End Week 17 (April 26th) – Status of Accelerators

ISOLDE (Erwin Siesling)

GPS:

Target and Ion-source development was ongoing and protons were taken onto a BeO test-target from Monday afternoon till Thursday-morning.

The run went well and all data was taken for yield and ionisation efficiencies of He, Ne, Kr, Xe and BF at different focal settings onto the target-convertor.

The comparator interlocks to protect the targets from receiving a wrongly deflected proton beam are working (E. Piselli).

In parallel the new tapestation was tested successfully by T. Giles using radioactive beam coming from the GPS.

HRS:

Stable beam setting-up of the present UC plasma target done on Tuesday and taken by the users on Thursday after the GPS run finished. Proton-scan was carried out Friday-afternoon. Radioactive run on 202Pb (and others) for the Isoltrap experiment over the weekend.

In parallel tests are ongoing at HRS on the newly installed ISCOOL RF amplifier by P. Fernier (BE/OP). Tests are positive and the RFQ is running without RF problems.

- Small power-cut Sunday morning around 03:45: Minor effect: The power-supply of the instrumentation dsc disobeam died and was replaced by the CO piquet. All RFQ power went off and the transformer needed restarting.

Technical issues:

- The new faraday-cup CAO.FC68 has a broken signal wire and is out off order. We can work without it but with BI and RP we will find a slot to have this repaired.

- Communication of the scanners with dsc disobeam had a few hick-ups last week. S. Bart Pedersen is following this.

- The proton-integrator would loose the number off accumulated protons on the target at a reload of the PSB transfo dsc dpsbttr. M. Ludwig (BI) has implemented a function so now these values stay and are not set back to '0'. This is a legal issue. RP demands a history for the activation of each target.

- Our loggers seem to have problems logging ppm elements on the selected trigger (NORMGPS, NORMHRS). E. Ovalle (BE/OP) is looking into this.

Booster (Alan Findlay):

The PSB has spent most of the week setting up the beams the rest of the complex will be needing over the next few weeks. This has gone fine, and we have been able to supply the beams requested.

There is still a lot of fine tuning to be done before we have our beams back up to specification, but we are on track and have all been working to get the various beams ready for the users.

It has not all been plain sailing however, and we've had a couple of problems that have robbed us of beam time. On Tuesday morning the operator was informed of a water leak by the PO group, and a machine access was requested when no water leak was found above ground. As this was not fruitful, the water was cut zone by zone, until it was discovered that it was in the BTP line, and in fact on the PS side of the wall rather than the PSB side. BTP.QNO30 was found to have a leak under the protective covers, and it took until 17H30 to get the spare parts and perform the repair. As we had switched off the machine for the access and tests, it took until 18H25 before the beam was back, having lost 7 hours beam time.

At 03h50 on Sunday morning a power glitch on the mains brought down the complex, so the operator had to start everything up again, water, LINAC and then PSB. By 06H30 the PIPO was on site to bring back up the remaining elements the operators could not get working. Then at 08H00 the LINAC was back up but only limping along, so the LINAC sup. was informed and decided to come in. By 10H00 all power supplies were fixed by the PiPO. Beam was back for the users by 10H45, but the ring 2 cavities were not operating as normal, so ISOLDE were given more beam on the other rings while this was fixed. By 11H45 the operator had found the crate that was down and the ring 2 cavities were working once more. All in all 8 hours lost due to this power glitch.

Otherwise, I think we could classify it as business as usual.

AD (Tommy Eriksson)

AD ring was searched last Monday, but the security tests were delayed until Thursday due to the main power supply transformers not being ready and also due to problems with power supply water cooling. All tests/signatures done by Friday. Initial powering tests revealed problems in Q-main2 and Q-trim4 - to be fixed this week.

Target area is not yet searched or closed: Target replacement was delayed due to mechanical problems, lack of spare water-connection joints, and finally water leaks. And, the responsible person having to go through unforeseen surgery....(No major worries for radiation issues though). As of today, new joints (which seems to be the problem) will be fabricated. Excellent help/support from the target team and R.Brown who was called in for help.

We should be able to get going this week....Start of tests foreseen mid-week

PS (Gabriel Metral)

Lundi et mardi:

- machine PS a disposition du groupe CO pour test INCA.
- En parallèle setting Up des faisceaux EASTA, EASTC et SFTPRO

Mercredi:

Quelques difficulté à remettre le CT en route. (OK après inversion de polarité des 2 alimentations servant à piloter les QKE 16CT) Les tests de polarité avaient pourtant été faits (a suivre)

Jeudi :

Synchro timing des machine PS SPS puis extraction du CT vers SPS dans l'après midi

Vendredi :

problème sur les beam stopper de la zone EST du PS (sera réglé LUNDI matin)

WE:

Coupure EDF dimanche a 4H du matin . retour des faisceaux a 11H

Encore un problème avec le B simule quand la MPS est OFF (1 B simulé suffisamment proche de la réalité est nécessaire pour que les cavités puissent rester ON) Problème certainement du au fonctionnement (déclaration) du nouveau générateur de fonction CVOR.

Gros effort de l'équipe OASIS mais encore beaucoup de disfonctionnement de cet outil

Quelques difficulté avec la mesure de Q (le damper qui est utilise pour exciter le faisceau a souvent été en défaut cette semaine)

SPS (Karel Cornelis)

The preparation of the SPS for beam operations came to its final stage at the beginning of last week. The DSO tests concerning chain 1 were completed on Monday. ZS5 in lss2, which had a suspicious sparking behavior, was exchanged on Wednesday and by Thursday noon the SPS was considered to be ready to take beam. It took some time to get the MOPOS pre-pulse functioning (a 50 ohm termination was missing), but in the evening, once the first turn could be acquired, we managed to get circulating beam, capture it and accelerate it to 250 GeV. A huge tune swing was responsible for the beam being lost at this point, but on Friday the problem was understood (a loss of precision in the field-to-current calculation when saturation sets on). Having repaired this inaccuracy, protons could be accelerated to 400 GeV without problems. The weekend was spent on orbit measurements for re-alignment.

ZS5, which was installed last week, has a short on the ion traps. This Monday we will break the vacuum in LSS2 once again in order to repair, or install another tank. In the mean time the geometers will implement the alignments which were calculated from the orbit measurements.

In spite of the one week delay in the LSS2 shutdown schedule, we managed to start the SPS with beam as scheduled originally.

Technical Infrastructure (Peter Sollander)

Events seen by TI:

• Tuesday 21/4: Leak on flexible hose stops PSB

• Thursday 23/4: An 18kV circuit breaker trips in point 8 (EMD410/8E), stopping the cryo compressors.

• Friday 24/4: Demi water problem FDED-00052, East Hall. EN/CV restarts the circuit.

•Sunday 26/4: Electrical perturbation stops a number of cooling and ventilation installations and causes a 7 hour stop of the injectors.

LHC

Cool-down of 23 – triplet and SAM at room temp - cool-down starts this week. Discussion about temperature gradient during cool-down (150 K versus 80 K). Limited 80 K flow suggested by Serge. Start cool-down tomorrow.

Thermal shield leak in DBBXE (5L)

Lead inside DFBX or jumper. Has become progressively worse over the years following cycling, tests etc. Possible leak sources – jumper welds, flex lines or brazed thermalization lugs on line F. Not too much to do at the moment.

Magnet work

Installation of last 2 SSSs this week (W18) – Wednesday and Thursday.

[49 nano-ohm MB2303 on bench in SM18 for cycle tests.]

Tunnel

Welding spools, brazing, welding lines etc. progressing.

QC for electrical connections has evolved. [3 13 kA splices to be re-done etc.] Additional work, possible impact on schedule. Note distribution of old splice resistances.

78 81 – SAM & triplet work starting

45: triplet 5L – open for leak localization (see above)

5-6: work on connection cryostat ongoing (insertion of 6 m insulation pieces).

12 67: closing of W bellows and leak testing of VAC sectors ongoing.

All DN200 nozzles in place. Touching up in place. Prep work ongoing in 78 81 for 2010 shutdown.

QPS

Power supplies - contract out next week – one week late. (Italian ILO insists company on list.) Blame finance.

Main QPS crate DQLPU – 450 units – skip through purchasing process and haul back 3 of 4 weeks delay. Installation due to start W27.

DQQDS – symQ – 2000 cards – final prototype to be delivered in 4 days. Looking to series production – again avoid tender – amend existing contract.

SAM & IT – modification of DQGPU chassis for UPS redundancy

WorldFip cabling for nQPS crate locations

Interconnections - lots of work

Cabling & testing – looking good – all on time.