

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GENERAL PURPOSES COMMITTEE

Minutes of the meeting held in the Board Room
Treasury Buildings, Whitehall on Thursday
May 12th, 1960

Present:-

Lord Bridges (in the chair)
Mr. A. E. Drake
Professor D. H. Wilkinson
Mr. P. Bowles
Dr. T. G. Pickavance
Dr. J. A. V. Willis (Secretary)

An apology for absence was received from Professor Peierls, who sent written comments to the Chairman on some of the matters on the agenda.

1. MINUTES OF THE LAST MEETING

The Committee approved the minutes of the meeting on February 11th 1960, subject to the deletion of the words "for the Treasury" from the seventh line of minute 7.

The following comments were made:-

Treasury approvals The Chairman said that Treasury approval had been given for the heavy liquid bubble chamber (minute 1) the beam handling plant (minute 9) and the computer (minute 15).

Houses for Staff The Secretary said that a detailed scheme and estimate for the 34 houses proposed at Rush Common had now been received from the Southern Works Organisation. The estimated cost of the houses was as reported at the last meeting. Site services and fees brought the total to £118,000. A request for financial approval was being sent to the Atomic Energy Authority.

2. Matters dealt with by Correspondence

The Chairman said that after referring to the Committee by correspondence, he had approved on their behalf the Institute's share of the cost of the new steam main described in paper 60/17.

3. General Financial Statement

The Committee took note of paper 60/18. There was a brief discussion of the second column of Schedule II, in which the Treasury Grant is shown divided among the different projects, and the general allowance for delays has been apportioned among them. It was explained that the Treasury grant itself was made under two headings only - capital and non-capital. The division shown among projects was for the benefit of the Committee, to help them in the control of the expenditure.

4. Revised Nimrod Plant Estimate

Before the discussion of paper 60/19 was begun, it was reported that Treasury approval had been increased to £5.798M for the plant and £3.101M for the buildings (£8.899M altogether) so that to bring up to date the table in para 5 on the first page of Paper 60/19, the first column of figures should be deleted, and the heading of the second column should read "Present Treasury Approval and latest estimate reported to G.P.C." Mr. Drake pointed out that this approval had been given subject to the Institute's not spending more total capital in 1960/61 than their grant of £4.5M., and the Committee took note of this.

Dr. Pickavance said that paper 60/19 resulted from the request made at the meeting on October 22nd 1959 (Action 5) for the preparation of revised estimate including a realistic figure for contingencies. Asked whether he regarded the contingency as elastic or rigid, he said that the Project Committee had assumed that they would be expected to complete the machine as specified within the total revised estimate including contingency, though they would expect to be allowed to switch money from one section of the plant to another. In order to avoid a very large contingency figure, every item of plant had been reviewed, and the most probable cost inserted in the estimate, even when the information available was still scanty. In the past, as the Committee knew, the policy had been not to alter the estimate for a plant item even when it was known to be low, until definite information was available on which to give a new figure.

The Committee proceeded to consider the estimates for the main sections of the plant. In considering the magnet section they enquired into the method of assessing the contingencies and Mr. Bowles produced a detailed Project Committee paper showing the contingency assessed for each item in the magnet section, according to the remaining uncertainty in each case. Dr. Pickavance said that the contingency figures shown in the G.P.C. paper (both in the case of the magnet and of the other sections) were the sums of these individually assessed contingencies. A second rather general point considered in detail in the case of the magnet section was the large increase in the estimated installation cost. Dr. Pickavance said the installation was more complex than had been foreseen at the time of the original estimate. For example, the magnet pole pieces now had to be installed between two vacuum chambers. In addition, experience which had now been gained in the installation of sections of the magnet for test assemblies showed that the installation contractors had to be asked to provide a higher grade of labour than had been expected, and for longer.

The large increase (£112,000) in the estimate for the pole pieces was also discussed. Dr. Pickavance said that the contractors had quoted a firm price for a design of pole pieces as understood and agreed, but that it had been known that changes in this design would be necessary in the light of detailed experiments with full-size models at the Rutherford Laboratory. In addition, steel of the required uniformity was found not to be available, so a complete randomisation procedure became necessary.

In the case of the injector, the Committee noted that the contingency though small in itself, was rather high as compared with the increase in the estimate. Dr. Pickavance said that the inflector magnets represented the main uncertainty. It was known that a more refined system would be needed than the single magnet originally considered, but details had not been worked out so that the uncertainty was relatively large.

In considering the vacuum section, the Committee dealt separately with the development contract (as recorded in the next minute). They noted the considerable remaining uncertainty represented by a contingency figure amounting to 19.5% of the vacuum system estimate. Dr. Pickavance said that a fixed price for the 8 octants could not yet be quoted. With regard to the considerable increase in the estimated cost of installation, he said that this was due to the very greatly increased complexity of the vacuum chamber.

ACTION 1

The Committee approved the increased estimate of £6.666M plus £0.769M for contingencies for the Nimrod plant, as set out in paper NI/GP/60/19. They invited the AEA to consider with the Treasury whether the amount estimated for contingencies should be approved at this stage.

5. Development of the main Vacuum Chamber

The Chairman said that paper 60/20 set out in some detail the reasons for the large increase in the cost of the development of the vacuum chamber. Dr. Pickavance outlined the process which had been developed, emphasising that this was a new problem with a new material never before used (at any rate in this country) on so large a scale or in a high vacuum vessel. The heavy radiation also imposed very difficult problems. Mr. Bowles said that the first octant was about to be started, and should be finished by the end of June.

Questioned about the contractor's performance, Dr. Pickavance said that the Project Group were well aware of the dangers of work on a costed basis, but were well satisfied with the contractor's keenness and with his work. A good deal of technical help from the Project Group was necessary, but co-operation was good, regular close contact being maintained on the technical side as well as on the progress and costing sides.

The Committee considered the question whether to approve the extension of the development contract before receiving Treasury approval for the increased estimates. Mr. Bowles said that the contractor's charges would probably reach the present limit of the contract within two months. (If the contract were cancelled in two months time the negotiated final total would no doubt be greater than the present limit). The Committee expressed a preference for delaying amendment of the contract until the increased Treasury approval had been obtained, if this could be done without interfering with the work.

ACTION 2

The Committee approved the estimate of £398,000 for the revised limit of expenditure on the contract with Marston Excelsior, as detailed in para 7.2 of paper NI/GP/60/20. They decided however that the contract should not be amended to increase the limit of expenditure to £398,000 until either Treasury approval had been obtained for the increased estimates detailed in paper NI/GP/60/19 or financial approval had been specifically given by the AEA for this amendment.

6. Injector Liner

The Secretary said that the increase in the cost of the linac liner, reported in Appendix II of paper 60/19, had recently brought the total value of this contract with the London Aluminium Company to £26,123, i.e. over the Project Committee's limit of authority of £25,000.

It would be necessary to ask the Committee to authorise a further increase in the value of this contract at a future meeting. In the meantime, the Chairman had authorised the increase to £26,123.

ACTION 3 The Committee gave covering approval for the increase in value of the contract with the London Aluminium Company, to £26,123.

7. Proposed Helium Bubble Chamber

Dr. Pickavance reported that the Physics Committee had recommended a design study at Oxford of a proposed large helium bubble chamber at a cost of £33,000. The cost of the chamber itself, if subsequently approved, was roughly estimated at £400,000 and he thought that before the design study was started, the recommendation should go before the Board, in order to seek some assurance that such a project would be contemplated.

Subject to the Board's view of the possible major project, the case for the design study at a cost of £33,000 would be submitted to the Committee by correspondence. The Committee agreed with this course.

8. Multiple Correlation Recording Equipment

ACTION 4 The Committee approved the development of the equipment described in NI/GP/60/21 by Plessey Nucleonics Ltd., at a cost not exceeding £30,000 of which N.I.R.N.S. would pay not more than half. They instructed the Secretary to discuss further with the A.E.R.E. the proper basis of charge to the N.I.R.N.S., particularly in the circumstances that other groups of the A.E.A. might become interested, or that the design rights might become valuable.

9. Pulse Amplitude Analyser

ACTION 5 The Committee took note of paper NI/GP/60/22 and approved the placing of a contract with Messrs. E.M.I. for a type 1691A pulse amplitude analyser at a cost not exceeding £25,000.

10. Rutherford Laboratory Restaurant

The Committee considered paper NI/GP/60/23 and drawing SW/6609/470.21/AD/1 which was shown.

Dr. Pickavance said that the scheme had been approved in principle by the Board. The cost of the canteen per seat was £280 for architects'

and M & E work only, but £342 altogether, including furniture, fittings and fees. Corresponding figures reported to him for a new canteen at Winfrith, and the proposed new canteen at AERE were slightly more expensive, while those for a large new canteen at Windscale were slightly cheaper.

The question of space for a lounge was raised, and Dr. Pickavance said that a proposal would be made later for an adjacent lecture hall. This would include suitable space.

The Committee also considered that a licensed bar should be included.

ACTION 6

The Committee approved the scheme for a restaurant at the Rutherford Laboratory as described in paper NI/GP/60/23 at a total cost of £85,500.

11. Roads, Car Park and Fence

The Committee took note of paper NI/GP/60/24 but asked Dr. Pickavance and Mr. Bowles to re-investigate the cost of the roads and car parks and attempt to reduce it.

12. Extension to the Proton Linear Accelerator Buildings

The Committee took note of paper NI/GP/60/25 and confirmed their approval of the scheme for extension of the P.L.A. buildings at the amended estimate of £230,000 including fees.

J. A. V. Willis

13th May, 1960.