

Accelerator complex status

End week 36 (Sunday 6th September 2015)

TI (Peter Sollander)

TI summary of the week:

<https://wikis.cern.ch/display/TIOP/2015/09/07/TI+summary+week+36,+2015>

Busy week for the TI team, but not too many events.

Linacs (Jean-Baptiste Lallement)

Linac2:

We had a good restart after the technical stop. Beam was made available to PSB at 9:00 on Thursday morning. Among other intervention during the TS, some RGA measurements took place on the proton source. Waiting for a further analysis from the vacuum team, there is no clear evidence of any pollution inside the source that could have entailed the cathodes breakage.

On Saturday morning, a source spark caused a vacuum valve closure. As it was impossible to open it remotely, the vacuum piquet was called and opened it - 1 hour down time. Investigation by vacuum team on a possible electrical problem is going on.

On Sunday morning, a trip of the LT.BHZ30 magnet caused a 2 minutes stop.

Linac3:

The Linac was restarted on Thursday morning following the technical stop. After few parameters setting we figured out that the SEMGrid that was replaced in the ITH line was left in. Nominal beam was recovered on Friday morning for injection into LEIR.

On Saturday afternoon a source vacuum gauge broke causing a source stop. After diagnostic from the vacuum team this morning, the gauge needs to be replaced. The source is vented and will be restarted tomorrow morning.

LEIR (Sergio Pasinelli)

Until the technical stop of Wednesday, we spent time to optimize and stabilize the beam in LEIR.

We have reached 1.30×10^{10} injected charges and $\sim 1.10 \times 10^{10}$ extracted for EARLY. For NOMINAL we have had 4.8×10^{10} injected and 2.9×10^{10} extracted.

After the technical stop we spent one day to retrieve the pre-TS performances. The reasons were an emergency stop pushed on the ETL.BHN10 magnet, a lower Linac 3 RF amplitude of the tank3 and a bad semgrid position in the Linac 3.

Sunday morning, several devices were found in faults in LEIR. In collaboration with the SPS team the LEIR was back at around 10h but with an unstable injection. The reason was the impossibility to reset the errors of the transverse feedback.

Around mid- day the Linac 3 source went in fault and the specialist diagnose a vacuum fault. The intervention will be Monday morning.

ISOLDE (Miguel Luis Lozano Benito)

It has been a very good week at Isolde.

IDS (Isolde decay station) has been taken Laser ionized Al and Mg beams as planned since Thursday afternoon with a record transmission and only some small interruptions. Line heating tripped on Sunday night but it is recovering well and will be back in operation in one hour.

The target change on HRS (Thursday) went well and without any issues.

Only some small consequences after the technical stop and the software upgrade related to the information displayed on the VISTAR screens that has already been fixed.

AD (Bruno Dupuy)

The AD machine had a short beam time this week.

The technical stop and Booster problem have reduce the beam time of 24H for TS and 24H for kickers problem.

Date	Start/Duration	System	Comment
Monday 31/08	-	-	-
Tuesday 01/09	15H40 / 00H32	DR.SME53907S	Bad contact on timing distribution for DAX.TSYNTH BAT:370 FEC:CFV-370-CTIM2. The guilty "Lemo" was changed by I.Kosar.
Wednesday 02/09	04H00 Technical stop was started.		
Thursday 03/09	No beam at 12H00 (as expected) due to PSB kickers problem.		
Friday 04/09	14H23 Beam back in the AD until 15H20 (Access into PS for water cooling) 16H43 Beam back in the AD <i>Short time to adjust the AD beam for the weekend</i>		
Saturday 05/09	01H43 / 1H20	DE5.BHZ35	CCC crew was call the First Line piquet to restart this power-supply.
Sunday	Beam steering in CPS and PSB due to poor quality of beam on AD target.		

06/04	
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- Bunch extracted length was around of 120 ns.
- Bunch extracted intensity was between $2E7^*$ and $3.8E7^*$ anti-proton.

* Beam injected was reduced at $1100e10$ proton ($1500e10$ proton nominal) for some experimental areas to limit the radiation at 3.0 mSv.

PSB (Alan Findlay)

Well, it was going just fine up until the technical stop, but we then got hit by a few issues that took us a while to recover from.

The stop itself went fine, our principal concern was the vacuum recovery after the wire scanner replacement, but we were ready for beam Thursday around 08H45, ahead of schedule. Various reasons meant we couldn't get the beam into the machine, but a fine summary was given by Jean Francois who was on shift:

- POW1553: No AQN and refresh of status. Roll back of the software installed yesterday.*
- BI.DHZ70: PIPO changed aux. power supply.
- BTY.BVT116: Rack door found open.
- BI3.KSW: Specialist called. Still on-going.
- PVSS: No rights to open valves.
- Linac watchdog: LT.BCT40, 50, 60 had no value: restart of BCTTRIC service in FEC.

Beam available for Isolde, with reduced intensity, at 12:50.

*The problem for the POW1553 was understood by 12H30 and will require a bug fix release followed by the re-release of the POW1553 soft, so this will have to be scheduled, hopefully for early next week.

So beam was available except on R3 due to the BI3.KSW problem, and this turned out to be just bad luck, not related to the TS. In the end this was due to a -15V power supply that broke and took out a lot of their electronics. The expert had not seen this and when he put in the reserves for the equipment, the faulty supply blew these too. Identifying the problem and repairing the equipment took 24 hours. Many thanks to the TE-ABT team for their work to resolve this problem.

The ops crew provided a fix to get the East users delivered from other rings while waiting for the repair.

We did note that we had to adjust the slow kicker timing for R3 afterwards, probably due to the renewal of so many of the components that had blown.

The radiation survey during the technical stop showed increased losses in the BTY line, so once beam was back this was investigated, and the disabling of the R4 BDL supply for GPS & HRS (as suggested by Bettina) removed the increased losses.

Saturday at 12:00 LI.VVS10 closed all by itself, no reason found and it wouldn't reopen. PI.VAC called but needed to intervene locally, he managed to open the valve by repeatedly trying remotely hence didn't require an access, and recommended to do the same in case of a similar problem. This took around an hour to resolve. They will follow this up on Monday but will likely require an access of 1 hour next time there's no beam.

We lost just over an hour for GPS as the BTY.DHZ/DVT 118, 124, and 152 stopped pulsing and needed Firstline to resuscitate them.

Otherwise we're back on track despite the technical stop and we once again have the full complement of wire scanners.

PS (Guido Sterbini)

It was a week dominated by the technical stop. The operation was smooth before the TS and was eventful after it.

On Monday afternoon the cavity C86, C91 and C96 went down and were not resettable (it was solved by the specialist, 1 h downtime).

On Tuesday, the high intensity beams were off as scheduled at 15h00 and on Wednesday all beams were off at 04h00.

During the TS the main interventions were on the ITH. BSG15 (the SEM grid between LEIR to PS transfer line) and the water leak on the octupole on SS70. During the blind access for octupole replacement an access door was forced and the PS patrols needed to be redone.

On Thursday afternoon, following a problem with POPS the machine could be restarted only at 14h00. But the operation was perturbed by the unavailability of the PSB R3 (24 h perturbation) and an access needed to be done for the C10-86 (1 h downtime).

On Friday the PSB was down for 1 h (MPS), and 1 h access had to be organized for an inspection to the hydraulic system of KFA4.

On Saturday there was 1 h downtime due the Linac2.

During the rest of the week-end the LHCINDIV and the 25 ns 12,48 and 72 bunches were sent to the SPS, together to the other physics beam.

SPS (Hannes Bartosik)

The week was dominated by the technical stop and the repair works of the false floor in BA1, which collapsed on Thursday morning at the end of the technical stop.

On Monday morning the SPS was put into magnet patrol for about 4 hours to perform a vacuum leak detection in sector 308 in preparation for the magnet exchange in the technical stop. As planned, the North Area beam was stopped during the night on Monday to allow for the dedicated 24h

COLDEX run with LHC beams. Unfortunately the COLDEX run resulted in elevated radiation levels in LSS1 in the region around the TIDH low energy beam dump. Therefore interventions in LSS1 originally scheduled during the technical stop on Wednesday were postponed to Thursday morning to gain additional cool-down time. In addition to the planned interventions, water leaks on a quadrupole and a dipole magnet in BA2 were repaired and 4 dipole magnets in sector 3 were re-aligned. Just before the end of the technical stop for the SPS on Thursday midday, the metallic false floor structure in BA1 supporting power converters for the TT10 transfer line collapsed. No activities were in progress close to the affected area at that time. In parallel to the repair works of the false floor by EN-MEF, the other BAs were inspected by GS without revealing structural defects that would require imminent intervention. However, further consolidation works are to be done during the Christmas shut-down in particular in BA1. After TE-EPC reconnected the TT10 power converters on Friday afternoon the machine was handed over to operations. Minor issues mainly related to faulty power converters slightly delayed the startup but the beam was back to normal operation on Friday evening. No major problems were encountered during the weekend.

Miscellaneous:

BI performed two interventions on the recently broken BLM at the extraction septum ZS3. Since the spare BLM installed on Thursday did not work, another spare BLM was installed on Friday which however also does not work. BI is investigating.

The 24h UA9 run originally planned to start on Thursday after the technical stop had to be cancelled because of the BA1 incident. It needs to be re-scheduled.

No more spurious dipole kicks are observed on the closed orbit along the ramp after the exchange of the dipole magnet 53490 with the inter-turn short.

Further progress was made on the setting up of the MTE cycle SFTPRO2. The work concentrated on the optimisation of the working point and the chromaticity on the flat bottom and along the ramp. The next step is the setup of the extraction during the dedicated MD planned for Wednesday.