

Minutes of the 24th FOM meeting held on 01.09.2009

Agenda:

- 1) Follow-up of the last meeting (K. Hanke)
- 2) Status of the machines (Supervisors) - Linac2 vacuum problems (G. Vandoni)
- 3) Schedule (K. Hanke)
- 4) AOB
- 5) Next agenda

1. Follow-up of the last meeting

The minutes of the 23rd FOM meeting were approved.

Open actions from last FOM:

- a) Status of SPS BWS414: it is not clear yet if the scanner is back to operation or not. U. Raich will follow up the problem.
- b) Sampler status in AD: T. Eriksson mentioned that J. M. Nonglaton did minor modifications to the sampler SW, which solved the problem.
- c) RFLLEIR control status: M. E. Angoletta reported that the problem is solved.
- d) Send information to S. Hutchins to complete the list of EIS elements: S. Hutchins reminded to the colleagues to send the information as soon as possible. The file is available in his public directory.

K. Hanke asked, following the failure of the transformer of the PSB extraction, about the status of the TRIG cards. U. Raich will check if they are installed or not.

2. Status of the machines

Linac2 (A. LOMBARDI):

The Linac had no problem until the vacuum break down on Friday. At about 20:40, the vacuum interlock triggered. The vacuum piquet, a specialist and the supervisor found the pumps off and bad vacuum of the order of 10^{-3} mbar in tank2. A leak detection started as soon as a problem with the access system was solved. This delayed the intervention by about one hour and a half and required the intervention of the access piquet. A first leak was identified at the level of the 5th drift tube of tank2. Other leaks were found, but most of them were already known or too small to explain the measured pressure. Differential pumping installed on the drift tube leak did not give satisfactory results. After a second leak detection on Monday morning, a second leak was found on an RF feed. As effective temporary measure, mastic has been installed plus differential pumping. A more definitive installation of the pumping system will be done as soon as possible.

K. Hanke transmitted the thanks of P. Collier to all the colleagues involved in the intervention.

S. Maury mentioned that the vibrations of the building caused by the Linac4 civil works cannot be the source of the problem, since they were always well below the tolerable limits (see the [attached data](#) of the seismogram).

G. Vandoni presented the details of the vacuum intervention (available [here](#)). The leak was very large, of the order of 1 mbar l/s. The already known leaks could not explain the pressure rise. An RF feed was found to be the cause of the leak, which could be temporarily solved as mentioned above. The definitive repair will be done later, while it will be tried to avoid venting the tank. G. Vandoni explained that the temporary fix (“cloche”) will now mechanically be stabilised such that it can stay in place until the next technical stop.

R. Steerenberg asked if the tuner was disconnected and whether the Linac can work without it. A. Lombardi replied that it was already disconnected before the accident.

M. Lamont asked if there is a plan to do a definitive repair of the tank. G. Vandoni replied that this would be a delicate intervention which should be avoided unless absolutely necessary. A. Lombardi added that similar temporary fixes have been put in place at various locations and are stable since many years. E. Mahner added that in 2006 a complete inventory of the leaks was done, and the one causing the current problem was not present. The tanks were not vented since 2001 and it would be wise to avoid venting them if it is not absolutely necessary.

PSB (A. FINDLAY):

The PSB had a good week. Since Monday, tests were done to blow up the transverse emittances using the transverse damper on ring3. The results are not conclusive so far but the tests have only started. On Wednesday, the C04 cavity of ring 2 tripped. The expert changed a set of thyristors, without affecting the beam delivered to the users. One of the shaver power supplies had to be fixed (blown fuse).

Measurements with the BWS were done throughout the. On Thursday, the MPS thyristors of bank5 were changed. On Friday, the extraction transformers were showing wrong values. Apparently, someone removed a 50 Ω termination. K. Hanke mentioned that the renovation of the transformer electronics has been promised for this year.

Once Linac2 was back in operation, beams in the Booster were back on Tuesday at 00:30.

ISOLDE (D. VOULOT):

ISOLDE had no particular problems. A REX run could be completed on Tuesday, and a GPS run started on Thursday.

On HRS, the target could be successfully changed on Friday; the GPS target was changed on Monday.

On Tuesday, tests were done by the vacuum group on the ISOLDE vacuum controls. G. Vandoni explained that some communication problems could be identified and the diagnosis system improved. K. Hanke added that the system will be fully renovated during the 2009/10 shutdown.

On Monday morning, the complete instrumentation of REX failed. All profile monitors indicated too high voltage. This was due to a problem with the control unit that has to be urgently replaced with a new one.

K. Hanke asked if the reason for the failure has been clarified. D. Voulot said that it was not possible to fully identify the source of the problem.

ISOLDE users (A. HERLERT):

Unfortunately, due the Linac2 problem, the users could not get a lot of beam. They had essentially two shifts to do some tests. One run was cancelled.

PS (Y. PAPAPHILIPPOU):

The PS had a quiet week. After the problem of last week with the power converter of BHZ377, it has been agreed with EPC that the piquet will be equipped with the list of the converters for which they are responsible. Moreover, in case of failure of a power converter which is fundamental for operation, the EPC hierarchy will be informed. On Tuesday, the relay gap of a 10 MHz cavity broke down. The repair was postponed to the dedicated MD the following morning. Unfortunately during the night large losses were observed for high intensity beams due to instability driven by the open relay gap. The LLRF expert tried to find a fix, but finally the intensity had to be reduced. On Wednesday, a dedicated MD was done to measure the proton and ion injection optics. The beam was given back to the users at 17:00. Shortly after, SMH57 tripped with a too high RMS current. The reason is not understood, since the supercycle composition was the same as before the MD. After a discussion with the expert, the pulse length of the septum was reduced.

Since Friday, there was no beam in the PS because of the change of the lead ion source and the proton Linac failure. The ions could be back on Monday, but their delivery to the SPS was delayed due to a problem with BHZ377.

S. Gilardoni mentioned that the MTE status has been recently reported to the IEF and the MSWG.

East Area (H. BREUKER):

No particular problems.

East Area Users (H. BREUKER):

In T9, OPERA bricks were installed for calibration. Most of the data could be taken before the Linac2 failure.

On T10-T11 there were no users.

AD (T. ERIKSSON):

As mentioned, the problem with the overloaded DSC has been solved by changing the SW of the samplers. During the week, FirstLine had to intervene many times to fix problems in the transfer lines. The restart after the dedicated PS MD was delayed by a problem with the electron cooler. On Friday, the orbit measurement was unavailable due to two broken power converters. Also on Friday, record intensity was achieved with $4E7$ pbar delivered on average over 24 hours. A planned leak detection in the DM zone could not be done due to the Linac2 problem.

After the restart of Linac2 the beam was available only at 2:00 AM due to a problem with the stochastic cooling.

AD users (H. BREUKER):

The users were waiting on hold during the Linac2 problems.

NTOF:

nTOF had no particular problems. After the increase of the radiation shielding the intensity on target could be increased (agreed by RP). The total intensity delivered is approaching the predicted value.

SPS (J. WENNINGER):

The intensity delivered to CNGS is 7-10 days ahead of the theoretical curve. On Friday, attempts to increase further the protons on target were done. On Thursday, the ion beam could be accelerated for the first time up to 450 GeV/c proton equivalent. The beam is still unstable, and tunes and chromaticity still need to be corrected. The problem for the LHC rephasing was solved. Tests with the fast scrapers were done and proved that one can scrape the LHC beam without touching the CNGS beam.

Two attempts were made to inject and accelerate MTE beam from the PS. During the first test, a large mismatch at injection was caused by a badly programmed quadrupole in TT2. During the second test, the injected trajectories were found to be unstable, probably due to a fluctuating kicker in the PS.

CNGS (E. GSCHWENDTNER):

Nothing to report.

SPS North Area (H. BREUKER):

No particular problems.

North Area users (H. BREUKER):

On H4, the COMPASS run suffered from the Linac problem and it has to be re-scheduled.

On H8, the tuning of the line for AMS could not be done, and the line expert is now not at CERN.

COMPASS moved to negative pions.

LINAC3 (A. LOMBARDI):

The source had to be retuned on a daily basis to maintain stable intensity. There was a problem with the RF of tank1 and a quadrupole of the filter line. Both problems were solved and now the intensity is expected to increase.

LEIR (D. MANGLUNKI):

Apart from frequent trips of the power supply of a quadrupole in the LINAC filter line (ITF.QFN06), LEIR has been running without major problems all week, delivering the EARLY beam regularly to the PS for SPS RF recommissioning during day time. During the nights, the machine has been set up to execute long flat "scrubbing" cycles, monitored by the SPS operations team.

The machine was partially stopped on Friday at lunch time for the refill of the Linac3 ion source; only the main magnet and one RF cavity were kept cycling during the afternoon for RF tests. During the weekend the machine was stopped.

The machine was restarted on Monday morning and beam was back around 15:00 once the Linac3 rf problems had been solved.

PS ions (D. MANGLUNKI):

The EARLY beam has been delivered on a regular basis.

On Wednesday during the dedicated MD, optics measurements were taken on the EARLY beam. The optics of TT2 could not be checked yet.

S. Hancock mentioned that the NOMINAL beam is ready on the RF side.

SPS ions (D. MANGLUNKI):

The first acceleration to 177GeV/u was done on Thursday evening.

On Friday, no beam was taken due to the problem with the tank1 of Linac3. Beam operation could be resumed at 19:00 on Monday after the problem with the Linac3 RF, the mentioned problem with the BHZ377, and CO/RBAC problems.

Currently, the main issue is before injection (from CO or low level), when sometimes the wrong frequency is distributed.

All available days are needed for setting up, in particular Tuesday, Wednesday and Friday of the current week and Monday, Tuesday, Wednesday and Friday next week.

K. Hanke asked if the commissioning is on schedule. D. Manglunki replied that there are some delays.

CTF3 (D. MANGLUNKI):

CTF3 operation was hampered by a number of technical problems.

- Tuesday was lost for recovery after thunderstorm, also a water leak on a DL magnet (DL.QFF0290) and a false temperature interlock on a dipole magnet had to be fixed.

- Wednesday there was access until 3pm for colleagues from LAPP (Annecy) to fix the malfunctioning TL2/CLEX BPM system

On Friday there were severe temperature, flow and pressure fluctuations on the water station for the RF pulse compression system.

The repair of the water station was scheduled for Monday. The problem was caused by the almost blocked main water filter of that station, the filter was cleaned and the station became operational again at lunchtime.

TI (P. SOLLANDER):

No major problems.

3. Schedule / Supercycle / MD planning

The 2009 schedule (V3.5) is available at:

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

On Wednesday of week 39, during the dedicated PS MD, there might be a SPS magnet change, which will take more than 8 hours.

E. Metral mentioned the possibility to use week 41 to continue to ion setting up. S.

Maury added that this should be scheduled in agreement with the BI interventions in the ion injector chain.

K. Kostro added that there will be a database upgrade plus some upgrade of Java packages on Thursday

4. AOB

A. Bland mentioned that a series of reboots of all the Linux machines at CERN is ongoing to deploy a Linux patch. This patch fixes a bug in the REDHAT release which would have allowed any user to log in with root privileges. Also some FECs have to be rebooted.

The problem with RBAC reported in the SPS was also due to this series of reboots.

D. Manglunki added that, even if RBAC has been declared not deployed in the injectors, there were few occasions when RBAC was blocking operation. A. Bland replied that some new applications cannot avoid including RBAC and some groups are deploying it (e.g. BI or EPC). R. Steerenberg added that a discussion is ongoing to try to make this silent use of RBAC transparent for operations. The idea is to have an automatic RBAC token.

5. Next meeting

The next meeting will be held on Tuesday, September 8th at 10:00 in 874-1-011.

Preliminary Agenda:

- Follow-up of the last meeting
- Status of the machines
- PS bus-bar fault, PS-MPS problem (tbc)
- Schedule
- AOB

Minutes edited by S. Gilardoni