

# FOM minutes 01.12.2020

**List of participants in ZOOM meeting:** Akroh A. Albert M. Albright S. Amarilla M. Angoletta M. E. Antoine A. Asvesta F. Barbet V. Bellodi G. Biko K. Bojtar L. Bozolan M. Bracco C. Castro M. D. Cave S. C. Chapuis D. Cotte D. Damerau H. Deleval S. Delrieux M. Dupuy B. Fortescue E. Fraser M. Gamba D. Giovanni P. D. Haase M. Hanke K. Hans O. Holzer B. Huschhauer A. Jensen L. Karpov I. Kuchler D. Lang T. Lasheen A. Lozano B. M. Mahner E. Mataguez S. Mcfarlane D. Metral E. Mikulec B. Pace M. Pirotte F. Piselli E. Pittet S. Ponce L. Pozzi F. Praena J. Pruneaux C. Rae B. Ridewood J. Rodriguez A. Rossi C. Schwarz P. Skowronski P. Somoza J. A. F. Steerenberg R. Tecker F. Wetton C.

**Slides:** <https://indico.cern.ch/event/973786/>

## Agenda:

1. Approval of the minutes of the previous meeting & Action follow-up
2. Reports from Accelerators & Facilities
3. SPS hardware commissioning plans
4. Draft 2021 Injectors schedule
5. A.O.B

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

### 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 17.11.2020 were approved without further modification/comments.

## 2. Reports from Accelerators & Facilities

### TI by C. Pruneux:

- Intervention is foreseen 8th of December with perturbation for several machines. MPS of PSB and PS must be off. Possible impact for Linac 4, probably must be off, to be seen. AD, ELENA power supplied must be off.
- There will be a 400 kV switch, normally without major perturbations. The exact date will be discussed tomorrow.
- Last week Thursday there was a water leak in the SPS.
- Evacuation of BA4 this morning due to an alarm caused by welding nearby of a smoke detector.

### Questions and comments:

- Answering R. Steerenberg's question C. Pruneux said the exact time of the TI intervention will be discussed tomorrow.
- B. Mikulec asked if it is really necessary to do the TI intervention on 8<sup>th</sup> of December, because the beam commissioning start in the PSB at this date. C. Pruneux answered this will be discussed tomorrow. R. Steerenberg's added he will participate on this discussion.

### Linac 4 by F. Roncarolo:

- Monday to Wednesday: Transverse emittance measurements in L4T-L4Z line. Looks within nominal values. Analysis not fully conclusive, more meas. will follow this week. Investigation of 4T.BWS.0243 'corrupted' profiles. Test/setup 150ns beam for PSB commissioning beam, all ok. BSM meas while changing PIMs 10-11 phases, to study long emittance. CO test: stop LIC Central Timing for about 10 min.
- Thursday: Access for replacement of 3 wire grids + 1 scanner in L4T line, risk assessment about residual magnetic fields and effects on pacemakers and change of ADC card for monitoring klystron temperature.
- Friday: DSO test + recovery, then checks of BSM and new grids + scanner.
- For more details of the tests see the slides.
- Various stripping foil tests were done.
- 24 Nov morning: RP called to warn about higher rad levels on dump water circuit.

### Questions and comments:

- Answering R. Steerenberg's question- F. Roncarolo confirmed that the problem with the dump was not a real issue.

### Booster by A. Akroh:

Hardware-Test and Cold-Checkout during Week 48:

- Wide-Band Puck-up test.
- BT.BHZ10 reliability run to check it in full PPM-Mode. Pre-pulse OK in positive, missing in negative.
- Issue with BTY.BVT101 External Condition solved.
- Recombination Kickers External Condition behavior issue solved.
- FGC\_62 firmware has been updated by TE-EPC Controls.
- Reliability Run of the systems used for the Matching monitor. A few missing pulse have been observed, investigation in progress for TE-ABT specialists.
- Dry-runs with BTTRIC and watchdog mainly working, minor issue investigation in progress.
- Fast Interlock Dry-Runs: Everything finally worked except for the BT.BHZ10.BTM. Power-converter issue, investigation in progress for TE-EPC.
- BIS remaining investigation: Almost everything is validated on POPS-B and RFHL.
- BE-BI: BI.DIS10 EMC investigation follow-up, investigation still ongoing.

### Questions and comments:

- R. Steerenberg's agreed with A. Akroh's request and emphasized the importance of cleaning up after work in the machines.
- F. Pozzi requested to recover any equipment left in the buffer area.
- R. Steerenberg asked if the missing negative pre-pulse on BHZ10 is an issue in the specification. A. Akroh answered that it is more an operational issue and EPC is investigating the possible solutions.

### ISOLDE by M. Lozano:

-LA0 and LA1 elements vacuum interlock problem found after installing an interlock bypass. The problem is caused by some very fast fake vacuum spikes coming from the TPG.

-Reference setups done to LA2,LA1, RC4 ,RC3, GLM, GHM from GPS for 30 kV/23Na. Good transmission.

-Some elements had a wrong minimum value defined in the database. Database updated based on the power supplies specs.

-YGPS.BSC483 scanner fixed after replacing communication card. YRC3.BSC0800 needs opening to replace preamp.

- YCA0.BFC0680 Faraday cup movement fixed. PAM was replaced and the problem fixed.
- YGLM.BFC0900 Faraday cup movement fixed after adjusting the compressed air pressure.
- Some power unresponsive supplies found on GHM. Fixed after replacing an I/O PLC card.
- Conditioning of the front-end HT. Now holding up to 50 kV.
- Tape station sector vented for intervention at the tape station. The tape got stuck out of the rails. Problem solved but still some controls problems.
- Characterization of the new EBIS cathode performance by F. Wenander.
- Studies about the Ir and Ce beam contamination out of the EBIS by Niels Bidault.
- Stability tests of the LINAC RF for A/Q between 2 and 2.5 by Alberto Rodriguez.

### Questions and comments:

- R. Steerenberg asked if the problem with the tape station is a systematic one. M. Lozano answered there is not enough experience yet to say, but it should not be systematic.

### PS by O. Hans:

- Safety: PSR zone 3, shielded bridge above the machine is “out of safety chain” to allow access to the zone. N-TOF additional fences has been installed to block access via the cooling station and n-TOF primary. Yesterday DSO team gave their approval. VIC in preparation for co-activity. F16.BHZ377 vacuum chamber repair and n-TOF circuit commissioning. For week 50 planned repair of F16.BHZ377 vacuum chamber. Bending magnet is an EIS-F for SPS. Impact on scheduled SPS DSO test.
- Audio/Visual patrol POPS+PFW+W8L: First time pulsing all circuits together. Some MU have a noise coming from the Low Energy DHZs (backleg winding). New insulation type is more flexible and hits the vacuum chamber during MU pulses. Not critical and TE-MSK will work on a fixation improvement. Additional strange, bizarre noise, like fast pulsing magnet. Could be identified from the W8L circuit. The programmed function (pre-LS2) has singularities. FGC63 regulation follows the function, which results in big overshoots. No easy fix as this has an impact of the Working Point. To be followed up with SMWG, ABP, and OP.
- Polarity check: New PI.QLB circuit with wrong polarity. Corrected and checked. Many Low Energy QSK and DHZ with wrong polarity. SWY corrected and checked. PSR corrected and checked. PR.RXNO14 powers XNO in SD 10 and vice versa (cable swap). Many thanks to our EPC colleagues for their support and to make all power converters available.
- DR KFA4, 13, and 21 are pulsing, have a minor issue with acquisition timing. KFA45 FESA class ready. PS Orbit application bucket selector is working, but H8 definition on RF user SH16 is strange.

### Questions and comments:

- R. Steerenberg asked if the DSO test has been discussed with SPS. O. Hans said it had not.
- Answering R. Steerenberg’s question O. Hans said the issue with the backleg winding was not a critical one.

### ELENA by L. Ponce:

- Problem with ion switch power supply: Couple of events last week on the PC, running out of spare. Suspicion of insufficient protection against sparking. Switched to FUG power supply (not pulsed) to restore beam operation and extraction to LNE50, two spares now available (last one at CERN) and 3 modules send back for repair and upgrades to constructor. Ion switch reconditioning before reinstallation of the spare to limit the risk of sparking and restore extraction to LNE0.
- Lots of work on cycles extracted to Gbar: Switched to h=4 cycle for shorter bunch length. Different set of optics provided by ABT to minimize beam sizes. Many ring studies going on in parallel on E-cooler magnetic system, chromaticity, coupling, LLRF.

### **LINAC 3 by G. Bellodi:**

- There were further investigations of the effects on the beam of the source movable puller position, with emittance reconstruction from profile measurements with quadrupole scans, and a CSD (charge state distribution) scan. CSD scans seemed to show a shift towards higher charge states for shorter gaps (hence a lower Pb29+ current), to be confirmed. Emittance measurements do not show conclusive trends yet.
- A timing protection module was installed on the source Sairem RF amplifier.
- LLRF: Tank1 and 2 were commissioned, with confirmation of phase and amplitude setting points.
- Cross-talk was observed between different users for RF devices.
- A new application for LBS measurements was successfully tested without beam.
- Oven refill on 30/11.

### **Questions and comments:**

- R. Steerenberg asked if the ion current drop is due to the bendings. G. Bellodi confirmed.

**CLEAR by D. Gamba:** Nothing special. Operation stops 16<sup>th</sup> of December.

**Questions and comments:** D. Chapuis asked when the water will be needed first in next year. It was concluded 12<sup>th</sup> of February.

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

### **3. SPS hardware commissioning plans by J. Ridewood:**

Planning of closure:

- Tuesday afternoon: Pre-patrol of the machine (EN-ACE, HSE-RP & BE-P)
- Thursday evening: Access switched to restricted access and control from CSA to CCC
- Friday afternoon: "Mise hors tensions" progressively removed. Normally no (or very few) access foreseen thereafter.
- Monday: Full patrol of SPS ring by BE-OP, then BE-ICS DSO prep tests.
- 8th -10th December: SPS ring DSO tests.
- 11th December onwards: HV tests, EPC mains and aux tests .
- Day to day operations: Shift crew in place mornings and afternoons from 4/12. No nights, no weekends yet. Very brief daily morning meetings via zoom at 8h30 for status updates, issue management, daily program. As in previous years, attendance is not obligatory but if there is something to tell or information is needed, this is the place to do it:  
<https://cern.zoom.us/j/94490736883?pwd=M2svVVhmWWpxdi9PZmV3cjhTY3JOUT09>
- Access will be strictly limited. Outside office hours: before 8h30 or after 18h30.
- Requests for access, issues, delays, etc should be discussed and announced at morning meetings.

### **Questions and comments:**

- Answering R. Valera's question J. Ridewood confirmed that a preliminary DSO test will be done without the repair of vacuum chambers, then the rest of the DSO test will be done after.
- O. Hans noted that there must be an access in TT2. F. Pirotte noted that this requires a discussion with PS and SPS operation.

### **4. Draft 2021 Injectors schedule by R. Steerenberg**

See the slides for the schedule.

**Questions and comments:**

- L. Ponce noted that AD users asking for 4 weeks more beam time, a request will be submitted to SPSC.
- E. Mahner asked if the technical stop in W16 is foreseen to change the Linac4 source. R. Steerenberg confirmed. There will be a stop also for the other machines, the details are not yet known.
- K. Bilko asked if there will be beam next week in the PSB. R. Steerenberg confirmed. The commissioning will start Monday and circulating beam should be available before Christmas.

**5. AOB:** None.

*Minutes by L. Bojtár*