Accelerator complex status

End week 6 (14th February 2010)

SPS (Elias Metral)

During the shutdown, 8 dipoles (MBB.20270, MBA.23230, MBA.23250, MBB.33090, MBA.42030, MBB.50070, MBB.51490, MBB.62130) and 4 quadrupoles (QD.53510, QD.60310, QFA.61810, QD.63110) were changed.

The beam for AMS (Alpha Magnetic Spectrometer) was sent between Thursday 04/02 evening and Tuesday 09/02 morning (protons, electrons at different energies and photons were used). The beam quality was not so good but was considered to be sufficient. Some problems were encountered with the RF capture (difficult to adjust with this beam's time structure) and therefore some beam losses could be observed at the start of the ramp. The slow extraction was also not very stable, but ~150E10 p/p could be used by AMS.

On Monday 09/02 (and Tuesday 10/02), a test with vacuum valves closed around one of the splitters in the North Area was performed. It was found that no more losses were observed with the valves in (still to be confirmed after detailed analysis, which will be reported at one of the next IEFC meetings).

On Tuesday 10/02, the SPS orbits were measured at 400 GeV/c with the beam which was prepared for AMS. The SPS was then realigned (only in the horizontal plane, as the vertical one was already fine). Three quadrupoles were displaced: QF.52010 by -0.64 mm (?), QF.33410 by 0.48 mm and QF.32010 by -0.32 mm.

On Thursday 11/02, the SPS restarted with beam using the supercycle (SFTLONG1, MD2, LHCFAST2, MD1). For some time, it was impossible to keep the beam in the machine and this was due to the BTV.21002, which was found with the screen 1 in beam.

On Friday 12/02, we were informed that the last compensator is now operational.

PSB (Alan Findlay)

I think we can say that the PSB had a very good week, with our only real problem fixed in the shadow of the PS main generator intervention.

It had been found last week that there was a vacuum leak on the bellows of BI.STP (fast beam stopper), so it had been sprayed with varnish until the end of the AMS run when an intervention could be planned. Thankfully it held until Tuesday, so the beam was cut at 14h00 to cool down the injection line before the

planned intervention the following day. On Wednesday the vacuum team replaced the bellows and got the pressure down quite quickly, so by the evening we were already in good shape.

The PS had access requests until the end of Thursday morning, after which we got the beams back up rather quickly, with LHCPROBE available for the PS within 30 mins. We had a low intensity SFTPRO variant ready for them by 13H30 and were back to debugging the smaller problems from then on. They have since requested the LHCINDIV beam, but since we had already prepared it, this was not a problem.

PS (Rende Steerenberg)

The PS had a smooth run on the 13 MVA transformer for the AMS experiment until Tuesday morning when they stopped taking beam. This stop was followed by some interventions in the PS on the figure of eight loop and work continued on the motor-generator set.

Thursday morning the MPS, powered by the motor-generator set, was handed over to operations again for routine use.

Since then the setting up of the different beams was started. The SFTPRO beam with a full CT extraction was send to the SPS followed by the LHCPROBE beam.
Over the weekend work continued on the setting up of the cycle for the MTE extraction with the aim to get it commissioned as soon as possible.
There have been many small start up issues that were dealt with quickly and efficiently by the different responsible for which we would like to thank them.

TI (Peter Sollander)

One major event last week,
Wednesday 10 at 03:30, cooling tripped in point 4 stopping the cryo compressors in the underground.
A major event report was initiated and is pending more detailed information from CV. Apparently, it was a problem with flow meters.

LHC (Mike Lamont)

S12 – PGC to 6 kA – OK. Following test RCS brought down whole sector (FPA on 600 A), QPS triggered 10 dipoles very close in time at 5400 A. Old QPS suspect.

S23 – PGCs in progress

S34 – PGC started – few miscellaneous issues. RU.L4 still to be commissioned. B13R3 unbalanced. Connect nQPS to interlock after confirmation.

S45 – Pyramid to **2 kA** – RQD/QF failed – to be check. Splice resistances to be checked (excess of 8 nano-ohm seen). Misc nQPS problems

S56 – nearly ready to connected heaters to nQPS. 2 kA pyramids complete.

S67 – switches not closed. RB 760 A, RQF/RQD 2 kA. Some crates still to be connected to interlock system. nQPS details.

S78 – nQPS issues. Need to analyse ramps etc. Heater firing from oQPS to be done.

S81 nQPS issues. Ramps to be analyses, non-conformities to be sorted.

DSO tests TI12 on Wednesday – no powering in 12, 23, 34 – no access in point 2.

Transformer intervention – 2 day stop in S78 and 81 (Wed – Thurs this week).