

Minutes of the 10th FOM meeting held on 26.05.2009

Agenda:

- 1) Follow-up of the last meeting (K. Hanke)
- 2) Status of the machines (Supervisors)
- 3) Schedule (K. Hanke)
- 4) AOB
- 5) Report of the PSB injection septum failure and repairing (J. Borburgh)

1. Follow-up of the last meeting

The minutes of the 9th FOM meeting were approved.

All the actions are kept open.

Rectification to the Beam requirements for the LHC injection line tests during the weekend 6/7 June: LHC PROBE and 12 bunches of LHC 25ns beam (in SPS).

<https://ab-mgt-md-users.web.cern.ch/ab-mgt-md-users/2009/TI8testsWeekend23.htm>

2. Status of the machines

Linac2 (M. O'NEIL): Linac2 was in standby most of the week. All the work originally foreseen for the technical stop could be advanced and completed. The magnets LT.DHZ20/DVT20 could be exchanged; the steering to the PSB should be checked. Since yesterday the service groups are removing the earth below the Linac2 service gallery. For the moment the position of the gallery is still stable.

V. Chohan mentioned that the ABA team and all the concerned persons have made a big effort to advance and re-organise the interventions of the technical stop. K. Hanke expressed his thanks for the proven flexibility.

PSB (B. MIKULEC): The week was dedicated to the exchange of the PSB injection septum that had developed a water leak on Friday 15th of May.

On Tuesday the septum magnet assembly had been exchanged with its spare after the radiation cool-down period on Monday.

The vacuum level on Wednesday morning was $\sim 8 \cdot 10^{-5}$ and didn't improve much with time. Towards the end of the morning a new vacuum leak was found in the mechanism pulling in and out the MTV screens that are installed just behind the septum magnets in the same vacuum tank. The decision was taken in the afternoon to exchange this bellow. On the positive side it could be confirmed that the new septum had no more water leak. Until all the spare parts for the bellow exchange could be prepared, pumping continued until Friday.

The vacuum level close to the injection septum reached $1 \cdot 10^{-5}$ on Friday morning. After confirmation of the vacuum leak at the MTV screen bellow the vacuum team started venting the tank. The bellow exchange proved to be quite delicate, but the intervention was successful. After having screwed back the removed plate of the septum tank, leak detection was done and only a tiny leak was identified. Pumping started in the afternoon and the PSB shaft was again closed by transport.

On Saturday another leak test was performed in the morning. No further leaks were present and the average leak level was comparable to the last 10 years. Vacuum levels were such that multi-flashing of the ion pumps could be started. This strategy was successful as in the evening all the ion pumps were running. This allowed the decision to be taken not to bake out the extraction septum, which would have led to an additional downtime of approximately 5 days.

Sunday morning J. Borburgh connected the injection septum and tidied up the area. He informed us that the vacuum level in the whole sector was just at the limit defined by M. Chanel where low-intensity beam operation could be resumed (most critical region around the extraction septum showed a vacuum level just below $5 \cdot 10^{-7}$). Although the resuming of beam operation had been announced for Monday (25 May), a big effort was made to gain some time by advancing the de-consignation of all the equipment and by clearing all the interlock conditions. Finally the Linac2 beam stopper could be removed at 18:40. The first beam could immediately be injected, but was lost at extraction. After some investigation the extraction septum position was identified to be wrong and the septum still under local control (not visible in the alarm program). Once the operator switched it back to remote control, beams could be extracted at 19:30. Almost exactly 7 days were lost for the recovery of the failure. It turned out that only small adjustments for the injection are required, but each beam will have to be re-checked. During the night only low intensity operation took place. The vacuum level at the extraction septum was kept under surveillance.

On Monday morning the beam intensity was increased after consultancy of M. Chanel. At the end of the morning an ISOLDE beam of $4 \cdot 10^{13}$ particles was ready showing no instabilities and at the same time the vacuum didn't degrade. It was therefore decided not to limit the beam intensity anymore, but to continue keeping an eye on the vacuum level.

Tuesday morning an ion pump close to the extraction septum tripped and couldn't be restarted by the operator. Piquet intervention was necessary. Moreover all the valves in the BTY line were closed. No alarms were visible in LASER. This will be followed up. Currently, the vacuum level is at $2.5 \cdot 10^{-7}$ close to the extraction septum.

B. Mikulec expressed her thanks to all the persons involved in the intervention for the good job and their personal commitment.

ISOLDE (E. PISELLI): On Monday (26 May) for the GPS run there was a problem with the deflector plate deviating beam to the GLM (low-mass) line. The plate movement got stuck. K. Hanke asked if it is the same problem as recently with a stepping motor control card. E. Siesling replied that most probably it is a mechanical problem this time. CO couldn't find a controls problem. The GPS run is stopped since, waiting for a solution. K. Hanke added that R. Catherall should follow this up and should maybe contact R. Losito who has recently agreed to take over responsibility for the ISOLDE stepping motor devices. Repair of this device would require accessing the separator zone.

REX: Last week a vacuum leak has developed on the 9-gap cavity due to human error. To repair the leak, the shielding around REX and the cavity has to be removed. K. Hanke proposed to implement an interlock for the future as this has happened already before. C. Rossi will transmit this proposal to the RF group. There is still hope that the REX run this week can start as planned.

ISOLDE users : (no report):

One ISOLDE run had to be cancelled due to the PSB stop.

PS (G. METRAL): After the stop on Monday previous week a modification has been made on the function generator of the PS main power supply. This will allow to save programmed cycles and to restore them after a reboot of the DSC.

The polarity measurement campaign continued on the equipment BSW57, PE.QSE and PE.QKE16CT.

A test has been carried out on the pedestal 9 (PE.BFA9P) under the MTE operational mode.

CO made tests on the CVORB card of the BDOT function generator; now the simulated BDOT is similar to the normal BDOT conditions, but there is still a scaling problem.

The geometers re-measured the mechanical offset of PU70 as there were some doubts about its position. The new value for the horizontal offset is -0.3 mm instead of the previous -6.1 mm.

An attempt was made to restart the PS Sunday night earlier than foreseen, but this was not possible due to a few difficulties. The motor of the MPS had been stopped before and would not restart. There was also a problem with the vacuum DSC: the DSC was in alarm and could not be reset. All the valves in the PS and in TT2 were closed. As the DSC was in debugging mode, only the piquet CO could restart it.

Lots of tests have been undertaken during the week to try solving the problem of equipment pulsing with the wrong value from time to time in the extraction bump 16. A card has been changed by PO on Friday and new software has been implemented. After problems with the extraction of SFTPRO on Monday the old software has been deployed. This issue is still open. M. Widorski added that the losses at the extraction also lead to radiation alarms in Linac3. He asked if the priority couldn't be raised in PO to solve this issue. It was replied that PO is actively working on it.

Also on Monday (25 May) there was a stop of the MPS at lunchtime to switch the water station to remote and to change a thyristor on BFA9. There has been a problem with the figure-of-8-loop requiring piquet intervention. In addition a water leak has been identified and repaired on two magnets in the East zone.

Alignment has been performed of equipment in T7. A maximum misalignment of 7 cm was found. M. Widorski explained that this can be understood because the equipment in T7 is not fixed with screws, but simply blocked by lead blocks. R. Steerenberg assured that this situation would be changed during the next shutdown.

To install some cables for the MTE equipment, three kickers (only used for MTE extraction) will be switched off during two days.

Finally there has been an alarm monitor fault in the TOF zone during the security chain tests for NTOF. M. Widorski mentioned that there have been some problems with the ventilation. The NTOF acceptance tests are ongoing and will hopefully be terminated today around lunchtime.

East Area: no report.

See PS report for alignment of T7.

East Area Users: no report.

Users started taking data Monday evening / Tuesday morning.

AD (P. BELOCHITSKII): AD received beam yesterday morning.

There has been a fault in the injection line at BHZ6044 (broken capacitor). On a few shots 2.9 10⁷ 100 MeV/c particles were measured, but then the injection intensity degraded.

First beam was seen on the first wire chamber of the extraction line.

There is still potential to increase the performance in terms of proton yield. The position of the target (remote movement) can be optimised, but the optics should be tuned for each new position (S. Gilardoni proposed help on this subject).

AD users: no report.

NTOF: no report.

SPS (K. CORNELIS): Last week work was done on the commissioning of the extraction kickers for the TI8 tests. All the work foreseen for the technical stop could be advanced.

Yesterday morning the SPS could restart with beam. There were losses observed in LSS5. These losses could be related with the new installation of the detector for the CRYSTAL collimation experiment, even in its presumed ‘out’ position. An access had to be arranged, and the detector was moved by 4 mm. This required breaking the vacuum. H. Vincke added that the detector received 500 μSv after $\frac{1}{2}$ hour of operation. K. Cornelis believes that there must be something wrong with the drawings, as the detector was 17 mm away from the beam centre according to these drawings. This has to be followed up.

In the evening there was a problem with one of the main quadrupoles; the operation switched to the spare.

K. Hanke asked if there would be delays in the SPS physics schedule due to the machine stop last week. K. Cornelis replied that this is not clear yet. The SPS is currently preparing CNGS extraction. Maybe they can catch up the 1 week delay, but CNGS might have to start with lower beam intensity.

CNGS (E. GSCHWENDTNER): The CNGS area is closed now. Nevertheless extraction to the target is not yet possible, as the ventilation alarm is not received by the CCC. This should be fixed today, after which the required missing signature can be obtained.

SPS North Area (L. GATIGNON, email): Beam for COMPASS was switched on Sunday (10 May) without major difficulties apart from some issue with the spectrometer magnets SM1 and SM2 (first line will look into this).

The H6 beam for CERF was set up on Saturday (9 May) and went smoothly as well.

North Area users: no report.

K. Cornelis and P. Sollander have mentioned problems with cooling and ventilation; this should be solved by now.

LINAC3 (M. O’NEIL): The usual preparatory work on the source is taking place.

LEIR: no report.

LEIR is in shutdown; LEIR matters will be followed up regularly during the run.

CTF3 (P. SKOWRONSKI, email): The previous week was short. Commissioning beam was present only until Wednesday (20 May) 2pm. Optics measurements (quad scans, response matrix and dispersion) were done in the TL2 line connecting the Combiner Ring with CLEX.

On Wednesday at 2pm we switched to PETS operation mode. This run was stopped on Saturday due to a problem with the readout of the START GUN timing. Because of this, the automatic conditioning program could not work properly. On Monday morning the problem had disappeared due to an unknown reason.

TI (P. SOLLANDER):

F. Tarita explained that work has started on the 466 kV transformer. Currently the leaking bushing is being dismantled. The second transformer taking the load of the one under repair is at the moment at 85% of its capacity; as there is still some margin, no network modification has been undertaken yet. The total length of the intervention amounts to approximately 2 months.

3. Schedule / Supercycle / MD planning

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

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

TI8 transfer line tests will take place during the weekend of 6/7 June.

4. AOB

A Bland mentioned that the IT network team would like to make changes on the name server on the 8th and the 15th of June. This might lead to performance degradations of the technical network during the two mornings. It was discussed that these dates are not very appropriate – it might be better to use the 4th day of the upcoming MD session and the next technical stop (but which is only in August). A. Bland will contact IT to re-discuss the intervention timing.

H. Vincke requested another access to the ventilation building. The next 1-hour intervention for changing the filters in the building 898 will take place next Wednesday (3 June).

5. Special Topics

Replacement of BL.SMH (and BL.MTV60 bellow) (J. BORBURGH)

J. Borburgh presented in detail the interventions after the water leak on the PSB injection septum (see [slides](#)).

6. Next meeting

The next meeting will be held on Tuesday, June 2nd at 10:00 in 874-1-011.

Preliminary Agenda:

- Follow-up of the last meeting
- Status of the machines
- Schedule
- AOB

Minutes edited by B. Mikulec