.

Follow-up from the last FOM:

a) Status of the PS B-field fluctuations.
Analysis and measurements are ongoing.

b) Propose a solution for ARCON surveillance. M. Widorski reported that a solution implying a watchdog has been studied. The implementation will be done in the next weeks, since some cables have to be pulled during the next technical stop. After this, about 1-2 weeks of SW development will be necessary before the new watchdog will be available.

c) Schedule beam stop for technical stop.
The following times for the stop of beams to allow for radiation cool-down before the technical stop activities (31/5 and 1/6) have been agreed with RP:
    a. **Linac2/PSB:** Stop all beams Monday 31st 5am
    b. **PS:** Stop all CT and MTE beams Sunday 30th 9am
    c. **PS:** Stop all remaining beams Monday 31st 5am
    d. **SPS:** Stop all beams Monday 31st 5am

    K. Cornelis said that for future long stops, the radiation cool-down time should be included in the official accelerator schedule, since a 24 hour stop of the NA and CNGS physics before the technical stop is not negligible.

    B. Mikulec and S. Gilardoni clarified that the request from RP is justified by the fact that there will be a number of interventions in the tunnels in hot areas. M. Widorski and H. Vincke added that the stop of the high intensity beams 24 hours before the interventions, according to the ALARA principle, will allow reducing considerably the collective doses taken by the colleagues intervening on the machines. For future technical stops an attempt should be made to include the cool-down time in the accelerator schedule, but for the evaluation of the duration the interventions have to be known beforehand, which is not always possible.

d) Check interlock of Linac3 vs. camera replacing. B. Mikulec reported that the cameras/screens in the ion transfer line can be replaced without interfering with the Linac3 operation.

e) Check all the equipments after the AUG tests. A series of AUG tests will take place as announced on Monday morning between 10:00 and 13:00. These tests concern the POPS building. The "note de coupure" is available here. A second series of tests will be done afterwards for the CTF3 buildings. The "note de coupure" is available here.
All the colleagues are strongly encouraged to test their equipment after the AUG tests to make sure that it will be operational before the machine restart.
In case that equipment located in a building not concerned by the AUG tests is cut by the emergency stop, the responsible for it should contact one of phone numbers mentioned on the "note de coupure".

f) Send activities for the next technical stop to the machine superintendents. The final list of the activities can be found in the Special topic section.

g) EAST area magnet water leak status. The magnet has been successfully replaced and the EAST area physics could start. See the section concerning the EAST hall.

h) Linac2 source intensity fluctuation. D. Kuchler reported that some short tests gave an indication about the source of the problem. Investigations are still ongoing.

The weekly statistics of the operational beams is presented in the following table:

10 May - 17 May

	CPS		SPS
	rel	abs	abs
NORMHRS	No Data	No Data	
NORMGPS	99.74	64.95	
AD	Not available	Not available	
TOF	90.07	60.78	
EASTA	73.61	73.61	
EASTB	54.19	54.19	
EASTC	82.02	82.02	
SFTPRO	94.78	89.14	88.00
CNGS	95.22	88.99	87.00

The data for the AD are not available yet due to the peculiarity of the AD operation. A proposed solution is under implementation by BE/CO to also provide the statistics computation for AD.
nTOF did a lot of accesses in the area.
The EASTB low availability is justified by three issues: a) there was a problem with a PS injector bumper; b) there was a problem with the vacuum of the experiment; c) whenever DIRAC does not require the beam, the user is cut by a beam inhibit, which is automatically considered as a machine fault. This procedure is in place since the beam user request is still not available. A solution is under investigation by R. Steerenberg.

2. Status of the machines

Linac2 (D. KUCHLER):
The Linac2 had a quiet week.
On Thursday night the beam was off for about 8 minutes due to an RF problem.
On Monday morning, the beam stopper closed due to a general problem with the compressed air. The beam could be put back after about 40 minutes.

PSB (J. TAN):
The PSB had a good week, with only minor faults.
On Wednesday, the BT.KFA20 dropped about 5 times. The faults could always be reset by the operators.
On Saturday morning, the compressed air system had a failure, which affected only ISOLDE. This appeared again on Monday, affecting again ISOLDE, but also the Linac. In both cases, the concerned beam stopper closed.

ISOLDE (M. ERIKSSON):
HRS: the run was used for RFQ tests and for ISOTRAP. A problem appeared on Wednesday when the line broke on the target. Since there were only tests ongoing, it was decided to stop the run and wait for a new target exchange on Thursday.

GPS: On Friday, a radiation alarm was triggered by a too high proton current, i.e., the limit of the 2 μA was passed. On Sunday the users complained about a strange noise coming from the room located behind the counting room, where water pumps for the target cooling and the compressed air system are located. CEGELEC intervened to control the room and found some water on the floor. However, the piquet reported that this was normal. Unfortunately, on Monday at 6:30 the second compressed air failure occurred and the cooling of GPS stopped, causing the heating of the target. The vacuum system for all the sectors also stopped working.
All the vacuum systems for all the sectors, except one, could be put back in operation. For the last problem, the piquet vacuum was contacted. However, the colleague could not help since he was not expert yet of the system and, since the installation is brand new, the proper documentation is still under preparation.
The problem was finally solved by manually restarting the electronics control rack.
Later CEGELEC wanted to intervene on the compressed air system, but this was postponed since the beam was already sent again to the users. An electro-valve, in fact, has to be exchanged.

J. Hansen added that the vacuum piquet is not available yet for ISOLDE, as mentioned in one of the last FOMs. This is due to the fact that the installation is new and some experience has to be acquired first. In the meanwhile, the support outside working hours is given on a best effort basis.

B. Mikulec added that some investigations should be done in any case to understand why the vacuum system did not automatically restart after the stop.

ISOLDE Users (A. HERLERT):
The users were happy, since all the mentioned problems appeared only at the end of a long run. They could conclude the data taking in any case. The users concerned by the stop received some extension at the end of their run.

PS (S. GILARDONI):
The PS had a quite week.

During the week, the announced migration of all the MTE-extracted cycle to all except two CT extracted cycles was concluded. The SFTPRO beam is provided with the CT as all the CNGS's apart one SPS cycle, which remains MTE.
The investigations to understand the regular fluctuation in the MTE-spill are still ongoing.

On Tuesday, the TOF safety tests were done to allow sending beam to the experiment. After that a minor problem with a quadrupole in the TOF line was solved. The first beam to the experiment was delivered the evening.

On Wednesday, the program foresaw the safety tests of the EAST area in the morning, with beam as soon as possible sent to the experiments. Unfortunately, this was possible only in the afternoon, due to a problem with the lightening of the hall. The patrol had to be postponed after having solved this problem. The beam was sent to the users in the evening. Then, it was not possible to continue during the night due to a problem with the CPS-timing not being sent to the experiment correctly and with the F61S.BHZ01 cooling. Since there was only one user left, in agreement with T7 it was decided to postpone the interventions to the following day.

On Thursday, it was found that the problem with the overheating of the F61S.BHZ01 was due to a cooling water valve left closed. This was solved with an access in the PS tunnel in the morning.

On Saturday, it was noticed by the SPS that if the SFTPRO or CNGS at the PS is preceded by a ZERO cycle, the beam is badly injected. If preceded by a TOF, sometimes the beam is not injected, if preceded by an EAST, then everything is fine. Again, this seems to be related to the problem of the B-field. The rule applied to avoid the problem is to have an EAST before the 14 GeV/c cycles until a solution with the B-field experts will be identified.

On Sunday there was a problem with the injection bumper during the night. The piquet power had to come in a total of four times. Unfortunately, the diagnosis of the problem was pretty long, due to the fact that the expert of the power converter could be reached only on Monday morning since he was on duty trip in the USA. The problem was due to a bad setting of a small low voltage power supply feeding the CPU of the power converter.

On Monday, the DIRAC experiment had a problem with a vacuum valve located in the experimental zone, which closed and could not be re-opened. The vacuum piquet was contacted, but he could not intervene since the experimental zone is not under his responsibility. Further investigations were done together with the experiment, until it was found that the problem was related to the control of the valve. The control piquet was then contacted, and he kindly accepted to intervene even if the zone is not under his responsibility. He could finally fix the problem by changing a control cable.

S. Gilardoni wanted to thank the control piquet for his availability and efficiency.

Still on Monday, the trajectories of the CT slices were corrected in collaboration with the SPS. The losses at injection in the SPS were reduced from 12% to about 5%.

One quarter of the PS has again no fire detection system. The detectors were repaired, but they are already damaged by radiation. The problem will be fixed during the next technical stop.

EAST AREA (L. GATIGNON):
The experiments are happy and in data taking.
The only problem to mention, on top of the PS report, was related to the trip of DIRAC spectrometer. This required the intervention of Firstline.

EAST Users (L. GATIGNON):
The users are happy.

TOF (R. STEERENBERG):
The experiment started to take beam last week. The first goal of the run was to understand the alignment of the collimator, since a net reduction of the neutron flux was observed last year most probably due to a bad positioning of the latter.
Since the access system to the zone has been reconfigured, a patrol is needed every time that an access is required to the collimator area.
During the week, radioprotection tests were done to quantify the maximum flux of protons that can be sent to the experiment and that is compatible with the reconfiguration of the radiation shielding. An intensity up to 1.5 10^{12} p/s can be safely sent to the experiment.

AD (T. ERIKSSON):
The AD had an excellent week.

On Thursday, Firstline had to intervene to fix the power converter of an injection line magnet (3h).

Sunday night 8h were lost due to the PS injection bumper problem.

On Tuesday, the C10-26 cavity had a problem and the specialist had to intervene. Immediately later, the power converter of the horn also stopped and the expert had to fix it.

AD had in total an up-time of more than 90%.

AD Users (T. ERIKSSON):
The users are extremely happy, in particular ASACUSA for the excellent beam stability. ATRAP had captured more than 1.5 10^{6} antiprotons per beam extraction.

SPS (K. CORNELIS):
As mentioned in the PS report, the fixed target beams were shifted from the MTE extraction in the PS to the CT extraction except for one CNGS. The CNGS extracted intensity was risen to 4 10^{13} and the SFTPRO intensity also.

Two problems appeared during the week. The first one was the ripple on the flat top of the extraction septum. The same septum is used for the CNGS and the LHC beam extractions, which occur respectively at 400 GeV/c and 450 GeV/c. The ripple has been adjusted to favour the LHC beams. However, on the CNGS cycles sometimes the ripple exceeds the interlock level. The expert will try to find a better compromise for the two types of operation.
The second problem concerned few trips of the RF power.

The weekend was very productive, with the CNGS intensity delivered so far as scheduled.

North Area (L. GATIGNON):
The COMPASS experiment is satisfied with the intensity received. They could conclude the muon program as well as the electron calibration.
NA63 run is progressing. NA61 run was starting during the FOM.

The DSO tests will be done during the afternoon with a short stop of 1 hour for the NA.

CNGS (L. GATIGNON):
The facility is in good condition as is the run.

CTF3:
No report.

LINAC3 (D. KUCHLER):
The Linac was running for the E. Mahner desorption experiment. The beam was very stable, except on Saturday morning when the source had to be retuned.

S. Gilardoni asked about the RF frequency currently used for the source. D. Kuchler replied that the 14 GHz generator plus the old plasma chamber are used to assure the stability for the desorption experiment.

Mail from E. Mahner: "[…] the ion desorption experiments took place last week and the first run finished successfully on Monday (24.5.) evening. Target change plus bake-out takes place from today onwards. Run 2 will start on Monday 31.5. (week 22) as scheduled, despite the technical stop.
On Saturday, the ion source had to be retuned by Detlef. I want to highlight the excellent machine stability last week and explicitly thank Detlef for his permanent support and commitment."

TI (P. SOLLANDER):
There were two problems during the week, concerning the already mentioned two failures of the air-compressed circuits for ISOLDE in particular. S. Deleval reported that the first failure was due to a problem of a too large consumption. Two compressor stations were available instead of the usual four. The second failure was due to a water-cooling problem of the compressors and involved also the Linac2.
Remark: 2 major event reports have been prepared.

LHC interface with injectors (M. LAMONT):
The run is progressing well, and the LHC had 13 bunches/beam in the machine. The program foresees the acceleration to 3.5 TeV/c of bunches with nominal intensity while controlling eventual instabilities and preserving the transverse emittances.

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

Next week there will be a two day long technical stop, on Monday 31/5 and Tuesday 1/6 followed by a dedicated MD in the SPS on Wednesday (no beam to the LHC) plus another day of dedicated MD in the SPS, but with beam delivered to the LHC.

Concerning the beam availability:
- Linac2/PSB: Stop all beams Monday 31st 5am.
- PS: Stop all CT and MTE beams Sunday 30th 9am.
- PS: Stop all remaining beams Monday 31st 5am.
- SPS: Stop all beams Monday 31st 5am.

The restart of the machines will be done on Tuesday at 18:00.
The access to the machine will be given at 9:00 AM after the RP survey.

Concerning the beam to the users:
- AD and nTOF in principle could have beam as early as Tuesday after 18:00.
- The EAST area will receive beam as soon as the vacuum condition and the conditioning of the SEH23 will be good. It could be sometimes on Wednesday.
- The NA users and CNGS will restart the physics on Friday morning after 8:00.
- ISOLDE will restart on Tuesday after 18:00.

The LHC will start to take beam on Thursday at 8:00 AM.

M. Lamont announced that most probably the next technical stop of week 26 will be delayed.

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: Final list of interventions during upcoming technical stop

D. McFarlane presented on behalf of R. Brown the list of the activities concerning the PS and Linac2. The activities can be found here.

With respect to the activities already announced during the last FOM, the new ones are marked in yellow fonts in the slides.

A shielding will be put in place near the septum 16 to protect the intervention in the ventilation room.
In case of problems during the AUG tests in POPS, the colleague to contact is: P. Gallay (72540 / 162720).

D. McFarlane presented the activities for the next technical stop concerning the PSB and SPS. The list can be found here.
The conflict between the water-cooling interventions and magnet and RF tests has been solved.

H. Vincke said that the interventions in BA1 and BA2 (nearby hot spots) should be done as late as possible to profit from a longer radiation cool-down.

M. Widorski added that an access will be required to the PS bridge. R. Steerenberg replied that R. Brown should contact the CCC to open and close the area.

The CO 'interventions' planned for the technical stop of 31/5-1/6 are the following (from K. Sigerud):
The LSA project:

- Move to the new server LSA1 from LSA2
- Deploy on the SPS server the changes already deployed for LHC last Thursday (20/5)
- If ready, new functionality requested by the LHC (Sequencer task for incorporation, HW commands, ...)

LHC central timing, with the following modifications:

- LHCMTG FESA class :
    - Issue fixed for the set property TgmGroupList (will be used by SIS)
    - Improvement of the semaphore mechanism (internal use)
- LHCTMFESA class :
    - Improvement of the semaphore mechanism (internal use)
- Moving back the HIX.FW-CT timing event by 1 ms. Currently, it appears 999ms before the LHC injection.

There will be an intervention on the CO database on Tuesday morning.

During Monday afternoon, between 15:00 and 17:00, there will be AUG tests concerning the CTF3 zone. The “note de coupure” is available here. Also in this case, the phone numbers to contact can be found on the note in case of problems.

R. Brown and F. Chapuis will coordinate the PSB interventions.
R. Brown will coordinate the interventions of the PS.
J. Axensalva will coordinate the interventions in the SPS.

5. AOB

6. Next meeting

The next meeting will be held on Tuesday, 1 June 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
5) Next agenda

Minutes edited by S. Gilardoni