Minutes of the 31st FOM meeting held on 20.10.2009

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 30th FOM meeting were approved.

Open actions from last FOM:

a) Follow up with specialists radiation alarms linked to PS extraction elements. R. Steerenberg mentioned that the radiation alarms in the extraction region are caused by three different sources:

- the wrong pulsing of the SMH16. The control electronics has been reviewed; in particular one of the DSC CPUs has been changed. After these interventions the problem with the SMH did not reappear again.
- sometimes an extraction fails, without any specific fault of one of the elements. R. Steerenberg will follow-up this problem with the equipment experts.
- the PAX35 alarm threshold of 200 muSv/h is reached if too many high-intensity MTE extractions are present in the supercycle. This is due to the fact that, even though the extraction efficiency is better than for the CT, the remaining losses are concentrated at the extraction septum. The losses are produced by a fraction of the debunched beam impinging on the septum during the extraction kicker rise time. These losses were predicted during the design of the extraction. S. Gilardoni and M. Widorski will assess the situation and come back with a proposal.

b) Organise interventions of TI2 TI8 doors. Two of three interventions took place during the advanced dedicated ion MD. The third intervention will take place as soon as it will be possible to schedule an SPS stop.

K. Hanke mentioned also the status of the follow-up for the actions open during the ATOP days:

a) PSB BLM (whole chain to CCC) to be checked; test procedure to be revised. The BLMs have been all checked. Most of the BLMs could be brought back into operation; two devices remain to be checked.

b) ISOLDE operation beyond limits defined in 1993, or modifications with RP impact to be assessed and approved by RP (idem for other installations). D. Forkel-Wirth reported to K. Hanke that for the time being there are no resources to follow-up this issue.

c) Radiation related nTOF matters (ventilation, alignment). The improvement of the primary target sealing solved the remaining issue of the environmental activation.

2. Status of the machines

Linac2 (R. SCRIVENS):

Thanks to the tuning of the transfer line, the transmission has been improved by 3%. G. Le Godec will need a time slot of about 2h to test the spare of the power converters of the LTB line. This has been put on the PS access list.

PSB (B. MIKULEC):

The PSB had a good week with a series of minor problems.

On Wednesday, bad bunch shapes of h1 beams were observed on ring 3. Spikes were present on the C04 voltage at extraction. The LL RF specialist put in place a temporary fix by modifying the GFA function of the C04 cavity. The RF experts decided to exchange the C04 tubes with the ones of ring 1 and 2 to confirm a possible ageing problem of the tubes. The intervention confirmed a problem with the tube, which would mean that the lifetime of the new tubes is only half of the old ones. Those tubes are produced by a new supplier and they are clearly showing ageing effects. The tube in question has to be changed before the start of the LHC. An access request has been added to the PS access list. The RF group is investigating whether the tubes purchased with the new supplier have a shorter life time than the old ones. If this is confirmed, the stock of tubes would have to be increased and more frequent accesses to the Booster would have to be expected.

On Thursday in the evening a local reset was required for BR4.C04.

During the night and on Saturday, losses were observed at extraction from ring 4. The operators managed to reduce the losses. Eventually the cause of the problem could be tracked down to the recombination septum BT4.SMV10 which had an AQN value differing from the CCV value by ~250 A. This was difficult to find as the knob showed correct (green) values since the tolerance defined in the control system was too large. The EPC piquet intervened on Sunday and adjusted the filter voltage on a control card.

Around 7 am on Tuesday, the C02 cavity of ring 1 tripped with an ‘overcurrent’ error message. The tuning of the amplifier solved the problem.

Throughout the week the special MTE versions of SFTPRO and CNGS have been sent to the PS.

ISOLDE (D. VOULOT):

A REX run was planned for the week but unfortunately, as mentioned in the last FOM, the cathode of the electron source of EBIS broke down. Typically the cathode is exchanged during the shutdown, since the intervention plus the bake-out takes about two weeks. The intervention was done as fast as possible, and finally REX could restart on Friday. The machine could run until Saturday, when there was a failure of the Linac. This could be solved and the run could continue. A second REX run will start by the end of the week.

Staggered beam will be required from Friday morning.

The facility had to stop to pump water in TT70. CV was not present at the FOM meeting to give details on the problem. T. Eriksson said that water in TT70 accumulated since none of the two

pumping groups could provide enough capacity to cope with the water flux. The Fire Brigade pumped out the remaining water and left an extra temporary pumping group. A permanent solution will be put in place during the shutdown. The intervention was lengthy due to a problem with the joint between two hose sections. The AD and ISOLDE had to stop during the accesses to TT70 since there is a direct access from this tunnel to the AD target zone.

HRS: no physics run.

ISOLDE users (A. HERLERT):

The users appreciate that the EBIS could be brought back into operation faster than initially estimated. Good results could be obtained even with the limited amount of time, thanks also to the good yields. The physics will stop on Wednesday.

PS (S. GILARDONI):

The PS had a good week with only minor problems.

During the nights from Sunday to Monday and from Monday to Tuesday, bad generation of the fiducial RF train (T-FID) caused about three hours of down time. This train is used to generate the extraction timings and to syncronise the PS with the SPS and the AD. The CO piquet had to change a few connectors in the electronics rack.

On Tuesday, the EPC piquet had to intervene to fix the power converter of the gamma transition doublets. During the night, about one hour and a half was lost to change a regulation card of the injection bump.

On Thursday the SMH57 (slow extraction magnetic septum) tripped frequently due to a too large RMS current. The function was shortened to reduce the RMS current without changing the length of the spill.

The MPS tripped due to a wrong manipulation during the installation of POPS.

On Friday, the MTE extraction was set-up for an intensity of 1.9e13.

Except the radiation alarms mentioned in the Actions section, some more radiation alarms were caused by recurrent trips of the Figure-of-Eight loop. R. Steerenberg mentioned that not all the radiation alarms triggered on the PAX35 cause also alarms in the Linac3.

East Area (L. GATIGNON):

DIRAC had a water leak in its spectrometer magnet, which is under the responsibility of PH. Several accesses were needed to fix the problem. The experiment is very sensitive w.r.t. intensity stability since they have not yet solved the problem with the fast triggering.

A water leak was found above the IRRAD barrack, due to a heating valve. During the week there was very stable beam on North target. CLOUD hopes to take first beam in T11 by November 1st.

AD (K. Mikluha):

The AD had a busy week. On Monday there was an MD on the barrier bucket cooling and on instrumentation. Since Wednesday, the machine was set with 6 consecutive extractions for ASACUSA. A continuous tuning of the extraction was needed to reach the required stability. During the night, the ALPHA experiment received only 30% of the intensity due to CO

problems. A large number of DSCs was not working correctly due to overloading. On Thursday night, intermittent losses were observed during the deceleration. A GFA of the RF was found with the wrong setting. Then, that one of the DSCs was corrupted and the piquet control had to recover a corrupted file.

Firstline had also to intervene to fix the DE0.DHZ35 power converter.

On Friday there were further investigations about the intensity fluctuation observed during the week. Apparently the problem was solved by rebooting one of the DSCs.

On Sunday, the piquet access had to intervene since ASACUSA could not access the zone.

AD users:

No news.

NTOF:

No report.

SPS (K. CORNELIS):

During the week the SPS had only minor problems. First, one of the TT20 quadrupole was blocked, luckily at the right polarity.

Then an optical fibre problem blocked the BIC. Finally an orbit corrector was not usable. All those problems were solved on Wednesday during the intervention in the PSB. Later in the week there was another minor problem with the electrostatic extraction septum motor.

The MTE extracted beam was taken regularly during the week on CNGS cycle, with an intensity of about 1.5e13 per batch. The maximum intensity injected was 1.9e13. Due to the spill structure, the RF cannot digest this intensity without further trimming.

The MTE injected cycles contributed to the CNGS neutrino production. Studies were done at injection, showing that there is a dispersion mismatch and that the 4^{th} injected turn behaves somehow differently from the others.

S. Gilardoni added that a first matching optics had been computed and implemented but there was not yet the time for a second iteration to correct for the measured mismatch.

K. Cornelis added that the weekend run was very good with very stable conditions. The MTE beam was taken for a few hours every day.

During the advanced dedicated ion MD it was possible to intervene on the doors of TI2 and TI8.

CNGS (K. CORNELIS):

The run is proceeding well with very good production.

SPS North Area (L. GATIGNON):

A PLC problem blocked almost all the PLCs in the NA from time to time since last Tuesday. The problem was solved by replacing the PLC on Wednesday.

The front-end controlling the rectifiers in BA81 gave a response well after the end of the long flat top where it should be at the start of the flat top. This makes beam tuning basically

impossible. Some temporary fix stabilised the situation but further investigations are done by PO and CO.

COMPASS asked for regular intensity adjustments on T6. The run continued until their gas control PC blocked and their gas detectors ran out of gas. They are now flushing their detectors and doing an ECAL calibration while waiting for the gas situation to be re-established.

After a search on Thursday afternoon, the P0 beam was restarted successfully on Friday, with good muon and electron beams delivered to NA62.

NA61 is running smoothly with 40 GeV hadrons. A request to change to 20 GeV could not be satisfied because it would interfere with the UA9 running in H4.

UA9 is running well.

There was a smooth running of TOTEM and various ATLAS teams in H6 and H8.

North Area users:

No report.

LINAC3 (R. SCRIVENS):

After the vacuum desorption experiment, the source intensity suddenly dropped during the weekend. There was a problem with the RFQ and the amplifier of the bunching cavity. Nevertheless sufficient intensity could be delivered to the LEIR.

The new source setting up will start as soon as the LEIR run will finish, i.e. next week when the oven will be exhausted.

E. Mahner wanted to thank all the colleagues for the support during the Linac3 desorption experiment (mail from E. Mahner): “I would like to thank the Linac3 team for their continuous support during the two weeks of desorption studies, especially Richard and Detlef for their patience to regularly come along and stabilize the ion source. I also want to thank Johannes Broere and Detlef who came in last Saturday to get the buncher and the ion source working again. The visitors from GSI who participated in the measurements were also happy with the experimental conditions.”

LEIR (D. MANGLUNKI):

The LEIR restart was without any problems.

PS with IONS (D. MANGLUNKI):

The vacuum level in the PS allowed an ion run for the current week. The measured transmission was about 40-50% compared to about 75% before the technical stop.

D. Manglunki wanted to congratulate the vacuum team and all the colleagues who contributed to the ion run.

The ABS in TT2 could not be used to steer the ion beam since one of the files was corrupted. M. Pace will investigate the problem.

The beam could not be delivered on Tuesday morning due to: a) a problem with the 80 MHz cavity; b) some trips of the figure-of-eight loop; c) the BHZ377 not switching to the right current to deliver the beam to the SPS.

The goal of this week is to deliver beam to the LHC for the injection tests.

CTF3 (D. MANGLUNKI):

CTF3 was just restarting after the stop for the CLIC workshop. A factor of 4 in recombination efficiency could be achieved with the re-combiner ring.

TI (P. SOLLANDER):

Some concerns are rising about the power consumption of the SPS with the LHC cycle. F. Tarita mentioned that there is a risk of high strain also on the power-cable side. K. Cornelis asked if the problem is only present in BA4 or everywhere. F. Tarita replied that this is more evident in BA4 due to the CNGS extraction. A watchdog has been installed to monitor the power consumption.

K. Cornelis added that it would be good to monitor the consumption during the LHC injection tests during the coming weekend. The consumption was never so high this year since not all the facilities were running. F. Tarita mentioned that the survey will be difficult since the power can be sampled only every 10 minutes. There is however a concern about the price of the power. If the consumption would be too large, a renegotiation with the supplier should be done.

LHC interface with injectors (M. LAMONT):

Beam will be sent down to TI2 on Wednesday evening. Injection tests will be done during the weekend, starting with ions and continuing with the LHCPROBE beam.

The beam will be sent up to IP7 and IP3.

3. Schedule / Supercycle / MD planning

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

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

The schedule of the current week features a dedicated ion MD on Tuesday (advanced from Wednesday) and the LHC injection tests during the weekend.

The ion run in the PS/SPS will finish with the LHC injection tests. LEIR will continue to run until the oven refilling during week 44.

4. AOB

5. Next meeting

The next meeting will be held on Tuesday, October 27th at 10:00 in 874-1-011.
Preliminary Agenda:

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Minutes edited by S. Gilardoni