

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

HARDWARE COMMISSIONING COORDINATION - WEEK 19

11th May POINT 4 (2485 2-001 SX4)

Present: E.Barbero, C.Dehavay, C.Fernandez Robles, D.Gerard, P.Maesen, B.Perea Solano.

Sector 45 & Sector 34 (B.Perea for HC)

Installation (E.Barbero/C.Fernandez)

- The installation of the roof in the RX corridor, which is foreseen for wk 22, will be advanced to wk 20, as confirmed after the meeting by C.Fernandez.
- The works to be carried out during the consolidation phase after the Global Leak and Pressure Test in Sector 45, and namely re-opening of some interconnections, have an impact with the scheduled slot for the 24h-Heat Run of the 60 A Orbit Correctors in Sector 45, which will be delayed. This is to be re-scheduled with Installation, probably after the consolidation phase.
- During week 20 no bake-out will be performed.
- The inversion of cables at the level of the DFBML in LSS4R will be corrected week 21. Esther confirmed after the meeting that the swap will be done at both Power Converter and DFB sides. It has been communicated to AT/MEL as the galvanic insulation is already positioned.

Beam Instrumentation (D.Gerard)

- Delphine reported that the commissioning of the BSRT could be carried out Monday and Tuesday week 24. She requested the possibility of lowering the telescope through point 4, since they would not like to lower it through another point and make it travel through a sector since the mirrors could be damaged. After the meeting, Carlos checked that the transport can be done through PM45 without any problem.
- The installation of the last BGIs in LSS4L should take place today before the access is closed for the GLPT. If there is any problem it should then be installed on Monday 14th May. The BGIs commissioning has been reviewed in a separate meeting with AB/BI, TS/CV, TS/EL, AT/MEL, AB/PO, TS/IC and TS/HDO. The activities concerning the infrastructure should start week 21 and the Interlock, Power Converter, Polarity tests and Heat Runs should extend up to week 24.
- S.Pelletier had informed that the installation of the flexwell cables for the schottky in RA47 has been completed. The connectors for the rest of the BI equipment is ongoing.

Radio Frequency (P.Maesen)

- Power test of 4 klystrons - 1 Power Converter are completed. The power is limited at the moment since there is a non-conformity with the

cooling. Such problem should be corrected from June onwards in the shadow of the cool-down of the sector and the cavity tests. Fixing the problem involves removing the klystrons from their position, placing them in horizontal position, fixing the cooling and placing them back. Therefore this will be carried out klystron by klystron in order to go on with the commissioning.

- **IMPORTANT!!** Before performing the bake-out around the RF cavities, the RAMSES team (D.Perrin 163965 or Claude Jouve 160650) should be informed so that they can remove temporarily their detector heads.
- The operation pressure of the RF Cavities has been fixed now to 1.5 bar at warm and 1.8 bar at cold. The pressure tests on the cavities should be performed up to 2.1 bar and is to be carried out either Monday or Tuesday evening wk20.

Cryogenics

- The Global Leak and Pressure Test for Sector45 will be carried out as planned, today Friday 11th May from 2pm up to Sunday 12th May. The access restrictions and safety measures are described in LHC-QRL-ES-7930. *Information after the meeting confirms that the GLPT were successful. Internal lines have been pressurized to 5 bar pour B, 25 bar for C and D, 27.5 bar for E and F and visual inspection did not highlight any non-conformity. Now consolidation starts to fix minor leaks.*
- S.Pelletier had informed that the cables for the heating in RUX45 had been finished and tested. The connectors needed for the cool-down are being installed and tested. The routing of the cables in D3R4 should be corrected wk19-wk20.

WorldFip (C.Dehavay)

- Two connection boxes for the Radiation Monitoring WorldFip have not yet been installed in Point 3 (A5R3 and UJ32). This has been already communicated to Jean-Claude Guillaume for action.

AOB (B.Perea)

- Warm Magnet commissioning in P5 will start with ELQA activities wk 21 and will extend up to wk 22.
- AT/MEL informed of a short-circuit in the instrumentation cable routing the voltage-taps from the IFS interface box to the PC rack (Q17L5/1507116). Wires connected to pins 1 and 2 in Harting connector are squeezed together. This has been communicated to Jean-Claude Guillaume.
- P.Denis has connected the 120 A that do not go through the DFBs (which are disconnected from the Power Converter). This is therefore in the appropriate configuration for ELQA-DOC tests.

Open Issues

Current Leads

- 15.01.07 Current Lead heater functional tests LSS5L and LSS4R (P.Chambouvet)
- 27.04.07 Connectors of the cables No 1421742, 1421737, 1421731 don't have the right convention for cabling (S.Pellettier)

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)

Cryogenics

- 10.05.07 Isolation of DBX jumpers in view of the cool down (insulation vacuum) (J.P.Tock)
- 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

- 11.05.07 Installation of the BSRT - wk 23 (J-J.Gras)
- 13.04.07 BGI Commissioning (J-J.Gras)

ELQA

- 16.05.07 NC 842369 in MCB Circuit Q5R4
- 16.05.07 NC 842358 in Q5, Q6 L5 - Wrong polarity of 120 A circuit (M.Zerlauth)
- 16.05.07 NC 842336 - Continuity error in instrumentation cable Q10R4 (TS/EL)
- 16.05.07 NC 842324 - Abnormal resistance on the current lead DFLDS.30R4.2 (AT/MCS)
- 09.05.07 NC 839924 - Short-circuit in cable Q17L5 (1507116) IFS box to 60 A PC rack (pins1&2) (TS/EL)
- 27.04.07 Re-positioning of the cables in LCM of the DFBAH (4R) (B.Lebeau)
- 20.04.07 ELQA-TP4A in LSS4R and LSS5L (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 (S45)-2nd Heat Run (A.Solfaroli)
- 20.03.07 60 A Orbit Correctors (S45)-50kHz/26V RPLA34L5.RCBH33 (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)
- 27.04.07 Two water-cooled cable crossed in DFBML in LSS4R - wk21
- 27.03.07 Installation of the control equipment (second half of June) in sector 34 and 45 (2wk each) (S.Infante)
- 27.04.07 Power balance in point 4 (weeks 20-21-22)

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 in Sector34 and Sector 45 (inrush current) (A.Suraci: ready next year)

DC cabling

- 10.05.07 Re-positioning of WC cables after the CV works on the DFBAH and DFBML in LSS4R: 1408479 DFBML;1408463 DFBAH;1408465 DFBAH;1408459 DFBAH
- 13.04.07 LSS4L Cabling by Flohe - 1 cable to be changed DFBA - wk21 (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

- 08.05.07 Pressure Tests on DFBAI and DFBLD (LSS5L) (A.Bouillot)
- 20.03.07 Leak and pressure tests of the RF Warm Recovery Line (A.Bouillot)

Warm Vacuum - NEG Activation

- 23.03.07 RF vacuum pipe installation wk 16-17. NEG-Activation wk 25 (P.Maesen)
- 05.02.07 NEG Activation in A6L5 in LSS5L and in D5L4 in LSS4L

WorldFip

- 10.05.07 Installation of two connection boxes for the Radiation Monitoring WorldFip in Point 3 (A5R3 and UJ32) (C.Dehavay-J-C.Guillaume)
- 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

- 10.05.07 Installation of MQKA in LSS4L - wk 22 (L.Ducimetiere)
- 10.05.07 Installation of the roof at the level of the RF Cavities-wk20 (C.Fernandez)
- 30.03.07 Jacks and spacers in Q5-D4.R4. QN-LHC-4R-QBQM.5R4 NC on supporting system of the Magnets D2-Q5 (S.Weisz)
- 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

60 A Orbit Correctors (S45)-grounding problem (J.Pierrelot)	11.05.07
BGIs Installation LSS4L & LSS4R	11.05.07
ELQA-TP3 in LSS4R (D.Bozzini/V.Chareyre)	20.03.07
LSS4R Replacement of the heat exchanger cables (S.Pelletier)	27.04.07
Modification of the DFB side of the cables 1513712 and 1513713 (DTH06 instead of DTH09) (S.Pelletier)	27.04.07
Current lead cable non-conformities : 1515511 1515512 1515513 1515514 1515516 (L.Poyet + J.C.Guillaume)	27.04.07
LSS5L test on the heat exchanger cables (S.Pelletier)	27.04.07
CL Insulation Vacuum DFBLD in LSS5L (P.Denis)	20.03.07
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, DFBML 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
60 A Orbit Correctors (S34)-Individual System Tests-wk17(J.Thomson)	04.05.07
Re-positioning of the DC water-cooled cables by Flohe on the DFBAH and DFBML (LSS4R) (B.Lebeau/F.Moro)	04.05.07

Closed Issues (followed by TS/IC)

BPM Schottky electronics installation (wk19)	11.05.07
NEG Activation A5L5 LSS5L	11.05.07
NEG Activation A6R4 LSS4R	11.05.07
Global Leak and Pressure Tests Sector 45	13.05.07
Pressure Tests on the DFBAH	08.05.07
wk12-13 fiber installation campaign for the experiments in LSS5L	13.04.07
Installation of instrumentation cables of D3L4 (arc 34) (S.Pelletier)	27.04.07
Pulling profibus cables in UA47 and USC55 (S.Pelletier)	27.04.07
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 DFBMs (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 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 DFBMK, 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, 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
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
Local leak and pressure tests on DFBAH (A.Bouillot)	04.05.07
Qualification of WorldFip Segments in Sector 34 and Sector 45 - wk 15 (C.Dehavay)	04.05.07
Installation of the RF Power Converter Transformers (P.Maesen)	04.05.07
Connection of the QUI (surface to QRL) wk 11 & wk12 (A.Bouillot)	04.05.07

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

Sector 45	Sector 34	TASK
Wk 10-11	Wk 18-19	AB/PO short Circuit tests
Wk 17-18	Wk 28-29	ELQA-TP4A
Wk 19	Wk 25	Interconnections+Vacuum
Wk 19	Wk 34	Interconnection DFBL
Wk 19-20-21	Wk 34-35-36	Pressure Test + Consolidation
Wk 25		Cool Down Sector 45
Wk 34		Powering Tests

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