

25 May 2007

Present: AB/CO: M. Zerlauth, R. Schmidt, A. Castañeda, A. Rijllart
AB/PO: V. Montabonnet, A. Cantone, H. Thiesen, F. Bordry
AB/OP: D. Jacquet
AT/MEL: S. Feher, G. Kirby, V. Chareyre, R. Denz, P. Chambouvet, K. Dahlerup-Petersen, B. Flora
AT/MTM: A. Siemko
AT/ACR: S. Claudet, R. Rabehl
TS/HDO: R. Saban, M. Pojer
LHC/TC: P. Proudlock

Powering Tests - Sector 78

Morning meeting (08:30 in 2889-R-009)

- ❖ The following tests have been executed on the 24th on Q4 (MANUAL execution, due to change in procedure) [see presentation of R. Flora on the signals extracted from PM, posted on TWIKI of Point 8: <https://twiki.cern.ch/twiki/bin/view/HCC/BlogEntryPoint8x2007x05x25x21x07?point=8>]:
 - ramp to 600 A with 5 A/s and quench driven by QPS, generating an artificial quench signal from one current lead detector; the test was successful;
 - ramp of B1 power converter to nominal current (3610 A) with 10 A/s ramp rate and simultaneous ramp of B2 power converter to 2000 A with nearly 5 A/s (unbalanced configuration):
 - when B1 current reached 1025 A, its reference current went abnormally down to 0;
 - later analysis showed that a *fault* was sent from the converter and a consequent FPA was started;
 - PO attempt to get control of B2 power converter, to ramp it down contemporarily to 0, provoked a sudden voltage peak (7 V) in B1, which initiated a quench;
 - after waiting for the good cryogenic conditions to be recovered, and in agreement with PO, QPS and MPP experts, it was decided to ramp again Q4 with the same unbalanced cycle:

- B1 at 3610 A with 10 A/s ramp rate and B2 to 2000 A with a nearly 5 A/s ramp rate; the test was successful and NO quench was activated;
 - while ramping B2 power converter to the same current as B1 (the idea was to stay on plateau for half an hour and then provoke a quench), and with a current in B2 of 2900 A, a quench generated; preliminary analysis indicated that it was started in B1, possibly due to electromagnetic coupling (this configuration has never been tested before).
- ❖ Roberto informs on the problem experienced during the tests on Q4 (at 11.48 according to PIC supervision): a power cut occurred on the general services of UA83, which eventually provoked the loss of controls on cryogenics and lead heating system; this was due to "un courant de fuite a la terre supérieur a 1A pendant 400ms _ réglages du départ déclenché EBD114/85" (G. Cumer). Serge insists on the fact that no monitoring is present at the moment; Rudiguer stresses on the necessity of knowing what is and what is not connected on UPS. G. Cumer and his team will investigate this problem on Tuesday, possibly to understand where this earth leak was produced.
 - ❖ Concerning the powering of the arc 7-8, once the conditions of cryogenics and EIQA (a list of 600 A circuits to be qualified is sent to V. Chareyre, see below) will be reached, Serge suggests not to power to high currents and quench after 20:00, when a reduced team is working in the CCR.
 - ❖ A discussion on the status of the DFBs and the systems put in place to prevent humidity is triggered by Roger. At the end of the meeting, it is decided to put plastic bags up to the copper block level on all the chimneys. The status of the DFBs is, at the end of the day, the following:

DFBAO – Plastic bags up to copper block on all the chimneys but two 13kA chimneys, which have plastic bags up to the G11 piece and copper laminations (installed by AT/MEL) on the current lead; V.Fontanive has finished the installation of the bags also on 600A chimneys;

DFBMC – plastic bags on all the chimneys;

DFBMA – plastic bags on all the chimneys but one 6 kA of Q4, where copper laminations are installed on the lead;

DFBAN & DFBMH – plastic bags will be installed on Tuesday next week.

Afternoon meeting (16:30 in CCC)

- ❖ Summary of the test activity of the day. The following tests have been performed on the 25th on D2 (on MANUAL, due to change in procedure):
 - PIC2 (SEQUENCER execution); test successful;
 - PLI1: ramp to 350 A with 10 A/s ramp rate, we stayed on the plateau 4 min and then provoked a FPA; test successful;
 - PLI2: ramp to 350 A with 10 A/s ramp rate, then ramp to 1000 A with 10 A/s, and quench driven by QPS, generating an artificial quench signal from one current lead detector; the test was successful;
 - PNO: during the first attempt to ramp to 3000 A, the power converter went to 'faults' and produced a FPA when reaching 1008 A; investigations of PO showed that a hardware limitation was present. The second attempt was successful:
 - ◆ Ramp to 350 A with 10 A/s ramp rate;
 - ◆ Continue ramping to 3000 A; plateau of 4 min;
 - ◆ Continue ramping to 6000 A (nominal current); plateau of 30 min to check voltage drift;
 - ◆ Provoked quench at nominal current.
- ❖ Presentation by D. Bozzini on the status of the EIQA for the arc 7-8 and planning for the EIQA tests of next week (if cryogenics at 1.9 K) [see presentation posted on TWIKI of Point 8: <https://twiki.cern.ch/twiki/bin/view/HCC/BlogEntryPoint8x2007x05x25x21x07?point=8>]:
 - Transfer Function measurement and HV qualification at 1.9 kV are missing;
 - the test at 1.9 kV is done between each circuit vs ground and vs the other circuits: a small concern is raised, since the inter-wire qualification of the cryogenic instrumentation cables have never been performed at this voltage level; this will be done by AT/ACR at the beginning of next week;
 - on w. 22 the EIQA will be started on circuits powered through line N in point 8;
 - for MCS.A78B1 a non-conformity was opened due to a short to ground:
 - an inversion of the instrumentation cable was discovered;

- the cable was swapped and the short disappeared;
 - the problem was found on the "cryo electronics side" and it is still there;
 - RQ6.R7 will be qualified at the end of w. 22 due to logistics reasons;
 - on the request of Roberto, Andrzej confirms that RQD and RQF can be powered but at low current; quench heaters will be nevertheless needed and Reiner needs to replace one faulty cable.
- ❖ According to the plan of Davide, Reiner will perform his tests without interfering with the EIQA; after EIQA, he will need to fire a QH every almost 10 s, which means that the cryo team has to be informed and the cryogenic conditions favorable for this. If no major problems are encountered, the test will be finished in nearly 2 hours; the arc should be nevertheless ready for w. 23.
 - ❖ For the 60 A orbit correctors, AT/MEL will install ventilators on all the leads, starting from Tuesday, 29.
 - ❖ In the unfavorable condition that the cryogenics is not OK next week, the arc is already qualified to power the main circuits at 120 A (no further EIQA needed and no QH firing necessary).

Next meeting Tuesday, 29th of May at 8:30 in 2889-R-009.

N.B. The decision of making shifts, starting from Wednesday, will be taken at the meeting.

Mirko Pojer