

COMMITTEE OF  
PUBLIC ACCOUNTS

Thirty-fourth Report

**MINISTRY OF DEFENCE: NUCLEAR  
RESEARCH AND SUPPORT SERVICES**

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# THIRTY-FOURTH REPORT

The Committee of Public Accounts has agreed to the following Report:

## MINISTRY OF DEFENCE: NUCLEAR RESEARCH AND SUPPORT SERVICES

### INTRODUCTION AND SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

1. The Ministry of Defence Atomic Weapons Establishment (AWE) at Aldermaston, Burghfield, Cardiff and Foulness provides the national nuclear warhead capability from research through to development and production. Nuclear warhead research carried out by the AWE is of critical importance to existing and future weapons such as the £9 billion Trident programme.
2. On the basis of a Confidential Memorandum by the Comptroller and Auditor General we took evidence from the Ministry of Defence (the Department) on the planning and management of nuclear warhead research and the AWE Aldermaston's Support Services, including progress with the Trident-related capital works programme. The Committee also took the opportunity to examine the contractorisation of the AWE and the progress made towards it by the Department since the Comptroller and Auditor General's Memorandum. The Committee's main concern when taking evidence was with the implications of the contractorisation of AWE. This Report focuses attention on the conditions for a successful contractorisation, and makes recommendations which will provide a base for future examination.
3. An Executive summary of the Comptroller and Auditor General's Findings and Conclusions is attached to this Report as an Appendix. The main Memorandum will not be published.

4. Our main conclusions and recommendations, are as follows:

#### *On the Planning and Management of Nuclear Warhead Research*

- (i) We recognise that the specialist nature of nuclear research, the security aspects and the small number of highly qualified scientists capable of doing this work make nuclear research a difficult area to plan and control (paragraph 11).
- (ii) We question the Department's decision in the past not to establish a strong capacity within the Department to probe and challenge research plans, costs and achievements of the AWE. In our view, it is important that the Department should be able to operate as an informed customer, able to ensure that requirements are met in an efficient way and that unnecessary work is not undertaken. This will be even more important when the AWE is fully contractorised (paragraph 11).
- (iii) We are surprised and disappointed that weaknesses in management information systems at the AWE have persisted for so many years. We recommend that high priority is given to establishing adequate management information systems before the move to full contractorisation takes place (paragraph 12).
- (iv) We conclude that the exceptional difficulties of planning and managing nuclear warhead research, coupled with procedural weaknesses and an absence of strong customer control, must have presented particularly serious challenges for the Department in ensuring that expenditure at the AWE has represented value for money. Contractorisation offers a new way forward, and we shall examine in the future how well the new arrangements improve the value for money achieved (paragraph 13).

*On Support Services and Capital Works*

- (v) We are very concerned that fundamental management weaknesses and inefficiency exist, especially in the engineering workshops where the management of work has been exceptionally weak. The Department now consider that the way forward is to transfer responsibility to commercial managers who have experience in this field. We consider that the Department should have reacted much earlier to these problems which were revealed in 1985 (paragraph 21).
- (vi) We welcome the Department's assurance that safety at the AWE is of paramount importance. We expect them to keep safety under constant review to ensure that there are no avoidable risks to staff or people in the area (paragraph 22.)
- (vii) We note the improvements in the management of the Trident-related capital works programme and that, despite the delays in the commissioning of new production facilities, the Department are satisfied that the Trident warhead delivery programme is on schedule (paragraph 23).

*On Contractorisation of the AWE*

- (viii) We note the Department's view that contractorisation represents the way forward and that they expect substantial advantages to accrue if it is done properly. The major challenge will be to the contractor to undertake a difficult task and to secure success; for their part, the onus will be on the Department to specify the work, devise the form of contract and establish their own external oversight of the contractor's performance in ways that avoid excessive bureaucracy but provide adequate control and information (paragraph 26).
- (ix) The Department need to prepare a specification with measurable objectives and deliverable outputs against which performance can be assessed. We consider that the normal contractual arrangements for specifying and pricing work are likely to be difficult to operate for such outputs as basic nuclear research aimed at maintaining and improving the United Kingdom's nuclear capacity. Special control and monitoring arrangements may need to be introduced if value for money is to be ensured.
- (x) We expect the Department to ensure that the full contractorisation contract contains rights of access for the Department to the AWE sites, management grade staff employed by the contractor and the contractor's technical records. We consider the contract also needs to provide specifically for access by the Department's Director of Accountancy, Estimating and Pricing Services (paragraph 28).
- (xi) The Committee expect proper accountability to Parliament to be maintained for work which is contractorised. The Department should ensure that all necessary records are made available to them and that these are retained in the Department for examination by the Comptroller and Auditor General (paragraph 28).

## PLANNING AND MANAGEMENT OF NUCLEAR WARHEAD RESEARCH

5. The Department have established systems for setting the broad framework of the nuclear warhead programme, including research, and for identifying the activities and resources required to meet that programme. The end-users of the AWE's nuclear warhead programme are the Armed Services. However, the role of customer is fulfilled by the Chief Scientific Adviser, the Assistant Chief of Defence Staff (Policy and Nuclear) and, in the Procurement Executive, the Chief of Strategic Systems Executive and the Director of Air Armament.

- Qs 688-690 6. We asked the Department about their ability to define their requirements with some degree of precision and to plan nuclear research work efficiently. They explained the special problems involved in this difficult area. Customers found it difficult to define their requirements, particularly as regards maintaining up-to-date capabilities in nuclear weapons technology. The Department were making continuing efforts to ensure that the customer was well informed and able to make the necessary judgements, and some progress had been made. They accepted that they still needed to educate the customer to ask the right questions and to understand the answers given.
- Q 716
- Qs 688-690 7. However, the Department told us that there was a limited number of highly qualified scientists in the United Kingdom who were experts in this field, and most of them worked at AWE. To take them out of the AWE to reinforce the abilities of the customer to plan the work and allocate resources would reduce the staff available to undertake the work. The Department stressed that in their view the introduction of commercial oversight into running the AWE should make the achievement of value for money for the taxpayer more likely. But for this to work the customer needed to be better educated and to receive sound information in the right form.
- Qs 716, 718
- C&AG's Executive Summary, paras 6-12 8. Serious planning and management weaknesses have persisted at the AWE for many years. When measured against best practice for research management we noted that:
- there was no guidance or framework for the evaluation of research proposals;
  - there was little, if any, direct contact with external customers when drawing up research proposals;
  - the relationship of individual tasks to associated AWE work and their relevance to the overall nuclear programme have not been defined;
  - information made available to senior management was insufficient to enable them to evaluate whether the expenditure incurred represented value for money, nor did it provide a basis for decisions on whether to continue programmes of research;
  - there were inconsistencies in the content of task review reports, and individual tasks were reviewed in isolation with no attempt to consider the combined progress of related tasks;
  - reviews have generally not been undertaken to determine technical or managerial lessons learnt from completed research work or whether value for money has been secured; and
  - there was a number of weaknesses in resource estimating and manpower forecasting.
- Q 710 9. We asked the Department what action they were taking to improve the situation before passing over management responsibility to contractors. They told us that as regards production work they aimed to agree a price with the contractor for producing warheads or whatever their requirement was. As regards research work the Department planned to set up arrangements similar to those to be applied in non-nuclear research establishments under the new agency arrangements. They aimed to identify discrete research programmes which the contractor would hopefully be able to cost, thus enabling the Department to decide whether or not to proceed with the work. These costings would provide a means of paying the contractor on a performance basis.
- Q 697 10. The Department accepted that management information systems at the AWE left something to be desired. They told us that since 1984 they had



C&AG's  
Executive  
Summary  
para 13  
Q 694

Q 697

Q 694

been attempting to transfer these systems to a new computer. The delay had been partly due to a lack of programming resources and computer capacity. But it had also arisen because the AWE was staffed at the higher levels almost entirely by brilliant nuclear scientists who were not well-informed on management information systems and who would not regard this matter as their highest priority. The Department recognised that without an adequate management information system it was very difficult for them to determine what research work remained to be done and the relative priorities of future work. Accordingly, the Department had asked the contractor specifically to address the question of the weaknesses in management information under their management contract.

### *Conclusions*

11. We recognise that the specialist nature of nuclear research, the security aspects and the small number of highly qualified scientists capable of doing this work make nuclear research a difficult area to plan and control. But the requirement for performance assessment and control is as important here as in other activities, and throws into question the Department's decision in the past not to establish a strong capacity within the Department to probe and challenge the research plans, costs and achievements of the AWE. In our view, it is important that the Department should be able to operate as an informed customer, able to ensure that requirements are met in an efficient way and that unnecessary work is not undertaken. This will be even more important when the AWE is fully contractorised.

12. We consider that adequate management information systems are crucially important to enable the Department to exercise their role as customer and for the work of the AWE to be planned and managed effectively. We are surprised and disappointed that weaknesses in this relatively straightforward area have persisted at the AWE for so many years. We note the Department's assurance that this matter is one which the management contractor has been asked to address specifically. We recommend that high priority is given to establishing adequate management information systems before the move to full contractorisation takes place.

13. We conclude that the exceptional difficulties of planning and managing nuclear warhead research ought not to have been coupled with procedural weaknesses and an absence of strong customer control. This must have presented serious difficulties for the Department in ensuring that expenditure at the AWE has represented value for money. Contractorisation offers a new way forward, and we shall examine in the future how well the new arrangements improve the value for money achieved.

### SUPPORT SERVICES AND CAPITAL WORKS

#### *(i) Support Services*

C&AG's  
Executive  
Summary,  
paras 16-20

14. Recent reviews carried out at the AWE have identified longstanding problems in working practices, attitudes, motivation and management leading to inefficiency. Although proposals were made to implement recommendations arising from the reviews, action has been limited and proposed improvements in productivity have still to be negotiated with staff. The impact of low productivity was particularly apparent in the engineering workshops where facility rationalisation has progressed only slowly and where staff were not required to work to or meet target times. For example, a departmental review in 1985 established that only 60 per cent of work was completed to time and cost, and work was not given priority on the basis of urgency.

Qs 698-699

15. We questioned the Department on this matter since it seemed to us that the situation was out of control. They told us that such things as completing jobs in the workshops to time were not the main priority for research engineers or the people who had been running the AWE. The

Department recognised that the ethos of the AWE had been that work was fed into the workshops, target times were specified and then "if they happen, they happen and if they do not, they do not". They told us that this was one of the reasons why they had now decided to introduce commercial management at the AWE. Their aim was to ensure that the fundamental and basic disciplines that applied in any industrial organisation would be applied to the AWE as well.

*(ii) Safety, Decommissioning and Waste Disposal*

C&AG's  
Executive  
Summary,  
para 26

Qs 740-749

16. Safety and waste disposal are important aspects of the AWE's support services. In 1978 an extensive enquiry into the safety of the Establishment resulted in a major programme of safety improvements which will continue into the 1990s. We enquired as to the progress that had been made on safety improvements. The Department told us that some work had been delayed because of competing priorities but they had kept safety implications under close review. The great majority of the required improvements had either been completed or were under way.

C&AG's  
Executive  
Summary,  
paras 23-25

17. The decommissioning and waste management programme is very important in terms of maintaining and improving safety at the AWE. The replacement of capital facilities and other developments at the AWE has led to a build-up in decommissioning work which will increase significantly as the use of the old facilities ceases. The AWE has established a strategy and a programme extending to the year 2000 to deal with decommissioning tasks as they arise.

Qs 755-756

Q 760, Q 764

Q 731

18. The Committee were very concerned about the safety aspects at AWE and we asked for an assurance from the Department that all possible safeguards were being taken. The Department informed us that safety was of paramount importance at AWE and was more important than the research programme itself. They also informed us that the staff and those people living in the area had not been put at increased risk as a result of any delays that had occurred in replacing facilities. Proper maintenance and remedial work had been carried out to ensure that existing buildings could be used safely until the new facilities were ready.

*(iii) Capital Works*

C&AG's  
Executive  
Summary,  
para 27

19. There is an extensive capital works programme in progress at the AWE which is critical to safety and current production. This programme was previously subject to serious delays and cost increases. Since 1987 the Department have introduced measures to improve management and control of the programme, and costs have been contained within ministerially approved ceilings.

Qs 721-722

Q 740

Qs 742-745

Q 705, Q 723

20. We asked the Department why earlier delays had occurred, what progress had now been made and what the implications of these delays were for the Trident programme. They told us that, in their view, earlier delays had mainly arisen because the enormous civil engineering programme had been managed by nuclear scientists. The appointment of a management contractor had resulted in the capital works programme being much more efficiently run. Although there was still quite a lot of work to be done, the bulk of the replacement buildings had been completed. The Department expected that all work would be completed by 1993, about three or four years later than originally planned. As regards the impact of these delays on Trident warhead production the Department informed us that by extending the life of the original buildings they were ahead of the Trident warhead delivery programme.

*Conclusions*

21. We do not believe that managing support services should be anything like as difficult as planning and controlling nuclear research. We are

therefore very concerned that fundamental management weaknesses and inefficiency exist especially in the engineering workshops where the management of work has been exceptionally weak. The Department now consider that the way forward is to transfer responsibility to commercial managers who have experience in this field. Such an approach has clearly worked to good effect on the capital works programme which is now being run much more efficiently (paragraph 20). However, we consider that the Department should have reacted much earlier to the problems in the support services area. They might, for example, have considered the use of commercial managers in this particular area when low productivity was revealed in 1985.

22. We consider the decommissioning and waste management programmes to be particularly important in terms of maintaining and improving safety at the AWE. We welcome the Department's assurance that safety at the AWE is of paramount importance. We expect them to keep safety under constant review to ensure that there are no avoidable risks to staff or people living in the area.

23. We note the improvements in the management of the Trident-related capital works programme and that despite the delays in the commissioning of new production facilities the Department have been able to give us an assurance that the Trident warhead delivery programme is on schedule.

#### CONTRACTORISATION OF THE AWE

24. After the National Audit Office undertook their examination the Government announced, on 5 December 1989, its intention to move towards full contractorisation of the AWE. We asked the Department what progress had been made in appointing contractors. They told us that an interim management contract had been awarded on 1 October 1990 to Hunting BRAE Ltd, a consortium of Hunting Engineering, Brown and Root, Vickers and AEA Technology. They also told us that 20 senior managers (including a chief executive) were now in post, a new top level structure in place and further substantial organisational changes were to be implemented by the beginning of 1991. The contractor had been tasked with running the industrial side of the Establishment and introducing the sort of systems the Department required. He would also assist the Department to draw up the specification for full contractorisation of the whole Establishment, including research, which was planned to take place in October 1992.

25. The Department told us that they hoped that by introducing commercial managers who were used to managing a very large production facility as well as a complex research programme, they would be able to ensure that they got the best value for money from the AWE. They considered that the risks arising from such arrangements were fairly low. This was because they were not making huge changes in the people who were employed at the AWE; they were employing a relatively small number of managers. They told us that the reaction of the work force to the people appointed had been very positive.

#### Conclusions

26. The Committee note the Department's view that contractorisation represents the way forward and that substantial advantages can be expected to accrue if it is done properly. We expect the Department to draw upon lessons learnt from the contractorisation of the Royal Dockyards. However, we recognise that, given the nature of the work and the research component, the AWE contractorisation proposals represent a more difficult assignment. The major challenge will be to the contractor to undertake a difficult task and to secure success; for their part, the onus will be on the Department to specify the work, devise the form of contract and establish their own external oversight of the contractor's performance in ways that avoid excessive bureaucracy but provide adequate control and information.

C&AG's  
Executive  
Summary,  
para 29  
Qs 706-707

Q 736

Q 706

27. In particular, we consider that the Department need to prepare a specification with measurable objectives and deliverable outputs against which performance can be assessed. We consider that the normal contractual arrangements for specifying and pricing work are likely to be difficult to operate for such outputs as basic nuclear research aimed at maintaining and improving the United Kingdom's nuclear capacity. Special control and monitoring arrangements may need to be introduced if value for money is to be ensured.

28. Given the strategic importance of the AWE's work and the need for sensible monitoring in this sensitive area, we expect the Department to ensure that the full contractisation contract contains rights of access for the Department to the AWE sites, management grade staff employed by the contractor and the contractor's technical records. We consider that the contract also needs to provide specifically for access by the Department's Directorate of Accountancy, Estimating and Pricing Services. The Committee also expect proper accountability to Parliament to be maintained for work which is contractised. To this end the Department should ensure that all necessary records are made available to them and that these are retained in the Department for examination by the Comptroller and Auditor General.



# MINUTES OF EVIDENCE

TAKEN BEFORE THE PUBLIC ACCOUNTS COMMITTEE

WEDNESDAY 5 DECEMBER 1990

Members present:

Mr Robert Sheldon, in the Chair

Mr Graham Allen	Mr Richard Page
Mr Terry Davis	Sir Michael Shaw
Mr Michael Latham	Mr Tim Smith
Mr Robert Maclennan	Mr Alan Williams

MR J BOURN, CB, Comptroller and Auditor General, further examined.

MEMORANDUM SUBMITTED BY THE COMPTROLLER AND AUDITOR GENERAL ON  
MINISTRY OF DEFENCE: NUCLEAR RESEARCH & SUPPORT SERVICES.

## Examination of witnesses

SIR PETER LEVENE, KBE, Chief of Defence Procurement, Ministry of Defence, examined.

MR I THOMSON, Treasury Officer of Accounts, further examined.

## Chairman

688. Welcome to the Committee once again. I am starting off with the C&AG's report on nuclear research and support services. I am looking at paragraph 2.5 which suggests that you are not sure what it is you really need to maintain a nuclear technology base and you have no measurable objectives with which to link this. Can you tell me whether that represents a fair summary of the situation?

*(Sir Peter Levene)* There are problems inherent in the nuclear programme. We do have a very able group of very highly qualified scientists and engineers at AWE. They find some difficulty in stopping work on items which some people may regard as relatively low priority, because even doing that does result, so far as they are concerned, in a lost competence. As there is no other UK source of nuclear weapon expertise, if those people do not do it at that time it is lost totally and would be very difficult to regenerate in the future. That is on the supplier side of the equation. Equally, on the customer side of the equation, the customer finds it very difficult to define the threat perhaps 20 to 40 years ahead, so in a way he would like every element of the competence to be retained. Nevertheless one does have a situation where everybody's wish list is longer than our chequebook. We do try to have some list of priorities, we do rank them within our long-term costings and we do eventually agree these between the Establishment and the customer. We are dealing here with a very unusual area of operations and although we are trying very hard—and this is one of the reasons why we have now introduced a commercial contractor there to run this operation on more conventional commercial lines—one has to understand that it is a very peculiar operation.

689. I do understand that and I accept the point you are making but without the ability to define your requirements with some degree of precision it is going to be very difficult to measure achievement against objective and that is one of the tasks before this Committee.

*(Sir Peter Levene)* I agree. I would not like you to think that we cannot define our requirements at all: of course we can. When we have specific requirements in terms of designing new weapons, that is much easier: that approaches much more closely to the task that we put on other establishments or indeed on industry. If we are saying, which we effectively do to the establishment, "Look, we want you to be up-to-date with the very latest developments and the very latest know-how in nuclear weapon technology at all times", which is actually a good part of the reason why we maintain the Establishment, that, in such general terms, is difficult to define. We are trying to educate the customers more but there is a limited number of these experts in the country and we have most of them in the Establishment. Take them out of the Establishment and make them into customers then we have fewer people available in the Establishment. I accept your concern but it is not an easy topic to handle in the way we would most other cases.

690. Can we now look at paragraph 2.12? There is a number of aspects of this which tend to weaken the planning process. What action are you taking to improve the situation before the passing over of these responsibilities to contractors?

*(Sir Peter Levene)* What we are doing is to try to ensure that the customers are as well informed as they can be. In that way we can actually . . . If the customers are better informed—and it is after all

<sup>1</sup> An extract from this memorandum can be found at Appendix 1.

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SIR PETER LEVENE, KBE

[Continued

[Chairman Contd]

at the end of the day their money that is being spent—we can try to set these objectives, we can try to set up practices under which these tasks can be undertaken, which are more closely in line with the way in which we carry out research in our other establishments which we are now considerably more satisfied with. I do believe—and I am afraid this afternoon if you feel I am calling on the panacea of the contractor rather a lot, I make no excuse for doing that—that in introducing a commercial oversight into the running of this Establishment we are more likely to get what I know this Committee is so concerned with which is value for money for the taxpayer.

691. I must confess I found this very difficult to get to grips with. If we look at that first point in paragraph 2.12, "... the relationship of individual task objectives to associated AWE work and their relevance to the overall programme" not having been defined, the image I have in mind is research people just going their own way because they find an area that is rather interesting to them which is not necessarily very important to the final objective. It is that that worries me a little. It is something like the man in the white suit—I do not know whether you recall that film; I do not go to films much these days but that was a scientist who went along merrily producing his own tasks to please himself.

(Sir Peter Levene) I accept the question entirely. What happens is that in a non-nuclear research establishment we may well have people who would love to do some research work of their own into a topic which interests them greatly but which, whilst it may interest them, will not interest many other people and may not be of very great value to the defence programme. It is normally quite easy to isolate those, particularly because in the non-nuclear establishments, in the way which we are now going to run them, as an agency, they will no longer be funded to work, they will be given programmes and paid for them. Anything they are not paid for, by definition they will not be able to do because they will not have any money for it. To compare that now with the nuclear programme, what I am trying to explain is that it is very difficult with a nuclear programme to say, "We are not very interested in that particular package of research that somebody wants to do, so don't do it". They may well seek to prove, and may be right, that that is part of a seamless web and if you take that out, then you have a gap in the programme and you will not get to the next stage. How do we check that when we have all the national experts in nuclear weapons sitting down there, short of taking them out, short of educating our own customers even more fully in this? It is no good having perhaps a dozen people as customers who can look into this; you would need an enormous number. Some of this work—a great deal of this work as I am sure you will appreciate—is extremely complex and with the best will in the world of the person who actually knows and reckons he can convince

anybody of how essential his work is, it may be that we do not have too many people that he would actually be able to explain it to. It is a difficult problem. We have made some progress and we do have reviews of this work and we do try as much as possible to understand what is going on in order to try to ensure that only the work that is absolutely what we require is carried out there. I do not want you to think that we have no control over what happens and of course we have our own management there and have had for some time. They are a collection of very able individuals who are very dedicated to this work which is by its very nature not something that necessarily appeals to everybody. If I might just add at this point, as a complete novice in this area when I first came into the job, having been down there once or twice, I then made a visit to the United States. As you know, we have very close links with the American nuclear programme and they give us a considerable amount of help in this area. Visiting their centre at Los Alamos I asked the director there, "Look, very candidly, your programme is many times greater than ours. You are very helpful to us in providing so much information and we know that it is the wish of the American Government you should do so, but as far as you are concerned do you just think you are doing us a favour? Why do you need us? I know why we need you but do you really need us at all? What do you get out of this relationship?". He said something to me which was very interesting—in fact two things. Firstly he said that there are areas of nuclear weapons expertise which are held at Aldermaston where we have no equal and so they rely on us utterly in those areas and we have probably the finest scientists in the world in those particular discrete areas, which might be a small part of the programme but which they entirely rely on. He said that secondly, and equally important, because this is such a sensitive area and because the restrictions which surround it are so numerous, they need somebody else to talk to, to discuss their ideas with. As they cannot talk to anybody else in the world, they can only talk to our staff, so it is absolutely critical to them that they have somebody on the other side of the Atlantic who they can talk problems through with and against whom they can bounce ideas. To a certain extent one has to be sympathetic to what we are doing in so far as if we were trying to do all this on our own, we would require far more money than we presently spend. For example, you will find that the French do about five times as many nuclear tests as we do for a similar sized programme at the end of the day. So in so far as it is necessary to maintain our relationship on a satisfactory footing with the Americans, from a value for money point of view it is a good advertisement.

692. Nobody can question that managing this on our own would be a formidable task. Can I turn you now to paragraphs 3.10 to 3.12? The formal review of the research programme does not provide a basis for decision-making on the

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SIR PETER LEVENE, KBE

[Continued

**[Chairman Contd]**

continuation of programmes. The difficulty here is to let senior managers evaluate whether we are getting value for money. It says here that the Executive Responsibility Budget review, dealing with task reports, "... did not always include target dates, milestones and actual technical achievements compared with those planned. Furthermore, they did not generally state the continuing relevance of the tasks". Should this not be done as a matter of course?

(*Sir Peter Levene*) Yes, it certainly should and I am happy to say that we have made quite a number of improvements since 1988. We still only have a complete financial breakdown at the full year review point and not twice a year as we would like, but the full year material does provide us with rather more information than we have had in the past from which we can make value for money judgements. The situation is improving and with a contractor in place, once he has his feet under the table, we will see a continued improvement there.

693. And performance indicators, which we see in paragraph 3.11, "... only limited use of performance indicators".

(*Sir Peter Levene*) The same remarks really apply. We are trying to improve on this and the real judgement of value for money, the performance, the indication of the performance, has to be made against the objective of retaining a national capability to meet weapon programme requirements when they arise. It is a very difficult area to measure things against in the normal convention.

694. I understand the problems here, in fact I wrestled with it myself as to how one does control this. I thought that this report was a very balanced one, taking into account some of these problems. Can I turn you to paragraph 3.16? This seems an easier problem to deal with. We are talking about the difficulties in developing a comprehensive management information system, computer problems and database. I would have thought this would have been an easier one to handle.

(*Sir Peter Levene*) Indeed, I am sure at some stage today you will want to talk about the capital works programme that goes on there. When I first came into this post and found that we had considerable difficulties I found that one of the reasons was that we had some brilliant nuclear scientist trying to run a huge civil engineering programme. The same applies here. The Establishment is staffed at the higher levels almost entirely with brilliant nuclear scientists who are not the world's greatest experts on management information systems. If they found their computer for some very difficult mathematical computations on nuclear physics was not working they would regard this as of considerable consequence and make sure it was fixed immediately. If it did not provide them with all the information they required in terms of management information systems, then I am afraid they would not regard that as being of the highest priority.

This is something which we have asked to be specifically addressed under the management contract that goes in there and having a commercial organisation there they will know that you cannot just run the scientific side: you have to have a proper degree of management of it.

695. In view of the weaknesses in other areas, which we have discussed, and the difficulties there, one would have thought there would have been a greater concentration on getting results from this area which is essentially, as you accepted, readily understandable and should be more readily achievable.

(*Sir Peter Levene*) I agree.

696. Can we now turn to paragraph 3.26? We are talking here about the impact of manpower shortages. The department do not seem to have made a comprehensive assessment of the extent to which these manpower shortages have caused the delay or cancellation even of non-Trident research programmes. Why is this?

(*Sir Peter Levene*) We have to go back to your earlier question. This is virtually standing the problem on its head: which of those non-Trident programmes are essential, which can we afford? Certain priorities have been established and the Trident warhead programme clearly is a top priority, along with a number of other issues. If we had adequate funds to do everything that everybody wanted there and adequate funds therefore to employ as many people as we could possibly find to do all this work, then other work would have been done. One has to draw the line somewhere and it is not just funds, it is, as we know, and particularly in this Establishment, having adequate manpower and they have to be put on to the correct priorities.

697. I understand that. What I am really questioning is why there has been no assessment as to how far these other programmes have been delayed or cancelled. Although they are non-Trident it does not mean to say that they are not essential. There will be non-Trident programmes which are regarded as essential but we are not sure and you do not have the facilities to find out how much of these programmes is cancelled because of certain limited availability of manpower. It is the relationship between the manpower that is lacking and the carrying out of these tasks. Should there not be something connecting these two?

(*Sir Peter Levene*) Indeed there is. As you correctly pointed out, because the management information systems leave something to be desired, because the question of prioritisation of programmes also leaves something to be desired, when you find that you do not have your full complement of people, then clearly all the work cannot be done. To determine what has not been done and the relative priorities of what has not been done when you do not actually have that information available is of course very difficult.



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SIR PETER LEVENE, KBE

[Continued

## [Chairman Contd]

698. Let us go on to what I consider a very important matter but I may have misread it. I am going to leave it to you to convince me of that if it is in fact the case. I am referring to paragraphs 4.9 to 4.11. We are looking at weaknesses in workshop planning and control arrangements. The point that I really want to address myself to is in paragraph 4.11. It says that your own reviews have shown that operators do not work to target times. I find this very surprising. They take no notice of it. They say, "This task will be done in so many days" and they do not argue about it they just take no notice of it, as far as my reading of it is. Can you explain this one, "... operators do not work to target times"?

(Sir Peter Levene) I can only explain it by saying that that is the ethos of the Establishment; it has been the ethos of the Establishment that work is fed into the workshops and the target times appear but I fear that they are there and if they happen, they happen and if they do not, they do not. I have to say that this is one of the reasons why we have introduced new management there from outside to ensure that what are pretty fundamental and basic disciplines in any other industrial organisations would be applied here as well.

699. I find this surprising. It seems to be out of control. I see from paragraph 4.10 that, "Only 60 per cent of the work going through the main workshop was completed within the specified time and to cost". I have known factories where that would have been regarded as pretty good, so that does not worry me so much, but they do not seem to take note of it. In the factories I have seen where they have had very poor performance, they certainly enter into a dialogue and start arguing that this is a ridiculously short time and they must have longer, they do not ignore it. That is what worries me.

(Sir Peter Levene) It is not ignored, in fact I do know that the figures for the last year have actually improved somewhat. The subsequent year's figures show that we had actually 73 per cent completed to cost and 50 per cent fully completed to time. You can say that is a good figure or a bad figure but the fact that they have actually monitored what has happened since then shows that it is not ignored; it is measured. You may well ask then what happens about it when it is measured are attempts made to improve it: I am sure I can tell you that attempts are made to improve it. You have to understand that the driving force of this Establishment has been... Do not forget that the name of the Establishment has been changed; it was known as AWRE, the Atomic Weapons Research Establishment, and we decided to change it to AWE, the Atomic Weapons Establishment. That was not just fiddling around with the letters, that was a deliberate move because I fear that it had been regarded as a centre of excellence in nuclear weapons research and I hope you might agree that if it is regarded as a centre of excellence in nuclear weapons research, such things as completing jobs in the

workshops to time are not the main priority for the research engineers. You and I may feel they should be and I am sure we would, but this is not necessarily the first priority of the people who have been running the Establishment. This is why we have decided that the best method of changing the mentality was to get a different group of people there to have the responsibility.

700. I cannot help feeling that the target times tend to reflect what has happened rather than influence the course of events let alone control them.

(Sir Peter Levene) That is not entirely fair. They reflected what had happened up to the time they were measured and then an attempt was made to improve them and there has been some improvement.

701. Can we turn to something quite different now? Paragraph 4.25 tells us a national disposal site for radioactive waste will not be available until the year 2005. Are there going to be additional costs and risks because a site is not available? Can you tell us something about that?

(Sir Peter Levene) As is said, Nirex have yet to define the way that this is going to be handled in the future and until then we have to put in our own facilities which may have to be there for a long time, if no other means of disposal is made available to us, in which case perhaps the cost will not be entirely nugatory. If it becomes available more quickly then perhaps they would be. I am sure you would agree that this is not an area on which we can take chances. The waste material that is generated from the Establishment has to be contained in a safe manner.

702. Have you made an estimate of the additional costs and risks?

(Sir Peter Levene) When you say "additional", additional over what?

703. If you had made arrangements for proper disposal.

(Sir Peter Levene) Unfortunately there are no alternative arrangements and because of that we cannot really calculate what any additional costs would be unless and until such other arrangements are made available to us.

704. A national disposal site might be—

(Sir Peter Levene) Yes, but it does not exist.

705. Right; I will let you off that one. Paragraph 4.39. We see that extra staff are going to be required to extend the working of the old facilities and bring about the commissioning of new facilities because of delays on the Trident-related capital projects. Have you got the extra staff? Are you going to meet the warhead delivery dates? I notice that "... in the Department's view there is every prospect". "Every prospect" does not sound very definite, does it?

(Sir Peter Levene) I am happy to say that we have done rather better than that. We no longer



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**[Chairman Contd]**

have every prospect, we are now ahead of the programme. We are ahead of the programme without having obtained these extra people and I have to say that my own view on the necessity to have the extra people as set out here is not necessarily the same as the view of the Establishment. We are ahead of the programme already, marginally, agreed, but nevertheless there was a time not so long ago when people felt that we had the greatest difficulty and the programme would fall behind. We are ahead of the programme, we have not taken on extra people to do that and we are presently able to cope. I hope that this will in fact continue.

706. Let us hope that continues. My final question refers to paragraph 29. The contractors are going to be fully engaged in 1992. Can you tell us what progress has been made in bringing this about and what benefits and possibly risks arise from this?

(*Sir Peter Levene*) The tender for the contract was issued in April of this year. In June we received the bids and in September we let the contract to the winning bidder which is a company called Hunting Brae, which in fact is a consortium of Hunting Engineering, Brown and Root, Vickers and AEA Technology. We presently have 20 senior managers including a chief executive now in post, a new top level structure in place and substantial organisational changes will, we now believe, be fully implemented by the beginning of next year—in fact next month. The intention is to have the Establishment fully contractorised in October 1992. We believe, as I have indicated earlier this afternoon, that we have excellent research scientists at Aldermaston, the very best. They are very highly thought of, not just in this country but also in the United States. I do not believe that they are best suited to run what is not just a research programme but what is also a very large industrial facility. We hope that by the introduction of commercial management there by organisations who are used to the management of both areas, that is a production facility and complex research programmes, we will be able to ensure that we do get the best value for money from the Establishment. That is our intention. We are pleased with what the contractor has done so far, albeit he has only been there a very short time. We hope that he will achieve what we want.

707. Risks?

(*Sir Peter Levene*) The risks are fairly low. We are maintaining the research scientists who are there; they are still carrying on with their work. The management that are in there are there to manage the industrial side of the programme which is slightly ahead of programme. I do not claim for them any great credit for that because it was going in that direction anyway. We want to ensure that is kept up. I do not see any great risks because we are not making huge changes in the people who are employed there, we are talking about employing a relatively small number of

managers. I am happy to say that the reaction of the work force to the people who have gone in there has been very positive.

**Sir Michael Shaw**

708. We are, as so often when you meet us, in the position where quite dramatic changes are taking place in the way things are running. Therefore it is only fair to say that in the main we are laying the grounds for further reviews in the hope that very significant improvements will have been made. Arising out of this very big report are certain basic questions, indeed the more one questions the more questions arise. The one question that immediately comes to mind is: is the labour content of the operation constant or is it variable? There is a shortage of skilled labour shown in the document but does that arise because that is permanently there? Are they the same type of persons that cannot be got hold of or are the demands varying according to customer requirements?

(*Sir Peter Levene*) Perhaps I could start off by saying that when I first came into this job in 1985 I was told that we were many hundreds of people short in running the operation. Today we are employing almost the same number of people there and I am still told that we are many hundreds of people short. I do not think the mix has changed dramatically over that period. Clearly when we are building up from a situation where production was at a very low level because there was no large production programme to a situation where the Trident warhead programme is moving at full swing, where we need a substantial requirement for warheads, then at that stage, as that moves up, the requirement for what one may call labour rather than scientists will increase and then it will come down again. As a proportion of the total numbers who are in the Establishment that is still relatively low, although there is a very large number of support staff.

709. This leads on to the actual work and now we are going to get the consumer demand, so it is going to be the emphasis of all the work that is being done now. It would indicate that changes in the demand from the customer could well lead to changes in the job requirements or would that not be true?

(*Sir Peter Levene*) It is certainly true but, particularly in the nuclear programme, these changes are not sudden, they are signalled very well, many years in advance usually. One can plan for them fairly well ahead. When I came in in 1985 I was told there were hundreds of vacancies and this was looking forward to the Trident warhead programme which is just getting into production now. I hope we will not be in a situation where there are too many nasty surprises.

710. May we look at the new system as it evolves? Clearly AWE has a total sum at its disposal to spend in a year. Also it has certain

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[Continued

**[Sir Michael Shaw Contd]**

demands that are being put upon it. I would imagine those demands vary from year to year quite considerably and therefore there becomes a very great problem in matching the overall costs to the targets. This must be for the Government and AWE to argue out as to which has priority.

(*Sir Peter Levene*) Indeed and you have put your finger entirely on the problem. It is also a problem with the non-nuclear research establishments and the reason we have created an agency. It has always been, in my view, not the best way to run an establishment just to say to them, "Right, you are an establishment, you are employing 1,500 people. Here is X million pounds per year. Go off and do some of these things we want". What we are doing with the non-nuclear establishments is to say to them, "Right. This is a task that the customer requires, how much is it going to cost?". They then tell us and the customer, whoever he may be within the Ministry of Defence, will say, "Yes, I am prepared to spend that amount of money on it and will pay you for it as you do the job", or "No, I am not, it is too expensive, I cannot afford it". Effectively, I hope that within AWE we will get to an even better situation where we do not just give them a lump of money and say "That is how much it costs to run the Establishment". There will be discrete research programmes which the contractor who is now in there will hopefully be able to cost to us and then we will decide whether we want them done or not and pay him on a performance basis. Equally, in terms of the other side of the Establishment, the non-research side, the production side, we will get a cost from him for producing warheads or whatever it may be that we need and we will pay to have them done. That is the way we hope to move in the future.

711. The variations you have described must lead to chaos sometimes in the normal costing situation.

(*Sir Peter Levene*) I do not think they do because—and it is not my chosen way—up until now we have had a situation where the Establishment is funded every year. It is funded basically on the cost of running it, which includes the people employed there and the services and materials that go into it. From the funding, from the work that is carried out, will appear a certain output. In my view that is not the best way of running the Establishment but I am afraid that is how we have had to run it up until now. If you say that maybe everything does not get done, that is quite correct.

712. Getting most of the work done on a contractual basis, surely you do not deny yourselves the need to do a certain amount of research? There must still be a research department.

(*Sir Peter Levene*) It is by far the greatest part of the Establishment. When I talk about the contractor going in there, he is not just responsible for the output of warheads, he is responsible for the proper management of the research side of the

Establishment which in fact is the greater part of the Establishment. When I talked about priorities and the work that is being done there, yes, the Trident warhead programme has a very high priority, but also very high priority are such things as the maintenance in a safe condition of our existing stock of warheads and the assurance that the warheads that we do currently have in service can be used to make sure that any changes that are noticed are properly dealt with so that one can be sure that in handling what is such sensitive material, every care is taken to ensure that we are doing this with the latest knowledge that is available to us.

713. So far as overheads are concerned, they can be treated, costings-wise, in the normal way unless they are very much attached to the orders that come in for work to be undertaken. I take it there is nothing exceptional.

(*Sir Peter Levene*) They vary very little.

714. Capital works. Are a lot of them demanded by the special nature of certain contracts that come in or are they capital works by and large whose life can be estimated and can be amortised in the normal way?

(*Sir Peter Levene*) They are very long term.

715. So there is no problem there.

(*Sir Peter Levene*) No.

**Mr Maclennan**

716. I was interested in your reply to the Chairman's question about the man in the white suit and the difficulty of evaluating the assertions that are made by the scientists whose expertise is so great and so unique that it is almost impossible to judge it. I am not clear, however, how the development of the supplier/contractor relationship would touch on that or greatly assist. Presumably the contractor has no better information than you have.

(*Sir Peter Levene*) Two things will happen. Firstly, it is not just a question of the supplier being run by a contractor and then you wave a magic wand and everything is fine. We have to do a lot of work at the customer end as well to make the customer better educated to ask the right questions and understand the answers when he receives them. That is the other side of the story. By the same token, we do require that information to be presented to us by the contractor in such a format that we can make that type of evaluation; at the moment it does not appear in that way and that is why it is so difficult. You do need both sides of it to happen and up until now we have certainly been deficient in that area.

717. The relationship which you described with the American authorities was also interesting. They draw from our expertise. Do we draw from theirs?

(*Sir Peter Levene*) Yes, very much so. I would not like to guess the ratio but if somebody said to



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[Continued

[Mr Maclellan Contd]

me it was 10:1 in our favour I would say that might well be right.

because they are the costs of keeping this system operating.

718. Can we use that information to answer questions that might arise about whether particular research priorities or programmes were valid for our purposes?

(Sir Peter Levene) I am sure we can use it: whether we have used it . . . It would require a considerably better educated customer, which is what we are trying to achieve, to be able at times to question their American colleagues to say, "Look, this is what we have been told by the scientists. Do you think this is right? How would you evaluate it?". There is nothing to stop us using the information, certainly.

(Sir Peter Levene) Under the way it has been managed, what it takes to get the job done and what it needs to get the job done are one and the same thing because if you do not put in the costs that are needed the job will not be done. If you are asking whether, if one operated this under far more efficient conditions, you could do the job more cheaply, I am sure the answer to that is yes. That is again what we are trying to do.

721. Is it the sort of area where cash limits are meaningful?

(Sir Peter Levene) I tried that actually when I first came in. The then director, when the capital works programme was running massively over budget and when we found that we had an enormous civil engineering programme—which is what it is—being managed by a nuclear research scientist, which is not the way I would choose to do it, came to see me and I had heard about this very late on in the day and we were hundreds of millions over the budget. I said to him, "Right, that is it, you're not going to get any more money". He looked at me with a total lack of understanding. He was not being difficult, that was just not the way that he worked. He was running his programme and money was just a rather strange thing that was needed to run his programme. If he needed more money then he had more money. I am not saying that in a disparaging way; that was not his priority.

**Mr Williams**

719. The general impression one gets from reading the report is frankly of a managerial mess. Can I ask frankly how far we have really gone along with tolerating—I am not saying this would be a legitimate thing to do, I am just asking—managerial mess as part of the real cost of keeping the people we need at the Establishment because we cannot get the numbers we want anyhow?

(Sir Peter Levene) You have to work backwards from that. I believe that today we have an adequate number of people there. You can manage the Establishment in three ways. You can do it in the traditional way which has happened up until fairly recently, which is to have this very large and very expensive establishment managed by the scientists themselves who will ensure that all the work is done but whose priority, as I have explained, is not in management information and control of costs. One can criticise them for that but that is not what they are trained for. That is one way of doing it. The second way of doing it is to put in some able Civil Service administrators to try to sort it out, which is what we have been trying to do until now, with a modicum of success. The third way is to say that although this is a very special area of operations, it nevertheless is carrying out research work and carrying out production, which is the type of activity which is carried out in many commercial organisations. They cannot operate on a bottomless pocket because nobody has one, therefore it should be possible to get in some people with commercial experience to be able to run such an establishment on economic lines. The third course is the one that we have taken. We are talking about two or three months only. I believe that our judgement in choosing that as the right method for the future is correct, but time will tell.

722. You say you tried it when you started. How long were you able to persist with it or did it founder virtually at the first flotation?

(Sir Peter Levene) I realised at that stage, and I am talking now not so much about the running of the Establishment but about the control of the capital works programme, that the best thing to do was to take the control of the capital works programme away from the nuclear scientists and give it to somebody who could actually run a large civil engineering project, which is what we did. I am happy to say that for the last two years it has remained entirely within budget.

723. I switch temporarily to the Trident programme. What you said about it being ahead of time probably removes many of the questions one might otherwise have been inclined to ask. It is significant that 83 per cent of the shortages at the Establishment are actually within the Trident programme. What does that represent as a shortage of personnel in percentage terms? I think 200 is mentioned in the report. What percentage is the shortfall on the Trident programme?

(Sir Peter Levene) I have to say that I do not believe we have a shortfall on the Trident programme because the Trident programme is up to date.

720. In the context of this situation one can well understand the difficulties. How far has the budgeting of this therefore been a matter of what it takes to get the job done rather than what it needs to get the job done. In other words, you virtually have to take the costs that are imposed

724. That is what I am coming round to. The point is that if shortfalls are referred to, and you have indicated that in fact you are not just up to

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[Continued

[Mr Williams Contd]

date, you are ahead of time, and where I was going from there was, where therefore did the budgeting, or the assessment of manpower and quality of manpower need, go wrong? How was it so wrong?

(Sir Peter Levene) It was an over-estimate by the Establishment who are not particularly skilled at estimating what is required for a production programme. They had certain pressure put on them. We tried to select people to go in there who would assist in being able to run the production programme as efficiently as possible and I would certainly pay tribute to them in that they have done a very good job. They have gone from a situation which I know this Committee was aware of about a year ago when people were very worried that we would be able to produce the warheads at all because of the delays in the capital programme, to one where we are now up to the programme and marginally ahead of it. If you like they were being conservative in estimating what was needed and there was a certain degree of over-estimation, but I have always taken the view that we have adequate people there to meet our requirements.

725. In paragraph 4.26 it refers to the fact that there is still no guidance as to the acceptability for packaging of certain materials which are within its radioactive waste. Are there any safety problems arising from this lack of certainty as to appropriateness of storage and disposal?

(Sir Peter Levene) No. I am satisfied that the way in which we do store them—and the trouble is we cannot dispose of them, we can only store them—is safe. What happens is that we have to take a belt and braces approach and if eventually a system is developed which is more cost-effective you may well find that we have wasted money because we packaged them in a rather more expensive manner than will be necessary to guarantee the safety. However, we cannot take chances.

726. Does not all the evidence seem to suggest in fact that it is the other way as far as hazard is concerned when you look at the nuclear submarines and the way in which we are having to revise downwards what are acceptable dosages and so on? Is this continual increase in what are regarded as minimum safety standards causing problems in an establishment which has so much waste literally on its hands and does not know what to do with it?

(Sir Peter Levene) Clearly if the requirement increases, is made more complex and more demanding, then the cost of packaging waste in a safe manner will itself inevitably rise. I have to stress, which I am sure the Committee would want to know, that it is absolutely essential for us that the safety in this Establishment comes above anything else.

727. This may not be a relevant question at all. I am thinking of the changes that were referred to in the international situation and the fact that

warheads from central Europe are quite likely to have to be returned to the United Kingdom. Is it this Establishment that would have to provide the storage for them pending decommissioning?

(Sir Peter Levene) Certainly they would be responsible for decommissioning; yes.

728. Would the extra storage problem present a major addition to the work that they carry out in this respect?

(Sir Peter Levene) We are talking about two different things: the storage of warheads itself is not addressed here; we are talking about decommissioning of facilities and radioactive material, radioactive waste, which is generated from that decommissioning. What would happen if there were a large number of warheads surplus to requirements and hence a large amount of radioactive material which then became available would have to be addressed separately. That is a slightly different problem.

729. In our briefing there is reference to the fact that a safety programme of remedial and replacement work is being carried out based on an extensive survey in 1978. This seems rather a long time for that to have been in hand. How has it taken so long: 12 years?

(Sir Peter Levene) Which particular paragraph?

730. Paragraph 4.22 in the report.

(Sir Peter Levene) What is really being referred to there is this major capital works programme. What it really means is the building of completely new buildings and facilities and I can tell you that the total cost of that is in excess of £1 billion. You can understand that once the decision was made to go ahead with them and they were significantly over cost and delayed because of the way in which they were being managed, one is looking at a major programme which does take a long time.

731. Some of that work identified in 1978 would have been safety work for future provision, I assume, things that were expected to happen in future at the Establishment. But some of it would have been for problems—it says “remedial”—that were seen already to exist at that time. Since it is on such a massive scale, coming back to this high priority of safety, did it mean therefore that during the period during which these new facilities were being provided, the Establishment was having to act at what would be below desirable safety standards?

(Sir Peter Levene) No. To the best of my knowledge, what they were saying in those reports was, “Look, you are going to have a finite life on these buildings as we currently assess them and if you do not get some new facilities developed by 20 years’ time or whatever it may be, you will not be able to operate these any more because they will become unsafe. In fact we have not reached that stage and happily the existing buildings, because we have been continuing to use them, have had ongoing work done there and if one day somebody turned round and said the



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[Continued

**[Mr Williams Contd]**

building was unsafe we would immediately have to cease using it. It does not happen as quickly as that and in fact proper maintenance and remedial work and preventive work is carried out to ensure that the buildings can be used safely until the new facilities are ready.

**Mr Page**

732. When did the department make the decision to go down the contracting route to try to solve some of what according to this report are some appalling management problems?

(*Sir Peter Levene*) Just a year ago; that was when the decision was taken.

733. When did the National Audit Office start its examination?

(*Mr Bourn*) During 1989. We finished the work, paragraph 1.10 says in the spring of 1989 so we had been at work from the beginning of the year.

734. So there is a happy convergence of factors in the report by the NAO.

(*Sir Peter Levene*) Yes. You may call it a happy convergence but I can tell you precisely what caused this decision and that was the concern expressed over a year ago that the Trident programme itself might be falling behind schedule. Because of that very urgent consideration was given as to how to manage the Establishment in the best possible manner to ensure this would not happen. As a result of that it was decided to introduce a contractor into the Establishment.

735. The report, without contractorisation to rescue the day, does make appalling reading and you have agreed and accepted that. Could you say how many contractors were involved in tendering for the first part contracting, which has gone to Hunting Brae.

(*Sir Peter Levene*) There were three.

736. How was it possible, in view of the conditions that you have there, to draw up a specification that anybody could make a logical quote for, be able to put their hand somewhere near their heart so you would know you were getting value for money rather than having to cover themselves against so many unspecified eventualities?

(*Sir Peter Levene*) In exactly the same way as we did when we got in a contractor to run the capital facilities programme. You are quite right, you cannot say, "Look, here is this great amorphous place and we really are not too sure quite what is going on there so you come in as a contractor and sort it all out for us and tell us by the end of next week how much it is all going to cost". What we did with the contractorisation was what we did with the works programme which was to say we would do this in two stages. We will get in a contractor whose task in fact was limited to providing about 20 senior managers, including the chief executive, whose task is to go in there and to take over the running of the

Establishment, introduce the sort of systems we are looking for and then help in the drawing up of the specification which will come to the second stage which will be the bidding for somebody to take over the full contractorisation of the Establishment. It is interesting because one may think, actually any further competition is out of the window because you have somebody there, he has his feet under the table and he will win it. Interestingly enough that is not what happened with the capital facilities. We ran a competition and it was won by John Brown who carried out the first stage. They actually believed that they had the whole thing in their pocket then and when we ran the next competition the thing was a formality; they were very surprised when they did not win it. It can be done and we are doing it in two stages for exactly the reason you have outlined.

737. My last question is purely a matter of interest. We have this whole report which is stamped confidential. With respect, I think there are great chunks where I can see no reason at all for them being confidential. Do you think that the Establishment has in the past used confidentiality as a cover for their, let us hope, past works practices?

(*Sir Peter Levene*) May I say first that in fact if you look at the pages you will find there are certain sidelings of items which are confidential, which by definition means that the rest of it—and of course there are lots of things in there which are already in the public domain—is not.

738. With respect though, I have been led to believe that the department did ask for the whole thing to be classified as confidential.

(*Sir Peter Levene*) I think you will find—the NAO may correct me if I am wrong on this—that when it was first written there were great chunks of it put forward and they wanted to treat them in a different way. What I asked to be done was to mark up the security restrictions against certain paragraphs. If you then take those paragraphs out, the report will actually make very little sense. I do not know that the department actually asked for the whole thing to be confidential.

(*Mr Bourn*) The essential point Sir Peter makes is true: it is in order that the subject can be discussed as a whole. As he says, great parts of the report are not classified.

(*Sir Peter Levene*) When it comes to the record of this session this afternoon, there are certain answers which I have given you which are in fact classified higher than confidential; they are classified secret. When the draft has been completed then it will be annotated in that way.

739. The point of the question was that for the people who work in these various establishments, because they work under this general cover of secrecy this acts like an umbrella against any inspection and therefore—

(*Sir Peter Levene*) I must say I would not disagree with you.

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[Continued

**Mr Davis**

740. Chairman, I apologise for having missed some of your opening questions but I should like to ask Sir Peter a few questions about the safety aspects. Can I direct your attention to paragraph 4.32 of the memorandum? In that paragraph we are told that there was an inquiry into safety in 1978 and that that inquiry led to a programme of remedial and replacement work which will continue into the 1990s. Can you tell us first of all when that programme will be completed?

(*Sir Peter Levene*) The great majority of this work—and that comprises the new buildings we have put up, A90 and A91, the two largest of the buildings—is complete. A great deal of the equipment that is needed in those buildings has already been installed and in A90, what we call white commissioning, commissioning the plant that is in there before you introduce radioactive material, began in February of this year. In A91 and in A89—those are just building numbers—the white commissioning started recently because the buildings themselves were completed in October. The great bulk of those new buildings has been completed. There is still quite a lot of work to be done but the buildings themselves are up, most of the equipment is installed and we are getting well into the commissioning now.

741. I appreciate that the great bulk of the programme has been completed but that was not what I asked you. When will it all be completed?

(*Sir Peter Levene*) One cannot give a date for it all being completed because one keeps adding to it.

742. When will the programme, which was presumably determined following the inquiry in 1978, be completed?

(*Sir Peter Levene*) I would say by 1993.

743. When was it originally intended that that programme would be completed? I appreciate that there will have been other things added to the programme of safety work in the meantime, but looking at the original programme, established in 1978, when was that going to be completed?

(*Sir Peter Levene*) You asked when it should originally have been completed: I would say that it is about three or four years late.

744. So it should have been completed this year or last year.

(*Sir Peter Levene*) Yes.

745. What is it that has been delayed?

(*Sir Peter Levene*) The capital works themselves. There are two elements to this: there was a programme of remedial work, which was the work that had to be done in the existing buildings. That has been completed. The replacement work essentially was the erection of the new buildings and the new facilities and it is that latter item which has been delayed.

746. When was the remedial work completed?  
(*Sir Peter Levene*) As far as I know it was completed on time.

747. When was that?

(*Sir Peter Levene*) I cannot give you a precise date because there was a whole programme of work.

748. But the programme will have had certain items, will it not? I am only asking for the date when the last item was completed. Would you like to send us a note about that?

(*Sir Peter Levene*) Certainly.<sup>1</sup>

749. In the memorandum we have here it says that some work has been delayed because of competing priorities. What are those competing priorities?

(*Sir Peter Levene*) We have a finite number of people in the Establishment and clearly there are always items of work that come in where people will be removed from one job and put onto another job. Safety is of the highest priority but some of it will be in the requirement for putting up new buildings and new facilities, some of it will not be things that if you do not do it by tomorrow afternoon you will have a problem but, if you do not do them in the next three or four years you will have a problem. Work on those may have started and then people may have been taken away because it was found there was a problem somewhere else and they had to go to work on things that were more urgent in that way.

750. I asked what those were. I asked what the competing priorities were.

(*Sir Peter Levene*) I cannot tell you. You are talking about an establishment that employs some 5,000 people, covering an enormous area and there are tasks that occur every day.

751. Who would decide that some new issue took a higher priority than safety which is of the highest priority?

(*Sir Peter Levene*) I did not say that: I said that there may be other safety areas which were deemed to be more urgently requiring attention than the ones currently being worked on where there may well be a period of two or three years or even longer in which the work could be carried out. If something were found which had to be attended to more quickly, then labour could be diverted from the longer term programme on to the immediate requirement.

752. Am I understanding you correctly? When we talk about these competing priorities we mean competing priorities but still safety related issues.

(*Sir Peter Levene*) Yes.

<sup>1</sup> *Note by Witness:* Specific recommendations arising from the 1978 Pochin inquiry relating to remedial work to individual buildings were implemented by 1989. However, the situation is kept under review and further work is added to the programme as necessary.

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SIR PETER LEVENE, KBE

[Continued

[Mr Davis Contd]

753. So it is not a case of something taking priority over safety.

(Sir Peter Levene) No, it is not.

754. And although you are not sure what the competing priorities were you can give us that as a firm assurance.

(Sir Peter Levene) Yes, I can give you a general assurance but there is work going on in this enormous establishment every day.

755. Yes, this enormous establishment with a great programme of research work. But we are told, are we not, in the very first sentence of paragraph 4.31—and I assume that has been agreed with you—“Safety is of paramount importance”. If words mean anything it means that safety is more important than the research programme.

(Sir Peter Levene) Yes and indeed I said—

756. So I ask you for a specific and clear assurance that nothing has taken priority over safety although there may be changing priorities as far as safety is concerned.

(Sir Peter Levene) Yes, indeed and I said earlier that that was the first priority within the Establishment.

757. Can I ask you now then, given that there is some delay of about three to four years, for your assessment of the risks to which people living near Aldermaston are exposed?

(Sir Peter Levene) There is no increased risk. What has happened is that the life of the original buildings which are still in use because the new buildings are not ready, has had to be extended to ensure that they fulfil all the safety criteria. That will not be the most cost effective way of doing it because you look at programmes, as they did back in 1978 and say, “Look, by that period of time the best thing we can do would be to close these buildings down and put up new ones”. As the new ones were delayed, in order to ensure that no safety was impaired, extra work had to be done, remedial work, to keep the buildings in good and safe condition until such time as the new ones will be ready. There would be no additional hazard, neither to the people who live about there, nor, and more immediately, to the people who work there.

758. I understand you to be telling us that there is no increased risk as a result of the delay but that does not mean that people are not at risk, at risk to which they would not have been exposed if work had been done. It is not quite the same thing at all to say that there is no increased risk. There is a difference between saying you are not at a greater degree of risk but you are still at risk which you would not otherwise be. Am I explaining my point?

(Sir Peter Levene) But with respect, that assumes that the people who are living in the area were at risk previously and that that was what the report established. The report was far more

concerned with the safety of the people who were working in the Establishment and I do not think it implied that as the buildings were at that time there was any current risk to the people who lived thereabouts.

759. I am not suggesting that we want to be careless about the risks to people working there; of course not. Indeed they will also probably be the people who live nearby. Are you saying—I want to be very clear about what you are telling us—that there is no risk to people who live in the area around Aldermaston?

(Sir Peter Levene) Clearly the environment in the area has been assessed to be safe. If it were not safe and if something which caused it to be unsafe was happening in the Establishment then we would have to take action to stop it.

760. So your assessment—which is what I asked you for—is that people living in the area are not at risk as a result of any delay in the replacement work?

(Sir Peter Levene) Correct.

761. In the executive summary there is reference to safety in paragraph 26. We have been told by the Comptroller and Auditor General that the executive summary has been written in such a way that it can be published without revealing any classified information. I notice that in that paragraph there is no reference to delays as a result of competing priorities, but from what you have said am I right in thinking that you would not object to that phrase being included in the summary?

(Sir Peter Levene) If the total executive summary is unclassified then there is obviously no objection to any of it being published.

762. The reference to competing priorities is only in the classified document, it is not in the executive summary and I am asking you whether, in light of your answers, you would confirm that you would not have any objection to that reference to competing priorities being included in the executive summary.

(Sir Peter Levene) I cannot imagine any reason why not. Any matters of classification will have to be referred to the experts but I am sure that we could include it. I will make sure that we can find out for you.

763. Are you equally happy about the reassurances about the risks to the people living in the area being made public?

(Sir Peter Levene) It is not for me to make public; it is your report.

764. Obviously we would want to be very careful and I am simply asking you to confirm that you would not have any objection.

(Sir Peter Levene) I am quite satisfied that there has been no increased risk to people living in the area through any delays that have occurred through the delay in setting up these new buildings.



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SIR PETER LEVENE, KBE

[Continued

**Mr Latham**

765. There is just one thing which has puzzled me throughout the whole of this report which is that the Committee is obviously always very pleased to see you but this seems to me to be a classical example of where we ought to have an executive agency, I must say. You are Chief of Defence Procurement and responsible for procuring warheads from the Atomic Weapons Establishment. I would have thought, since many of the problems addressed in this report are specific management problems and you have so much else to do, that you would want to see this organisation as an executive agency with its own accounting officer who would report direct to this Committee. Is this being considered?

(*Sir Peter Levene*) In fact we have gone a stage further than that. As the intention is for the Establishment to be contractorised, it will in fact be much more than an executive agency, it will be an establishment which is commercially run with whom we will have contracts. The management, as you quite rightly point out, of those areas will be the responsibility of a commercial organisation.

766. I must confess I did not read the report to suggest that the whole of the thing would be contractorised; I read it to be that the management of it would be run by contractors, but I assumed the employees, in particular the scientists, would remain civil servants.

(*Sir Peter Levene*) No.

767. That is not right.

(*Sir Peter Levene*) No. This is what I was explaining. There are two stages: stage one is just to bring them management and that has already happened. Stage two, which in fact is the purpose of the AWE Bill which will be brought before Parliament in this session, is in order to carry out at AWE precisely what was done at the Royal Dockyards, which was for the whole place to become contractorised, in the American jargon GOCO, Government Owned Contractor Operated, when all of the employees of the establishments would become employees of the contractor.

768. When this procedure is completed, with the sanction of Parliament, who will be the Accounting Officer then? Will it still be you, the Chief of Defence Procurement, or how will

parliamentary responsibility, if any, be maintained?

(*Sir Peter Levene*) The only Accounting Officer element of this will be that the facilities themselves, the fabric, the buildings, the plant, will of course continue to belong to MOD, but the management of the operation will be a commercial operation.

769. Will there be any NAO access to it?

(*Sir Peter Levene*) There will be NAO access of course to the fabric of the Establishment but the running of the operation will be by commercial contractor. The NAO would not have access to that any more than they do to any of our other contractors.

(*Mr Bourn*) The situation will be essentially analogous to other procurement contracts. Leaving aside the ownership of facilities and expenditure on those, which will be handled in the way that Sir Peter has described and to which we shall be able to have access and be able to report to the Committee on, for the rest of it the Ministry of Defence will have a contract with the contractors. We shall look at the contract and we shall look at the performance against the contract and just as I produce reports and the Committee have discussions with the CDP about the production of a weapons system which is made by a contractor, so I will be reporting on how this contract goes and the Ministry of Defence's stewardship of it. Unless some change is made in the arrangements it will be the CDP who is the Accounting Officer for Vote 2 on which this money will come and it will be the CDP who will come before the Committee on this matter.

770. It must follow from that that you will not be reporting in future on all the structures which are designed in this report, for example Appendix 4, which is a chart showing what I take to be a specific task for one part. It is an example, is it not, rather than the whole of AWE? You will not be reporting on these in future because that would be an entirely management decision. The Chief of Defence Procurement as client will place a contract with the AWE contractors and it will be up to them to deliver it and what management they put in place to deliver it will be their business.

(*Mr Bourn*) That is right.

**Chairman:** Thank you for coming along to us today.



APPENDIX

EXECUTIVE SUMMARY OF THE NATIONAL AUDIT OFFICE'S  
FINDINGS AND CONCLUSIONS (PAC 14)<sup>1</sup>

1. The Procurement Executive of the Ministry of Defence (the Department) is responsible for nuclear weapons procurement for the United Kingdom Armed Services. The Department's Atomic Weapons Establishment (AWE) at Aldermaston, Burghfield, Cardiff and Foulness provide the national nuclear warhead capability from research through to development and production. Nuclear warhead research carried out by the AWE is of critical importance to existing and future weapons such as the £9 billion Trident programme.
2. The end-users of the AWE's nuclear warhead programme are the Armed Services. However, the role of customer is fulfilled by the Chief Scientific Adviser, the Assistant Chief of Defence Staff (Policy and Nuclear) and, in the Procurement Executive, the Chief of Strategic Systems Executive and the Director of Air Armament.
3. This Memorandum records the results of an examination by the National Audit Office of the Department's planning, management and control of nuclear warhead research and support services carried out by the AWE at Aldermaston. The National Audit Office examined:
  - (a) whether adequate systems and procedures exist for planning nuclear warhead research in order to achieve the aims and objectives of the United Kingdom nuclear defence policy (Part 2);
  - (b) whether adequate systems and procedures are in operation for controlling and monitoring the progress, cost and effectiveness of nuclear warhead research (Part 3); and
  - (c) whether the AWE Aldermaston support services are planned and controlled efficiently as a necessary part of nuclear warhead research, development and production (Part 4).The National Audit Office's main findings and conclusions are summarised below.

FINDINGS AND CONCLUSIONS

*Systems and procedures for planning*

4. Nuclear warhead research is planned as an integral part of the nuclear warhead programme and reflects the influence and value of the 1958 Mutual Defence Agreement with the United States (paragraph 2.2).
5. There is an established system for setting the broad framework of the AWE's nuclear warhead programme, including research, whilst the Executive Responsibility Budget system provides the basis for planning and managing the detailed research tasks. However, at the time of the National Audit Office's examination, the AWE had not established measurable prioritised objectives providing a link between the broad aims and the detailed research programme. Nor had they defined a minimum capability. The Department have recognised these deficiencies and are introducing improvements through the implementation of their New Management Strategy and further development of the AWE Annual Report and Annual Review process through which the AWE programme is agreed with the customer. These improvements should provide a defined programme which will identify performance indicators, measurable objectives, priorities and the minimum capability (paragraphs 2.3 to 2.6).
6. Broad proposals for research tasks are presented to the AWE's senior management through the six-monthly Executive Responsibility Budget review process. However, the National Audit Office found that, compared with the features of best practice of research management, the system had a number of weaknesses which reduced its effectiveness. In particular, there was no guidance or agreed framework for the evaluation of proposals; customers had little involvement; and resource estimates were not provided for items of work in the half-yearly task programme. Furthermore, the inter-relationship of individual tasks and their relevance to the overall programme were not defined. However, the Department informed the National Audit Office that the AWE's Annual Review format is developing in this direction (paragraphs 2.8 to 2.12).
7. The Department have recognised that the AWE's Annual Report has not in the past provided sufficient visibility of the programme of work to customers and that customers were insufficiently involved in determining research priorities. Accordingly, the Department have taken steps over the last four years progressively to improve the situation by involving customers in the Long-Term Costing process (which enables the Department to maintain a balance between their overall policy aims and the costed 10-year programme). Further developments to tighten the customer-supplier relationship will follow on the setting of research objectives by the Nuclear Research Policy Group (paragraphs 2.14 to 2.18, 3.4).

<sup>1</sup> This document is an extract from a confidential memorandum submitted by the C&AG to the Committee.

8. In accordance with the Department's normal Estimates process the AWE were required to propose savings measures to offset enhancements to the 1988-89 research programme. Although the AWE's customers have not generally disagreed with their judgement the AWE were not able to demonstrate that savings measures identified represented the customers' lowest priority work. The improvements referred to at 7 above are designed to remedy the problem (paragraphs 2.19-2.20).

9. Manpower requirements are determined as an integral part of the Executive Responsibility Budget and Long-Term Costings processes. But recruitment and retention problems have obliged the AWE to conduct several special reviews to determine achievable staff targets which would protect programme priorities. Furthermore, since the Department are required to produce forecasts which are as realistic as possible, task managers have based their manpower estimates, and hence their programmes of work, on the number and mix of staff which they expect to have available rather than those necessary to meet their objectives without recourse to overtime and other expedients. The Department do not consider zero-based budgeting to be cost effective (paragraphs 2.21 to 2.22).

*Systems for controlling and monitoring progress, cost and effectiveness*

10. Although research work is subject to extensive peer review through a network of largely unminuted meetings and committees, the progress of research work is formally assessed twice a year on the basis of task reports prepared by task managers. Of the two sample occasions examined by the National Audit Office, one showed full documentation but the other was only one-third complete, due to management effort having been diverted to another task. The Department informed the National Audit Office that, in view of the importance of these reports for monitoring and controlling the cost and progress of work this review documentation was normally produced in full (paragraphs 3.5 to 3.9).

11. The Executive Responsibility Budget task review reports did not enable senior management to evaluate whether expenditure to date represented value for money; nor did they provide a basis for decisions on whether to continue programmes of research. Also, there were inconsistencies in the content of task review reports, and individual tasks were reviewed in isolation with no attempt to consider the combined progress of related tasks (paragraphs 3.10 to 3.12).

12. The only tangible output from specific jobs within a task is often a technical report produced at the individual manager's discretion. Reviews had generally not been undertaken to determine technical or managerial lessons learnt from completed research work or whether value for money had been secured (paragraph 3.15).

13. Centrally provided management information was not always timely, accurate or complete. The AWE have recognised these deficiencies for several years and since 1984 have been attempting to transfer the management information system to a new computer. However, this has been delayed, initially through a lack of programming resources, and subsequently because of a lack of computer capacity. As a result, technical divisions have developed their own systems independently, and the AWE are endeavouring to make improvements to the system on the existing computer. Until a solution is provided the AWE will be unable to exploit the full potential of their Executive Responsibility Budget system as a management tool. The AWE recognise this situation and, following over three years of deliberations, propose shortly (subject to developments in introducing management contractors—paragraph 29) to let a feasibility study contract for setting the framework for the future development of information systems (paragraphs 3.16 to 3.18).

14. Staff recruitment and retention have been longstanding problems at the AWE primarily because of uncompetitive pay rates. To alleviate the situation the Department have resorted to overtime, the payment of Special Pay Addition and using contractors for support. However, overtime has been costly, poorly controlled and has become institutionalised, a situation which the AWE are in the process of addressing. The Special Pay Additions have been only partially effective and as at 1 September 1989 the manpower level at Aldermaston was almost 10 per cent below target (paragraphs 3.20 to 3.25).

15. The AWE have assessed the effects of manpower shortages only in relation to the requirement for the Trident programme which, as at 1 January 1989, accounted for most of the total vacancies (paragraph 3.26).

16. Long standing problems in working practices, attitudes, motivation and management, leading to inefficiency, have been identified by recent reviews carried out at the AWE. Although proposals have been made to implement recommendations arising from the reviews, action has been limited and improvements in productivity arrangements are still under negotiation with union representatives (paragraphs 3.27 to 3.33).

*Planning and control of the AWE Aldermaston support services*

17. The hourly cost of work undertaken by the Aldermaston main workshop was considerably higher than that charged by their commercial mechanical engineering contractors. This was mainly due to high overhead costs which the AWE attributed to the very high precision nature of the work undertaken in-house (paragraph 4.6).
18. In 1985 a Departmental review criticised the existence of a large number of small divisional workshops as not making the best use of available resources, and recommended that they all be incorporated within the fully planned activities of a central workshop. In response, the AWE decided in 1988 to develop the existing two satellites of the central workshop leading to a 50 per cent reduction in the number of divisional workshops by October 1990 (paragraphs 4.7 and 4.8).
19. The main workshop operates a computerised planning and progress system whereas all other engineering workshops operate different and independent manual planning systems. The AWE recognise that better use of available resources could be made by operating a fully integrated planning system (paragraphs 4.7, 4.9 and 4.11).
20. In the case of the main workshop the National Audit Office noted that: work was prioritised mainly on the basis of estimated duration time rather than urgency; budgeted time for work carried out accounted for only 52 per cent of the available workshop time; management information on costs was untimely; and only 60 per cent of the work was completed to time and cost. User division were also dissatisfied with the service provided by the workshop, their lack of control over this element of their budgets and the effect of late delivery on their research work. The AWE recognised the need for improvement in workshop planning and performance and were taking action at the time of audit fieldwork. The proposed action depends on the successful negotiation and implementation of a new AWE Industrial Performance Agreement (paragraphs 4.10 to 4.12).
21. Staff shortages have limited the amount of routine preventive site maintenance undertaken, and the extent of the resultant backlog of maintenance work has not been identified. The Department recognise that improvements in planning and control of site maintenance are required and that the use of overtime has provided poor value. Recommendations to improve the situation are dependent upon the proposed AWE Industrial Performance Agreement being successfully negotiated and implemented (paragraphs 4.14 and 4.15).
22. The computerised maintenance planning and control system for mechanical and electrical inspections was judged by the AWE, in 1982, to be incapable of satisfying future requirements and by 1988 was considered to be of diminished effectiveness. A full replacement system is being developed but will cover only the new capital facilities. A scaled-down version has been proposed for existing facilities, but has yet to be defined and agreed (paragraph 4.16).
23. Decommissioning of facilities is very important in terms of maintaining and improving safety. It is a hazardous phase of a facility's life and is a relatively new field in which experience is limited. Because of the replacement of capital facilities and other developments there has been a build-up of decommissioning work at Aldermaston. The AWE have established a strategy and a programme extending to the year 2000 to deal with this work. From that date onwards the AWE envisage being able to deal with decommissioning tasks as they arise (paragraphs 4.17, 4.18 and 4.21).
24. Manpower shortages have had an adverse effect on the decommissioning programme, and this will increase significantly as the new capital facilities come on stream. As a result, the AWE have decided to extend the use of contractors on a pilot scheme basis. No cost appraisal of this initiative has yet been undertaken (paragraphs 4.22 and 4.23).
25. At present, there is no national disposal route for radioactive waste. This is a matter outside the Department's control. As a result, untreated waste is stored at Aldermaston and until a national policy is provided a new storage facility will be required every two years. The national disposal route considerations include the standards for waste packaging, and until guidance is provided nationally the AWE have decided to put in abeyance plans for new waste treatment plants (paragraphs 4.24 to 4.28).
26. The nature of Aldermaston's work requires especially high security and safety arrangements. Both condition the working of the Establishment. In 1978 an extensive enquiry into the safety of the Establishment resulted in a major programme of improvements which will continue into the 1990s. Some of this work has been delayed but the AWE have kept the safety implications under close review (paragraphs 4.29 to 4.33).
27. An extensive capital programme is in progress at Aldermaston, the major element of which is critical to safety and current production. The 31st Report from the Committee of Public Accounts,



Session 1987-88 on the Control and Management of the Trident Programme identified serious delays and cost increases in the programme together with implications for the Trident warhead production. Since then measures to improve management and control of the capital programme have been introduced and costs have been contained within ministerially approved ceilings. The AWE management considered that additional manpower would be required for extending working of the old facilities and commissioning of the new and, unless this requirement could be satisfied, in their view the warhead programme could be affected. However, the department expects neither this nor technical problems with the new facilities to impact on the Trident warhead delivery programme (paragraphs 4.34 to 4.39).

#### GENERAL CONCLUSIONS

28. The nuclear research work undertaken by the AWE is vital to the achievement of the United Kingdom's defence policy. By its very nature, planning and controlling this work is an extremely challenging process as it is not always possible to provide a precise definition of requirements and evaluation of achievements.

29. Since the National Audit Office completed their examination the Government has announced its intention to contractorise the activities of the AWE in two stages. By late 1990 the Government will appoint a management contractor concentrating initially on manufacturing work and site support, with full contractorisation of the Establishment planned to take place during 1992. The Department place great priority on these developments. Sound systems and procedures for planning and controlling research work and support services will be important irrespective of the nature of the management regime. Indeed, both the National Audit Office and the Department take the view that the proposed introduction of commercial management arrangements underlines the importance of strengthening existing systems and procedures, especially those intended to enable the customers of the research programme to examine work proposals and to evaluate progress and results.

30. In developing and implementing the proposal to place the AWE under commercial management, the National Audit Office recommend that the Department pay particular attention to three key areas:

- (a) *Research Programme Definition and Manpower Forecasting:* Until the AWE have set prioritised and measurable objectives they will be unable to demonstrate fully their resource requirements or the value for money achieved. Nor will they be able to quantify the effect of any manpower shortages or demonstrate that the available resources are being applied to the highest priority work. The strengthening of the customer-supplier relationship to be brought about by the introduction of a management contractor will also be fundamental to improving the planning and forecasting processes.
- (b) *Management Information Systems:* The Executive Responsibility Budget system should provide a sound basis for managing the AWE research work. However, inconsistencies in approach, an absence of guidance and a lack of documentary evidence of considerations and decisions draw into question the effectiveness of this system as currently operated. Furthermore, this system cannot be fully exploited until the computerised system for providing central management information is improved.
- (c) *Manpower supply problems and the use of existing staff:* The problem of manpower recruitment and retention at the AWE is long standing and continues to impact on their ability to meet obligations in a timely way. Early solutions will need to be found by the new management contractor if the establishment is to meet future research, development and production requirements. However, the National Audit Office's findings show that it would be wrong to view the AWE staffing problems as a feature of manpower shortages alone. The examination identified important inefficiencies and management weaknesses, particularly in the support services area, which continue to result in poor utilisation of the available manpower resources. The achievement of efficiency improvements in those areas offers the prospect of reducing the present manpower shortfall.

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