

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

HARDWARE COMMISSIONING COORDINATION - WEEK 18

04<sup>th</sup> May POINT 4 (2485 2-001 SX4)

Present: A.Bouillot, C.Dehavay, C.Fernandez Robles, J-J.Gras, P.Maesen, M.Solfaroli, S.Weisz.

**The monorail will be *consigne* on Monday 07<sup>th</sup> May. This will be *deconsigne* again on Wednesday 09<sup>nd</sup> May 2007.**

### Sector 45 & Sector 34 (M.Solfaroli for HC)

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#### Installation (S.Weisz/C.Fernandez)

- **Inner Triplet:** the inner triplet in LSS5L has being transported in surface through point 2 in order to fix the problem that occurred, in three slots:
  - ✓ Q3 DONE;
  - ✓ Q2 DONE;
  - ✓ Q1 8<sup>th</sup> May.
- S.Weisz pointed out that everything is in line for the global pressure test that will start on Friday 11th May. After this, 2 weeks are needed for consolidation and 3 for flushing; consequently the cooldown will be performed without the low-beta starting on week 25.
- The installation of the roof in the RX corridor, which is foreseen for wk 22, will be probably advanced on wk 20. P.Maesen confirmed that this is feasible from a RF point of view.
- **Bake-out:**
  - ✓ A6R4 DONE;
  - ✓ A5L5 DONE;
  - ✓ MQKA in 4L will be available on wk 22 (1wk delay), to be confirmed;
- **Cabling:** Flohe will work on Saturday 05<sup>th</sup> May on the water-cooled cables that have to be repositioned after the CV works on the DFBAH and DFBML in LSS4R:
  - ✓ 1408479 DFBML;
  - ✓ 1408463 DFBAH;
  - ✓ 1408465 DFBAH;
  - ✓ 1408459 DFBAH.

On week 21 also the water-cooled cable on the DFBAH in LSS4L will be changed.

#### Beam Instrumentation (J-J.Gras)

- J-J reported that cabling of the BCT-BPM is in process in both 4R and 4L. Agreed with S.Pellettier, everything about schottky will be ready next week in order to give to the Americans the possibility to start working on Tuesday 08<sup>th</sup> May.

- J-J informed that the installation of the telescope will be performed on week 23 and he proposed to arrange a day. S.Weysz informed that this could be done not before Wednesday, and then J-J proposed Thursday (J-J pointed out that the passage will be blocked only for a couple of hours).
- BGIs Installation is ongoing in 4R and will start in 4L on week 19.

#### Radio Frequency (P.Maesen)

- P.Maesen informed that RAMSES tests are being performed and there is no interference with RF commissioning so far.
- Power test of clystrons and SC are ongoing and they will last some weeks. They will be finished before the cooldown.
- P.Maesen requested to C.Fernandez an update about the situation of the bake-out in the sectors around the RF cavities. C.Fernandez reported the situation:
  - ✓ **B5R4:**
    - Mechanical Installation wk 18-19-20;
    - NEG wk 21 (week 20-21 can shift by 1 week if the roof will be installed on wk 20);
  - ✓ **B5L4:**
    - Mechanical Installation wk 21-22;
    - NEG wk 23;
  - ✓ **IP4:**
    - Mechanical Installation wk 21-22;
    - NEG wk 23;

#### Cryogenics (A.Bouillot)

- Pressure Tests on the DFBAH has been performed on Thursday 13th May during the night and everything went well.
- Pressure Tests on DFBAI and DFBLD in LSS5L will be performed on Tuesday 8th May. A confirmation by IC will follow.
- A.Bouillot remarked that for the Global Pressure Tests the passage will be blocked as required from the procedure. This will happen at the end of next week (19) from Friday 11<sup>th</sup> May at 2pm up to Sunday 12<sup>th</sup> May (the beginning pressure will be only 5bars).
- One Pressure test on the RF cavities has to be done before flushing, but they are waiting for pressure level. For the same test on the DFBs they normally put 20 Bars in line C and 3 in DH CS circuits. P.Maesen pointed out that 3 Bars is not allowed on the RF cavities, consequently the test should be done at a maximum pressure of 1.6-1.8 Bars.

#### WorldFip (C.Dehavay)

- Everything is OK and the WorldFid is operational both in sector 45 and 34.

## Open Issues

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### Current Leads

- 15.01.07 Current Lead heater functional tests LSS5L (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)

### 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

- 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)-2<sup>nd</sup> Heat Run (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)

### 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 probably crossed in DFBML in LSS4R

- 27.03.07 Installation of the control equipment (second half of June) in sector 34 and 45 (2wk each) (S.Infante)
- 20.04.07 BGIs commissioning procedure (D.Gerard)
- 27.04.07 Power balance in point 4 (weeks 20-21-22)
- 27.04.07 NC: "QN-LHC-4R-QBQM.5R4 NC" on supporting system of the Magnets D2-Q5

### **Open Issues (followed by TS/IC)**

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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

- 13.04.07 LSS4L Cabling by Flohe - 1 cable to be changed 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

- 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 18 (P.Maesen)
- 05.02.07 NEG Activation in A6L5 in LSS5L and in D5L4 in LSS4L

#### WorldFip

- 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)
- 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**

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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, 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, DFBLM/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 <sup>st</sup> 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 DFBLM (LSS4R) (B.Lebeau/F.Moro)	04.05.07

### **Closed Issues (followed by TS/IC)**

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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>cos</i> ses 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 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 DFBLK, DFBL and DFBLG, 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, DFBLK\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)**

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<b>Sector 45</b>	<b>Sector 34</b>	<b>TASK</b>
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

C.Fernandez/M.Solfaroli/B.Perea