Minutes of the 3rd FOM meeting held on 22.01.2013

Agenda:

1) Follow-up of the last meeting
2) Status of the machines
3) Schedule
4) AOB
5) Next agenda

1 Follow-up of the last meeting

The minutes of the 2nd FOM meeting were approved.

Pending actions:

RP irradiation limits during operation in view of the LS1.

J. Vollaire explained that the B alarm level of the radiation monitor PAXS51 has been lowered to 2.5 μSv/h (as compared to 10 μSv/h during the 2012 run). It has been agreed with S. Gilardoni to use the threshold on the radiation levels on route Goward to limit the beam intensity for MDs in the PS. In parallel, RP will monitor the activation in the PS using the activation monitors (PMIs) installed inside the machine and will inform OP in case of abnormal radiation levels. The action has been closed.

Regarding the MD foreseen by RP to validate the Switchyard mode of operation (see 1st FOM minutes), in order to limit risks, the plan is to repeat the MD, which took place in the 2000. The report of that MD can be found in:

https://espace.cern.ch/be-dep/FOM/Presentations 2013/Forms/AllItems.aspx

Linac2 (R. Wegner):

On Tuesday morning, the electric glitch had an important impact on Linac2 (vacuum, cooling and RF had to be recovered, EPC piquet intervened on several power supplies and a tunnel access was needed to unblock a drift-tube water flow meter).

On the Tuesday afternoon a number of power supplies (LT.BHZ30, LTB.BHZ40, LA1.QDN21S) failed again although they had been OK after the power glitch in the morning.

On Wednesday and Thursday the vacuum valve LI.VVS10 closed (it was opened by PSB-OP). On Sunday the vacuum valve LI.VVS20 closed (it was opened by PSB-OP).

On Monday the LA2.VRPA1A power supply went off. The vacuum piquet was informed and fixed it.

Linac3 (R. Wegner on behalf of D. Küchler):

The downtime on Tuesday after the electric glitch was used to refill the oven.

On Wednesday the source had to be reset after a microwave interlock.

The rest of the week, Linac3 run stably as desired.

K. Hanke asked if the oven refill has been rescheduled. D. Manglunki answered that it will take place on Wednesday 30th January as originally scheduled. He added that it has been agreed to use first ion beam for the quench test on 11th and 12th February, so that the source can be switched off, most likely, on the 11th afternoon without needs for an additional refill.

PSB (B. Mikulec):

The PSB took quite a long time to recover from the power glitch on Tuesday morning despite the effort of many specialists. Beam was back in the early afternoon (~5 h downtime). In the afternoon a remaining problem with a R4 quadrupole at injection (BI4.QNO60) had to be solved before completely recover the machine status before the glitch.

On Tuesday evening the EPC piquet was required to change an auxiliary power supply for a Linac2 bending (LT.BHZ30) that led to a source interlock and to a R2 multipole reset (~1.5 h downtime).

On Wednesday morning the samplers of transformers and pickups were not acquiring properly. The CO piquet observed that there were too many subscriptions on the crates, but even a reboot of all workstations did not help. Finally the culprit was found: a test program running on the INCA server saturated some frontends. After stopping it, the problem was solved.

On Friday, A. Findlay tested the induced voltage of a high-intensity beam with the new relay gaps (installed for testing purpose in R2). These tests were very successful; therefore the relay gaps of the other rings will be replaced during LS1.

On Saturday, a couple of resets of the extraction bumpers and the R3 distributor were needed.

During the last FOM (2nd FOM), problems have been mentioned with the production of the proton beam for the LHC. The beam had been carefully set up before Christmas, but never came back to those characteristics after the short winter break. Severe intensity fluctuations for this low-intensity beam were one of the symptoms. One workaround that was proposed was to inject at constant (higher) intensity in the PSB and shave down the beam in the SPS. On Thursday afternoon the SPS complained about transverse tails for this beam, which are always present in such low-intensity longitudinally shaved PSB beams. Therefore it was tried

to inject even higher intensities and shaved those vertically in the PSB. This allowed reducing significantly the tails and proved also to be nicely stable in terms of extracted intensity. This beam is now being taken by the LHC.

S. Hancock asked if the resulting beams were round. D. Manglunki answered that this is not the case in the SPS. M. Lamont commented that in the LHC the proton beam performance is not degraded. R. Steerenberg proposed to use coupling in PS to adjust the beam aspect ratio. B. Mikulec commented that this could be a practical solution. K. Hanke commented that the source of the problem may be related to the composition of the PSB super-cycle (much different with respect to the one of 2012).

LEIR (M. E. Angoletta):

It was a good week for LEIR.

The machine recovered relatively quickly from the electric glitch on Tuesday morning. The specialist restarted the electron cooler. The MIL1553 problem came back but was cured by the EPC, CO piquets and the CO expert in the shadow of the Linac3 source refill. The LEIR transverse damper had some problems to restart.

Beam was back by the late Tuesday afternoon and has been mostly available since then. Occasionally the main magnet went down (likely owing to a change in the supercycle) and needed to be restarted. The intensity from Linac3 sometimes is drifting hence requiring the adjustment of the frequency offset reference function in the LLRF (to improve the capture by compensating the different effect of the electron cooler on the beam).

Some MD time was dedicated to study the beam losses in NOMINAL at the beginning of the ramp and to improve its longitudinal parameters.

PS (J. Wozniak):

It was a relatively good week for the PS despite the major electric glitch and a water leak.

On Tuesday morning the power glitch caused problems for 6 h that continued till 15h00. Various equipments had to be restarted due to that. In the night the linacs caused issues for around 2 h.

On Wednesday morning, PS had an access for a faulty amplifier on cavity 81 that lasted 1 h 15.

There was also a water leak in the PS on Friday afternoon causing around 4 h of downtime.

The weekend was calm with no disturbances.

On Monday morning, POPS tripped due to a problem on the programming of the magnetic cycle.

Regarding ions, there was a problem to a cavity (frequent trips). It was discovered afterwards

to be due to a dispersion measurement in TT2.

J. Wozniak asked about the TFID problem situation. T. Bohl reported that the issue is under study.

R. Steerenberg added that the mean radial position of the PS beam is converging slowly to the nominal value. A possible explanation is related to the thermal deformation of the concrete beam on top of which the PS stands: the excursion of the tunnel temperature during the stand-by period could have affected its geometry. This problem was visible only during this year restart due to the higher sensitivity of the ions to the machine geometry.

SPS (E. Gschwendtner):

The major event of the week in the SPS was the electric glitch on Tuesday morning, which affected all accelerators. After the decision to advance the ion source filling during that day, SPS tried to provide protons for the dedicated MD scheduled on Thursday (coasts). The SPS was ready for beam at around midday, but the protons came back at 15h00 and, after less then 1 h, ions were available and finally the MD was cancelled. The only worrying problem apparently related to the power cut, was that a sextupole (LSDB) was found off later in the evening without any alarm or BIC interlock. The interlock was tested afterwards and worked. R. Wegner added that similar malfunctioning took place in Linac2. An action for the interlock expert (M. Zerlauth) has been opened.

On Thursday, the 12 injections cycle for ions was set-up (orbit, tune, chromaticity and LLRF) with good performance (1.5e10 ions/bunch, with 0.8 μm rad emittance) and finally delivered to the LHC on Sunday night, along with an improved version of the 12 injections proton beam coming from the PSB, with much smaller emittances (< 1 μm rad in both planes).

Regarding the active filter problem of last week, it was found that no critical pulsed SPS power supply is associated to it. In this respect, the LHC 50 ns should be able to be extracted for the BI tests in the LHC at the end of run and a test will be done in the SPS next week to confirm it.

North Area (A. Fabich):

On H2, NA61 is taking data with 20 GeV/c/u since last week. The data taking rate reduced significantly in the beginning of the week due to LHC fillings. Next week or at the end of this week it is planned to change the primary ion momentum (from 52 GeV/c/Z to 82 GeV/c/Z). H. Breuker added that it was asked not to change the energy during the weekend.

On H8, Medipix is running smoothly.

LHC interface with injectors (M. Lamont):

The week was mostly spent to commission the proton-lead run. On Sunday LHC went into stable beams after a long week.

The injection process has still to be tuned. The ion bunch intensity is three times higher than nominal.

S. Hancock asked when the proton bunch intensity has to be increased. M. Lamont answered that the intensity increase will be adiabatic and added that 50 ns proton beam will be asked at the end of the run for BI test.

CTF3 ():

There was no report.

TI (P. Sollander):

Apart from the Tuesday power cut, there were some communication problems on the LHC network (IT switch down in LHC4).

2 Schedule / Supercycle / MD planning

The next ion source refill is still scheduled on Wednesday 30th January.

The 2013 schedule (V1.3) is available at:

https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/LHC_Schedule_2013.pdf

All planned interventions for the injector complex are available via IMPACT at:

http://impact.cern.ch

3 AOB

A. Bland informed that tomorrow (23rd January) a SPS console would be updated (shell and Java version update). This will serve as test for the control maintenance scheduled at the end of March 2013.

K. Hanke informed that during next FOM (4th FOM, 29th January), S. Baird will present the piquet requests during the powering tests period.

4 Next agenda

The next meeting (4th FOM) will be held on Tuesday, 29nd January at 10:00 in 874-1-011.

Preliminary Agenda:

1) Follow-up of the last meeting
2) Status of the machines

3) Schedule

4) Piquet requests during powering tests period (S. Baird)

5) AOB

6) Next agenda

Minutes edited by G. Sterbini.