

Minutes of the 2nd FOM meeting held on 15.01.2013

Agenda:

- 1) Follow-up of the last meeting
- 2) Status of the machines
- 3) Schedule
- 4) IT activities during LS1 (S. Lueders)
- 5) AOB
- 6) Next agenda

1 Follow-up of the last meeting

The minutes of the 1st FOM meeting were approved.

Pending actions:

ISR8 door and cooling of TOF target. K. Hanke reported the problem to the IEFEC. All the measures to solve the issue were or are going to be put in place. The action is closed. K. Hanke added that, during the IEFEC, P. Collier acknowledged the rapid restart up of the CERN complex during Week 2.

2 Status of the machine

Linac2 (M. O'Neil):

It was a quiet week for Linac2.

There was a problem on the VISTAR: even if the beam stopper was in the “in” position, the VISTAR was not showing the correct status.

There was a power cut at CERN on Saturday evening around 19h15. After the power cut the Linac2 was restarted without problems.

A second power glitch occurred today morning (Tuesday 15th): at the moment of the FOM meeting Linac2 was recovering from the glitch.

Linac3 (M. O'Neil on behalf of D. Küchler):

On Wednesday morning the source went in HT shutdown mode but after a local reset the beam was back. In the afternoon the beam current transformer problem (negative baseline) was solved (it was due to bad contact of a timing cable). The RS4222 problem was solved too by rolling back the software version to one from the beginning of December 2012 in cfc-

351-rpow.

On Thursday BI continued to work on the transformers.

On Saturday the source and the Linac3 had to be restarted after the power glitch.

On Sunday afternoon, the beam intensity decreased and the supervisor had to intervene.

On Monday morning, due to low beam intensity, the supervisor intervened again.

During the whole week there were 16-18 μA on TRA25. In case of problems the linac supervisor (and not the source specialist) has to be called. Due to the power cut occurred this morning, it was decided to refill the oven today (Tuesday, 15th January). The next oven refill may therefore be re-scheduled as well.

M. O'Neil asked until when the ions have to be available. M. Lamont answered that the ion run will stop on the Wednesday 13th February at 06h00.

K. Hanke asked to G. Rumolo details about the dedicated MD planned during the oven refill. G. Rumolo answered the dedicated MD was anticipated to today (Tuesday, 15th January) and it will use the 120 GeV coast proton beam.

PSB (A. Findlay):

It was a typical start-up week for the PSB.

The beams came back into the machine without too many problems, but closer observation showed that some cycles did not meet last year specifications. LHCINDIV, LHC50ns and some MD cycles needed a minor tuning to improve intensity and emittances.

The main problem was related to the longitudinal emittance LHC4RINGPROBE. The measured longitudinal emittance was 0.04 eVs (30 ns) in place of the required 0.2 eVs (70 ns). It appeared that the injection was significantly better for this cycle, and hence more longitudinal shaving was required to get the desired intensity. This reduced the emittance too much. J. Sanchez re-worked the voltage functions to re-establish the correct emittances and intensities. This produced a shot-to-shot intensity jitter that PS could not accept. S. Hancock and H. Damerau suggested performing the shaving and blow-up in the PS. This was how PS is operating at the moment. All parties are informed that PSB is working at fixed intensity of 1-1.2E10 ppb and, if more is required, the LLRF piquet would help with the intensity adjustments in the PS. Work to restore the original LHC4RINGPROBE cycle to its 2012 performance will continue next week.

After the Saturday power cut, the operators did an excellent job, although they required the much-needed services of the HLRF, LLRF, EPC piquets, to get the machines back into production. Beam was back in R4 at 22H30.

LEIR (S. Pasinelli):

The week was calm until the Saturday power cut. After the power cut LEIR went in an intermediate state (not completely OFF neither completely ON).

The “reset-on” on the power supplies in fault was enough for the majority of them. The major faults were on the electron cooler, the circuit breaker on ITE.BHN30 and the damper. The specialists had to intervene.

The EPC piquet changed the circuit breaker on ITE.BHN30. A. Findlay help the supervisor to switch on the damper. After several attempts to reach an electron cooler specialist, A. Frassier gave to LEIR OP the procedure to switch it on.

Beam was back Sunday at 01h20. After the tuning of the machine, LEIR reached the nominal values at around 01h45.

K. Hanke asked the status of the 1553 bus problem. S. Pasinelli answered that at the moment 5 devices are still suffering from it, but there was not time to study the problem in more details. Investigations will take place next week.

PS 0:

A. Guerrero sent an email after the FOM meeting:

“The restart of the PS machine was done fairly quickly with only minor issues.

On Monday the centre ring cooling station and POPS were ready in the afternoon and both ions and protons could be injected as soon as they were ready in LEIR and PSB.

The beam could not be extracted until Tuesday morning due a power supply problem in the extraction bump 16-22.

The rest of the week was mainly dedicated to the set up of the LHC PROBE, LHC INDIV and 200 ns beams. The LHC INDIV and LHC_200 ns beams are not yet considered as operational, work on the longitudinal plane is on-going mainly due to the difference in the capture in the PSB with respect to last year. As requested by the LHC the proton beam was set-up to provide $1-1.2E10$ ppb during the week-end. On Saturday and Tuesday the PS suffered as all other machines from a power cut and a power glitch. On Saturday once the machine was back to work the beam had to be stopped around 3 h due to a problem with ARCON.”

S. Hancock added that the shaving/blow-up procedure put in place in PS to reduce the beam intensity jitter needs further refinement and proper documentation for the PS OP team.

Concerning the ions, PS is in good shape but there is zero or negative margin in the longitudinal plane. In this condition would be difficult to accept higher intensities. D. Manglunki observed that the LEIR intensities would not increase in the next days.

SPS (B. Salvant):

It was a very busy week for the SPS operation team, with a quick restart after the Christmas stand-by period (beams delivered to NA61 on Thursday afternoon and to LHC as soon as it was ready on Friday) and a cascade of issues caused by the failure of the SPS active filter on Saturday evening.

The currently available beams are the fixed target ion beam for NA61, proton and ion pilots for LHC, proton LHCINDIV for LHC and parallel MDs, as well as the 200 ns proton beam for LHC.

On Tuesday, the main power supply was not yet available since the intervention approved for the TS in week 51 was only completed on Tuesday afternoon. Right after the mains were available, the beam was taken in the SPS and longitudinal and transverse setup was performed on the Fixed Target cycle for NA61, LHC pilots and LHC INDIV.

On Wednesday, a survey of TT10 was initiated as cracks and deformations had been observed in the ceiling and roof of the tunnel. D. Macfarlane added that the TT10 problem is severe and solutions are under study.

The EPC piquet was called for problems on two power converters in TI8. It was also decided to use a short flat bottom cycle with a small ramp (MD2) in front of all beams instead of the CNGS cycle as this cycle can be used for parallel MDs and it reduces power consumption.

On Thursday, a matrix change was performed on the access system for the North Area and a circuit breaker issue on a TI2 power converter was solved by the EPC piquet. The RF transmitter TRX2 tripped many times on Thursday and Friday.

On Friday, the 200 ns proton beam for LHC was tested and an emittance issue was solved by the operators during the night. An intervention to replace an MKE4 switch cut the beam for all users for 2 h. The specialists had to wait on stand-by for 2.5 h the LHC pilot injection to launch the intervention. During the afternoon, the LHC requested ions. Issues with the first bunch error of the BQM were investigated by the RF team, as well as issues with annoying TFID messages sent by the MD2 cycle to the PS logbook. This latter issue was not solved and should be addressed again this week. Finally, the intensity for NA61 was suddenly reduced by 50%: it was found out that a BTV in TT20 went in without explanation.

On Saturday, NA61 physicists asked to have more space between injected batches and reported to notice a 50 Hz structure in the spill.

At 19h15, a failure of the SPS stable filter triggered a CERN-wide electrical glitch and required the intervention of the fire brigade. This glitch caused several trips and the SPS operators needed to call many specialists and piquets: CV to restart cooling circuits, access piquet, RF power as the cavity cooling was down, the septa piquet to restart the ZS, the EPC piquet to restart the mains, the kicker piquet for MKE4 and MKP, and EN-STI for target fans. By 22h45 most equipment was back, but to restart the RF, the EPC piquet needed an access and could go in at 00h15, only after the access system was temporarily fixed by the access specialist. The cavity cooling was restored at 01h00 and the 200 MHz cavities were fixed.

Since the active filter could only be repaired this week, it was decided to try and pulse the mains without the active filter and observe if the SPS could hold the various cycles for the NA61 and LHC, which it did. Beams could be injected at 02h30 on Sunday morning and all were tuned back by 07h00 (except LHCION2 which was tried on Sunday afternoon as it was the most demanding cycle in terms of power).

An energy tracking fault on the MKD dumped the beams and was solved by the kicker and EPC piquets who replaced a monitor for the main bends current that was sending a wrong value.

The Schneider intervention to replace the filter will require cutting the beam for decoupling before the intervention on the filter and recoupling afterwards. In the present condition SPS can handle all the requested beams except the high intensity 50 ns for LHC. The specialist confirmed that more than 1 day is needed for repairing the filter and at the moment all is set for the intervention but the intervention itself is not yet scheduled.

T. Bohl added that during the week there was a problem of timing (1 h perturbation) and it was due to a noise problem on the SPS phase loop.

B. Salvant pointed out that the energy of the injected beam is drifting during the day and SPS need to be re-adjusted. S. Hancock commented that the PS beam radial position is larger than usual. In a first time this was associated with thermal effects, but after a week of operation this hypothesis has been almost discarded. If the problem persist it will be addressed more carefully.

S. Hancock asked about the TFID issue (occasionally there is no signal TFID signal). T. Bohl answered that is currently on the hands on the control specialists.

Regarding the ions, the setting up is going on.

North Area (H. Breuker):

NA61 is currently taking data with the beryllium beam. On Saturday the magnet went down and some nitrogen was released.

H8 (Medipix) was scheduled for Monday 14th January, but it is not yet ready.

A. Fabich sent an email before the FOM:

“[In the North Area the]:

1. [the] beam is set in H2 (aiming for Beryllium at 33 GeV/c/Z) and steered to the needs of NA61.

2. [the] beam is set in H8. First user is Medipix.”

LHC interface with injectors (M. Lamont):

The week was spent for a general check-out and re-commissioning for the proton-lead run. Cryogenics was back on Thursday 10th evening. The electrical perturbation generated by circuit breaker on SPS active filter impacted significantly on the LHC. The machine was back in business late Sunday evening after repair/replacement of 2 UPS in sector 78. The squeeze is now commissioned.

CTF3 ():

There was no report.

TI (P. Sollander):

The week was dominated by two main electric problems.

On Saturday at 19h15, a failure of the SPS stable filter in BE9 triggered a CERN-wide electrical glitch and required the intervention of the fire brigade.

This morning (Tuesday 15th) a short circuit in the North Area produced another glitch. An 18 kV breaker exploded: some work will be needed to repair it.

3 Schedule / Supercycle / MD planning

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>

Next refill of the Linac3 oven has to be rescheduled.

4 IT activities during LS1 (S. Lueders)

S. Lueders reported about the Computing and Network Infrastructure for Controls (CNIC) interventions foreseen during the LS1 to consolidate the technical network (TN) security. The goal of the presentation is to inform about the impact of these interventions and to have input from the FOM regarding the best schedule strategy.

The slides can be found at:

https://espace.cern.ch/be-dep/FOM/Presentations_2013/Forms/AllItems.aspx

In the presentation all the foreseen interventions are listed. All interventions should be transparent for the machine operation apart three:

- 1) Disconnection of the TN from the “office and IT centre network” to intercept and eliminate all possible dependencies. It is not possible to figure out the impact of it

since the aim of the test is to define this impact.

- 2) Change of weak DB passwords used in BE/CO applications. If there are applications that continue to use the old passwords, the DB will block all accesses.
- 3) Resume networks scans on the TN including PLCs. This could block some PLCs.

Regarding the first point, two interventions are required (at the start and at the stop of the LS1). D. MacFarlane and H. Breuker pointed out that the second intervention (tentatively scheduled for September 2014) will need to be rescheduled as it will have an impact on operation. D. Manglunki added that CTF, Linac3, ISOLDE will continue their activities until May 2013.

P. Sollander suggested using the TIOC, IEF3 and/or LMC as communication channels. Information will be also communicated through the FOM mailing list during the period where there are no FOM meetings.

A. Bland proposed to do the first part of the dependencies test between 10h30 and 12h00 of Wednesday 27th March (end of the three scheduled three days control maintenance). The FOM meeting endorsed this proposal.

Regarding the networks scans (third point), P. Sollander suggested to scan the PLCs only during working hours to have prompter interventions in case of problems. The FOM endorsed this proposal.

5 AOB

K. Hanke reported that S. Baird asked to extend all the piquet service during the powering test period (up to the 1st April). More details will follow in the next FOM's. K. Hanke reported the PS OP asked precise directives from RP regarding the irradiation limits in view of the LS1.

J. Vollaire sent an email before the FOM meeting on this subject saying he will discuss the topic during the next FOM. An action has been opened.

6 Next agenda

The next meeting (3rd FOM) will be held on Tuesday, 22nd January at 10:00 in 874-1-011.

Preliminary Agenda:

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Minutes edited by G. Sterbini.