

EUROPEAN HYBRID SPECTROMETER (EHS)

Minutes of the Second Meeting of the Construction Committee (CC)

18th October 1976

Present: H. Desportes, P. Falk-Vairant, D. Güsewell, A. Minten,  
L. Montanet, G. Neuhofer, R. Newport, F. Schmeissner.

I. APPROVAL OF THE MINUTES OF THE FIRST MEETING

The Minutes of the meeting of CC on September 6th, 1976, are approved, after substitution of 'NIKHEV' instead of 'Amsterdam' for the Dutch contribution to EHS.

II. REPORTS ON STATUS OF DESIGN, PARAMETERS, SCHEDULE AND WORK DISTRIBUTION

2.1 EHS Layout and Physics Parameters

L. Montanet justifies the request for a beam height of 2.46 m and establishes an order of priority for the different RCBC performance specifications (see CERN/EF/EHS-CC/76-3).

The beam height question is discussed. L. Montanet is charged to request definitively a horizontal beam of 2.46 m height from SPS Division. The alternative proposal of an inclined beam giving 2.20 m height at the RCBC center is rejected, since specific experiments with EHS or other experiments in the same beam line in hall EHN1 will probably later force the conversion to a horizontal beam, and this would then require a major modification of RCBC and M1 piping.

2.2 Wire Chamber Detectors

G. Neuhofer reviews the situation of the wire chambers for part A of EHS (see CERN/EF/EHS-CC/76-4).

2.3 M1

H. Desportes reports on M1, for which the design work is going on. The difficult support structure of the coil vessels is still open, but a proposal for a satisfactory solution exists. The vacuum tank will probably be made of stainless steel. If the original coil distance is maintained, it may not be possible to avoid, that part of the vacuum tank penetrates into the 85 cm spacing.

However, shaping of the vacuum tank seems possible, so as not to reduce the emittance angle of RCBC and not to interfere with the installation of the first wire chamber W<sub>1</sub>. As a rather small thickness of the vacuum tank walls near the emittance cone is essential, the fixation of heavy loads to these walls should not be considered.

As concerns work sharing, a general agreement between Saclay and CERN is being discussed for M1. A provisional planning for the delivery of the two coil cryostats to CERN is presented, according to which the first coil should arrive at CERN in November 1978 and the second in February 1979. Saclay is urged to come as early as possible. A revised cost estimate will be presented once the preliminary design is finished.

#### 2.4 RCBC

R. Newport reviews the design activity for RCBC during the last month which concentrated on the beam exit window, the fixation of the piston bellows, the illumination system and the heat exchangers. First results of calculations of the total mass at the beam exit (including invisible hydrogen and vacuum tank window) for different window widths and curvatures showed that only an aluminium window would allow to obtain values as low as 8% of radiation length. Thus, in parallel to the conventional stainless steel body, an aluminium chamber body or an aluminium window in a stainless steel body will be studied. Likewise, the feasibility of an exit window having reduced thickness only in the 10 cm wide central part will be investigated.

For the sharing of work on RCBC between RHEL and CERN, a proposal is submitted for discussion. The time schedule proposed for construction, installation and test of RCBC is still aiming at a start of Physics with EHS in early 1980. Assembly and installation of auxiliary equipment will begin in early 1979 and the chamber itself be installed in the iron frame as soon as the magnet tests and field measurements are finished.

P. Falk-Vairant reminds that there will certainly be a conflict between the installation and test activity around EHS all along 1979 and the optimum exploitation of the North Hall for experiments on all beam lines. Already now, at least three groups wish to do experiments on the EHS beam line in 1979.

#### 2.5 Layout of Infrastructure and Cryogenics

F. Schmeissner presents the last version of drawing No. 8139-2004-3 showing the disposition of 2 barracks up-stream of RCBC, one for operations control and the other for optics and film handling. As it is now planned to use only warm gas storage for the chamber fillings and to cool RCBC by a helium refrigerator, the ventilated hydrogen safety area can probably be restricted to a hut, surrounding chamber purge and vacuum equipment, and a duct between this hut and the expansion system side of RCBC.

Although the heat exchanger system of RCBC will exactly be known only, if the final design of the chamber body is adopted, the cooling requirements of RCBC can be defined with sufficient precision for the specification of the chamber refrigerator. In order to cover the refrigeration requirements with a reasonable safety factor, a cooling power of 1 kW at 20 K will be specified.

### III. REPORT ON THE NEGOTIATIONS ON AGREEMENTS BETWEEN CERN AND THE PARTICIPATING LABORATORIES

P. Falk-Vairant reviews the situation after first contacts with RHEL and Saclay. Two solutions can be envisaged for the financial arrangements:

- a) The participating laboratory is charged to provide the specified equipment at fixed price and under its own responsibility. The major technical options are submitted to the CC for approval, but purchase orders are placed according to the laboratory's own rules.
- b) The participating laboratory is responsible for design, specification, assembly and tests, but the purchase procedures of CERN are applied and the laboratory is not responsible for respecting the cost estimates.

RHEL already expressed its preference for solution a) and submits a proposal for the RHEL/CERN agreement. Saclay seems to be more in favour of solution b), but in order to simplify the administrative procedure, a) would be a better solution for Saclay, too.

The agreements with Vienna and NIKHEV will be rather simple, as these laboratories cover the cost of their equipment completely by own funds. No special agreements are planned for the MWPC ( $W_0, W_1$ ). G. Neuhofer is asked to feel responsible, as member of CC, also for  $W_0$  and  $W_1$  and to investigate whether these chambers can be supplied by Pavia or whether they should be provided by CERN.

A. Minten proposes to lay the technical basis for the agreement between CERN and the participating laboratories in the following way: each partner laboratory prepares for the next CC meeting a draft giving design parameters, performances, cost and delivery schedule for the equipment supplied by the own laboratory as well as border line definition with respect to the other partners. These drafts will have to be revised and matched in order to end up, at the December meeting of CC, with a consistent technical description of part A of EHS.

### IV. OTHER BUSINESS

R. Newport reminds that RHEL offered two magnets for use as M2, but that the necessary transformations, tests and installations cannot be done by RHEL. The EF Division accepts to study this work as early as possible in order to be sure that the performances specified for M2 can be achieved in this way.

As concerns the mailing list for the CC documents, P. Falk-Vairant insists in limiting the distribution of these papers to those directly involved and to include, for the time being, into the mailing list, apart from the members of CC, only the directors of the participating laboratories: A. Diddens, P. Lehmann, W. Mayerotto, J. Thresher, H.O. Wüster and himself.

The Next Meetings of CC are fixed as follows:

- Monday, November 22nd at 2.30 p.m. at CERN, Lab. 14-4-030;
- Tuesday, December 21st at 9.00 a.m. at CERN, Lab. 14-4-030.

D. Güsewell