

Mr Bowler

17th July, 1959

NI(GP)(59) 23

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GENERAL PURPOSES COMMITTEE

An Alteration to the Magnet Power Supply Contract for Nimrod

Note by the Chairman

The NIMROD Project Committee have asked approval for the amendments to the magnet power supply contract which are detailed and explained in the attached paper PSPC/P49. Dr. Pickavance assures me that on technical grounds the proposed modifications in design should unquestionably be made. He also points out that the contractual proposals have been agreed between the head of the AERE contracts branch and Messrs. Brown-Boveri.

It is desired to make the amendment to the contract with the least possible delay, in order to get the fullest co-operation from the sub-contractors, Messrs. Bruce Peebles (who are in no way responsible for the change and delay) in making up for lost time.

I shall be grateful therefore if Members of the G.P.C. will let the Secretary know by July 22nd whether they approve the recommendations in paragraph 9 of the paper.

If there are no objections, I will approve the proposals on behalf of the Committee.

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For the attention of Members of the General Purposes Committee.
For the information of Members of the Governing Board.

14th July, 1959

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NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GENERAL PURPOSES COMMITTEE

THE MAGNET POWER SUPPLY FOR THE NIMROD PROJECT.

NOTE forwarded by the Chairman of the Project Committee

1. In March, 1958, a contract was placed with the British Brown-Boveri Co. Ltd., for the supply of Converter Plant for the Magnet Power Supply.
2. During the design stages, it has become apparent that it would be highly desirable to modify our original specification so that a platform could be introduced in the magnet current waveform, which would permit injection at constant field strength. This would increase the injection charge by a factor of the order of 10 with a corresponding increase in output.
3. Investigations into methods of satisfying this requirement revealed that modifications would be required to the design of the interphase reactors of the Brown-Boveri plant. About the same time, reports made available to us from American sources indicated that the Bevatron power supply had been designed with interphase transformers of too small a size, even though no "Injection Platform" was included in that design. In consequence, the Brown-Boveri equipment was not considered completely satisfactory and it was obvious that changes to the interphase reactor design were necessary, irrespective of whether or not the Injector Platform equipment is ordered.
4. Messrs. Brown-Boveri have estimated the cost of supplying the interphase reactors to meet the original specification and have also tendered the cost of including still larger interphase reactors and special control gear for providing the Injector Platform. These are as follows :-
 - 4.1 Modifications to interphase reactors to avoid difficulties encountered on the Bevatron .. £15,400
 - 4.2 Modifications to plant to avoid Bevatron difficulties and provide Injector Platform .. £43,400
5. The modifications required under 4.2 would automatically include those in 4.1; the two amounts, therefore, are not additive. Mr. P. Bowles, Deputy Chief Engineer, and Mr. Clarke, Head of Contracts Department, A.E.R.E., have discussed the matter with Messrs. Brown-Boveri and it is apparent that they are not entirely blameless and that the modifications could reduce their liabilities under the guarantee. It was suggested, therefore, that Messrs. Brown-Boveri make a 50% contribution to the cost of remedying that part of the equipment now considered unsatisfactory. Messrs. Brown-Boveri have accepted this and

said they would contribute this sum, irrespective of whether the Injector Platform modification is ordered or not.

6. A careful study has been made of the costs, including the estimates of Messrs. Bruce Peebles, Ltd., the suppliers of the interphase reactor and rectifier transformers; the increases are considered "fair and reasonable". In making the following recommendations, allowance has been made for the unusual duty of the plant, the relatively short time for tendering and the fact that some of the information on which the re-design is based was not generally available at the time of tendering.
7. As the manufacture of the reactors has been held up, pending the investigation, so as to avoid abortive costs, a decision is now extremely urgent as the reactors are to be embodied in the same tanks as the main rectifier transformers and these are becoming behind schedule.
8. There is no provision in estimates for these amounts but it is considered that a Power Supply, capable of producing the Injection Platform, will materially reduce the cost of the Series Choke for which an estimate of £200,000 was included. It is not proposed, therefore, to increase the overall estimate due to the above modifications and new requirements.
9. IT IS RECOMMENDED THAT :
 - (1) The Committee accept the proposal that Messrs. Brown-Boveri & Co. Ltd., and the Authority each bear half the increase of cost brought about by the under-designing of the interphase reactors in the initial scheme.
 - (2) The equipment required for an Injection Platform be ordered at a net cost of £35,700, which will also include modifications to avoid Bevatron difficulties.

P. BOWLES