Minutes of the 15th FOM meeting held on 15.07.2014

Agenda:

1) Status of the Machines
2) Schedule Updates
3) AOB

1 Follow-up of the last meeting

The minutes of the 14th FOM meeting were approved.

Pending actions:

The issue concerning the FGC3 in the PSB is solved. The action is closed.

2 Status of the Machines

Linac2 (J.-B. Lallement)

It was a positive week for Linac2. There were a total of 7 stops (few minutes long). Following the request from RP and with the help of the PSB team, the steering of the transfer line from Linac2 to PSB was optimized in order to reduce the beam losses.

PSB (B. Mikulec)

It was an eventful week for the PSB.

PSB provided to the PS the beams needed to set up the EAST1 beam and for the first MDs in PSB and PS.

After re-alignment of some pickups in the injection line, the new mechanical offsets were implemented and a new injection steering was done.

On Wednesday evening, RP informed the operator that the alarm level on PAXLN202 (at the end of Linac2) was exceeded and that an action was required. On Thursday the steering was optimized to create a vertical bump after the LT.BHZ20 bend to avoid losses; R. Scrivens explained this bump with a vertically misaligned vacuum pipe in this region. With this bump 12 mA of beam current was gained at the PSB injection.

On Wednesday evening the ejection trajectories became available.

On Thursday morning large losses were observed around the bending magnet BT.BHZ10. Finally the BTP beam stopper was found to be in the IN position, although the CCV was set to the OUT position. No interlock was yet in place (EN-STI was waiting for the connectors to be mounted by EN-EL) and no alarm on LASER was displayed. By Friday the alarms in LASER were available whilst the connection to the External Conditions should be provided today (15 July). Since the upgrade of the beam stopper controls the 'position unknown'

warning for the beam stoppers occurs frequently.

On Thursday the timing modifications to replace the start timings of the capacitive discharge power supplies from W8/W2 to W10 took place. This will allow compatibility with the archives after the LS1 timing modifications. G. Métral and J-C. Bau were acknowledged for their help.

On Friday there were problems with beam loss at extraction. The extraction kickers did not fire because of a false USER_PERMIT of the extraction BIS, which was due to BT.BHZ10. This magnet was in error since it was not switched off and reset correctly after a PS access. A solution is presently under study.

During the week, hardware and software changes took place to allow us to control the FGC3s: they are required for resonance compensation and the orbit correctors for the PSB MD next week.

INCA/LSA interventions were done for YASP (orbit correction). Some additional modifications are still needed to get it working.

Thanks to the dedication of the BI team the list of PSB BI issues is now clearly decreasing.

This week the RF team will work on the splitting with the new digital LL-RF control and the work on the resonance compensation will continue with the aim of increasing the intensity.

PS (G. Sterbini)

It was a hectic week for the PS. Following the Monday morning vertical re-alignment, the orbit measurements were in good agreement with expectations. The RMS vertical orbit reduces from 1.4 to 0.6 mm.

On Tuesday morning the energy matching between the PSB and PS was performed.

During the afternoon the Fire Brigade required an access in the PS ring. Some water, from a leak developed in the East Area, went into the PS tunnel. The presence of water was confirmed by the inspection, but there was no danger or damage for the HW. RP verified that the water was not activated and together with TI and CV organized its removal. The beam-stop lasted 5 h. During the rest of the day the commissioning of SFTPRO, needed for the phasing of the 200 MHz cavities, continued.

On Wednesday the 200 MHz cavities phase was adjusted and the commissioning of EAST1 beam started. In the afternoon further tests on the energy matching showed potential problems with the B-train: relatively strong dependence of the energy matching from the SC composition was observed. The B-train specialist was contacted.

On Thursday afternoon our TE-MSC colleagues made systematic measurements on a supercycle specifically set up for the purpose. Some potential anomalies were observed. They replaced the normal B-train system with its spare: anomalies were still present and

confirmed by beam-based measurement. TE-MSC will continue the investigations. Between Thursday night and Friday morning, one of the beam stoppers of the TT2 line (F16.STP152) went IN (problem with the pressurized air circuit). Due to the absence of the external condition, the stopper was irradiated with ~35e13 p at 26 GeV. An access was organized to allow EN-STI to return it to the OUT position.

On Friday morning, after the access and beam permit signature, the beam commissioning for the slow extraction towards the East Area started. An intervention was required on several magnets of the F61 line and an access was organized (2 h beam stop). In the late afternoon an additional access was needed to repair one screen of the F61 line (F61.MTV03, 2 h beam stop). CO and EN-STI were acknowledged for the help in the setting up of the instrumentation of the F61 line.

After the difficulties found in setting-up the slow extraction and some investigations, on Saturday morning it was concluded that one quadrupole used for the slow extraction (PR.QSE29) had a wrong polarity. With the help of the First Line, the magnet and the RP piquets the polarity was corrected (2.5 h beam stop) and finally it was possible to extract to the East dump.

Since Sunday morning RP allowed to send the beam on the East target and the optimization of the extraction and the steering of the F61 line was done.

During the whole week, the MTE test and commissioning activities were continuing (testing of the dummy septum, extraction bumps, resonance excitations…).

M. Lamont asked if the absence of the alarm of the beam stopper in LASER was related to a problem of the FESA class. R. Steerenberg explained that it was a problem related to the renewal of the beam stopper controls. It should in principle have been detected during the dry runs, but the EN-STI were not participating in the dry runs organized by CO. He added that today the following beam stoppers would be connected to the external conditions of the MTG:

- BI.STPFA10 and BI.STPSW10 for PSB injection
- BTP.STP10 for ejection from PSB to PS
- F16.STP152 for ejection of PS to TT2
- F16.STP176 for ejection of PS to TT2
- BY.STP for ejection from PSB to ISOLDE

The following beams stoppers, those that were not cabled before LS1, will be fully implemented next Monday (21 July):

- F61.STP01 and F61.STP02 for beam to East Area

- ZT8.STP01, ZT8.STP02 and ZT8.STP03 for beam to IRRAD and CHARM
- FTA.STP9021 and FTA.STP9022 for AD
- LT.STP10.

T. Bohl asked if, when an alarm is sent to LASER but afterwards the notifying FESA class crashes, the alarm stays in the LASER list. J. Betz will provide the requested information.[1]

SPS (D. Manglunki)

Last Wednesday the endoscopy's results confirmed that the dump TIDVG has to be replaced. The spare dump is being prepared. J.-A. Ferreira Somoza informed that the spare dump is undergoing the bake-out since Friday (11 July). V. Kain asked about the bake-out temperature adopted. J.-A. Ferreira Somoza answered that the temperature of the aluminum part is 200° whilst the graphite portion is baked at 250°. This was in agreement with the procedure adopted in the past.

The QF120 has an earth fault and has to be replaced. The replacement was not possible on Wednesday, since the measurement bench was not operational.

The fixed IT switch seems to have solved the problem of frozen videos on the access system.

There is a problem with the "beam imminent" warning. The LSS2 siren sounds in TCC2. There is the proposal to remove the BA2 sirens and call people on the intercom/public address.

There is poor vacuum (1E-7 bar) on MKE4: a leak found on the bellow was temporarily fixed with varnish. It is important to change it during the next Christmas stop because for the moment no spare is available.

There is problem with the vacuum in the Cavity 3 (1E-7 bar). J.-A. Ferreira Somoza added that the SPS RF groups informed TE-VSC about a significant increase of the vacuum pressure during the Cavity 3 commissioning tests. TE-VSC performed specific measurements during the powering of the cavity, but no vacuum leak was detected. J.-A. Ferreira added that the vacuum leak detection has a limited time resolution: a leak lasting only for a limited duration (e.g., due to a dynamic deformation of the cavity) can be extremely difficult to detect.

Y. Papaphilippou added that another leak on a magnet downstream of the momentum scraper was found.

B. Mikulec asked if the impacts of the previous issues on the SPS schedule were known and when they would be announced. D. Manglunki answered that the possible delay on the

[1] After the FOM, J. Betz informed that if the notifying class crashes, the initial alarm disappears but it is replaced by "Device down or unreachable".

schedule will be discussed and announced next week.

ISOLDE (E. Siesling)

GPS:

GPS is running with a surface ion source target (#506).

The stable beam tuning to the newly installed decay station at the far RC lines (^{39}K) plus RILIS laser tuning (^{202}Hg) is ongoing and will continue this week with interruptions due to target zone work.

Concerning the target zone, the 3 BTY cooling water valves were replaced and now the circuit is operational.

Yesterday as part of the new robot commissioning, GPS robot coupling adjustment, tests and cleaning of the GPS front-end and Faraday cage were done.

The full target change sequence tests are foreseen later this week.

HRS:

HRS is running with a plasma ion source target (#504).

The stable beam tuning dedicated to the RFQ (ISCOOL) commissioning is ongoing. Last week transmission through the RFQ of ^{132}Xe was achieved (about 2% efficiency). The RFQ is working and well aligned, but there are issues with the RF and the gas flow.

Concerning the RF, the capacitance of the RFQ is different from the expected one (for the moment for unknown reason) causing problems to apply the RF power. Investigations are ongoing. In addition some issues with the RF controls have been and are being tackled.

Concerning the gas flow, the regulator, which is already the spare one, is broken, and it is not possible to apply the correct He gas flow to make the RFQ work. The unit is being sent off to the manufacturer, which promised a fast repair (the unit should be back by the end of this week).

Concerning the target zone: the BTY beam pipe has been put back in place and is being pumped. The broken TP12 on the HRS front-end has been replaced. The HRS target coupling as part of the new robot commissioning has been done. The full target change sequence tests are foreseen later this week.

There are few other technical issues (beam instrumentation, MAG70 tripping off and communication problem, power supply controls target heating, etc…), which are to be discussed at the technical meeting (today 14h).

ISOLDE will probably be ready by next week for the DSO test (21 July) and SEMGRID tests (GPS as of 22 July followed by HRS).

nToF ()

No news.

East Area (L. Gatignon)

L. Gatignon informed that today (14 July) the LR2 would officially start in the East Area.

During the week there were problems with the beam stopper integration into CESAR.

AD (T. Eriksson)

The cold checkout started in AD.

The target area is ready for the tests, but the patrols are not yet completed.

Concerning the ring, the magnet patrols were done. There are some doubts about the polarity of the correctors. Tests were performed with the fixed cycle.

On Monday (14 July) the ring DSO test took place. On Wednesday (16 July) the target DSO will take place.

T. Eriksson informed that the IMPACT access requests would not be necessary during the run. There are 5 weeks for completing the cold checkout before the start of physics.

Linac3 (J.-B. Lallement)

There was a problem in the controls for ramping up the cavity. The installation of the hardware allowing the 2.5 Hz pulse repetition rate is now in place.

LEIR (S. Pasinelli)

Last week, the beam was injected, but lost at injection. The ITE, ETL and the EI lines were re-adjusted. The main bending magnet was adjusted for the Ar^{11+}.

The first two days of the week were devoted to tune the injection, but the beam was always lost around the PU 12.

Wednesday, after an “exotic setting” the beam has been detected on the PU 13 (located at the 2/6 of first magnet ER.BHZ10), but lost before the PU 14 (located at the 5/6 of the ER.BHZ10). The current in the main magnet for this "exotic setting" was lower by about 20% compared to the Ar^{11+} nominal value.

The end of week was dedicated to understand the possible reasons. A good setting was found by adjusting the quads in the EI line and the beam reached the PU 13 (but not the PU 14) with the nominal values for the main bending.

Unfortunately, Saturday afternoon the SMH11 went off due to a grounding fault. The specialists found a temperature sensor in fault. It was decided not to bypass the sensor and repair the SMH11 Monday.

During this week several accesses into the PS and/or into the switchyard impacted the LEIR beam commissioning: each access into these zones close LEIR EIS. In addition there were problems in OASIS, as in the other machines of the complex.

TI ()

No news.

3 Schedule Updates

B. Mikulec presented the Injector Schedule (v1.6). It can be found at

https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/2014-injector-schedule_v1.6.pdf

The MD day this week has been cancelled.

F. Pirotte informed that nToF DSO test would take place on Thursday afternoon (17 July).

4 AOB

A. Bland announced a General Purpose Network (GPN) intervention from 06h30 to 08h00 on 16 July (already approved by TIOC). The goal is to upgrade various GPN Office Building routers with the candidate firmware version to be installed on the Technical Network (TN) during the October 29th Technical Stop. The downtime for these office buildings will be around 10 minutes. IT/CS will then run an Open Shortest Path First (OSPF) Summarization test until 12:00 where each subnet on the TN will be individually seen as a separate subnet from the GPN. Normally this should have no effect on the TN.

More details at:

https://cern.service-now.com/service-portal/view-outage.do?from=CSP-Service-Status-Board&&n=OTG0012086

https://cern.service-now.com/service-portal/view-outage.do?from=CSP-Service-Status-Board&&n=OTG0012088

S. Jensen reminded that on Wednesday 16 July there would be an intervention on the CCDB database between 08h00-09h00. It should be transparent for the operation. The next FOM meeting will be held on the 21 July. The agenda will be communicated in due time.

Minutes edited by G. Sterbini.