End Week 41 (October 16nd 2011) – Status of Accelerators

TI (Peter Sollander)

http://wikis/display/TIOP/2011/10/17/TI+summary+week+41%2C+2011

Events of the week: No major events on the infrastructure this week. One cryo PLC failed Monday night. Conditions back only Tuesday night.

SIG has announced works on the power line between Bois Tollot and Verbois week 42; A cut on Monday, October 17 07:00 and a reconnection Friday 21 between 17:00 and 18:00. These operations should be transparent.

LEIR (Django Manglunki)

LEIR restarted on Monday morning as soon as beam was available from the source which had tripped during the week-end.

On Tuesday evening around 17:30 the accumulation stopped on all cycles, which seemed to indicate a beam cooling problem. A call to the TE/EPC piquet confirmed that the high voltage power supplies of the grid & control electrodes of the electron cooling were displaying over current and regulation faults. An intervention was planned for 21:00 when the ECOOL specialist was available to condemn the installation for access to the Faraday cage. In the mean time the machine was first set to scrubbing mode then the ion beam was stopped, leaving just the electron beam on. During scrubbing it looked like the accumulation restarted to work occasionally but the intervention was maintained, on the advice of the TE/EPC specialist. After the exchange of regulation cards in both the grid & control electrodes power supplies, everything worked fine. We believe however the problem was more due to beam-induced sparking in the cooler than to a regulation fault in both power supplies. After the intervention the machine was left in scrubbing mode until the next morning for the SPS MD. LEIR behaved fine for the rest of the week, and was left in scrubbing mode every night, to restart supplying the Nominal beam for the PS and SPS the next day.

Thursday was the last day with the ion beam, and on Friday while the source was being refilled, the electron beam was turned off and all valves closed, in preparation for the first beam on Monday morning, where we intend to measure the accumulation and injection efficiencies after a long period without beam.

AD (Bruno Dupuy)

Week 42 was conducted without any intervention.

Efficiency is rated. The number of particles per extraction is around 3E7 [anti-proton per extraction].

Generally, when all goes well, like this, we are close to the end of the year :-)

ISOLDE (Emiliano Piselli)

HRS:

Stable beam tuning on Tuesday. On Wednesday proton scan onto converter, yield measurement and then radioactive beam to first users for this week (ISOLTRAP).

On Thursday early morning radiation alarm in the target zone and in the HV area. I have therefore decided, together with RP to reduce proton current from 1.6uA to 1.4uA. No problem in the day.

On Friday early morning I have been called because all the faraday cups got stacked. Remotely I helped users to restart the system.

Then in the morning I did a proton beam scan on the target and then beam again to users.

On Saturday morning new users (in LA1 beamline) have started. At 11.00 I've been called in some vacuum valves was closed. I have solved this problem setting on standby and then pumping different sectors. I have been called again at 14.00 because of another radiation alarm. I have suggested users to decrease proton current and it has worked fine. Same day I've been called again at 18.45 because users could not see any beam. After many checks I understood that the mass factor of the 2 separator magnets was changed. Once back to original values users could continue their experiment.

No problem on Sunday.

GPS:

Target change scheduled for tomorrow afternoon.

Booster (Giovanni Rumolo)

The PSB had a very good week. Only hiccups:

- Tuesday and Wednesday we noticed some unusual capture losses in Rings 2 and 3 for the ISOLDE beams, which would appear only when the ISOLDE cycle was played after a ZERO cycle. This problem, however, disappeared on Thursday and fortunately has not come back.

- Wednesday night the LHC 50ns beam could not be sent from the PSB to the PS for a few hours because the frequency sent by the PS for synchronization was wrong and this resulted into a deformed bunch from Ring 4 on the LHC_MD_B user (used for the injection of the second batch into the PS) The 100ns beam to be used for the LHC Pb-p tests has been prepared according to the specs and was sent to the PS Wednesday afternoon.

PS (Alexej Grudiev)

In general, smooth running providing beams for all users. LHC_50ns double butch 36 and 12 bunches, AD, EASTA EASTB, EASTC, TOF, SFTPRO and CNGS operation continued at nominal intensities and for floating SPS MD. LHC beam with 100 ns bunch spacing has been prepared at intensity 13e10 and emittance ~ 1.5 um.

Some issues:

On Tuesday, Bumper PE.BSW16-14 was pulsing at wrong value causing losses at extraction. PIPO tried to adjust several times the 5V power supply but it had to be replaced finally by PIPO.

Tuesday evening, Problem with radiation alarm in ARCON zone WEST2 due to connection fault. RP made a test lowering the threshold value on PAXTOF04 to create a radiation alarm. This alarm was reported in Ramses but no sound by ARCON. TOF beam was cut waiting for repair of ARCON system till 10:30 next morning. In total, 12 hour of no beam for TOF.

General issue with 10 MHz cavities which required several reset during the week: in particular C81, 76, 51. Specialist had to come twice over the week end to repair C51 and 76.

SPS (Yannis Papaphilippou)

It was a good week for the SPS with no major fault:

- On Tuesday night, one of the main power convertors (MSD8) was on fault and the piquet power was called. He changed the mains configuration, as he diagnosed a ventilation problem which was solved the next day (~1h without beam).

- During Wednesday evening, a problem was observed with the injection kicker MKP (losses of batch extremities) and the piquet was called in order to fix some kicker delays.

- During the night, the collimator MD took place and in the morning the UA9 MD (coast at 270 GeV).

- On Thursday morning and in parallel to the MD, an access of the CNGS was scheduled in order to repair the movement of the shielding plugs, which was traced to a burned power plug that had to be replaced.

- On Friday morning the LHC 25ns MD took place (nominal for the LHC and Q20 for the SPS).

- On Saturday morning, chain 11 tripped with a communication problem and the piquet access had to be called to fix this by changing a PLC.

Another problem with H6A zone was probably due to a wrong power supply signal.

- During the weekend, and due to the high intensity of the LHC beam (~1.4e11ppb), the user cycles had to be stopped and the ZS value reduced in order prevent it from tripping and fill the LHC. A decision should be taken of how to proceed with the LHC filling during the rest of the run, without penalising the SPS users.

LHC

Good running with peak luminosity up to 3.5e33 cm-2s-1 with 1.4e11 ppb. Integrated 550 pb-1 in the week with 5 fb-1 for the year delivered to Atlas and CMS. Two MDs: high pile-up and 25 ns.

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