

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

HARDWARE COMMISSIONING COORDINATION - WEEK 17

27<sup>th</sup> April POINT 4 (2485 2-001 SX4)

Present: A.Bouillot, C.Dehavay, C.Fernandez Robles, J-J.Gras, B.Lebeau, P.Maesen, S.Pelletier, B.Perea Solano, M.Solfaroli.

**Because of some magnet transports, the monorail has been *deconsigne* on Wednesday 25<sup>th</sup> 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 Wednesday 2<sup>nd</sup> May 2007 only in point 4.**

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

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#### Installation (C.Fernandez)

- **Current Lead Heating System Rack Installation in P3:** C.Fernandez informed that the CL heating system racks has been already installed in UJ33.
- **Inner Triplet:** C.Fernandez reported that 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 last week;
  - ✓ Q2 DONE on Thursday;
  - ✓ Q1 8<sup>th</sup> May.

#### Power Converter Short Circuit Tests in UJ33 (M.Solfaroli)

- A new 24h run will be performed on the SC in UJ33 in order to check the temperature of the cables in about 5 weeks.

#### Cabling (B.Lebeau/S.Pelletier)

- B.Lebeau informed that cables on the LCM of the DFBAH in LSS4R are far from the current leads. This was done by Ivan and Sylvain in order to leave AT/MEL doing the ELOA-TP3. The cables have to be repositioned.
- 4 water-cooled cables have to be fixed (3 on the DFBAH (HCM) and 1 on the DFBAM) (LSS4R). This work can be only performed by Flohe. They can come when they finish in 5R, probably Saturday 5<sup>th</sup> May. List of the cables is the following:
  - 1408479 DFBML;
  - 1408463 DFBAH;
  - 1408465 DFBAH;
  - 1408459 DFBAH.
- Connectors of the cables No 1421742, 1421737, 1421731 don't have the right convention for cabling. S.Pelletier informed that they will fix the problem in about three weeks. He will keep L.Poyet informed.

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

- S.Pellettier informed that the cabling of the BCT-BPM started in 4L but 4R is not done yet because of interference with bake-out. This operation should finish today but the jackets will be removed not before Monday or Wednesday.
- J-J informed that the installation of the BSRT will block the passage in the tunnel only for a couple of hours per telescope/side.
- BGIs Installation: the second BGI has being installed today. However, the bake-out cannot be done until a few pieces -already requested by Jimenez- arrive. Anyway the installation will go ahead as planned.

### **Radiation Monitoring**

- P.Maesen informed that RAMSES tests are being performed and there is no interference with RF commissioning so far.

### **Cryogenics (A.Bouillot)**

- The pressure test on the DFBAH won't be performed today as planned because of the interference with the transportation of the Q2 from 5L to P2. This test will be carried out instead on Wednesday 2<sup>nd</sup> May. This operation can only be done after 21h because of safety concerns.
- If IC gives the green light the leak and pressure tests on the DFBAI and DFBLD in LSS5L will be performed at the same time on Wednesday 2nd May.
- A.Bouillot requested security instrumentation configuration on the RF cavities to perform the pressure tests. P.Maesen assured him that one valve for each module will be in place and all the valves to the WRL will be opened in order to assure safety of the cavities.
- During week 19 each cryo line will be purged and go through a pressurization-depressurization cycle every day, performing He leak tests at 3 Bars. The global test at high pressure will be performed during the weekend. A.Bouillot will provide HC with the document describing the access conditions during these tests.

### **WorldFip (C.Dehavay)**

- 2 optical fibers were found crossed yesterday in sector 34 but the problem has been fixed and the WorldFip is now operational.

### **Radio Frequency (P.Maesen/E.Ciapala)**

- The internal control of the Main Circuit Breaker from the power converters has been checked and the power tests started.

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

- The Individual System Tests of the 60 A Power Converters in Sector 34 started this week in the whole arc. They should be finished for week 19.
- Regarding the 60 A Orbit Correctors in Sector 45, the EIQA-DOC has being performed in the arc. The tests are in stand-by because EIQA people moved to sector 78.
- Problem regarding the AC distribution (50kHz/26V RPLA34L5.RCBH33) still remains to be solved.

## AOB

- A.Bouillot reported that at the level of the DFBAI in LSS5L there was water dropping.
- M.Solfaroli informed that a power balance will be done in point 4 during weeks 20-21-22. The boucle of 18 KV will be connected and a power of 20MW will be assured.
  - CV needs 4.5MW to assure the service;
  - Flushing (from week 21) 3.3MW;
  - RF (from week 21) has 5 module of 4MW each and they can use them separately.

## Open Issues

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### Current Leads

15.01.07 Current Lead heater functional tests 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

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

20.04.07 Re-positioning of the DC water-cooled cables by Flohe on the DFBAH and DFBML (LSS4R) (B.Lebeau/F.Moro)

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 (S34)-Individual System Tests-wk17(J.Thomson)
- 13.03.07 60 A Orbit Correctors (S45)-2<sup>nd</sup> Heat Run (A.Solfaroli)
- 30.03.07 60 A Orbit Correctors (S45)-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)
- 27.04.07 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)

## **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)
- 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)

## 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 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**

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ELOA-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, 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 <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

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

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wk12-13 fiber installation campaign for the experiments in LSS5L	13.04.07
WorldFip installation in sector 34 (C.Dehavay)	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

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

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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

C.Fernandez/M.Solfaroli/B.Perea