

FOM minutes 17.11.2020

List of participants in ZOOM meeting: Akroh A. Albert M. Albright S. Alvarez J.L.S. Amarilla M. Angoletta M. E. Asvesta F. Barbet V. Bilko K. Bojtar L. Chapuis D. Chapuis F. Comblin J.F. Cotte D. Deleval S. Delrieux M. Di Giovanni G. P. Dupuy B. Fadakis E. Findlay A. Fortescue E. Fraser M. Gamba D. Hanke K. Harden F. Jensen L. Johnston K. Kain V. Kuchler D. Lallement J. B. Lang T. Lombardi A. Mahner E. Mataguez S. Mcfarlane D. Mikulec B. Nielsen J. Nuiry F. X. Oliveira J. C. Pittet S. Pirotte F. Piselli E. Ponce L. Praena J. Rae B. Rodriguez A. Roncarolo F. Rumolo G. Scrivens R. Siesling E. Somoza J. A. F. Tecker F. Vollaire J. Wegner R. Wetton C. Wilkens H. Woolley B.

Slides: <https://indico.cern.ch/event/973784/>

Agenda:

1. Approval of the minutes of the previous meeting & Action follow-up
2. Reports from Accelerators & Facilities
3. AOB

1. Approval of minutes of previous meeting and action follow-up

- **Action (A. Rodriguez):** Schedule the update of the FGC software with TE-EPC to take place before 24.11.2020. → this has been completed, action closed.

- **Action (FOM):** Check if the deployment can be done W48 Tuesday (24.11.2020). → No objections, the date is approved and action closed.

Action (FOM): Clarification of the date and time when the TI services stop for the Christmas break.

Clarification: Some services will stop over the Xmas break. Therefore all machines will have to switch off 18.12.2020 at latest and be put in closed mode. → Action closed.

Open actions:

- **(BE-ICS):** Verify if the issue of cross-talk of the Beam Imminent Warning and evacuation alarm between zones can be reduced (e.g. BA6 to TT2, LEIR,).

- Minutes of 10.11.2020 were approved without further modification/comments.

2. Reports from Accelerators & Facilities

TI by J. Nielsen:

- The last week was quiet.

- SPS 18kV loop is running in “open loop” during this week, due to works on the electrical network. The loop was opened yesterday.

-TE-EPC announced that they will re-power the BEQ3 compensator sometime this week, there is no precise date yet. Should be transparent.

-The BE2 400kV transformer will be put back in service, but with no load (it is a secondary power supply) at the end of the week. Should be transparent too.

Linac 4 by A. Lombardi:

- Investigations of a few wire scanner and SEM grid issues as these issues are concentrated at important locations.
- MEBT optics copied on all cycles (better matching to DTL, no change in TL)
- Finalization of the last open issues concerning the transverse reference profiles. In addition, the operational BSM2 application was upgraded to provide the correct longitudinal reference profiles depending on the loaded optics.
- Timing modifications for improved PSB/Linac4 synchronization: the start of synchronization of Linac4 begins now 10 ms before the beam instead of 100 ms, which improves the precision. The CO timing team installed a new front-end to also separate the PSB FGCs from the other PSB injection timings.
- Setup of the main cycles required for the first weeks of PSB beam commissioning.
- Tuesday until Friday: play a mixed super-cycle with all new cycles for stability tests.
- The drift in phase of the PIMS 01-02 system, seen on cavity PIMS 02, continued and was investigated by the RF team. The circulator in the line 1 was identified to create the drift. On Friday the circulator was opened and a water leak was found inside. Initially a circulator exchange (~ 1 day) was intended but because of an only small RF heat load tests were carried out over the weekend without water cooling. Seeing the good result, the PIMS 01-02 system was reconfigured Monday morning to run without water cooling on both circulators. A restart test from cold conditions validated the new configuration by monitoring both, the RF properties and the beam.

Booster by A. Akroh:

- Daily activity during the week: Reliability run of all the TE-EPC converters from 6:00 am to 9:00 pm. Hardware tests checklist follow-up. Planning preparation for the interventions in Week 47/48.
- Monday 09/11: POPS-B: Several trips during the day occurred on QFO converters. A relay has been changed on the measurement circuits of the 3 phases, without success. Temporarily, the measurement threshold has been increased. A new version of the Cycle Editor released featuring a functionality on how to send the function to the LSA which will propagate the settings to all the dependent parameters and then to the HW.
- Tuesday 10/11, external conditions test: Some conditions are missing and others not working. OP issue reported, but not yet solved. Preparation for the Fast-Interlock Dry-Run. Checking the readiness of BTM.BHZ10, BTY.BVT101 (EIS_ISO), BT.BHZ10 (EIS_PS) and BT.BHZ10.BTM. POPS-B down and Simulated B-Train unavailable. White Rabbit problem solved.
- Wednesday 11/11: POPS-B tripped due to CUBEXP function not properly propagated to all the cycles. The CUBEXP function has a temporary special setting: "return to 0 Gauss" to reset the B-Train integrator. This "special" setting should be fixed by the B-Train team. Some issues reported on Fast Interlock, correction ongoing.
- Thursday 12/11: Q-Strip issue: POPS-B circuits ramp down induce a current in QCF and triggers the warning "REF_RATE_LIM". TE-EPC is on this to propose a solution. New Injection timings hierarchy deployed with a different warning for the FGCs.
- Friday 13/11: K-Modulation Dry-Run (led by G.P. Di Giovanni) is done. BI.BSW basic tests checking the behavior with the new Timing chain.

Questions and comments:

- S. Pittet noted that some hardware modification will be required for Qstrips. A. Akroh added that it is a cabling, which is foreseen for Thursday. It will solve the timing problems. G. P Di Giovanni added it will not solve however the regulation problem. This will be discussed with EPC.

ISOLDE by L. Fadakis:

- REX-HIE: Tuesday Got $^{23}\text{Na}6+$ beam into the REX-TRAP and REX-EBIS. Wednesday to Thursday setting up $^{23}\text{Na}9+$ for LINAC injection. Taking beam ($^{23}\text{Na}9+$) from GPS to HIE with 10 SRF cavities, $E = 6.54 \text{ MeV/u}$ and with (all) 20 SRF cavities, $E = 10.43 \text{ MeV/u}$
- Low Energy: Tuesday, Wednesday, Thursday setting up ^{23}Na for REX-HIE Injection. Friday set up in order to inject into REX-TRAP ^{152}Sm beam. Monday, Tuesday set up ^7Li beam to inject into REX-TRAP.
- Monday BE-BI Intervention to fix YGPS.BFC0600. Vacuum intervention to fix turbo pump in REX-TRAP and issue in the GLM sector. Access HIE Tunnel to investigate issue with the tuner of the IH structure, issue fixed. Refilling of REX-TRAP and REX-EBIS
- Tuesday, some instabilities in the LHe level in CM1. This has stopped the Cryo. OK for the SRF and the solenoids. It recovered the next day.
- Found four FGC63 power converters that do not allow us to input values from -0.1 to +0.1, except zero. The issue was fixed the next day.
- YGPS.BSG.4750 needs work with the ADC to function properly
- The glitch of working sets has been understood, and mitigated (R. Gorbonosov).

PS by M. Delrieux:

- Safety: New conclusive PSR DSO tests was done Friday for broken cable on A03.PSR. The “hard wired loop” cable replaced. For TOF, in practice too complicated to use YEA1.TFP=801 in maintenance mode. Lockout of power converters for magnets in the area until new grid had been put in place. Limited TT2 beam permit signed .SMH16 out of safety chain.
- POPS and Main Units: Commissioning completed. Thanks a lot to everyone involved!
- Heat runs and magnets inspections ongoing.
- Commissioning: Operational remote controls of PFW and W8L since Wednesday 11/11. All auxiliary power converters are ready for magnets tests and controllable from the CCC. PR.XNO cabling error fixed last week. WIC tests 100 % complete. KFA13, KFA21 and SMH57 could not be tested.
- Open issues follow-up after first tests/dry-runs from the CCC: KFA28 ok but OASIS signal saturated and no acquisition on SMH26, experts are investigating. SMH16 does not pulse. SMH61 ok, but the timing configuration is wrong. Decision has been taken to control the whole function via a table, same for SMH57. Programmed functions for MTE and Slow Extraction multipoles are being optimized. Fine-tuning initially scheduled 01/2021.

ELENA by L. Ponce:

- Very good beam availability and source reproducibility over the week.
- Work in the transfer lines: First results on optics measurement in LNE50 was obtained. Setting-up for Gbar today. Deployment of YASP in LNE50, 04 and 07, first tests of kick response measurement. First tests of intensity measurement in LNE50.
- Studies on the different cycles ($h=1$ and $h=4$): Coupling compensation on the different cycles. Investigation of hysteresis of quadrupole circuits. Bunch length measurement and possible reduction with different harmonics.
- Second test of electron cooler magnetic system: Switching ON toroid and solenoid gradually. Reached nominal current for toroid, orbit well compensated locally with correctors, tune shift not perfectly compensated with only sol compensator. Strong magnetic remanence of the two correctors.
- Intervention on the Btrain: Problem identified on very noisy electronics for the marker at low energy. High energy and low energy inverted to fix the problem on operational device.
- X-ray on the BTV on Thursday, waiting for feedback from experts.
- Profile monitors: Noisy signal on second profile monitor in LNE50 to be investigated. Still not optimal beam profile reconstruction in the FESA class, work is on-going.

- Sign convention problems: Problem of inverted LNE power supply aliases. Inversion will be done in CCDB.

LINAC 3 by D. Kuchler:

- Operation in week 46 was dedicated to the source operation and RF commissioning. Source was fully commissioned by Wednesday. Thursday a very first test with the new movable extractor could be done. It is operational now. For the next two weeks, more detailed studies are foreseen. Thursday/Friday the RFQ was commissioned with beam at an energy of 250 keV/u. Energy measurements could be done in the ITFS line. The values of 2018 could be confirmed. Monday the oven was refilled.
- During the week the two vistsars for Linac3 were made operational.
- The check list is done by 80% (3.5% failures). The rest is mainly beam commissioning and transfer line.
- OASIS showed unstable and erratic behavior. Especially a problem over the remote connection. An older version was made available by CO while they were working on the actual one. New version published yesterday.
- Monday evening the gas control of the source started to oscillate, repair is ongoing. It is an old, modified module, no identical spare.

Questions and comments:

- K. Hanke asked if other machines had the same problem with OASIS. L. Ponce said there was a lot in ELENA.
- K. Hanke asked if the gas control should be consolidated. D. Kuchler answered it is a simple electronics and was working reliably in the last 20 years. E. Mahner added it is a big risk if it fails.

Action (D. Kuchler): Discuss the gas control offline and present a strategy at the next FOM.

LEAR by R. Alemany:

- The support holding a BTV is not conform from the security point of view. In addition, the area around it will be regularized.

CLEAR by D. Gamba: Users have no access at the moment, the facility is used for MDs.

AWAKE, NTOF, EAST AREA, HiRadMat: Nothing to mention.

3. AOB

Minutes by L. Bojtár