

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GOVERNING BOARD

Proposed Helium Bubble Chamber

Covering Note by the Secretary

1. At the meeting on June 20th 1960, the Board approved a design study at Oxford for a large helium bubble chamber for the Rutherford Laboratory. The Board then considered that there was a reasonable prospect that they would support a proposal for construction of such a chamber if the design study proved successful.

An agreement was made with Oxford University in July, 1960, for a 2-year design study at a cost estimated at £33,000.

2. The design study has now reached such a stage as to justify the preparation of a detailed proposal for construction. A copy is attached.

3. A copy of the assessors' report is also attached.

4. The proposal and the assessors' report were considered by the Physics Committee on May 15th 1961. The Physics Committee recommended the proposal to the Board.

5. As will be seen from page 22 of the report the estimated total cost of chamber (including design costs) is £444,300. The Physics Committee discussed, in addition, the consequential expenditure at the Rutherford Laboratory.

(a) Buildings and Services

The required test area (page 24 of the report) can be made available in the extension of the experimental area which has already been approved. This area has suitable crane facilities but some modifications and additions to other services may be required. Some minor building work to house ancillary equipment may be required. The exact nature and cost of the work will not be known for some time but the cost is unlikely to exceed £30,000.

(b) Beam Handling Equipment and Shielding

Beam equipment and shielding would be needed to provide a slow K^- meson beam for the bubble chamber. Components out of the original £1m. scheme could be used for this, in which case a request for additional beam equipment for other purposes would have to be made sooner than had been expected. Alternatively, a request for approval for the beam equipment could be linked with that for the chamber. The cost of the beam equipment has not been closely estimated, but is considered to be in the neighbourhood of £150,000. The Physics Committee did not make a definite recommendation as to which way the financing of the beam equipment should be taken, but they pointed out that the equipment, however treated from a finance point of view, would consist of versatile components and would be of permanent value independently of the helium chamber. In particular, low momentum K^- mesons are also required for study by other methods besides a helium chamber.

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Circulation : to Members of the Governing Board