

End Week 25 (June 21st) – Status of Accelerators

Summary

Long MD plus Major power cut Thursday.

ISOLDE	Was looking good but brought to abrupt halt with vacuum control problems following Thursday's power cut.
AD	- 52 h downtime due to power cut - Apart from above main events, 12h or so lost due to recurring intermittent problems with stochastic cooling p/u movement system, expert consulted many times and many components replaced. - 7h or so w/o beam during the long PS md. - ccc crew has been very helpful for resets etc. in the AD buiding during nights/ w-e => thanks !
PSB	Looking good, reasonable recovery from power cut.
PS	MD – good performance otherwise. Some problems recovering from power cut but reasonable recovery.
SPS	Long MD Mon through Friday – otherwise smooth running.
TI	Power cut Thursday – major incident procedure launched.

Technical Infrastructure (Peter Sollander)

- Monday 15/6: Power cut on LHC4 machine 18kV network. A few seconds cut during a maintenance operation. Cryo was heating up at the moment and did not suffer too much. Lost approximately one hour.
- Wednesday 17/6: Mixed water problem in LHC8. Water too cold. Could have caused major problem for LHCb, but no real damage made.
- Thursday 18/6:

O EMP meeting: It seems that we can manage with only EHT4 while EHT5 is being repaired (until end of July). The planned consumption does not exceed the maxium for this transformer

O Power cut: The major power cut in Meyrin. 3 trips around noon on Thursday. Reason was a fault on circuit breaker in the Jura substation (B212). The power cut affected mainly the Meyrin site, but caused perturbations also on the LHC loop.

- Friday 19/6: Water leak in AD in the morning. AD is back up at 15:10

Isolde (Magnus Eriksson/Richard Catherall)

Things were going extremely smooth with the REX-run, radioactive beam was being sent to the Miniball experiment and ISOLDE/REX was performing very well until the abrupt stop caused by the power cuts on Thursday.

After the recent power cuts experienced at the Meyrin site on Thursday, the ISOLDE Facility is struggling to return to normal operations. The main cause for concern is the vacuum control system. TE-VSC have been working very hard to try and establish the situation and have successfully started 3 vacuum sections in manual mode. However, there are still other sections to start and I believe that running the Front Ends in a precarious manner (interlocks have to be over-ruled when the vacuum system is in manual mode) poses a greater threat to the operation of the facility in the long term. I have therefore given priority to the vacuum group to resolve the situation and consequently, in agreement with the physicist's coordinator, cancelled the physicist's run planned on the HRS until next Wednesday. If more time is required, this may mean that the Target and Ion Source Development run planned on the GPS next week may also have to be cancelled.

AD (Tommy Eriksson)

Thu:

12:06: BIG power cut: all control and electronic racks off, almost all magnet and other power supplies off, main + target area water cooling plants off.

- An error in manipulation during recovery in the ATRAP zone caused water to run into a detector electronics rack in the ALPHA zone below. Complete disassembly and drying out. Luckily power was off.

- FL and piquets worked until 02:00 Fri to restart ring equipment.

Fri:

05:00 BIG water leak in ASACUSA zone due to burst hose. Magnets, MWPC:S, vacuum equipment sprayed. Main cooling plant empty, tripped off.

11:00 hose replaced, water back on (TI/water people)

14:00 Beam in AD ring ok

22:00 Ejection to all zones ok after FL/magnet piquet repairs/resets

23:00 New fault: B-train missing, ADS + CO piquet called.

Sat:

06:00 B-train ok, traced to broken contact on front panel of synthetic B-train card. Beam decelerates, but ej. synchro is unstable (beam not useable).

08:00 I was called in since the ADS and PICO had worked all night.

17:00 With the help of 2 RF-experts, problem traced to marginal signal level for RF-train distribution due to broken pulse repeater.

AD OK !!! (except for reduced intensity due to PS production beam not yet up to par)

Sun:

18:00 keeping my fingers crossed...

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- Apart from above main events, 12h or so lost due to recurring intermittent problems with stochastic cooling p/u movement system, expert consulted many times and many components replaced.
- 7h or so w/o beam during the long PS md.
- ccc crew has been very helpful for resets etc. in the AD buiding during nights/ w-e => thanks !

Booster (Jocelyn Tan)

Tuesday: In the morning the bending BTY.BHZ301 went twice in "local" mode. The specialist was called and set it back in "remote" mode.

Wednesday: A defective thyristor group (part of the MPS) has been exchanged by its spare group last Monday. As it was not possible to analyse the problem under real life conditions in the lab, i.e. with 4000A powering, the specialist wanted to test the defective group with the MPS. Only two short MPS cut were allowed in order to minimize the perturbation of the MD session. Unfortunately, time was too short for the MPS specialist to diagnose the problem. The spare thyristor group is being used actually.

Thursday: At noon there was a failure of the power distribution in Bld 212. Part of the PS complex was no longer powered. This resulted in a 12hour-downtime for the PSB, including the machine start-up.

During the night, PIPO and First line were called for some unresetable power supplies.

Friday: Following the power cut the performance of some beams were no longer optimized, and needed some fine tuning.

*We suspect part of the SEM grids amplifiers to be out of order (maybe they have also suffered from this power cut)

The machine has been running smoothly during all the week end.

Only the DSC DPSBKSU2 (ejection bumps and kickers) had to be rebooted, with a short downtime (10mn).

PS (Gabriel Metral)

Resume probleme semaine du 15 juin au 22juin

Lundi

Mesure Q impossible DSC plante (Over temperature) Expert setting change sampling decimation doit etre sur '7' pour harmonique 8 Cette valeur avait été modifiée (0) . Le load expert setting ne remet pas cette valeur

Dump 48 dans le faisceau alors qu'elle est affichée en secure (A Masi vont faire des tests) La ligne TT2 reste figée sur TSTLHC25 (perte de TOF et AD) 2fois reste du DSC DCPSFT16 pendant la nuit Debut MD Semgrid injection : not yet finish

Mardi

MRP Codd ne marche pas

PU45 bruitee par le KFA45

LHCINDIV pour MD

LHC25 (instabilite a l'injection dans le SPS) Le SPS pense que « l'electron cloud effect » démarre au PS.

verification possible de la stabilite de notre faisceau grace a la nouvelle PU WCM00 Mercredi Plusieurs arret d'un redresseur des quad basses energies (ventilateur monte a l'envers) Plusieurs fois perte du faisceau LHC a l'extraction. Probleme dans un chassis VMEdU SPS ou 2 tache RT travaille de temps a autre en concurrence (Frequence RF fausse de temps a autre) Temporairement, 1 des taches a été arrete (rephasing LHC a l'extraction) Le probleme n'est que temporairement resolu....

New orbit mesur : test des gains depuis le nouveau system, calibration pas encore faite... Probleme avec la cavite 80 Mhz (section 88) Setting up du faisceau CNGS (comme 2006 pour simuler panne sur machine tournante)

Perte sur faisceaux LHC sur palier basse energie (probleme du a l'utilisation des archives PSB pour changer l'intensite)

Pas de mesure possible sur la MRP (BI regarde le PBL) Les pu sur nouveau système ne sont pas calibrées Le Q low energie ne fonctionne plus (detail...) Jeudi MD long cycle LHC (simulation machine tournante en panne pour production Beam LHC) Degasage sublimateur sec 10, 30, 50, 70 et 90

Coupure generale a 11H....

Redemarrage a 21H (Pbl pour redemarrer la MPS)

Vannes pour ligne Dirac fermées

Vendredi: Fil volant 54 retrouve dans le faisceau (pas d'alarme) Retour faisceau pour Dirac (ouvrir vanne Dirac faite depuis la cabane Dirac) La MRP Codd marchait, seulement la visualisation sur le sampler ne fonctionnait plus (une modif avait été faite pour le Q Metre et toutes les valeurs negatives etaient rejetees)

SPS (Jorg Wenninger)

The week was dominated by the SPS long MD, with main target to accelerate 4 batches of nominal intensity to 450 GeV and perform the usual scrubbing.

The intensity increase was slowed down and limited by important vacuum activity in ZS5 (the one that was exchanged at the start of the run).

Eventually 3 batches were accelerated (but not yet with the nominal RF program) and 4 batches were injected and accelerated to 14000 ms (i.e 3200 ms into the ramp).

Other MD activities included a simulated injection sequence controlled from the LHC. This part was quite successful, but the nominal sequence could not be executed entirely due to a problem in the timing system logic. The problem should be fixed by now.

On Thursday a long access was given to UA9 to fix the crystal that was too close to the beam. The access and vacuum recovery took more time than expected, and was made more complicated by the power cut around lunch time. Coasts with beam only started in the early morning, and many controls issues were encountered and (partially) solved or bypassed.

There are a few points to follow up there. Eventually some coasts were made and some basic checks were made with the UA9 detectors.

The restart on Friday was slowed down by some power-cut left-overs that had not been identified by that time (servers, bypass and CNGS main dipole converters, NA PCs). While the CNGS beam can back quickly and with similar quality than before (but I had to make some small steering in TT41), the conditions on the SFTPRO had significantly degraded, with transmission below 90% and losses even at high energy. Finally good conditions on the SFT were reestablished in the late afternoon after careful RF adjustment and tune corrections.

The weekend was extremely smooth with almost no downtime. CNGS is running at $4 \cdot 10^{13}$ on average, with 4 CNGS1 on the SC. The RF piquet was not called once (so far).

LHC

Sector 34 – last weld done, last W-bellow this week, RF ball passed both apertures OK, pressure test 3rd 4th July.

S67 – splice measurements

S45 – intensive campaign of splice measurements – mainly Weds/Thurs. Insulation vacuum broken – circulating ambient temperature Helium – aiming for homogeneous temperature.

S23 – aim for MB powering this week.

QPS: looking good despite some set backs last week. Motherboard wiring problem, amps for QSM still in Taiwan etc. Prototype into S23 this week for testing this weekend.

Splice boards rolling in from Scotland – should all be here soon.

Powering tests progressing well.