Minutes of the 14th FOM meeting held on 23.06.2009

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 13th FOM meeting were approved.

Open actions from last FOM:

a) the name server upgrade has been transparent to operation;

b) the problem with the BTY.BHZ301 has been partially solved. An interlock has been fixed which avoids sending the beam to a wrong ISOLDE target. However, the reason for which the power converter sometimes goes to local has not been found yet;

c) the calibration of the extraction AD transformer has not been done yet;

d) R. Steerenberg is defining with CO the list of critical FECs to redefine the alarm priority for LASER. The priorities will be redefined per machine. CO is still investigating why some alarms are not shown by the consoles but archived in the database. This is probably due to a wrong configuration of the consoles;

e) the OP wiki web pages are again available. The data have recovered from the old web pages. The new pages will use the standard WIKI page from IT/CO;

f) the investigations about the PS RF bypasses are still ongoing. H. Damerau added that cables have been connected to the RF bypasses to monitor the induced signals. Unfortunately, the signals are lower than expected. The reason has not been understood yet;

g) the transverse PU of the AD stochastic cooling blocked again few times. M. E. Angoletta added that the power converter is pretty old and T. Eriksson said that it is planned to renovate it as part of the AD consolidation program.

2. Status of the machines

Linac2 (G. BELLODI):

The LINAC operation had no particular problem, apart for the general power cut. The only problems for the recovery were related to the control of the timings and a vacuum gauge which had been replaced.

PSB (J. TAN):

On Tuesday morning, BTY.BHZ301 passed again in local mode. On Wednesday, the MPS was cut twice by the experts to do some testing of the thyristors. Since this perturbed too much the

SPS MD, the tests could not be completed. On Thursday, the power cut put the entire complex off for about 12 hours. During the night, basically all the piquets had to intervene to restart the different equipments. The users were affected by the power cut, since the beams after the restart required some fine-tuning.

The beams were back within specification for the weekend. On Monday afternoon, one hour and a half was lost due to the access for the repairing of the SEMGRID. The beam for the SPS impedance measurement has been prepared.

ISOLDE (M. ERIKSSON):

The GPS had been running all the week without any particular problem. The target was changed on Monday. The major issues were related to the power cut. For HRS, the REX-MINIBALL run was smooth until Thursday, when the power cut put the entire facility off. The main problem, for which the HRS could not be restarted yet, is related to the vacuum controls. The system is quite old and not CERN standard. The number of experts is very limited and the priority for the support is very low. K. Hanke added that there is no piquet service for the ISOLDE vacuum and the knowledge of the system is very limited.

A lot of equipments for the restart have been left in local mode, bypassing the safety protections. The PLC for the control of the automat for the recuperation of the exhausted gas went off after the power cut. The PLC has a battery which died, most probably due to a lack of maintenance. The PLC program went off and it was not possible to restart it. The two vacuum control experts are on holydays, and two colleagues for the vacuum group not expert in controls came in to try to solve the problem. Finally, the balloon system could be put back in operation but most of ISOLDE is still down.

The GPS front end is fully protected. User runs have been cancelled, and the next run could be done on GPS.

K. Hanke stressed the fact that the missing support from the control experts for vacuum was the main reason of the stop of the facility. Most of the hardware is now in good condition, the RFQ and REX could be restarted without any problem. K. Hanke added that a better policy for the vacuum control support has to be defined, since the system is planned to be replaced for 2009/2010, but until then a solution has to be found to avoid physics run cancellation. The specialist for vacuum will be back only the 6th of July and the users will be waiting for beam before then. M. ERIKSSON and K. HANKE wanted to express their gratitude to the other colleagues from the vacuum group that, even not being experts, intervened trying to get the vacuum control working.

ISOLDE users (J. VAN DE WALLE):

The users had some physics before the power cut, during which REX showed to be very stable.

PS (G. METRAL):

On Tuesday, BI had to intervene to repair the measurement of the radial position. In the meanwhile, the PU45 showed signs of interference generated by the KFA45. This could be related to a bad RF bypass. All the RF bypasses will be checked during the next technical stop. During the SPS long MD, the LHC25 beam with 72 bunches gave sign of instabilities in the SPS, which might be related to electron clouds in the PS. Verification with the WCM00 on the last turn before extraction showed no sign of instabilities as the screens in TT2. The signal of the PU in TT2 showed a first sign of instability, however the bandwidth of OASIS is too low to have

a good observation. On Wednesday, with four consecutive LHC25 cycles, the low energy quadrupoles tripped few times. The specialist found that a fan of one of the power converters was not mounted correctly, causing an increase of temperature. The LHC beam was lost a few times at extraction due to a wrong synchronisation frequency sent by the SPS. It was found that two RT tasks were in conflict in a DSC, producing a wrong SPS injection frequency.

On a few users, the programming of the working point at low energy has been found not coherent with the programming of the low energy quadrupoles. On Wednesday, a long CNGS cycle has been implemented to simulate a cycle in case of failure of the MPS and the PS is fed by a SPS transformer. Beam could be accelerated and extracted to D3. On Thursday, the same type of MD has been repeated for the LHC beam, with a 5 bp long cycle. Some limitations on the timings, in particular for the BLM acquisition, have been found. On Friday, after the power cut, the PS restart was delayed by a problem with a network router in Meyrin. Since the piquets were already intervening on other machines, the equipment experts were called in. The restart of the MPS was somehow problematic, since 2 FGCs, the operative plus the spare for the MPS control, were not working. A third one was installed and finally worked. However, the magnetic cycles had to be reprogrammed manually. For the future, a procedure to automatically reprogram the FGC should be available. All the beams could be back quite soon, except DIRAC. One of the vacuum valves was found closed, with the controls accessible only via the DIRAC control room, which was closed.

On Friday, one of the BWS remained blocked in the beam and the specialist had to intervene. Also on Friday, BI put back in operation the measurement of the radial position. During the weekend, BWS measurements have been taken to validate the calibration up to +- 50 mm. On Monday, an access was necessary to repair the SEMGRID in TT2. The transverse damper used to measure the tune was found with a water leak. The energy matching between the PS and PSB was corrected to have 8614 G in the PSB and 1012.6 in the PS. This was important for the injection of the second batch of the LHC beam. Tests were done of the automatic tuning of the 40 MHz RF cavity. I. Floret added that during the access, the doses in the BT, BTM, TT2 and in the PS were larger than the ones recorded after the stop last year. In fact, this is probably due to the large intensities delivered by the PS. S. Hancock added that it is not yet sure that the failure of the RF bypass caused the vacuum leak of last week and that the crosstalk between PU45 and the injection kicker is always there as the interference propagates INSIDE the vacuum chamber.

East Area (L. GATIGNON):

The users could profit of the parasitic beams during the long MD block. All the users were back after the power cut. The elements in the T7 line were found on, even if the line is not used since long time.

East Area Users (H. BREUKER):

Users are happy.

AD (T. ERIKSSON):

On Wednesday night, the Btrain stopped working. This was due to a broken pulse repeater. The power cut put all the AD off apart the C02 cavity. Unfortunately, due to a bad manipulation done by an ATRAP user, a large water leak sprayed the ALPHA experiment, in particular a rack containing about 30000 channels. Fortunately, there was no power on the rack. On Friday, ASACUSA had a large water leak spraying again ALPHA. A MWPC, plus a magnet and a wire chamber were flooded and probably the wire chamber has been damaged. The AD recovered

from the power cut by Friday at 22:00, but then the synthetic Btrain stopped working, due to a broken contact on a card, found at 6:00 AM on Saturday. Then, the extraction was not working due to a bad RF signal from a pulse repeater. Since then, the intensity of the primary proton beam from the PS was initially low, but increasing. In total, there were 52 hours of downtime plus 12 hours lost due to the stochastic cooling pick up blocked. The operation was good also thanks to the operators in the CCC. AD received beam during the MD block.

AD users (H. BREUKER):

The experiments are taking beam. ALPHA could recover so far about 50% of the damaged channels from the flooding, and they are optimistic to recover all of them.

NTOF (V.VLACHOUDIS):

The reception of the cooling and ventilation system has been done. The pressure in the primary zone is about 40 Pa. The dose in the area is 0.2 μSv, below the 1 μSv required. In fact, investigations are ongoing to decide if the pressure has really to be decrease or not since the dose is already low. In any case, a better sealing will be implemented. Discussion with RP are ongoing to grant the access to nTOF even when the PS is delivering beam to the SPS, since the dose is so low. The new electronics for the nTOF transformer is performing well. The line trajectory is going to be calibrated to improve the neutron flux. R. Steerenberg added that the proton intensity has been increased and the parasitic TOF beam on the EAST cycles is available. An intervention in the tunnel is needed to improve the wall sealing.

SPS (K. CORNELIS):

A long MD was done between Monday to Friday. The first MD was about the electron cloud studies, but everything was dominated by the out-gassing of the new electrostatic septum and kicker. Then, the setting up of the UA9 beam with the machine in coast was done. The physics restarted on Friday, with good efficiency. H. Vincke asked if the vertical bump applied to reduce the losses at the damaged dipole is effective. K. Cornelis replied that no losses are observed on CNGS whereas small ones are present during the SFTPRO slow extraction. The magnet will be change the 1st of July since the vacuum pipe is mechanically damaged.

H. Breuker added that the beam setting up and the foreseen data taking of UA9 could not be finished due to the power cut. The experiment asked for an extra-day of MD in July.

CNGS (E. GSCHWENDTNER):

Good running. During the long MD, the horn filters have been changed.

SPS North Area (L. GATIGNON):

After the power cut and the long MD, beam could be delivered on Friday morning. Unfortunately the BA81-82 junction crates were down. Compass and NA62 had beam only late on Friday. Then a TAX remained blocked in the beam line.

North Area users (H. BREUKER):

NA62 had a smooth running. Compass finished the calibration for the e- calibration. L. Gatignon added that, after the study of the hadron beam, it might be necessary to revise the intensity on T6.

The new user on H4 will require the Goliat magnet, which has been already used for the AMS test beam.

LINAC3 (G. BELLODI):

The source restarted last week. By the end of the week, the intensity was pretty good but for the wrong charge state. Once this corrected, up to 50% of the nominal intensity was reached, with about 10 μA of Pb54+ measured after the dogleg. The beam is pretty stable and the goal is to increase the intensity to have as soon as possible the nominal current.

LEIR (S. PASINELLI):

CO tests are ongoing, with a lot of problems for the CBMIA (new 1553). First, some power converters could not be controlled, with also the acquisition missing. Now the acquisitions are available, but not yet the control. The new CVORB are not operational yet, with sometimes the power converters wrongly programmed at their maximum currents. HW tests are foreseen for next week, with the controls still not in good conditions.

CTF3 (mail S. BETTONI):

"After the optics studies, which included both kick measurements and quad scan/rematching at the end of the linac in the CT and in TL1 line, an error in the MAD model has been identified and fixed. Including this correction the quad scan at the Frascati chicane gave finally the expected result from the MAD predictions.

In parallel a new optics with less beta-beating for TL1 including the correction has been sent to the machine.

The 1.5 GHz beam has been put in operation quite quickly. After a problem with the phase controller of the subharmonic bunchers has been fixed, the beam has been optimized in a morning up to the combiner ring.

We decided to switch back to the 3 GHz beam to try with the new optics in TL1 to establish beam in TL2 and CLEX on Thursday morning, but the cathode of the klystron 11 was exhausted. To change and recondition a new one more than a day is necessary, so we decided to run 30 GHz in the meanwhile. The power cut of Thursday morning stopped us until Friday afternoon, when the 30 GHz beam has been set up. The 30 GHz running was not very successful because of a lot of klystron faults. In any case some data have been collected thanks also to the help of Jean Michel Nonglaton.

Yesterday we switched again to the 3 GHz commissioning beam and we managed to arrive till the end of TL2 before another klystron stopped to pulse in the evening.

CALIFES has been restarted and they are trying to recover the conditions of the last run."

TI (P. SOLLANDER):

Except for the power cut, there were no other problems.

3. Schedule / Supercycle / MD planning

The 2009 schedule (V3.4) is available at:

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

On Wednesday the 1st of July there will a PS dedicated MD. During the weekend of week 28 there will be TI2 tests. The machine supervisors should check the status of the LHC type beams.

On the 1st of July:

- for the SPS dipole change, the beams in the SPS will stop at 7:00 AM and until 18:00 with access from 08:00 AM;
- nTOF will access the tunnel between 8:00 and 12:00 AM;
- no beam for physics will be delivered by the PS between 8:00 and 17:00;
- the network router upgrade, with stop for all the machines, will be done between 15:00 and 17:00.

4. AOB

F. Tarita presented a preliminary report on the analysis of the power cut on Thursday. The slides can be found here.

The accident was caused by a 3 phases fault occurred in the Jura substation, between Voltage transformer and 18kV cable terminals inside a cubicle cable box.

Unfortunately, the fault was not cleared and the auto-transfer re-energized the faulty cubicle again. On the EOS/SIG substation the fault was cleared. Then the automatic auto-transfer reconfigured again and fed the network through the cable MP7 and LHC point 1. The MP7 cable was overloaded and the MP7 cable CB tripped due to a thermal overload protection.

Six minutes after this trip, a manual reconfiguration was done and the network was back on regular service.

The diesels generators, automatisms and safety UPS worked correctly, the personnel safety was maintained all times.

5. CO review

K. Kostro presented a review about the status of the controls for the complex.

The slides can be found here.

The JIRA tools turned out to be quite effective to for tracking the different problems and speeding up their solutions. For OASIS, a large effort has been put in place to improve the tool, in particular, there is a new HW specialist for signal quality.

LASER in under commissioning for the PS.

The renovation of the FEC will start soon.

More details about the different goal achieved can be found in the slides.

S. Hancock asked about the status of the window manager, since windows are still jumping from times to times. K. Sigerud replied that the window management has been improved.

R. Steerenberg asked about the status of the spare for the RIO3. Some spare are available and the renovation is planned but it will take some time. For the 1553, a new platform is under study but there is already the possibility to have a system based on PCs.

6. Next meeting

The next meeting will be held on Tuesday, June 30th at 10:00 in 874-1-011.

Preliminary Agenda:

1. Follow-up of the last meeting
2. Status of the machines
3. Schedule
4. AOB

Minutes edited by S. Gilardoni