

## Accelerator complex status

### End week 20 (Sunday 17<sup>th</sup> May 2015)

#### TI (Peter Sollander)

TI summary - quite an eventful week:

<https://wikis/display/TIOP/2015/05/12/TI+summary+week+20,+2015>

#### Linacs (Rolf Wegner)

Linac2 had a relatively good week - apart from down time due to power cuts:

- Tuesday early morning Linac2 suffered from an electric glitch. RF specialists had to come in to solve a water pressure problem before Linac2 could be restarted. 3.5 hours down time.
- A minor interruption on Wednesday morning, a reset of the RF high voltage modulator was needed (6 min down time).
- Friday early morning Linac2 stopped again due to a power cut but operators could restart without major problems. 2 hours down time.
- Friday morning there was a problem with radiation monitors in the PS complex. Linac2 was stopped until the problem was solved. 2 hours down time.

Linac3 is being prepared for the lead ion run.

#### ISOLDE (Pascal Fernier)

**GPS** : no activity on this machine this week; only target change friday for the new target # 508. Setting up and protons scan on Monday 18/05.

**HRS** : target #518 for a run @30kV on LA1 line - Measures with radioactif beam  $^{19}\text{Ne}$  and  $^{10}\text{C}+^{16}\text{O}$

Beam contaminated with  $\text{N}_2$  ( rate 50%) but high beam intensity from target, and finally physicist are happy.

No serious problems during this week.

#### Booster (Alan Findlay)

A week without too many worries for the PSB, but there were a couple of issues that cut the beam.

We had an intervention planned during 1.5 hours on Tuesday afternoon for the problem with the ring 4 Q Strip supply, but they found there was a missing winding on the DC transformer and had it fixed within 10 minutes. The vacuum group took the opportunity to do a sublimation since the PS were still down, but we had beam back after about an hour. The cycles then had to have the R4 Q strips corrected for all the operational users.

Thursday night we lost about 2 hours due to the power cut that took down the complex. We then lost about 2 hours on Friday morning when we lost contact with the radiation monitors for the complex which was related to the power cut the previous night.

Work was carried out on a couple of the beams (notably BCMS & LHC50) to reduce the transverse emittances, and good results were achieved (5-10% reduction) through fine tuning of the working point by the team.

There was significant work carried out setting up and adjusting the many MD beams required in the complex, but we seemed to keep up with the constant demand. We did run out of MD users on Wednesday, and this may become even more of a problem as the MD program really takes off, so we'll have to keep this in mind.

So, I think we can say that we kept up with demand for another week and our wee machine came out of the week in better shape than it went into it.

### **PS (Jakub Wozniak)**

It was a good week for the PS delivering the beams for the LHC, SPS North Area fixed target physics, the nTOF and the East beam for T8 IRRAD plus T9 and T10 in the north branch of the East Area. During the week we have continued optimising the optics for the IRRAD beam.

As for the stops we had 30 minutes of downtime on Monday for the repair of the cavity C86 and additional 30 minutes coming from the booster rings 3 & 4. Some more problem came during the night with the power cut that caused a downtime for all beams for around 2h30.

On Tuesday afternoon we had a planned access for 2h to fix multiple pending problems (F61.BHZ03/SMH01, SEH23, F16.QFO225 and verification of the PFW cables). On Wednesday late afternoon we have received a request to increase the SPS SFTPRO CT beam intensity by  $4e12$  ppp for the T6 target. The intensity of this beam has been increased to  $1.55E13$  ppp with CT suffering larger losses in section 15-16-17 and radiation alarms crossing the safety thresholds. More work is needed to correctly set up this beam with required intensity taking into account the dummy septum in section 15.

On Thursday night PS was hit again with a power cut that caused no beam for 2h with many perturbations that continued until Friday morning (problems with radiation alarm system).

The weekend went well without major issues.

### **SPS (Hannes Bartosik)**

It was a good week for the SPS with only few longer periods of downtime for fixed target physics.

#### **Fixed target beam:**

- The intensity of the fixed target beam was increased in the middle of the week. The requested intensities of 50/50/120e11 p+ on the North Area targets could not be fully met yet due to losses at PS extraction. The present sharing is 40/45/100e11 p+.
- Downtime was mainly accumulated on Monday, where the beam for the North Area was stopped for 2.5 hours for switching to the spare power supply for the MSI injection septum, for more than 5 hours due to an earth fault on the bypass power supply for the bending magnet MBE 3103 in TT20 and for 3.5 hours due to a power glitch during the night. Roughly 6 hours downtime over the week were caused by the PS complex.

### HiRadMat:

- The long HiRadMat cycle for LHC-type bunch trains was setup for 4x72 bunches with  $1.3 \times 10^{11}$  p/b on Monday and Tuesday.
- During extraction tests with 12 bunches losses in the LSS6 extraction region were encountered, which could be reduced by a correction of the beam position at the extraction point.
- First extractions to the HiRadMat experimental area were performed on Friday. However, with 72 bunches the losses in LSS6 were beyond the operational BLM limits. The issue is being investigated by TE-ABT experts.

### LHC beams:

- The LSS6 extraction settings of the LHC single bunch beams were optimised in the course of the investigations for the HiRadMat extraction. LSS6 extraction losses with LHC multi-bunch LHC beams are not yet understood and investigations are ongoing.
- The long cycle for four LHCINDIV bunches was fully setup apart from extraction.
- A few hours were spent on the doublet beam commissioning. Transverse emittances below  $4 \mu\text{m}$  were measured for intensities of around  $1.5 \times 10^{11}$  p/doublet at flat top.