

## End Week 14 (April 5<sup>th</sup>) – Status of Accelerators

### AD (Tommy Eriksson)

We aim to close the ring 20/4 and then start HW-checks.

### Booster (Klaus Hanke):

The machine start-up was delayed to Tuesday (31/3) because of vacuum controls problems which triggered a beam interlock. The problems could be solved by Tuesday around lunch time. Start up of the Booster with beam went rapidly and nominal intensity (3E13 ppp) for ISOLDE beams could be achieved after about one day. By now the intensity has been pushed to 3.8E13 ppp and ISOLDE beams (first user) are considered ready.

A low intensity beam has been set up for PS start-up and is available on request. First beam was sent to the PS during the night from Friday to Saturday.

By now beam setting up has been completed for EASTA, EASTB, SFTPRO. Work has started on CNGS and LHCPILLOT. Setting up of the other beams continues in the order of their priority.

There are a number of technical issues which are being worked on, but no showstoppers. An important issue is the commissioning of the new wire scanners.

We receive excellent and proactive support from the equipment groups (BI, CO).

### ISOLDE: (Klaus Hanke)

#### HRS:

- target #395 is in place
- vacuum is ok
- had stable beam through HRS (checked all beam diagnostics)

#### cooler RFQ:

- vacuum is ok
- the section valves are now working
- high voltage and power supplies have been checked (minor problem on the read back of some elements)

#### GPS:

- piston and front end clamps fixed
- target #394 is in place
- vacuum is ok

#### REX:

- low energy part is working
- linac RF is on, some problems on the 200MHz amplifier but it seems to be fixed now
- RF room ventilation does not work (35 degrees in the room)

## PS (Rende Steerenberg/Gabriel Metral)

The beginning of the week continued with the commissioning, testing and adjusting of the FGC based MPS regulation. On Wednesday we decided to stay with the new regulation and to leave one user for the MPS team to improve further the regulation.

The remainder of the week was dedicated to the cold check out of all the PS systems. For this we use OASIS extensively, which suffered from some problems. One of the problems comes from the server that block due to a specific class used at the CTF side. One solution that is under investigation is separating the CTF machines from the other machine from server point of view. On the equipment side many things were tested and where necessary improved.

Friday after the necessary arrangements for the passage of the route Goward of the contractors working on the construction of the POPS all condition were there to inject beam.

For the moment, until the present group of contractors has finished the work on the POPS foundations, are not allowed to inject high intensity and we will be in close contact with the radioprotection team to maintain an acceptable level at the route Goward.

During the weekend the first low intensity beam was injected, accelerated and extracted. Problems with two power converters of one quadrupole and one dipole magnet suffer from problems.

The orbit measurement system CODD was working correctly on the first beams.

In all the start up with beam went rather well and at present we are ahead of schedule, which will allow us some extra time to setup all cycles using the new regulation, to test the PFW matrix and to do the orbit measurements for the beam based realignment.

## SPS (Karel Cornelis)

This week the full hardware commissioning of the SPS was started. In the beginning of the week we suffered some problems with the cabled loop and the cooling circuit in BA6, but by Wednesday the testing and commissioning of the main power stations could be started.

The RF cavities have been conditioned. The kickers are still being conditioned but for the moment there is no worry for them to be ready for beam.

The cable connections to the extraction channel in lss2 have been checked and some cabling errors were corrected during last week.

Meanwhile we have been trying to re-establish the communication with the SPS equipment. Several problems due to changes in FESA classes and software changes have been identified and are being worked on.

## TI

The big yearly maintenances are coming to an end, and things are therefore becoming more stable. Most circuits are up and running again.

## LHC

Cold tests – more-or-less done – 2 SSSs to finish

Installation ongoing – OK. Last 2 SSSs to be installed – W18.

Brazing – lot of NCs – stop electrical tests which follow – which stops welding to follow. Critical to clear NCs for ongoing workflow.

1. Splices with gaps – random quad selection in outliers (out towards 20 micriOhms) – eek – (lack of tin?) – x-rays to be performed. Have NCs but no specified tolerances.
2. Overheated joint – estimated 580 degrees – repair procedure validated i.e. cutting at 100 m. (Running tooling at 600 degrees damages tooling – no damaged tooling found.)

DN200 – work progressing well.

6-7 magnet out.

2-3 cooling down

4-5 start cool down this morning. Inner triplet under vacuum today following relief valve installation.

5-6 - interconnect cryostat – validation of solution required.

## Quench Protection

- Power supply design validated
- Specs for DQLPU out this week
- UPS reconfiguration – implementation starts today
- Splice detection board & controller – tester to manufacturer this week
- Electrical measurements performed at warm – trying to pin down silent killer
- PSI: radiation tests. Power packs & LVPs look very robust. FPGAs – OK. ADCs large spread in resistance. Select based on results. Power supplies – looks good. Overall – components – very promising.
- Spec for QSYM board to be done & out to industry (2000 boards). Will need streamline adjudication.

Vacuum – sabotage – S34 – “overnight”. Things getting broken down there.

Cryo – no liquid Helium in the tunnel.