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M E M O R A N D U M

To : Members of the EEC
 From : G.L. Munday
 Subject : A separator Problem

The Beam m_{11}

There could be difficulties over the separator needed for beam m_{11} - if the proposal described in PH I/COM 72-2 were accepted (See also PH I/COM 71-50 - Letter of Intent from DNPL, QMC and RHEL).

We have :

- I. a) Now and during part of 1972, m_{11} with one 6 m separator - Experiment S 99
 $\bar{p}p \rightarrow \bar{p}p, \pi^+\pi^-,$ etc. - DNPL, QMC, RHEL Group.
 b) This same separator and beam would be needed by the group for the proposed experiment (as above).
 Start 1973.
- II. Beam m_{13} (a modification of m_7 with the addition of a 6 metre separator) for 2.8 GeV/c Ks. This is planned for shutdown 1973 (but could it be earlier ??) This is for the K_{e4} experiment S 118 of Mermod, Turley; accepted.
- III. The 2 m Hydrogen Bubble Chamber uses the m_6 beam which now has one six metre and one ten metre separator. According to P. Lazeyras (confirmed by Ch. Peyrou) it is certain that this beam will be needed for some six months starting from late 1972 or early 1973.
- IV. There are only two six metre separators available.

In the past few years the m_6 beam has been used for a fairly small fraction of the time - perhaps a few months every two years and the major work has been done with the RF separated beam u_5 . This situation will change as BEBC

comes into action in late 1972 with an RF separated beam (≥ 8 GeV/c). Then the 2 m chamber will, for a time, work with low or medium momentum beams.

Two possibilities have emerged from further discussions with P. Lazeyras :

- a) Modify m_6 by lengthening it. Remove the six metre separator and replace it by a ten metre separator.

This means :

- i) a length increase of about 5 m.
- ii) at 2 GeV ~ 35 o/o lower flux than the present beam.
- iii) it is possible to compensate the latter by increased intensity, i.e. 2 x 4 bunches instead of 2 x 3 bunches.
- iv) a modification of the ejected beam e_6 and a complete rebuild of the shielding and the first part of m_6 .
- v) some 6-8 weeks would be necessary to do the work and no other important work could be done in the East Hall.
- vi) depending on the exact details there could be interference with experiments in k_{12a} , e.g the computer hut of the experiment S 109 would have to be removed.
- vii) cost in new hardware, vacuum chambers, less than 50.000 Fr.

- b) Modify m_6 by shortening it.

P. Lazeyras thinks there might be sense from the TC view point in lowering the lower momentum limit of the m_6 to approach the upper limit of the new k_8 (1.2 - 1.3 GeV/c). There is however on the TCC programme an exposure at 4.2 GeV/c. The new beam could be made with one 10 metre separator thus leaving the 6 metre one available.

To a first approximation the work, time and cost involved would be about the same as for the lengthened version.

P. Lazeyras has agreed to study this possibility.

The results of the study will show to what extent the Trach Chamber Committee Programme can be satisfied or not by a modified m_6 beam.

St. Sunday

cc: M. Cresti
P. Lazeyras
Ch. Peyrou