

End Week 26 (July 4th 2010) – Status of Accelerators

LINAC2 (Richard Scrivens)

After the intensity limitation due to RFQ sparking the previous weekend, Linac2 could be returned to normal intensity for all beams on Monday, but no reason for the sparking was found. After that it was a quiet week.

AD (Kari Mikluha)

The main problem we had during this week was a DR.BHZ ring bending magnets' power supply, which was tripping OFF regularly several times per day. Mr. Stephane Reignier changed its two faulty converter cards on Thursday, and after Friday morning it hasn't been tripping OFF anymore.

Late Wednesday evening we had problems with a DR.DVT1304 ring dipole power supply, which was ON but not following its GFA. The Firstline was called in and they changed its faulty communication card.

In addition to these, we had several small problems, which were related to control problems, hanging DSCs, tripping cavities, kicker modules, and power supplies, but they were all non repetitive and fixed quickly.

Booster (Klaus Hanke)

Major problems of the week were numerous MPS faults and problems with the external condition of the BI.STP stopper. On Monday full Linac2 pulse length could be recovered (during the weekend the high intensity users had been running at reduced intensity). In the afternoon there was a 1h stop due to an MPS failure (thunderstorms), the specialist changed to the spare groups. In the evening there were more MPS trips, this time resettable by the operator. At 21:19 the MPS tripped for good. After consulting with the expert the EPC piquet was called in who fixed the problem; beams back 22:05.

On Wednesday at a 15:17 a power glitch brought the Linac and Booster RF and many power supplies down, after checking with TI we re-started everything smoothly, beams back 15:35

In the evening a non-resettable Linac RF fault required local intervention of our operator.

On Thursday 3 supervisors solved the long-standing R4 problem (beam loss in the last part of the cycle) by changing working point and MRP, by now (after further optimization) 1100E10 can be accelerated.

Friday another resettable MPS fault. The Ring 4 vertical wire scanner got blocked and was liberated by the BI specialist. In the late afternoon several times the condition "BI.STP in" in stopped all beams, although the stopper was not in; the CO piquet and D.Chapuis intervened; in parallel problems with the ISOLDE watchdog.

During the weekend more (resettable) MPS faults. Sunday night stop during 1,5 h due to the external condition "BI.STP in", CO piquet and expert intervened, the problem eventually disappeared but is not finally understood and solved.

PS (Yannis Papaphilippou)

The PS had a very good week delivering regularly all high intensity beams (CNGS, SFTPRO, TOF, AD), beams for the EAST area (EASTA/B/C), and single bunches with nominal intensity (LHCINDIV beam) for the LHC. The important events of the week are main power supply (MPS) faults due to electrical network glitches and the very successful deployment of the INCA layer.

More specifically:

On Tuesday evening, certain workstations could not be rebooted and Java applications could not be restarted. The OP crew was informed that there was a general problem with afs. IT solved the problem at around midnight.

The MPS was in fault three times during the week (Tuesday afternoon, Wednesday morning, Thursday night, with 4h total down time), most probably due to glitches of the electrical network (the 2nd one was clearly identified by the TI team and put down most of the accelerator complex). In all cases, the remote restart was prevented by a rheostat trip with a level-6 fault (network glitch) and the piquet PO had to reset it locally. Tests are needed during the next technical stop (July, 19th - week 29) in order to fully understand and fix the problem.

The new Injector Control Architecture (INCA) deployment started on Wednesday morning and a few bugs were identified during the week and fixed by the CO colleagues. None of these errors had any influence in the beam delivery, reflecting the great success of this operation.

During Thursday evening, the 40MHz cavities could not be started. The specialist was called and had to come in order to make a local reset. The problem was just a power breaker for the tube amplifier heating which had to be switched back on. This problem in addition with the MPS trip (see above) cut the beams and delayed the LHC injection for 2h.

SPS (Karel Cornelis)

No big events in the SPS during the last week, no MD's and no big interventions. The main problems were due to the evening thunderstorms, causing drops of the main power supplies and the RF power amplifiers. The most severe ones were during the night from Tuesday to Wednesday. Damage was done to the SMD4 and SMQD and on Wednesday morning we took one hour to repair them in order to have some reserve available. TRX1 is also ill. It is not sure whether this is due to the power glitches, but we will have to find some time on Monday to repair it.

Saturday afternoon we lost a couple of hours on the fixed target cycle. A faulty module controlling chain 11 in the north area had to be replaced.

During the past week we noticed a software problem. The I and Iref values for two steering power supplies in TT41 were found out of step, causing a fast extraction interlock on CNGS. How this error came into the trim history is still unclear. We will have to keep an eye on this.

LHC – full details under coordination at:

7 nominal bunches per beam into physics last Friday. $> 10e29$ cm-2s-1 – record luminosity. Backing off in intensity and increased transverse emittance over the weekend.

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