SPECIAL REPORT OF THE AUDITOR-GENERAL ON ALLEGED IRREGULARITIES AT THE ARMAMENTS CORPORATION OF SOUTH AFRICA (PTY) LTD (ARMSCOR)

1. MANDATE OF THE AUDITOR-GENERAL

1.1 The functions of the Auditor-General in supporting constitutional democracy in South Africa are described in section 188 of the Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996). Section 5(1) of the Public Audit Act, 2004 (Act No. 25 of 2004) (PAA) provides that the Auditor-General may carry out an appropriate investigation of any institution referred to in section 4(1) or (3) of the PAA if the Auditor-General considers it to be in the public interest or upon the receipt of a complaint or request. The content of this report is primarily based on the requirements of section 29 of the PAA and the Auditor-General Directive 1 of 2005 issued in terms of section 13 of the PAA.

1.2 The primary responsibility for the prevention and detection of fraud, irregularities and error rests with both those charged with the governance and the management of an entity. Management, with the oversight of those charged with governance, needs to set the proper tone, create and maintain a culture of honesty and high ethics, and establish appropriate controls to prevent and detect fraud and error within the entity.

1.3 It is the responsibility of those charged with the governance of an entity to ensure, through the oversight of management, the integrity of an entity's accounting and financial reporting systems and that appropriate controls are in place, including those for monitoring risk, financial control and compliance with the law.

1.4 It is the responsibility of the management of an entity to establish a control environment and maintain policies and procedures to assist in achieving the objective of ensuring, as far as possible, the orderly and efficient conduct of the entity's business. This responsibility includes implementing and ensuring the continued operation of accounting and internal control systems which are designed to prevent and detect fraud and error. Such systems reduce but do not eliminate the risk of misstatements. Accordingly, management assumes responsibility for any remaining risk.

2. PURPOSE AND LIMITATION OF THE SPECIAL REPORT

2.1 The purpose of this special report is to make known the findings emanating from an independent investigation conducted after receipt of certain allegations from a member of the public (hereafter referred to as the informant).

2.2 The investigation was performed in terms of the South African Auditing Standards, where applicable, and the internal Guidelines for the Planning, Execution, Reporting and Follow-up of Audit Investigations. However, the findings of the investigation do not form part of any regularity or other audit report and I do not express an audit opinion thereon.

2.3 Although the work performed incorporates my understanding of the law as it stands, I do not express an opinion on the legal effect of the facts or the guilt or innocence of any person(s) or party, but merely state the facts as they have come to my attention.

2.4 The special report is based on the facts established from documentation provided and/or information obtained during the course of the investigation. Should any further information be obtained, it may influence the conclusion.

2.5 I consider it necessary to quote from the findings of the Project Review Board and other documentation of the Armaments Corporation of South Africa (Pty) Ltd (Armscor) in order to contextualise the nature and extent of the technical complexity of the investigation. Furthermore I have where appropriate provided the comments of management.

3. BACKGROUND

3.1 An informant requested me to conduct an investigation into alleged irregularities at Armscor relating to an air defence system project.

3.2 A contact meeting was held with senior management of Armscor on 16 July 2003 to discuss the envisaged investigation. This was formalised on 31 July 2003.

4. PURPOSE, OBJECTIVES AND APPROACH OF THE INVESTIGATION

The purpose and objectives of the investigation were to:

- Investigate the procurement of goods and services by Armscor from a specific armaments supplier (the supplier);
- Identify and deliver proof of any irregular transactions pertaining to the delivery of goods and services; and
- Report on the factual findings resulting from the investigation.

In order to investigate the allegations, the following approach was adopted:

- Reviewed the procurement process followed for the eight allegations identified.
- Obtained and evaluated relevant documentation, reports and statements for the identified allegations.

Where deemed necessary, the services of a technical expert were used to assist me in evaluating technical aspects of certain allegations identified for review. An informal procurement process was followed in appointing the specialist. Relevant specialists were identified in the Pretoria area. Out of the list of 19 technical experts four were deemed to comply with the set requirements. Of the four shortlisted, the technical expert used was selected based on non-involvement with Armscor in the past, availability and pricing structure.

5. SCOPE OF THE ASSIGNMENT

5.1 The scope of the preliminary investigation was determined after consultation with management of Armscor. Eight relevant allegations, out of a total of 72 allegations, were identified in order to test the validity of the allegations received from the informant. The eight allegations were determined based on the availability of information and documentation from Armscor and the supplier, the understandability of the allegation received from the informant, and the persuasiveness of the documentation obtained from the informant.

5.2 In conducting the investigation I relied on the documentation and other information provided by Armscor, the supplier, the Department of Defence (DoD) and the informant. My investigative efforts were limited to the legal and legitimate acquisition and collection of evidence.

5.3 The draft report was submitted to Armscor for confirmation of the factual correctness and to afford Armscor the opportunity for timely inputs.

5.4 The period under review was from 1 April 1991 to 31 July 2003 and the conclusion is based on the facts established from documentation provided and/or information obtained during the course of the investigation.

6. SOURCES OF INFORMATION

The following sources of information were mainly used, which were obtained from Armscor, the supplier, the DoD and the informant.

- Sworn affidavits
- Contracts

- Amendments to contracts
- Minutes of meetings
- Reports issued by Armscor
- Reports issued by the supplier
- Work package plan and work authorisations (WPP)
- Statements of work (SOW)
- Invoices
- Certificates of conformance

7. PROCEDURES PERFORMED

7.1 The procedures performed and methods used were based on documentation provided and/or information obtained during the course of the investigation.

7.2 The procedures performed during the conduct of my investigation included the following:

- Perused documentation supplied by the different parties.
- Analysed documentation and information.
- Held discussions with the informant.
- Perused relevant legislation, regulations and circulars.

8. OVERVIEW OF ARMSCOR

8.1 The following are extracts from the Armscor web site:

- Armscor is a company dedicated to providing a leading edge service in the acquisition of products and services for defence communities around the world.
- Armscor was established to meet South Africa's needs for defence-related products and services and to maintain key industries and technologies for that purpose.
- Armscor's primary aim is to provide the South African National Defence Force with solutions to all their requirements, with the emphasis on technical excellence and value for money.

8.2 In the year 2000 allegations relating to the mishandling of State funds on the air defence system project were raised with Armscor. Armscor asked its internal audit department to perform an investigation to determine whether the allegations made regarding the mishandling of State funds could be substantiated and to confirm whether the applicable control procedures were sufficient. The memorandum issued by the internal audit department indicated, under the heading "Opinion", that an opinion on the allegations was withheld. Subsequently, on 31 July 2000, a Project Review Board was appointed to review the allegations concerning selected aspects of the entire project from an overall perspective. The objective was to place Armscor's Management Board in a position to either refute or place into context the allegations made with regard to contract objectives and the execution of the project, and to decide on further steps to be taken, if any.

8.3 The following are extracts from the Project Review Board's report on the project:

- The project originated from an earlier air defence system project, which was an acquisition type project (capital funding). This project's objective was to upgrade the South African Air Force (SAAF) capabilities in terms of air defence systems.
- Due to the large cuts in the South African National Defence Force budget around 1992 to 1994, the earlier project was terminated. However, a considerable amount of money had already been spent; the defence industry had acquired and accumulated a considerable body of knowledge and, in addition, done some upgrades. The SAAF then decided to initiate a new project as a technology project. The main objectives of the project were to retain and expand the technology and to assist the SAAF in the field of air defence systems when new systems were to be acquired in the future.
- In order to enable the technology project to be initiated, a Project Definition (PD) for the project was approved on 25 May 1994.
- The PD was approved for Rm18,602 (excluding VAT) or Rm21,207 (including VAT) over a three-year period (1994/95 to 1996/97).
- On the strength of this PD, a Request for Proposal (RFP) was sent to the supplier, who submitted a proposal to Armscor. Armscor's Board of Directors (BOD) subsequently approved order KT422661 on 19 July 1994. This order was later amended seven times over the three-year period.
- Issue 2 of the PD for a further three-year period (1997/98 to 1999/2000) was approved on 15 January 1997 and the Armscor BOD approved order KT498943 on 2 July 1997. This order was subsequently amended four times. This order was replaced by order KT444971 on 27 November 1998.
- The approval value of this PD (issue 2) was Rm23,305 (excluding VAT) over a three-year period.
- The combined value of orders KT422661, KT498943 and KT444971 was Rm43,04.

- The objectives of issues 1 and 2 of the PD were basically the same, namely:
  - ♦ Technology retention
    - ✓ Total system capability;
    - ✓ Technology expansion in the field of data processing, real time signal processing, simulation, fire control, etc.;
    - ✓ Retention of existing facilities, documentation control, etc.; and
    - ✓ Retention of wealth of experience in the field of systems engineering applicable to air defence systems.
  - ♦ Technology application
    - ✓ Maintenance of existing operational equipment;
    - ✓ Generation of system specifications for future system;
    - ✓ Upgrades to sensors;
    - ✓ Integrating designation sources into squadron-level tactical networking system and sensor fusion;
    - ✓ Improving current operational software; and
    - ✓ Training of SAAF personnel.
- The third issue of the PD was approved on 26 January 2000 for an amount of Rm17,54 (excluding VAT) for the period 2000/01 to 2002/03.
- According to the Project Review Board report the objectives of the PD differed considerably from the previous two PDs and addressed the following aspects:
  - ♦ Retention of specific technologies;
  - ♦ Establishment of a generic weapon system, Command and Control capability through simulations; and
  - ♦ Creation of contact-level situational awareness.

8.4 The findings of these two internal investigations are contained in a memorandum issued by Armscor's internal audit department, dated 23 May 2000, and in the Project Review Board report, dated 20 September 2000.

8.5 The findings of the two internal investigations were accepted by Armscor management as having addressed the allegations.

9. EXECUTIVE SUMMARY

The following is an executive summary of eight allegations investigated out of the total of 72 allegations received:

9.1 Allegation 3

The allegation stated that the prototype Acquisition Unit (AU) Indicator positioned close to the AU Planned Position Indicator (PPI), with a milestone cost of R56 458,00, was never demonstrated during 1993/94 and was never seen by technical people in subsequent years.

Based on the findings contained in paragraph 10.1.2 below, the prototype AU Indicator was a contractual deliverable. The Armscor and supplier managers signed certificates of conformance (CoC) and Armscor was invoiced by the supplier for a contractual deliverable to the amount of R56 458,00. No evidence was provided of the existence of the prototype AU Indicator.

9.2 **Allegation 7**

The allegation stated that no Acceptance Test Procedure (ATP) documents existed at 9 March 1999 for the contractual deliverable, namely the Extended Inter-Vehicle Data Link (EIVDL) specification and ATP documents, with a milestone cost of R42 706,88.

Based on the evidence in my possession, the scope of work of the Work Package Plan and Work Authorisation (WPP) was changed subsequent to the WPP supplied by the informant. The investigation team concurs with the findings of the Project Review Board that the EIVDL specification and ATP document was not a deliverable in terms of the final WPP.

9.3 **Allegation 17**

This allegation related to the Data Link of the AU Networking for EIVDL Test Results, with an estimated milestone cost of R10 000,00. It was alleged that no test results were filed in the supplier's Document Control Centre (DCC) on 12 August 1997 and 9 March 1999. It was also alleged that the EIVDL and Node Computers never worked up to 30 September 1996.

Based on the evidence in my possession, no documentary evidence was made available containing the specific test procedures or methods, or detailed demonstration results.

It is not clear whether or not the EIVDL and Node Computers were working prior to 1998 based on a statement and report by a DoD staff member.

The conclusion reached by the technical specialist highlights the fact that it is not possible to conclude that the test on the data transmission was done in accordance with a laid-down test procedure and that these results compared favourably with expected results.

I am unable to conclude on the related financial transaction as no specific invoices were identified for this deliverable.

9.4 **Allegation 32**

The allegation stated that no minutes of progress meetings were available in the DCC on 9 March 1999 as required by the contractual deliverable relating to the development of the AU Target Engagement and Weapons Assignment (TEWA) model, with a milestone cost of R5 640,00.

Based on the evidence in my possession, proof could not be provided that minutes of the progress meetings were available in the DCC on 9 March 1999. Evidence of the TEWA discussions in the minutes of two meetings was, however, obtained. As no signed (final) WPP could be submitted, it could not be verified that the minutes were in fact a contractual deliverable.

9.5 **Allegation 58**

The allegation stated that no flight level command and control interface requirements documentation, with a milestone cost of R44 783,00, was filed in the supplier's DCC.

Based on the evidence in my possession, the document was not filed in the DCC.

The reason for the CoC being signed in February 1998 is unclear, as the draft document, issue A, was dated 3 July 1998. The supplier invoiced Armscor for the specific deliverable at the exact amount as stated in the Statement of Work (SOW).

The required document was still not finalised as at 16 March 1999 according to the Armscor internal audit report.

9.6 **Allegation 60**

This allegation related to the fact that the EIVDL did not work. The supplier (an armaments supplier to Armscor) had to spend approximately one man-year to fix the problems with the EIVDL, which had the result that the Integrated Flight Commander Station System, with a milestone cost of R555 924,00, became operational at a later stage than planned. The fixing of the EIVDL was paid for under the task of the Integrated Flight Commander Station System.

Based on the evidence in my possession, Armscor could not supply an approved WPP regarding allegation 60. The only WPP available was a copy of a WPP, signed by an employee of the supplier, supplied to me by the informant.

It is not clear on what basis the supplier invoices were compiled or on what basis the CoCs were completed, as no formally approved WPP could be provided by Armscor.

9.7 **Allegation 65**

This allegation related to the technical firing preparation (activity #3) which provides for the analysis of the efficiency of the Fast Fourier Transform (FFT) algorithms used in the Firing Unit (FU) in order to draft a report listing deficiencies and recommended actions. The report needed to be approved by the Armscor programme manager, with a milestone cost of R124 194,00. RIPTO funds (CSIR funds) were used in order to get the Pulse Doppler Radar Tracker (PDRT) in working order.

Based on the evidence in my possession, the deliverable provided to the investigation team conformed to the required deliverables as per the SOW for item No. 274. However, it is not clear why the final deliverable was not available in the DCC.

It is not clear why the CoC, which certified that the task had been completed, was signed prior to the work being completed.

9.8 **Allegation 72**

This allegation related to the fact that the supplier double-invoiced the time spent by an employee on the Help Screens of the Flight Commander Station (FCS) and a code development project during the financial year 1996/1997, of which the cost amounted to R24 345,60 for the financial year 1996/1997.

The timesheets of the specific employee of the supplier for the period should be made available and followed through to the actual invoices in order to validate the claims of the informant. This issue needs further investigation.

10. DETAILED FINDINGS AND CONCLUSIONS

10.1 **Allegation 3: Contract Code: KT211763**

10.1.1 **Task:** AU Indicator
Deliverable: Prototype AU Indicator positioned close to the AU PPI
Milestone cost: R56 458,00
Allegation: This prototype was never demonstrated during 1993/94 and was never seen by technical people in subsequent years (9 March 1999).

10.1.2 **Detailed findings**

The WPP 419-11 was authorised by the project manager on 24 May 1993. The Statement of Work Table 419-11-060 identifies the scope of work as the development of an indicator to display the pointing directions of up to three FUs, which would be a separate display conveniently positioned close to the PPI. The deliverable is indicated as being a prototype AU Indicator. It is also reflected that the acceptance condition is a demonstration and that the delivery date was 30 September 1993.

The following summary of the supplier's invoices indicates that the total amount for this deliverable was claimed from Armscor:

Invoice no.	Invoice date	Date captured on the financial system	CoC signed by Armscor representative	Item amount (excl. VAT)
1765	7 Dec 1993	21 Dec 1993	12 Jan 1994	16 937,00
1804	28 Jan 1994	3 Feb 1994	4 Feb 1994	15 000,00
1843	22 Feb 1994	1 March 1994	3 March 1994	24 521,00
Total				**56 458,00**

To each of these invoices a CoC was attached signed by the supplier's programme manager and the APM, certifying that the work detailed below had been partially completed or completed. The first two certificates indicated partial completion and the last certificate indicated completion of the task 419-11-060. The amounts of the invoices add up to R56 458,00, which equals the contracted amount for this item.

The memorandum issued by Armscor internal audit on the Special Investigation, dated 23 May 2000, states that no visible proof other than the APM's signature existed to substantiate that the demonstration was held.

In a sworn affidavit, dated 14 June 2000, an employee of the supplier confirmed that during the period he was working on the EIVDL project, he never saw the AU Indicator inside the AU. He stated that he had not seen any software relating to this indicator, as he would have noticed the software if it existed due to the fact that he had access to all the EIVDL and FCS software as part of his duties, and that to the best of his knowledge not even prototype software was anywhere on record.

In the report on the allegations issued by the Project Review Board, dated 20 September 2000, it was stated that the evidence was inconclusive. A comment was made that the AU was in use on operational equipment (not verified during review). It was concluded that the work must have been done as the AU was in operation; however, configuration control was not properly executed – prototype Software (SW) not recorded in the DCC.

The report of the specialist, contracted to assist the office with the evaluation of certain of the allegations, dated 17 June 2004, stated, *inter alia*:

> *CONCLUSION: No existing AU Indicator could be found or demonstrated. If this item formed part of a software-driven module which was originally displayed on the Visual Display Unit (VDU) next to the PPI, then no one present could confirm this fact.*

10.1.3 **Conclusion**

The prototype AU Indicator was a contractual deliverable. The Armscor and the supplier's managers signed the CoC and Armscor was invoiced by the supplier for a contractual deliverable to the amount of R56 458,00. No evidence was provided of the existence of the prototype AU Indicator.

10.1.4 **Management comment**

Armscor has decided to further investigate the allegation with the objective of determining whether any further action is warranted.

Additional management comments dated 16 November 2004:

Allegation 3 which pertained to an allegation that the prototype AU indicator was never demonstrated and was never seen by technical people in subsequent years. In this regard a further investigation on the allegation was undertook with the objective of determining whether any further action is warranted. Below are the findings of this investigation.

As part of the investigation, the original responsible engineers' notes and other relevant documentation have been located and it has managed to shed new light on the hitherto unanswered questions pertaining to the demonstration or not of the "AU Indicator". The "AU Indicator" primarily entailed a PC for which dedicated communications software had to be developed for purposes of the demonstration. The development of the communications code was subcontracted by the supplier and hardcopies of this communications code has now been found as part of the engineers technical file documentation and has been made available to Armscor.

The subcontractor confirmed that he was subcontracted to develop the communications software code and that he did in fact provide the code. He subsequently made copies available of all the code that he had developed as well as copies of accompanying documentation. The subcontractor furthermore confirmed that he had written test software for the requirement and that he can make copies of this software available upon request. He also confirmed that he was involved in the testing and is willing to make a statement to this effect.

The suppliers programme manager at the time is no longer in the employ of the supplier, but he confirmed that he had personally witnessed the demonstration of the "AU Indicator" and that the Armscor project manager was also present at the demonstration.

In the light of the new tangible (ie. technical documentation and copies of the actual communications code) that has surfaced during the further investigation into allegation 3, as well as the evidence supplied by various participants on the project at the time, there exists little doubt that the specific demonstration did in fact take place. The CEO of Armscor is thus satisfied that the allegation in this regard is unsubstantiated and that the matter can be closed.

10.2 Allegation 7: Contract Code: KT442661

10.2.1 **Task:** EIVDL Data Link Specification and ATP documents
Deliverable: EIVDL Specification and ATP documents
Milestone cost: R42 706,88
Allegation: No ATP documents existed (9 March 1999)

10.2.2 **Detailed findings**

In terms of an agreement between the supplier and a subcontractor for the period 21 June 1994 to 19 September 1994, dated 1 August 1994, the subcontractor was contracted to generate an ATP document for the EIVDL.

The WPP 591-14 was signed on 11 August 1994 by only the supplier's project manager. The attached SOW Table 591/14/200 indicates the scope of work as, *inter alia*, to provide Datalink specification and ATP document. The acceptance criteria are, *inter alia*, a review of Datalink specification and ATP document.

A final WPP 591-14 was signed 15 December 1994 and 11 January 1995 by the relevant employees of the supplier and the APM. The attached SOW table does not require Datalink specification and ATP documents as part of the scope of the work.

In the supplier's memorandum dated 12 August 1997 an employee of the supplier forwarded the results of a configuration audit held on the AU Network Project to the supplier's overall technical project manager and systems engineer. The table, attached to the memorandum, stated that the documents required in terms of contact KT442661, task number 591/14/200, were not available.

In the report on the allegations issued by the Project Review Board, dated 20 September 2000, it was stated that no ATP existed on 9 March 1999. The delivery of an ATP was not a contractual requirement in terms of the approved WPP. A segment specification was the required output. It was concluded that the allegation was based on a WPP that was subsequently replaced. Hence the allegation was unfounded and without substance.

10.2.3 **Conclusion**

Based on the evidence in my possession, the scope of work of the WPP was changed subsequent to the WPP supplied by the informant. I concur with the finding of the Project Review Board that the EIVDL Datalink specification and ATP document were not a deliverable in terms of the final WPP.

10.3 **Allegation 17: Contract Code: KT442661**

10.3.1 **Task:** AU Networking: Data Link
Deliverable: EIVDL Test Results
Milestone cost: R10 000,00 (Estimation by informant)
Allegation: No test results were available in the DCC when the manager of the supplier's DCC brought out an audit report on 12 August 1997 and 9 March 1999. It is also a known fact that the EIVDL and Node Computers never worked up to 30 September 1996.

10.3.2 **Detailed findings**

The unsigned WPP 887-07, with start date 11 April 1996 and finish date 31 March 1997, and the attached SOW Tables 887-07-1/2/3, identify the scope of work as, *inter alia*, the execution of the test and evaluation of phase 2 as per the updated specification, and acceptance testing of the Node Computers utilising the test routines according to the existing AU and FU Node Computer ATPs. The deliverables are, *inter alia*, a phase 2 test and evaluation report, test or demonstration results and acceptance test results. The acceptance conditions are, *inter alia*, the successful acceptance test of modified EIVDL drawers according to the existing EIVDL ATP, the successful demonstration of the laboratory test facility, and the review/acceptance of the FU and AU Node Computer test routine software.

An AU Networking Phase 1 Test and Evaluation Report, dated January 1996 and signed by the respective signatories between 23 and 25 January 1996, states that the operation of the AU and FU EIVDL drawers during a field deployment was successfully demonstrated.

The minutes of the systems team meeting held on 10 May 1996 reflect that test results were presented for the Test Procedure Manual (TPM) (Data Comms – EIVDLs).

The supplier, on 26 September 1996, placed an order to the value of R7 500, excluding VAT, with a subcontractor to perform the following:

> *Modification of the current AU and FU EIVDL controller software to eliminate the intermittent problem in the FU during AU target designation.*
> *DELIVERABLES:*
> *a) modified software source code, commented where modified*
> *b) modified BIN files*
> *ACCEPTANCE: SUCCESSFUL DEMO OF MODIFIED SW*
> *DELIVERY DATE: on or before 18/10/96.*

The minutes of the systems team meeting held on 27 November 1996 reflect that EIVDLs were used during the November 1996 deployment and performed very well and without problems.

A memorandum from an employee of the supplier dated 17 July 1997 stated, *inter alia*, as follows:

> *1. After a very unsatisfactory start on Monday to integrate the FU Node functions with the rest of the AU Network System, I have decided on a plan of action as described below.*
>
> *It is very clear that we did not follow sound engineering principles in the past to systematically test and integrate the various components of the system.*
>
> *I foresee the following steps to be taken in order to integrate and test the system successfully.*
>
> *1.1 Person A will design and implement (with the help of Person B) a modem tester. This will enable us to verify correct operation of the modems at the specified bit rate (500k/Bs). This will be completed by 24 July 1997 (as was discussed with Person A).*

1.2 In the event that the modems are not performing according to specifications, then a redesign cycle will be initiated. The monostable in the modem design have to be taken out in any case (this is most likely the reason why we experience temperature related problems). Person A will be responsible for this task with the help of Person C and Person D. We should be able to finish this task not later than 31 July 1997.

1.3 The next step will be to verify in the laboratory that we can exchange reliable data at level 1. Remember there are two levels of communication i.e, the target designation communication level and the AU/FU Node function Communication level. Person F will be involved here using the EIVDL test bench. This task will be deemed successful if we can exchange reliable data using different cable lengths and over a realistic temperature range.

1.4 Still at level 1 the next step will be to verify that the unacceptable delay in target designations have disappeared. I am of the opinion that this problem is related to bad communications and by this time we will not experience that problem anymore. The test will be executed using test target designations from the AU and observe one second updates on the EIVDL test bench.

1.5 The next step will be to test the EIVDLs at level 2 in the laboratory. I will work out a scheme to enable us to test at this level before moving out to the vehicles.

1.6 The next step will be to integrate the EIVDLs in the vehicles and to verify FU Node functionality using the AMS 1050B computer.

1.7 The final step will be to involve Person G and Person H to verify FU Node functionality using the new DCI function in FUSC.

In a document with the heading NODE COMPUTER AND RELATED DEFICIENCIES, dated 15 May 1998, it is mentioned that incorrect information was one of the major initial problems. Other issues highlighted in the document were the money-driven invoicing system that was used by the supplier, without regard for the technical integrity of the final product, which led to frustration and a probable increased staff turnover.

In the minutes of the systems team meeting held on 10 June 1998, it is recorded that the work had been completed on the AU to AU communications, which are now working satisfactorily.

In an internal email dated 10 June 1998 the supplier's overall technical project manager informed the subsystems engineer that he was not satisfied about the reporting at the systems engineer's (SE) team meeting on the stated date. He commented on the inappropriate manner in which the subsystems engineer conveyed essential information and also reminded the client regarding the mistakes made in the past.

In an internal memorandum addressed to the supplier's overall technical project manager, dated 23 June 1998, the subsystems engineer defended his statements made at the 10 June 1998 meeting, stating that only the truth was stated.

In paragraph 15 of an incomplete report (only pages 3 to 5, dated 98-10-01), made available by the informant and signed by an SAAF employee, it is documented that:

> *What added to the complexity of the deployment, was the fact that the extended inter-vehicle data link (EIVDL) between the systems was used for the first time. This was the necessity for the systems to be deployed approximately two kilometres apart. The systems were aligned with each other using a Global Positioning System (GPS), which was also a first on the system.*

In the memorandum issued by Armscor internal audit on the Special Investigation, dated 23 May 2000, the comment was made that at that stage no proof existed that the required tests had been performed.

In a sworn affidavit, dated 14 June 2000, an employee of the supplier confirmed that there were no EIVDL Test results when he started to modify the EIVDL and AU/FU Node Computer software during 1997.

In the report issued by the Project Review Board on the allegations, dated 20 September 2000, it is stated that no test results could be provided. Comments were made that no results were available although the AU/FU was successfully used in missile firing exercises and the EIVDL was functional during the exercises. It was concluded that the allegation that no test or demo results existed, was not refuted. The allegation that the EIVDL and the Node Computers never worked up to 1996, was refuted.

In a letter addressed to Armscor, dated 15 March 2004, the above SAAF staff member reported on a deployment at an air force base during 1998. The following statement was made:

> *This writing serves to state that the undersigned was involved with the above exercise during August/September 1998 where new/upgraded functionalities of two Firing Units, an Acquisition Unit, a Fire Control System and the required interfacing links were successfully demonstrated, proving improved operational performance. I cannot recall the specific report of October 1998, but it was most probably an internal report required for the applicable operational personnel.*

The report of the specialist, contracted by my office to assist with the evaluation of certain allegations, dated 17 June 2004, stated, *inter alia*:

> *FINDINGS:*
> *The files which were inspected contain a report regarding certain tests that had been done, viz. 'AU Networking Phase 1 Test and Evaluation Report' dated January 1996. This report deals with tests conducted at an air force base during the period 7 to 9 September 1995 and another air force base during the period 9 to 11 October 1995. This report states that the test procedure (in paragraph 2.2) applicable is '1427T00151-0005: AU Networking Test and Evaluation Specification for Phase 1, Issue 1'. In paragraph 3, Summary, the report states: 'The test and evaluations were performed according to the test method of the document referenced in paragraph 2.2 with deviations where it was deemed necessary to make the tests more executable'. No specific test procedures or methods are described in the document, but certain test results are listed in paragraph 3. In paragraph 5, Test Results, point 5.3 refers to Appendix A, which contains the results recorded at the first air force base to demonstrate the functionality of the FU to AU communication.*
>
> *This test result sheet has a heading: 'TEST 1: Transmitting Simulated Data' and seems to describe a test where elementary data bit words in hexadecimal format are sent from one piece of equipment to another. The data transmitted represent a series of bytes with contents from 00000000 to 00100111. It is surprising to note that such a simple test had been done on sophisticated military equipment to verify a secure link which should be very reliable. It would be normally expected in systems of this complexity that proper data link tests be conducted to prove data stream timing, hand-shaking, data stream integrity (correctness), communication path immunity to electromechanical interference and radio frequency interference and that such test results are properly recorded and tests repeated to prove the reliability of the data transmission beyond all doubt.*

The actual ATP referred to in the test report is not contained in the files examined. However, in the test report reference is made to video recordings that were made and it seems as if results observed and recorded on tape were used as a visual test acceptance as well, so that the test results could have been augmented by the video recordings.

On 9 June 2004 some new information was received from the informant and this file contains a document 'EIVDL Demonstration Specification'. The origin of this document is not known, but it does contain test procedures which could have been used to test data link timing, synchronisation and data correctness. No test results were seen to verify that any of these were conducted.

CONCLUSION:
It is our opinion that the test results of the above-mentioned report are not conclusive enough to prove to a third party that the test on the data transmission was done in accordance with a laid down test procedure and whether these results compare favourably with expected results.

10.3.3 **Conclusion**

Documentary evidence was not made available containing the specific test procedures or methods, or detailed demonstration results.

It is not clear whether or not the EIVDL and Node Computer were working prior to 1998 based on a statement and a report by the DoD staff member.

The conclusion reached by the specialist highlights the fact that it is not possible to conclude that the test on the data transmission was done in accordance with a laid-down test procedure and that these results compare favourably with expected results.

I am unable to conclude on the related financial transaction as no specific invoices were identified for this deliverable.

10.3.4 **Management comment**

The technical expert's opinion that the test that was conducted was a simple one, is not disputed. What must be determined is what the objective of that test was, for instance to test only the functionality of the link (and not the reliability or susceptibility to electromagnetic interference, etc.). This test report was only for "phase 1", indicating a first step in the development of the data link.

The estimate by the informant of the milestone cost as R10 000,00 and your inability to link a specific invoice(s) to this milestone is due to the milestone being claimed as part of a larger (more complete) milestone contracted.

10.4 **Allegation 32: Contract Code: KT498943**

10.4.1 **Task:** This activity will cover all the planning, progress review, subcontractor management and systems engineering related to the development of the AU TEWA model.
Deliverable: Minutes of progress meetings
Milestone cost: R5 640,00
Allegation: No minutes of progress meetings were available in DCC on 9 March 1999.

10.4.2 **Detailed findings**

The draft WPP 995-05-400 and SOW Table 995-05-401 item 2 identify the scope of work as an activity that will cover all the planning, progress review, subcontractor management and systems engineering related to the development of the AU TEWA model. The deliverables are indicated as being minutes of progress meetings.

Attached to the minutes of the systems team meeting held on 15 July 1998 is an air defence simulator status presentation that covers the status on TEWA, ALPHA, FCS and SE and documentation.

Attached to the minutes of the systems team meeting held on 3 February 1999 is an air defence simulation status presentation that covers the status on TEWA.

In the memorandum issued by Armscor internal audit on the Special Investigation, dated 23 May 2000, the following was stated regarding allegations 32 to 54:

> *The allegations are directed at sub-tasks of items 115 to 119 of Order KT489943 (sic) to the value of R 489 127. The allegations made indicates that the work was done up to a certain level, was paid for and left on a list to be finalised in subsequent years.*
>
> *The allegations were furthermore based on an unsigned copy of the 'Work Package Plan and Work Authorisation' dated 21/05/97 which has a 7-page Task List attached thereto indicating the sub-tasks coupled to the contractual WBS numbers.*
>
> - *The Contractor indicated that the mentioned tasks correspond to internal sub-tasks which are up to two levels below the contracted items and therefore believe that they have no relevance.*

The Work Package Plan was furthermore only a draft copy and not the final document.

However, no approved Work Package Plan as required by the Contract could be made available. The Contractor indicated that towards the middle of the contract, in September 1997, it became apparent that the original soft copy and signed hard copy had disappeared. They suspected that this was due to the resignation of staff at the time. A copy was requested from Armscor who could not supply a copy as it was mislaid.

The supplier then deferred to the original contractual documents and its own knowledge of the requirements of the tasks and a task description was redrafted.

The supplier furthermore stated that it is of the opinion that the integrity of this task cannot be questioned and that far more has been provided and achieved than was ever initially intended. The supplier is furthermore willing to accept a technical audit of the task, as they are convinced that Armscor and the DoD have benefited far beyond the R591 592 paid for the tasks.

Our comments

Since no Work Package documentation is currently available, we are not in a position to determine what deliverables were contracted and whether they were delivered.

The report on the allegations issued by the Project Review Board, dated 20 September 2000, stated the following:

Findings:

- *Original WPPs missing*
- *No new WPPs were generated. Only draft WPPs as per proposal available.*
- *Documentation presented to Board was sufficient to indicate that the work was done, but not that all acceptance criteria were met.*

Comment:
NOTE:

- *Allegations were based on unsigned draft copies of WPPs.*
- *Board used task descriptions as per contractor's proposal.*

- *Also a typing error on contract caused some confusion between WPP numbers 996-05 on order and WPP number 995-05 used by ADS. Available task definition does not allow unambiguous indication of task completion. The FU model's blue file was not provided, but work performed on other and subsequent tasks would not have been possible without existence of such a model.*
- *This WPP addressed the AU/FU and data fusion modes. As for the AU/FU and data fusion models – A presentation was made on 15/07/98 indicating that these models were functional. ADS said that this presentation was held long after the models were functional in 1997. Refer to contractual dates. As for the data fusion models specifically – No evidence of demo exists, but another presentation was held on a System Engineering Meeting during February 1999, indicating that the work was performed. Also an evaluation report was made available to the team.*

Conclusion:

- *The allegations were based on non-formalised WPPs.*
- *The board had to rely on the contract proposal as to evaluate the allegations.*
- *The broad tasks were performed iaw the contract proposal, with the following exceptions (based on lack of formal evidence, i.e. all acceptance criteria were not met).*

10.4.3 **Conclusion**

Proof that minutes of the progress meetings were available in the DCC on 9 March 1999, could not be provided. Evidence of the TEWA discussions in the minutes of two meetings was, however, obtained. As no signed (final) WPP could be submitted, it could not be verified that the minutes were in fact a contractual deliverable.

10.4.4 **Management comment**

The order number stated in the memorandum issued by Armscor internal audit on the Special Investigation, dated 23 May 2000, regarding allegations 32 to 54 should have been KT 498943 and not KT489943. This was a mistake in the original Armscor memorandum of 23 May 2000.

10.5 **Allegation 58: Contract Code: KT498943**

10.5.1 **Task:** Flight level command and control interface requirements
Deliverable: Document
Milestone cost: R44 783,00
Allegation: No document in DCC on 9 March 1999.

10.5.2 **Detailed findings**

Only an undated and unsigned WPP 995-04, with start date 1 April 1997 and finish date 31 March 1998, with regard to the above project could be obtained. Attached thereto was SOW 995-04-102, which identifies the scope of work as a task that will provide a data interface requirements document for the Command and Control of an Air Defence deployment at flight level. The deliverable is indicated as being a Data Interface Requirements Document. The acceptance condition is a design review.

A CoC certifying that the task had been completed and complies with the requirements specified in the contract between Armscor and the supplier was signed by the supplier's project manager and the Armscor programme manager on 11 February 1998.

The Flight Level Command and Control Data Interface Requirements draft document (1427T0446-250001) Issue A, dated 3 July 1998, which was obtained was not signed by all the required signatories.

The supplier issued invoice 963, dated July 1998, with an Armscor date stamp of 23 July 1998, in which the Flight Level Command and Control Data Interface Requirements document was invoiced to the amount of R44 783,00 (excl. VAT). Based on the Armscor payment stamp on the duplicate invoice, the payment was effected on or after 25 August 1998.

The audit status report issued by the manager of the DCC, dated 19 March 1999, indicated that the Flight Level Command and Control Interface Requirements document was still conceptual (not approved) and not available in the DCC as at 19 March 1999.

A supplier tagged document report dated 1 June 1999 indicated that the Flight Level Data Interface Requirements document was a draft and still pending (or not approved) on 1 June 1999.

In the memorandum issued by Armscor internal audit on the Special Investigation, dated 23 May 2000, it is stated that the document is an Issue A document which does not seem to be complete. The report also states that the contractor supplied us with document 1427T0446-250001 – Flight Level Command and control data interface requirements dated 3/7/98 but signed on 16/3/99.

In the report on the allegations issued by the Project Review Board, dated 20 September 2000, it was stated that the Interface Requirements document was provided and that Issue A was issued in July 1998 and paid in February 1998. The conclusions were that the allegation was refuted with regard to the content of the document not being acceptable; the allegation was not refuted with regard to the document being in the DCC at the time of the allegation; and since no evidence could be provided for the acceptance conditions, it seemed that payment was made before the work had been completed.

10.5.3 **Conclusion**

Based on the evidence in my possession, the document was not in the supplier's DCC.

The reason for the CoC being signed in February 1998 is not clear, as the draft document, Issue A, was dated 3 July 1998. The supplier invoiced Armscor for the specific deliverable at the exact amount as stated in the SOW.

The required document was still not finalised as at 16 March 1999 according to the Armscor internal audit report.

10.5.4 **Management comment**

Note that the invoice was only paid on or after 25 August 1998 (the certification date on the invoice).

10.6 **Allegation 60: Contract Code: KT 498943**

10.6.1 **Task:** Flight Commander station
Deliverable: Integrated FCS System
Milestone cost: R555 924,00
Allegation: Because the EIVDL did not work, the supplier had to spend approximately one man-year to fix the problems with the EIVDL. The fixing was paid by Armscor under this task while the supplier was supposed to integrate the various subsystems with the money that was allocated to this task. Subsequently, the FCS was in operation later than was planned and so the process was repeated to invoice the client under another project.

10.6.2 **Detailed findings**

The signed WPP 996-05, dated 12 August 1997, for the period 1 April 1997 to 31 March 1998, identified the results to be achieved as:

- FCS Software Integration
- FCS ETHERNET Integration
- FCS Systems Level Integration (Phase A)
- FCS Systems Level Integration (Phase B)
- FCS Demonstration of Phase 1

According to the SOWs the following assumptions were, *inter alia,* documented:

- EIVDL subsystems perform according to specifications.
- EIVDL subsystem is performing to the extent that reliable level 1 and level 2 data can be exchanged. This is necessary in order to test and de-bug the software.
- Ethernet drivers as supplied are bug free.

In the above SOWs high risk was, *inter alia,* identified because of the EIVDL component in the system.

The following invoices relating to this allegation were identified:

Invoice no.	Invoice date	CoC signed by Armscor's representative	Finance payment approval date	Invoice amount (excl. VAT)
635	14 Nov 1997	19 Nov 1997	No date	R311 844,00
767	13 Feb 1998	11 Feb 1998	17 Feb 1998	R153 630,00
1011	23 Sept 1998	11 Feb 1998	14 Oct 1998	R163 125,00
Total				**R628 599,00**

The following CoCs relating to this allegation were identified:

Invoice no.	Date CoC signed by Armscor's representative	Date CoC signed by the supplier's representative
635	19 Nov 1997	11 Nov 1997
767	11 Feb 1998	10 Feb 1998
1011	11 Feb 1998	10 Feb 1998

An internal memorandum from an employee of the supplier stated, *inter alia*, as follows:

> 2. *Writer will generate a report indicating where we stand today in terms of progress on the different aspects of the project. For example, after R1 335 739 was spent on EIVDL development, a summary will be given what still needs to be done in order to complete this work. Remember that we are still* ***very far*** *from a* ***reliable*** *and* ***complete*** *(e.g. RF link) working system.*

In a sworn affidavit, dated 14 June 2000, an employee of the supplier confirmed that when he started in July 1997 to fix the EIVDL and FU/AU Node Computer software, he was aware of the fact that the subsystems engineer had taken over the EIVDL/FCS Project at the beginning of 1997. He also stated that he was aware of the fact that the integration of the complete FCS subsystems was planned for during 1997. According to his statement, it was impossible to proceed with the integration as the basic blocks, e.g. EIVDL, did not work. He stated that he did fix the EIVDL and Node Computer software on the FCS integration tasks, while the supplier was supposed to integrate the various FCS subsystems during the period 1997/98.

In the minutes of the systems team meeting held on 10 June 1998 it is recorded that the work on the AU to AU communications was completed and that they were now working satisfactorily.

In a document with the heading "HIGH LEVEL STATEMENT OF WORK AND ESTIMATED COST FOR THE FCS AND AU NETWORK FIXES AND UPGRADES (after deployment during the period of 27 August and 9 September 1998)" the following were, *inter alia*, recorded:

> *EIVDL/NODE*
>
> 33. *Correct the AU1 Node Computer check sum error display.*
> 34. *Correct the AU node computer status display to make it more user friendly. At the moment it is more an engineering development type of display.*
> 35. *Upgrade the AU to AU test software to make it more field usable.*
> 36. *Investigate and upgrade the testability of the data comms network (EIVDL and Node Computers). Also: Give out correct health status to FROC.*
> 37. *Perform re-layout of EIVDL cards to cater for testability (e.g. LED display) and permanent configuration for all the 'butchered' modifications.*
> 38. *Modify EIVDL software to cater for testability (in conjunction with the hardware modifications).*

39. *Build eight new EIVDL cards (two spare).*
40. *Repair spare EIVDL drawer and card.*
41. *Build two spare modems.*
42. *Investigate and correct problem of downloading software into EIVDL's solid state disk (use laplink?).*

In the memorandum issued by Armscor internal audit on the Special Investigation, dated 23 May 2000, it is stated that internal audit would only comment after receipt of the approved Work Breakdown Structure (WBS).

The report issued by the Project Review Board, dated 20 September 2000, states the following:

Findings:

- *Original WPPs missing. No new WPPs were generated. Only draft WPPs as per proposal available.*
- *EIVDL component was identified as a high risk input for the task (996-05-101).*
- *The supplier claims that work to rectify input to this task was done at own cost.*

Comments:

- *Deliverable and acceptance condition were stated to be a 'demonstration' at several related subtasks.*
- *Review Committee could only confirm unequivocally that a concluding demonstration for FCS Phase 1 took place.*
- *Demonstrations were required in draft WPPs 996-05-101/102/201/202/300 in proposal, but execution of these demonstrations was not verified by the Review Board.*
- *The draft WPP (996-05-101) identified the EIVDL component as a high risk input for this task.*
- *The fact that these final WPPs could not be produced by the Programme Manager or the Contractor and only an unconfirmed draft copy was made available by the complainant is unacceptable and created a major problem for the Review Board.*

Conclusion:

- *The Review Board could not find substantiating evidence that the EIVDL was fixed under this task. Review Board only received formal proof of the execution of a 'demonstration (that) concludes FCS Phase 1' between 27 August and 9 September 1998. Work defined in proposal had in all probability been done.*

10.6.3 **Conclusion**

Armscor could not supply me with an approved WPP regarding allegation 60. The only WPP available was a copy of a WPP supplied to me by the informant.

It is not clear on what basis the supplier's invoices were compiled or on what basis the CoCs were completed, as no formally approved WPP could be provided by the supplier or Armscor.

Based on the available information and documentation it could not be determined whether activities not related to the FCS were billed under this project and/or whether activities relating to the FCS were billed under another project.

As the integration of the FCS system was dependent on the EIVDL subsystem performing according to specifications, it is not clear how the CoC could have been signed in February 1998 with the list of FCS and AU Network issues and upgrades identified after the deployment during the period 27 August 1998 to 9 September 1998.

10.6.4 **Management comment**

Invoice 635 was only received by Armscor Finance Department in December 1997 although the invoice date is 14 November 1997.

Please note that invoice 1011 was only paid on or after 14 October 1998.

10.7 **Allegation 65: Contract Code: KT498943**

10.7.1 **Task:** Item no. 274 Technical firing preparation – preparation activity #3. This item provides for the analysis of the efficiency of the FFT algorithms used in the FU. A report will be drafted, listing deficiencies and recommended actions.
Deliverable: Analysis report to be approved by the APM.
Milestone cost: R124 194,00
Allegation: The purpose of this task was to do a detailed software analysis of the PDRT project and it was done by a subcontractor. The subcontractor was busy (February 1999) trying to get the PDRT to work with RIPTO funds. The project is a failure as one can see from the 16 September 1998 systems team meeting minutes: We move into a 'perform or perish' phase. The task was invoiced on 25 February 1999 despite the fact that the work had not yet been completed, as was indicated in the minutes of the 49th Air Defence management meeting of 8 March 1999.

10.7.2 **Detailed findings**

On 18 November 1998 the supplier informed Armscor, *inter alia*, of the Definition of Tasks items numbered from 248 to 274 as well as the SOW which was attached as an appendix.

According to the Definition of Tasks, the delivery date of item 274 was 29 September 1999 and the cost amounted to R124 194,00.

The SOW for item 274: Technical firing preparation – Preparation activity #3 stated:

Scope of Work:	*This item provides for the analysis of the efficiency of the FFT algorithms used in the FU. A report will be drafted, listing deficiencies and recommended actions.*
Assumptions:	*None*
Specific Exclusions:	*Implementation of recommendations.*
Deliverables:	*Analysis report.*
Acceptance Criteria:	*Approval of the report by the Armscor programme manager.*

On 15 February 1999 the supplier invoiced Armscor, *inter alia*, with invoice 1133 for item 274 to the amount of R124 194,00.

The CoC for item 274 was signed by the supplier's project manager on 11 February 1999, the supplier's technical manager on 11 February 1999, and the APM on 16 February 1999. The certificate stated the following: *We hereby certify that the task detailed below has been completed and complies to the requirements specified in the contract between ARMSCOR and the supplier.*

The minutes of the supplier's 49th management meeting held on 8 March 1999 (altered from 1998) reflect, *inter alia*, the following:

a. PDRT (To be wrapped up no later than the first week in March)

i. Project report – draft expected to be completed towards the middle of this week. Appendix required from a sub-contractor.
ii. Review report internally first.

The minutes of the supplier's 51st management meeting held on 12 April 1999 reflect, *inter alia*, the following:

> *a. PDRT*
>
> *i. Draft report received from a sub-contractor*
> *ii. Met with sub-contractor – report not what was expected.*
> *iii. Review completed part of report this week.*

On 11 May 1999 the following information was stated, *inter alia*, in a grievance memorandum addressed to the supplier:

> *3. Why has Item No. 274 in Appendix A been described as 'This item provides for the analysis of the efficiency of the FFT algorithms used in the Firing Unit'? I will answer the question as I know the answer: All parties are aware of the fact that project funds are not allowed to be used anymore to fund the PDRT technology programme. This is why it has been disguised in the SOW description in the way it was done. This disguising was confirmed by the following:*
>
> *The Armscor Programme Manager was quite impressed with me with the way the SOW was stated.*
>
> *For record purposes, this money is used to analyse the PDRT software in order to optimise its processing performance. With all the money spent so far on PDRT, it is still not in operation. The severe wrongdoings in the PDRT project were pointed out to you in previous writings. The wrongdoings have caused the failure of this project.*

A signed affidavit of a technical employee of the supplier states, *inter alia*, as follows:

> *POINT 65:*
> *It was with amazement that I have taken notice of this task description. There is no FFT algorithms in the software of the FU. Refer to the Test Description Document which outlines the full functionality of the Firing Unit's software. What is further intriguing is that it is listed under Technical Firing Preparation. I know that the FFT algorithms are used in the new PDRT software which was developed by a sub-contractor. The PDRT was not part of the missile firing tests during February/March 2000.*

On 23 March 2004 the supplier's systems engineer responded to Armscor in a letter stating:

> *Request for FFT Analysis Documentation*
>
> *The recent request of the Armscor audit committee in relation to Item no 274 refers.*
>
> *I am fairly sure that the item in question is the PDRT study relating to analysis of the radar algorithm performance. This document I do have in my softcopy records (in draft), and I believe that a revision 2 to correct typos was the latest (my copy). I trust that this is the document sought by the committee, as it appears to me to be the most relevant.*

In the memorandum issued by Armscor internal audit on the Special Investigation, dated 23 May 2000, the comments of Armscor's Technology and Management Analysis division were documented as follows:

> *The project was funded from SAAF Technology Demonstrator Funds (TDF) which fell under the jurisdiction of the Research and Development Board (DRDB).*
>
> *All projects funded by SAAF TDF were authorised and approved by the Armament Technology Acquisition Secretariat which is a permanent subcommittee of the DRDB.*
>
> *On 15 January 1997, ATAS approved a PD (PD no CO 1878) for the project covering the financial years from 1997 to 2000. The PD was furthermore already been approved by the SAAF as they initiated the project.*
>
> *PDs, by nature, are furthermore high-level documents that set out the financial constraints and broad aims and objectives of a proposed contract and is it not possible to link specific milestones directly to PD no. CO 1878.*
>
> *The following observations were, however, made regarding the context of the particular milestones and the associated allegations in relation to the aims and objectives stated in the PD: -*
>
> - *The PD clearly state that the project is planned to augment the current capabilities by developing technologies required to defend against the future threat to air bases.*

- *It may therefore reasonably be construed that all activities related to the development and demonstration (or testing) of new technologies, or the upgrading of existing equipment, or even the purchasing and evaluation of bought-out items would be in line with the PD as long as such activities were directed at the objective of improving the current air defence capability.*
- *Items no. 272 & 274 of the order are therefore considered to be valid milestone activities.*
- *The spirit of the project (as with many technology development projects) was to retain and develop human expertise as much as (if not more than) it was to achieve better performance of systems.*
- *Seen in this light, activities performed under the project to develop such human expertise could once more be considered to be in line with the objectives of the PD.*
- *Expert scrutiny of the affected milestones will however be required to evaluate their respective contributions to this objective.*

The report on the allegations issued by the Project Review Board, dated 20 September 2000, states, *inter alia,* as follows:

Further aspects of concern to the Review Board are:

- *The payment of incomplete milestones, especially at the end of March, with the stated intention by the supplier of completion very early in the new year. An example of this is allegation no 65 'Technical Firing Preparation' Item 274 of KT444971, which was approved for payment on 16 February 1999, whilst it was only completed in June 1999.*

The report issued by the Project Review Board, dated 20 September 2000, states, *inter alia*, as follows with regard to allegation 65:

Finding:

- *The report as required by WPP was provided and the content was found to be acceptable. The report was not signed.*

Comments:

- *APM to provide evidence of the date when the PDRT work was terminated (termination conditions to be supplied as well).*
- *Only letter from the supplier dated 13 September 2000, stating that PDRT was not terminated, provided.*

Conclusion:

- *Evidence inconclusive.*

The first issue PDRT SOFTWARE PROCESSING ANALYSIS document, dated June 1999, *inter alia*, states:

> *1 INTRODUCTION*
>
> *This document reflects the investigation into the efficiency of the primary software processes contained in the PDRT software signal processor. The task intention was to ascertain the efficiency of the existing processes, and to determine whether the processing deficiencies alone could account for the lack of adequate performance of the PDRT.*
>
> *This document contains the essential background information for this study, and is therefore to be seen as a direct input into the reports contained in the 'PDRT Upgrade Project Management Plan' (document 1427T0082-750001). The original intention was to incorporate the outputs of this document as appendices of the PDRT Upgrade Project Management Plan, but due to the extensive and detailed nature of this work it has been decided to issue this document separately. The document intention is therefore not to provide many of the sections normally found in such a report, but rather to incorporate the document in four appendices, as was the original intent – but in this selfstanding report. The document effectively forms part of the PDRT Design Data Technical File, document number 1427T0082-150001.*

10.7.3 **Conclusion**

The deliverable provided to the investigation team conformed to the required deliverable as per the SOW for Item No. 274. However, it is not clear why the final deliverable was not available in the DCC.

The task was invoiced in February 1999 while it was not yet completed by 12 April 1999.

It is not clear why the CoC, which certified that the task was completed, was signed prior to the work being completed.

10.8 **Allegation 72**

10.8.1 **Milestone cost:** R24 345,60
Allegation: This point centres around the issue that the supplier double-invoiced for the Help Screens of the FCS during the financial year 1996/1997.

Subsequent to discussions with the informant it became apparent that the allegation he originally intended was incorrectly interpreted. The following is the amended allegation based on the discussions:

> This point centres around the issue that the supplier double-invoiced the time spent by an employee on the Help Screens of the FCS and a code development project during the financial year 1996/1997.

10.8.2 **Detailed findings**

The Armscor internal audit memorandum dated 23 May 2000 did not address this issue.

In a statement dated 8 September 2000, an employee of the supplier states as follows:

1. *Towards the end of 1996 I was called in from another division to help with code development.*
2. *Due to the fact that only one CPP and one H file existed for the code at that point in time, I found it extremely difficult and frustrated to work on this task. An Object Orientation Program is normally broken down in separate physical files to implement the logical division (classes) of the application.*
3. *I have subsequently asked to be given other work.*
4. *I have helped the subsystems engineer to implement the Help Screens for the FCS, before I moved back to my previous division.*

The report on the allegations issued by the Project Review Board, dated 20 September 2000, states as follows:

Findings: allegation 5 Aug 2000:
Already addressed under allegation 19 and 20.

Comment: allegation 5 Aug 2000:
Only additional information was provided by complainant under this item.

Conclusion: allegation 5 Aug 2000:
Refer to 19 and 20.

Findings: allegation 19/20:

- *Update was not specifically required in terms of the WPP i.e. 'update if necessary'.*
- *Unsigned copies of SDD exist.*

- *It is not clear whether the allegation refers to a document review of the SDD or to progress reviews.*

Comment: allegation 19/20:

- *Allegation refers to non-availability of documents in DCC at specific points in time. Uncontrolled documents might have existed.*
- *No document review necessary if an update did not occur.*
- *An additional person was tasked to assist with software development support.*

Conclusion: allegation 19/20:

- *Work outputs not defined unambiguously.*
- *It seems that progress reviews were addressed at SE team meetings.*
- *No conclusive findings can be made as it is not clear whether an update to the SDD was required.*

10.8.3 **Conclusion**

The timesheets of the specific employee of the supplier for the period should be made available and followed through to the actual invoices in order to validate the claims of the informant.

This issue needs further investigation.

10.8.4 **Management comment**

The reason why the Armscor Internal Audit memorandum of 23 May 2000 did not address allegation 72 is because this allegation was only received by Armscor on 5 August 2000.

11. OTHER ISSUES

Project Review Board

The Project Review Board consisted of seven members. Of the members, six were technical experts and one an internal auditor. All the members were Armscor employees except one technical expert. No evidence was available that indicated that any of the review board members had had direct involvement with the project.

The Armscor internal audit department and the Project Review Board were given limited time frames within which to finalise the investigations.

The Project Review Board did not obtain and evaluate all the supporting documentation and evidence during its investigation. As a result, the office's investigation team had to obtain additional documentation and evaluate relevant evidence, which resulted in a delay in the finalising of the investigation.

The Project Review Board did not keep proper minutes of the meetings where the allegations were discussed. As a result, the office's investigation team could not determine what procedures were performed, which documentation and evidence were obtained and evaluated, and what evidence was used by the Project Review Board to substantiate its conclusions.

The Project Review Board did not keep a complete set of supporting documents to substantiate its report. As a result, some of the supporting documents had to be obtained from the supplier/informant.

12. OVERALL CONCLUSIONS AND RECOMMENDATIONS

Based on the above findings, it is concluded that:

- The Armscor internal control system was not adequate to eliminate the issues identified in the allegations.
- The facts obtained by the office's investigation team do not always support the findings of the Project Review Board.

It is therefore recommended that the findings of this report together with the two internal reports be evaluated by the Armscor Board and Management, and that the approach followed in addressing the allegations as well as the findings of the Armscor internal audit report and the Project Review Board be re-assessed to ensure compliance with section 51 of the Public Finance Management Act (Act No. 1 of 1999).

13. APPRECIATION

The assistance rendered during the investigation by the staff members of Armscor is appreciated.

AUDITOR-GENERAL
29 March 2005