

End Week 13 (April 1st 2012) – Status of Accelerators

TI (Peter Sollander)

TI summary is available on the wiki page

<http://wikis/display/TIOP/2012/03/26/TI+summary+week+13%2C+2012>

Tuesday, March 27

- Digging to repair faulty 18kV cable between BA5 and BA6 has started. Estimated to be repaired and operational again by Thursday
- Patrol lost in P8 again, like Saturday. Access piquet called in to localize problem. This time, they did find a problem with a connector. During the intervention to change the connector, another cable fault triggered a Beam Imminent Warning and stopped access around the machine.

Wednesday, March 28

- 00:08 -- Local power loss in LHC P6, a number of alarms on UPS and 400V supply for service areas (US, UA, UW). It turns out that a 18kV breaker EMD304/6E has switched off without any apparent reason and without sending any alarm. EL piquet sent in to switch back on. Cryo conditions lost for 10 minutes.

Thursday, March 29

- 17:10 -- Electrical perturbation knocking out the accelerators. LHC lost 1 hour. The origin was a [fault on the swiss network](#) that had an influence on the french 400kV supply. EN-EL registered a 200ms dip of 13% on two phases.

Friday, March 30

- EN-EL switch the SPS 18kV loop between BA5 and BA6 back on after the repairs had been done. The loop is now fully operational.

Booster (Bettina Mikulec)

Good week for the Booster with only few issues.

On Tuesday and Wednesday beams have been steered to HRS and GPS. First beam used by GPS at the end of the week.

Over the last couple of weeks, the transverse emittance of the 50ns LHC beam had slowly drifted away. The injection has therefore been retuned to reach again the nice emittance values of the start of the run. All rings behave similarly.

Some fast losses were observed on ring 4 for high-intensity beams. The problem could be cured by retuning injection, capture and mainly the phase between the C02 and C04 cavity.

Extensive emittance measurements agreed between BI and OP to track changes over the years with wire scanner / SEM grid performance have been pursued throughout the week.

ISOLDE (Erwin Siesling)

Last week Isolde took protons for the first time this year. Here is a short summary:

Monday 26 March-protons to Isolde:

Setting up and intensity tests done for GPS and HRS, BTY line. Finished Wednesday-morning.

All ok except that this weekend we tried taking 3E13ppp again on GPS and the last BLM in the line set off. Slight re-focussing was done by PSB.

Very tight and careful planning of the different interventions last week made it possible to stick to the schedule and we took protons on GPS, as foreseen, for Taret and Ion Source Development tests over the weekend, continuing today.

At HRS we are setting up stable beam through the RFQ (continuing today) to start physics this week. We decided with Magda to concentrate on the TISD at GPS and give stable beam to the Collaps setup early this week.

Controls problems:

Controls of the power supplies: Daniel Calcoen with Frank Locci and Emiliano Piselli have been working hard to understand and address the problems we have with the communication with the different power convertors. Main issue is the heating of the targets where reliable controls are essential. We are now running with the modifications and testing the stability. The front end computer went down this weekend causing some troubles again and we are investigating. Emiliano proposes to distribute the tasks over different FECs so that not all machine is affected when rebooting or relaunching tasks.

Many thanks to all involved.

Scanners:

Last week the two main large scanners for HRS and GPS were replaced successfully, tested with beam and working ok. A small problem remains with the calibration of the position of the wagon holding the needles of the GPS large scanner which we will solve this week (no access in the separator zones needed). Many thanks for the fast ALARA 3 that went through for the GPS one (Ana Paula Bernardes, RP, Gerrit Jan Focker and all).

Few other problems:

Friday we lost the timing WISOGPS from the booster. Many thanks to CO Piquet (Leandro Fernandez) for finding a broken connector at PSB side.

Over the weekend the NIM crate for the request and timing in the ICR went down - hard cut -OK again.

The heating of the target and line went down due to a necessary reboot of the FEC on Saturday. Normally the heating should not go down and I suspect a small problem in the new ramping cards for the target and line heating preventing us from switching between remote and local correctly.

Few more less important other technical problems which will be addressed at the Isolde technical meeting.

PS (Rende Steerenberg)

The PS produced all the required beams in time and with the correct beam characteristics, but many different issues that caused small interruptions and several radiation alarms hampered the week. The sources of the radiation alarms lie mainly in intermittent malfunctioning of equipment, such as extraction elements pulsing with values of a different user. Each bad pulsing on CNGS, TOF, but also the LHC beam causes immediately a level B radiation alarm.

An erratic problem with CVORB modules that was difficult to diagnose has caused a substantial number of level B radiation alarm. Finally the CVORB modules that were replacing GFAs modules were found to be the source of the power converters pulsing erratically, even when the function generators were disabled. There was an incompatibility between the CVORB module and the power converters with the definition of the pulse length for the serial communication. Reprogramming the firmware of the CVORB modules solved the problems later in the week. This shows that it is very important to operationally deploy and test systems that are foreseen to be deployed widely during LS1 as soon as possible.

POPS ran quite well, especially the first part of the week, as one source of the regular trips is understood and mitigated. The problems were related to electromagnetic interference. Now there is still one source of trips that is under investigation, related to the opening of the 18 kV switches. Every trip will narrow down the search area. These trips are less frequent than the ones related to the EMI.

The beam for nTOF was produced on a daily basis, with a few interruptions due to PS issues and access to the nTOF experimental area. By Sunday midnight nevertheless 1.12E18 pot were accumulated for 1.01E18 pot foreseen. A regularly updated plot can be found at the OP-PS section webpage:

<https://espace.cern.ch/be-dep/OP/PS/default.aspx>

The AD beam was setup and will be available to AD.

SPS (while awaiting report!)

Scrubbing run last week Mon – Fri – went well. Otherwise CNGS up to cruising speed.

LHC

Full week of commissioning. Give or take a few loss maps, LHC now ready for stable beams with a low number of bunches. 50 ns injection commissioning before starting ramp-up.

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