

## Accelerator Complex Status

### End week 7 (Monday 21 February 2022)

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#### Technical Infrastructure (J. Nielsen):

Very quiet week for TI, nothing to repot for the week.

This week EN-EL will do the BE91 maintenance, but not on any of the secure network, so with no impact for the SPS.

#### LINAC4 (P. Skowronski):

Beam commissioning was successfully completed, and on Friday afternoon LINAC4 started delivering beam to the PSB.

- On Saturday the RFQ klystron tripped with cathode heating fault; a reset didn't help and the power supply had to be exchanged (beam stop for 6h).
- The beam intensity from the source was drifting more than expected. The source was exchanged during the YETS and restarted later than planned. Drifts are therefore not unusual and investigations need to continue. For the weekend, beam current was reduced from the nominal 35 mA to 30 mA to leave more operational margin for the RF amplifier. On Saturday morning the drift stopped and currently the situation is stable.

#### PS Booster (F. Chapuis, G.P. Di Giovanni):

HW commissioning finished ahead of time, and first beam was injected in the PSB Friday afternoon (planned for Monday 21<sup>st</sup>).

Points to mention:

- New POPS-B sequence for smooth startup of main power converter and all related circuits.
- New multipole circuits (octupoles) delivered to OP Friday afternoon.
- LL-RF regained control following issues after a firmware upgrade last Wednesday...
- New Linac4 settings merged with PSB cycle settings.
- Beam commissioning has started with low intensity; it was possible to inject and extract to the PSB external dump 4 rings of LHCINDIV beam at 2.0 GeV with a few E10 protons-per-ring.
  - Main issue encountered: all the BPMs in the extraction lines were not responsive – to be followed up with the specialists on Monday.

#### ISOLDE (S. Mataguez):

For ISOLDE it has been a good week, the commissioning is on-going smoothly.

- On **GPS**, Target#593 (surface target) stable beam tuning from GPS to all beam lines of the low energy experimental part. A target change is scheduled for today to switch to a plasma target.
- On **HRS**, Target#732 (surface target) stable beam tuning – RFQ and transmission mode – from HRS to the low energy part beam lines tuning is on-going.
- TE-MSD performed separators magnet hysteresis and stability tests.

#### PS (M. Delrieux):

- The HW commissioning for the Switchyard is 100% complete and was finished ahead of schedule to allow LINAC4 beam to LBE one day before the scheduled date.
- The HW commissioning for the PS RING and TT2 is in full swing and has made very good progress.
- POPS tests with special cycles at low injection B-field took place.

- One more week of HW commissioning before the start with beam; no blocking issue at this point...

**AD ():**

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**ELENA ():**

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**SPS (S. Cettour Cave):**

No major issues to announce; HW commissioning proceeding as foreseen.

- Main dipole and quadrupole tests performed.
- Polarity checks of orbit correctors in BA3, 4 and 5 and of all magnets in TDC2. One inverted polarity found on MDLV.2505.
- Kicker and septa as well as RF conditioning almost complete.
- Access team solved the issue on the door between BA1 and BA2 (mechanical problem on the electrical lock).
- Three minor water leaks solved on BA3, BA4, BA5.

**LHC (<https://twiki.cern.ch/twiki/bin/viewauth/LhcMachine/LhcSummaryWeeks2022>):**

HW commissioning on track.

- Phase 2 powering permit is validated for sectors 45, 56, 67 and 78. Phase 1 tests now over 7 sectors (apart from sector 23), paused in S12 due to cryo maintenance. Sectors 45 and 56 are ready for phase 2 tests. RF DSO tests had to be postponed again as the water quality is not ok yet.

S12	S23	S34	S45	S56	S67	S78	S81
Phase 1	Cold	Phase 1	Phase 2	Phase 2	Phase 1	Phase 1	Phase 1
77 / 11950 A	0 / 0 A	71 / 11950 A	87 / 11950 A	76 / 11600 A	62 / 11600 A	21 / 11600 A	55 / 11600