Minutes of the 32nd FOM meeting held on 27.10.2009

Agenda:

1) Follow-up of the last meeting (B. Mikulec)
2) Status of the machines (Supervisors)
3) Schedule (B. Mikulec)
4) Short report on the LHC injection tests last weekend and outlook (M. Lamont)
5) AOB
6) Next agenda

1. Follow-up of the last meeting

The minutes of the 31st FOM meeting were approved.

Open actions from last FOM:

a) Access VIDEO streaming status: the video of the access door cameras is sometimes not transmitted to the consoles in the CCC.
Mail from D. Chapuis: "…Nous sommes effectivement au courant du problème depuis quelques mois déjà. Pour dépanner et débloquer la situation provisoirement, les opérateurs sont invités a utiliser NetView (l'autre application vidéo). Ils peuvent également pour rétablir la Com vidéo, appuyer sur la touche F12 du clavier PC d'opération, la Com est rétablie instantanément. Il est bien évident que nous ne pouvons pas rester dans cette situation trop longtemps. Actuellement une autre architecture du système vidéo est a l'essais. Elle donne de très bon résultat. Si cette solution est validée, elle devrait pouvoir être mis en place pendant le Shut-Down de cet hiver."

b) Follow up with equipment specialists radiation alarms linked to PS extraction elements.

R. Steerenberg mentioned that the radiation alarms in the extraction region were caused by two different sources:

- about 70% of radiation alarms were generated by the wrong pulsing of the extraction septum SMH16. This problem has already been solved;
- sometimes one of the beams is not extracted due to a yet unknown reason. CO is investigating if one of the timings is not generated or distributed correctly.

c) Follow up with RP specialists radiation alarms linked to PS extraction.

M. Widorski mentioned that the average dose in the Linac3 area has increased, and that a series of dose measurements have been taken, with and without MTE extracted beams in the Supercycle. The analysis of the data, in collaboration with S. Gilardoni, is still ongoing.

d) Follow up of RF tube aging of the PSB.

B. Mikulec mentioned that more investigations are ongoing, since it is not clear if the problem with a decreased lifetime of tubes from a new supplier observed on the two RF tubes installed in the C04 cavity of one ring is systematic or not. The RF group will do comparative tests in their lab. The change of the RF tubes of Ring 4 will be scheduled for the current week.

e) Check the injectors power consumption.

Mail from F. Tarita: ”Here are the power consumption details and limitations, present and foreseen for the end of the year/winter months.

At the moment we have subscribed to 220 MW and we are using 180 MW. This is until last the end of November 2009. We have a comfortable situation. During the December, January and February months (winter) our limit lowers to 180 MW, but the announced LHC consumption will be compensated by the reduced consumption off all other machines. The only period where a bit more attention will be required is DECEMBER 2009. The SPS (K.Cornelis) informs us that they will adjust/lengthen the cycles to compensate.”

M. Lamont will report next week how the injectors will be allowed to run during the period dedicated to the LHC after the 23rd November.

f) Organise the last intervention for the TI8 doors with stop of the SPS.

See schedule section.

2. Status of the machines

Linac2 (M. O’NEIL):

The Linac had a good week without any problem.

PSB (B. MIKULEC for G. RUMOLO):

On Tuesday/Wednesday radiation losses occurred at extraction of the CNGS beam. As last week the cause was the extraction septum of Ring 4 (BT4.SMV10) pulsing at the wrong value. The problem was found to be due to temperature fluctuations of the cooling water from the PSB station. Due to the change of temperature, the current CCV value would drift to a different AQN value. The specialist made a cooling water adjustment for the affected PSB septum, and then he also adjusted a PS injection septum, cooled with the same water (SMH42). However, due to a miscommunication with the CCC, this change caused injection losses in the PS for about 1/2 an hour, until the PS operators traced the problem down to SMH42 and re-adjusted its settings on all users (see report from the PS).

Another minor miscommunication happened on Tuesday afternoon, when, at the end of the ion MDs, the SPS operators changed the supercycle without warning the PS/PSB crews. The PSB operator had to quickly re-arrange all the ISOLDE cycles and intensities to guarantee them about the same amount of protons they were receiving prior to the change of supercycle.

LHCPROBE was produced from Friday on throughout all the weekend for the LHC injection tests.

ISOLDE (E. PISELLI):

GPS: the beam (STAGISO) was delivered to the users on Friday afternoon.

On Saturday morning, the magnet separator tripped and the power converter had to be reset. In the afternoon, the vacuum system in the experimental line stopped. A manual restart of the system solved the problem.

On Sunday, a broken ventilation belt was repaired by the TI technician. At first, the Fire Brigade had been called because of a "burning smell" in the ISOLDE hall caused by the faulty belt.

HRS: during target change the new target was not coupled correctly vacuum-wise to the front-end. After few manipulations, the target could be installed correctly. Since week 40, the sensor, which detects the correct coupling, does not work anymore. Since the target could be pumped, i.e. the correct coupling tested, the interlock was bypassed. The problem will be solved during the next ISOLDE shutdown, since only one more target exchange is scheduled before the end of the run. The whole front-end will be replaced by a new one during the coming shutdown.

Unfortunately, since Friday the front-end could not be used for physics since it was not possible to set stable HV. After few changes of different power converters and spark protection circuits, more investigations showed that a wrong voltage offset was set on the extraction electrode due to missing information on the target travel document, leading to sparking of the source. The travel document will be changed to avoid this error in the future.

ISOLDE users (A. HERLERT):

The GPS users were very happy, thanks to the stable beam with good yields. The run has been extended until Wednesday due to the problem with HRS.

Unfortunately, one user run of HRS was completely lost. There is still some hope not to lose the second one.

PS (Y. PAPAPHILIPPOU):

Tuesday last week was a particularly bad day with a series of different problems. First, the figure-of-eight loop tripped a few times, and the expert had to reset it. The relay gap of the 10 MHz cavity in SS46 broke. It was not possible to operate the 80 MHz cavity for the ions until the expert intervened. The SMH57 was blocked by a fake interlock, solved by a reload of the safety chain application. The BHZ377 was not pulsing on the LHCION cycle due to a problem with the LEIR MTG whenever the beam was requested by the LHC. This problem was difficult to identify since on the new VISTAR the status of LHC being master was not shown on the ion cycle. This SW problem was also fixed.

On Wednesday, the intervention mentioned in the PSB report on the cooling water of the SMH42 caused large losses and few radiation alarms. The alarms were triggered by the large losses due to the poor injection efficiency. These derived from the new values of the septum strength after the re-adjustment of the cooling water temperature.

Unfortunately, the expert did not inform the CCC before the intervention on the septum.

On Friday the LHCPROBE could not be injected correctly in the SPS due to a bucket jittering. This was solved by the RF piquet on Saturday morning.

A problem with the 10 MHz cavity in SS91 was solved during the TI8 intervention on Saturday.

East Area and Users (L. GATIGNON):

IRRAD stopped on Thursday to allow accessing the zone on Tuesday.

DIRAC and F61N had smooth running for the entire week.

In T9, the VIPIX experiment finished on Sunday, one day before the scheduled end. FACTOR started on Monday and will leave the line to CALICE on Friday.

In T10, the beam line is ready, but ALICE had problems with the detector.

CLOUD installation is in progress, and the first beam is foreseen for the 6th November.

AD (B. DUPUY):

Since the last two weeks the AD was delivering six consecutive extractions to the ASACUSA experiment. The PS crew, whenever supervising the AD, had to change the magnetic cycle of the AD to switch from one user to the other. The operation went always pretty well.

During this period, the beam stability was sometimes spoiled by a jitter of the RF synchronisation between the PS and the AD. This could finally be solved by the RF experts.

During the week, an intermittent problem with the stochastic cooling appeared. However, since there are only 60 extractions per hour and the problem was intermittent, it was not possible to collect enough statistics to well identify the source of the problem.

The run with six extractions finished on Thursday.

S. Gilardoni asked if the antiproton intensity was still of the order of 4e7 pbar after the first cooling. B. Dupuy answered that this is the case.

AD users:

No news.

NTOF :

No report.

SPS (E. METRAL):

The SPS had a good week. On Monday the ion beam could be injected in the SPS in parallel with the physics beams to prepare the dedicated MD on Tuesday.

During the dedicated MD, the rephasing with the LHC was checked and first tests of the longitudinal emittance blow up done. The same day the ventilation door PPV.TAG41 should have been installed, but this was finally not done. Instead, some work took place in BA7 to replace the grilled access door PPGTI2 with a solid ventilation door. The work on the PPV.TAG41 was postponed because it would have lasted more than the time available on Tuesday.

On Wednesday morning, a reduced intensity was injected on both SFTPRO and CNGS. The injection losses were traced back to the TT10 screen BTV1209, which was inside the beam and had to be removed. Also on Wednesday, the PS delivered reduced intensity due to the problem with the injection septum. The same day, the MTE beam was taken to allow for RP measurements, and in addition dispersion measurements in TI2 were repeated for the LHC.

On Friday, the power converter QM2117 tripped perturbing the North Area operation due to an Ibalance problem, repaired by the piquet First Line. At 16:01 ions were sent to TI8 (at the first shot) and at 17:48, the ions were down at the TI2 TED. The weekend was dedicated, as foreseen, to LHC injection tests.

CNGS (K. CORNELIS):

The run is proceeding well with very good production. The goal is to achieve 3 10^{19} pot by the end of the week.

SPS North Area and Users (L. GATIGNON):

The NA61 CEDAR was successfully installed on Thursday.

COMPASS required more intensity after the upgrade of their trigger.

NA62 suffered from the trip of the Q20, but the run is in any case excellent. They even took data with electrons at 2 GeV/c, an exceptionally low energy for the line.

All the other users are proceeding well.

LINAC3 (M. O'NEIL):

On Wednesday, a vacuum leak was found in the LTI line, immediately after the source. A small bellow was repaired with a temporary fix, since its replacement would cost few weeks. Since then, the source was very stable and easy to control, including increased intensity.

Also on Wednesday the stripping foil was replaced, increasing slightly the intensity delivered to LEIR.

Unfortunately, it turned out that maximum current of the source solenoid is limited by the increased temperature of the chilled water, nine degrees instead of five. The reason of this is that a reserve pump with limited power is in use. This limits also the maximum intensity that the source can deliver.

On Monday, the foreseen switch of the source to the second oven was not possible since it was found in open circuit. The first oven was then refilled and the beam could be delivered already on Tuesday to LEIR.

LEIR (M. E. ANGOLETTA):

The current work is mainly dedicated to the production of the nominal beam. LEIR requests to continue to run during weeks 44 and 45. The request is accepted since the source MD will start only in week 46, unless strong objections will be voiced.

PS with IONS (D. MANGLUNKI):

The ions could be delivered to the SPS thanks to the good vacuum levels in the machine.

CTF3 (D. MANGLUNKI):

The main goal of the week was to condition the TBTS PETS power production structure after removal of a variable attenuator that had caused RF breakdowns.

After restarting the machine last Monday and establishing a good factor 4 recombination in the CR, on Tuesday the beam was sent into CLEX that had been closed and patrolled on Monday after 4 weeks of installation work.

Tuesday afternoon, the first beam was sent to the TBTS PETS structure.

The beam current was gradually raised on Wednesday and a PETS power of 40 MW could be achieved.

Thursday was scheduled for laser alignment in CLEX, so the beam could not be sent there. The time was used for quadrupole scans at the beginning of TL2, current stability studies and measurements at the CDR (Coherent Diffraction Radiation) experiment.

On Friday morning, two klystrons were found with problems:

- for MKS06 the thyratron was exchanged and it was again operational in the afternoon
- for MKS12 a broken HV capacitor in the klystron tank had to be replaced. This repair was finished in the late afternoon, but on Monday it was not possible to raise the PFN higher than 5 kV without breakdowns, so that the klystron tank had to be disassembled again on Monday and was finally repaired in the afternoon. After that, beam could be established to TBTS and the conditioning could be continued.

TI (J. NIELSEN):

On Tuesday, TIM and LASER went both off and left the operator without any surveillance.

While CO was trying to find the source of the problem, the TI operator connected directly to the machines and used the backup system to supervise at least the most critical systems.

K. Sigerud said that the problem was generated by lack of memory of the GMS broker. The problem could be solved with a memory upgrade.

B. Mikulec added that a procedure should be eventually established to cope with a combined failure of LASER and TIM. K. Cornelis added that the different systems are protected by interlocks, and the alarm system is only used to communicate an eventual problem, but not to protect the different devices. Nevertheless it was considered useful for the TI operators to have a written procedure in such a situation.

LHC interface with injectors (M. Lamont):

See special topics.

3. Schedule / Supercycle / MD planning

The 2009 schedule (V3.6) is available at:

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

In the current week there will be:

- an upgrade of the ORACLE APEX repository on dbabco, laserdb, accdb on Wednesday with no impact on operation;
- the replacement of the RF tubes of PSB C04 ring 4 on Wednesday morning;
- a rooter/network intervention on Thursday with small network perturbation;

- an upgrade of the RAMSES system on Thursday, which will not affect operation except for the following installations:
  - CTF3: Alarm transmission to the CCC and CC CTF3 remains operational, no impact on interlocks or local alarms. No access to real time data;
  - CNGS: No impact on interlocks or local alarms. No alarm transmission to LASER. No access to real time data;
  - LHC Point 4, RF conditioning: No impact on interlocks or local alarms. No access to real time data;
  - n_TOF: No access to ventilation real time data;

The operation of the aforementioned installations will not be restricted during the intervention.

The interventions for the TI2 and TI8 doors will be done on Tuesday and Wednesday (3/4 November) during daytime (8-18h). During this period there won't be LHC phase 2 powering tests and everything will be arranged for CNGS beam off.

The tests of the LTB line power converters are planned to take place during the PSB RF tube exchange.

4. Short report on the LHC injection tests last weekend and outlook (M. Lamont)

M. Lamont reported about the LHC injection tests during the weekend.

The slides are available here.

During the tests, the proton beam was sent from the two injection IPs up to the two collimation IPs.

For the first time, the ion beam was injected into the LHC.

A number of tests were done to check the aperture, the optics, the energy of the ring and the dispersion of the lines. All the tests gave very good results.

In fact, both the protons and the ions could reach the collimation insertions at the first shot. For further details, refer to the slides.

A preliminary schedule of the LHC foresees another injection test during the weekend of week 45 and the start of the machine in week 47, but these dates could shift. The commissioning will start at 450 GeV/c followed by collisions at this energy. Then the energy will increase up to 1.1 TeV/c, eventually with collisions.

The machine setting up will be done with the LHCPROBE up to 3e10 and the collisions will be done with the LHCINDIV with an intensity of 5e10 with maximum 4x4 bunches.

The machine will stop on the 16th of December.

5. AOB

Nothing to report.

6. Next meeting

The next meeting will be held on Tuesday, November 3rd at 10:00 in 874-1-011.

Preliminary Agenda:

1) Follow-up of the last meeting
2) Status of the machines
3) Schedule
4) Injector operation during the LHC winter run (M. Lamont)
5) AOB

Minutes edited by S. Gilardoni