

FOM Report – Wk. 34

TI supervisors

Luca Timeo (Linac4)

Gian Piero Di Giovanni (PSB)

Lefteris Fadakis (ISOLDE)

Yann Dutheil (PS)

Michael Bacak, Paolo Milazzo (n_ToF)

Dipanwita Banerjee (East and North Areas)

Lars Jorgensen (AD/ELENA)

Kevin Li (SPS)

Michele Bergamaschi (AWAKE)

Enrico Bravin (LHC)

Maciej Slupecki (Linac3)

Theo Argyropoulos (LEIR)

Pierre Korysko (CLEAR)

Alberto Rodriguez (FOM)

Approval minutes FOM Wk. 33 and open actions:

- Date: 20.08.2024.
- [Hyperlink here](#)
- Minutes last meeting prepared by Marlene Turner. Thank you very much!
- Open actions:
 - None
- Approval of the minutes. Any objection?

Summary of the Reports from the Accelerators and Facilities:

| TI | TI supervisors |
|--------|--|
| Wk. 34 | <ul style="list-style-type: none"><li>▪ Issue with controls for SVC (19.08): Caused an over-voltage (+30% for ~20 ms) on the 18 kV network which caused the trip of the RF for the SPS (cavity 5 200 MHz). EPC restarted the system which solved the problem. System is obsolete and will be replaced in LS3.<li>▪ Issue with valve for cooling system in SH2 (20.08). Caused a pressure drop and an alarm in the CRYO in LHC2. Unable to move the valve remotely. EN-CV expert intervened quickly to manually close the valve which restored the pressure before it had any impact on the CRYO.<li>▪ Trip of 18KV stable filter in BEF4 (26.08). TI & EPC piquet on-site to look for the source of the trip, but nothing was found. Agreed to restart the filter in coordination with SPS.<li>▪ Trip of harmonic filter (SVC) in SEQ2 (LHC2) on 26.08. EPC piquet on-site, where a broken trench relay was found. Intervention for changing the relay being coordinated with experts. LHC and ALICE are both informed. |

Summary of the Reports from the Accelerators and Facilities:

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|---------------|---|--------------------------------|
| LINAC4 | 97.6 % | MC: Luca Timeo → P. Skowronski |
| Wk. 34 | <ul style="list-style-type: none">▪ SY-EPC specialists tuned the threshold detection of an auxiliary power supply of DTL2 in the shadow of the L4L.RLF.121 intervention. | |
| Issues: | <ul style="list-style-type: none">▪ Discharges in the klystron's HV tanks interlocked the PIMS0910 and PIMS0506 modulators on 21.08 and on 24.08 (~5m+~6ms).▪ Current instability in L4L.RLF.121 (22.08) due to problem in power converter (~3h). SY-EPC experts found and solved the problem.▪ Water pressure problem in L4T.RBH.021 (22.08). Intervention of the SY-EPC piquet needed (~50m).▪ Cluster of four breakdowns in the CCDTL4 accelerating structure on 23.08 (~4m). | |

Summary of the Reports from the Accelerators and Facilities:

| PSB | PS: 97.4 % | ISOLDE: 97.4 % | MC: Gian Piero Di Giovanni → Federico Roncarolo |
|------------|---|-----------------------|--|
| Wk. 34 | Good week with with no major sources of downtime. <ul style="list-style-type: none">▪ Delivery of all beam requested including those used for the LHC MD block. Some changes and fine tuning needed at the last minute and following feedback of users.▪ GPS beam pushed up to 4E13 ppp (standard max operation: 3.3E13 ppp) for MD studies on the target for a restricted amount of time (~1h).▪ Water refilled on 20.08 (11 days after the last one). Water leak in BR.QDE11 may be deteriorating (previous refill 17 days earlier). Access request for inspection. | | |
| Issues: | <ul style="list-style-type: none">▪ Stop of vacuum pump (BT2.VPI11A) due to a vacuum spike (~13m). Interlock of vertical septa (BT1.SMV10) when trying to restart the vacuum pump.▪ Trip of the BE.BSW15L4 bumper. Quickly reset (~4m).▪ LIU wire scanner in R3H stuck in IN position (19.08). Root cause may be a known weakness of the bearings. Being addressed by SY-BI for the future generations. Spare unit will be available at the beginning of September. Replacement could take ~24h. Operations without it until YETS or an opportunity arises. | | |
| Wk. 35 | <ul style="list-style-type: none">▪ Access request (28.08 or 29.08 for ~2h): Visual investigation of the water leak in BR.QDE11. | | |

Summary of the Reports from the Accelerators and Facilities:

| ISOLDE | REX/HIE-ISOLDE + GPS: 95.5 % | MS: Lefteris Fadakis → Alberto Rodriguez |
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| Wk. 34 | <ul style="list-style-type: none">▪ GPS: MD by PSB and ISOLDE target teams (19-20.08). Yields for different beam ppp intensities measured.▪ GPS + REX/HIE-ISOLDE: Preparation for IS675 using stable $^{20}\text{Ne}^{6+}$ and $^{64}\text{Zn}^{20+}$ beams. Physics ($^{61}\text{Zn}^{20+}$ at 7.5 MeV/u to ISS) started on 22.08.▪ HRS: Irradiation of MEDICIS target (19-20.08). | |
| Issues: | <ul style="list-style-type: none">▪ Trip of GPS target line heating (~45m).▪ Loss of beam due to changes in the electric field / RF power relationship of the IH structure. Recurrent problem that needs to be addressed. | |
| Wk. 35 | <ul style="list-style-type: none">▪ GPS + REX/HIE-ISOLDE: End of IS675 ($^{61}\text{Zn}^{20+}$ at 7.5 MeV/u to ISS) on 27.08. New target installation (#810). Preparation and start of IS646 Physics ($^{79}\text{Zn}^{20+}$ at 4.0 MeV/u to Miniball) on 30.08.▪ HRS: Irradiation of MEDICIS target (27-28.08). New target installation (#861) on 28.08. | |

Summary of the Reports from the Accelerators and Facilities:

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| PS | SPS: 94.3 % AD/ELENA: 94.3 % | n_ToF: 94.3 % EA T8: 95.4 % | EA T9: 94.9 % EA N: 95.4 % | MC: Yann Dutheil → Ewen Maclean |
| Wk. 34: | <ul style="list-style-type: none"> ▪ TT2 auto steering issues solved and enabled on most TOF cycles. Present optics is very sensitive and requires manual adjustment of FTN by OP when supercycle is changed. ▪ BIG TOF parasitic accelerated on EAST N&T9 cycles. Causes strong EAST perturbations when TOF beam is removed. OP investigating automatic settings switch methods. ▪ RF switch of the AD RF system on 21.08 to diagnose noisy signals led to increased losses and worsen transfer to AD. Initially unnoticed. Quick reaction from RF. RF beam control switched back to AD on 23.08. Further investigations pending. ▪ Source of the pre-pulse observed on EAST cycles identified. Due to the early activation of transverse excitation. Problem now solved. | | | |
| Issues: | <ul style="list-style-type: none"> ▪ Drifts in beam position / intensity in T8. No short-term solution. Manual correction. ▪ Wrong timings in the PS RF trains on 21.08. Solved by RF expert. ▪ Trips of power converts in TT2 line (x3). On-site intervention needed for 2 of them. ▪ ALPS BPMs in TT2: investigations continued in inconsistent reported positions. | | | |
| Wk. 35: | <ul style="list-style-type: none"> ▪ Access request (~2h): primarily for 200 MHz cavity component replacement and tuning. | | | |

Summary of the Reports from the Accelerators and Facilities:

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| n_ToF | Michael Bacak, Paolo Milazzo |
| Wk. 34 | <p>Smooth data taking in all experimental areas.</p> <ul style="list-style-type: none">• EAR1: $^{238}\text{U}(n, g)$ measurement.• EAR2: $^{88}\text{Zr}(n, g)$ campaign.• NEAR: Activation measurements. <ul style="list-style-type: none">▪ Measurement profiling of dedicated intense proton beams. |
| Issues | <ul style="list-style-type: none">▪ No major issues. |
| Wk. 35 | <ul style="list-style-type: none">▪ Data taking in all experimental areas. No changes in the configurations:<ul style="list-style-type: none">• EAR1: $^{238}\text{U}(n, g)$ measurement.• EAR2: $^{88}\text{Zr}(n, g)$ measurement.• NEAR: Activation measurements.▪ Beam stop (28.08 from 08:00 to 16:00). |

Summary of the Reports from the Accelerators and Facilities:

| East Area | T8: 94 % | T9: 94 % | T10: 94 % | Dipanwita Banerjee → Johannes Bernhard |
|------------------|---|----------|-----------|--|
| Wk. 34 | <ul style="list-style-type: none">▪ T09: Good operation.▪ T10: Good operation.▪ T11: P349 uninstalled and scaffolding removed. Beam shutter closed until next CLOUD run. | | | |
| Issues: | <ul style="list-style-type: none">▪ No major issues. | | | |
| Wk. 35 | <ul style="list-style-type: none">▪ T09: ENUBET → EIC ePIC LFHCal.▪ T10: ALICE ITS3 → BE-EA, SY-BI, ALICE ITS3.▪ T11: No user. | | | |

➤ East Area Physics

Summary of the Reports from the Accelerators and Facilities:

| AD / ELENA | AD: | ELENA: | MS: Lars Jorgensen → Lajos Bojtár |
|-------------------|---|--------|-----------------------------------|
| Wk. 34 | ▪ Good week with very few problems. | | |
| Issues: | ▪ RF in PS caused beam steering on target to change. Auto-steering used to get more stable conditions. | | |
| Wk. 35 | ▪ AD ring access planned (28.08 for ~2h): Cryogenic Current Comparator (BCCCA). | | |

Summary of the Reports from the Accelerators and Facilities:

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| SPS | LHC: 89.1 % | NA: 93.2 % | MC: Kevin Li → Tom Levens |
| Wk. 34: | Good overall availability with beams to LHC and North Area. <ul style="list-style-type: none">▪ LHC: Wide variety of exotic beams required for the MD block that had been prepared the week before. Consequentially only little preparation time was needed throughout the week in the injectors, apart for some quick cross-checks just before the respective MD. Smooth transition back to physics on 23.08.▪ NA: Physics production whenever LHC beams allowed. Serving the experimental areas went smoothly without any major issues. | | |
| Issues: | ▪ Wobbling magnet T4 earth fault. | | |
| Wk. 35: | ▪ Intervention of ~9h for measurement on wobbling magnet T4 on a Wednesday (28.08 or 04.09). No extractions to the North Area. | | |

Summary of the Reports from the Accelerators and Facilities:

| North Area | H2: 89.8 % H4: 89.8 % | H6: 89.8 % H8: 89.8 % | K12: 89.8 % M2: 88.7 % | Dipanwita Banerjee → Johannes Bernhard |
|-------------------|--|--------------------------|---------------------------|--|
| Wk. 34 | <ul style="list-style-type: none"> ▪ H2, H4, H6, H8, M2: Good operation. ▪ P42/K12: Bend 2 in K12 stable again after intervention (19.08). Good operation since then. | | | |
| Issues: | <ul style="list-style-type: none"> ▪ General: Earth fault with Bend 2 (3x MTN magnets) of the T4 wobbling station. No further trips after threshold increased to 160 mA. Intervention (> 9h) in TCC2 will be needed if situation deteriorates. Inspection to be arranged asap (latest during the MD slot on 28.08). ▪ H2: Misalignment in beam pipe resulted in degradation on the electron beam conditions. Solved after realignment. ▪ H8: Some issues on the Sapphire moving table in H8C. Resolved quickly. ▪ M2: NR21-039 power converter fault for the NA64mu MS1 magnet. | | | |
| Wk. 35+ | <ul style="list-style-type: none"> ▪ H2: TECHNO CLS continues. ▪ H4: NP04 continues. ▪ H6: ATLAS ITK PIXEL continues. ▪ H8: IDEA DRC continues (switch from Korean to European team). ▪ M2: NA64mu continues. ▪ P42/K12: NA62 continues. | | | |

Summary of the Reports from the Accelerators and Facilities:

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| AWAKE | Michele Bergamaschi → Michele Bergamaschi |
| Wk. 34 | <ul style="list-style-type: none">▪ Work on control rack of plasma source to enable a remote reset of the upgrade/plungers rack finished 20.08.▪ Line vented to allow Rubidium reservoir disconnection on 19.08.▪ Rubidium reservoir refilled and reconnected 23.08. AWAKE line pumped down. |
| Issues: | <ul style="list-style-type: none">▪ No major issue |
| Wk. 35+ | <p>Fourth AWAKE proton run (start on 26.08 and continue for the next 3 wks.):</p> <ul style="list-style-type: none">▪ Begin with electron beam studies and effect by proton line magnets.▪ Continue with physics program. |

Summary of the Reports from the Accelerators and Facilities:

| LHC | Availability: 76 % | Stable beam: 24 % | MC: Enrico Bravin → Matteo Solfaroli |
|---------|--|-------------------|--------------------------------------|
| Wk. 34 | <ul style="list-style-type: none">▪ MD block 3 between 19.08 and 23.08:<ul style="list-style-type: none">• Many different beam variants requested from the injectors. Big overhead for them.• Heavily affected by RF issue. Loss of settings after high bunch intensity MDs. Initially suspected a hardware problem. Finally traced down to a settings problem. Situation back to normal, but some parameters need re-tuning at the next opportunity.• High intensity MDs only partially successful as the Beam Charge Change Monitor (BCCM) system prevented injecting trains with $I_b > 2E11$.▪ Physics restarted without issues right after. | | |
| Issues: | <ul style="list-style-type: none">▪ RF settings issue (several days to fix, operated MDs with low intensity during the nights).▪ Several accesses needed to address faults on the ROD.A67 PC, an AC-dipole and the quench protection system of RCBXH1.L8.▪ Fault of the postmortem storage server. Mitigated.▪ CRYO has one compressor off in point 6 that needs to be replaced and one faulty pressure sensor in point 8 that needs to be replaced or excluded from the loop. | | |
| Wk. 35 | <ul style="list-style-type: none">▪ Physics production. | | |

Summary of the Reports from the Accelerators and Facilities:

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| Linac3 | Maciej Slupecki → Detlef Kuchler |
| Wk. 34 | <ul style="list-style-type: none">▪ Restarted source (19.08 afternoon) after receiving the repaired high voltage power supply and installing it in the microwave generator.▪ Source and ITL line optimization.▪ Beam out of Linac3 checked to have similar properties as before the source stop.▪ $^{208}\text{Pb}^{54+}$ beam available for LEIR as of 19.08 evening. Very stable operation considering long preceding downtime, except for a few resets needed on 20.08. |
| Issues: | <ul style="list-style-type: none">▪ Radiation alarm after switching Cavity1 on caused by a known problem: amplifier delivering higher power than set value at cold startup. Solved by restarting the amplifier.▪ Three vacuum pumps switched off in ITL on 20.08 morning. Automatic sector valve closure. Checked by TE-VSC and restarted. Correlated with HV spark in the source extraction. |

Summary of the Reports from the Accelerators and Facilities:

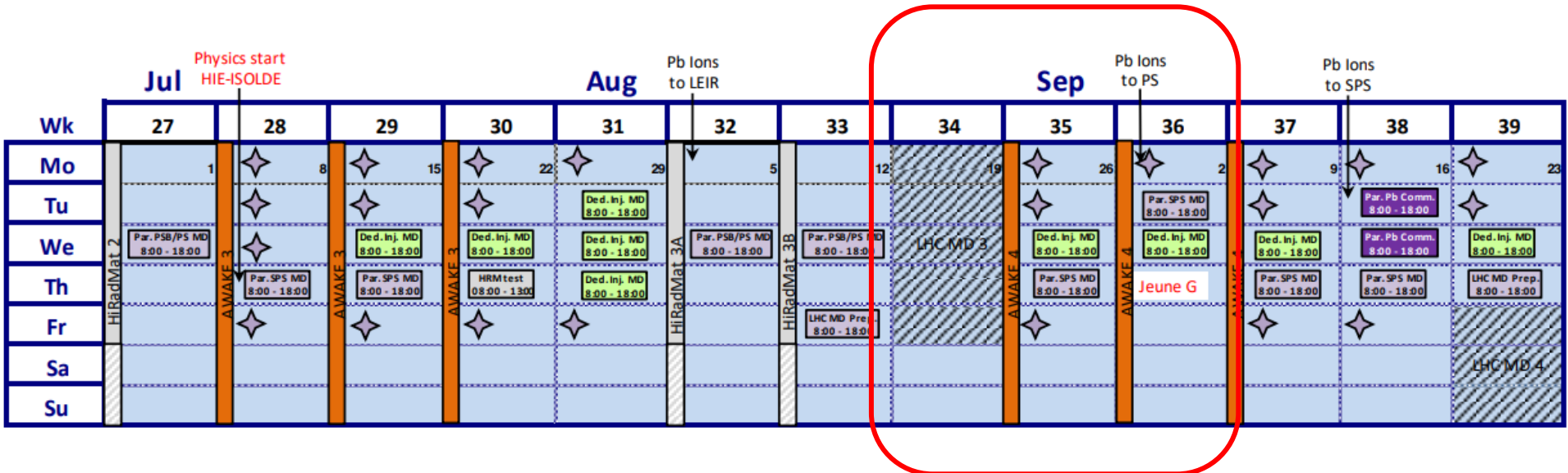
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| LEIR | MS: Theo Argyropoulos → Theo Argyropoulos |
| Wk. 34 | Beam commissioning of EARLY cycle started on 20.08: <ul style="list-style-type: none">▪ Increase Bp by 0.2 % to match the beam energy from Linac3.▪ Injection of 2.5E10 charges with efficiency reaching 53 %.▪ Beam captured and accelerated after fixing of the B-train issues.▪ Stable intensity of ~2.1E10 charges at flat top but only ~80 % extracted to EE/ETL lines. |
| Issues: | <ul style="list-style-type: none">▪ Magnet (EI.BVN20) not responding. Solved by EPC piquet and expert.▪ Issue with magnet (ETL.BHN20). Solved after deleting non-trimmable parameters in LSA.▪ Issue with B-train measurement. Switched to spare until the problem was fixed by expert.▪ No beam phase signal in LLRF. Fixed by RF expert.▪ No tomoscope available.▪ Inverted polarity in the ring BPMs. For now, changed in YASP. |
| Wk. 35 | <ul style="list-style-type: none">▪ Finish commissioning of the EARLY beam in LEIR and improve transmission to ETP line.▪ Follow up on possible beam degradation.▪ Start commissioning of the NOMINAL cycle. |

Summary of the Reports from the Accelerators and Facilities:

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| CLEAR | Pierre Korysko |
| Wk. 34 | <ul style="list-style-type: none">▪ CLEAR summer shutdown (wk. 3/3):<ul style="list-style-type: none">• Finished the hardware installation for the VULCAN (Versatile Ultra-Compact Accelerator-based Neutron source) experiment. |
| Issues: | <ul style="list-style-type: none">▪ No major issue |
| Wk. 35 | <ul style="list-style-type: none">▪ Beam for the VULCAN experiment. |

Short-term Injectors Schedule Outlook:

➤ Version 2.1 prepared by Rende (EDMS: [2872566](#)).



Last week:

- LHC MD block 3. Large number of beams had to be prepared by the injector complex.
- **Beam commissioning of LEIR started.**

This week:

- **First week of the AWAKE Run 3.**
- Continuation of the ion chain commissioning.

Next few weeks:

- Continuation of the AWAKE Run 3.
- Jeune Genevois holiday. Possible limited expert availability.