

Accelerator complex status

End week 28 (Sunday 13th July 2014)

TI (Jesper Nielsen)

<https://wikis/display/TIOP/2014/07/14/TI+Summary+week+27%2C+2014>

Booster (Bettina Mikulec)

We were continuing with the preparation of beams to help setting up the PS, the first user beams (EAST!) and beams for the first MDs in PSB and PS.

Main issues:

- After re-alignment of some pickups in the injection line, the new mechanical offsets were implemented and a new injection steering done.
- On Wednesday evening RP warned us that the alarm level on PAXLN202 (at the end of Linac2) was exceeded and that we should take some action. On Thursday we modified the steering to create a vertical bump after the LT.BHZ20 bend to avoid losses; R. Scrivens informed us about a vertically misaligned vacuum pipe in this region. With this bump we managed to gain 12 mA at PSB injection.
- On Wednesday evening we finally had ejection trajectories available.
- Thursday morning large losses were observed around the bending magnet BT.BHZ10. Finally the BTP beam stopper was found to be in the beam, although the CCV was set to the OUT position. No interlock yet in place (EN-STI was waiting for the connectors to be mounted by EN-EL) and no alarm on LASER. By Friday we had at least alarms in LASER available - the connection to the External Conditions should be provided tomorrow. Since the upgrade of the beam stopper controls we see frequently the 'position unknown' warning for the beam stoppers...
- Thursday: Timing modifications to replace the start timings of the capacitive discharge power supplies from w8/w2 to w10. This will allow compatibility with archives after the LS1 timing modifications. Thanks to G. Metral for his help!
- Friday we suffered from beam loss at extraction. The extraction kickers didn't fire because of a FALSE USER_PERMIT of the extraction BIS, which was due to BT.BHZ10 being in error, as it wasn't switched off and reset correctly after a PS access. We will be working this week to come up with a solution to avoid this issue.
- During the week hardware and software changes took place to allow us to control the FGC3s. Required for resonance compensation and the orbit correctors for the PSB MD next week.
- INCA/LSA interventions for YASP (orbit correction). We still need some more modifications to get it hopefully working this week.

Thanks to the dedication of the BI team our list of BI issues is now clearly decreasing.

This week the RF team will work on the splitting with the new digital LL-RF control.

Work should continue on the resonance compensation to be able to increase the intensity.

PS (Guido Sterbini)

It was a hectic week for the PS. Following the Monday morning vertical re-alignment, the orbit measurements were in good agreement with expectations. The RMS vertical orbit reduces from 1.4 to 0.6 mm.

On Tuesday morning we performed the energy matching between the PSB and PS.

During the afternoon an access in the PS ring was required by the Fire Brigade. Some water, from a leak developed in the East Area, went into the PS tunnel. The presence of water was confirmed by the inspection but there was no danger or damage for the HW. RP verified that the water was not activated and together with TI and CV organized its removal. We have a total 5 h beam stop. During the rest of the day we start commissioning SFTPRO needed for the phasing of the 200 MHz cavities.

On Wednesday the 200 MHz cavities phase was adjusted and the commissioning of EAST1 beam started. In the afternoon further tests on the energy matching showed potential problems with the B-train: relatively strong dependence of the energy matching from the SC composition was observed. We contacted the B-train specialist.

On Thursday afternoon our TE-MSD colleagues made systematic measurements on a super cycle set-up for the purpose. Some potential anomalies were observed. They replace the normal B-train system with its spare: anomalies were still present and re-confirmed by beam-based measurement. TE-MSD will continue the investigations. Between Thursday night and Friday morning, one of the beam stoppers of the TT2 line (F16.STP152) went IN (problem with the pressurised air circuit). Due to the absence of the external condition, the stopper was irradiated with $\sim 35 \times 10^{13}$ p at 26 GeV. An access was organized to allow EN-STI to put it in the OUT position.

On Friday morning, after the access and beam permit signature, we started to commission the slow extraction towards East Area. An intervention was required on several magnets of the F61 line and an access was organized (2 h beam stop). In the late afternoon an additional access was needed to repair one screen of the F61 line (F61.MTV03, 2 h beam stop). We acknowledge CO and EN-STI for the help in the setting up of the instrumentation of the F61 line.

After the difficulties found in setting-up the slow extraction and some investigation, on Saturday morning we concluded that one quadrupole used for the slow extraction (PR.QSE29) had a wrong polarity. With the help of the First Line, the magnet and the RP piquets the polarity was corrected (2.5 h beam stop) and we could finally extract on the East dump.

Since Sunday morning we were allowed by RP to send the beam on the East target and we continued to optimize the extraction and the steering of the F61 line.

During the whole week, the MTE test and commissioning activities were continuing (testing of the dummy septum, extraction bumps, resonance excitations...).

LEIR (Sergio Pasinelli)

Last week, the beam was injected but lost at the injection.

This week:

We have readjusted, with more accuracy, the ITE, ETL and the EI lines. We have adjusted the main bending etc.. for the Ar11+.

We have played for two days with all elements around the injection without success. The beam was always lost around the PU 12.

Wednesday, after an "exotic setting" the beam has been detected on the PU 13 (located at the 2/6 of first magnet ER.BHZ10) but lost before the PU 14 (located at the 5/6 of the ER.BHZ10). The current in the main magnet for this "exotic setting" was lower than around 20% of the Ar11+ nominal value!

The end of week was dedicated to understand why this 20%. A setting was found by adjusting the quads in the EI line and the beam has reached the PU 13 but not the PU 14 with the nominal values for the main bending.

Unfortunately, Saturday afternoon we lost the SMH11 (grounding fault). The specialists (A.Prost & C.Mutin) have found a temperature sensor in fault, which was sending 24V to the power supply of SMH11.

A. Prost tried to obtain the green light from the responsible of the magnet to bypass the sensor. He didn't reach him. The decision was taken to "not bypass" the sensor and repair SMH11 Monday.

During this week we have suffered by the several accesses into the PS and/or into the switchyard. Each access into these zones, they close the LEIR EIS.

We have also suffered from the OASIS errors & slowness.