

19th March 1964

A PRELIMINARY NOTE ON
THE REQUIREMENTS FOR RUNNING TWO
LARGE BUBBLE CHAMBERS IN THE EAST HALL

The question has arisen regarding the possibility of running the 150cm H.B.C. and the 200cm H.B.C. at the same time. The question of running the two chambers alternately has not been considered in what follows.

Here are a few points that have been looked at in a preliminary way plus others that remain to be investigated.

I. A.C. POWER REQUIREMENTS :

The power required to run the two chambers plus compressors and beams is about 16 MVA. To this we must at least add the 3.2 MVA required by the P.S. magnet converter set : hence we need at least 20 MVA of the 23.7 MVA. now available in CERN. Thus it would appear that such a situation can only be envisaged when the CERN A.C. power supply problems are settled.

Negotiations on the power supply situation are being pressed but without a definite date being available.

II. D.C. POWER :

There are only 6 MW of D.C. power available in each area for large magnets thus the needs can only be met by transferring power from the South to the East Area. Cost in cables and installation (assumed flexible and therefore not a loss as they can be reused) 300,000.-Fr. Delivery and installation : about 6 months.

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III. COOLING WATER :

This could in principle be solved by installing pipes (at a cost of about 200.000.-Fr) but as we are investigating mobile water cooling units it is more logical to solve the problem in that way.

Preliminary enquires show that an installation for 6 MW would cost about 0.5 M Sw. Fr. of which it is probable that about half will be invested in the course of 1964. Delivery times could be of the order of 6 months from receipt of order although not necessarily from the cheapest supplier.

Space requirements : about 5m x 32m x 4m high. The units should preferably be aligned with respect to the prevailing winds.

IV. SAFETY :

This is a fundamental problem which needs investigation and can only be done in T.C. division.

V. BEAM(s):

This needs investigation but it is guessed that there will only be enough bending magnets (and may be other elements) if they are taken from other beams.

Powering of two complicated beams can probably be effected but not yet guaranteed by using all the generators (25) plus those on order (3) and the 5 twin type (equivalent to a type III generator or two type II) rectifiers which are due for delivery in early 1965. Some smaller rectifiers would also be needed from the fourteen which will be available.

One can imagine that there would be some curtailing of South area facilities and a limitation on counter work in the East hall. Just how bad this would be can only come from a detailed study.

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VI. RUNNING COSTS :

This must be examined as it is likely to prove financially critical :
Power (/12.000.-Fr/day), liquid nitrogen and film.

G.L. Munday

Distribution :

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