

End Week 19 (May 24th 2010) – Status of Accelerators

PS (Simone Gilardoni)

Beams available:

SFTPRO -> now CT extracted

CNGS -> CT extracted

MD2 -> MTE extracted -> to 1 CNGS @SPS for physics

TOF -> physics

EASTA,B,C -> physics

AD -> physics

LHCINDIV, LHCPROBE

Highlights:

- During the week, first tests for the high intensity LHC beams (beyond the nominal).
- The beams for the fixed target physics were moved gradually from the MTE extraction to the CT, leaving only 2 MTE-extracted beams in the supercycle. The investigations to understand the source of the instabilities are still ongoing. We are basically re-logging again all the HW plus the B-field plus the tune to try to correlated with the losses increase due to the oscillating quality of the spill. RP did a new survey during the 1 hour stop on Wednesday, i.e., before switching the CNGS to CT extraction, and found lower activation levels at septum 16 (30 $\mu\text{Sv/h}$ after 1 hour of no beam compared to 43 $\mu\text{Sv/h}$). This is probably due to the fact that the higher values found in the previous survey were related to the too many MTE cycles in the supercycle for the setting-up and tests to understand the oscillation of the spill. Anyhow, RP confirms again that the radiation levels elsewhere in the ring during the only-MTE run were much better than during the CT run.
- The EAST physics started as nTOF.

Monday

Foreseen switch SFTPRO ->MTE extracted to CT extracted was postponed due to a problem with a CT kicker solved during on Tuesday morning. At the same time, problem also with a kicker for MTE, solved later in the morning.

Tuesday

TOF safety tests to allow beam to the experiment. Minor problem with a quad in the TOF line. First beam to the experiment during the afternoon.

Beam to TOF in the evening. The intensity per shot is about $750e10$.

Wednesday

The program foresaw the safety tests of the EAST area in the morning with beam as soon as possible. Unfortunately, this was possible only in the afternoon, due to a problem with the lightening of the hall. The patrol had to be postponed after solving this problem. The beam was sent

to the users in the evening. Then, it was not possible to continue during the night due to a problem the CPS-timing not sent to the experiment correctly and with the F61S.BHZ01 cooling. Since there was only one user left, in agreement with T7 it was decided to postpone the interventions to the following day.

Thursday

Timing problem solved for the EAST experiments

The problem with the overheating of the F61S.BHZ01 was due to a cooling water valve left closed. This was solved with an access in the PS tunnel in the morning.

Friday

Normal operation

Saturday

Noticed by the SPS that if the SFTPRO or CNGS at the PS is preceded by a ZERO cycle, the beam is badly injected. If preceded by a TOF, sometimes not injected, if preceded by an EAST, then everything is fine. Again, this seems to be related to the problems of the B field. The rule applied to avoid the problem is to have an EAST before the 14 GeV/c cycles until a solution with the B field experts would be found.

Sunday

Problem with injection bumper during the night. PIPO had to come in three times. Problem with the CPU of the power converter.

SPS (Karel Cornelis)

The change over to the CT extraction in the PS, for the fixed target cycle, which was planned for Monday, had to be postponed until Tuesday because of a problem with a staircase kicker in the PS. Since Tuesday afternoon the fixed target is working with CT and the NA users are very happy with the stable beam conditions. The intensity for COMPASS was increased to $2.4 \cdot 10^{13}$ on T6.

CNGS was switched to CT transfer on Thursday. On Thursday and Friday the CT extraction in the PS suffered from frequent beam loss interlocks but during the weekend it became more stable. We are now running with $4 \cdot 10^{13}$ on the CNGS cycles. On CNGS cycle was kept on MTE extraction and the intensity is still fluctuating.

For the LHC we have been providing the PROBE and the LHCINDIV on request.

Two recurrent problems over the weekend: the MSE in LSS4 has an oscillation on the flat top provoking frequent extraction interlocks on CNGS and there was some trouble with TRX7 on the RF power amplifiers.

TI (Peter Sollander)

Monday, May 17: UPS breaker found to have tripped in UX45. No immediate consequence. After investigation we find that the the breaker feeds RF equipment and vacuum pumps for the klystrons. An intervention is planned and executed Wednesday morning when access is possible. Problem fixed, no follow up in particular.

Tuesday, May 18: Electrical perturbation on the 400kV EDF supply stops the SPS and the LHC for approximately two hours. The origin of the perturbation is a 400/125kV transformer on the EDF network (not at CERN).

Wednesday, May 19: No particular problems. Intervention to fix UPS breaker in UX45.

Thursday, May 20: BA6 demineralized water tank does not refill as it should. A flowmeter is found to be faulty and CV replaced it temporarily with a piece of tube until a new flow meter can be installed. The tank starts refilling immediately.

Friday, May 21: No problems to report

Saturday, May 22: Meyrin compressed air stops due to a cooling problem. The primary cooling FQSTR-00013 fails and immediately stops the compressed air. The reason for the rapid stop is that there is a compressed air leak at an ISOLDE installation forcing all four compressor to run constantly.

Sunday, May 23: No problems to report

Monday, May 24: The compressed air trips again on the same cooling problem. Atlas reports high temperature in SH1 building where the ATLAS cryo installations are located. Ventilation found to be off. CV piquet called in to restart it.

LHC – full details under coordination at:

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

Fractured running over the long weekend but $13 \times 2e10$ (8 collisions per experiment) into stable beams - around 2×10^{29} cm⁻²s⁻¹ maximum on Monday 24th May.

Next technical stop

Linac2/PSB: Stop all beams Monday 31st 5am

PS: Stop all CT and MTE beams Sunday 30th 9am

Stop all remaining beams Monday 31st 5am

SPS: Stop all beams Monday 31st 5am.

I.e. for the users:

No North AREA users and CNGS from Sunday 30th 9AM

No other users from Monday 31st 5AM

This will be made official next tuesday morning at the FOM.

For the restart of the users beam, this also will be clarified at the next FOM.