

## Accelerator Complex Status

### End week 50 (Monday 18 December 2017)

Week 50 was the last week of beam operation, as the last machines and facilities were stopped early this morning, while others were already stopped last week. This also means that this is the last weekly report of 2017 and we will resume as soon as the first machines have restarted again in 2018.

These weekly summaries would not have existed without the valuable input from the machine supervisors and coordinators who all did an excellent job together with the teams on shift and all the equipment owners to keep the availability and performance of the machine high.

Time for a break, for which I wish you all a very nice Christmas and a happy, successful and above all healthy 2018.

Rende Steerenberg, BE-OP

### TI (Jesper Nielsen)

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Details:

#### LINAC2 (Detlef Kuchler):

Good week until the weekend. During the weekend we got three trips of the Buncher 2.

#### LINAC3 (Detlef Kuchler):

Good week. No problems. Beam a little bit noisy.

#### LINAC4 (Greta Guidoboni):

This is a short report of Linac4 week 50:

- It was a good week with long stable running and just with few faults from RF and source (the latter during the week end, causing an earlier end of the run).
- It was found and solved (except for PIMS9 and 10) that the RF pulse length was not long enough to allow the maximum beam pulse length of 600us.
- A small issue with the polarity change of one corrector was found and solved.
- A lot of effort was put in to achieve a flat pulse over 600 us, including studies of the beam transmission through the RFQ as a function of gas pressure and solenoid strengths. Finally, it was not possible to reach this condition and it will be discussed with BE-ABP.
- There were MDs for the commissioning of Autopilot, Laser Emittance Meter and TOF and emittance measurements.
- Stripping foil efficiency measurements took place during the nights.
- Still few issues with semgrids and wire scanners that have been already addressed to BE-BI.

#### LEIR 0:

### **PSB (Simon Albright):**

This week was very quiet for the PSB, almost exclusively the AD and AWAKE beams provided, and no MDs. Through the week there were one or two very minor faults and one access. On Saturday we had an RP Piquet event, but there were no intervention. On Sunday we lost beam for about 20 minutes due to a fault in Linac2. A couple of other minor faults as well.

This morning beams were stopped on schedule in preparation for the YETS.

### **ISOLDE:**

Stopped for YETS

### **PS (Denis Cotte):**

Le PS termine l'année et le Run2017 ce matin avec une disponibilité faisceau de 93% sur cette dernière semaine.

Les faisceaux ont été coupés ce matin à 6h00 en prévision du «Survey RP » commençant à 7h30 au PS.

Les grandes causes de pannes cette semaine furent :

- \_l'absence de faisceau des injecteurs(PSB, LEIR) pour environ 2H00.
- \_Une fuite d'eau sur deux convertisseurs alimentant des aimants de TT2 au Batiment269. (1h)
- \_Des problèmes RF avec notamment la cavité 10MHz C46 qui nécessita deux accès dans la machine PS lundi et mardi dernier. Le problème n'étant pas encore résolu, le PS tourne depuis Mardi dernier sur la cavité de réserve C11. (en tout environ 3h00 sans faisceau lors des accès).
- \_Un problème avec les cavités 40MHz et 80MHz privant le faisceau LHCINDIV de rotation du bunch pendant environ 5h Jeudi matin.

A noter aussi lundi soir, le faisceau COLDEX souffrait parfois du développement d'une instabilité verticale au PS et quelques problèmes de synchro entre PS et SPS pendant le Run UA9.

Différentes intensités du faisceau Xénon ont été délivrées avec succès à l'expérience CHARM dans la zone EST.

Cette nuit, le redémarrage du FEC « cfc-ccr-tgplc » en local fut nécessaire afin de redémarrer le faisceau du Linac2. (20 minutes sans proton)

### **AD (Pierre Freyermuth):**

This week the AD performed relatively stable while not at his best regarding delivered intensity. Quite a large portion of the stochastic cooling power amplifiers have now to be repaired, it is done every shutdown. This, in addition with a slightly different bunch quality from the PS due to a 10Mhz cavity issue (the spare C11 beam control is not as good as the others for batch compression and bunch rotation), gives a Pbar production a bit lower for the last days of the 2017 run.

Besides, PS team kindly took care of several AD technical problems such as a rogue power converter that needs the first-line to be replaced, and a vacuum issue in the experimental lines, solved by the piquet as well.

### **SPS (Karel Cornelis):**

The week started with a dedicated COLDEX run on Monday, followed by a UA9 run on Tuesday. COLDEX had problems filling helium and beam could only be taken late in the evening. The PS was running with a spare 10MHZ cavity, which had difficulties to stay in phase with the other cavities, resulting in a rather poor-quality beam for COLDEX. UA9 started on Tuesday morning, but, after the access to remove COLDEX, the main power convertors could not be switched on. It took until noon before the problem was solved (communication problems between FGC and CIS). The Xe beam could quickly be accelerated on the brand new cycle for UA9, but there was a problem with the injection pre-pulses coming from the PS. The problem caused different bunches to over-inject in the SPS. UA9 agreed to start the run with only one bunch. Later in the evening a temporary fix made it possible to inject all five bunches.

Xe-Physics resumed Wednesday morning as foreseen and has been running very well ever since.

We tried to send beam to AWAKE on Wednesday evening, but a problem with a quadrupole in TT40 and a cavity problem in the PS prevented us from doing so. Both problems were fixed on Thursday morning. The quadrupole supply was damaged by a water leak from the roof. Several rusty parts had to be removed. Since Thursday afternoon we have been sending protons to AWAKE on a regular basis.

### **LHC:**

Stopped for YETS