

28th March, 1961

NI/GP/61/17

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GENERAL PURPOSES COMMITTEE

Report on the Nimrod Vacuum Chamber

1. At the last meeting of the General Purposes Committee a request was made for a report on the Vacuum Chamber at each subsequent meeting until the technical difficulties were overcome and the financial implications were fully appreciated.
2. In the period since the last meeting appreciable effort has been devoted to reaching agreement on the technical specification, and a fixed price contract of £1.2M has been accepted by the Director of Contracts. This fixed price contract has a "break clause" to the advantage of the U.K.A.E.A. if work has to be stopped, and an exchange of minutes states that the Director of Contracts will consider sympathetically claims which may arise due to significant changes in the manufacturing processes being required, or undue expenditure being incurred on measures to prevent health hazards. Notwithstanding the two riders to the contract, it is considered that the fixed price will have a good disciplinary effect upon both parties, and is to the advantage of the job.
3. In an effort to obtain the very best delivery commensurate with a satisfactory job, Mr. Ratcliffe, Managing Director, and Mr. Cowley, Works Manager of Marston Excelsior were invited to the Rutherford Laboratory for a frank discussion and the serious state caused by the late delivery of the Vacuum Chamber was emphasised once again. As a result of that meeting certain organisational changes were agreed and in addition to the increased technical effort which would be supplied by Marston Excelsior both senior and supporting staff from the Rutherford Laboratory would also spend a considerable proportion of their time at the Wolverhampton Works.
4. The manufacture of all three sections of the Chamber is proceeding, all the significant tools having been delivered. Extreme difficulties, however, are being experienced in applying laboratory and pilot plant techniques consistently well on the full scale plant. It is to this manufacturing technology that effort is now being applied. The difficulties are of producing dimensionally correct sections to very accurate limits, using a material about which insufficient knowledge existed at the design stage. Only one section of the outer chamber has been manufactured so far and it is too early to say whether the difficulties are beyond the limits of the art of fabrication, without involving a considerable amount of rejected material.
5. From discussions held with Marston Excelsior it is obvious that they cannot meet their original or even required delivery dates, and this will have some impact upon the construction programmes and completion date. A report analysing the situation will be prepared for the NIMROD Project Committee and will be circulated if approved to all interested parties.
6. On the basis of present knowledge the delivery dates in Appendix I have been put forward by Marston Excelsior. These dates are behind the present programme by the amount shown and in the opinion of the writer more effort will be required from both parties to achieve the quickest delivery. This effort will be required in three directions.
 - (i) Technical effort to develop manufacturing techniques and to ensure that the process is understood in detail and capable of repetition.

- (ii) Increased supervisory effort for quality control and inspection to minimise reject components.
 - (iii) Increased effort on the development and testing of repair schemes to ensure the adequate salvaging of slightly defective parts.
7. Discussions are held weekly with Marston Excelsior at very senior level to ensure they appreciate, as we do, the complexity of the problem. It is the intention that these discussions will continue, and that the appropriate Rutherford Laboratory staff will stay at Wolverhampton until the technical and manufacturing problems are resolved.

P. Bowles

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Harwell.

Circulation: to Members of the G.P.C.
to Members of the Governing Board for information

DELIVERY DATES FOR THE NIMROD VACUUM CHAMBER

	<u>Required date to meet the present construction programme</u>	<u>Optimistic date</u>	<u>Probable date</u>	<u>Pessimistic date</u>
<u>Outer Sections</u>				
No. 1	2. 1.61.	1. 4.61.	15. 4.61.	1. 5.61.
2	25. 1.61.	1. 5.61.	21. 5.61.	24. 6.61.
3	26. 2.61.	1. 6.61.	1. 7.61.	5. 8.61.
4	26. 3.61.	1. 7.61.	1. 8.61.	24. 9.61.
5	23. 4.61.	29. 7.61.	10. 9.61.	11.11.61.
6	21. 5.61.	12. 8.61.	7.10.61.	1. 1.62.
7	18. 6.61.	8. 9.61.	18.11.61.	17. 2.62.
8	16. 7.61.	1.10.61.	9.12.61.	7. 4.62.
<u>Inner Sections</u>				
No. 1	9. 4.61.	1. 9.61.	12. 9.61.	23. 9.61.
2	7. 5.61.	28. 9.61.	12.10.61.	28.10.61.
3	4. 6.61.	22.10.61.	28.11.61.	23.12.61.
4	5. 7.61.	15.11.61.	1. 1.62.	17. 2.62.
5	30. 7.61.	9.12.61.	14. 2.62.	21. 4.62.
6	27. 8.61.	3. 1.62.	28. 3.62.	19. 6.62.
7	24. 9.61.	28. 1.62.	2. 5.62.	4. 8.62.
8	19.10.61.	20. 2.62.	6. 6.62.	29. 9.62.
<u>Header Sections</u>				
No. 1	4. 6.61.	22. 7.61.	12. 8.61.	1. 9.61.
2	9. 7.61.	16. 9.61.	14.10.61.	18.11.61.
3	13. 8.61.	28.10.61.	16.12.61.	27. 1.62.
4	29.10.61.	9.12.61.	27. 1.62.	10. 3.62.
5	3.12.61.	27. 1.62.	24. 3.62.	12. 5.62.
6	1. 1.62.	17. 2.62.	21. 4.62.	16. 6.62.
7	11. 2.62.	24. 3.62.	26. 5.62.	21. 7.62.
8	18. 3.62.	28. 4.62.	30. 6.62.	25. 8.62.