

## End Week 48 (November 30<sup>th</sup>) – Status of Accelerators

### Summary

<b>LINAC 2</b>	Good week after recovery from the vacuum problem of last weekend
<b>PSB</b>	Very good and quiet week
<b>PS</b>	Very good week, high beam availability
<b>SPS</b>	Good week for the SPS
<b>AD</b>	Very good week for AD apart from the stop due to PS vacuum problem
<b>TI</b>	
<b>LHC</b>	

### Linacs (F. Gerigk)

#### Linac2:

Very good week without problems after the recovery from the vacuum problem.

The RFQ is operating now with three ion pumps and no spare pumping speed contingency due to the short circuit in the fourth and fifth ion pump. In case of breakdown of a further ion pump, however, we will be obliged to go for a substitution and reinstallation, which would take ½ day and a further 1 and ½ for RF reconditioning. Substitution of the ion pumps is planned on the 17<sup>th</sup> and 18<sup>th</sup> December.

On Tuesday, during the PS/SPS access, vacuum test on source and RFQ took place giving pressure levels of  $1.9 \times 10^{-5}$  and  $9 \times 10^{-7}$  mbar and the HV column was cleaned.

### PSB (J. Tan)

Very good and quiet week without problems for the Booster.

On Tuesday 24<sup>th</sup>, the beam was cut at noon for the radiation survey. When restarting the machine at 6PM, the corrector BT.DVT30 could not be set on remotely and the PIPO was called. Meanwhile the magnet went on, on its own before the piquet intervention. Only 10min of beam time were lost.

On Thursday 26<sup>th</sup> the beam was cut early in the morning to grant access into the PS ring for the specialists to intervene on the PS fast wire scanner FWS54 vacuum leak. The beam was back at 3:15PM.

The LHC PROBE has been produced all the weekend for injection into the LHC, and we have added both in the logbook and in the consignes that its intensity in the PSB must not exceed  $5 \times 10^9$  for any reason, as long as there is no official request for it.

### PS (Y. Papaphilippou)

- On Wednesday night (1:36am), the ion pumps of the sector 60 switched off, starting from the one of straight section 54, with the gauges reaching pressures of  $\sim 10^{-3}$  mbar. In this location, there is a SEM grid, followed downstream by a horizontal fast wire-scanner (FWS54), which was used during that time for profile measurements. The piquet vacuum was called and verified that the pressure has increased to  $\sim 10^{-2}$  mbar and an access was needed for a leak detection. The machine was accessed

at 4:30am, together with the piquet radio-protection and the septum expert, who verified the condition of the septum located in SS57 (extraction to the EAST area). The piquet RP measured a high local dose of 10-11mSv/h at contact, in the flange downstream of the FWS54. The piquet vac needed the advice of a PS vacuum specialist and managed to contact E. Mahner who came in at 6:30am. The detection confirmed that the leak was close to the mechanism of the FWS, and thus, very difficult to reach and apply a quick fix. The BI colleagues responsible for the mechanical parts of the FWS were contacted for removing the mechanism and replacing it with a blind flange. The RSO agreed to proceed with the intervention, which took place between 9-10am. Apparently, the ambient dose was much lower ( $\sim 100\mu\text{Sv/h}$ ) than expected, as the above-mentioned high-radiation was extremely localized. The turbo pump was subsequently started for slowly lowering the pressure and a leak detection, showed that the problem was fixed. The pressure steadily reduced ( $\sim 10^{-4}$  mbar at 12:30pm) and the ion pumps were started at 2pm showing already pressures of  $\sim 10^{-6}$  mbar. The sector valves were opened at 3pm allowing the delivery of LHC PROBE beam at around 3:30pm, followed by EASTA at 16:00 (after consulting J. Borburgh for pulsing septum 57) and lastly by AD around 17:00.

- Friday evening 1h of down time due to a trip of the septum SMH42, solved by the equipment specialist (B. Balhan) who replaced a faulty power supply controlling the water cooling.
- Friday night the MPS tripped and remained on a stand-by state without the possibility of switching it back on. The piquet PO intervened, found that the B-train was not received and asked the assistance of the piquet CO. The OP crew finally found that the peaking strip signal was not received and called the specialist (D. Giloteaux) who found that the rack controlling the equipment was not working and the 2nd one had a ventilator problem. We are currently running using the third one but there is no spare until Monday (3h without beam).
- During Sunday afternoon and after investigations of the LLRF specialist (H. Damerou) on reported instabilities of the bucket positions of LHC PROBE in the SPS, the OP crew found a (probably) unrelated problem with the 80-89 cavity which does not follow correctly its voltage program. The equipment specialist came in and found that the cavity was pulsing but not in full conformity and suggested to leave it like this until next morning. After the request of LHC, the piquet LLRF came in to put in operation the 80-08 cavity which required tuning. Until the time these lines are written, the intervention is still on-going.

### SPS (K. Cornelis)

Fixed target physics and CNGS were stopped on Monday morning and the SPS went into a reduced mode for LHC filling only. On Tuesday afternoon access was given to the SPS in order to do the annual radiation survey. During this time TRX8 was taken out of the RF power circuit in order to be able to start with maintenance work. On Friday we delivered, besides the LHC probe beam, a reduced intensity fixed target beam to H8 in order to do the setting up for AMS.

The weekend was concentrated on LHC filling. A few problems with satellite bunches (80 MHz in PS) with RF synchronization occurred during the night from Sunday to Monday.

## **AD (T. Eriksson)**

Monday 23/11: we had a last md-session spent on deceleration studies below 100 MeV/c.

Wednesday 25/11: ASACUSA ready for beam after re-installation of the Yamazaki experiment. Some beamline tuning followed. 1.5 Hrs fault on AD ring power supply.

Thursday 26/11: 16 Hrs lost due to PS WS54 vacuum leak.

Saturday 28/11: 3 hrs lost due to PS MPS, apart from that, very good week and no problems at all during the weekend.

## **TI**

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## **LHC**

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