

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

HARDWARE COMMISSIONING COORDINATION - WEEK 15

13th April POINT 4 (2485 2-001 SX4)

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

Because of a magnet transport, the monorail will be *deconsigne* on Thursday 19th April both in point 4 (DCUM from 9704 to 10296) and in point 5 (DCUM from 12835 to USC55). This will be *consigne* again on Monday 23th April 2007.

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

Installation (E.Barbero/C.Fernandez/S.Weisz)

- **DC Cabling LSS4L:** The 1 cable to be replaced at the level of the DFBs in LSS4L is available and will be replaced around wk18 by B.Lebeau (date to be confirmed).
- **NEG Activation LSS4:** During the bake-out of the A6R4 vacuum sub-sector where the BCTs are located, a vacuum leak has been detected. J-J informed that the problem seems to come from the BPMs. The leak will be repaired early next week with a view to resume and finish NEG activation by the end of week 16. The VAC guys will remove the heating jackets on Monday, April 23rd, and the cable connect activity can then start on Tuesday week 17 (S.Pelletier).
- **DFBLD LSS5L:**
 - ✓ A meeting was performed in situ 30th March to clarify the works to be done for the DFBLD (LSS5L). Esther Barbero has proposed a baseline for the sequence of activities which can be found in her Public folder.
 - ✓ A.Bouillot informed that the warm recovery line connection should be finished middle of next week (wk16).
 - ✓ E.Barbero will check if the current lead insulation vacuum can be performed next week in co-activity with A.Bouillot and S.Pelletier.
- **Current Lead Heating System Rack Installation in P3:** C.Fernandez will inform on the new time estimate for the CL heating system racks installation in UJ33.

Power Converter Short Circuit Tests in UJ33

- 8h-Heat Runs and 24h-Heat Runs will be carried out Monday, Tuesday and Thursday wk16. The access to the area will be therefore be restricted.

Beam Instrumentation (J-J.Gras)

- They will try to enter the area in order to commission the BPMs only when there is a critical number of elements. Otherwise, they lose too much time in displacing the testing equipment and the teams, comparing to the actual commissioning time.
- J-J will give us news on the BPM.22R4 non-conformity after vacuum has been performed in the cryostat.
- J-J requested a new slot in order to transport the telescope. He recalled that only 1 day is needed for transport, partially blocking the LSS, and 2 or 3 days for first commissioning. A second slot around September or October should be also foreseen for final commissioning.
- BGIs Installation: The installation of the BGI measuring the horizontal plane in R4 proves to be delicate since there are tight distances between the BGI, the QRL and the vacuum chamber (opposite beam). This suggests that the vacuum chamber - where the NEG has already been activated- should be opened to install the BGI. J-J. is investigating the issue with transport on the one side and vacuum on the other, to understand time implications and possible damage to the NEG once it is activated when exposing it to air. *News from Delphine and J-J. after the meeting informed that the transport team has found a solution and that the installation of the BGI could take place on Wednesday 18th April. However, Miguel Jimenez should give his agreement in terms of vacuum to perform the installation. Discussions are being held between AB/BI and AT/VAC.*
- BGIs Commissioning: Delphine is organizing the commissioning of the BGIs together with AT/MEL, TS/CV, AB/BI, TS/SC. Hardware Commissioning should help in the coordination of these activities. A written procedure specifying their needs, access conditions and personnel involved in the tests is being prepared. The main deadlines are the warm interlock control commissioning by P.Dahlen, which should be finished by the end of April, the water cooling by F.Moro, to be finished in May and the connection to the Power Converters by S.Pelletier mid-May. Then the warm magnet commissioning should then be carried out in 2-3 days where a 24h Heat run should be performed in order to measure the temperature and the polarity.

Cryogenics (A.Bouillot):

- Leak tightness tests (no pressure tests) should be carried out wk16 (Wednesday) in the DFBAH LSS4R. The circuits should be pressurized to 2 or 3 bar and this will happen during working hours. Co-activity with Cryo-Instrumentation should be coordinated. The plastic from the DFBAH should be removed.
- The same tests will be carried out wk 17 for the DFBAH LSS5L.

Radio Frequency (P.Maesen/E.Ciapala)

- Since water was back two weeks ago, the cooling for the RF klystrons and ADTs (through the by-pass since the amplifiers are not installed) could be calibrated.
- The first bunker has been tested and is therefore ready to perform the Power Converter tests at low voltage.

- A.Bouillot informed that the warm recovery line for the cavities has gone through pressure tests, but he was not sure if the leak tests had been performed. He should confirm this.

60A Orbit Correctors in Sector 45 and Sector 34 (M.Solfaroli)

- The Individual System Tests of the 60 A Power Converters in Sector 34 could start next week for half of the arc (to be specified by C.Fernandez). Wk17 the full arc should be available.
- Regarding the 60 A Orbit Correctors in Sector 45, P.Denis already did final connection at the Power Converters which had already gone through the 24h Heat Run tests. The rest of the converters should be connected only once they are validated through these tests in a few weeks. The problem regarding the AC distribution problem (50kHz/26V RPLA34L5.RCBH33) still remains to be solved.

Open Issues

Current Leads

- 15.01.07 Current Lead heater functional tests LSS5L (P.Chambouvet)
- 15.01.07 CL Insulation Vacuum DFBL in LSS5L (P.Chambouvet)
- 29.03.07 LSS4R Replacement of the heat exchanger cables (S.Pelletier)
- 29.03.07 LSS5L test on the heat exchanger cables (S.Pelletier)
- 29.03.07 Modification of the DFB side of the cables 1513712 and 1513713 (DTH06 instead of DTH09) (S.Pelletier)
- 23.01.07 Current lead cable non-conformities : 1515511 1515512 1515513 1515514 1515516 (L.Poyet + J.C.Guillaume)

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

- 30.03.07 RF instrumentation and SCADA system will be carried out week 15 and 16 (A.Suraci)
- 13.04.07 Manipulation of cryo valves in DFBS LSS4R and LSS5L (wk17-wk18) (A.Suraci)
- 30.03.07 Mobile test bench tests in Arc45 (wk15 on) (A.Suraci)
- 16.02.07 Manipulation of cryo valves in sector 45 - compressed-air problem with 3 or 4 valves and coherence tests (A.Suraci)
- 16.02.07 Connection of the temperature sensors and control cables (A.Suraci)

Beam Instrumentation

- 13.04.07 BGI Installation and Commissioning (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)

Power Converters

- 13.03.07 60 A Orbit Correctors (S34)-Individual System Tests-wk16(J.Thomson)
- 13.03.07 60 A Orbit Correctors (S45)-2nd Heat Run (A.Solfaroli)
- 30.03.07 60 A Orbit Correctors - Polarity Tests (A.Solfaroli)
- 20.03.07 60 A Orbit Correctors (S45)-50kHz/26V RPLA34L5.RCBH33 (H.Thiesen)
- 09.03.07 60 A Orbit Correctors (S45)-grounding problem (J.Pierrelot)
- 15.02.07 Check of PC in UA47 because of water leakage (H.Thiesen)

AOB

- 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)
- 27.03.07 Installation of the control equipment (second half of June) in sector 34 and 45 (2wk each) (S.Infante)
- 30.03.07 ODH test in sector 34 (12 April 7-8am)
- 30.03.07 ODH test in sector 45 (13 April 7-8am)

Open Issues (followed by TS/IC)

- 27.03.07 Inner Triplet repair in LSS5L

AC non-conformity

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

DC cabling

- 13.04.07 LSS4L Cabling by Flohe - 1 cable to be changed wk18 (B.Lebeau)
- 23.03.07 BGIs connectors wk15 - problem vacuum leak A6R4 (S.Pelletier)
- 23.03.07 Cabling campaign LSS4L & LSS4R for Beam Instrumentation wk13 (S.Pelletier)
- 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 (S.Pelletier)
- 02.04.07 Installation of instrumentation cables of D3L4 (arc 34) (S.Pelletier)

Warm Vacuum - NEG Activation

- 23.03.07 RF vacuum pipe installation wk 16-17. NEG-Activation wk 18 (P.Maesen)
- 05.02.07 NEG Activation in A6L5 in LSS5L (to be finished wk 20)
- 30.03.07 NEG activation in A6R4 in LSS4R
- 30.03.07 NEG activation in D5L4 in LSS4L

WorldFip

- 30.03.07 Qualification of WorldFip Segments in Sector 34 and Sector 45 - wk 15 (C.Dehavay)
- 23.03.07 Short or missing WorldFip Cables for Cryo, QPS, PO, BI in the arc 34 (x10) and 45 (x10) (S.Pelletier)

Other issues

- 30.03.07 Jacks and spacers in Q5-D4.R4 (S.Weisz)
- 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 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

Visualization of the cameras in the field control room in UA43 due to breakage of the door (C.Ducastel)	27.03.07
Water leaks at the level of the BCTs to be repaired (J-J.Gras)	13.04.07
CL Insulation Vacuum in LSS3R (P.Denis)	13.04.07
CL Insulation Vacuum DFBAI LSS5L (P.Denis)	13.04.07
Radio Frequency: heater connections and 8 capillaries for pressures sensors	30.03.07
Check of the 6kA and 13kA cable presentation in LSS4R (P.Denis)	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, DFBLM 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, DFBML/K/G in LSS4R (P.Chambouvet)	09.03.07
Current Lead heater functional tests LSS4R (P.Chambouvet)	09.03.07
60 A Orbit Correctors S45 - 1 st 24h Heat Run - wk12 (M.Solfaroli)	23.03.07
Renco intervention on the 13kA EE System LSS5R (K.Dahlerup-Petersen)	27.03.07
Cable inversion at the fans of the 13kA EE System LSS5R/LSS4L (K.Dahlerup-Petersen)	27.03.07
Re-installation of Cryo-Instrumentation boxes in arc45 (P.Fessia)	05.04.07
CL Insulation Vacuum in LSS4L (P.Denis)	05.04.07

Closed Issues (followed by TS/IC)

wk12-13 fiber installation campaign for the experiments in LSS5L	13.04.07
WorldFip installation in sector 34 (C.Dehavay)	13.04.07
Inversion of the <i>cosses</i> of RB circuit in UA43 (J-C.Guillaume)	13.04.07
Installation of UPS PIC boxes (E.Barbero)	13.04.07
Cooling and ventilation annual maintenance	23.03.07
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 DFBAI, Q5-DSL, Q4-DSL	16.03.07
Local leak and pressure tests on DFBLs (A.Bouillot)	09.03.07
Water-cooled power cable joints replacement by Renco in UA43 and UA47	09.03.07
Interconnection and WRL connection DFBLK/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 DFBML in LSS4R (Flohe)	06.02.07
Cabling 13-6kA in DFBAI and DFBX 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 DFBLK, DFBML 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, DFBML\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
Cooling & Ventilation annual maintenance P4 (F.Moro)	30.03.07
NEG Activation in A7R4 (DFBAH) w13 or wk14	30.03.07
Installation and activities on the DFBL - meeting in the field	30.03.07

Milestones: Test Schedule Sector 45 and Sector 34 (foreseen dates provided by TS/IC)

Sector 45	Sector 34	TASK
Wk 10-11		AB/PO short Circuit tests
Wk 17-18	Wk 28-29	ELQA-TP4A
Wk 19	Wk 29	Interconnections+Vacuum
Wk 19	Wk 29	Interconnection DFBL
Wk 20-21	Wk 30-31	Pressure Test + Consolidation
Wk 25	Wk 35	Cool Down Sector 45
Wk 34	Wk 43	Powering Tests

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