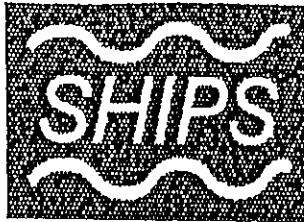


RFI 069 4A4



Audit of D154  
Pre Contract Award  
Evaluation (PCAЕ)  
1996

October 1996

Report By: (S. 40)  
[Redacted]  
[Redacted]  
[Redacted]

Allott & Lomax  
D.E.O  
Consultant

[Redacted]



**DG Ships/SSD  
Works Devonport Section**

**D154**

**AUDIT OF D154 PRE CONTRACT AWARD  
EVALUATION (Pcae) 1996**

October 1996



AUDIT OF D154  
PRE CONTRACT AWARD  
EVALUATION (PCAE) 1996

October 1996

(S.40)

Approved \_\_\_\_\_  
Professor \_\_\_\_\_ Allott & Lomax

Date 11/10/96

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D.E.O

Date 11/10/96

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\_\_\_\_\_  
Consultant

Date 11/10/96

**AUDIT OF D154 PRE CONTRACT AWARD EVALUTATION (PCAE) 1996**

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## EXECUTIVE SUMMARY

The PCAE audit has examined the Prime Contractor's Compliance with the recommendations of the April 1996 PCAE report. The audit has established that the Prime Contractor has in place an appropriate action plan and that progress is being measured against this plan, but a number of issues remain with respect to the Prime Contractor's response to the recommendations and intent of the April 1996 PCAE report relating to:

1. the appointment of a Project Manager
2. the management of Design and Safety
3. the management of Construction
4. the relationship between DML and RRA.

### Project Manager

The April 1996 PCAE report questioned the need for both a Project Director and Project Manager, and DML have proposed that the Prime Contract Director combines both roles. However, the role of the director has developed since the PCAE, in particular with respect to the alliance DML proposes to form with its principal sub-contractors, and in relationships with the regulators. It is considered that in the absence of a Project Manager the Prime Contract Director's role will become overloaded, and that this represents a serious risk to the ability of the Prime Contractor to deliver the project. It is recommended that a full time experienced Project Manager be appointed prior to the placement of the contract. This post is in addition to the Prime Contract Director, the Project Manager Design and Safety and the Construction Manager.

### Management of Design and Safety

In view of the significant risks associated with the management of the design and safety case, a high level of confidence in the performance of this team is required. The proposed organisation of the management of design and safety is satisfactory; design procedures are in place and most of the core team has been appointed, without undue reliance on agency staff. However, of the 3 senior manager posts reporting to the Project Manager Design and Safety, 2 have never been filled, whilst the third has been filled by 2 successive temporary appointments. Although individuals have now been nominated to these 3 positions, the ability of the team including its leadership is considered to be untried and unproven. The Company should be asked to

[REDACTED]

Immediately re-examine the composition and experience of the team and reassure the Project Sponsor of its adequacy. The performance of the key post holders should be reviewed 3 months after the placement of contract. The Project Sponsor is advised to ensure that this review is built into the contract conditions.

### Management of Construction

Little progress has been made since the April 1996 PCAE in the development of procedures and resources for the management of construction. The Prime Contractor has changed its strategy to the procurement and management of construction, but proposals are still being developed. Rapid progress in the development of procedures and resources is required and in particular the Prime Contractor's proposals with respect to CDM require urgent attention.

### Rolls-Royce and Associates Ltd

The April 1996 PCAE report required DML to demonstrate to MOD that their contractual arrangements with Rolls-Royce and Associates Ltd provide a sound working relationship and do not present an undue risk to the project. The absolute demonstration of this relationship is the achievement of a contract between DML and RRA. The company continues to be confident that a sound working relationship will be achieved, but there is no hard evidence of the progress the company is making towards this.

In general, the Prime Contractor has demonstrated adequate progress in the build-up of resources and the development of procedures. Currently, the above issues are considered to represent additional risk to the project. It is considered that the actions identified above should be taken prior to contract placement.

**1.0 INTRODUCTION**

**1.0.1 Pre Contract Award Evaluations (PCAEs) were undertaken for Project D154 during 1994 and April 1996. These evaluations examined the corporate and project management arrangements of Devonport Management Limited (DML) in order to establish their suitability to be the D154 Prime Contractor (PC). The reports concluded that considerable improvement was required before MOD could award a Prime Contract to DML.**

**1.0.2 Because of the limited development of certain resources, systems and procedures, and the developing situation between DML and RRA, it was recommended that a follow up to the April 1996 PCAE should take place prior to placing the Phase 2 Contract to confirm satisfactory progress in**

- a. the build-up in resources**
- b. the development of procedures, and**
- c. to confirm that DML has made an adequate response to the recommendations of the April 1996 PCAE report. In particular, the Key Recommendations of the April 1996 PCAE report were considered necessary to reduce the risk to the D154 project.**

**1.0.3 This report details an audit carried out to examine the Prime Contractor's compliance with the recommendations of the April 1996 PCAE report.**

**1.0.4 The audit was carried out by the Team Leaders of the April 1996 PCAE supported by the Project Sponsor's staff.**

**1.0.5 The audit was not required to access financial information on the Company. No reference is made to the financial stability of the Company in this report.**

[REDACTED]

## **2.0 TERMS OF REFERENCE**

### **2.1 Objectives**

2.1.1 This PCAE audit has two main objectives:

- a. Ensure that the intent of the April 1996 PCAE has been implemented,
- b. Provide evidence and advice to the Project Sponsor on the adequacy of the company's management arrangements to proceed with D154 Phase 2 contract placement.

### **2.2 Scope**

2.2.1 The PCAE audit will examine the Prime Contractor's compliance with the recommendations of the April 1996 PCAE report. DML should demonstrate that they have in place an appropriate action plan and progress is being measured against the same.

### **2.3 Review Topics**

2.3.1 The PCAE Audit will concentrate on the management areas examined during the April 1996 PCAE, ie:


- a. Corporate issues
- b. Interface Management
- c. Design Management
- d. Nuclear Safety Case Management
- e. Construction Management
- f. Acceptance/Commissioning Management
- g. Commercial/Contract.

### **2.4 Programme**

2.4.1 The audit is to commence on 30 September 1996 and complete on 4 October 1996.

2.4.2 An outline meetings schedule is enclosed at Annex B.



  
2.5 Report

2.5.1 It is intended that a final report to the Project Sponsor be issued on 11 October 1996.

[REDACTED]

### 3.0 AUDIT EVALUATION

#### 3.1 Corporate Issues

3.1.1 DML has created a Prime Contract Organisation (PCO) which changes the role of Brown & Root in the management of the project. DML has taken full ownership of the project, and the Brown & Root systems and procedures which are introduced, are to become DML company procedures.

3.1.2 The role of Balfour Beatty has changed since the April 1996 PCAE. The civil engineering construction will be subjected to competition. Balfour Beatty will provide construction management skills to the PCO.

3.1.3 The acceptance and commissioning role of the Trident Project Directorate has been brought within the PCO, creating a simpler and stronger interface with the operators.

3.1.4 DML is continuing to develop an Alliance with its principal sub-contractors.

3.1.5 The new Chief Executive took up his post in September 1996.

3.1.6 DML's organisation proposed at the time of the April 1996 PCAE and that presently proposed are given in Figures 1 and 2 respectively. The organisation proposed at the time of the April 1996 PCAE had an Operations Director in control of both the presently constituted Submarine and Trident Project Directorates. This would have provided a distinctly better interface at Director level between the Capital Works Directorate and both present and future submarine refitting requirements.

3.1.7 Despite these changes in DML's organisational structure, it remains consistent with creating the basis for an organisation capable of being able to deliver the D154 project successfully and to meet the requirements of the nuclear site licensing regulator.

3.1.8 The position of the Prime Contract Director has developed since the April 1996 PCAE was carried out. Much of his time will be involved in dealing with contractual matters relating to the Alliance between DML and the principal sub-contractors and more of his time may be needed in design and nuclear safety case considerations. It would appear that there is a serious risk that, without a project manager, his

[REDACTED]

position will become overloaded. A dedicated Project Manager to drive the work services is considered vital to the success of the project.

3.1.9 The company continues to be confident that a sound working relationship with RRA will be achieved, but there is no hard evidence of the progress the company are making towards this. However, the continued dialogue between DML and RRA is visible to the MOD, and the achievement of interim contracts gives some indication of progress.

3.1.10 The Company's safety policy statement still needs to be amended. The second paragraph weakens the overall thrust of the policy and it is recommended that it should be deleted.

## **3.2 Interface Management**

3.2.1 The Company structure does not now include an Operations Director. The responsibility for deconflicting the management of the submarine programme and construction programme is now vested in the Submarine Director and the Capital Works Director respectively within their programmes. In the event that action is required which exceeds their authority, procedures to refer to the Chief Executive for resolution are in place.

3.2.2 The introduction of a D154 Project User and Acceptance Group assigned to the Prime Contract Director and professionally accountable to the Trident Programme Director will improve the interface with the submarine refit organisation.

3.2.3 Change Control and Configuration Control procedures for Design Control have been developed but procedures relating to the construction change control and interfaces within DML are yet to be produced.

3.2.4 The Company has reviewed its philosophy for Quality Management. The majority of the procedures relating to this aspect are now understood to be in place. These include the mandatory auditing of subcontractors in accordance with DML procedures.

3.2.5 Risk Management Procedures are in place. Training of a certain number of staff has taken place but examination of the list provided indicates that very few staff at senior level

[REDACTED]

in the project have been trained to date. The effectiveness of risk management across the company will need to be demonstrated. Interproject risks that are allocated to D154 need clarification.

3.2.6 Significant progress has been made in the area of interface management and Quality Management since the last audit and the current level of progress is deemed to be adequate.

### 3.3 Nuclear Safety Management

3.3.1 A change in the project management arrangements now places all responsibility for the development, production and clearance of the nuclear safety case with the D154 Project Director. A principal requirement for the management of nuclear safety is that the plant operator is responsible for the safety of his plant and must have ownership of his safety case. This requirement is now being met by the Trident Project Director appointing a "User and Acceptance Group" (UAG) to work in the Prime Contract Directorate to provide expert operator advice to the Project Director and to undertake review and acceptance of the design and safety case on behalf of the operator. The UAG will also provide a similar function for testing and commissioning and, in due course, the group will become the operators of the plant. This arrangement is acceptable provided the Trident Project Director has a formal role in accepting the safety case on behalf of the Operating Directorate. It is understood that this is DML's intention.

3.3.2 The April 1996 PCAE drew attention to the importance of the Nuclear Safety Manager's position in overseeing the production of an acceptable safety case in time to meet the programme needs. This is particularly so in respect of the commercial risk to the project. The Nuclear Safety Manager in post at the time of the April 1996 PCAE has rejoined his parent company (BNFL) and has now been replaced temporarily by another BNFL manager, pending the appointment of a permanent manager. This is of concern at this stage. It is vital that the permanent manager performs well in this role and rapidly achieves a grip on the essentials of the safety case. The CV of the proposed manager suggests he is well qualified and experienced but a concern will remain until it is clear that the development and production of the safety case has not lost any momentum owing to the departure of the previous managers.

[REDACTED]

3.3.3 Arrangements have now been made for the Nuclear Safety Manager to have a right of direct access to both the Project Director and the Safety and Quality Director, and this will be defined in his job description.

3.3.4 In order to ensure that the Safety and Quality Director's influence is felt throughout the safety case development process it has been agreed that he will attend the Level 1 Project Safety Case meetings with the Regulators. This is welcomed but it is recommended that, to complete the process, a member of his Directorate should also attend the Level 2 meetings.

3.3.5 The build up of the Nuclear Safety Case staff has now progressed in that about 90% are in post and of that around 60% are supplied by DML and its principal sub-contractors. This appears to be satisfactory but the management of agency staff will remain a matter for careful consideration throughout the duration of the project.

#### **3.4 Design Management**

3.4.1 The development of Design Management continues to give cause for concern; staff for the key posts have been identified, but the key posts have not yet been filled.

3.4.2 The Design and Safety Case Management Team will have a key role in the successful delivery of the Project. It is of serious concern that none of the 3 principal managers reporting to the Project Manager Design and Safety are actually in post yet, although individuals have been nominated for these positions; thus it must be considered that this team is, at present, untried and untested. DML should provide a mechanism for assessing the performance of the design team and the progress of the design and safety case at the earliest opportunity.

3.4.3 DML and its subcontractors are generally managing to maintain recruitment requirements.

3.4.4 The Project Manager Design and Safety has the clear responsibility for the technical direction of the project. This pivotal role is vital to the success of the project.

[REDACTED]

### **3.5 Construction Management**

- 3.5.1 It is disappointing to note that no further progress has been made in developing procedures, construction management strategy and a clearly defined management structure. The job description of the Construction Manager needs to be updated to reflect the changed approach to construction management.
- 3.5.2 In the absence of fully developed construction management proposals, our current level of confidence in the Company's construction management is low. Concerns regarding the management of new and untried organisation, with risk-sharing alliances with major sub-contractors remain.
- 3.5.3 Better progress has been made in the area of QA accreditation and Quality Management. Major sub-contractors will be audited by DML in accordance with the company procedures with the proviso that the sub-contractors will audit their sub-contractors. The audit arrangements and proposals are deemed to be of a minimum acceptable standard.
- 3.5.4 The role of the planning supervisor during the life of the project lacks clarity and requires immediate attention. The Planning Supervisor is required to be identified by name and to be approved by the Client. A pro-active role needs to be taken by the Planning Supervisor. The H&S file needs to be started immediately. H&S files need to be treated as a 'Live Document' and regularly updated during the life of the project.
- 3.5.5 The Project Safety Advisor should be part of the DML organisation, with knowledge of the wider nuclear safety infrastructure.

### **3.6 Acceptance and Commissioning Management**

- 3.6.1 The UAG play a key role in acceptance and commissioning management on behalf of TPD. Acceptance that the plant has been set to work appropriately on behalf of the Project Directorate and TPD will be by this group. It will have responsibility for the execution and acceptance of commissioning tests. As before, as in the Nuclear Safety Case management arrangements, this is consistent with good nuclear safety management practice.

[REDACTED]

3.6.2 The committee structure and procedures for the consideration of acceptance and commissioning arrangements and execution has been identified and is acceptable. The principal committee for this work is the Site Test Authorisation Group (STAG) which, at the commissioning stage, will be chaired by the head of the UAG. In line with good practice it has been agreed that a representative of the Quality and Safety Directorate will sit on the STAG.

3.6.3 The nuclear site licence procedures to meet the requirements of the new nuclear site licence are in place and have been audited. These will become formal requirements when the new licence is issued by the Health and Safety Executive.

3.6.4 Preliminary resource profiles and demands have been developed and the Project and TPD are aware of the training needs which will be required. At this early stage, some years before the demands arise, the situation is satisfactory subject to the understanding that the importance of delivery of these requirements will increase substantially with time.

### **3.7 Commercial and Contract Management**

3.7.1 The Company has made good progress in the development of documented procedures for cost control and commercial management, although a number of important procedures have yet to be prepared. These include:

- a. Administration of the D154 project
- b. Reviews of the Commercial Aspects of Project Performance.
- c. Management of the Commercial Department
- d. Administration of the Alliance Agreement
- e. Review of the Commercial performance of the Alliance.
- f. Management of subcontractors.

[REDACTED]

3.7.2 An effective management information system has been implemented and demonstrated to MOD. A further upgrade of this system is being planned to facilitate information flow within the Alliance.

3.7.3 The Commercial Department and Project Services Department are currently resourced to plan. The majority of staff are supplied by DML, B&R and BB.

3.7.4 A tender rating system has been introduced.

3.7.5 Cost control procedures are in place, and the interface between the Commercial Manager and the rest of the team has been clarified and streamlined.

3.7.6 The relationship between DML and its various subcontractors is being developed but procedures have not been completed. DML's ability to manage the subcontractors, particularly RRA, needs to be demonstrated to MOD.



[REDACTED]

#### **4.0 RECOMMENDATIONS**

#### **4.1 Key Recommendations**

4.1.1 DML should appoint a full time experienced Project Manager prior to the placement of the Contract.

4.1.2 DML should re-examine immediately the composition and experience of the Design and Safety Management Team.

4.1.3 The performance of the key post holders in the Design and Management Team should be reviewed 3 months after the placement of the Contract.

4.1.4 Rapid progress in the development of procedures and resources for construction management is required and, in particular, the Prime Contractor's proposals with respect to CDM require urgent attention.

#### **4.2 Other Recommendations**

4.2.1 DML's safety policy statement should be further amended.

4.2.2 The Nuclear Safety Manager should receive formal training in risk management.

4.2.3 DML should confirm which interproject risks have been allocated to D154.

4.2.4 A formal arrangement should be made for the Trident Project Director to accept the safety case on behalf of the Operations Department.

4.2.5 A representative of SQD should attend the Project Safety Case Level 2 meetings with the Regulators.

4.2.6 The Project Safety Advisor should be part of the DML organisation with knowledge of the wider nuclear safety infrastructure.

4.2.7 DML should develop a stakeholder management plan.

4.2.8 DML should make QA audit reports available to the Project Sponsor.

**FIGURES**

1. Proposed DML organisation at April 1996 PCAE.
2. DML organisation at September 1996.
3. D154 Roles and Responsibilities.

PROPOSED DML ORGANISATION  
AT APRIL 1996 PCAE  
(S.40)

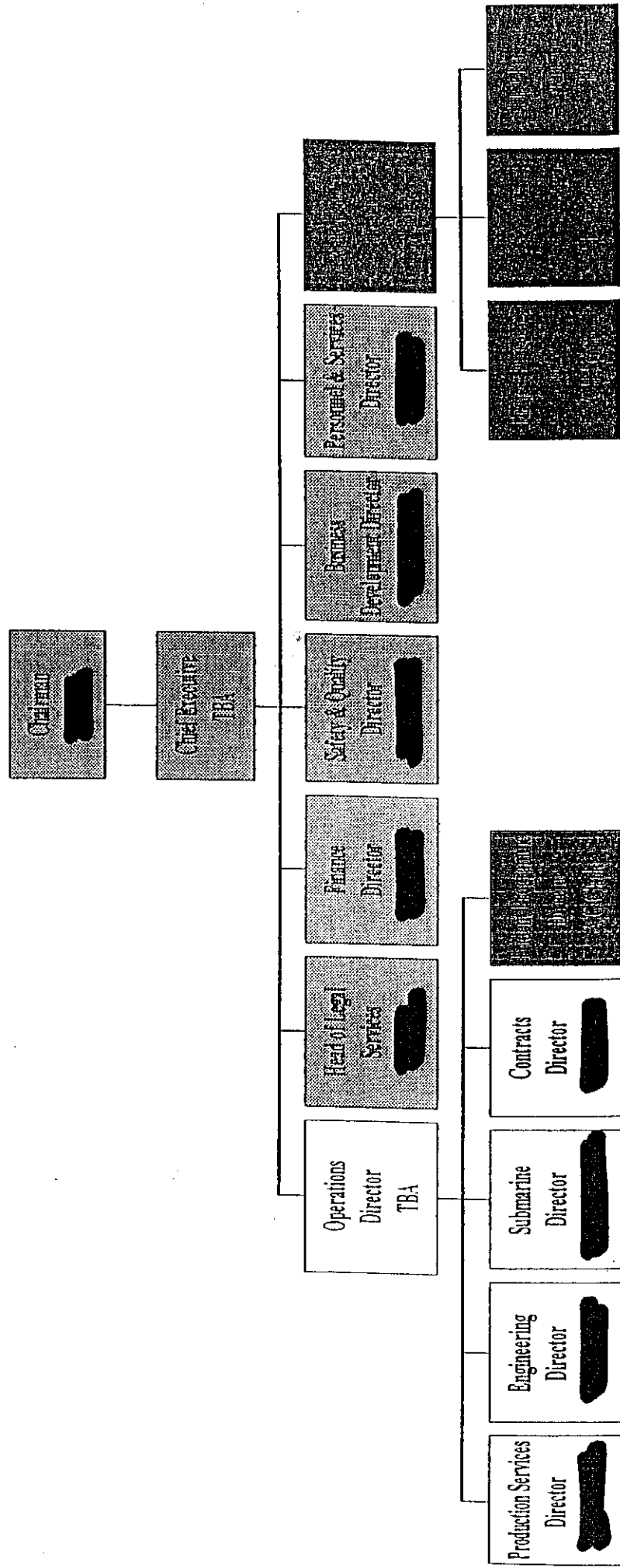


FIGURE 1

# DML ORGANISATION AT SEPTEMBER 1996

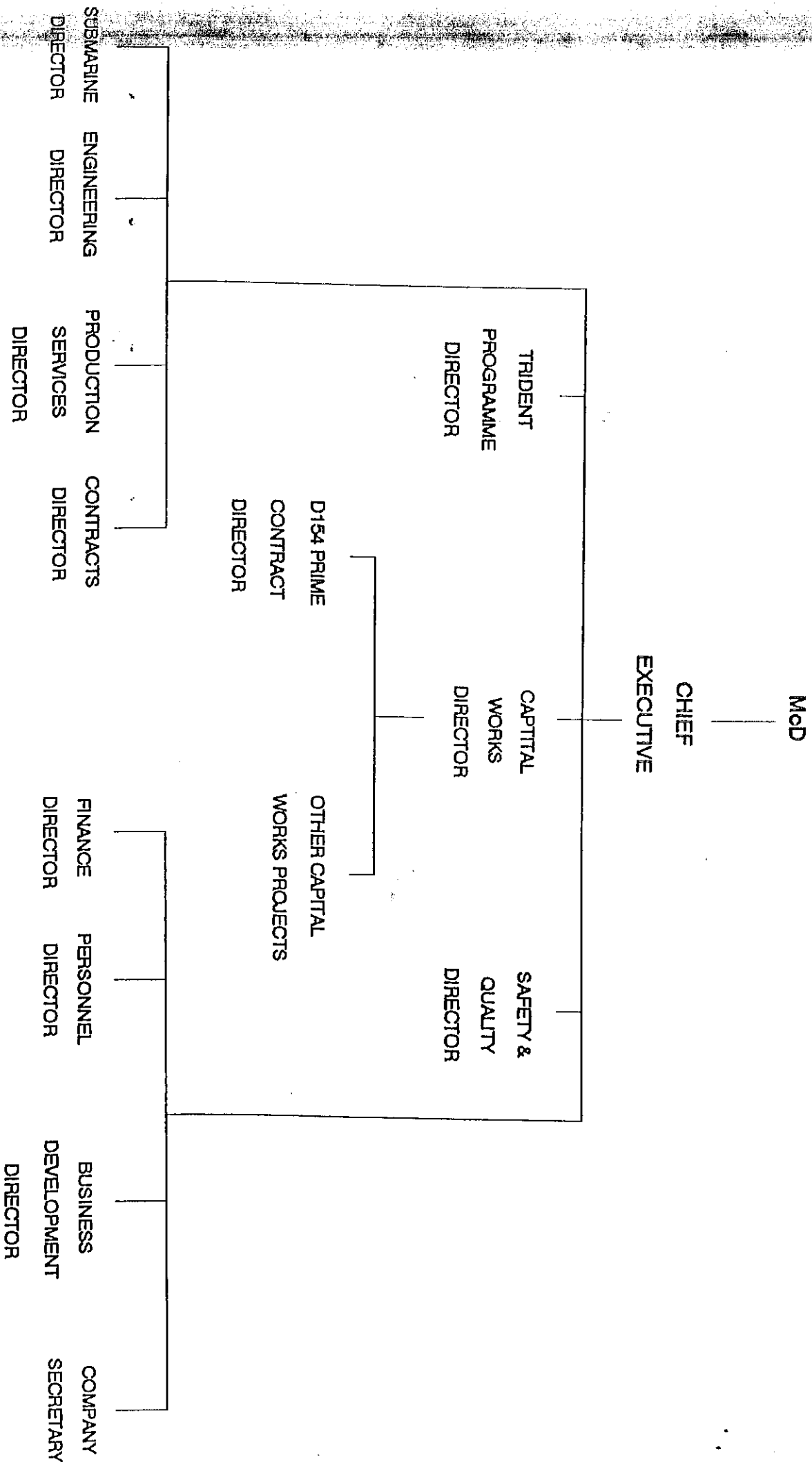


FIGURE 2

# D154 ROLES AND RESPONSIBILITIES

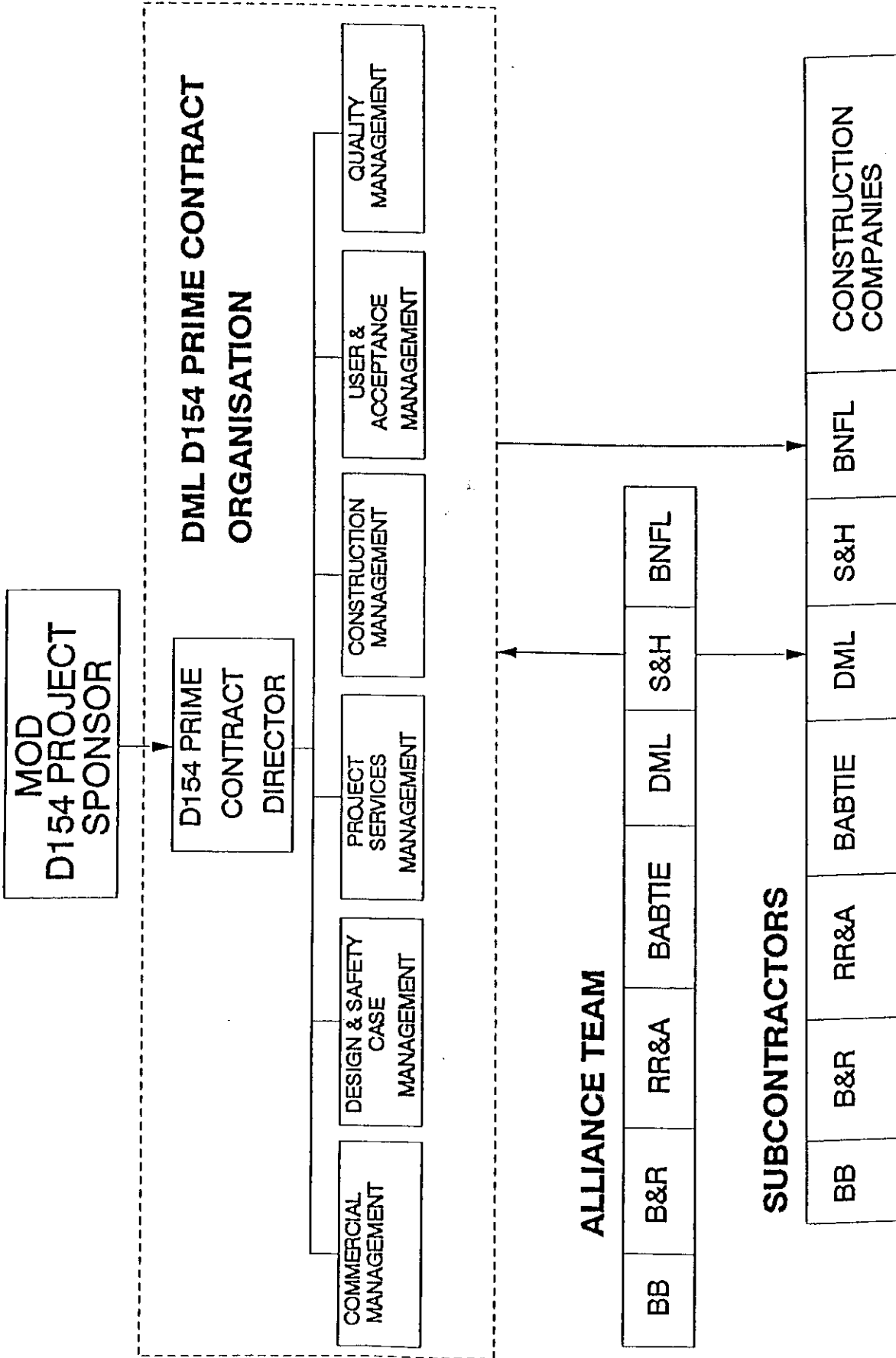


FIGURE 3

PCAE AUDIT DOCUMENTATION

[REDACTED]

1. D154 Response to PCAE Report dated April 1996. DML document dated 27 September 1996 (see attached contents) with revisions received to 10 Oct 96.

2. Extracts from D154 PEP. DML Document D154/GEN/027, September 1996.

[REDACTED]

CONTENTS OF DML RESPONSE 27 SEP 96

1. RESPONSE TO RECOMMENDATIONS
2. SUPPORTING INFORMATION: APPENDICES 1 TO 15.

| Appendix Number | PCAE Item Numbers  | Title  |
|-----------------|--------------------|--|
| 1               | 1,14               | D154 Procedure Production Programme                            |
| 2               | 7                  | Company Health and Safety Policy Statement.                    |
| 3               | 8,9,13,32,35,44,46 | D154 Organisation Chart.                                       |
| 4               | 9                  | ToRs for Project Director and Design and Safety Manager.       |
| 5               | 10                 | Non-Industrials Performance Review Procedure. DML-PP02-02-023. |
| 6               | 11,37              | D154 Staff Recruitment Schedule.                               |
| 7               | 12,25              | SQD/CWD/D154 QA Audit Programmes.                              |
| 8               | 17                 | CPM Procedure: PM02-01-975.                                    |
| 9               | 19                 | Corporate Quality Management Diagram.                          |
| 10              | 20                 | .D154 Base Data Register: D154/GEN/074.                        |
| 11              | 20                 | TPD Procedure Production Programme.                            |
| 12              | 24                 | D154 Statement of Stakeholder Interest.                        |
| 13              | 29                 | CWD Quality Steering Group - ToRs.                             |
| 14              | 33                 | D154 Risk Management Procedures.                               |
| 15              | 50                 | CWD Nuclear Safety Management Arrangements.                    |



MEETING SCHEDULE

[REDACTED]

**MEETING SCHEDULE**

**Corporate Issues**

Venue:

Date: Monday 30 Sep 96 Time: 0900

**Attendees**

MoD

DML

(S. 40)

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**Agenda**

1. Presentation by company of structure and D154 PEP.
2. Company response to key recommendations.
3. Management of Risk.

**Nuclear Safety Case Management**

Venue:

Date: Tuesday 1 Oct 96 Time: 0900

**Attendees**

MoD

DML

(S. 40)

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**Agenda**

1. Role and responsibilities of nuclear safety manager.
2. Management structure.
3. Resources.
4. Standards and criteria.

[REDACTED]

**MEETING SCHEDULE**  
**Acceptance/Commissioning Management**

Venue:

Date: Tuesday 1 Sep 96 Time: 1400

Attendees

MoD

DML

(S.40)

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Agenda

1. Criteria and arrangements for acceptance.
2. Responsibilities.
3. Impact of new site licence.

**Design Management**

Venue:

Date: Wednesday 2 Oct 96 Time:0900

Attendees

MoD

DML

(S.40)

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Agenda

1. Resources.
2. Management structure.
3. Design co-ordination and technical direction.
4. Standards and criteria.
5. Value engineering.

[REDACTED]

MEETING SCHEDULE

Commercial/Contract

Venue:

Date: Wednesday 2 Oct 96 Time: 1400

Attendees

MoD

DML

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

(S.40)

Agenda

1. Sub Contract arrangements.
2. Processes and procedures.
3. Management of information/cost control.
4. Resources.

Interface Management

Venue:

Date: Thursday 3 Oct 96 Time: 1130

Attendees

MoD

DML

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

(S.40)

Agenda

1. Management of refit/construction interface.
2. Management of change control.
3. Development of QA.
4. Management of design/safety interface.

[REDACTED]



[REDACTED]

MEETING SCHEDULE

Construction Management

Venue:

Date: Friday 4 Oct 96 Time: 0900

Attendees

MoD

DML

(S. 40)

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]

Agenda

1. Construction Management Strategy.
2. Management structure, roles and responsibilities.
3. Contractor accreditation.
4. Compliance with CDM Regulations.

[REDACTED]

[REDACTED]

COMPLIANCE SCHEDULE

**D154 APRIL 1996 PRE CONTRACT AWARD EVALUATION: PROGRESS REVIEW SCHEDULE**

(Note: ES = Executive Summary, KR = Key Recommendation, BP = Bullet Point)

| #/No | PCAE REF                        | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS  |
|------|---------------------------------|--|--|
| 1    | ES3 BP2<br>KR3                  | <p>DML Should continue urgently to develop procedures and systems for the D154 Project and complete the recruitment of staff. In particular:-</p> <ul style="list-style-type: none"> <li>a. a coherent risk management culture needs to be developed within the Company</li> <li>b. a disciplined financial management framework needs to be instituted</li> </ul> | <p>The company has made good progress in developing procedures with the exception of Construction Management. Recruitment in line with planned activity.</p> <p>Risk management procedures are in place and a limited amount of training of project staff has taken place.</p> <p>Good progress has been made with documented procedures for cost control and commercial management, but a number of important procedures have yet to be prepared.</p> |
| 2    | ES3 BP3<br>ES14<br>KR4<br>3.2.9 | <p>DML should demonstrate to MoD that their contractual arrangements with Rolls Royce and Associates Ltd provide a sound working relationship and do not present an undue risk to the Project</p>  | <p>Continued dialogue between DML and RRA is visible to MOD, and the achievement of interim contracts gives some indication of progress.</p>   |

| No | PCAE REF                              | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS  |
|----|---------------------------------------|--|--|
| 13 | ES3 BP4<br>ES29<br>KR10<br>3.3.21 BP8 | The adequacy of procedures, systems and resources which DML assemble for the implementation of the project should be evaluated during a follow-up PCAE prior to Phase 2 contract placement | Progress made in this area, but procedures relating to Construction Management have still to be developed. Urgent action required. |
| 14 | ES4<br>ES29                           | DML should address and provide a response to MoD to all of the recommendations made in the PCAE Report   | The company's response to the PCAE has been received by the audit team.  |



| No | PCAE REF                           | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS   |
|----|------------------------------------|--|---|
| 5  | ES6                                | It was noted that very few Brown & Root staff are currently in post in the D154 Team, and there is concern that the introduction of their systems needs to be more proactively managed | The majority of the posts intended to be filled by B&R staff are in place. B&R system introduction still in progress. The effective operation of the system has yet to be proven. |
| 6  | ES7<br>KR1<br>3.2.6<br>3.2.18 BP1  | The appointments of the Chief Executive and the Director of Operations should be made as soon as possible  | CE appointed. Operations Director post abolished.   |
| 7  | ES8<br>KR6<br>3.2.11<br>3.2.18 BP3 | The DML Company Safety Policy Statement should make clear that the Company consider safety to be of paramount importance in the pursuit of its business interests                      | Further minor amendment necessary.  |

| No | PCAE REF                           | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS  |
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| 8  | ES9<br>KR9<br>3.2.13<br>3.2.18 BP6 | The Safety and Quality Managers should also have a direct link with the Safety & Quality Director to ensure that the Company's safety policy, and safety and quality standards, are communicated to the highest levels of the project organisation | Links established  |
| 9  | ES10                               | The PCAE Team were unclear as to the relative responsibilities of the Project Director and Project Manager and, indeed, whether there was a need for two posts; there should be a clearer definition of responsibilities in this area              | Current proposals which remove a dedicated project manager's role are unsatisfactory and unacceptable. |
| 10 | ES11<br>KR5                        | DML should regularly assess the performance of key post holders  | Measures to review staff are in place.   |

| No | PCAE REF                    | RECOMMENDATIONS/FINDINGS  | ACTION/STATUS   |
|----|-----------------------------|---|---|
| 11 | KR2<br>3.2.7<br>3.2.18      | The designated D154 Project Manager should be confirmed and should take up his post immediately on a full time basis to ensure that the required development of procedures and build-up of resources is achieved effectively  | This recommendation has not been actioned.<br><br>Resource build up in the area of Construction Management is considered to be unsatisfactory.  |
| 12 | KR7<br>3.2.12<br>3.2.18 BP4 | The Safety and Quality Director should arrange for early audits, inspections and reviews of the way procedures are being implemented in the design, construction, commissioning and operations which take place on the Company's site and ensure that appropriate corrective actions are taken if necessary | Considerable progress has been made in this area. Audits have been carried out. DML should make audit reports available to the Project Sponsor. |

| No                          | PCAE REF                     | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS   |
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| 13                          | KR8<br>3.2.13<br>3.2.18 BP5  | The Managers responsible for nuclear and conventional health and safety matters in the Capital Projects Directorate should report at the same level as the Quality Assurance and Risk Managers | DML has proposed an alternative arrangement which is acceptable.  |
| 14                          | 3.2.18 BP7                   | All systems, procedures and resources should be in place prior to Phase 2 Contract placement   | Partially complete. Procedures for construction management yet to be put in place. Resource build up rate deemed to be satisfactory except in construction management.  |
| <b>Interface Management</b> |                              |  |   |
| 15                          | ES15<br>3.3.8<br>3.3.21 BP10 | The Company should review their risk management plans and demonstrate that they are effective  | Risk Management procedures in place. Training of a certain number of staff has taken place but very few at the senior level in the Prime Contract Organisation. Effectiveness across the company will need to be demonstrated. It is unclear what interproject risks are allocated to D154. D154 Risk Register should clearly identify interproject risks that are allocated to D154. |

| No | PCAE REF                     | RECOMMENDATIONS/FINDINGS  | ACTION/STATUS  |
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| 16 | ES15<br>3.3.8<br>3.3.21 BP11 | The Company should be asked to review risk management skills and experience in senior personnel and introduce structured training where shortfalls exist            | As per item 15.  |
| 17 | ES18<br>3.3.21 BP9           | The Company should provide greater clarity on the allocation of responsibility for the management of submarine programme and construction programme interface risks | A procedure for identifying interproject risks has been established. The interproject risks allocated to D154 are not clear. |

| No | PCAE REF                      | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS   |
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| 18 | ES19<br>3.3.10                | No overall management philosophy or procedures have been documented for Change Control and Configuration Management. Some development of Change Control Procedures exists for Design Management and implicitly exists within Nuclear Safety Case Management.   | Change Control Procedures and details of configuration control were outlined and demonstrated. With minor modification to the procedures the resulting document is deemed to be adequate. |
| 19 | ES20<br>3.3.16<br>3.3.21 BP15 | It is recommended that the Company reviews its philosophy for quality control and reviews its intentions with regard to the quality management system being a sub section of DML's existing registration, when in fact it will substantially replace the existing system for CPD. Resources and their allocation must be reviewed. The Company must undertake vendor assessments and continue to audit the sub contractors to a defined set of criteria which encompass the overall performance of these companies within the sub contract | The majority of procedures for Quality Management Systems are now in place. Resource allocation has made acceptable progress. Audit procedures are predominantly in place.                |

| No | PCAE REF            | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS  |
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| 20 | 3.3.3<br>3.3.21 BP1 | The Company should clarify the allocation of responsibility between CPD and Trident Programme Directorate (TPD) for interfacing with MoD Stakeholders and collecting externally sourced information needed for the design and safety justification of the facilities | The relationship between CWD and TPD has been revised and clarified through creation of the Prime Contract Organisation. User Acceptance Group is intended to provide the necessary interface. |
| 21 | 3.3.5<br>3.3.21 BP4 | MoD should review plans for the effective management of submarine programme/construction programme risks   | MOD action.  |

| No | PCAE REF               | RECOMMENDATIONS/FINDINGS  | ACTION/STATUS   |
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| 22 | 3.3.6(b)<br>3.3.21 BP5 | The Company should be asked to justify the effectiveness of the interface management arrangements provided by the D154 Project Director | The Prime Contract Organisation is understood to provide the interface arrangement within D154. These are controlled by multi-discipline facility-based Management Teams. Procedure for regulator interface management in place. Prime Contractor/DGS interface procedures are yet to be developed. |
| 23 | 3.3.7<br>3.3.21 BP6    | The Company should review and justify their staffing proposals for the position of Corporate Planning Manager                           | The Company has reviewed the staffing proposals for the Corporate Planning Manager and the procedures incorporated in CWD procedures.   |



| No | PCAE REF   | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS   |
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| 26 | 3.3.21 BP2 | The Company should formally review the allocation of tasks and responsibilities between CPD, TPD and SQD three months after the start of Phase 2. <i>(Post Phase 2 action)</i> | Future Action - to be actioned.   |
| 27 | 3.3.21 BP3 | The Company should review and justify their plans for the management of programme co-ordination risks  | Procedure in place for D154 project. Interproject risks allocated to D154 need to be identified and incorporated in the D154 Risk Register. |

| No                               | PCAE REF                | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS   |
|----------------------------------|-------------------------|--|---|
| 28                               | 3.3.21 BP7              | Justification for the level of resources provided in CPD, TPD and SOD should be reviewed during contract negotiations in light of the procurement arrangements adopted by the Prime Contractor   | In progress.  |
| 29                               | 3.3.21 BP13             | The Company should consider the establishment of a quality management system steering group who would have the responsibility of resolving any conflicts and for promoting the drafting, revision, and implementation of procedures in the early part of the contract  | Steering group in place.  |
| <b>Nuclear Safety Management</b> |                         |  |   |
| 30                               | ES24<br>3.4.6<br>3.4.11 | The ability to deliver intentions is heavily dependent upon the ability and influence of the Nuclear Safety Manager and the recruitment of a significant number of suitable qualified and competent staff to work under his direction. The ability of the project management and the principal safety case sub contractors to provide staff to time will be of concern until their recruitment has been successfully completed | Introduction of new Nuclear Safety Manager at this stage is of concern.<br><br>Build up of Nuclear Safety Manager's staff has progressed satisfactorily; about 90% in post, 60% of whom are DML. Selection of 8 CVs suggest qualifications and experience acceptable. |

| No | PCAE REF                      | RECOMMENDATIONS/FINDINGS  | ACTION/STATUS  |
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| 31 | 3.4.4<br>3.4.12<br>3.4.13 BP3 | <p>There appears to be an over reliance on the recruitment of agency staff for the existing safety case team vacancies. It is recommended that the principal safety engineers be either directly employed by DML/Brown and Root or are recruited from either the partner companies or nominated sub contractors</p> | <p>The balance of DML, Sub-Contractors and Agency staff appears reasonable but the management of agency staff will remain a matter for careful consideration throughout the duration of the project.</p> |
| 32 | 3.4.8<br>3.4.13 BP1           | <p>The Nuclear Safety Manager should report directly to either the Project Director or Project Manager to ensure that nuclear safety matters are given due prominence in recognition of the risks inherent in the safety case</p>   | <p>Acceptable argument by DML that with the Nuclear Safety Manager having right of access both to Project Director and Safety and Quality Director then his proposed reporting line is satisfactory.</p> |

| No | PCAE REF | RECOMMENDATIONS/FINDINGS  | ACTION/STATUS  |
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| 33 | 3.4.9    | It is not clear who has the responsibility for the management of risks associated with the nuclear safety case. This is a concern as the risks associated with the safety case dominate the risk register   | The Nuclear Safety Manager is responsible for commercial risks associated with the nuclear safety case; position accepted subject to appropriate training being given.   |
| 34 | 3.4.10   | The interface between the Project and TPD is crucial to the success of the later stages of the safety case campaign. It is not yet clear how this interface will be managed and as such it must be of concern until an interface proposal is agreed between the two parties | <p>DML's setting up of the UAG is an acceptable response, subject to a formal arrangement for the Trident Project Director's role in accepting the safety case.</p> <p>The creation of a User Acceptance Group assigned to the Prime Contract Director and professionally accountable to Trident Programme Director will go some way to improve the interface with the submarine refit organisation.</p> |

| No                | PCAE REF                             | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS   |
|-------------------|--------------------------------------|--|---|
| 35                | 3.4.13 BP2                           | Both the Nuclear and Conventional Safety Managers should have a direct route to the SQD to resolve disputes pertinent to safety  | Both the Nuclear and Conventional Safety Managers now have rights of access to the Safety and Quality Director.   |
| 36                | 3.4.13 BP4                           | A further evaluation of the operation of the corporate safety case procedures should be carried out in six months time to evaluate compliance and instigate any remedial actions | Audits have been carried out by SQD on CWD, D154, TPD, the Management of Nuclear Safety, the Management of Conventional Safety, Design Review and Approval. The programme includes further audits of CWD and TPD with SQD taking part in a further CWD audit of D154.   |
| Design Management |                                      |  |   |
| 37                | ES21<br>3.5.8<br>3.5.9<br>3.5.14 BP5 | Resourcing of adequate staff is a significant risk to the Project and requires more definition   | <p>Most posts in the D154 Design and Safety Department have been filled. However, of the 3 senior posts below Project Manager Design and Safety, 2 are vacant and the other has only been filled on a temporary basis.</p> <p>Resource schedules indicate that DML and its subcontractors are generally keeping pace with recruitment requirements.</p> |

| No | PCAE REF                     | RECOMMENDATIONS/FINDINGS  | ACTION/STATUS  |
|----|------------------------------|---|--|
| 38 | ES21<br>3.5.12<br>3.5.14 BP4 | Job descriptions should be extended to include authority, responsibilities and required qualifications and experience. Procedures should also be revised to formalise responsibilities and methods of interfacing   | Key job descriptions have been amended to show authority, responsibilities, required qualifications and experience. They do not yet include financial authority and the authority to manage risks. Other job descriptions have yet to be updated.                            |
| 39 | ES22<br>3.5.14 BP1           | The central design function of the core team at Devonport should be strengthened to include a pivotal role in technical direction and co-ordination. Primary subcontractor staff should be seconded into this team. Subcontractors should be limited to detailed areas which can more readily be co-ordinated | The central design function of the core team at Devonport remains of concern.<br><br>The 3 senior managers below the Design and Safety Manager are all new to their posts and as a team are untried.<br><br>Primary subcontractor staff have been appointed as Team Leaders. |
| 40 | 3.5.2<br>3.5.14 BP2          | The initial period during which this core team is staffed and trained, design procedures rewritten and systems of working set up, design parameters and principles reviewed and confirmed, as well as radical design features developed, should be reassessed and lengthened into a more effective programme  | Documentation of procedures is virtually complete, and resourcing is well advanced. Design development continues. Programme not achieved.  |

| No | PCAE REF            | RECOMMENDATIONS/FINDINGS  | ACTION/STATUS   |
|----|---------------------|---|---|
| 41 | 3.5.3<br>3.5.14 BP3 | The system for design definition and configuration control during the early stages should be clarified and strengthened. The interface with TPD at this time should also be clarified         | See Item 18 re Design Change Control and Configuration Management.<br><br>Interface with TPD clarified. |
| 42 | 3.5.5               | Management of design risk appear adhoc, relying on engineers and sub contractors to raise items for consideration. There is no provision for formal risk recognition and management of risks. | The system and management of design risk is described in Procedures PMO1 and PMO2.                      |
| 43 | 3.5.6               | The interface between D154 Project, TPD and SQD appears blurred at present and the procedures should be revised to formalise responsibilities and methods of interfacing                      | Interfaces clarified.   |

| No                             | PCAE REF             | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS  |
|--------------------------------|----------------------|--|--|
| 44                             | 3.5.10<br>3.5.14 BP6 | The scope of the post of Civil Engineer is considered over-large and consideration should be given to splitting responsibilities   | Additional civil engineering support staff identified. |
| <b>Construction Management</b> |                      |  |  |
| 45                             | ES25                 | DML's proposals for a relatively sophisticated construction management approach, when taken with the intention to form risk sharing alliances with the major sub contractors, is perhaps too ambitious and will place considerable strains on a new and untried organisation. DML's ability to develop their proposals needs to be demonstrated quickly. | This remains a concern.                                |



| No | PCAE REF            | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS   |
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| 46 | 3.6.6               | It is of concern that there is no independent advice on Health and Safety at a high level within the project   | Progress had been made in this area since the last Audit. However, there is still considerable improvement required in the application of CDM regulations. The role of the Planning Supervisor during the life of the Project lacks clarity and requires immediate attention. The Planning Supervisor must be identified by name. |
| 47 | 3.6.7               | Despite considerable development of the management structure and definition of the roles and responsibilities resources do not currently exist to provide the Construction Management Team | No change from last PCAE in terms of resourcing the team. The Construction Manager is now in post. The strategy for implementing the work is yet to be developed.   |
| 48 | 3.6.9<br>3.6.11 BP1 | The Management arrangements should be developed further and a clear understanding should exist with regard to functional, facility and contractual responsibilities and authority          | Yet to be implemented. Requires immediate action.   |

| No   | PCAE REF                              | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS  |
|--|---------------------------------------|--|--|
| 49   | 3.6.11 BP2                            | In order that the Construction Management arrangements can be improved upon it will be necessary for an improved quality control regime to be implemented and for SQD or others to provide a high level input to Quality and Health & Safety aspects   | Yet to be implemented. Requires immediate action.  |
| <b>Acceptance and Commissioning Management</b> |                                       |  |  |
| 50   | ES26<br>3.7.2<br>3.7.10<br>3.7.12 BP3 | Clear, unambiguous and coherent Terms of Reference should be published defining contractual and site licence responsibilities for acceptance/commissioning and training. These should be available prior to contract award. Present proposals do not include the involvement of the SQD in this process. This is an omission which will have to be considered for the future commissioning of nuclear plant in order for the detailed arrangements in support of commissioning to be acceptable. | Terms of reference have been published and Nuclear Site Licence arrangements in place.<br><br>SQD will attend Level 1 meetings between DML and the Regulators. It is recommended that SQD's representative should attend Level 2 meetings. |

| No  | PCAE REF                            | RECOMMENDATIONS/FINDINGS   | ACTION/STATUS   |
|---|-------------------------------------|--|---|
| 51  | 3.7.7<br>3.7.12 BP2                 | Appropriate Resource Plans and Training Plans should be developed to ensure that sufficient suitably qualified and experienced personnel (SQEP) are available to support D154 Acceptance/Commissioning and operations. These plans should be reviewed during the next MoD evaluation   | Preliminary resource and training requirements evaluated.   |
| 52  | 3.7.11<br>3.7.12 BP1                | Appropriate strategies/policies and procedures, consistent with the available high level documentation, should be developed as soon as possible defining how the D154 Acceptance/Commissioning and associated training are to be undertaken. This documentation should be reviewed during the next MoD evaluation  | Procedures and responsibilities involving UAG and STAG seem acceptable.<br><br>Nuclear Site Licence procedures in place and awaiting issue of the new Nuclear Site Licence by Health and Safety Executive.  |
| <b>Commercial and Contract Management</b> |                                     |  |   |
| 53  | ES13<br>3.8.1<br>3.8.4<br>3.8.8 BP1 | With the exception of the Company's proposals concerning sub-sub contract competition, there are no clear or documented procedures within the Commercial Department. Much of the policy and corporate philosophy has yet to be resolved. In particular, effective management information, staff availability and continuity, vendor rating and cost control need to be urgently addressed.<br>The policy not to implement a vendor rating system for the major sub contractors should be revisited | The Commercial Department and Project Services Department have begun to develop a suite of procedures. However, procedures on:<br>a. Reviews of the Commercial Aspects of Project Performance,<br>b. Administration of the D154 Project<br>c. Management of the Commercial Department<br>are not yet due to be prepared until the end of November. Two procedures concerning the Alliance have also to be produced.<br><br>Management information systems and procedures have been improved, with further upgrading of the systems proposed.<br><br>The Commercial Department and the Project Services Department are resourced to current plan. The majority of staff are supplied by DML, B&R and BB.<br><br>Vendor rating system introduced. |