End Week 23 (June 7th) – Status of Accelerators

Summary

ISOLDE	Overall a good week with minor technical problems. REX RF cavity fixed.
AD	Looking good. Starting physics week 24.
PSB	Steady week (see PS) plus LHC25A at intermediate intensities for TI8 tests plus LHCPROBE (which was ready).
PS	A rather smooth week of running and providing all nominal users during the week: EASTA, EASTB, EASTC, AD, SFTPRO, CNGS.
SPS	SPS had a good but eventful week. TI8 tests went well.
TI	Quiet – water leak in NA over the weekend

Isolde (Erwin Siesling)

Overall a good week with minor technical problems:

HRS run stopped on friday with Krypton beam to Isoltrap. As you know the REX run was cancelled due to the 9-gap cavity leak problems. The 9-gap has succesfully been closed with a new brazed seal last week and RF was back in the tank on friday. Many thanks from Didier and us to all the support teams involved (Vac: Giovanna Vandoni, Kurt Weiss, RF: Han Broere, and others).

During the HRS Isoltrap run we had a few hick-ups of the CDO line vacuum controls. It needed a reset and restart of the pumping sequence (Henrik Vestergard). Not completely understood where things went wrong (to keep an eye on).

GPS new target was put on on tuesday and stable beam tuning and RILIS laser optimisation on Ag done during the week. Proton scan on the convertor and the target done on friday.

Radiation alarms: When shooting high intensity proton beam onto the tungsten convertor lots of neutrons and secundaries are produced upsetting the PSB BLM201 after BHZ301 next to the end-line. This is a know situation and the BLM has been disabled (RP, Alexandre Dorsival informed). This time also the level on radiation monitor PAXY02 in the target zone went to higher levels and we decided to stay at a modest 1.7uA proton beam current in order to keep PAXY02 under 100uS/h. The level B alarm (stop the beam) would set off at 150uS/h.

Users are Ag collections at the GLM line in parallel with Kr beam to Isoltrap. Collections are fine and users are happy. Isoltrap however sees a lot of Cs contaminants and is less happy (to suppres the Cesium a different sort of target (with quarz suppr line) would be ideal).

No protons:

Last thursday the BTY.QFO119 in the PSB proton-line went down and needed intervention on the micro-controller (1/2 hr no beam).

BTY.BHZ301 (bender to switch between GPS or HRS line) dropped off several times causing the high intensity HRS beam to go onto the new GPS target. This is not good and PSB-OP (Jose Sanchez) and specialists from CO and PO are on it. Luckily the present GPS target is a uranium carbite and not a sensitive liquid metal target which would have been destroyed by such non-staggered high intensity proton beam.

AD (Tommy Eriksson)

AD has been running quite well and the setting-up is practically finished so we actually got to do some md during the week that passed:

-Optimisation of target z-position

-Improved optics at low energies

-Tuning of beam cooling at low energies

-BIPM tests

-Pressure bump effect on low-energy beam behaviour. In view of future possible PAX-experiment

Some problems:

- Ejection line trafo, orbit measurement system => fixed by BI

- Stoch. cooling p/u movement system => intermittent fault, persists after first repair attempt.

- ej. synchro problem => fixed w. help of RF

- Problems with cycle re-programming => CO has helped but problem is intermittent.

Sunday at lunch the secondary zone access system broke down which inhibited beam to AD. Fixed Monday morning.

Physics was to start Monday morning, but the first user, ALPHA, is not ready. ASACUSA will start at 15:00 if all goes well.

Booster (Giovanni Rumolo)

Tuesday (from Jocelyn):

- BPT.MBL10 triggers for EastB : The low threshold for EastB being very low, it is easily reached by the remanence activity of the preceding users (SFTPRO here). After moving EastB the problem disappears.

Wednesday:

- The power supply of the Q-strip GFAs breaks and causes a stop of ~3 hrs, during most of which no beam could be injected into the PSB.

However, it is discovered that by disabling the power supplies of the Q-strips, the beams could be injected, so we keep providing SFTPRO (with slightly lower intensity) and LHCPROBE (which does not use the Q- strips anyway). The problem is fixed after the power supply is exchanged.

Thursday:

- BTY.QFO210 power supply is replaced by its spare.

- Because of a fault on BTY.QFO119, no beam is sent to ISOLDE for about ½ hour. The situation comes back to normal after first line does a reset on the power supply.

- As the SPS is asking for more intensity on CNGS, a problem is observed on Ring 1 for the CNGS beam, which loses at capture more than the other rings. The problem is investigated by the piquet RF and A. Blas, who finally change the C04 voltage program and the phase between C02 and C04 to improve the situation. When increasing the intensity on the other rings, another problem is observed on the bunch spitting in Ring 4: the two bunches are extracted with some uncaptured beam between them, which triggers the BTP.MBL10. This problem is also resolved by the intervention of the piquet RF.

- BTY.BHZ301 is found not to work correctly (BTY.BHZ301HRS faulty with internal fault and in local). It takes the value of NORMGPS instead of NORMHRS as requested and, as a result, the beam is sent towards GPS, triggering BTY.MBL310. After ~1 hr stop for ISOLDE, BTY.BHZ301HRS finally starts taking the right value when NORMHRS is executed, so that the beam stopper could be opened and the beam sent back to ISOLDE.

-> This problem is still being investigated by J. Sanchez and S. Pittet.

Friday:

- Unexplained errors (~1917) appear when saving an LHC25 beam with intermediate intensity to an archive. Second attempt to save ends successfully

- Radiation problem at ISOLDE: BTY.MBL201 is triggered, probably due to backscattered neutron and secondaries flux from the target.

However, also a radiation monitor PAX in the target zone shows higher radiation level. The steering of the line is checked again and found to be correct. It is decided that the BLM be disabled and the beam current should be limited to 1.7 uA (2.5e13 p/cycle), which gives 100 uS/h on the PAXY02 (below the alarm level that would stop the beam)

Saturday:

- Problem with BTY.MBL201 appears again. It is again decided to disable it, check that the radiation level on PAXY02 stays below 100 uS/h, and send to target a maximum current of 1.7 uA.

Sunday:

- Investigation on BTY.BHZ301 continues.

Instrumentation:

- The new application for the wire scanners has been used several times this week. On Wednesday, before the last release, some measurements were done on the LHC beam with 10% of the nominal intensity. We could measure both planes in all four rings, but the values shown of the horizontal emittances still differ by a factor ~2 from those shown by the SEM grid measurements. Some bugs

were found and reported to Ana and Elliott. After release of the new version, the application was tested again by Bettina on Friday (using NORMHRS, CNGS and LHCPROBE beams) and by Jean Francois on Sunday. There appear to be still some open issues, as reported in the e-logbook.

Beams:

- LHC25A at intermediate intensities, from 10 to 50% of the nominal intensity (+ the nominal intensity), have been produced in all 4 rings and archived. This beam, only on Ring 3, could be requested on the weekend for the TI8 tests, beside the LHCPROBE (which was ready).

- VELO has been taking beam all the weekend.

PS status for week 23: 2-7 June 2009 (Alexej Grudiev)

A rather smooth week of running and providing all nominal users during the week: EASTA, EASTB, EASTC, AD, SFTPRO, CNGS. No disasters.

Just a few highlights of the week:

- Debugging of the new Fast Wire Scanner (FWS) application. Several problems with FWS have been found, some of them have been addressed in the new version of the application which was released during the week.
- LHCPROBE and TSTLHC25 at 10% were checked before the TI8 test on Sunday which apparently went OK (at least no comments from PS side in the PS Logbook).
- One TOF cycle per SC at reduced intensity has been send during the week to nTOF experiment. After OK from RP on Friday evening, we send 2 cycles per SC at intensity of 600e10 protons per bunch over the weekend.

SPS (Karel Cornelis)

SPS had a good but eventful week. The CNGS started official production last Monday with half intensity and the LHCFAST cycle was prepared with the LHC probe and 12bunch beams for the transfer line test that took place this weekend.

On Wednesday the CNGS was stopped for 12 hours (from midnight until noon) to give access and repair a network connection for the reading of temperature probes in the target zone. The fixed target cycle was stopped for two hours for the repair of a horizontal damper amplifier in LSS2.

After the stop the fixed target intensity was increased in order to give more beam to COMPASS (they went from 0.8E13 to 1.5E13 ppc. The CNGS intensity was increased in two steps from 2.2E13 to 3E13 on Wednesday and to 4E13 on Thursday. At this intensity MKDP1 shows some out gassing, especially when there are peaks in the CPS spill. At this intensity we also had some problems with RF power on Thursday and Friday but the problems were fixed before the weekend and the daily proton rate for CNGS is now exceeding our objective of 2E17 per day and this with the less efficient ‘day cycle’ running over the weekend.

The LHC transfer line tests went smoothly. Lots of data were taken and the perturbation to physics was minimal : a few hours were lost on Saturday morning and about one hour this morning.

Technical Infrastructure (Peter Sollander)

Quiet week for TI until Friday afternoon when there was a water leak in the North Zone. It was a leak on the chilled water in EHN1. Repairs took most of the week-end. The situation was re-established Sunday around 16.00

LHC

- Sector 45 warming up for room temperature splice measurements. Warm end of next week.
- Sector 34: penultimate week –first W bellow closing, leak testing of plug-ins, closing of Z bellows. Ball test plan in a couple of weeks.
- Sector 12: 12 IC opened, splice re-done, close Tuesday this week. On schedule.
- Sector 56: one splice (30 ish micro-ohm redone)
- Sector 67: globally lot of cuts, last PIM welded, RF ball test passed, leak test of beam lines this week.
- Globally about 1 sector's worth to be closed up.
- Quad splices: hit list established – S67 – one M1 138 micro-ohm candidate – not found with R16 – possible circuit confusion – other outliers to be checked.
- QPS: could be waiting on component delivery, need time for QA, testing