

RAT in P4 - *Status of Sector 45* - Preparation of Cool-Down

HARDWARE COMMISSIONING COORDINATION - WEEK 13

30th March POINT 4 (2485 2-001 SX4)

Present: E.Barbero, A.Bouillot, E.Ciapala, C.Dehavay, C.Fernandez, J-J.Gras, S.Grillot, P.Maesen, B.Perea Solano, M.Solfaroli, A.Suraci, S.Weisz.

Sector 45 & Sector 34 (M.Solfaroli, B.Perea Solano for HC)

Installation (S.Weisz)

- **Cooling & Ventilation:** The cooling and ventilation maintenance is finished and the water is back since las Friday noon except for UX45, where water supply came back yesterday.
- **DC Cabling:**
 - ✓ Presentation of the cables at the level of the DFBS in LSS4L has been carried out on the DFBA and DFBSs, but 1 cable has still to be replaced. Flohe will check the availability of the cable and in case will change it next week.
- **NEG Activation:** NEG activation will continue as following:
 - ✓ A7L4 DONE;
 - ✓ D5L4 wk 20;
 - ✓ A6R4 could not be done on wk 13 as planned because of a leak that was found. It has been fixed and the bake-out will be performed the next week.
 - ✓ A7R4 wk DONE;
 - ✓ A7L5 wk 16;
 - ✓ A5L5 wk 14.
- **DFBLD:** A meeting has been performed in situ to clarify the works to be done for the DFBLD (LSS5L). Esther Barbero will send around the detailed planning for these activities.
- **Jacks and spacers in Q5-D4.R4:** the D4.R4 moved by some 6mm towards Q5 when their common cryostat was pumped-down. The mechanical fixation of the jacks to the spacers was checked and a problem with the resine was found. Q5 should be lifted up and apply correctly the resin. The whole operation should last 1 day, though it is not scheduled yet.
- **Interconnections:**
 - LSS5L : Interconnection of the jumper of Q5 on going, if everything go right it should be finish next week. All the interconnections between the DSL and the magnets are finished. The interconnection between the DSL and the DFBL on going.
 - LSS4R: interconnection between the DFBA-Q7 on going, all the other interconnections finished.

Pressure Tests LSS5L (A.Bouillot): a pressure test of the new HX and H-piece in the low-beta in 5L has been performed on Tuesday 27th of March.

The test was performed up to a pressure of 20 bar, and during the stable time the internal fixed point collapsed for a design problem and the magnet shifted by 20cm. The Inner triplet will be brought at surface to be fixed, but now an estimation of how long it will last is impossible. S.Weisz informed that the pressure tests will be performed as planned on week 19 without this component, but a clarification on the planning of the cool-down is needed. This problem will have an impact on the planning of the commissioning of the warm magnet, at least for the ones close to the DFBXE.

Beam Instrumentation (J-J.Gras)

- Regarding the non-conformity on BPM.22R4, the interconnection was opened to atmosphere and measured again with positive results. The problem that appears under vacuum seems related to the flange hosting the connectors. Such flange has been replaced and further measurements will have to be taken again for final validation.
- The BCTs vacuum sub-sector was not activated this week due to the water leak during the weekend. The interlocks between BCTs & CV will be checked today in order to ensure that cooling is never missing during the bake out of the sub-sector. The bake-out should then take place next week.
- Delphine is organizing the commissioning of the BGIs together with AT/MEL and should take place wk15-19.

Radio Frequency (P.Maesen/E.Ciapala)

- Water was back for RF only yesterday evening. This should be checked today.
- They will check the DCCT installation progress and let us know about the status.

Cryo-Instrumentation (A.Suraci)

- Installation of the crates is finished in the arc 45 and the connection is starting. The tests with the mobile benches will start from 10th April.
- Manipulation of the CRYO valves is ongoing. 3 or 4 valves need to be checked again due to a problem of compressed-air. The first test has been done. Coherence tests will be performed in the next weeks.
- Tests between RF instrumentation and SCADA system will be carried out week 15 and 16. Local cabling of the 100 kW heaters for the RF has been finished.
- The non-conformity in the arc 45 for Cryo-instrumentation should have been fixed this week. E.Barbero will confirm this.

60A Orbit Correctors (M.Solfaroli)

- Polarity tests on the 60A Orbit correctors are to finish.
- Esther will give a slot for the 4h/8h-Heat Run tests to be carried out at 19 60 A Power Converters.

WorldFip (C.Dehavay)

- C.Dehavay did not get news concerning the WorldFip Cables for Cryo, QPS, PO, BI that were either short or missing in the arc 34 (x10) and 45

(x10). He is ready to qualify all the segments in 34 and 45 next week.
S.Pelletier informed later that they are working on it but is not fully fixed.

Open Issues

Current Leads

- 15.01.07 Current Lead heater functional tests LSS5L (P.Chambouvet)
- 15.01.07 CL Insulation Vacuum DFBAI, DFBL, DFBXE in LSS5L (P.Chambouvet)

QPS

- 31.01.07 LSS5L DFBAI, DFBL, DFBXE continuity/assignment cables and HVT - non-conformities to be repaired by J.Mourao and TS/EL(R.Denz)
- 31.01.07 LSS4R DFBAH, DFBMK/L/G continuity/assignment cables and HVT - non-conformities to be repaired by J.Mourao and TS/EL(R.Denz)

Cryo-Instrumentation

- 09.03.07 Radio Frequency: heater connections and 8 capillaries for pressures sensors
- 16.02.07 Manipulation of cryo valves (A.Suraci)
- 16.02.07 Connection of the temperature sensors and control cables (A.Suraci)

Beam Instrumentation

- 09.03.07 Water leaks at the level of the BCTs to be repaired (J-J.Gras)

ELQA

- 16.03.07 ELQA-TP3 in LSS4R (D.Bozzini/V.Chareyre)
- 22.02.07 Non-conformity (EDMS 816458) at the level of the cable trays installed above the DFBXE (D.Bozzini)

Energy Extraction

- 16.03.07 Verification of the connection of the 13kA EE-quench detectors arc (K.Dahlerup-Petersen)
- 16.03.07 Renco intervention on the 13kA EE System LSS5R (K.Dahlerup-Petersen)
- 16.03.07 Cable inversion at the fans of the 13kA EE System LSS5R/LSS4L (K.Dahlerup-Petersen)
- 16.03.07 Arc detectors for 13kA EE System LSS4L/LSS5R (K.Dahlerup-Petersen)

Power Converters

- 23.03.07 19 60 A PC 4h or 8h-Heat Run (M.Solfaroli)
- 20.03.07 Problem with 50kHz/26V RPLA34L5.RCBH33 (H.Thiesen)
- 09.03.07 60 A Orbit Correctors - polarity tests - wk13 (M.Solfaroli)
- 09.03.07 60 A Orbit Correctors - grounding problem (J.Pierrelot)
- 15.02.07 Check of PC in UA47 because of water leakage (H.Thiesen)

AOB

- 23.03.07 Re-installation of Cryo-Instrumentation boxes in arc45 (P.Fessia)
- 23.03.07 DFBXE *T* sensor boxes from D.Bozzini, grounding of the 120 A cables, insulation vacuum of the current leads, the coating of the insulator.
- 16.03.07 120A mechanical connection DFBAH (P.Chambouvet/P.Denis)
- 23.01.07 Current lead cable non-conformities : 1515511 1515512 1515513 1515514 1515516 (L.Poyet + J.C.Guillaume)

Open Issues (followed by TS/IC)

- 29.01.07 Installation of UPS PIC boxes (E.Barbero)
- 16.02.07 Installation and activities on the DFBL - meeting in the field

AC non-conformity

- 13.11.06 Non-conformity of the crates of cryo instrumentation (inrush current) (A.Suraci: ready next year)

DC cabling

- 23.03.07 BGIs connectors wk15 (S.Pelletier)
- 23.03.07 Cabling campaign LSS4L & LSS4R for Beam Instrumentation wk13 (S.Pelletier)
- 19.03.07 Inversion of the cosses of RB circuit in UA43 (J-C.Guillaume)
- 16.03.07 Access & Safety cable (4 short cables + 1x3km cable) (wk 22-24 during flushing) (S.Pelletier)

Cryogenics

- 16.03.07 Local leak and pressure tests on DFBAH (A.Bouillot)
- 09.03.07 Connection of the QUI (surface to QRL) wk 11 & wk12 (A.Bouillot)
- 16.02.07 Pulling profibus cables in UA47 and USC55

Warm Vacuum - NEG Activation

- 23.03.07 RF vacuum pipe installation wk 16-17. NEG-Activation wk 18 (P.Maesen)
- 16.03.07 NEG Activation in A7R4 (DFBAH) w13 or wk14
- 05.02.07 NEG Activation in A6L5 in LSS5L (to be finished wk 20)

WorldFip

- 23.03.07 Short or missing WorldFip Cables for Cryo, QPS, PO, BI in the arc 34 (x10) and 45 (x10)
- 16.03.07 WorldFip installation in sector 34 (wk12) (C.Dehavay)

Other issues

- 16.03.07 Installation of the RF Power Converter Transformers (P.Maesen)
- 09.03.07 BPM Schottky electronics installation (wk19)
- 16.03.07 DFBLD mechanical works LSS5L (wk15)

- 09.02.07 wk12-13 fiber installation campaign for the experiments in LSS5L
- 09.02.07 Cooling & Ventilation annual maintenance P4 (F.Moro)
- 09.02.07 Non-conformity for damaged BPM.22R4 Sector 45 (J-J.Gras)
- 12.02.07 Activity on the water pressure valves for the ACNs

Closed Issues

P.Denis check of the 6kA and 13kA cable presentation in LSS4R	12.02.07
Pre-mounting 600-120A in DFBAI LSS5L (TS/EL)	09.02.07
Pre-mounting 120A in DFBMk/L/G LSS4R (TS/EL)	06.02.07
Polarity Tests of the 120 A in DFBAH, DFBMK, DFBL and DFBMG in LSS4R (TS/EL)	29.01.07
Pre-mounting 600-120A in DFBAH (TS/EL)	26.01.07
120A mechanical connection DFBAH, DFBMK/L/G (P.Chambouvet/P.Denis)	09.03.07
CL Insulation Vacuum DFBAH, DFBL/K/G in LSS4R (P.Chambouvet)	09.03.07
Current Lead heater functional tests LSS4R (P.Chambouvet)	09.03.07
60 A Orbit Correctors - 24h Heat Run - wk12 (M.Solfaroli)	23.03.07

Closed Issues (followed by TS/IC)

Cryo instrumentation racks installation in Arc 45 (A.Suraci)	16.03.07
Correction of two water-cooled cables on the DFBAI - Flohe (LSS5L)	16.03.07
Non-conformity of the AC cabling of the crates under the magnets. This concerns ACR, MEL & VAC.	16.03.07
Interconnections around Q5-DSL, Q4-DSL	16.03.07
WorldFip in UA47 and in Arc 45 (C.Dehavay)	06.02.07
Local leak and pressure tests on DFBL, DFBMK (A.Bouillot)	16.03.07
Local leak and pressure tests on DFBMG (A.Bouillot)	09.03.07
Water-cooled power cable joints replacement by Renco in UA43 and UA47	09.03.07
Interconnection and WRL connection DFBMK/L/G (LSS4R)	16.02.07
Interconnections around Q6-DSL (LSS5L)	26.01.07
Cabling 600A and 120A in DFBAI, 120A in DFBL in LSS5L(INEO)	09.02.07
13-6kA cabling at the DFBL in LSS4R (Flohe)	06.02.07
Cabling 13-6kA in DFBAI and DFBL in LSS5L(Flohe)	19.01.07
Cabling Q6, Q7, Q8, Q9 and Q10 in LSS5L (INEO)	26.01.07

Cabling of the 600-120A in DFBAH, 120A in DFBMK, DFAML and DFBMG, Q6, Q7, Q8, Q9 and Q10 in LSS4R (INEO)	26.01.07
Installation of two power outlet (required by worldfip) in the arc 45	09.03.07
Interconnection and WRL connection DFBAH (LSS4R)	09.03.07
WorldFip Tests in Arc 45 (week 08) (J.Thomsen)	09.03.07
Cabling 13-6kA in DFBAH, DFBMK\G in LSS4R(Flohe)	09.03.07
NEG activation in E5R4 and D5R4 in LSS4R	09.03.07
Interconnections around DFBAI, Q6-DSL	23.03.07

Milestones: Test Schedule

FORESEEN DATE (provided by TS/IC)	TASK
Wk 10-11	AB/PO short Circuit tests
Wk 16-17	ELOA-TP4A
Wk 18	Interconnections+Vacuum
Wk 19	Interconnection DFBL
Wk 20-21	Pressure Test + Consolidation
Wk 25	Cool Down Sector 45
Wk 34	Powering Tests

E.Barbero/C.Fernandez/M.Solfaroli/B.Perea