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NI/GP/61/3

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GENERAL PURPOSES COMMITTEE

Estimate for Nimrod with particular reference to the

Main Vacuum Chamber

1. In paper NI/GP/60/47 reference was made to the revised estimate for the vacuum chamber and the discussions which were in progress with Marston Excelsior Ltd., with a view to agreement on a fixed price. The paper mentioned that the increase in the vacuum chamber estimate would be more fully detailed at a subsequent meeting. Further discussions were held with Mr. A.E. Draks, Chief Finance Officer, U.K.A.E.A., and he recommended that the opportunity should be taken to review the estimate of the whole project.

2. The following table summarises the position:-

	Estimate Approved by Treasury on 19.7.60	Revised Estimate at 25.1.61	Contingency Approved by Treasury on 19.7.60	Increase over Approved Estimate
	£	£	£	£
Magnet	3,224,000	3,224,000	325,750	Nil
Injector	485,000	485,000	62,750	Nil
R.F. System	164,000	164,000	20,000	Nil
Vacuum System	1,249,000	1,942,000	243,000	693,000
Power Supplies	1,394,000	1,394,000	102,500	Nil
Control System	150,000	150,000	15,000	Nil
PLANT TOTAL	6,666,000	7,359,000	769,000	693,000
Building Works	1,888,000	1,848,000	} 179,000	Nil
M & E Services	701,000	741,000		
Fee	303,000	303,000		
Furniture	30,000	30,000		
BUILDING TOTAL	2,922,000	2,922,000	179,000	Nil
GRAND TOTAL	9,588,000	10,281,000	948,000	693,000

3. From the table in paragraph 2 it can be seen that the only increase in the estimate is in respect of the Vacuum System. This is as a result of the increased estimate of the cost of the vacuum chamber at Marston Excelsior Ltd.

4. The present stage is that a prototype outer vessel has been completed and is due to be vacuum tested shortly. As anticipated, the dimensions and standard of finish of this prototype precludes its use in the machine, but the vessel has been of great value in settling production processes and will be used to prove whether or not vessels of this type are wholly satisfactory from a vacuum physics standpoint. Marston Excelsior Ltd., are now working on the first production outer vessel and the prototype inner vessel. The header vessel which is produced by techniques which differ from those employed for the outer and inner vessel in a number of ways, is still in the development phase. All major plant and tools at present envisaged have been ordered.

5. Since some problems remain to be solved the final cost of manufacture of the vacuum chamber at Marston Excelsior Ltd., cannot be reliably predicted. In the opinion of the Project Group the best estimate which could be made at present is £1,350,000 as reported in paper NI(GP)60/47. This is made up as follows:-

Development		£318,000
Tools		385,000
Manufacture of prototype		220,000
Production		427,000
		£ 1,350,000

6. The figure of £1,350,000 is an increase of £693,000 on the provision for the Marston Excelsior Contract in the present approved estimate and is the whole of the increase shown in the table in paragraph 2.

7. The contingency sum of £179,000 on the Building Estimate is considered to be sufficient to ensure that buildings are completed within the sum approved but it is not thought that there will be any appreciable saving.

8. The present commitment for items other than the main vacuum chamber against the plant contingency is £22,000. The balance of £747,000 is sufficient to cover the increase of £693,000 on the vacuum chamber, leaving a residue of £54,000 for all other items on the plant. This is considered by the Project Group to be wholly inadequate at this stage in the project.

9. It is felt that it would be wise to absorb only that portion of the contingency which was set aside specifically for the vacuum chamber. This sum was £158,000 which falls short of the amount needed to cover the increased estimate by £535,000.

10. The committee will be aware that negotiations have been in progress between U.K.A.E.A. Contracts Branch, the Project Group and Marston Excelsior Ltd., with a view to agreement on a detailed specification as the basis of the fixed price of £1,200,000 for the whole contract already put forward by Marston Excelsior Ltd. The discussion is now directed at evolving the specification which covers our requirements whilst having regard to the results which can be achieved in practice by the processes which have been found most satisfactory. It appears likely that agreement will be reached on the specification in the very near future.

11. Authority is now sought to negotiate a fixed price not exceeding £1.2M. for completion of the whole vacuum vessel contract with Marston Excelsior Ltd.

12. Authority is also sought for an approach to the Treasury for an increase of £505,000 in the Approved Estimate to cover a fixed price for the Marston contract of £1.2M. plus 10% allowance, viz: £120,000, for future modifications which may arise from the outstanding development work and possible remedial work on site after vacuum testing. (The fixed price plus 10% mentioned above is £30,000 below the Project Group's estimate of what the cost would be if the price was not fixed).

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