

End Week 31 (August 2nd) – Status of Accelerators

Summary

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| ISOLDE | Good week. Some problems with 60 kV Friday afternoon. |
| LINACS | OK. |
| AD | Good. |
| PSB | Looking good. Some problems with extraction septum PS. |
| PS | Fairly good week – usual spectrum of problems. East area suffered somewhat – leaks. |
| SPS | Looking good. Technical stop Wednesday as planned. Note CNGS water. |
| TI | OK |
| LEIR | Commissioning progressing well |

Booster (Klaus Hanke)

On **Monday** afternoon BT3.DVT40 tripped and required piquet intervention; for about 1h only rings 1 and 2 could deliver beam. The reason is believed to be pressure fluctuations of the cooling water.

In the evening there was a “micro cut”, BR1.C02 and BT4.BVT10 went in fault, as well as BT3.DVT10 and BR3.C02. Reset, after about 15 min all was OK.

On **Tuesday** the extraction elements BT.KFA20, BE1.KFA14L1, BE2.KFA14L1, BE.SMH15L1 dropped down for 10 min (HV faults on KFAs and external fault on BE.SMH)

On **Wednesday** evening problems started with the extraction septum BE.SMH15L1 power supply, which tripped but could be reset. Throughout the night and the following day there were numerous trips, the power supply specialist did numerous interventions (active filter changed, cards changed) but the problems persisted. Only on Thursday evening the problem could be permanently solved by changing the entire electronic chassis. The problem has since then disappeared. It was somehow related to the high intensity ISOLDE cycles, the details are not yet fully understood.

Friday and weekend were quiet.

Throughout the week work continued on the single batch 50ns LHC beam and on the wire scanners. On Wednesday we did a parallel MD on resonance studies.

ISOLDE (Pascal Fernier)

HRS : target 405 ; beam via GPS + Rex (REX delivered 62Mn and 63Mn to Miniball at 2.86MeV/u; production of 62Fe by decay of 62Mn in the charge breeder EBIS/REXTRAP)

Bonne transmission et efficacite de la chaine des accelerateurs: malheureusement beaucoup d'interruptions de faisceau dues a des problemes RF a Rex, problemes de robot pour changement de cible HRS, et quelques interruptions de protons qui annulent les mesures en cours; les physiciens sont moyennement contents des resultats obtenus.

GPS : target 407 ; 2 utilisateurs sur les lignes GLM et LA1; bon debut de run # 60kv mais vendredi soir nous avons eu des problemes de claquages HT du a la cible elle-meme; run a poursuivi # 30kv mais satisfaction moyenne des physiciens qui avaient besoin d'un 60kv; pour compenser la perte de temps faisceau (24H) ils demandent une prolongation de run de 1 jour (tout a fait possible selon moi. Voir mail de Karl Johnston).

SPS (Karel Cornelis)

The main event last week was a technical stop on Wednesday during the PS MD. The CNGS was stopped during 18 hours in order to empty a water sump, contaminated with tritium. This water sump is supposed to collect uncontaminated water coming from tt40. It was found that there is probably condensation water, originating from the ventilation system in the target area, coming into this sump. During the long MD, starting on August 10th this problem will hopefully be fixed. The rest of the SPS was stopped for 8 hours. The MKDH could be repaired and it works again for 450 GeV cycles. A water leak on the bus bar in BA5 was repaired and a new tube was exchanged on the damper amplifier.

SPS has been performing very well for the rest of the week: a few RF trips due to thunderstorms on Monday and a problem with a key rack of the access system in BA4 on Friday morning.

The north area had to be stopped on Tuesday for a few hours for an intervention on micro collimators, and on the night from Friday to Saturday, the north extraction was off for about 8 hours due to a 'faulty' temperature interlock on the MSE.

PS (Yannis Papaphilippou)

Fairly good week for the PS apart from certain problems with EAST zone magnets (including a water leak). Delivered a 33BP super-cycle apart from Wednesday (dedicated PS MD). In particular:

- During the whole week, there was a lot of progress on the setting up of the LHC ion beam (RF, orbit, magnetic cycle, tunes, PFWs, etc.). Details to be found in a separate report.
- During Thursday morning and just before a PSB septum failure, all beams towards the F16 line were cut due to a bad external condition on vacuum valves (PE.VVSPS). The failed equipment could not be identified, as the working set of the vacuum pumps indicated, "Failed to start subscription...". The vacuum piquet was called and informed that two valves in the F16 line were closed (VAC.F16.VVS20 and 30). Removing the crate and pushing it back to its place solved the problem (~1h without beam).
- Later during the morning, R. Brown informed the OP crew that a leak was suspected somewhere between the F61 line and the EAST zone. An access was arranged after consulting the user coordinator, the PSB supervisor (as the BHZ20 security chain was tripped) and radio-protection. All beams were cut at 10:15 and the access was performed 30min later. A lot of water was found in the tunnel of the F61 line but not the leak and the search continued in the primary zone of the EAST hall without success. At around midday, all other beams were back apart of the ones in the EAST area, as the water leak detection was on-going. Finally, the leak was found in the cooling circuit of a quadrupole in the ZT9 line (ZT9.QFO03). We were informed by the specialist that it will be repaired during the injector stop on the 10th of August, as agreed also with the user's coordinator. Beams were back to EAST users after 5.5h of stop.

- On Saturday afternoon, a dipole of the ZT10 line (ZT10.BHZ01) tripped and could not be reset. The Firstline piquet was contacted and after investigation, suspected a problem with the magnet. A magnet specialist was contacted (D. Bodard) and accessed the zone with radio-protection (all EAST beams were cut at 21:20). Apparently, the magnet had a loose connection, which caused an overheating on the current leads. The magnet specialist replaced the faulty piece and the magnet was back in operation at 1:35am (~9h without EASTA and 4.5h without EASTB). Just 30min. after powering the ZT10 line, a quadrupole (ZT10.QDE05) tripped and it was impossible to switch on. Since the line was not in use for the night and the FirstLine just finished the other intervention, it was decided not to call him back. Firstline was contacted in the morning and fixed the problem by doing a local reset (another 8h without EASTA beam).

LEIR (Django Manglunki)

LEIR was started on Monday morning and stopped on Friday evening without any major breakdown. The week was devoted to regularly supplying the EARLY beam to the PS, and to studying the behaviour of the NOMINAL beam at low energy and during acceleration on harmonic 1.

AD (Pavel Belochitskii)

One more good week for physics. No major faults, good intensity, stable beam.

Monday:

Early morning: intervention into ASACUSA experimental area to put DE2.MWPC45 back into box after reparation. BD, vacuum, transport service people were involved. With vacuum pumping of all experimental lines after intervention that took totally about 5 hours.

Bunch rotation cavity CO26 down, reset o.k.

Many MWPC's off after intervention. Restart with assistance of R.Berther.

Deceleration cavity CO2 down, reset o.k.

Tuesday O.k.

Wednesday O.k. with beam.

Impossible to reboot any DSC with Diamon, problems with database, fixed by CO picquet.

Thursday O.k.

Friday O.k. for beam

Transfo in AD injection line TFA9012 show wrong data. Problem with pre-trigger for ASACUSA, fixed by I.Kozsar.

Week-end O.k.