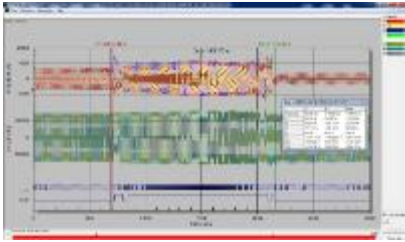


## End Week 18 (May 6th 2012) – Status of Accelerators

### TI (Peter Sollander)

The TI summary of the week is all electrical perturbations.

<http://wikis/display/TIOP/2012/04/30/TI+summary%2C+week+18+2012>

day	events
Tuesday, May 1st	<ul style="list-style-type: none"><li>06:03 -- Two bad electrical perturbations (1st 38% for 70ms, the 2nd 44% for 100ms, 1.4s apart) on the 400kV line near Bois-Tollet knock out the accelerators and the all compensators.</li><li>The cryo is cut at point 2 when the compensator is restarted.</li></ul> 
Thursday, May 3rd	<ul style="list-style-type: none"><li>15:08 -- Small electrical perturbation (8.34% for 50ms) trips SPS RF system. The other accelerators are OK. Beams in LHC did not suffer</li></ul>
Monday, May 7	<ul style="list-style-type: none"><li>01:12 -- Electrical perturbation (400kV trip near Lyon) stops the SPS and the LHC. LHC injecting probe again at around 02:00, stable beams only at 06:39</li></ul>

### ISOLDE (Emiliano Piselli)

#### HRS:

Bem to users on Tuesday. Power glitch early in the morning...and 2 vacuum glitch in the target sector. I spend some time to restart all the target but, at the end, users could take beam till Wednesday morning.

On Thursday we have delivered radioactive beam to REX...1 day earlier than foreseen. No major problem till Friday afternoon, when one of the separator magnets stopped working. Magnet expert came and after many test we decided to exchange the teslameter (This problem will be investigated tomorrow morning).

Then, in the evening, we have had vacuum problem in the target, due, most probably, to some outgassing of the target. We have slowly heated up the target over night and, only on Saturday lunch time, users could get back beam.

Some problem with on of the REX RF amplifier on Sunday, which I have solved with a manual tuning.

**GPS: nothing to report...**

## AD (Tommy Eriksson)

AD suffered from the power glitch Tuesday morning, slow recovery due to:

- re-heating of e-cooler cathode + vacuum systems down + inj.line power supplies (new type)
- 35h downtime in total

Thursday: big worries over a pulsed quad in the target area....looked to be magnet related at first, but turned out to be a capacitive discharge power converter fault (fast ageing capacitors, dead after 2-3 years instead of 15 or so...). Magnet replacement would have been tough: highly radioactive area and little knowledge about replacement procedure and state of connections etc.

Friday: Horizontal instability problem at AEgIS solved.

Sat/Sun: AEgIS have HW problems and gave up their weekend beam time – ASACUSA only user over the weekend. No faults Sat/Sun !

## Booster (Alan Findlay) - a bumper birthday issue

The PSB has been going through an attention seeking phase these last few weeks, which much belies her 40 years!

The Tuesday holiday started badly with the power glitch taking the PSB out for an extended breakfast from 06H00 until 11H30, but then it was back to business.

In an attempt to improve our ejection trajectory measurements the BI team replaced the head amplifiers for the pick-ups in BTP10 & BTP30 on Wednesday, and solved the bad acquisition problem meaning we could measure the correct trajectories again. The improved trajectory measurements quickly helped to show that BT2.SMV20 was a possible candidate for the ejection trajectory instabilities, and an 100A fluctuation (in 25000A) was seen, so the specialist called in to investigate. While working on the supply, he saw that disconnecting the OASIS cable from his equipment removed the fluctuation, so he left it disconnected. After a few days of observation, we confirmed that this fluctuation had been solved, so the specialist is looking into a method of isolating the OASIS connection.

The above interventions seem to have solved the problems of fluctuations in our ejection trajectories that have dogged us of late.

We were a good client of the PiPO this week, firstly needing their intervention to repair BT4.BVT10 on Thursday, which took out R4 for 1hour 45 mins.

We had to call in INCA support for a few problems on Friday when we were trying to "acquire" while saving to reference. The team took note of the problems and gave us a fix so we could continue to work while they are investigating.

The PiPO had to come and join us again on Friday night around 01H00 as BT.BHZ10 and BT2.SMV20 started to mis-behave, and it took him until 02H45 to get us back on track.

By Saturday afternoon we were missing the PiPO already, so we invited him back to help us at 16H30, as B13.QNO60 had taken out R3. He decided that he'd have to switch to the spare power supply, which he duly did, giving us our beloved R3 back by 19H30.

Early Sunday morning the SPS brought the issue of intensity fluctuations to our notice, and Jose took action to try to improve the situation, which he had identified to be coming from the LINAC. As the next LHC fill approached, the Linac Supervisor was called into investigate at 06H45. She and the PSB operator worked throughout the morning to try to solve the problem, which proved a hard nut to crack. At 14H00 the fluctuations disappeared, apparently of their own accord, and the intensity stability returned to it's normal

value. Around 17H00 there were signs that the intensity stability problem may come back to haunt us, but the operator and Linac supervisor were keeping an eye on the situation.

## PS (Rende Steerenberg)

The PS has been running quite well last week a part from Tuesday when a power glitch caused nearly 12 hours of down time for the majority of the users. Specialists and piquets for many systems were called in to restart the different sub systems. The PS operations team wants to thank all of them for their valuable support on this CERN official holiday.

On Wednesday a longer standing problem with the PSB – PS trajectory was finally solved and allowed the diagnosis of a fluctuating vertical recombination septum that caused intensity and loss fluctuations at injection and the rise of B-field in the PS. After these repairs and the optimization of the PS extraction the nTOF intensity was raised from 5.5E12 ppp to 7E12 ppp, keeping the dose rate on the PAXS35 monitor at or below the 100 microSv/h limit.

During the whole week the RAMSES interface was regularly unavailable. However, RP allowed us to continue beam production during these periods as the alarm system was working correctly.

Wednesday evening the last part of the high voltage cable for the electrostatic septum in SS23 (slow extraction to the East Area) had to be replaced in the PS tunnel.

Since early Sunday morning the LINAC2 intensity is fluctuating on all users is causing some quality issues, in particular on the LHC beam, such as bunch-to-bunch intensity spread and emittance fluctuations.

Monday morning the beams to the East Area have been stopped, as a vertical dipole is not working correctly. An intervention by the first line piquet is being organized.

## SPS (Karel Cornelis)

Like the other accelerators in the CERN complex the SPS was hit by the power glitch on Tuesday morning, 1st of May. Interventions were needed on MKE6 and the 800MHz cavities. The SPS was back on standby at noon and the beam from the Booster and PS came back at around 3p.m.

For the last two weeks we suffered from frequent, unexplained drops of power convertors in TI2 and on Wednesday this problem could be traced back to perturbations coming from the WIC and it could be fixed.

The rest of the week was dedicated to the start-up of the fixed target. After some last minute interventions on NA equipment (TAX cooling, vacuum chambers, ...) and the NA access system controls, the DSO tests could finally take place on Friday afternoon. The North extraction was set up on Friday evening and the beams were transferred to the NA targets on Sunday. On Sunday afternoon we lost a couple of hours because of a faulty Q-pole supply in TT20, for which an intervention was needed. During the weekend, all beams suffered from a varying intensity coming from the LINAC.

## LHC

Rocky week including two back-to-back cryogenics problems over the weekend which took out 52 hours. Beam losses in squeeze and going into collisions causing a few worries. More details:

<http://lhc-commissioning.web.cern.ch/lhc-commissioning/>