

Accelerator Complex Status

End week 46 (Monday 20 November 2017)

TI (Ronan Ledru)

Very good week with only minor issues that could be resolved quickly.

Details: <https://wikis.cern.ch/display/TIOP/2017/11/13/TI+Summary+Week+45>

LINAC2 (Richard Scrivens):

Very smooth operation for the week.

The Linac2 intensity was improved a little with some RF tuning.

LINAC3 (Richard Scrivens):

Very smooth operation for the week.

LINAC4 (Bettina Mikulec):

Brief report of the third week of Linac4 under BE-OP responsibility:

- During the week running fine with a few trips of RF cavities.
- High losses in the Linac4 low energy part disappeared after a careful restearing of that section in collaboration with ABP.
- Beam instabilities observed along the pulse, maybe coming from RF (under investigation).

A lot of MDs:

- Study of the source beam current depending on the high voltages applied at the source (to define interlocks).
- Implementation of zero turns for all rings in the prechopper (fine-tuning of timings).
- Commissioning of the Bunch Shape Monitor installed in L4T before the first bending.
- Commissioning of the Laser Emittance Meter.

Unfortunately Friday evening the pre-chopper tripped and could not be restarted.

On Saturday the RFQ followed with a modulator fault.

Currently waiting for the specialists to repair the 2 faults.

LEIR ():

To come soon.

PSB (Alan Findlay):

It was good week for the PSB, with little down time.

The first fault of the week was with the LL for R2 (only), where a suspected onboard power supply problem cleared the main FPGA of the motherboard and stopped the RF from working for 1.5hours. The specialists replaced the card that generates and controls the power supplies and the crate was back online. They are keeping an eye on it in case of further problems.

There was also an occasional issue on R3 for the MTE type MD beams, where the beam was lost early in the cycle. Although not properly understood, this was

thought to be a problem with a resonance, so the working point was changed and a radial steering introduced, then beams were stable again.

BT1.SMV10 was seen to be drifting once more, the experts suspected that the regulation of the supply needed to be adjusted after the change last week, and so did the necessary. It has been stable since.

Sunday the BTP.DHZ10 died, depriving the PS of beam, so the EPC piquet was called in to fix it. He replaced a card on the supply and the beam were returned after 1h20 mins.

ISOLDE (Simon Mataguez):

It has been a very good at ISOLDE.

59Cu20+ beam delivery at 5.0 MeV/u to the Edinburgh chamber until Wednesday 15/11 8.30.

From Wednesday 15/11, only stable beam 22Ne7+ at 5.5 MeV/u to Miniball from EBIS as part IS628 experiment.

Machine development with the REX-TRAP and REX-EBIS using 13CO by BE-ABP in parallel.

PS (Denis Cotte):

Une autre très bonne semaine pour le PS avec une disponibilité du faisceau d'un peu plus de 96%.

Presque la moitié du temps d'arrêt venait des injecteurs du PS. Le reste étant partagé principalement entre TE/EPC et BE/RF.

Le PS souffre encore de déclenchement du système POPS à cause d'un problème de communication. POPS a été redémarré à 8 reprises cette semaine.

A chaque fois, une bonne dizaine de minutes est nécessaire pour remettre les conditions pour le faisceau.

D'après le spécialiste du FGC, pour l'instant, il n'y a pas de lien avéré avec le passage sur le nouveau train B effectué la semaine dernière.

Quatre déclenchements de la PFW: PR.WFW avant que le spécialiste installe une nouvelle version du FGC. Plus de déclenchement depuis Mercredi.

Vendredi, un problème sur un ventilateur causait la perte de 3 cavités 10MHz. Un arrêt d'environ 1h20 sans protons fut nécessaire pour réparer.

Pendant ce temps, les ions continuaient d'être fournis avec les 7 cavités restantes.

Enfin ce weekend, la C86 ne suivait plus son programme de tension, un passage sur la cavité de réserve fut nécessaire.

Le spécialiste RF diagnostiqua un problème de relai gap bloqué.

Un accès sera nécessaire pour vérifier ce dernier point lors de la prochaine opportunité d'accès au PS.

AD (Bertrand Lefort):

Absolutely nothing to report... no down-time !

The only thing that we have to look at is that when switching to ALPHA, we have to apply twice the switching parameters in order to have beam getting to ALPHA.

SPS (Hannes Bartosik):

It was a very good week for the SPS. On Monday the Xe-ion cycle with an extraction momentum of 45 ZGeV/c was setup. Already in the early afternoon the beam was extracted towards the North Area and the secondary beam line physicists could start with their setting up. The North Area had a very good beam availability throughout the week. Only minor interruptions were caused by the dedicated LHC fillings and some downtime in the injectors, most notably trips of POPS in the PS (Wednesday/Thursday) and RF cavity issues in LEIR (Friday/Saturday). Almost no faults were encountered in the SPS itself.

The LHC fillings went fine from the SPS side, apart from frequent trips of power converters in TI2 caused by communication problems on the WIC. Decreasing the speed of the profibus connection by the expert did not solve the problem so far. Since the middle of the week the intensity of the 8b4e BCS beam is lowered on the requests of the LHC following several beam dumps due to losses in 16L2. On Saturday morning the LHC had to delay the beam dump due to a problem on one of the main RF transmitters of the SPS which required a piquet intervention.

Further progress was made on the preparation for the AWAKE run. On Monday the polarity checks of the electron beam line were completed successfully. A new AWAKE cycle with the electron line beam process was generated and shortly checked with beam (without extraction).

LHC (Jörg Wenninger):

Generally smooth operation with 8b4e BCS at 2.51 [TeV](#) with long fills. Initially abort gap cleaning was used heavily along the fills to maintain the population at a reasonable level (due to the longitudinal blowup from IBS), but after pushing the RF voltage in physics to 12 MV the situation improved.

This week was marked by the reappearance of the 16L2 Grufalo with 7 fills dumped at 2.51 [TeV](#) or during the ramp. At the same time a new fill length record was established with 37h 10' (and OP dump!). The low energy high beta run is cancelled, as the back ground level for the experiments is too high. Instead tests will be made to see if a reduction of the background noise can be achieved and a 6.5 TeV low pile up run will be planned instead, requiring a small intensity ramp up again.

Over the weekend the machine availability was 99.7% and 95.2% of stable beam time.