Accelerator Complex Status

End week 41 (Monday 12 October 2020)

Technical Infrastructure (J. Nielsen):

- A rather busy week with quite some events.
- Statistics:
  - 13'000 alarms
  - 1052 phone calls (ingoing 764, outgoing 288)
  - 155 ODM created
- Event worth mentioning:
  - Mon. 05.10 @ 12:38: The ME59 SVC filter was turned back on successfully by TE-EPC in view of pulsing the "old" MPS of the PSB.
  - Tue. 06.10 @ 15:51: Evacuation alarm in SPS BA6. After checking with CRYO it was found that they did degazing tests in the area. This should have been covered by an IS37, the teams involved will be informed about this through the TIOC.
  - Thu. 08.10 @ 10:54: Rack IT CYNET01 in building 287 completely flooded, due to a water leak from a water-cooled cable. Safety PLCs and Fire Detection were among the equipment that were communicating via this starpoint.
  - Thu. 08.10 @ 11:35: BEQ1 SPS compensator switched on, without load for the weekend.
  - Thu. 08.10 @ 18:15: Big inundation underneath the LHC-b control room, around 40cm of water. Some electronics cards were stored in the area and could be impacted, which needs still to be evaluated. Fire Brigade and CV piquet on-site.
  - Fri. 09.10 @ 18:09: Evacuation alarm in ALICE, caused by several SNIFFER alarms set off accidentally by workers in the area. During the intervention it was recalled by the Fire Brigade that it's extremely complicated to do their job correctly when it's not known how many persons are in the machine, they need to do complex and time consuming rounds every time.
- Details: https://wikis.cern.ch/display/TIOP/2020/10/12/TI+week+summary%2C+Week+41

LINAC 4 (B. Mikulec):

- Monday for a big fraction of the day no beam to LBE due to PSB access.
- Tuesday morning **successful RF MD to optimise the debuncher settings to allow ppm operation with different energy spreads** for the foreseen PSB beam production schemes.
- Wednesday restart of laser emittance meter commissioning by the BI team and comparative wire scanner and SEM grid measurements.
- Thursday beam interruptions due to PSB MPS DSO tests and Switchyard EIS test mode. In the afternoon ABP performed some BSM2 measurements scanning the debuncher amplitude.
- Friday **ABP/RF/OP tests to prepare energy painting MD; time-of-flight measurements at debuncher with different PIMS11/12 amplitudes**.
- Throughout the week investigations on the SIS reaction time.

- Final details implemented for machine critical parameters (FGCs, BLMs and watchdogs).
- Another important topic this week were the **ppm copy** investigations; due to several Makerules involving the beam momentum and POPS/POPS-B equipment and also parameters with different MCS rules we have finally arrived at a working procedure with the help of Michi (thanks!).

Plan for next week: setting up different cycles and taking reference measurements.

PS Booster (B. Mikulec):

An eventful week with important achievements despite some problems…

- Monday:
  - **Completion of polarity correction for all orbit correctors and multipoles** (clean-up to follow a unique convention within the CPS).
  - Other accesses for BI.SMV10 and BI3.BSW1L1
  - **Successful Dry Run on the new Tune Control** (J-F. Comblin)
  - Meeting with the POPS-B specialists; an EDMS document (2405636) is being prepared that summarises the POPS-B tests of the previous weeks (for the first time POPS-B was able to pulse with the PANDORA converters QFO and QDE, heat runs, magnetic field measurements, fine-tuning, HMI, BDLs/Q-strips, Trims etc.); there were only 2 days of testing with all circuits, therefore further tests will be necessary.
- Tuesday: **Dry run with BE.BSWs**; a few issues have been observed and are being followed up by TE-ABT. Discovered a few timings issues at injection —> solved by BE-CO on Wednesday.
- Wednesday: **Dry run (phase 4) of the BI.BSW** with the discovery of a few issues (timing and declaration) —> to be solved and re-scheduled
- Thursday: **BR.MPS DSO tests successful in the afternoon**.
- Friday:
  - **Dry runs TE-ABT/TE-EPC/BE-OP on injection/extraction/transfer septa**
    - BE.SMH15L1 and BIr.SMV10: some issues with the BIS because the interlock parameters couldn't yet be created (FI application not yet ready).
    - BTr.SMV10/20: OK
    - No reset available for the TE-ABT equipment —> ongoing discussions with TE-ABT
  - Access by TE-ABT to inspect some noise on BI.KSW16L1, but deemed to be OK
  - For old MPS: PSB Mains/Tune calculation re-configured
    - Tested new application to regenerate the links for the old MPS
    - Started from a 1.4 GeV cycle prepared by J-M. Nonglaton
    - Regeneration of all functions for a specific tune
    - **Ready for MPS pulsing!**
  - BE-RF: **successful check of RF trains** for the BQPSB Dry run on Monday.

ISOLDE (A. Rodriguez):

- Together with EN-STI, we have started working on the commissioning of the new target front-end installed in the GPS separator. So far, we have been able to check the vacuum, cooling, some of the heating and high-tension systems. We haven't extracted beam yet. But, we will probably do it this week.

- On the linac side, we are having a bit of trouble with beam inestabilities that make the commissioning more difficult.
- We have tested some of the functionalities (oscilloscope and histogram modes) of the silicon detectors
- We switched to a 20Ne7+ beam. We have prepared the RFQ and we are about to start working on the buncher and IH structures
- The repair of the 9-gap amplifier is still ongoing. We are hoping we will be able to connect it to the cavity later this week or early next week
- Work on the stability of the SRF cavities is also ongoing. In principle, we won't be able to use them until the 9-gap amplifier is repaired and tested.

ELENA (Rende from IEFC Fri 09.10):

- Despite the initial delays due to various issues, tremendous progress was made in the last week(s).
- The source is pulsing at 100 kV with a reduced gas flow that helped to stabilize the beam position at the exit of the source. On the other hand, it enhances the intensity fluctuations.
- All beam commissioning permits to send 100 keV H- beam down the new transfer lines into the experimental zones have been approved.
- Very good progress was made, and beam was sent 2/3 down the longest transfer line towards ALPHA.
- On the profile monitor side, the lines to GBAR, ALPHA and BASE are now fully equipped with monitors that provide reasonable profiles, good enough to determine position and beam width. Enough pieces are now available to complete the installation in the ASACUSA line too.
- Some concerns on the long-term reliability remain and are being addressed.
- Thorough and systematic investigations on optics are under preparation and start soon.