

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

HARDWARE COMMISSIONING COORDINATION - WEEK 12

23th March POINT 4 (2485 2-001 SX4)

Present: A.Bouillot, S.Brown, C.Dehavay, S.Feher, C.Fernandez, J-J.Gras, J.Inigo Golfín, P.Maesen, F.Moro, S.Pelletier, 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:** Annual maintenance of cooling and ventilation equipment is ongoing and everything should be ready by today, Friday 23rd March.
- **DC Cabling:**
 - ✓ S.Pelletier informed that the presentation of the cables at the level of the DFBs in LSS4L could not proceed wk12 since water pressure was not available in the cooled cables. This operation should finish in the first part of next week; at least 4 days are needed for the DFBMs + DFBA.
 - ✓ The Access & Safety cable (4 cables + 1 x 3 km cable) could be installed during flushing (weeks 22-24). This operation has to be performed in one go.
 - ✓ The cabling campaign to be carried out LSS4R and LSS4L, essentially for beam instrumentation, is in progress. Part of the cabling was done during wk12 and it should proceed in Q6-Q5 L4 during wk13. The consignment of the 18kV cellule is still requested. The BGI connector's are still not available, so that campaign will take place wk15 and not before.
- **NEG Activation:** NEG activation will continue as following:
 - ✓ A7L4 DONE;
 - ✓ D5L4 wk 20;
 - ✓ A6R4 wk 14;
 - ✓ A7R4 wk 13;
 - ✓ A7L5 wk 16;
 - ✓ A5L5 wk 14.
- **DFBLD:** A meeting has still to be organized in situ to clarify the works to be done for the DFBLD (LSS5L).
 - ✓ I.Slit will work up to week 17 (+2 wks for leak test). He has to connect the QRLX to the DSLD;
 - ✓ Presentation of water cooled cables can be done during the installation of control cable;
 - ✓ A.Suraci asks for a time slot in order to install his instrumentation on this DFBL;
 - ✓ A.Bouillot informed that DSL to WRL connection will be performed in 1 day as soon as the interconnection works will finish.

- **PRESSURE TEST:** a pressure test of the new HX and H-piece in the low-beta in 5L will take place next Tuesday, 27th of March, starting 6pm, and there will be no access to that area.
- **Jacks and spacers in Q5-D4.R4:** the D4.R4 moved by some 6mm toward Q5 when their common cryostat was pumped-down. The mechanical fixation of the jacks to the spacers has to be checked and the ensemble may need to be re-positioned.

Beam Instrumentation (J-J.Gras)

- Regarding the non-conformity on BPM.22R4, it has now been decided to open the interconnection. This should be carried out early wk13. Christian Boccard is following the issue.
- F.Moro appointed a meeting with J-J.Gras in order to do the check of the leak-tightness of the BCTs on Friday. *J-J.Gras has informed later that there is a significant leak, which created a pool in the tunnel during the weekend. This will be followed by the Installation Coordination (S.Weisz), and may impact on the NEG activation of A6R4.*

Radio Frequency (P.Maesen)

- Mechanical connection of the vacuum pipe in the central part of the RF cavity modules will be performed during weeks 16-17. NEG-Activation should follow week 18.

CRYO (A.Suraci)

- Deployment and connection of the crates is ongoing and will last until the end of next week in the arc 45.
- 3 mobile test benches will be used to perform the tests from week 14, and should last for 3 or 4 weeks. There should be no-interaction with vacuum works.
- A.Suraci reported -once more- that some instrumentation boxes have been unscrewed and thrown down by interconnection personnel and warned about the possible damage of signals. *This has been reported to Paolo Fessia, who informed that all the boxes had been removed long time ago and that two technicians will place and fix them again in the next few days. He will report by email on the exact schedule.*
- 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.

Non-conformity (S.Brown)

- Simon Brown informed that they are studying the problem detected for the 60 A Power Converters on the 26V/8kHz current at the neutral. They have profited the 24h-Heat Run to do some measurements.
- The non-conformity in the arc45 for Cryo-instrumentation will be fixed during wk13, before A.Suraci starts the tests with the mobile test bench.

60A Orbit Correctors (M.Solfaroli)

- 60A orbit corrector 24-hour heat run test has been carried out from cell 15R4 up to cell 15L5 on Thursday 22nd March. The following problems have been met:
 - ✓ One PC (RPLA.34L5.RCBH33.L5B2) did not start for the already reported problem with the AC distribution;
 - ✓ One PC (RPLA.34R4.RCBH33.R4B2) tripped off after about 3 hours for the same problem of the previous one;
 - ✓ One PC (RPLA.20L5.RCBV20.L5B2) has tripped off around 8pm and it has to be replaced.
- J.Pierlot reported that he have agreed with C.Coupat about the earthing link of the racks of the 60A. It respects all the European and French regulations. He proposed that the sectors that are already done could remain as such, and the proposal from C.Coupat could be applied from now on. *A discussion has followed on Tuesday 27th since the present solution is not agreed by H.Thiesen.*
- Polarity tests on the 60A Orbit correctors still need to be carried-out. This should take place wk13.

DFBX (S.Feher)

- S.Feher informed that he needs to perform a number of checks in the DFBXE LSS5L regarding the temperature sensor boxes from Davide Bozzini, the grounding of the 120 A cables, the insulation vacuum of the current leads, the coating of the insulator.

WorldFip (C.Dehavay)

- *2 lists (3R and 4L) of WorldFip drop cables (Cryo, QPS, PO, BI) missing or too short in the arc 34 which have to be corrected by TS/EL.*
 - ✓ *RYLA.A14L4 câble 1410187A*
 - ✓ *RYLA.A22L4 câble 1410179A*
 - ✓ *RYLA.A24L4 câble 1410177A*
 - ✓ *RYLA.A26L4 câble 1410175A*
 - ✓ *RYLA.A30L4 câble 1410171A*
 - ✓ *RYLA.A16R3 cable 1302821A*
 - ✓ *RYLA.A22R3 cable 1302815A*
 - ✓ *RYLA.A24R3 cable 1302813A*
 - ✓ *RYLA.A28R3 cable 1302808A*
 - ✓ *RYLA.A30R3 cable 1302807A*
- *The missing or installed but not connected cables in the arc 45 are reported in the following list:*
 - ✓ *QJCFE-A23L5 (not connected to Tap and without the connector on the other side);*
 - ✓ *QJCFA-A12L5 (not connected to Tap and without the connector on the other side);*
 - ✓ *QJCFB-A12L5;*
 - ✓ *DJPFE-A12L5 (not connected to Tap and without the connector on the other side);*
 - ✓ *QJCFA-A11L5 (not connected to Tap and without the connector on the other side);*

- ✓ *QJCFB-A11L5 (not connected to Tap and without the connector on the other side);*
- ✓ *DJPFE-A11L5;*
- ✓ *QJCFA-A9L5 (not connected to Tap and without the connector on the other side);*
- ✓ *QJCFB-A9L5 (not connected to Tap and without the connector on the other side);*
- ✓ *DJPFE-A9L5 (not connected to Tap and without the connector on the other side).*

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

- 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

- 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

- 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) (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

- 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)

Other issues

- 16.03.07 Installation of the RF Power Converter Transformers (P.Maesen)
- 16.03.07 WorldFip installation in sector 34 (wk12) (C.Dehavay)
- 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, DFBL 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 13	Interconnection Inner Triplet
Wk 16-17	ELQA-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

C.Fernandez/M.Solfaroli/B.Perea