LHC RF Meeting
19th February 2003

Present:
Luca Arnaudon, Thomas Böhl, Philippe Baudrenghien, Andy Butterworth,
Elena Chapochnikova, Edmond Ciapala, Wolfgang Höfle; Trevor Linnecar, Eric Montesinos, Volker Rödel.

1) Minutes of last meeting 12th Feb:
These have been corrected, with the addition of Volker to the list of those present and inclusion of the Transverse Dampers as one of the 5 systems in Excel format for EVM.

2) General
Budget: Volker has collected LHC budget requests for 2003. The estimates show that a large number of relatively small items will be purchased this year. We have to keep track of this expenditure and ensure correspondence with our Cost-to-Completion estimates. Volker will circulate the latest version of the C-to-C to everyone. **Action:** Volker.

3) Actions remaining from previous series of meetings
Long standing issues 'on hold' from previous meetings and still to be resolved:
- Cryo issues – quench valves selection, operation etc.
- ACS Power system transients, interlocks requirements
- Radiation proof solutions for arc detectors near cavities.
- RF detectors for signal monitoring and power measurement (CS/FB sections)
- Earthing arrangement for HV equipment in UX45

For this last point a review of the layout should be carried out by specialists concerned, taking into account experience from LEP and other high power installations **Action:** Ed/Olivier.

4) Follow up actions from the last meeting 12th Feb 2003.

i) EVM and follow up:
In order to meet the EVM deadline we need to get a reasonably 'in-shape' planning for the following systems in Microsoft Project format ideally by 3rd March or at very latest by the end of the following week:
1. RF tunnel feedbacks and Beam Control
2. Software and Diagnostics
3. ACN
4. Infrastructure and layout.

The last point, infrastructure and layout, will need the ongoing close collaboration with the integration specialists.
The EVM emphasis (for the moment) is on planning and costs.
Actions: Philippe, Andy, Eric and Volker on items 1 to 4 respectively.

ii) UX45 layout: (Volker et al)
RF layout in UX45 Volker has contacted C. Hauviller on our requirement for 3-D modeling to verify the installation. Due to other priorities Hauviller's team cannot start on the RF side of UX45 before the second part of the year. In the meantime we will have to rely on the normal plans.
We should nevertheless ensure that UX45 gets done as soon as Hauviller's planning permits.
Action: Volker to make official request to C. Hauviller.
Pick-ups: The location of the 5 pick-ups per beam in the tunnel and their space requirements were defined in a recent discussion with BI (Volker & Thomas). We now have the necessary information to present to the next Point 4 installation meeting (see below)

The Point 4 installation meeting of the MIWG planned for 12th February is now set for 6th March.

The vacuum layout in the tunnel for ACS, ACN and ADT has to be settled urgently with Miguel Jimenez. Additionally there may be a possible need for additional vacuum pumping of the RF pick-ups (see above) due to their ferrites. A first meeting has to be held together with Miguel and the specialists on our side - to discuss the whole system - before the Point 4 installation meeting of the MIWG on the 6th March. **Action**: Volker.

Water-cooling: Volker's summary of the main points of the cooling meeting 13th October 2002 is given below in **Appendix 1.** As reported in the last minutes it was agreed that sufficient capacity piping, including the needs for ACN, would be installed right from the start. Responsibility for operation and maintenance budgets in the various tests stands has still to be defined. **Action**: Trevor/Volker

Electrical installation: Specification and design of the electrical installation for all systems in UX45 is ongoing. Volker and J.C. Perrier are doing this, with the help of the equipment responsibles. Cable trays and their layout remain to be defined. **Action:** all concerned.

ACN: An ECR was requested by TCC for the staging of the installation. We should however fully define cooling, electricity and vacuum installations before submitting this. **Action:** Volker.

iii) Radiation in UX45 (Andy)
Conclusions from meeting of the TEWG on Friday 14th February on single event perturbations of electronics are sufficiently worrying to justify urgent investigation of our layout, especially with regard to the RF feedback electronics on the cryo side of UX45. Available effort from TIS/RF seems limited due to other urgent priorities. We can push our requests harder but could do our own rough simulations already: using in-group expertise and possibly enlist the help of AB-ATB specialists. We (or the TEWG!) should however first check up with TIS (G. Stephenson) on what information is already available at CERN and perhaps also see what relevant experience there might be in other Labs.
Actions: Andy (& Trevor for ATB support).

iv) SM18 (Ed)
Regular meetings on SM18 installations and tests started on Friday 14th Feb at 09:30. These will continue every Friday morning and anyone interested is invited.

Cryo Linkman The respective group leaders have agreed that L. Serio will be our linkman. Other cryo specialists will also be directly involved – e.g. Rob Van Weelderen for valves.

Space: Philippe LeBrun has confirmed the recent agreement in a memo to Roberto.

v) ACN Cavities
Discoloration in the interior of one production cavity should be followed up. **Action**: Roberto

vi) Other Items:
Storage space in SG4 Space in SW18, proposed by the space manager S. Maury (AC/DI), has been found unsuitable by Roberto (for SM18 equipment) and P. Martinez (for waveguides). We should continue to negotiate for the larger part of SG4. (**Action:** Volker/Trevor)
ex LEP Racks We are still waiting on feedback from Carlo Wyss to allow the go-ahead for recuperating these.

5) Round Table:

i) RF Feedback and Beam Controls (Philippe)
A presentation of the RF feedbacks systems was made on Friday 14th February, to members of CS and FB sections who will be contributing to the construction of these systems. Basic responsibilities have been proposed. Elaboration of the details of the design will follow. A lot of work is involved; much of it involving quite complex developments. The time available until first tests of prototypes in SM18 is short.

ii) Dampers
Drive amplifiers The specifications are ready to go out. The aim is for approval of the contract by the June FC.
Collimators and transverse impedance
Wolfgang has been asked by F. Ruggierio to study the effect of an increase in impedance by a factor 10, arising from a possible new design of the collimators, with ferrites.

Next Meeting
Wednesday 26h February 09:00 in 864 1 C 01
Agenda
- Follow up from last meeting
- Round table

E. Ciapala, 19th February 2003

Appendix 1

Meeting on Cooling Water Systems for the LHC 11 October 2002 , 14H30 to 15h30.

Present for ST/CV: G. Perraud, G. Peon, B. Pirollet, J.C. Frances
Present for SL/HF: O. Brunner, B. Lambert, T. Linnecar, V. Rodel, E. Ciapala,
S. Girod (ECT)

Water circuits for klystrons and HV bunkers(UX45):
The new layout in UX45 has been presented and agreed upon. The circuits can now be detailed . The cost for the circuits from US45 to the klystrons is not included in the cost- to-completion of ST/CV nor of SL/HRF. The cost has to be estimated for a budget request to the management.
The inlet temperature is 27degC (EDMS Document No. 335008)
Reference drawing: LHCLJ4GA0001.
Action: B. Lambert, O. Brunner, B. Pirollet.

Chilled water:
It is needed for air conditioning of the ACS and ADT racks in UX45 and US45. Chilled water is required by power converters in UA43 and UA47. The same line can provide chilled water for the 200 MHz system (racks and tetrodes) in UA43, UL44, UL46 and UA47. The outlets should be installed although the ACN system is staged (Review in 2005). There is no budget for the chilled water line from US45 to the racks in US45, and from US45 to UX45. The costs have to be estimated for a budget request to the management.
Action: B. Pirollet.

Compressed air:
It is required for the damping loops of the ACN cavities in RB44 and RB46. The outlets have to be specified.
Action: V. Rodel.

Maintenance of water systems in SA2, SM18, BA3, B112 and B867.
It has been decided to make an inventory of the existing systems showing their actual state, the expected maintenance cost for manpower and spare parts, and a risk analysis for possible faults and their repair costs. This will allow to establish the costs for the LHC exploitation budget. The situation is particularly unclear for SA2 where the tests for the ACS power couplers are performed.
Action: O. Brunner, B. Pirollet.

Reported by V. Rodel