Accelerator Complex Status

End week 24 (Tuesday 18 June 2018)

TI (Ronan Ledru)

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Details: https://wikis.cern.ch/display/TIOP/2018/06/18/TI+Summary+Week+24

LINAC2 (Francesco Di Lorenzo):

Good availability , no more than 15 flash overs in the source.
On Tuesday the specialist of the power convert replaced the interlock's board , they put the old interlock's card of the BHZ30 in the spare one (this operation stopped the Linac for only 15 minutes)
On Thursday the LT.DHZ10 was in fault but the reset solved the problem . Around the 10 o'clock the operator called the vacuum specialist in order to understand why the LA1.VP12A was in fault. The specialist tried to reset but it didn't work, so I called Alice (from the vacuum Group),in order to understand the problem , and she said that probably the Ion pump is dead and they will try to fix the problem during the technical stop.

LINAC3 (Francesco Di Lorenzo):

Good availability. On Tuesday around the 16.30 a power glitch caused the stop of three quadrupole 's power supply (IA1.QDN02,ITF.QFN01 and QDN02 IA1.QFN07). After several remote reset, we (Francesco ,Mike) were obligate to restart manually the power supplies.

LINAC4 (Technical Stop, Silvia Schuh & Suitbert Ramberger):

The RF work is on schedule.
In more detail:

- The work on the cavities - replacement of DTL1 coupler, tuning of DTL couplers, and replacement of RF probes has been completed except for the RF probes of the Debuncher cavity due to its activation (work of few days including vacuum). (Rolf Wegner, Patrice Francon, Cristiano Gagliardi, Noel Kew)
- The replacement of 2 LEP klystrons on CCDTL6&7 by a new klystron is progressing as planned. The installation and cabling is complete and verification tests now started. (Pablo Martinez Yanez, Julien Parra-Lopez, David Landre, and RF-MK team)
- The cabling for moving the arc detectors on PIMS and CCDTL cavities out of the tunnel now started as well according to schedule. (David Landre, Pawel Burdelski)
- The news on increasing the pulse length on the chopper drive units (CDU) as well is excellent news. (Mauro Paoluzzi, RF-IS-team)

LEIR ():

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PSB ():

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PS (Ana Guerrero):

The PS had an availability of 88% this week mainly due to the issue in booster on Tuesday. Regarding the PS, two accesses on Tuesday and Friday for cavities C51 and C76 were needed, with 2h and 1h beam stop respectively. Sometime was also lost in several occasions due to an issue affecting the 10MHz cavity return sum signal thus all RF beam controls. More or less important losses appeared and were cured without any intervention. Finally the issue was traced to a lemo with a bad contact.
This week it is also worth mentioning the change of injection ring for the TOF beam from R2 to R3 in order to relax the usage of R2 that is having an issue with the TFB. After the change an error in the sequence program left nTOF with only the parasitic beam around 2h.
Operational beams together with LHC MD beams have been delivered as requested. The beams for the LHC 90m special run are now prepared: LHC 50ns and LHC100#18b and 12b.

ISOLDE (Alberto Rodriguez):

It has been a good and busy week at ISOLDE.
We used the HRS separator to continue delivering Sc isotopes to COLLAPS until Tuesday morning and we installed a new target on Tuesday that will be used for MD of the cooler/buncher during the next couple of weeks.
On the GPS side, we set up the separator and transfer lines during the first part of the week and started delivering 22Mg to the LA1 experimental station on Thursday evening. They have been taking beam since then.
In addition, we made quite a bit of progress on the beam commissioning of the REX/HIE-ISOLDE post-accelerator and we have been delivering a 22Ne7+ beam with 9.5 MeV/u to the ISS experimental station since Wednesday.
We have had some small issues with power converters, the lasers, several SRF cavities, the REX ToF system and a fast sector valve. But, nothing major in terms of downtime.

AD ():

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ELENA (Tommy Eriksson):

Pbars:
- Improvement of AD to ELENA transfer with a new transfer line optics version, better fit obtained
- Orbit improvements at several energies
- RF feedback loops set-up, optimisation and comparison of bpm-based vs. lpu-based pick-up
- Improvement of tunes and coupling at different energies

- better injection and deceleration efficiencies after further reduction of coherent injection oscillations
- => more (un-cooled) beam seen at lowest plateau, 13.7 MeV/c

H-:
- Some work on injection and cycle optimisation
- Beam position fluctuations usually appear a few hours after switch-on
- RF feedback loops tuning (bpm and lpu pickups)

SEM:
- First beam profiles observed with both Pbar and H- beams. More debugging/set-up is required.

RF:
- LL segments implementation and tests in view of easier cycle programming. More debugging needed.

Electron cooler:
- Filament contact problem found and fixed
- electron beam set-up up to 100 eV so far, will continue up to 250eV

SPS (Francesco Velotti)

Finally a good week at the SPS with about 83% availability. The main downtime was accumulated due to the injector complex, PSB issue above all.
This week was characterised by the LHC MD - a few out-of-the-ordinary beams were requested and delivered to the LHC fulfilling MD users specifications. The frequent SC variations also caused some small complaints from the NA experiments, but the prompt reactions of the shift crews made the SC changes less of problem for the spill quality (procedure to compensate for SC changes tested and worked smoothly).
On Monday, measurements to try to reproduce the instability observed at FT for LHC beams was not successful. Tests that comprised changes of chromaticity to previous values and radial position steering did not lead to any instability. ABP working on the understanding of it.
During the week, with a few interactions between LSA and timing experts, the trims on COAST were made again possible (workaround that will be completely solved during the TS1). Also the generation of discrete settings was implemented in LSA, but still a few checks are needed before being able to trim RF parameters during COAST.
LHC ion cycle was available for setting up - the beam was accelerated to flat top, but still work is needed, from both OP and RF.
On Wednesday there was the “main” SPS problem of the week. It was found out that there was an issue with a triggering module of the MKDH (dump H kicker), the ABT piquet intervened and solved the issue.
From Friday, there was a recurrent timing problem causing a few issues, e.g. page1, LHC beam requests, etc. The experts were called but the issue is not fully understood yet - they are following it up. It seems related to sequences arbitrarily starting.
Also on Friday, the 50 ns LHC beam (144 bunches) was taken and set up for

extraction - it is now ready for the LHC special run after the TS1. The vertical orbit at extraction needed to be re-adjusted (BPM interlocks), hence FEIs need to be adjusted in order to be ready for extraction. TL steering needs to be foreseen. The ZS didn’t spark at first, but it had a couple just after a few 4 batches 50 ns cycles - the 50 ns beam was immediately stopped. No problems afterward.
The weekend was quite. As main remark, the ZS 3 and 4 BLM thresholds were slightly increased as the intensity from the LINAC increased - now almost at the intensity as requested from the experiments. The normalised losses are still within limits.

LHC ()

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