19 February 2024

# ACCELERATORS & EXPERIMENTAL FACILITIES STATUS

## SUMMARY OF WEEK 7 - 2024

Technical infrastructure: G. Langlois

Linac 4: P. Skowrinski

PS Booster: A. Akroh, F. Chapuis, G.P. Di Giovanni

ISOLDE: E. Piselli

PS: M. Coly, O. Hans

PS – East Area: No report.

PS – nTOF: No report

AD – ELENA: No report

SPS: J. ridewood, J. Dalla Costa, S. Cettour Cave

SPS – North Area: No report

SPS – AWAKE: G. Della Porta

SPS – HiRadMat: No report

Linac 3: No report

LEIR: No report

LHC: No report

CLEAR: Pierre Korysko, W. Farabolini

| Technical Infrastructure (TI) | | | | | |
|---|---|---|---|---|---|
| ***Facility Coordinator last week*** | Gildas Langlois | | | | |
| ***Facility Coordinator this week*** | Ronan Ledru | | | | |
| **Statistics** | | | | | |
| ***Alarms*** | 9794 | | | | |
| ***Phone calls*** | - | ***Incoming*** | - | ***Outgoing*** | - |
| ***ODMs*** | 95 | | | | |
| **Facility Status** | | | | | |
| ***Summary*** | | | | | |
| ***Issues*** | Mon 12/02/24<br><br>15:37<br>Trip of the 18kV transformer EMT407/4U due to a faulty relay<br><br>CV and Cryo impacted.<br><br><br>Thu 15/02/24<br><br>17:00<br>Suspicion of pollution from CERN in the Allondon river.<br><br>Fire brigade and HSE-ENV on site, but the CERN is not responsible. | | | | |
| ***Plans*** | | | | | |
| **Intervention Request** | | | | | |
| Yes / No | **Duration** | No | **Preferred date/time** | | |
| ***Reason*** | | | | | |
| ***Impact*** | | | | | |

| Linac 4 | | | | | |
|---|---|---|---|---|---|
| ***Machine Coordinator last week*** | Piotr Skowronski | | | | |
| ***Machine Coordinator this week*** | Athanasios Topaloudis | | | | |
| **Statistics** | | | | | |
| ***Availability*** | 100% | | | | |
| **Facility Status** | | | | | |
| ***Summary*** | LINAC4 finished the commissioning on Tuesday and started serving the PSB. High intensity beam (35 mA out of the RFQ) and dedicated configuration for the energy painting was also successfully setup. | | | | |
| ***Issues*** | On Monday the timing update was quite long, followed by a crash of the timing system few hours later, which stopped all the machines for an hour or so.<br>The first fault of the year, CCDTL0304 tripped, 5 minutes of downtime. | | | | |
| ***Plans*** | | | | | |
| **Intervention Request** | | | | | |
| No | ***Duration*** | | ***Preferred date/time*** | | |
| ***Reason*** | | | | | |
| ***Impact*** | | | | | |

# PS Booster

| | |
|---|---|
| ***Machine Coordinator last week*** | A.Akroh, F. Chapuis (HWC), G.P. Di Giovanni (BC) |
| ***Machine Coordinator this week*** | G.P. Giovanni |

**Beam Scheduled**

| | | | |
|---|---|---|---|
| ***ISOLDE*** | No | ***PS*** | No |

**Beam Availability by Destination (AFT)**

| | | | |
|---|---|---|---|
| ***ISOLDE*** | % | ***PS*** | % |

**Facility Status**

***Summary***

**HWC**:

The Hardware test period went well without major issues. A big thanks to all the experts for their excellent work and prompt reaction when contacted.

**Issue follow-up during these last few days:**

- BTY.BPM152, a magnetic shielding mounted to attenuate the BPM base line:
  - Final checks to be done as soon as the beam is sent to ISOLDE.
- OASIS Triggers failure (due to timing cables cut) has been fixed on Tuesday 13th by pulling new cables between racks BCER259 and BCER368.
- EN-CV announced on Monday that the monitoring of the demineralized-water circuit reported a flow leak of 40 ml/min:
  - After two accesses in the machine, the leak has been located in the BT branch on a flange and has been fixed.
- EXTERNAL_CONDITIONS, BIC, FI tests to be able to send beam to PS destination done and ok.

**Some leftovers to check as soon as the conditions allow:**

- External Condition: BT.BHZ10_BTM missing in the equation to send beam towards ISOLDE, being followed up with timing experts.
- Interlock Systems: EXTERNAL_CONDITIONS, BIC and FI must be checked before sending beam towards ISOLDE.
- The status of this zones and the EIS lockout did not allow to test the equations of the Interlock Systems. The equipment should be available from the 26th of February.

**BC:**

- Standalone beam commissioning.
- Excellent support from all experts, thanks a lot!
- New POPS-B filter tested with beam. Ripple at 1.0 and 1.2 kHz reduced, but novel dynamic introduced which increased field oscillation at injection. Filter removed on Friday to recover 2023 performance. EPC experts will continue to work on it in 2024.
- A few issues with the B-Train setting in R1 and R4 causing instability at injection and in the machine. Being addressed with the MSC experts.
- No need for magnet realignment after the BR.QFO11 exchange.
- Beams for PS BC prepared and ready to go:
  - LHCINDIV,
  - TOF,
  - MTE.
- Setting started for:
  - LHC 25 ns standard,
  - ISOLDE at 1.4 GeV,
  - AD.

| | | | | |
|---|---|---|---|---|
| ***Issues*** | As usual a list of teething issues being followed with the experts. Nothing special to report. | | | |
| ***Plans*** | • Continue beam commissioning.<br>• Deliver beams to PS.<br>• Continue beam setting-up, including EAST, BCMS25. | | | |
| **Intervention Request** | | | | |
| Yes/No | ***Duration*** | | ***Preferred date/time*** | |
| ***Reason*** | | | | |
| ***Impact*** | | | | |

| ISOLDE | | | | | | |
|---|---|---|---|---|---|---|
| ***Machine Supervisor last week*** | E. Piselli | | | | | |
| ***Machine Supervisor this week*** | A. Rodriguez | | | | | |
| **Beam Scheduled** | | | | | | |
| ***GPS*** | | ***HRS*** | | ***HIE-ISO*** | | |
| **Beam Availability by Destination (AFT)** | | | | | | |
| ***GPS*** | | ***HRS*** | | ***HIE-ISO*** | | |
| **Facility Status** | | | | | | |
| ***Summary*** | First week of hardware check.<br>We didn't have water and all the power supplies were still locked. Therefore we have performed some mechanical tests on the low energy beam instrumentation. | | | | | |
| ***Issues*** | Few small issues found on beam instrumentation, addressed to SY-BI experts. | | | | | |
| ***Plans*** | "Deconsignation" of the low energy power supplies and continuing hardware check. | | | | | |
| **Intervention Request** | | | | | | |
| Yes / No | ***Duration*** | | ***Preferred date/time*** | | | |
| ***Reason*** | | | | | | |
| ***Impact*** | | | | | | |

# PS report

| **PS** | Marcel Coly, Oliver Hans |
|---|---|
| Wk. 07: | ▪ Hardware commissioning.<br>▪ PSR and TT2/nTOFp beam permits signed.<br>▪ First beam injected over the weekend! |
| Issues: | ▪ Transverse feedback system not yet available, overconsumption of a power amplifier under investigation.<br>▪ One module of the injection kicker down. |
| Wk. 08: | ▪ Continuation of the beam commissioning. |

| SPS | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***Machine Coordinator last week*** | James, Johan, Stephane | | | | | | |
| ***Machine Coordinator this week*** | James, Johan, Stephane | | | | | | |
| **Beam Scheduled** | | | | | | | |
| ***LHC*** | No | ***NA*** | No | ***AWAKE*** | No | ***HiRadMat*** | No |
| **Beam Availability by Destination (AFT)** | | | | | | | |
| ***LHC*** | -- | ***NA*** | -- | ***AWAKE*** | -- | ***HiRadMat*** | -- |
| **Facility Status** | | | | | | | |
| ***Summary*** | A successful week with MPS single tests completed at all stations around the ring<br>DSO tests successfully completed for TI8, TI2, Awake and Hiradmat<br>All FMCM, FII tested<br>Checking all PCs in TI8 and TI2 as and when made available by EPC<br>Rad Mon interlocks tested<br>All BCTs, BLMs tested | | | | | | |
| ***Issues*** | Issue on BIC TT40A input 8 do not pass true-Solved<br>Girder MSE LSS4 not moving-Solved<br>discovered an issue on injection BLMS – dephased wrt injection interlocks<br>- Software release to hopefully resolve early next week<br>Transformer problem on PCs RQID 20700 normally solved | | | | | | |
| ***Plans*** | MPS setting up regulation and FGC3 on SMDs<br>Test coast, economy, Laslett tune<br>Hopefully pulsing from Wednesday<br>Checking all PCs in TI8 and TI2 including FEI<br>Setup cavities by RF expert<br>Continue testing from checklist<br>Testing BIS (TED interlock.., Injection BIS)<br>Mains tripped interlock reactivity test<br>Friday hopefully full closure of ring BICs<br>Ensuring readiness of week 9 DSO tests | | | | | | |
| **Intervention Request** | | | | | | | |
| Yes / No | ***Duration*** | | ***Preferred date/time*** | | | | |
| ***Reason*** | | | | | | | |
| ***Impact*** | | | | | | | |

| SPS AWAKE | | | | |
|---|---|---|---|---|
| ***Facility Coordinator last week*** | Giovanni Zevi Della Porta | | | |
| ***Facility Coordinator this week*** | - | | | |
| **Facility Status** | | | | |
| ***Summary*** | • Started electron beam commissioning: beam propagated through entire beamline, emittance OK, trajectory and optics reproduce the 2023 performance with lowest beam charge.<br>• DSO test for proton beam to AWAKE | | | |
| ***Issues*** | | | | |
| ***Plans*** | • SPS hardware commissioning on AWAKE line<br>• Continue electron beam commissioning: measure photocathode Quantum Efficiency, increase bunch charge. | | | |
| **Foreseen beam stop** | | | | |
| Yes / No | ***Duration*** | | ***date/time*** | |

| CLEAR | |
|---|---|
| ***Facility Coordinator last week*** | Pierre Korysko & Wilfrid Farabolini |
| ***Facility Coordinator this week*** | Pierre Korysko & Wilfrid Farabolini |
| **Facility Status** | |
| ***Summary*** | - The CLEAR new beam line has been traced on the tunnel floor.<br>- Numerous cables were sorted out and were removed from the current and the new beam line locations.<br>- Work on new software for the new beam line.<br>- New robot fully built, ready to be tested, optimised and installed. |
| ***Issues*** | - No issues. |
| ***Plans*** | - Start the installation of the new beam line elements (girders, magnets, chambers, instrumentation, etc.)<br>- Remove elements from the tunnel (old dump, old cables, old magnets and instrumentation). |