

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

HARDWARE COMMISSIONING COORDINATION - WEEK 16

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

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

**Because of a magnet transport, the monorail has been *deconsigne* on Thursday 19<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 Monday 23<sup>th</sup> April 2007.**

### 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 will inform on the new time estimate for the CL heating system racks installation in UJ33.
- **Inner Triplet:** C.Fernandez reported that the inner triplet in LSS5L will be transported in surface through point 4 in order to fix the problem that occurred. This operation will be performed in three slots:
  - ✓ Q3 today;
  - ✓ Q2 wk 17;
  - ✓ Q1 wk 18.

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

- Two 8h and one 24h heat run have been performed this week on the PCs in the UJ33. To finish the PCSTs a 13kA EE sys Interlock test will be performed on 21st of May.

#### EIQA

- Isolation of the cables on the DFBs in 4L has been done by I.Moya and S.Gillet and the TP3 can start as soon as AT/MEL will be ready.
- During the galvanic insulation installation in 4R some problems have been found on the water-cooled cable because they are not in the right position after the o-ring replacement carried out by TS/CV. TS/EL and TS/CV will meet in the field next Tuesday morning in order to understand if Flohe needs to come back to fine-tune the position of the cables or this can be sorted out in a simpler way. P.Denis agreed to reception the cables again as soon as the work is finished.

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

- The measurement taken on the BPM with the non-conformity (BPM22R4) after vacuum is within tolerance but the electrical response changes between atmospheric pressure and vacuum conditions. This problem is

being investigated and will be carefully followed. For the time being only 1 BPM out of 50 already installed with these joints has shown the problem.

- BPMC whose cables were smashed during interconnection works has been repaired.
- The BLM installation will be performed as following:
  - Wk 18 in 4R Q6-Q5, D4-D3
  - Wk 19 in 4R LU-lp4
  - Wk 21 in 4L D4-D3
  - Wk 22 in 4L Q6-Q5
- J-J. reported that the cablage of the BCT-BPM will be done next week. C.Fernandez informed that a beam pipe was damaged and has to be replaced; the bake out will be carried out again next week in parallel with the cabling works.
- J-J requested a new slot in order to transport the telescope. He confirmed that 2 days are needed for transport and installation, 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: J-J informed that there was a misunderstanding with the vacuum people but it has been clarified after a meeting. One BGI in 4R was installed last week, without need to remove the inner pipe vacuum chamber, and now they are ready to go on as planned: one in 4R next week (wk 17), two in 4L (wk 18 and 19).

#### **Radiation Monitoring**

- B.Perea informed that RAMSES installation and testing will be performed on weeks 17-18. Wk17 they will intervene at the UX45 (RF and Cryogenics areas), tunnel within RF Cavities, RA43, RA47, UA43, UA47 and US45. Some test with a radioactive source will be done after 20pm together with radio protection personnel.

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

- After the plastic from the DFBAH has been removed, the Leak tightness tests (no pressure tests) were carried out Wednesday 18<sup>th</sup> April in the DFBAH LSS4R. Everything is OK but they are waiting the Q11 fixing (too long busbar) in order to be able to perform the pressure tests of the DFB.
- For the leak and pressure tests on the DFBAI LSS5L they will wait until when the DFBLD will be ready too. Ivo is still finishing the mechanical works for the DFBL.

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

- Some cables are missing in the sector 34 and 45 and consequently no full qualification of the WorldFip has been done yet.

#### **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) was calibrated.

- AB/PO and TS/EL will perform an inspection of the 18kV distribution lines and cells before proceeding with the power tests. The internal control of the Main Circuit Breaker from the power converters is also being checked and beginning of next week they should be in the position to continue with the power tests, starting at low level.

#### 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 in the whole arc. Wk18 the full arc should be available.
- Regarding the 60 A Orbit Correctors in Sector 45, the EIQA-DOC has been performed in the arc. Almost all the L5 part of the arc is done and the tests should be finished for the middle of next week in the whole arc (except the 6 PCs in the middle of the arc (AC distribution problem) and the last 8 in the Right part which are waiting the interconnection works will be finished) The problem regarding the AC distribution (50kHz/26V RPLA34L5.RCBH33) still remains to be solved.

### Open Issues

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#### Current Leads

- 15.01.07 Current Lead heater functional tests 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

20.04.07 Re-positioning of the DC water-cooled cables by TS/CV-TS/EL (B.Lebeau/F.Moro)

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 7 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)

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 (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

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)

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**

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ELQA-TP3 in LSS4R (D.Bozzini/V.Chareyre) 20.03.07

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 <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
Inversion of the <i>coses</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

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