NUCLEAR EQUIPMENT PROJECT COMMITTEE

1) GENERAL

The function of the committee is primarily one of management of approved major schemes involved in the preparation and use of NIMROD for nuclear physics. (The term "approved" has a financial meaning only - it does not imply that the committee is the originating or approving body in the nuclear physics sense.)

The Scientific and Technological duties can be regarded as somewhat flexible. It will be the business of the committee to ensure, by liaison with the Universities and other potential users of NIMROD, that the requirements of nuclear physicists are being properly met. Scientific and engineering progress will be reviewed with particular reference to the quality and quantity of effort which is required to do a good job within the agreed time-scale. It is not however intended that the committee should cover the extremes of detailed design or of detailed progress in manufacture. The former is best done outside committees and the latter, insofar as formal progress meetings are concerned, may well be covered by a development of the Engineers' Supply and Construction Meetings (Mr. Bowles). In a similar manner whilst the approval of relevant building schemes is the business of the committee further action can be delegated to the Rutherford Laboratory Building Committee (Mr. Bowles) and the Site Building Committee (Mr. Ashley). Various members of the Nuclear Equipment Project Committee attend all these other meetings and written or verbal reports will come back to the Nuclear Equipment Project Committee.

The duties to the General Purposes Committee of the National Institute, through the Director of the Rutherford Laboratory are quite specific:-

Preparation of Estimates in appropriate detail for the G.P.C. and the Treasury.

Preparation of realistic time scales for scientific, engineering, contractual and financial purposes.

Initiation of competitive tender action wherever possible.

Recommendation of Contract Action and financial approval to the Director (Rutherford Laboratory) or to the G.P.C.

Preparation of Quarterly Statements for the G.P.C. showing

Original estimates and approval by the G.P.C. and the Treasury.
Latest estimates and approval by the G.P.C. and the Treasury.
Predicted rate of expenditure.
Actual committments and expenditure.
Details of contract action in the preceding quarter.
Forecast of contract action in the following quarter (particularly where G.P.C. approval is required).

In recognition that these duties will be properly carried out the General Purposes Committee delegate to the Director of the Rutherford Laboratory powers of financial approval up to £20,000 (within approved capital schemes) on the recommendation of the Nuclear Equipment Project Committee. Below £2,000 powers of approval are delegated by the Director to named individuals on the same basis as in A.E.R.E. The onus will be on the individual to ensure that these smaller sums are truly within the approved estimate, although it will be a duty of the committee to check that a runaway does not occur. Further details can be obtained from a paper presented to and approved by the G.P.C. - The Control of N.I.R.N.S. Expenditure NI(GP)(59) 34.

2) CONSTITUTION

There is such a wide range of business to be covered that it is highly desirable to divide the committee into a number of discrete parts covering individual approved capital schemes or natural groups of schemes. The Chairman and Secretary will serve all parts. Each part will have a key member of scientific staff who, for the sake of a word, might be called the "convener". The need to maintain the best possible liaison with the Universities and nuclear physicists generally is of particular significance in the choice of individuals for this role. There will be a small number of additional permanent members of each part of the committee representing the scientific and engineering staff responsible for the work (from the Rutherford Laboratory, the Universities, the A.E.A. or elsewhere). The remaining representation is intended to be flexible. For individual items on the agenda specialists in particular scientific fields and in finance, contracts, buildings, etc. will be invited but will not be expected to sit through the whole proceedings. There is a standing invitation for any nuclear physicists to attend all or part of any meeting to see generally how things are going or to influence the committee on some particular issue.

Three parts of the committee are envisaged at present, one being rather general in character and the others covering single major approved schemes. Any new schemes will be dealt with under Part I or if sufficiently large and discrete by further parts.

PART I - GENERAL NUCLEAR PHYSICS FACILITIES

Business

Experimental Areas
Shielding Arrangements
Counting Areas
General Services
Beam extraction
Straight sections and target mechanisms
Beam handling equipment - including quadrupoles, bending and analysing magnets, and particle separators
Power Supplies
Electronics for nuclear physics (except for highly specialised equipment)
Cables for nuclear physics
Digital computer

Representation

Chairman - Mr. Mullett

Secretary - Mr. Miller (Rutherford Laboratory Finance Officer) or his deputy.

Convener - Dr. Galbraith - responsible for the specification of nuclear physics requirements and for ensuring that these requirements are being met. This applies to all the above business. Executive responsibilities cover counting areas, electronics and cables and may be extended at the discretion of the committee to aspects of the work on experimental areas, shielding arrangements, target mechanisms, etc.

Physics Members - Mr. Wilkins - responsible for beam extraction, straight sections and target mechanisms, beam handling, and power supplies. Also with responsibility for Experimental Areas and Shielding arrangements in the

present somewhat communal fashion.

Mr. Snowden - liaison with bubble chamber projects.

Mr. Dunn and Dr. Hobbis may be involved from time to time on such matters as the relationship between NIMROD electronics and nuclear physics, and the development of particle separators.

Mr. Walkinshaw is particularly interested in the fundamental aspects of this work.

Engineering Members — As yet to be decided. Should include, on full time or part-time basis, those section leaders responsible for design of the equipment.

Mr. Venn (estimates and sanctions), Mr. Sneddon (programmes), and specialists in power supplies, controls and so on will be involved from time to time.

Nuclear Physicists

Rutherford Lab. - Dr. Stafford to attend whenever he wishes.

Universities - Prof. Massey has been asked to raise the issue of University representation at the next meeting of the National Institute Visiting Committee. The suggestion is that the Universities should appoint either a permanent member or arrange a rota system.

Others - Senior Staff, both physicists and engineers, may come as and when they please.

PART II - HYDROGEN BUBBLE CHAMBER SERVICES

Business

Bubble Chamber Annexe
Bubble Chamber Plant Room
Bubble Chamber Services

Beam handling equipment
Film processing facilities
Track analysis equipment

The National Hydrogen Bubble Chamber is a D.S.I.R. project being undertaken by a University Consortium (Imperial College, Birmingham, Liverpool). The Rutherford Laboratory is providing buildings and installed services. A number of meetings have already been held at which the Rutherford Laboratory work has been considered in the required detail, whilst the work of the Consortium has been simply reported in order to review the overall situation. This pattern will be continued.

Although the mechanics of beam handling will be dealt with generally in Part I, the particular requirements of the Hydrogen Bubble Chamber will be considered in Part II.

Film processing facilities and track analysis equipment have wider applications, but will be conveniently dealt with in this part of the committee since the members are particularly knowledgeable in this field. The University Consortium have already ordered their track analysis equipment (with D.S.I.R. money). At least one further set will be required for use at the Rutherford Laboratory.

Representation

Chairman	- Mr. Mullett
Secretary	- Mr. Miller or his deputy.
Convener	- Mr. Snowden - responsible for liaison with the universities and for all work connected with bubble chambers at the Rutherford Laboratory.
Physics Members	- There will be times when Part I members will wish to attend Part II. Other people with special interests will attend from time to time.
Engineering Members	- Mr. Ashburn. etc
University Members	- Prof. Butler (Imperial College) Mr. Moore (Liverpool University) Others from time to time.

Similar general remarks apply as for Part I.

PART III - HEAVY LIQUID BUBBLE CHAMBER

Business

Heavy Liquid Bubble Chamber
Buildings
Services

Beam handling equipment

The Heavy Liquid Bubble Chamber is a National Institute project with University College playing the key role in design and construction of the bubble chamber proper and in plans for using it. The project leader appointed by Professor Massey is Mr. Tomlinson, and the nuclear physics coordinator is Dr. Henderson. Buildings and Services will be a Rutherford Laboratory responsibility just as for the National Hydrogen Chamber.

It has been agreed with Professor Massey that the ultimate financial and contractual authority will be in the Rutherford Laboratory, and that the Nuclear Equipment Project Committee will be the management committee for the whole project. Following the accepted National Institute pattern the money allocated to the project will be divided into two categories, a Capital Grant for the purchase of plant, buildings and services, and a Research and Development budget covering all other items of expenditure such as salaries, subsistence, travel, consumable stores, minor purchases etc. which are incurred by the University College team. The Capital Grant will be controlled through the Committee whilst the R. & D. budget will be controlled by University College.

Representation (suggested)

Chairman	- Mr. Mullett
Secretary	- Mr. Miller or his deputy.
Convener	- Mr. Snowden - responsible for liaison with University College and for the Rutherford Laboratory aspects of the work.
Rutherford Lab. Eng.	- Mr. Ashburn.

University College - Mr. Tomlinson - Project Leader.

Dr. Henderson - Nuclear Physics Coordinator.

A. N. Other - Engineer.

3) BUDGETS

The following estimates have been submitted to the Treasury:-

Part I

Beam Handling Plant	£1,000,000
Extension to NIMROD experimental area	£ 280,000
Extension to NIMROD control block	£ 28,000
High Voltage Test Facility	£ 150,000

Part II

Hydrogen Bubble Chamber Services

Buildings and plant	£ 250,000

Part III

Heavy Liquid Bubble Chamber Buildings and Plant	£ 380,000

With the exception of Part II, Treasury Approval to commit money against these schemes has not yet been obtained. This is a first priority.

Also in estimates are the following:-

Electronic Digital Computer and Building	£ 280,000

This item will be formally dealt with by Part I of the Committee on the recommendations of Mr. Walkinshaw's Computer Committee.

Other project(s) using visual techniques	£ 450,000
Other project(s) using electronic techniques	£ 450,000

Large projects under these headings may demand additional Parts of the Committee. Although we wish to reserve the case for these large sums of money it will be desirable to take say £50,000 from the electronic heading to cover standard electronic equipment and cables for Part I.

Also in estimates are quite large sums of money under the Research and Development heading, including:-

Minor items of Nuclear Physics Plant (NIMROD) (up to 1962/63)	£ 290,000

Such R. & D. money is not normally controlled by a committee, but in special circumstances the committee would be prepared to give assistance.

4) TIME SCALES

Part I - available in preliminary form only. Good time scales are urgently required.

Part II - Time Scales are in good shape.

Part III - Time Scales required - not too urgently.

5) COMMITTEE PAPERS

The consecutive numbering system already in use will continue irrespective of which Part of the Committee is involved. Beneath the serial number the Part number will be given.

6) DATES OF MEETINGS

It will be of considerable advantage to prescribe set dates for the various parts of the committee, in a planned relationship with themselves and with the set dates for other Rutherford Laboratory Committees (Engineering Supply and Construction, Buildings and so on). The existing regular meetings generally repeat with a four week period. An eight week period is reasonable for this committee. In cases of emergency, brought to the attention of the chairman or convener, special action will be taken by consultation with members who are accessible in person, or by correspondence or telephone.

Lists of dates of meetings will be supplied to all members and potential visitors to the committee.

19th November, 1959.