

**Audit**



**Report**

OFFICE OF THE INSPECTOR GENERAL

**COMPUTED TOMOGRAPHY SCANNER MAINTENANCE  
SERVICE CONTRACTS**

Report Number 93-041

January 8, 1993

**Department of Defense**

**The following acronyms are used in this report.**

AFB.....Air Force Base  
CICA.....Competition In Contracting Act  
CT.....Computed Tomography  
DPSC.....Defense Personnel Support Center  
DVA.....Department of Veterans Affairs  
FAR.....Federal Acquisition Regulation  
OEM.....Original Equipment Manufacturer



INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
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January 8, 1993

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS)  
ASSISTANT SECRETARY OF THE NAVY (FINANCIAL  
MANAGEMENT)  
ASSISTANT SECRETARY OF THE AIR FORCE (FINANCIAL  
MANAGEMENT AND COMPTROLLER)  
INSPECTOR GENERAL, DEPARTMENT OF THE ARMY  
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Report on Computed Tomography Scanner Maintenance  
Service Contracts (Report No. 93-041)

We are providing this final report for your information and use. This report resulted from a DoD Hotline allegation that maintenance service contracts for computed tomography scanners were awarded without full and open competition. Comments from the Assistant Secretary of Defense (Health Affairs), the Army, the Navy, the Air Force, and the Defense Logistics Agency on a draft of this report were considered in preparing the final report.

DoD Directive 7650.3 requires that all audit recommendations be resolved promptly; therefore, we request comments from the Assistant Secretary of Defense (Health Affairs), the Army, the Navy, and the Air Force on the unresolved recommendations by March 9, 1993. See the Response Requirements per Recommendation in Part II. The directive also requires that comments indicate concurrence or nonconcurrence in the finding and each recommendation addressed to you. If you concur, describe the corrective actions taken or planned, the completion dates for actions already taken, and the estimated dates for completion of planned actions. If you nonconcur, you must state your specific reasons for each nonconcurrence. If appropriate, you may propose alternative methods for accomplishing desired improvements. If you nonconcur with the estimated monetary benefits or any part thereof, you must state the amount with which you nonconcur and the basis for your nonconcurrence. Recommendations are subject to resolution in accordance with DoD Directive 7650.3 in the event of nonconcurrence or failure to comment.

The courtesies extended to the audit staff are appreciated. If you have any questions on this report, please contact Mr. Salvatore D. Guli at (703) 692-3025 (DSN 222-3025) or Ms. Macie J. Rubin at (703) 692-3222 (DSN 222-3222). Appendix G lists the planned distribution of this report.



Robert J. Lieberman  
Assistant Inspector General  
for Auditing

cc:

Secretary of the Army  
Secretary of the Navy  
Secretary of the Air Force  
Director of Defense Procurement  
Comptroller of the Department of Defense  
The Surgeon General, Department of the Army  
Chief, Bureau of Medicine and Surgery, Department of the Navy  
Surgeon General of the Air Force  
Inspector General, Department of Veterans Affairs

Office of the Inspector General, DoD

Audit Report No. 93-041  
(Project No. 2CD-8006)

January 8, 1993

COMPUTED TOMOGRAPHY  
SCANNER MAINTENANCE SERVICE CONTRACTS

EXECUTIVE SUMMARY

**Introduction.** We performed this audit in response to a DoD Hotline allegation that maintenance service contracts for computed tomography (CT) scanners were awarded without full and open competition. DoD is currently expending approximately \$9 million for CT scanner maintenance service annually. This expenditure will increase each year and is projected to be about \$12 million in FY 1998. We coordinated this audit with personnel of the Inspector General, Department of Veterans Affairs (DVA) because they had received a similar complaint in 1991.

**Objectives.** The audit objectives were to determine whether CT scanner maintenance service contracts were awarded in compliance with established criteria, and whether adequate internal controls were in place and were followed. We expanded the scope to determine whether it would be beneficial for DoD to perform CT scanner maintenance service in-house.

**Audit Results.** The audit confirmed the allegation that DoD awarded CT scanner maintenance service contracts without full and open competition because of bid restrictions in the procurement process. In addition, use of in-house maintenance would be preferable.

**Internal Controls.** Internal controls were not effective to ensure adequate competition for CT scanner maintenance service contracts. We consider the internal control weaknesses to be material. The internal controls reviewed are detailed in Part I, and the internal control weaknesses are described in Part II of this report.

**Potential Benefits of Audit.** We estimated that DoD could achieve monetary benefits of about \$24 million by improving competition in the acquisition of maintenance service for CT scanners. Additional potential monetary benefits ranging from \$7 million up to \$15 million may occur if DoD performed CT scanner maintenance service in-house. Additional benefits may result if DoD establishes agreements with the DVA to share CT scanner maintenance service. Furthermore, in-house CT scanner service can improve patient services and DoD war readiness capability. The potential benefits are summarized in Appendix E.

**Summary of Recommendations.** We recommended that DoD eliminate bid restrictions on CT scanner maintenance service contract solicitations to improve competition, perform cost benefit analysis before deciding on in-house versus contract maintenance, and establish CT scanner maintenance service sharing agreements between the Military Departments and DVA.

**Management Comments.** The Assistant Secretary of Defense (Health Affairs), the Army, the Navy, and the Defense Logistics Agency agreed that procedures need to be revised to eliminate sole-source contracts and to improve competition for CT scanner maintenance. The Air Force did not agree with separating maintenance options from the purchase of CT scanners. The Assistant Secretary of Defense (Health Affairs) and the Air Force did not concur with the recommendation to begin in-house maintenance and stated that a cost benefit analysis should be done first. The Army proposed an alternative to the recommendation in which a comprehensive review of CT scanner maintenance service alternatives will be performed. The Army initiated a review of all CT scanner maintenance. We have changed our recommendations to reflect the concerns expressed in the comments. The Assistant Secretary of Defense (Health Affairs) and the Air Force provided alternative estimates of monetary benefits to be gained from elimination of sole-source contracts for maintenance. We agree with their revised calculations. A summary of the management comments is in Part II and the complete text of the management comments is in Part IV of the report.

We request that the Assistant Secretary of Defense (Health Affairs), the Army, the Navy, and the Air Force provide comments to this final report by March 9, 1993.

TABLE OF CONTENTS

	<u>Page</u>
TRANSMITTAL MEMORANDUM	1
EXECUTIVE SUMMARY	i
PART I - INTRODUCTION	
Background	1
Objectives	1
Scope	1
Internal Controls	2
Prior Audits and Other Reviews	3
PART II - FINDING AND RECOMMENDATIONS	
Computed Tomography Scanner Maintenance Service Contracts	5
PART III - ADDITIONAL INFORMATION	
APPENDIX A - Computed Tomography Scanner Maintenance Service Contracts	17
APPENDIX B - Computation of Contract Maintenance Service Costs	21
APPENDIX C - Computation of In-house Maintenance Service Costs	23
APPENDIX D - Locations of DoD and Nearby Department of Veterans Affairs Medical Centers Computed Tomography Scanners	27
APPENDIX E - Summary of Potential Benefits Resulting from Audit	35
APPENDIX F - Activities Visited or Contacted	37
APPENDIX G - Report Distribution	41

TABLE OF CONTENTS (cont'd)

	<u>Page</u>
PART IV - MANAGEMENT COMMENTS	
Assistant Secretary of Defense (Health Affairs)	45
Department of the Army	57
Department of the Navy	67
Department of the Air Force	69
Defense Logistics Agency	81

This report was prepared by the Contract Management Directorate, Office of the Assistant Inspector General for Auditing, DoD. Copies of the final report can be obtained from the Secondary Reports Distribution Office, Audit Planning and Technical Support Directorate (703) 614-6303 (DSN 224-6303).

## PART I - INTRODUCTION

### Background

We performed this audit in response to a DoD Hotline referral alleging that solicitations for service maintenance contracts for the computed tomography (CT) scanner contained bid restrictions.

A CT scanner is a computerized X-ray system that produces three-dimensional X-ray images for physician diagnostic purposes. DoD has CT scanners in 68 of its 179 hospitals. Currently, 78 scanners are in service and DoD plans to place an additional 11 in service over the next 3 years.

Original equipment manufacturers (OEMs) or CT scanner maintenance service companies service most of the CT scanners and other high-cost technological diagnostic equipment in DoD hospitals. Maintenance service contracts annually averaged about \$124,000 per CT scanner on sole-source contracts and \$70,000 per CT scanner on competitive contracts and will total approximately \$9 million for 1992 (see Appendix A).

### Objectives

The audit objectives were to determine whether CT scanner maintenance service contracts were awarded in compliance with established criteria and whether adequate internal controls were in place and were followed. We expanded the scope to determine the suitability of servicing the CT scanners in-house. We coordinated with the Department of Veteran Affairs (DVA) on the feasibility of sharing CT scanner maintenance services. The DVA received a similar referral on CT scanner contracts in 1991 and issued a report on CT scanner contracts (See Part I, Prior Audits and Other Reviews).

### Scope

Documents reviewed. We reviewed maintenance service contract documents, maintenance service records, and material and labor records for hospitals performing in-house CT scanner maintenance service. We were unable to locate a central source within DoD that had a complete listing of all CT scanners. Therefore, we qualified our report to the extent that we may not have identified all serviceable CT scanners in service at DoD hospitals.

We identified 78 CT scanners in DoD hospitals. Four of these scanners are new and still under the manufacturer's warranty. One scanner was serviced by in-house DoD personnel and 73 were under maintenance service contracts with an estimated total contract value of \$9 million. We reviewed contracts with costs applicable to FY 1992 for 36 of the 73 CT scanners. We reviewed requests for proposal, business clearance memorandums, and negotiation memorandums. We reviewed the 36 contracts and

supporting contract documentation to estimate CT scanner maintenance service costs and to determine whether the contracts or contract documents contained any bidding restrictions.

We also reviewed procurement documents for CT scanners under request for proposal DLA120-91R-1522 at the Defense Personnel Support Center (DPSC). This procurement is for the purchase of 60 CT scanners over the next 3 years. We reviewed the procurement to determine the estimated quantity of scanners being purchased, to determine the estimated cost of CT scanner maintenance service options, and to determine whether the CT scanners were new purchases or replacements of existing CT scanners.

**Maintenance service records.** We reviewed CT scanner maintenance service records at four DoD hospitals to determine the quality of CT scanner maintenance service provided by OEMs and other maintenance service companies. We reviewed records for CT scanner maintenance service calls, patient scheduling and rescheduling, material usage, and labor hours.

We interviewed personnel responsible for CT scanner maintenance service at a private-sector health maintenance organization to determine cost associated with in-house maintenance.

**Material and labor records.** We reviewed historical cost and labor records for the sole CT scanner maintained by Air Force in-house personnel. We reviewed the records from the time the Air Force began in-house CT scanner maintenance service in October 1990 through April 1992. We also obtained records from two DVA hospitals that did in-house maintenance. The records reviewed covered the period from 1985 through February 1992. We reviewed the Air Force and DVA records to determine the labor and material cost of performing CT scanner maintenance service in-house.

**Audit period, standards, and locations.** We performed this economy and efficiency audit from January through August 1992 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. Accordingly, we included such tests of internal controls as were considered necessary. We did not rely on any computerized data to perform the audit. See Appendix F for activities visited or contacted.

### **Internal Controls**

Our review was limited to an evaluation of internal controls related to the procurement of CT scanner maintenance service. Therefore, we are not expressing an opinion on the adequacy and compliance of any other internal controls or the Defense

Logistics Agency implementation of the Federal Managers' Financial Integrity Act.

We reviewed the internal control procedures for ensuring that:

- o solicitations did not contain unnecessary restrictive provisions that excluded qualified bidders,
- o all responsible sources were permitted to compete, and
- o the exercise of contract options was the most advantageous method for fulfilling the Government's need.

The audit identified material internal control weaknesses as defined by Public Law 97-255, Office of Management and Budget Circular A-123, and DoD Directive 5010.38. Controls were not effective to ensure compliance with the Competition in Contracting Act (CICA), as implemented in the Federal Acquisition Regulation (FAR) part 6, during the procurement of CT scanner maintenance service. Also, the DPSC contracting procedures did not ensure adequate competition for CT scanner maintenance service contracts. Recommendations 1. and 2. in this report, if implemented, will correct the weaknesses. We determined that potential monetary benefits of about \$24 million can be realized by implementing these recommendations. A copy of this report is being provided to the senior officials responsible for internal controls within the Military Departments and the Defense Logistics Agency.

#### **Prior Audits and Other Reviews**

The Office of the Inspector General, Department of Veterans Affairs, Report No. 1PE-E02-073 (Amended), "Special Review of VA's Service Contracts for the Picker CT Scanner," September 30, 1991, found that 21 of 36 CT scanner maintenance service contracts awarded to Picker Corporation contained restrictive specifications. The report also stated that CT scanner maintenance service contracts were generally awarded to lower-priced CT scanner maintenance service contractors when contracts did not contain restrictive specifications. It was recommended that the Deputy Assistant Secretary for Facilities develop and use nonrestrictive specifications in solicitations for servicing Picker CT scanners. The Deputy Assistant Secretary for Facilities agreed to the recommendations.

## PART II - FINDING AND RECOMMENDATIONS

### COMPUTED TOMOGRAPHY SCANNER MAINTENANCE SERVICE CONTRACTS

Maintenance costs for CT scanners were excessive. Excessive maintenance costs were incurred because competition restrictions resulted in sole-source awards and because DoD hospitals did not weigh the economic benefits of using in-house personnel to maintain CT scanners. We estimated that increased competition could have potential monetary benefits of about \$24 million in FYs 1994 through 1998. This benefit represents 35 percent of the anticipated expenditure of \$66.9 million for CT scanner maintenance service if purchased without full and open competition. Further monetary benefits that range from \$7 million to \$15 million are possible by converting to in-house maintenance service of CT scanners.

#### DISCUSSION OF DETAILS

CT scanner maintenance service contracts are subject to the requirements of the CICA, FAR subpart 6.1, "Full and Open Competition," and FAR part 10, "Specifications, Standards, and Other Purchase Description." The CICA and FAR subpart 6.1 require full and open competition for the procurement of CT scanner maintenance service and supplies. To comply with the CICA and the FAR, all responsible bidders must be permitted to bid on a contract solicitation. Paragraphs (c)(3) and (d)(1) of FAR 17.207, "Exercise of Options," require the contracting officer to determine if the exercise of the option is the most advantageous method of fulfilling the Government's need, or if a new solicitation would produce a better price. FAR subpart 10.002, "Policy," permits the contract solicitation's statement of work specifications to, "...include restrictive provisions or conditions only to the extent necessary to satisfy the minimum needs of the agency or as authorized by law."

#### Reasons for Sole-Source

As of January 31, 1992, DoD had awarded approximately 73 maintenance service contracts for CT scanners. Of the 36 contracts examined, our review found that 27 were awarded without full and open competition (see Appendix A). Of the 27 contracts, 19 were options that were awarded without full and open competition. Of the 27 contracts, 8 were found to have unnecessary restrictions that exceeded the needs of the agency in the statement of work.

CT scanner maintenance service options. FAR subpart 6.1 requires, "...that contracting officers shall promote and provide for full and open competition in soliciting offers and awarding Government contracts." The FAR also states that, "full and open competition means that all responsible sources are permitted to compete." We determined that this FAR requirement was not met

for 4 contracts that contained 19 contract options for maintenance service. The contracts were awarded by DPSC. The requirement was not met at the time the contracts were awarded or at a later time when the contract options were exercised because service companies, other than OEMs, did not have an opportunity to compete for the contract. Service companies were not afforded an opportunity to compete because the solicitations required that the offerer provide both CT scanners and the maintenance service for the scanners. Service companies could not compete by bidding these solicitations because they could not satisfy both hardware and service maintenance requirements.

DPSC exercised the contract maintenance options, stating that the options were the most advantageous methods for fulfilling the needs of the Government. However, DPSC made this determination without soliciting all responsible sources to obtain competition for CT scanner maintenance services. In order to exercise the options, DPSC supported the price as reasonable by using the bid price of another OEM. For example, on contract DLA120-89-C-8043, DPSC exercised a CT maintenance service option and justified competition by stating that another OEM offered a higher price for the same option. However, no other service companies were solicited for price competition. Also, the OEM that offered the higher price offered a price for servicing a different brand of scanner.

**Factory training restriction.** In our review of CT scanner maintenance service contracts/solicitations at DoD hospitals, we found a specification in the statements of work that required CT scanner maintenance service technicians to be factory trained. Further, statements of work in contracts F11623-88-C-0053 and F49642-88-D-0059 required factory training on a specific CT scanner make and model.

We found CT scanner maintenance service technicians who were not factory trained performing satisfactory maintenance service at DoD and DVA hospitals. These technicians were trained at nonfactory schools, such as the Radiological Service Training Institute in Cleveland, Ohio, and R Squared Scan Systems, Incorporated, in Corona, California. We concluded that DoD hospital bid solicitations that contained a statement of work requirement for factory training were restrictive because they eliminated other responsible bidders. The Office of the Inspector General, DVA, came to a similar conclusion in its review of CT scanner maintenance service contracts; and DVA initiated action to eliminate restrictions to competition in DVA contracts.

**Software restriction.** Contracts F08651-91-D-0001 and F11623-88-C-0053 contained software restrictions that required the contractor to possess the license to hold and use the manufacturer's copyrighted diagnostic software. We found that licensing requirements for diagnostic software were not essential to perform diagnostic functions. We concluded that DoD hospital

bid solicitations that contained a statement of work requirement for diagnostic software licensing were restrictive because they eliminated other responsible bidders and were not necessary to meet the minimum needs of the procuring agency.

### **Cost of Sole-Source Contracts**

Our review showed that the average cost of contracts awarded without competition for CT scanner maintenance service was 76 percent greater (\$124,196 versus \$70,478) than the cost of contracts awarded competitively (see Appendix A). For example, DoD paid an OEM \$127,700 for a 1-year maintenance contract (not including replacement tubes) for a General Electric 9800 CT scanner at Wilford Hall Medical Center, Lackland Air Force Base (AFB), Texas. In comparison, DoD paid \$58,800 on a competitively awarded contract to a third-party service company for the same model located at the Brooke Army Medical Center, Fort Sam Houston, Texas. We calculated that DoD could save as much as \$24 million over the next 6 years if all barriers to full and open competition were removed. Appendix B provides the details of these potential monetary benefits.

### **In-house CT Scanner Maintenance Service**

DoD hires and trains hospital equipment repair personnel to maintain and repair equipment ranging from beds and intravenous pumps to X-ray machines. Other hospital low-density, high-technology medical equipment, such as CT scanners, gamma cameras and computers, ultrasound, and specialized X-ray machines, can also be maintained by hospital equipment repair personnel. However, most DoD personnel have not been trained to do the work. Many DVA medical centers already perform CT scanner maintenance service in-house. The issues relating to the potential use of in-house DoD repair personnel concern the quality of repair service, the cost of in-house servicing, and the potential benefits arising from DoD and DVA maintenance sharing arrangements.

### **CT Scanner Maintenance Service Quality**

During the audit, it was alleged that maintenance service quality problems would arise if DoD used third-party service companies or in-house maintenance service for CT scanners rather than OEM maintenance service. We reviewed the maintenance service quality at several DoD hospitals and concluded that the allegation could not be substantiated. Further, we found no pattern to the level of maintenance service quality whether the service was provided by OEM, by a third-party service company, or by in-house technicians.

For example, in examining the maintenance service records at the Womack Army Community Hospital at Fort Bragg, North Carolina, we found that the medical center used both OEM and third-party contractors to service its CT scanner. We found evidence that

the hospital had experienced quality problems with both the OEM and third-party service contractor.

We visited the Keesler Medical Center at Keesler AFB, Mississippi. This medical center had the most expensive OEM CT scanner maintenance service contract within the DoD. We found that the medical center was not satisfied with the OEM CT scanner maintenance service. For several months the CT scanner had experienced imaging problems, but the OEM had not corrected these problems.

We also contacted the 22nd Strategic Hospital at March AFB, California, and discussed the CT scanner maintenance performed in-house with one of the two CT scanner technicians. The technician praised the in-house personnel on the maintenance service. The technician's praise centered on the quick response time of the CT maintenance personnel.

#### **Cost of DoD Performing In-house CT Scanner Maintenance Service**

DoD personnel can perform CT scanner maintenance service at costs significantly lower than the costs of contracted service. The costs for DoD to competitively obtain CT scanner maintenance service by contract over the next 5 years (1994 through 1998) would be \$43 million. We estimate that DoD could reduce costs by \$7 million to \$15 million over the next 6 years if DoD personnel are hired and trained to perform CT scanner maintenance service. These estimates are based on information on current requirements for CT scanners provided by the Assistant Secretary of Defense (Health Affairs) and in-house cost estimates computed by the Air Force Medical Logistics Office.

Appendix B provides details of 6-year contract costs, and Appendix C provides the details for the potential annual monetary benefits from use of in-house CT scanner maintenance service. Monetary benefits may be greater in instances where DoD and DVA can share CT scanner maintenance service within a local area or in instances where comparisons are made to noncompetitive contracts.

#### **DoD and Department of Veterans Affairs Sharing Agreements**

At present, each military hospital has its own CT scanner maintenance service contract even though two or more DoD and DVA hospitals with CT scanners may be in the same city. Economies of scale savings will occur if CT scanner maintenance service contracts covered more than one CT scanner in a region regardless of which Military Department manages the hospital. Similar economies of scale savings would occur if in-house maintenance personnel could service multiple CT scanners in a region. We have identified 20 areas that have 2 or more DoD or DoD and DVA CT scanners within a 50-to-100-mile radius (see Appendix D). In the Washington, D.C., area, for example, 4 DoD hospitals have

10 CT scanners and a DVA medical center has 1 CT scanner. These hospitals could share CT scanner maintenance service.

DVA already incorporated in-house maintenance at 14 DVA hospitals. One of these DVA hospitals is located near DoD hospitals and could readily begin sharing CT scanner maintenance service. The DVA Medical Center in Seattle, Washington, is located near the Navy Hospital, Bremerton, and the Madigan Army Medical Center, Tacoma. If it is not economical to use in-house maintenance for servicing CT scanners in a particular location with multiple scanners then, at a minimum, a joint DoD and DVA maintenance service contract should be awarded to cover the multiple scanners.

### **Conclusion**

DoD can obtain CT scanner maintenance service by sole-source contracting, competitive contracting, or by performing the maintenance service in-house. As shown in Appendix B, potential monetary benefits of about \$24 million could be realized in the next 6 years if DoD awards competitive contracts instead of sole-source contracts. DoD can achieve additional monetary benefits of \$7 to \$15 million over the next 6 years if it begins in-house servicing of CT scanners. Monetary benefits may increase as the use of CT scanners becomes a standard for medical practice and as additional CT scanners are procured for hospitals and clinics. Currently, DoD is using maintenance service contracts to maintain other hospital equipment such as magnetic resonance imaging scanners and nuclear medicine equipment. We believe that DoD will achieve even greater monetary benefits through economies of scale when it uses competitively awarded contracts and in-house maintenance personnel to service a wide range of its medical equipment.

In-house CT scanner service will not only decrease costs to DoD, but it will also improve patient services and improve DoD war readiness capability. Patient services and the number of patients a CT scanner can handle will improve by decreasing CT scanner maintenance service response time. War readiness capability will improve by having trained CT maintenance service technicians available when mobile CT scanners are deployed to field hospitals. An example of this need was highlighted during Operation Desert Storm. Two mobile CT scanners were deployed to a field hospital in Saudi Arabia; however, the Army had no one to perform maintenance service on the CT scanners. Consequently, the Army had to send DoD employees to school to learn how to maintain CT scanners. This example shows that DoD needs adequately trained personnel to perform field maintenance of CT scanners in a combat environment.

Other hospitals have recognized the need to become more efficient by incorporating in-house maintenance service of CT scanners. For example, the DVA Medical Center in Minneapolis, Minnesota, has reported savings of \$707,000 in 7 years of servicing its CT

scanners in-house. We believe DoD could experience similar benefits and increased efficiency by performing CT scanner maintenance in-house.

RECOMMENDATIONS, MANAGEMENT COMMENTS, AND AUDIT RESPONSE

1. We recommend that the Commander, Defense Personnel Support Center open solicitations for the computed tomography scanner maintenance service to all responsible bidders.

Management comments. The Defense Logistics Agency (DLA) partially concurred with this recommendation, stating that they will issue a "test" solicitation for maintenance services by November 1993 in lieu of soliciting for an entire systems acquisition. The Assistant Secretary of Defense (Health Affairs) concurred and stated that increased attention must occur to strengthen the option evaluation process to ensure that other than OEM maintenance options are considered prior to exercising maintenance options. The Army stated that they initiated a review of all CT scanner maintenance service contract specifications with an expected completion date of October 1, 1994. The Navy concurred and stated that full and open competition should be used in contracting for maintenance services. The Air Force nonconcurred, stating that the Air Force specifically requested maintenance options with the purchase of each scanner because this is the only contracting method that can yield true life-cycle cost evaluation of the system.

Audit response. The actions taken by DLA are responsive to the intent of the recommendation, and the DLA "test" will address the concerns expressed by the Air Force. Accordingly, additional comments are not required.

2. We recommend that The Surgeon General, Department of the Army; Chief, Bureau of Medicine and Surgery, Department of the Navy; and the Surgeon General of the Air Force:

a. Write a blanket statement of work for computed tomography scanner maintenance service contracts that does not contain restrictions to competition. This statement of work should then be used for all DoD computed tomography scanner maintenance service contracting.

b. Establish procedures for hospitals and medical centers that have computed tomography scanners to perform a cost-benefit analysis before awarding or renewing service maintenance contracts to determine if maintenance can be performed more cost-effectively in-house, and use if needed, the results of the analysis to support requests for additional personnel.

Revised Recommendation. Draft report Recommendation 2. was renumbered 2.a. for this report. Based on comments from the Assistant Secretary of Defense (Health Affairs) and the Military Departments, draft report Recommendations 3.a. and 3.b.,

concerning initiation of in-house computed tomography service, were revised and redirected from the Assistant Secretary to the Military Departments as Recommendation 2.b.

**Management comments.** The Assistant Secretary of Defense (Health Affairs) concurred with Recommendation 2.a. The Army concurred with Recommendation 2.a. and stated that the Office of the Surgeon General initiated a joint task force to develop mandatory specifications for CT scanner maintenance service contracts to preclude bidding restrictions. The planned completion date of the Army task force work was December 31, 1992. The Navy did not provide comments to Recommendation 2.a. The Air Force concurred with Recommendation 2.a.

**Audit response.** For Recommendation 2.a., we request that the Navy provide written comments, and that the Air Force identify its planned actions and a completion date for the actions. We also request that the Army, Navy, and Air Force provide written comments to Recommendation 2.b.

**3. We recommend that the Assistant Secretary of Defense (Health Affairs):**

**a. Appoint Executive Agents within the Military Departments for each geographic region with two or more scanners.**

**b. Require Executive Agents to perform cost analyses and provide for one maintenance contract for multiple computed tomography scanners where cost-effective.**

**c. Provide the Department of Veterans Affairs the list of Executive Agents and establish sharing agreements for joint Department of Veterans Affairs and DoD contracts or in-house maintenance where cost-effective.**

**Revised Recommendations.** Based on the comments received from the Assistant Secretary of Defense (Health Affairs) and discussions with the Air Force, we have added new Recommendations 3.a. and 3.b. We also revised Recommendation 3.c., which originally recommended the Military Departments and Department of Veterans Affairs establish sharing for in-house and contracted CT scanner maintenance service.

**Management comments.** The Assistant Secretary of Defense (Health Affairs) concurred with draft report Recommendation 3.c. to establish sharing agreements between Military Departments and between the Department of Veterans Affairs and Military Departments for in-house and contracted CT scanner maintenance. The Assistant Secretary further stated that development of a joint blanket statement of work for CT scanner maintenance and the sharing of maintenance contracts can be explored under existing interagency agreements. The Air Force concurred with the intent of the recommendation.

**Audit response.** We request that the Assistant Secretary of Defense (Health Affairs) provide comments on Recommendations 3.a. and 3.b.

**Deleted Recommendation.** Based on subsequent discussions with the Air Force, we have deleted draft report Recommendation 4., which recommended that DoD weigh the benefits of expanding in-house maintenance to other high-cost hospital diagnostic equipment.

**Management Comments on Monetary Benefits.** The Assistant Secretary of Defense (Health Affairs) provided revised quantities for CT scanners that will be available through 1998 and agreed that about \$21 million of costs would be avoided through use of competitive contracting for maintenance service of CT scanners. The Air Force stated that use of full and open competition for service contracts results in savings of 35 percent or about \$6.3 million for the Air Force.

The Assistant Secretary of Defense (Health Affairs), the Army and the Air Force stated that the monetary benefits from use of in-house personnel to perform maintenance of CT scanners understated the costs. Further, they stated the report did not recognize the Office of Management and Budget and DoD requirement to perform a study to determine if an activity or function should be performed in-house or on contract. Each hospital commander must make the decision regarding the optimal mix of in-house and contract services.

**Audit Response.** We revised the report, recommendations, and estimated monetary benefits shown in Appendices B and C based on the comments and the updated information provided. We decreased the monetary benefits attributed to competition, based on decreased numbers of CT scanners, and revised the monetary benefits to the amount shown by the Assistant Secretary. To reflect the comments of the Assistant Secretary and the Air Force, we also revised costs and put in a range of monetary benefits that could be achieved from use of in-house personnel for maintenance of CT scanners. We recognize the need for each hospital or medical center commander to decide whether to perform work in-house or on contract. Accordingly, we revised Recommendation 2.b. to reflect the need for a cost-benefit analysis prior to making the decision to perform maintenance in-house or by contract. We request comments from the Army and Navy on monetary benefits from use of competitive contracts for CT scanner maintenance and the Army, Navy, and Air Force on the potential monetary benefits from use of in-house personnel for CT scanner maintenance.

**Management Comments on Finding.** The Assistant Secretary of Defense (Health Affairs) stated that the report lacked objective information needed to compare the three forms of maintenance service and anecdotal reports from three locations do not represent a statistically valid sample from which to draw conclusions about the effectiveness of the different forms of maintenance service.

The DLA commented that the audit did not adequately establish excessive costs because of competition restrictions. Further, the differences in costs of compared contracts could have been due to other factors such as response time, types of systems, coverage of ancillary components, and location of hospital. An example of the maintenance service contract on the system at the Naval Hospital, San Diego, CA included ancillary components and other equipment. Finally, the DLA stated the audit did not include data reflecting any savings available through total system acquisition as opposed to the separate purchase of system components.

**Audit Response.** We agree with the Assistant Secretary's comment that reports from three locations do not represent a statistically valid sample. However, we were not able to substantiate claims that third-party service companies or in-house maintenance adversely affected the quality of service.

Our review of comparable contracts found common factors such as response times, coverage of ancillary and other components, types of systems, and locations of hospitals. Our review of the price negotiations memorandums for the two CT scanners at the San Diego Naval Hospital found that the extended warranty procedures contained in the contract far exceeded normal commercial practices, the requirements for biweekly maintenance service and a twenty-four hour repair capability exceeded normal commercial agreements. The contracting officer determination of competition for maintenance service stated that since other service organizations offer long-term maintenance agreements, pricing is established in a competitive arena. The proposed award price is roughly a seven percent increase over the normal commercial warranty rate, but the price offered was determined to be fair and reasonable by the contracting officer. The maintenance service contracts that were reviewed were not awarded as a total system acquisition. The equipment contracts were awarded for CT scanners only and the service maintenance was not considered when determining the lowest bidder.

RESPONSE REQUIREMENTS PER RECOMMENDATION

<u>Number</u>	<u>Addressee</u>	<u>Concur/ Nonconcur</u>	<u>Response Should Cover</u>		<u>Related Issues*</u>
			<u>Proposed Action</u>	<u>Completion Date</u>	
2.a.	Army				M
	Navy	X	X	X	M
	Air Force			X	
2.b.	Army	X	X	X	M
	Navy	X	X	X	M
	Air Force	X	X	X	M
3.a.	ASD(HA)	X	X	X	
3.b.	ASD(HA)	X	X	X	

\*M = Monetary benefits

**PART III - ADDITIONAL INFORMATION**

- APPENDIX A - Computed Tomography Scanner Maintenance Service Contracts
- APPENDIX B - Computation of Contract Maintenance Service Costs
- APPENDIX C - Computation of In-house Maintenance Service Costs
- APPENDIX D - Locations of DoD and Nearby Department of Veterans Affairs Medical Centers Computed Tomography Scanners
- APPENDIX E - Summary of Potential Benefits Resulting from Audit
- APPENDIX F - Activities Visited or Contacted
- APPENDIX G - Report Distribution

**APPENDIX A - COMPUTED TOMOGRAPHY SCANNER MAINTENANCE SERVICE CONTRACTS**

Contracts with Tubes<sup>1</sup>/

Sole-Source

Competitive

Contract Number	Location	Value	Contract Number	Location	Value
F49642-88-D-0059	Andrews AFB	\$ 169,302	F04626-90-C-0029	Travis AFB	\$ 67,599
F11623-88-C-0053	Scott AFB	134,984	N00406-91-C-0684	Bremerton	78,999
F22600-91-C-0026	Keesler AFB	225,940	DAKF40-90-C-0356	Ft. Bragg	86,000
F08651-91-D-0001	Eglin AFB	173,046	DABT39-91-C-4160	Ft. Sill	60,960
N00612-90-C-0491	Charleston AFB	157,969			
DADA15-88-C-0127	Walter Reed	112,380			
DADA09-91-C-0018	Ft. Bliss	134,610			
DLA120-88-C-8052	Jacksonville	198,856 <sup>2</sup> / <sub>1</sub>			
DLA120-90-C-8240					
	Ft. Gordon	127,780 <sup>2</sup> / <sub>1</sub>			
	Homestead AFB	127,780 <sup>2</sup> / <sub>1</sub>			
	Tyndall AFB	127,780 <sup>2</sup> / <sub>1</sub>			
<b>Total</b>		<u>\$1,690,427</u>			<u>\$293,558</u>
<b>Average Cost Per Scanner</b>		\$ 153,675			\$ 73,390

APPENDIX A - COMPUTED TOMOGRAPHY SCANNER MAINTENANCE SERVICE CONTRACTS (cont'd)

Contracts Without Tubes<sup>2/</sup>

<u>Sole-Source</u>		<u>Competitive</u>			
<u>Contract Number</u>	<u>Location</u>	<u>Value</u>	<u>Contract Number</u>	<u>Location</u>	<u>Value</u>
DLA120-88-C-8052	San Diego	\$ 172,471	F41613-89-C-0006	Carswell AFB	\$ 78,100
	San Diego	172,471	F41636-91-D-0009	Lackland AFB	73,072
DLA120-89-C-8043	RAF Lakenheath	93,704	N00189-91-C-0172	Camp LeJeune	67,000
	Sheppard AFB	93,704	DADA11-92-D-0001	Ft. Sam Houston	58,800
	Ft. Stewart	90,100	DADA15-91-C-0046	Walter Reed	63,500
	Gorgas	128,183			
	Ft. Ord	97,452			
	Nurnberg	80,100			
	Ft. Riley	93,704			
	Heidelberg	83,304			
	Camp Pendleton	94,704			
N68094-92-M-2181	Pensacola	105,024			
DLA120-90-C-8084	Orlando	105,024			
	Ft. Belvoir	104,000			
	Offutt AFB	72,000			
DADA15-89-C-0081	Walter Reed	76,932			
<b>Total</b>		<b>\$1,662,877</b>			<b>\$340,472</b>
<b>Average Cost Per Scanner</b>		<b>\$ 103,930</b>			<b>\$ 68,094</b>
<b>Total With And Without Tubes</b>		<b>\$3,353,304</b>			<b>\$634,030</b>
<b>Average With And Without Tubes</b>		<b>\$ 124,196</b>			<b>\$ 70,448</b>

APPENDIX A - COMPUTED TOMOGRAPHY SCANNER MAINTENANCE SERVICE CONTRACTS (cont'd)

		<u>Estimated DoD Total Contract Cost</u>			
<u>Total No. of Contracts Reviewed</u>	<u>Percent of Total Contracts Reviewed</u>	<u>Estimate of DoD CT scanner Contracts<sup>4/</sup></u>	<u>Estimated DoD CT Scanner Contract Costs<sup>5/</sup></u>		
Sole-Source <sup>6/</sup> 27	75	58 (75% x 77)	\$7,203,368	(58 X \$124,196)	
Competitive <sup>7/</sup> 9	25	19 (25% x 77)	<u>1,338,512</u>	(19 X \$ 70,448)	
		<u>77</u>	<u>\$8,541,880</u>		

- 1/ Replacement tubes included in maintenance service contract.
- 2/ Represents 1 of a total of 19 contract options.
- 3/ Replacement tubes not included in maintenance service contract.
- 4/ Represents an estimate of the number of sole-source and competitive CT scanner service contracts based on review of 36 total contracts.
- 5/ Represents an estimate of the total costs of CT scanner maintenance service contracts computed by multiplying the prorated estimates of sole-source and competitive contracts in the universe by the average unit contract costs shown in page 18.
- 6/ Contract awarded to one source of supply no competition achieved.
- 7/ Contract awarded with full and open competition.
- 8/ One CT scanner is maintained in-house and is not included.

**APPENDIX B - COMPUTATION OF CONTRACT MAINTENANCE SERVICE COSTS**

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	Total
Number of CT Scanner Maintenance Service Contracts <sup>1/</sup>	77	80	83	86	88	88	
<b><u>Cost Avoidance for Contract Competition(\$000)</u></b>							
Projected Contract Costs	\$8,542	\$10,110	\$11,242	\$12,162	\$12,445	\$12,445	\$ 66,946
Costs With Competition	5,427	6,510	7,286	7,912	8,096	8,096	43,327
Cost Avoidance	\$3,115	\$ 3,600	\$ 3,956	\$ 4,250	\$ 4,349	\$ 4,349	\$ 23,619 <sup>2/</sup>
<b><u>Cost Avoidance for In-house Maintenance Service Based on Air Force Calculation(\$000)<sup>2/</sup></u></b>							
Costs With Competition <sup>4/</sup>		\$ 6,510	\$ 7,286	\$ 7,912	\$ 8,096	\$ 8,096	\$ 37,900
In-house Costs <sup>4/</sup>		6,160	6,059	6,278	6,336	6,336	31,169
Cost Avoidance <sup>4/</sup>		\$ 350	\$ 1,227	\$ 1,634	\$ 1,760	\$ 1,760	\$ 6,731 <sup>2/</sup>
<b><u>Cost Avoidance for In-house Maintenance Service Based on OIG, DoD Calculation(\$000)</u></b>							
Costs With Competition		\$ 6,510	\$ 7,286	\$ 7,912	\$ 8,096	\$ 8,096	\$ 37,900
In-house Costs		4,900	4,251	4,357	4,458	4,458	22,424
Cost Avoidance		\$ 1,610	\$ 3,035	\$ 3,555	\$ 3,638	\$ 3,638	\$ 15,476 <sup>5/</sup>

1/Current requirements for CT scanners per Assistant Secretary of Defense (Health Affairs)  
2/A 35-percent savings realized with competition (\$23,619/\$66,946).  
(Details of in-house costs are in Appendix C.)  
3/Costs avoidance for in-house maintenance service has not been calculated for 1993 since in-house maintenance service may not begin until 1994.  
4/Cost avoidance for in-house maintenance service has been calculated from figures supplied by the Air Force Medical Logistics Office and prorated over the current requirements for CT scanners.  
5/The cost avoidance for in-house maintenance service has been calculated by OIG, DoD and prorated over the current requirements for CT scanners.  
6/The cost avoidance for in-house maintenance service was calculated by OIG, DoD and prorated over the current requirements for CT scanners.

**APPENDIX C - COMPUTATION OF MAINTENANCE SERVICE COSTS**

**Air Force In-House Calculation(\$000)**

	<u>FY</u> <u>1994</u>	<u>FY</u> <u>1995</u>	<u>FY</u> <u>1996</u>	<u>FY</u> <u>1997</u>	<u>FY</u> <u>1998</u>	<u>Total</u>
Number of CT Scanners <sup>1/</sup>	80	83	86	88	88	
Labor	\$2,060	\$2,137	\$2,215	\$2,266	\$2,266	\$10,944
Fringes	797	827	857	877	877	4,235
Parts	2,756	2,860	2,963	3,032	3,032	14,643
Training	<u>553</u>	<u>255</u>	<u>249</u>	<u>182</u>	<u>182</u>	<u>1,421</u>
Total <sup>2/</sup>	<u>\$6,166</u>	<u>\$6,079</u>	<u>\$6,284</u>	<u>\$6,357</u>	<u>\$6,357</u>	<u>\$31,243</u>

**IG, DoD Calculation(\$000)**

	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>Total</u>
Number of CT Scanners <sup>1/</sup>	80	83	86	88	88	
Labor	\$ 807	\$ 845	\$ 869	\$ 889	\$ 889	\$ 4,299
Fringes	312	327	336	344	344	1,663
Parts	2,757	2,859	2,932	3,005	3,005	14,558
Training	<u>1,024</u>	<u>220</u>	<u>220</u>	<u>220</u>	<u>220</u>	<u>1,904</u>
Total <sup>3/</sup>	<u>\$4,900</u>	<u>\$4,251</u>	<u>\$4,357</u>	<u>\$4,458</u>	<u>\$4,458</u>	<u>\$22,424</u>

<sup>1/</sup>Quantities provided by the Assistant Secretary of Defense (Health Affairs); see comments in Part IV.

<sup>2/</sup>We computed the Air Force in-house costs based on requirements provided by the Assistant Secretary of Defense (Health Affairs). For details of labor, fringes, parts, and training see Air Force comments in Part IV.

<sup>3/</sup>We computed our in-house costs based on requirements provided by the Assistant Secretary of Defense (Health Affairs). The details of labor, fringes, parts, and training are as follows:

**Labor Costs.** We obtained labor cost information from four hospitals that perform CT scanner maintenance service in-house: the 22nd Strategic Hospital, March AFB, California; the DVA Medical Center in Minneapolis, Minnesota; the DVA Medical Center in Little Rock, Arkansas; and a commercial hospital in a city with the highest medical costs in the United States.

The 22nd Strategic Hospital maintained its CT scanner by using military enlisted personnel in pay grades E-4 and E-5. The hospital has expended 166 labor hours servicing its CT scanner since 1990. The two DVA medical centers used GS-10 and GS-11 federal civilian employees and expended 368 labor hours per year

**APPENDIX C - COMPUTATION OF IN-HOUSE MAINTENANCE SERVICE COSTS**  
**(cont'd)**

per CT scanner at Minneapolis and 439 labor hours per year per CT scanner at Little Rock. The commercial hospital paid an average salary of \$47,700 or \$22.93 per hour to its personnel who provided maintenance service for its CT scanners.

We used the commercial hospital's average salary and the labor hours expended by the DVA Medical Center, Little Rock, to calculate the labor cost for in-house work in the DoD. We used this salary and hours because it should be close to the highest the DoD would incur. The annual labor cost of \$10,100 per scanner is calculated by applying the commercial hospital's hourly rate to the average hours incurred at the DVA Medical Center, Little Rock, (\$22.93 x 439 labor hours). During the period FY 1994 through FY 1998, in-house labor cost will approximate \$4.3 million.

**Fringe Benefit Costs.** The fringe benefit cost is based on a fringe benefit rate of 38.7 percent of labor costs. This rate was the most recent rate provided by the Office of Management and Budget in its Transmittal Memorandum No. 7 to Circular A-76 dated August 8, 1988. The rate is composed of retirement, 21.7 percent; Medicare, 2.2 percent; social security, 8.4 percent; insurance, 4.7 percent; and miscellaneous, 1.7 percent. We calculated that fringe benefits would amount to \$1.7 million over the 6-year period.

**Parts Costs.** We obtained cost information from the 22nd Strategic Hospital; the DVA Medical Center, Minneapolis; and the DVA Medical Center, Little Rock.

The 22nd Strategic Hospital incurred \$1,200 for replacement parts since they began servicing the CT scanner in-house in 1990.

The DVA Medical Center, Minneapolis, serviced two CT scanners in-house and incurred an average annual parts cost of \$11,046 per year per scanner. The DVA Medical Center has serviced one CT scanner in-house since 1985 and the other since 1988.

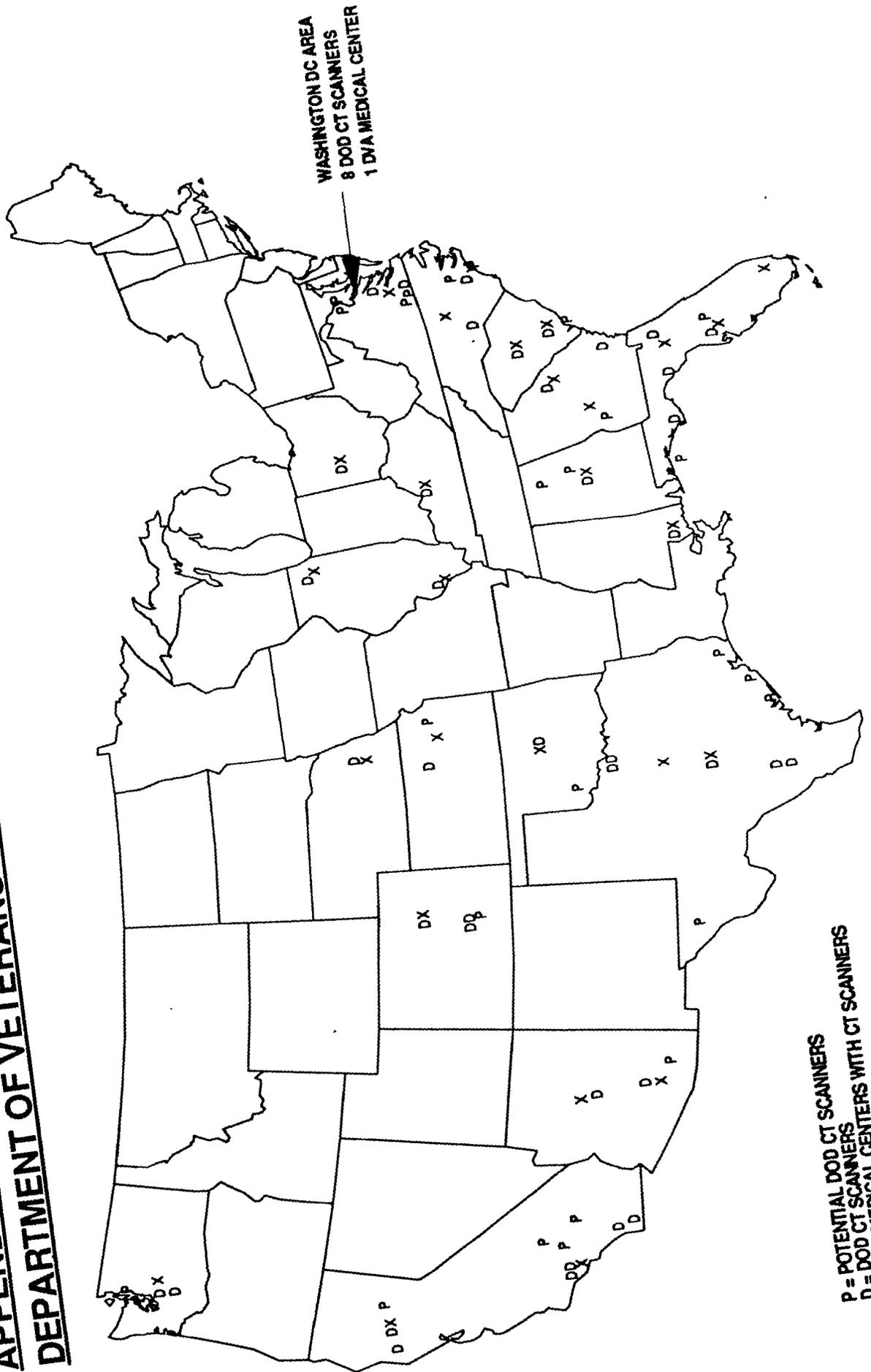
The DVA Medical Center, Little Rock, serviced a CT scanner in-house since 1985 and incurred an average parts cost of \$21,960 per year. The medical center experienced this high cost for parts because it replaced major components of the CT system. The disk drive for \$10,401 and the remote video module for \$20,000 are examples of high dollar parts replaced. To compute a conservative estimate for cost savings, we used the cost of parts incurred by the DVA Medical Center, Little Rock, the highest parts costs found during the audit. Accordingly, we estimated parts costs for in-house maintenance to be \$15 million for 1994 through 1998.

**APPENDIX C - COMPUTATION OF IN-HOUSE MAINTENANCE SERVICE COSTS**  
**(cont'd)**

**Training Costs.** We estimated that it will cost \$12,800 to train an employee in CT scanner service. We based our estimate on training to be conducted at the Radiological Service Training Institute in Cleveland, Ohio, where a person will be trained on all models of CT scanners. We estimate that no more than one person needs to be trained for each scanner and one person may maintain more than one scanner. This estimate includes the cost of tuition, lodging and meals, and transportation. For the 6-year period, the training cost for in-house personnel will amount to \$1,904,000, which includes \$220,000 for 1997 and 1998 for possible employee attrition.

**Total Costs.** Our overall estimate is a benchmark. An accurate estimate of cost can only be determined by performing an analysis for each hospital or service area where the in-house CT scanner servicing will be performed. A separate analysis is necessary because of different conditions such as the current quantity of hospital biomedical technicians, the cost of wages in each area, and the geographical proximity to other DoD and DVA hospitals so that shared maintenance may be considered.

**APPENDIX D - DOD COMPUTED TOMOGRAPHY SCANNERS AND NEARBY  
DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTERS**



**APPENDIX D - LOCATIONS OF DOD AND NEARBY DEPARTMENT OF VETERANS  
AFFAIRS MEDICAL CENTERS COMPUTED TOMOGRAPHY SCANNERS (cont'd)**

	<u>Number of Scanners</u>
<u>Texas</u>	
Brooke Army Medical Center, Ft. Sam Houston	2
Wilford Hall USAF Medical Center, Lackland AFB	3
Darnall Army Community Hospital, Ft. Hood	1
DVA Medical Center, Temple	1
DVA Medical Center, Houston	1
DVA Medical Center, Dallas	1
Sheppard AFB	<u>1</u>
Subtotal	<u>10</u>
DoD Hospitals With Potential CT Scanners:	
Nassua Bay	1
Port Arthur	1
Houston	1
Galveston	1
Corpus Christi	1
El Paso	<u>1</u>
Subtotal	<u>6</u>
Total	<u>16</u>
<u>Southern California</u>	
22nd Strategic Hospital, March AFB	1
Navy Hospital, Camp Pendelton	1
Navy Hospital, San Diego	2
DVA Medical Center, Loma Linda	1
DVA Medical Center, Long Beach	1
DVA Medical Center, W. Los Angeles	2
DVA Medical Center, San Diego	<u>2</u>
Subtotal	<u>10</u>
DoD Hospitals with Potential CT Scanners:	
Twentynine Palms	1
Fort Irwin	<u>1</u>
Subtotal	<u>2</u>
Total	<u>12</u>

**APPENDIX D - LOCATIONS OF DOD AND NEARBY DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTERS COMPUTED TOMOGRAPHY SCANNERS (cont'd)**

Florida

56th Medical Center, MacDill AFB	1
Naval Hospital, Jacksonville	1
DVA Medical Center, Tampa	2
DVA Medical Center, Miami	2
DVA Medical Center, Gainesville	2
Eglin AFB	1
Tyndall AFB	<u>1</u>
Subtotal	<u>10</u>

DoD Hospitals With Potential CT Scanners:

Pensacola	1
Orlando	<u>1</u>
Subtotal	<u>2</u>
Total	<u><u>12</u></u>

National Capital Area

Walter Reed Army Medical Center, Washington, DC	3
Dewitt Army Hospital, Ft. Belvoir, VA	1
Malcom Grow USAF Medical Center, Andrews AFB, MD	1
National Naval Medical Center, Bethesda, MD	3
DVA Medical Center, Washington DC	<u>1</u>
Subtotal	<u>9</u>

DoD Hospitals with CT Potential Scanners:

Baltimore	1
Ft. Meade	<u>1</u>
Subtotal	<u>2</u>
Total	<u><u>11</u></u>

**APPENDIX D - DOD LOCATION OF AND NEARBY DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTERS COMPUTED TOMOGRAPHY SCANNERS (cont'd)**

Northern California

Navy Hospital, Oakland	2
David Grant USAF Medical Center, Travis AFB	1
DVA Medical Center, Martinez	<u>1</u>
Subtotal	<u>4</u>

DoD Hospitals With Potential CT Scanners:

Mather AFB	<u>1</u>
Subtotal	<u>1</u>
Total	<u>5</u>

Arizona

832nd Medical Group, Luke AFB	1
836th Medical Group, Davis-Monthan AFB	1
DVA Medical Center, Phoenix	1
DVA Medical Center, Tucson	<u>1</u>
Subtotal	<u>4</u>

DoD Hospitals With Potential CT Scanners:

Ft. Huachuca	<u>1</u>
Subtotal	<u>1</u>
Total	<u>5</u>

South Carolina

Moncrief Army Medical Center, Ft. Jackson	1
Naval Hospital, Charleston	1
DVA Medical Center, Columbia	1
DVA Medical Center, Charleston	<u>1</u>
Subtotal	<u>4</u>

DoD Hospitals With Potential CT Scanners:

Beaufort	<u>1</u>
Subtotal	<u>1</u>
Total	<u>5</u>

APPENDIX D - LOCATION OF DOD AND NEARBY DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTERS COMPUTED TOMOGRAPHY SCANNERS (cont'd)

Georgia

Dwight D. Eisenhower Army Medical Center, Ft. Gordon	1
Winn Army Community Hospital, Ft. Stewart	1
DVA Medical Center, Augusta	1
DVA Medical Center, Dublin	1
Subtotal	<u>4</u>

DoD Hospitals with Potential CT Scanners:

Ft. Benning	1
Subtotal	<u>1</u>
Total	<u>5</u>

Illinois/Missouri

Great Lakes Naval Hospital	1
USAF Medical Center, Scott AFB	1
DVA Medical Center, Chicago	1
DVA Medical Center, St. Louis	1
Total	<u>4</u>

Washington

Navy Hospital, Bremerton	1
Madigan Army Medical Center, Tacoma	1
DVA Medical Center, Seattle	1
Subtotal	<u>3</u>

DoD Hospitals With Potential CT Scanners:

Seattle	1
Oak Harbor	1
Subtotal	<u>2</u>
Total	<u>5</u>

**APPENDIX D - LOCATION OF DOD AND NEARBY DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTERS COMPUTED TOMOGRAPHY SCANNERS (cont'd)**

Southern Virginia

1st Medical Group, Langley AFB	1
Naval Hospital, Portsmouth	1
DVA, Medical Center, Hampton	<u>1</u>
Subtotal	<u>3</u>

DoD Hospitals With Potential CT Scanners:

Ft. Eustis	1
Ft. Lee	<u>1</u>
Subtotal	<u>2</u>
Total	<u><u>5</u></u>

Colorado

Fitzsimons Army Medical Center, Aurora	1
DVA Medical Center, Denver	1
USAF Academy, Colorado Springs	<u>1</u>
Subtotal	<u>3</u>

DoD Hospitals With Potential CT Scanners:

Ft. Carson	<u>1</u>
Subtotal	<u>1</u>
Total	<u><u>4</u></u>

Kansas

Irwin Army Community Hospital, Ft. Riley	1
DVA Medical Center, Topeka	<u>1</u>
Subtotal	<u>2</u>

DoD Hospitals With Potential CT Scanners:

Ft. Leavenworth	<u>1</u>
Subtotal	<u>1</u>
Total	<u><u>3</u></u>

**APPENDIX D - LOCATION OF DOD AND NEARBY DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTERS COMPUTED TOMOGRAPHY SCANNERS (cont'd)**

Oklahoma

DVA Medical Center, Oklahoma City	<u>1</u>
Subtotal	<u>1</u>

DoD Hospitals With Potential CT Scanners:

Ft. Sill	<u>1</u>
Subtotal	<u>1</u>
Total	<u><u>2</u></u>

Nebraska

Ehrling Berquist Strategic Hospital, Offutt AFB	1
DVA Medical Center, Omaha	<u>1</u>
Total	<u><u>2</u></u>

Mississippi

Keesler Medical Center, Keesler AFB	2
DVA Medical Center, Biloxi	<u>1</u>
Total	<u><u>3</u></u>

Alabama

Air University Regional Hospital, Maxwell AFB	1
DVA Medical Center, Montgomery	<u>1</u>
Subtotal	<u>2</u>

DoD Hospitals With Potential CT Scanners:

Redstone Arsenal	1
Ft. Rucker	1
Ft. McClellan	<u>1</u>
Subtotal	<u>3</u>
Total	<u><u>5</u></u>

Kentucky

Ireland Army Community Hospital, Ft. Knox	1
DVA Medical Center, Louisville	<u>1</u>
Total	<u><u>2</u></u>

**APPENDIX D - LOCATION OF DOD AND NEARBY DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTERS COMPUTED TOMOGRAPHY SCANNERS (cont'd)**

Ohio

USAF Medical Center, Wright-Patterson AFB	1
DVA Medical Center, Dayton	<u>1</u>
Total	<u><u>2</u></u>

North Carolina

Womack Army Community Hospital, Ft. Bragg	1
Camp Lejeune	1
DVA Medical Center, Durham	<u>1</u>
Subtotal	<u><u>3</u></u>

DoD Hospitals with Potential CT Scanners:

Cherry Point	<u>1</u>
Subtotal	<u>1</u>
Total	<u><u>4</u></u>

Summary Totals

Current DoD CT Scanners	49
Potential DoD CT Scanners	27
Current DVA CT Scanners	<u>36</u>
<b>Total</b>	<u><u>112</u></u>

**APPENDIX E - SUMMARY OF POTENTIAL BENEFITS RESULTING FROM AUDIT**

<u>Recommendation Reference</u>	<u>Description of Benefit</u>	<u>Amount and/or Type of Benefit</u>
1.	Economy and Efficiency. CT scanner maintenance service solicitations would be opened to all responsible bidders.	Operation and maintenance funds put to better use of \$23,619,000 for FY 1993 through FY 1998. (Army \$9,211,000; Navy \$6,141,000; Air Force \$8,267,000).
2.a.	Economy and Efficiency. Statement of work for CT scanner maintenance service contracts would be written without bidding restrictions.	Included in amount for Recommendation 1.
2.b.	Economy and Efficiency. Procedures for cost-benefit analysis would help medical facilities determine the feasibility of in-house servicing of CT scanners.	Operation and maintenance funds put to better use of \$6,657,000 for FY 1994 through FY 1998 (Army \$2,596,000; Navy \$1,731,000; Air Force \$2,330,000).
3.a., 3.b., and 3.c.	Economy and Efficiency. Will result in sharing agreements between the Military Departments and the Department of Veterans Affairs for maintenance of CT scanners.	Monetary benefits can not be reasonably estimated.

**APPENDIX F - ACTIVITIES VISITED OR CONTACTED**

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition, Washington, DC  
Director of Defense Procurement, Washington, DC  
Assistant Secretary of Defense (Health Affairs), Washington, DC  
Assistant Secretary of Defense (Production and Logistics),  
Washington, DC

Department of the Army

Assistant Secretary of the Army (Financial Management),  
Washington, DC  
The Surgeon General, Department of the Army, Washington, DC  
Blanchfield Army Community Hospital, Fort Campbell, KY  
Brooke Army Medical Center, Fort Sam Houston, TX  
Darnell Army Community Hospital, Fort Hood, TX  
Dewitt Army Hospital, Fort Belvoir, VA  
Fitzsimons Army Medical Center, Aurora, CO  
General L. Wood Army Community Hospital, Fort Leonard Wood, MO  
Ireland Army Community Hospital, Fort Knox, KY  
Irwin Army Community Hospital, Fort Riley, KS  
Martin Army Community Hospital, Fort Benning, GA  
Moncrief Army Community Hospital, Fort Jackson, SC  
Reynolds Army Community Hospital, Fort Sill, OK  
Silas B. Hayes Army Community Hospital, Fort Ord, CA  
Walter Reed Army Medical Center, Washington, DC  
William Beaumont Army Community Hospital, Fort Bliss, TX  
Winn Army Community Hospital, Fort Stewart, GA  
Womack Army Community Hospital, Fort Bragg, NC

Department of the Navy

Assistant Secretary of the Navy (Financial Management),  
Washington, DC  
Chief, Bureau of Medicine and Surgery, Washington, DC  
National Naval Medical Center, Bethesda, MD  
Navy Hospital, Bremerton, WA  
Navy Hospital, Camp Lejeune, NC  
Navy Hospital, Camp Pendleton, FL  
Navy Hospital, Charleston, SC  
Navy Hospital, Orlando, FL  
Navy Hospital, Pensacola, FL  
Navy Hospital, Portsmouth, VA  
Navy Hospital, San Diego, CA  
USS Comfort  
Naval Supply Center, Norfolk, VA

APPENDIX F - ACTIVITIES VISITED OR CONTACTED (cont'd)

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and  
Comptroller), Washington, DC  
The Surgeon General of the Air Force, Washington, DC  
AFSC Regional Hospital Eglin, Eglin AFB, FL  
Air University Regional Hospital, Maxwell AFB, AL  
David Grant USAF Medical Center, Travis AFB, CA  
Ehrling Berquist Strategic Hospital, Offutt AFB, NE  
Keesler Medical Center, Keesler AFB, MS  
Malcolm Grow USAF Medical Center, Andrews AFB, DC  
Robert L. Thompson Strategic Hospital, Carswell AFB, TX  
Sheppard TTC Hospital, Sheppard AFB, TX  
USAF Academy Hospital, USAF Academy, CO  
USAF Hospital Tinker, Tinker AFB, OK  
USAF Medical Center Scott, Scott AFB, IL  
USAF Medical Center Wright-Patterson, Wright-Patterson AFB, OH  
Wilford Hall USAF Medical Center, Lackland AFB, TX  
1st Medical Group, Langley AFB, VA  
2nd Strategic Hospital, Barksdale AFB, LA  
22nd Strategic Hospital, March AFB, CA  
31st Medical Group, Homestead AFB, FL  
48th TFW Hospital, RAF Lakenheath, UK  
56th Medical Group, MacDill AFB, FL  
325th Medical Group, Tyndall AFB, FL  
832nd Medical Group, Luke AFB, AZ  
836th Medical Group, Davis-Monthan AFB, AZ  
857th Strategic Hospital, Minot AFB, ND

Defense Agencies

Defense Personnel Support Center, Philadelphia, PA  
Headquarters, Defense Contract Audit Agency, Alexandria, VA  
Headquarters, Defense Logistics Agency, Alexandria, VA

Other Government Agencies

Department of Veterans Affairs, Inspector General, Washington, DC  
Department of Veterans Affairs, Marketing Office, Washington, DC  
Department of Veterans Affairs, Chief Biomedical Engineering  
Division, Facilities Engineering Services, Washington, DC  
Department of Veterans Affairs, Engineering Training Center,  
North Little Rock, AR  
Department of Veterans Affairs, Little Rock Medical Center,  
Little Rock, AR  
Department of Veterans Affairs, Minneapolis Medical Center,  
Minneapolis, MN

APPENDIX F - ACTIVITIES VISITED OR CONTACTED (cont'd)

Non-Government Activities

General Electric Medical Systems, Inc., Milwaukee, WI  
Imaging Equipment Services, Inc., Pittsburgh, PA  
Kaiser Permanente, Oakland, CA  
Picker International, Inc., Cleveland, OH  
R Squared Scan Systems, Inc., Corona, CA  
Radiological Service Training Institute, Solon, OH  
Siemens Medical Systems, Inc., Iselin, NJ

## APPENDIX G - REPORT DISTRIBUTION

### Office of the Secretary of Defense

Under Secretary of Defense for Acquisition  
Director of Defense Procurement  
Assistant Secretary of Defense (Health Affairs)  
Assistant Secretary of Defense (Production and Logistics)  
Comptroller of the Department of Defense

### Department of the Army

Secretary of the Army  
Assistant Secretary of the Army (Financial Management)  
Inspector General, Department of the Army  
The Surgeon General, Department of the Army

### Department of the Navy

Secretary of the Navy  
Assistant Secretary of the Navy (Financial Management)  
Chief, Bureau of Medicine and Surgery

### Department of the Air Force

Secretary of the Air Force  
Assistant Secretary of the Air Force (Acquisition)  
Assistant Secretary of the Air Force (Financial Management and  
Comptroller)  
The Surgeon General, Department of the Air Force

### Other Defense Activities

Director, Defense Contract Audit Agency  
Director, Defense Logistics Agency  
Director, Defense Logistics Studies Information Exchange  
Commander, Defense Personnel Support Center

### Non-Defense Activities

Office of Management and Budget  
U.S. General Accounting Office, National Security and  
International Affairs Division, Technical Information Center  
Inspector General, Department of Veterans Affairs

**APPENDIX G - REPORT DISTRIBUTION (cont'd)**

Chairman and Ranking Minority Member of the following  
Congressional Committees and Subcommittees:

Senate Subcommittee on Defense, Committee on Appropriations  
Senate Committee on Armed Services  
Senate Committee on Governmental Affairs  
Senate Committee on Veterans' Affairs  
House Committee on Appropriations  
House Committee on Armed Services  
House Committee on Government Operations  
House Committee on Veterans' Affairs  
House Subcommittee on Legislation and National Security,  
Committee on Government Operations

**PART IV - MANAGEMENT COMMENTS**

Assistant Secretary of Defense (Health Affairs)

Department of the Army

Department of the Navy

Department of the Air Force

Defense Logistics Agency

**ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS**



HEALTH AFFAIRS

THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301-1200

OCT 29 1992

MEMORANDUM FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

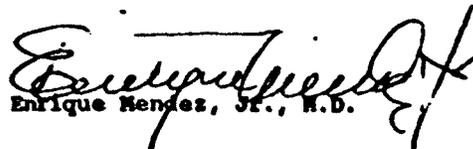
SUBJECT: Draft Report on Computed Tomography Scanner Maintenance Service Contracts (Project No. 2CD-8006)

Although the operational aspects of medical maintenance are governed by acquisition and maintenance policies which come under the policy purviews of OASD(P&L), and the Military Departments, I appreciate the opportunity to offer comments on the subject draft report, and trust that these comments will be carefully considered in the preparation of your final report.

High technology diagnostic medical systems, such as Computed Tomography (CT) Scanners, are absolutely crucial to the practice of quality medical care, therefore the effectiveness and efficiency of the maintenance supporting these systems are also crucial. A pillar of DoD's Coordinated Care Program is the delegation of decision-making flexibility to the local hospital level. The local hospital commander will be making tough business decisions regarding the optimal mix of in-house, contract, and community based clinical services. The commander must have similar flexibility to match his maintenance support to the overall coordinated care plan for the catchment area. We must be careful to balance apparent direct cost savings in a support arena such as CT Scanner maintenance and the indirect cost issues such as equipment availability, quality assurance, risk management, and physician retention.

The report serves as an indicator that management attention needs to be focused on the issue of CT Scanner maintenance. However, questions concerning the validity of the cost estimates and the need to adhere to Office of Management and Budget (OMB) and Department guidance on the Commercial Activities Program cast doubt on the findings and resulting recommendations.

Specific comments on the findings and recommendations of the draft report are provided as an enclosure. The OASD(HA) point of contact for this action is MAJ Magee at (703) 614-4157.

  
Enrique Mendez, Jr., N.D.

Enclosure:  
As stated

ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS  
(cont'd)

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COMMENTS ON DRAFT AUDIT REPORT ON COMPUTED TOMOGRAPHY SCANNER  
MAINTENANCE SERVICE CONTRACTS

Findings:

Reasons for Sole-Source. As of January 31, 1992, DoD had awarded approximately 73 maintenance service contracts for CT scanners. Our review found that 27 of the 36 contracts were awarded without full and open competition (See Appendix A). Nineteen of the twenty-seven contracts were options that were not subject to the requirements of FAR Subpart 6.1. Eight of the twenty-seven contracts were found to have unnecessary restrictions that exceeded the needs of the agency in the Statement of Work.

Finding - CT scanner maintenance service options. FAR Subpart 6.1, requires "...that contracting officers shall promote and provide for full and open competition in soliciting offers and awarding Government contracts." The FAR also states that "full and open competition means that all responsible sources are permitted to compete." In our review of four contracts with nineteen contract options for maintenance service, which DPSC awarded, we determined that this FAR requirement was not met. The requirement was not met at the time the contracts were awarded or at a later time when contract options were exercised because service companies, other than Original Equipment Manufacturers (OEMs), did not have an opportunity to compete for the contract. Service companies were not afforded an opportunity to compete because the solicitations required that the offerer provide both CT scanners and the maintenance service for the scanners. Service companies could provide CT scanner maintenance service but could not provide CT scanners.

DPSC exercised the contract maintenance options, stating that the options were the most advantageous methods for fulfilling the needs of the Government. However, DPSC made this determination without soliciting all responsible sources to obtain competition for CT scanner maintenance services. In order to justify that option, DPSC supported the price as reasonable by using the bid price of another OEM. For example, on contract DLA120-890-C-8043, DPSC exercised a CT maintenance service option and justified competition by stating that another OEM offered a higher price for the same option. However, no other service companies were solicited for price competition. Also, the OEM that offered the higher price, offered a price for servicing a different brand of scanner.

Response - Concur with comment. The inclusion of the maintenance provisions as part of the original acquisition contract is an important component in assessing the total life cycle costs

ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS  
(cont'd)

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associated with sophisticated systems such as CT scanners. The assessment of total ownership costs is consistent with DFAR guidance (DFAR 207.103). The characterization of the maintenance service options as sole source contracts is incorrect. The system acquisition includes installation, training, maintenance, warranty support, and hardware. This total system acquisition is solicited for full and open competition among all responsible sources. The finding does indicate that increased attention must be paid to strengthen the option evaluation process to include evaluation of other than OEMs prior to exercising the maintenance options.

**Finding - Factory training restriction.** In our review of CT scanner maintenance service contracts/solicitations at DoD hospitals, we found a specification in the Statements of Work that required CT scanner maintenance service technicians to be factory trained. Further, Statements of Work in contracts F11623-88-C-0053 and F49642-88-D-0059 required factory training on a specific CT scanner make and model.

We found CT scanner maintenance service technicians, who were not factory trained, performing satisfactory maintenance service at DoD and DVA hospitals. These technicians are trained at non-factory schools, such as the Radiological Service Training Institute in Cleveland, Ohio, and R Squared Scan Systems, Inc., in Corona, California. We concluded that DoD hospital bid solicitations that contained a Statement of Work requirement for factory training were restrictive because they eliminated other responsible bidders. The Office of the Inspector General, DVA, came to a similar conclusion in its review of CT scanner maintenance service contracts; and DVA initiated action to eliminate restrictions to competition in its contracts.

**Response - Concur.**

**Finding - Software restriction.** Contracts F08651-91-D-0001 and F11623-88-C-0053 contained software restrictions that required the contractor to possess the license to hold and use the manufacturer's copyrighted diagnostic software. We found that licensing requirements for diagnostic software were not essential in performing diagnostic functions. We concluded that DoD hospital bid solicitations, which contained a Statement of Work requirement for diagnostic software licensing, were restrictive because they eliminated other responsible bidders and were not necessary to meet the minimum needs of the procuring agency.

**Response - Concur with comment.** The diagnostic software may not be an absolute minimum requirement for CT scanner maintenance and repair, but it does in fact represent a significant enhancement to repair capability. Evidence of the value of diagnostic software can be found in the current uproar in the medical

ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS  
(cont'd)

Final Report  
Page No.

8  
Revised

equipment industry concerning the copyrighting and control of diagnostic software. This enhancement provides for more precise and rapid system analysis and therefore more timely and effective maintenance of the system. An alternative to making this an absolute requirement in the Statements of Work, is to use best value procedures in the contracting for maintenance services and to make the availability of diagnostic software a matter of technical merit when evaluating competing offers.

Finding - Cost of Sole-Source Contracts Our review showed that the average cost of contracts awarded without competition for CT scanner maintenance services was 76 percent greater (\$124,196 versus \$70,478) than contracts awarded competitively (See Appendix A). For example, DoD paid an OEM \$127,700 for a 1-year maintenance contract (not including replacement tubes) for a General Electric 9800 CT scanner at Wilford Hall, Texas. For the same model at Fort Sam Houston, Texas, DoD paid \$58,800 on a competitively awarded contract to a third party service company. We calculated that DoD could save as much as \$37,466,000 over the next 6 years if all barriers to full and open competition were removed. Appendix B provides the details of the cost savings over the next 6 years.

Response - Nonconcur. We believe the potential cost avoidance cited in the report is greatly overstated. The cost avoidance figures are based on an estimate that the DoD will add 81 additional CT Scanners by 1996. The number was based on the figure used as the estimate for DoD purchases used to negotiate the recent CT Scanner acquisition contracts. This figure includes replacements as well as new scanner acquisitions, and represents the potential maximum of total scanner purchases projected (new and replacement). Based on service equipment fielding projections, it is estimated that only 11 (5 Army, 3 Navy, and 3 Air Force) new machines will be added between now and 1996. Each of the new acquisitions and any replacement or upgrade acquisitions are covered under warranty for one year and will not require service contracts until the warranty expires. The correction to the projection of the number of units requiring servicing reduces the estimated cost avoidance by approximately 37 percent. Attachment 1 shows the adjustments to the DoD IG estimates.

Finding - In-house Computed Tomography Scanner Maintenance Service DoD hires and trains hospital equipment repair personnel to perform service on hospital equipment ranging from beds and intravenous pumps to X-ray machines. Other hospital low density, high technology medical equipment, such as CT scanners, gamma cameras and computers, ultrasound, and specialized X-ray machines, can also be maintained by hospital equipment repair personnel. However, most DoD personnel have not been trained to do the work. Many Department of Veterans Affairs (DVA) medical centers already perform CT scanner maintenance service in-house.

**ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS  
(cont'd)**

Final Report  
Page No.

The issues relating to the potential use of in-house DoD repair personnel concern the quality of repair service, the cost of in-house servicing, and the potential DoD and DVA maintenance sharing arrangements.

**Response - Nonconcur.** The issues relating to the potential use of in-house DoD repair personnel are not confined to the quality of repair service, the cost of in-house servicing, and the potential for DoD and DVA maintenance sharing arrangements. A very important issue overlooked in this finding concerns the Commercial Activities Program guidance as provided in OMB Circular A-76, DoD Directive 4100.15, and DoD Instruction 4100.33. This guidance must be observed when considering the conversion of an activity from commercial sources to in-house sources. DoD Instruction 4100.15, paragraph D.4., states "DoD Components shall rely on commercially available sources to provide commercial products and services except when required for national defense, when no satisfactory commercial source is available, or when in the best interest of direct patient care."

**Finding - CT Scanner Maintenance Service Quality.** During the audit, it was alleged that there were maintenance service quality problems if DoD used third party service companies or in-house maintenance service for CT scanners rather than OEM maintenance service. We reviewed the maintenance service quality at several DoD hospitals and found that the allegation could not be substantiated.

In examining the maintenance service records at the Womack Army Medical Center at Fort Bragg, North Carolina, we found that the medical center used both OEM and third party contractors to service its CT scanner. We found evidence that the hospital experienced quality problems with both the OEM and third party service contractor.

We visited Keesler Medical Center at Keesler AFB, Mississippi. This medical center had the most expensive OEM CT scanner maintenance service contract within the DoD. We found that the medical center was not satisfied with the OEM CT scanner maintenance service. For several months the CT scanner had experienced imaging problems, but the OEM had not corrected these problems.

We also contacted the 22nd Strategic Hospital at March AFB, California, and discussed the CT scanner maintenance performed in-house with one of the two CT technicians. The technician praised the in-house personnel on the maintenance services. The technician's praise centered on the quick response time of the CT maintenance personnel.

**Response - Nonconcur.** The report lacks the objective information needed to compare the effectiveness of the three forms of maintenance service. There is no indication of a statistically

ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS  
(cont'd)

Final Report  
Page No.

8  
Revised

valid survey to measure clinical assessment of the adequacy of the maintenance services, and no indication of assessment of system downtime. Anecdotal reports from three locations do not represent a statistically valid sample from which to draw conclusions about the effectiveness of the different forms of maintenance service.

**Finding - Cost of DoD Performing In-house CT Scanner Maintenance Service.** DoD personnel can perform CT scanner maintenance services at costs significantly lower than the costs of contracted services. The costs for DoD to competitively obtain CT scanner maintenance service by contract over the next 5 years, (1994 through 1998) would be \$63,571,000. We estimate the DoD could save \$26,477,000 if DoD personnel are hired and trained to perform CT scanner service in-house. Appendix B provides details of 6 year contract costs, and Appendix C provides the details for the annual cost savings for in-house CT scanner maintenance service. Cost savings may be greater in instances where DoD and DVA can share, in CT scanner maintenance services within a local area or in instances where comparisons are made to noncompetitive contracts.

**Response - Nonconcur.** The conversion of a contracted commercial activity (CA) to in-house performance needs to conform to the Office of Management and Budget (OMB) and DoD guidance on commercial activities. DODI 4100.33 states: "When contract costs become unreasonable or performance becomes unsatisfactory, the requirement must be resolicited. If the DoD component competes in the resolicitation, then a cost comparison of a contracted CA shall be performed..." The total in-house cost estimate for personnel-related costs must be 10 percent lower and the estimated acquisition cost of additional equipment and facilities must be 25 percent lower than total contract costs to justify the performance of the CA in-house. The need for this location-by-location analysis is recognized in the last paragraph of Appendix C to the report which states that "An accurate estimate of cost can only be determined by performing an analysis for each hospital or service area where the in-house CT scanner servicing will be performed."

Additionally, the cost estimates for establishing in-house capability are incomplete, and the resulting savings figures cited appear greatly overstated. The number of systems to be added between now and 1996 are estimated at 11 rather than the 81 cited in the report. This factor alone reduces the cited in-house cost savings by 21 percent or \$5.6 million. See attachment 1 for the adjustments based solely on the number of CT scanners. No factor is included to cover the additional tools and diagnostic equipment needed to support CT maintenance services. This cost may run as much as \$100,000 per system. Biomedical repair technicians are in great demand and the Services have traditionally experienced difficulty in retaining

ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS  
(cont'd)

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trained individuals. The costs estimated for training a cadre of CT scanner maintenance personnel do not adequately allow for personnel turn-over, or allow for retraining requirements needed based on system upgrades and replacements. The maintenance training available to non-OEM personnel normally does not cover all levels of maintenance requirements. This will result in the need for "back-up" maintenance agreements or "on-the-spot" contracts to cover maintenance requirements which are beyond the scope of the in-house personnel. There is no assessment of these direct costs or of the indirect costs associated with down-time and contracting for "on-the-spot" maintenance.

Finding - DoD and Department of Veterans Affairs (DVA) Sharing Agreements. At present, each military hospital has its own CT scanner maintenance service contract even though there may be two or more DoD and DVA hospitals with CT scanners in the same city. There are economies of scale savings that will occur if CT scanner maintenance service contracts cover more than one CT scanner in a region regardless of which Military Department manages the hospital. Similar economies of scale savings would occur if in-house maintenance personnel could service multiple scanners in a region. We have identified 20 areas that have 2 or more DoD or DoD and DVA CT scanners within a 50 to 100 mile radius (See Appendix D). In the Washington, D.C. area, for example, there are 4 DoD hospitals with 10 CT scanners and a DVA medical center with 1 CT scanner. These hospitals could jointly share servicing CT scanners.

DVA has already incorporated in-house maintenance at 14 of its hospitals. Two of these hospitals are located near DoD hospitals and could readily begin sharing CT scanner maintenance service. The DVA Medical Center, in Miami, Florida, is located near Homestead AFB, and the DVA Medical Center in Seattle, Washington, is located near the Navy Hospital, Bremerton and the Madigan Army Medical Center. It is not economical to use in-house maintenance for servicing CT scanners in a particular location with multiple scanners, then at a minimum, one CT scanner maintenance service contract should cover the multiple scanners.

Response - Concur with comment. Although on the surface, economies of scale always point toward savings, no detailed analysis accompanies this particular argument for sharing CT scanner maintenance services. Issues such as difference in systems in a region, travel costs and response times all need to be assessed. Again, the conversion of a contract service operation to an in-house operation must be accomplished in accordance with DODI 4100.33.

**ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS**  
(cont'd)

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**Recommendations:**

**Recommendation - 1.** We recommend that the Defense Personnel Support Center open solicitations for the computed tomography scanner maintenance service to all responsible bidders.

**Response - Concur with comment.** The existing best value contracting methodology, which considers total system life-cycle costs to include installation, training, warranty services, and maintenance services promotes full and open competition among responsible sources, and is not restrictive. The Defense Personnel Support Center should continue to consider life-cycle acquisition costs on major medical system procurements. Recommend that DPSC implement control procedures which will insure that other than OEM maintenance options are considered prior to exercising maintenance contracting options.

**Recommendation - 2.** We recommend that The Surgeon General, Department of the Army; Chief, Bureau of Medicine and Surgery, Department of the Navy; and the Surgeon General of the Air Force write a blanket statement of work for computed tomography scanner maintenance service contracts that does not contain restrictions to competition. This statement of work should then be the basis used for all DoD computed tomography scanner maintenance service contracting.

**Response - Concur.**

**Recommendation - 3.** We recommend that the Assistant Secretary of Defense (Health Affairs) appoint an Executive Agent to:

a. Initiate development of the capability for in-house computed tomography scanner maintenance service and phase out the use of individual hospital computed tomography scanner maintenance service contracts except where unavoidable or economical.

**Response - Nonconcur.** The depth of the report does not warrant a wholesale jump to in-house maintenance of CT Scanners. The report cites only one DoD location that is performing the mission in-house and cites only anecdotal evidence of the satisfaction with that support. In fact the report takes no account of clinical user satisfaction with CT scanner service support. The report also does not quantify the potential cost of down time and the potential risk management and quality assurance issues associated with the maintenance of CT Scanners and resultant diagnostic image quality. The report also does not address Commercial Activities (OMB Circular A-76) study requirements associated with determining if functions should be performed in-house or via contract. The report also assumes that in-house staff can be added in this time of downsizing of the military.

**ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS  
(cont'd)**

Final Report  
Page No.

The decisions regarding military and civilian end-strengths are normally beyond the control of the management levels which will have to manage and implement these maintenance programs. The results of the report do indicate that the density of CT Scanner's in DoD and the potential for benefits from in-house maintenance are sufficient to explore the establishment of in-house maintenance capability. The Military Departments must follow their procedures for implementing DODD 4100.15 and DODI 4100.33. Therefore, any recommendation in this regard should be directed to the Military Departments.

Deleted

b. Identify in-house personnel staffing and training resources to perform computed tomography scanner maintenance service at DoD hospitals and initiate appropriate funding adjustments in Military Departments' budgets.

**Response - Nonconcur.** See response to recommendation 3.a. above.

c. Coordinate with the Military Departments and the Department of Veterans Affairs to establish sharing agreements between Military Departments and between the Department of Veterans Affairs and Military Departments for in-house and contracted computed tomography scanner maintenance.

**Response - Concur with comment.** See comments on recommendation 3.a. concerning implementation of in-house CT Scanner maintenance. Extensive sharing of services already exist both locally and nationally between the DoD and the Department of Veterans Affairs. The development of a joint blanket Statement of Work for CT Scanner maintenance and the development of shared maintenance contracts can be explored under the existing interagency agreements.

**Recommendation - 4.** We recommend that the Assistant Secretary of Defense (Health Affairs):

Deleted

a. Perform a cost-benefit analysis for incorporating in-house maintenance service for other high-cost hospital diagnostic equipment such as magnetic resonance imaging, nuclear medicine, and ultrasound equipment.

**Response - Nonconcur.** See response to recommendation 3.a. Again, as the operators of their respective components of the Military Health Services System, the Military Departments must perform installation specific cost-benefit analysis in accordance with DODD 4100.15 and DODI 4100.33 to determine if CT Scanner maintenance should be performed in-house or by contract. The site by site approach to the cost-benefit analysis is also consistent with the DoD's Coordinated Care Program.

11  
Revised

b. Initiate the use of in-house servicing or contract servicing based on the results of the analysis.

**ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS**  
(cont'd)

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**Response - Nonconcur. See response to recommendation 4.a. above. The initiation of in-house servicing based on the results of site specific cost-benefit analysis falls under domain of the respective Military Department.**

ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) COMMENTS  
(cont'd)

CORRECTIONS TO APPENDIX B - COMPUTATION OF CONTRACT SERVICING COSTS (\$000s)							
	1993	1994	1995	1996	1997	1998	TOTAL
DoD IG Estimate of Number/1	77	104	131	158	158	158	
IG Projected Contract Costs/1	\$8,542	\$13,143	\$17,744	\$22,345	\$22,345	\$22,345	\$106,464
IG Projected Costs w/Competition/1	\$5,427	\$8,463	\$11,500	\$14,536	\$14,536	\$14,536	\$68,998
IG Average Contract Cost/2	\$111	\$126	\$135	\$141	\$141	\$141	\$141
IG Average Competitive Cost/3	\$70	\$81	\$88	\$92	\$92	\$92	\$92
IG Average In-house Cost/4		\$61	\$51	\$51	\$51	\$51	\$51
Corrected estimate of Systems/5	77	80	83	86	88	88	
Corrected Projected Contract Costs/6	\$8,542	\$10,110	\$11,242	\$12,162	\$12,445	\$12,445	\$66,947
Corrected Costs w/Competition/7	\$5,427	\$6,510	\$7,286	\$7,912	\$8,096	\$8,096	\$43,327
Corrected Cost Avoidance/8	\$3,115	\$3,600	\$3,956	\$4,250	\$4,349	\$4,349	\$23,620
Corrected In-House Costs/9		\$4,900	\$4,251	\$4,357	\$4,458	\$4,458	\$22,425
Corrected In-house Cost Avoidance/10		\$1,610	\$3,036	\$3,555	\$3,638	\$3,638	\$20,902

Notes:  
 1/ Data extracted from Appendix B of DoD IG Draft Report on CT Scanner Maintenance  
 2/ Average contract cost based on Appendix B of DoD IG Draft Report  
 3/ Average competitive contract cost based on Appendix B of DoD IG Draft Report  
 4/ Average In-house cost based on Appendix C of DoD IG Draft Report  
 5/ Based on Service Fielding Estimates for 11 Additional CTs  
 6/ Average Contract Cost as computed by DoD IG times revised estimate of scanner numbers  
 7/ Average Competitive Contract Cost as computed by DoD IG times revised estimate of scanner numbers  
 8/ Corrected Contract Costs less Corrected Competitive Contract Costs  
 9/ Average In-house Costs as computed by the DoD IG times the revised estimate of scanner numbers  
 10/ Corrected Competitive Contract Costs less Corrected In-house Costs

Attach 1

DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS

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DASG-HCL-S (SAIG-PA/3 Sep 92) (36-2b) 1st End  
LTC Armondo/aaa/(703) 756-8160  
SUBJECT: Draft Report on Computed Tomography (CT) Scanner  
Maintenance Service Contracts (Project No. 2CD-8006)

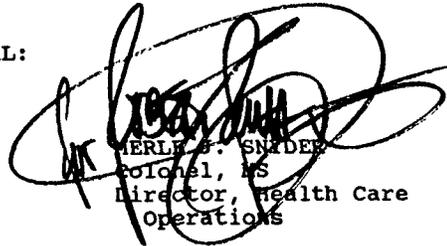
HQDA(DASG-HCZ), 5109 LEESBURG PIKE, FALLS CHURCH, VA 22041-3258  
FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE (AUDITING),  
WASHINGTON, DC 20310-1700

16 NOV 1992

1. Specific comments on the findings and recommendations for subject Draft Report are provided as enclosure 1.
2. As indicated on enclosure 1, HQDA has directed the accumulation of all existing specification for CT Scanner Maintenance Service Contracts. In conjunction with HQ, U.S. Army Health Services Command (HSC) and the U.S. Army Medical Material Agency (USAMMA), HQDA is in the process of reviewing these specifications to establish standard Army-wide specifications for CT Scanner Maintenance Contracts (enclosure 2).
3. In addition, HQDA has tasked HSC and USAMMA to jointly conduct a study of providing in-house CT Scanner Maintenance Services for a one year period to test the feasibility and utility of maintaining these high technology systems in this fashion (enclosure 3).
4. A copy of the Action Plan we are currently operating under to complete these actions is provided as enclosure 4.
5. Point of contact for this action is LTC Armondo, DASG-HCL-S, (703) 756-8060.

FOR THE SURGEON GENERAL:

4 Encls  
as



ROBERT E. RICHARDS  
Colonel, MS  
Director, Health Care  
Operations

ROBERT E. RICHARDS  
Colonel, MS  
Chief, Medical Readiness, Mobilization &  
Reserve Components Division

DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS (cont'd)

Final Report  
Page No.

DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS  
ON  
DRAFT AUDIT REPORT  
ON  
COMPUTED TOMOGRAPHY SCANNER SERVICE CONTRACTS  
(PROJECT NO. 2 CD - 8006)

**FINDING.** Maintenance service costs for CT scanners at DoD hospitals are excessive. This is because the hospitals use maintenance service contracts which are not as cost-effective as using in-house personnel, and, to a lesser extent, the DoD hospitals and the Defense Personnel Support Center restrict the service contracts to OEM's as alleged by the hotline referral. The result is that the DoD is currently incurring excess cost of \$3,924,000 that could be eliminated if they performed the maintenance service in-house. This excess is expected to become \$15,684,000 per year by the year 1997 and will total to \$71,050,000 from 1993 to 1998.

**RECOMMENDATION NO. 1.**

We recommend that The Surgeon General, Department of the Army; the Chief of Medicine and Surgery, Navy Department; and The Surgeon General of the Air Force:

- a. Determine the in-house personnel and training requirements needed to perform CT scanner maintenance service at each of their respective hospitals.
- b. Make appropriate funding adjustments in their budget requests and to hire any required additional personnel.
- c. Incorporate in-house CT scanner maintenance service and delete the use of CT scanner maintenance service contracts in DoD hospitals.

**COMMENTS ON RECOMMENDATION NO. 1.** Nonconcur for the following reasons:

- a. Implementation of in-house CT scanner maintenance service for FY 93 is extremely problematic since the identification of personnel and their subsequent training would be required prior to the start of FY 93. The identification of military personnel would have to consider their background experience; time on-station and estimated rotation dates; their retention probability while considering current down-sizing initiatives; their availability dates, new authorizations, etc. A similar screening process would be necessary for DA civilians, and should include an employment contract to aid retention upon completion of the training. Additionally, the estimated training cost of \$8,400 per repairer would need to be FY 92 funding.

Encl 2

DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS (cont'd)

Final Report  
Page No.

11  
Revised

b. The status of CT scanner maintenance warranties, or service contracts is not currently centrally available. Therefore, continuation of some maintenance service into FY 93 may be necessary to avoid contract cancellation penalties.

c. The rationale that DoD would need 53 new personnel to maintain a projected density of 159 scanners based upon industry practice is very simplistic. The conclusion ignores that industry or third-party service companies operate on a reasonable geographical area and service a controlled range of equipment as to manufacturer and models. On the other hand, DoD hospitals, with some exceptions such as the Washington, D.C. and San Antonio, TX areas, are typically located in widely dispersed locations and military or civilian CT maintenance specialists cannot be located to work from their home or a decentralized "office". Therefore, some in-house CT scanner maintenance specialists would be required to maintain a single system.

d. The recruitment of additional civilian personnel for in-house CT scanner maintenance service is questionable since current DA policy limits civilian personnel to authorized end strength. Presently there is a DA hiring freeze in place. It does not appear that any relief from the freeze is coming in the foreseeable future.

e. Additional supportive reasons are addressed in the evaluation of estimated monetary benefits.

PROPOSED ALTERNATIVE TO RECOMMENDATION NO. 1.

The Office of The Surgeon General (OTSG) agrees that substantial savings may be realized from alternative methods of CT scanner maintenance service provided that quality patient care or the availability of such care is not compromised. Accordingly, a comprehensive review of CT scanner maintenance service alternatives will be initiated. The test data accumulated will be used to determine future decisions.

COMMENTS ON RECOMMENDATION NO. 2.

Concur. The OTSG will initiate a joint task force to develop mandatory specifications for CT scanner maintenance service contracts to preclude bidding restrictions.

COMMENTS ON RECOMMENDATION NO. 3. Not applicable.

COMMENTS ON RECOMMENDATION NO. 4.

Concur. The OTSG will initiate a study of current maintenance service methods and subsequently initiate action to ensure quality services at the least total cost.

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Revised

DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS (cont'd)

Final Report  
Page No.

13  
Revised

COMMENTS ON THE SUMMARY OF POTENTIAL MONETARY AND OTHER BENEFITS.

Nonconcur for the following reasons:

- a. In-house costs do not reflect TDY costs since the majority of CT scanners in DoD hospitals are a single system.
- b. In-house costs reflecting the cost of patient referrals during CT scanner down-time are not quantified but are mentioned in the audit. CT scanner down-time caused by TDY delays, personnel leave or sickness, etc., will result in patient referrals above that experienced by manufacturer or third-party contractors.
- c. In-house costs for training during the remainder of 1992 in order to implement in-house maintenance service are not listed. In general, training costs are reflected too late.
- d. No factor for training replacement maintenance service personnel is considered, nor is refresher training considered when CT scanners are upgraded (software or hardware). Our estimate of retraining is a minimum of 25 percent based upon current losses of both civilian and military medical equipment repairers and equipment upgrades.
- e. CT scanner maintenance service contracts and in-house maintenance service cost incorrectly assume that the 81 CT scanners identified on a Defense Personnel Support Center (DPSC) Request For Proposal (RFP DLA 120-90R-0733 will be purchased and will not replace existing obsolete or worn-out systems. In fact, some units will be replaced.
- f. In-house costs for repair parts do not recognize that repair parts costs vary with CT scanner use and age. Additionally, the in-house costs do not consider the cost of replacement x-ray tubes. Replacement x-ray tubes are usually deeply discounted when the manufacturer performs the maintenance services and typically amount to 35 percent of contractual maintenance services.
- g. The in-house costs do not consider one-time contractual maintenance service costs for unique situations such as simultaneous failures in a region, extended sickness of maintenance personnel, etc.
- h. In-house costs do not reflect the additional high-priority requirement for repair parts and the impact upon the hospital or installation procurement offices.
- i. The cost of service manuals and diagnostic software to troubleshoot CT scanners is also not considered.

DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS (cont'd)

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ADMIN

DA WASHINGTON DC//DASG-HCL//  
CDR USAHSC FT SAM HOUSTON TX//HSL0//  
CDR7THMEDCOM HEIDELBERG GE//AENLO//  
CDR18THMEDCOM SEOUL KOR//EAMC-L//  
CDRUSAMRDC FT DETRICK MD//SGRD-RML//  
INFO CDRUSAMMA FT DETRICK MD //SGMMA-ZA//

UNCLAS

SUBJECT: COMPUTERIZED TOMOGRAPHY (CT) SYSTEM MAINTENANCE STUDY

1. DEPARTMENT OF DEFENSE (DOD) INSPECTOR GENERAL (IG) DRAFT AUDIT REPORT ON COMPUTED TOMOGRAPHY SCANNER MAINTENANCE SERVICE CONTRACTS, PROJECT NO. 2CD-8006, 25 AUG 92.

2. THE DODIG RECENTLY AUDITED DOD'S ALMOST TOTAL USE OF SERVICE CONTRACTS TO PROVIDE MAINTENANCE FOR CT SYSTEMS. THEY CONCLUDED THAT DOD AWARDED CT SCANNER MAINTENANCE SERVICE CONTRACTS WITHOUT FULL AND OPEN COMPETITION DUE TO BID RESTRICTIONS IN THE PROCUREMENT PROCESS. THEY ALSO SUGGESTED THAT OVER \$63 MILLION IN POTENTIAL BENEFITS COULD BE REAPED BY DOD IF THEIR RECOMMENDATIONS WERE IMPLEMENTED.

3. THE ARMY MEDICAL DEPARTMENT AGREED TO INITIATE A TASK FORCE TO DEVELOP STANDARD MAINTENANCE SERVICE CONTRACT SPECIFICATIONS. THE

LTC ARMONDO, DASG-HCL-S, 756-8067

COL LIVERMORE, DASG-HCZ, 756-8210



UNCLASSIFIED

ENCL 2

DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS (cont'd)

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ACTING SURGEON GENERAL ALSO APPROVED CONDUCTING A STUDY OF USING IN-HOUSE PERSONNEL TO PERFORM CT SYSTEM MAINTENANCE 23 AUG 92.

4. ACTION ADDRESSEES WILL COLLECT A COPY OF EACH CT SCANNER SYSTEM MAINTENANCE SERVICE CONTRACT FOR THEIR SUBORDINATE ACTIVITIES. THESE CONTRACTS MUST BE FORWARDED TO THE FOLLOWING TASK FORCE POCs TO ARRIVE NOT LATER THAN 8 OCT 92.

A. TASK FORCE POC FOR HSC CT SYSTEM SERVICE CONTRACTS--CW3 PLACE, HSLO-PH.

B. TASK FORCE POC FOR 7TH AND 18TH MEDCOM CT SYSTEM SERVICE CONTRACTS--CW3 BREWER, SGMMA-H.

5. TASK FORCE POCs WILL ANALYZE ALL AMEDD CT SYSTEM SERVICE CONTRACT SPECIFICATIONS BY 30 OCT 92 AND PREPARE A DRAFT STANDARD SPECIFICATIONS NLT 31 DEC 92.

6. HQ HSC, USAMMA, AND THIS OFFICE WILL JOINTLY TEST THE PROVISION OF IN-HOUSE CT SCANNER MAINTENANCE SERVICES AND EVALUATE THE FEASIBILITY OF USE THROUGHOUT THE AMEDD.

7. POINTS OF CONTACT FOR THIS ACTION ARE LTC ARMONDO, DASG-HCL, DSN 287-8060 OR COMMERCIAL (703) 756-8060; CW3 PLACE, HSLO-PH, DSN 471-8405 OR COMMERCIAL (512) 221-8405; AND MR. KASTEN/ CW3 BREWER, SGMMA-H, DSN 343-7441 OR COMMERCIAL (301) 617-7441.

LTC ARMONDO, DASG-HCL-S, 756-8067

COL LIVERMORE, DASG-MCZ, 756-8210

UNCLASSIFIED

DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS (cont'd)



DEPARTMENT OF THE ARMY  
OFFICE OF THE SURGEON GENERAL  
5109 LEESBURG PIKE  
FALLS CHURCH, VA 22041-3258



REPLY TO  
ATTENTION OF

S: 8 Sep 92

DASG-HCL (750)

27 AUG 1992

MEMORANDUM FOR COMMANDER, U.S. ARMY HEALTH SERVICES COMMAND,  
ATTN: DCSLOG, FORT SAM HOUSTON, TX 78234-6000

SUBJECT: Computerized Tomography (CT) System Maintenance Study

1. Maintenance support for our CT systems and those of the other Services has been almost totally provided through the use of service contracts since their introduction into the inventory. There are a number of very good reasons that this has occurred.
2. In spite of those reasons, the Department of Defense (DOD) Inspector General (IG) recently questioned both the concept and the method of providing maintenance service contracts for CT systems. The DODIG recommended hiring and training DOD personnel to provide this service in-house. They claimed this action would create substantial monetary savings to DOD (over \$71 million in savings between now and 1998).
3. The Army Medical Department (AMEDD) nonconcurred with the DODIG recommendation to use in-house maintenance personnel to maintain our CT systems. We agreed, however, to initiate a task force to develop mandatory maintenance specifications, and to initiate a study of current maintenance options. The Acting Surgeon General approved conducting this study and developing service contract specifications on 21 Aug 92 (enclosure 1).
4. You are tasked to jointly develop the detailed study protocol, select the study location, and conduct the CT maintenance study with this office and the U.S. Army Medical Materiel Agency (USAMMA). You are also tasked to provide the data and assistance necessary to review existing CT maintenance service contracts. Provide the name and phone number of your Project Officer for these efforts to the points of contact NLT 8 Sep 92. Every effort should be made to execute the proposed Action Plan during FY 93. Proposed timelines for this study are provided as enclosure 2.

ENCL 3

DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS (cont'd)

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JASG-HCL  
SUBJECT: Computerized Tomography (CT) System Maintenance Study

5. Points of contact for this action are LTC Arondo, DASG-HCL, DSN 289-8060 or commercial (703) 756-8060, and Mr. Kasten, SGMMA-M, DSN 343-7441 or commercial (301) 619-7441.

FOR THE SURGEON GENERAL:

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as



PHILIP E. LIVERMORE  
Colonel, MS  
Acting Director, Health  
Care Operations

CF: COMMANDER, U.S. ARMY MEDICAL MATERIEL AGENCY, FREDERICK,  
MD 21702-5001

DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS (cont'd)

Final Report  
Page No.

13

**CT SCANNER SYSTEM MAINTENANCE ACTION PLAN**

<b>EVENT</b>	<b>COMPLETION DATE</b>
1. Obtain TSG approval.	21 August 1992
2. Notify DASG-PTZ and SGPS-RMZ of approved alternative.	21 September 1992
3. Notify HQ, HSC, 7th, and 18th MEDCOMS of analysis/test.	23 September 1992
4. Establish analysis/test partnership with HQ HSC.	23 September 1992
a. Initiate collection of existing CT Scanner System Maintenance Service Contracts.	23 September 1992
b. Initiate analysis of existing CT Scanner System Maintenance Service Contracts.	8 October 1992
c. Complete Draft Standard CT Scanner System Maintenance Service Contract.	31 December 1992
d. Establish partnership with test hospitals.	30 October 1992
(1) Identify personnel to be trained.	6 November 1992
(2) Identify data elements for collection and reporting throughout the study.	30 October 1992
(3) Complete required training.	31 December 1992
(4) Modify existing CT Scanner System Maintenance Service Contract to provide backup service.	31 December 1992
5. Complete cost benefit analysis of existing CT Scanner System Maintenance Service contracts.	30 October 1992
6. Initiate study at selected sites (BAMC & DDEAMC).	1 January 1993

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DEPARTMENT OF THE ARMY - OFFICE OF THE SURGEON GENERAL  
COMMENTS (cont'd)

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Final Report  
Page No.

13

CT SCANNER SYSTEM MAINTENANCE ACTION PLAN

<u>EVENT</u>	<u>COMPLETION DATE</u>
7. Review Study data at 6 months.	1 July 1993
8. Review Study data at 9 months.	1 October 1993
9. Review Study data at 12 months.	1 January 1994
10. Conclude Study at 18 months and analyze data.	1 July 1994
11. Prepare and staff analysis of study data.	1 August 1994
12. Implement approved recommendations from study.	1 October 1994

*Roxey*

DEPARTMENT OF THE NAVY COMMENTS

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THE ASSISTANT SECRETARY OF THE NAVY  
(Research, Development and Acquisition)  
WASHINGTON, D C. 20350-1000

OCT 22 1992

MEMORANDUM FOR THE DEPARTMENT OF DEFENSE INSPECTOR GENERAL

Subj: DRAFT REPORT ON THE AUDIT OF COMPUTED TOMOGRAPHY (CT) SCANNER  
MAINTENANCE SERVICE CONTRACTS (PROJECT NO. 2CD-8006) -  
INFORMATION MEMORANDUM

In response to the subject draft audit report the Department of the Navy agrees that full and open competition should be used in contracting for maintenance services. We also agree that the potential exists to establish sharing agreements in geographical areas to achieve economies of scale. We do not concur, based on the data provided, that bringing maintenance services in-house would achieve substantial savings. We will review this issue further.

  
Gerald A. Cann

Copy to:  
NAVINGEN  
NAVCOMPT (NCB-53)

## DEPARTMENT OF THE AIR FORCE COMMENTS

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DEPARTMENT OF THE AIR FORCE  
AIR FORCE MEDICAL LOGISTICS OFFICE  
FREDERICK, MD 21702-5008

23 October 1992

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL FOR AUDITING  
OFFICE OF THE INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE

SUBJECT: Draft Report on Computed Tomography Scanner Maintenance Service Contracts  
(Project No. 2CD-8006)

This memorandum is in reply to a request for the Secretary of the Air Force (Financial Management and Comptroller) to provide comments on the subject report. The following comments on the audit Recommendations for Corrective Action are provided for consideration in finalizing the report. The remainder of this memorandum contains specific supporting data, comments, and corrected cost savings.

a. Reference Recommendation 1. Nonconcur with comment.

(1) This recommendation actually states that contracting for CT maintenance contracts should be separated from contracting for the CT system itself. We do not concur. We specifically requested maintenance options with the purchase of each CT scanner because this is the only contracting method known that can yield a true life cycle cost evaluation of the system. We believe this is the appropriate acquisition strategy to use when it is anticipated that contract maintenance will be required to support an equipment system. This position is supported by reliable civilian and USAF sources.

(2) The Emergency Care Research Institute (ECRI) published a special edition of *Health Technology*, Volume 3, Number 4, Winter 1989, titled "Special Report on Managing Service Contracts." In an article titled "Types of Service-Their Advantages and Disadvantages," the authors maintain the "time to set the stage for service options for a new device or system is as early as possible in the acquisition process." They justify this conclusion based on the following points:

(a) With comprehensive service requirements in the Request for Proposal (RFP), "...detailed service related information can be obtained from all manufacturers and considered as an integral part of the acquisition process."

(b) They point out that "This is the only time the hospital has any real leverage to insist on receiving essential service elements, such as the right to use diagnostic software...."

(c) They even go so far as to say that "...detailed service requirements should be incorporated into the eventual purchase order, whether or not a tentative decision has been made about using the manufacturer for post warranty service."

(d) Finally, "By making the manufacturer's service support requirements part of the acquisition process, the hospitals service options in future years will not be limited."

(3) The Fall 1991, *Air Force Journal of Logistics: Desert Shield/Storm Logistics Lessons Learned* contains an article titled Supporting Commercial Systems by Robert G. Olear, Logistics Management Specialist, Air Force Systems Command. Mr. Olear was a member of a special Commercial Off-the-Shelf (COTS) Supportability Working Group tasked with the development of policies and procedures to improve support of commercial equipment and systems. Among the final recommendations were the following:

(a) Indicate contractor support is preferred unless mission needs are not met.

(b) Apply vendor support concepts whether support is organic or contract.

(c) Develop support requirements, life-time support strategy, and contract language for commercial items up front.

b. Reference Recommendation 2. Concur with the recommendation to develop a standard statement of work for computed tomography scanner maintenance service contracts for DoD. However, the following comments are provided regarding what constitutes restrictive bidding provisions.

(1) The section on Factory Training Restrictions states that a requirement for factory training on a specific scanner make and model is restrictive and eliminates responsible bidders. While the factory training requirement may be beyond the minimum needs, technical training on a particular scanner make and model is not beyond the minimum needs. It is essential for proper preventive and unscheduled maintenance for the technician to be trained on the system being repaired. For example, a technician trained to repair GE scanners is not necessarily qualified to repair a Siemens scanner.

(2) The section on Software Restrictions states, "licensing requirements for diagnostic software were not essential to performing diagnostic functions." Diagnostic software is essential to the efficient performance of service on most CT scanners. Without specific diagnostic software, a field service engineer is required to use a brute force process of elimination to identify a faulty part. This not only requires excessive time, but often results in the purchase of needless parts for brute force substitution.

DEPARTMENT OF THE AIR FORCE COMMENTS (cont'd)

Final Report  
Page No.

11 and 12  
Revised

c. Reference Recommendation 3. Concur with the intent of the recommendation but not the wording. Comments are provided below.

(1) Parts a, b, and c of this recommendation identify the initial steps toward implementing an in-service capability. However, the most important step, conducting a detailed cost analysis at each location to determine the cost effectiveness and feasibility, has been eliminated. The draft report recognizes the importance of this task, but it is buried in the last paragraph of Appendix C. In all fairness, the sentence that states "An accurate estimate of cost can only be determined by performing an analysis for each hospital or service area where in-house CT scanner servicing will be performed," should also be included in the executive summary, conclusions and recommendation sections.

(2) The USAF is ready to initiate these studies and implement test programs for CT scanner maintenance at selected sites. However, the funding and staffing resources will be required to implement even test programs. Current manpower authorizations is one of the primary reasons for using contract maintenance support.

The report contains several broad generalizations, inaccurate estimates and computations, incomplete data, and incorrect assumptions.

a. The Audit Results section states that the data contained in this report results in a "Cost savings of 54 percent" if contracts are awarded with full and open competition. It also states, "An additional 71 percent can be saved by performing CT scanner maintenance service in-house." We do not concur with the calculations supporting these statements.

(1) The following is a correction to the method of calculating savings and not an endorsement of the supporting data. The data in Appendix B shows projected current contract costs of \$106,464,000 and a cost of \$68,998,000 if service contracts are awarded with full and open competition. This is a dollar savings of \$37,466,000. The reported savings of 54% is apparently calculated as  $\$37,466,000/\$68,998,000=54.3\%$ . This is not a cost savings, but a cost increase from contracts awarded with competition to the current projected contract costs. The percent savings should be calculated as  $\$37,466,000/\$106,464,000=35.2\%$ .

(2) For comparison of in-house maintenance to contract maintenance, Appendix B reports the contract cost as \$63,571,000 and in-house costs as \$37,094,000 resulting in a dollar savings of \$26,477,000. An "additional cost savings" of 71% is then calculated as  $\$26,477,000/\$37,094,000$ . The additional cost savings should be calculated as  $\$26,477,000/\$63,571,000=41.6\%$ . This is the cost savings of in-house maintenance over full and open competition awarded contract maintenance. The actual percent of additional savings over the existing contract maintenance could be calculated as  $\$26,477,000/\$97,922,000=27\%$ . Then the final statement should be corrected to say that using full and open competition results in a savings of 35.2% and an additional 27% could be saved using in-house maintenance.

b. The Maintenance Service Records section states that records were reviewed at four DoD hospitals to compare the quality of CT maintenance service provided by OEMs and other

3

5  
Revised

DEPARTMENT OF THE AIR FORCE COMMENTS (cont'd)

Final Report  
Page No.

9  
Revised

maintenance service companies. Four hospitals do not provide an adequate sample size for extrapolation of this data to all other locations. The records on the one USAF unit maintained in-service is certainly not representative for extrapolation purposes. It is a relatively new unit with a low utilization rate.

c. The last sentence of the Conclusion section, page 18, states, "We believe the DoD should emulate the DVA example and become efficient in the area of medical equipment maintenance." This statement is far too generic and implies the DVA is more efficient at medical equipment maintenance in general. This audit examines only a portion of DoD CT maintenance services and the supporting data does not show that the DVA is more efficient.

d. In Part II, Discussion of Details, the report makes reference to the FAR 17.207(c)(3) and d(1) "Exercise of Options" and states that this requires the contracting officer to determine if the exercise is the most advantageous method of fulfilling the government's need, and if a new solicitation fails to produce a better price. This implies that the contracting officer has illegally exercised maintenance options. What is not reported here is that FAR 17.207(d)(2) and (d)(3) gives the contracting officer two additional options instead of a new solicitation. Also, sections (d)(1), (d)(2), and (d)(3) contain the caveat "or that the option is the most advantageous offer." This draft audit report does not show that the exercise of these options is not the most advantageous offer. Many factors in addition to cost must be considered.

e. The section titled Reasons for Sole-Source states that 27 of the 36 contracts were awarded without full and open competition. Then the report says that 19 of 27 were not subject to FAR Subpart 6.1. This is a direct contradiction.

f. The subsection titled CT Scanner Maintenance Service Options quotes FAR Subpart 6.1 then states, "In our review of four contracts with 19 contract options for maintenance service, which DPSC awarded, we determined that this FAR requirement was not met." It goes on to say that the provisions of 6.1 were not met at the time of award or at a later time when the maintenance options were exercised. The exercise of contract options, however, is not subject to the FAR Subpart 6.1. It also says that DPSC exercised the contract maintenance options without soliciting all responsible sources. This is not required under the FAR 17.207(d)(2), nor does the audit show that DPSC exercised the options improperly. The discussion implies the FAR requires that all responsible sources must be solicited in order to exercise an option. This is simply not the case.

We cannot concur with the potential savings and benefits presented in several sections of the report. Our rationale and corrected data for Air Force activities is outlined as follows:

a. The paragraph on Cost of Sole-Source Contracts and Appendix A compares the cost of contracts awarded sole-source versus competitive bidding, and uses this as the basis for dollar value savings. In order to compare the contracts and draw valid conclusions, more data is needed on the provisions within each contract. It is obvious that service contracts for CT scanners of various manufacturers have all been grouped together with replacement tubes as the only distinguishing characteristic. There are many other valid reasons for contract prices

## DEPARTMENT OF THE AIR FORCE COMMENTS

Final Report  
Page No.

1  
Revised

to vary. Factors such as model and age of the unit, manufacturer, options included on the equipment, service response times, hours of coverage (8 hours versus 16 hours per day or normal business hours versus 7 days a week), guaranteed up-time, and liquidated damages clauses greatly affect the contract cost. Without a comparison of the provisions of each contract, the conclusions drawn on the amount of savings is statistically invalid.

b. The report section, Part I - Introduction, contains several errors and false or missing assumptions.

(1) The Background section states that "DoD plans to place an additional 81 scanners in service over the next 3 years." The section under Scope, Documents Reviewed, states that Request for Proposal (RFP) DLA120-91R-1522 is for procurement of 81 scanners over the next three years. The RFP has resulted in award of three contracts. Contract number DLA120-92-D-8314 was awarded for 15 basic performance level scanners over the next three years. Contract number DLA120-92-D-8315 was awarded for 30 standard performance level scanners over the next three years. Contract number DLA120-92-D-8317 was awarded for 15 high performance level scanners. This results in a total of 60, not 81. The scope section also states that the procurement was reviewed to determine whether the scanners were new systems or replacements of existing CT scanners. Many of these systems will be replacements, yet all the calculations of savings use 81 scanners in addition to the 78 already in place. The current and projected distribution of CT scanners in the AF is shown in the table at attachment 1 of this memorandum. Even though the Air Force will purchase three scanners in the years 1993 through 1995, the overall effect when replacement systems and base closures are included is a net gain of two CT systems. There may be additional purchases of replacement systems during these three years, but the net gain/loss will be zero and maintenance service cost for the following year would be zero. The first table at attachment 2 of this memorandum is a computation of contract Servicing Costs for Air Force CT systems only. We recommend similar data be obtained from the Army and Navy to correct the Table at Appendix B to reflect accurate numbers of systems.

(2) The Scope section states that of 78 scanners in DoD hospitals, 73 were under contract maintenance. The report reviewed the costs applicable to fiscal year 1992 for 36 of the 73 CT scanners. The criteria used to select the subset of 36 from the 73 for review was not provided. Without a true random sample, all calculations and extrapolation to the full complement of 73 scanners are invalid.

c. Reference Appendix C - Computation of In-House Costs. A cost comparison of in-house versus contract maintenance is not the only criteria on which these two options must be judged. Some of the most important reasons for purchase of contract maintenance are logistical support, minimization of parts acquisition time and scanner down-time, and access to a vast knowledge base of diagnostic experience and expertise. In-house maintenance virtually assures an inexperienced staff because of high turn-over rates. There are several assumptions made in this section that we believe are inaccurate and impact potential cost savings.

DEPARTMENT OF THE AIR FORCE COMMENTS (cont'd)

Final Report  
Page No.

21  
Revised

(1) Reference Labor Costs. The projection of labor costs based on 439 hours per year per scanner at an hourly rate of \$22.93 per hour or \$10,100 per year is flawed for several reasons. First, this estimate assumes that one technician can maintain more than one scanner. While this is possible in some areas of the country where scanners are located in close geographic proximity, many scanners are too isolated to realistically share maintenance with other facilities. Also, one technician can not be available 24 hours a day, 365 days a year. Our estimates of labor costs are calculated as follows:

21  
Revised

(a) Appendix D provided data on 20 geographic regions that have potential for shared CT maintenance between the services and the DVA. Using this data and assuming that one technician can maintain three CT systems if they are in close geographic proximity, we determined that it will require 52 technicians to support the 124 CT systems shown in these 20 regions. Of these 124 scanners, 46 are current DoD scanners, therefore, the other 32 are not located in one of these geographic regions. These 32 scanners would require a dedicated technician thus bringing the grand total to 84 technicians. This means that 84 technicians are required to support 156 scanners. This translates to .54 full time equivalents per scanner. Note that this estimate is skewed to the low side since we have no estimate of the number of isolated scanners the DVA has in use.

21  
Revised

(b) The estimate of total labor costs for the years between 1994 through 1998 can not be calculated based on the number of hours per year for repair of the scanner, but must be calculated on the basis of the number of people paid. Therefore, the total labor cost for DoD for the years 1994 to 1998 is \$18.3 million ( $\$47,700 \cdot .54 \cdot \text{No. Scanners}$ ) plus \$7.1 million for fringes totaling \$25.4 million.

21  
Revised

(2) Reference Parts Costs. The estimate of parts costs is based on only three locations that have in-house maintenance. The parts costs for the 22nd Medical Group, March AFB CA are extremely low for a couple of reasons. The 22nd Medical Group is a small hospital (80 bed) with limited workload and the scanner is brand new. Larger hospitals have heavier workloads requiring tubes to be replaced almost yearly. The tube can be a \$30,000 part. The audit cites the DVA medical center in Little Rock AR as having an abnormally high parts cost of \$21,960. We do not think this is a high parts cost, especially if the DVA in Little Rock is a large hospital. Take Keesler AFB for example, where the detector array costing \$400,000 was recently replaced. Although we do not have a figure for average parts costs across all sizes of installations and all brands of scanners, an estimate should not be derived from data at only three locations. A more comprehensive study is necessary to obtain an accurate estimate of parts costs.

21  
Revised

(3) Reference Training Costs. Historical experience shows that we must train 30% of the technicians each year to maintain a staff of trained maintenance technicians. Training one technician per scanner is inadequate to cover the entire period. A more realistic training cost based on this history is included in the table shown below.

DEPARTMENT OF THE AIR FORCE COMMENTS (cont'd)

Final Report  
Page No.

(4) The following table is a rework of the table at Appendix C reflecting corrections to labor, fringes, and training. The numbers of CT systems is the same as the draft.

COMPUTATION OF IN-HOUSE COSTS  
(\$000)

	1994	1995	1996	1997	1998	Total
CT Scanners	104	131	158	158	158	
Labor	\$2,679	\$3,374	\$4,070	\$4,070	\$4,070	\$18,263
Fringes	\$1,037	\$1,306	\$1,575	\$1,575	\$1,575	\$7,068
Parts	\$3,584	\$4,514	\$5,445	\$5,445	\$5,445	\$24,433
Training	\$719	\$402	\$458	\$327	\$327	\$2,235
Total	\$8,019	\$9,596	\$11,548	\$11,417	\$11,417	\$51,999

As shown, these projected figures are substantially higher than the audit estimates from Appendix C. Since these numbers do not account for isolated DVA systems, they are skewed to the low side.

(5) The second table at Appendix B of the audit report shows the costs for in-house maintenance for the years 1994 through 1998. Recommend that each location considered for in-house maintenance undergo a detailed cost comparison using actual data from past experience and market surveys of available service in the geographic area. We do not believe that calculations in the audit or in this response, which are based on narrow assumptions, adequately represent the costs for all DoD CT maintenance, nor can they be accurately extrapolated to represent the same. The second table at attachment 2 of this memorandum is our revised computation of In-house Servicing Costs for Air Force CT systems only. We recommend similar data be obtained from the Army and Navy and correct the Table at Appendix B of the audit report to reflect accurate numbers of systems.

Air Force Corrections to Appendix D - DoD Computed Tomography Scanners and Nearby Department of Veterans Affairs Medical Centers are included as attachment 3 to this memorandum.

The following typographical, grammatical, and mathematics errors are identified for correction.

a. The section titled, Cost of DoD Performing In-house CT Scanner Maintenance Service, states, "...in CT scanner maintenance services within a local area 9...." This must be a typographical error.

7

21  
Revised

8  
Corrected

DEPARTMENT OF THE AIR FORCE COMMENTS (cont'd)

Final Report  
Page No.

8  
Corrected

ii  
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16  
Corrected

17  
Corrected

b. The sentence "Patient services and the number of patients a CT scanner can handle will improve by increasing CT scanner maintenance service response time." is incorrect. Decreasing response time will improve patient service.

c. The section on Potential Benefits of the Audit states, "DoD could achieve \$37,466,000 of potential monetary benefits by improving competition in the acquisition of CT scanners ...." Competition in the purchase of CT scanners is not in question. We assume this means "competition in the acquisition of CT scanner maintenance services."

d. Reference Appendix A.

(1) In the table that calculates average cost per scanner with and without tubes, page 24, the average cost per scanner awarded competitively is shown as \$70,478. This number should be \$70,448.

(2) On page 25, the estimated total DoD contract cost for 1992 is calculated. The table uses 77 scanners as the number for calculation of total. As specified in the Scope section of Part I - Introduction, of the 78 scanners currently in use in DoD, one is maintained in-house and four are new and still under manufacturers warranty. Therefore, 73 scanners should be used in all calculations of the total cost. Also on this page, the multiplication of 58 X \$124,196 = \$7,303,368 should be \$7,203,368.

We appreciate the opportunity to comment on the Draft Audit Report. Please address any questions concerning our comments to Lt Col Leslie Wood or Mr. David Baker at DSN 343-2091 or commercial (301)-619-2091.

  
JOHN E. HOLES, Colonel, USAF, MSC  
Chief, Air Force Medical Logistics Office

3 Atch

1. Current and projected AF CT Scanners
2. Computation of contract servicing costs
3. Correction to Appendix D

8

DEPARTMENT OF THE AIR FORCE COMMENTS

CURRENT AND PROJECTED U.S. AIR FORCE  
COMPUTED TOMOGRAPHY SCANNERS

LOCATION	Installed	1992	1993	1994	1995
Elmendorf AFB AK	1990				
Maxwell AFB AL	1990				
Davis-Monthan AFB AZ		New <sup>1</sup>			
Luke AFB AZ	1989				
March AFB CA <sup>2</sup>	1989				
Travis AFB CA	1988			Replace	
Mather AFB CA			New		
USAF Academy CO	1987				
RAF Lakenheath England	1989				
Eglin AFB FL	1987				
Tyndall AFB FL	1991 <sup>3</sup>				
Homestead AFB FL	1986	Base closed	CT removed	in 1992	
MacDill AFB FL	1991				
Wiesbaden AFB FRG	1986				
Scott AFB IL	1984				
Barksdale AFB LA		New <sup>4</sup>			
Andrews AFB MD	1984		Replace		
Keesler AFB MS	1988				
Keesler AFB MS			New <sup>5</sup>		
Minot AFB ND		New <sup>6</sup>			
Offut AFB NE	1990				
Wright-Patterson AFB OH	1986				
WHMC Lackland AFB TX	1987				
WHMC Lackland AFB TX	1991 <sup>7</sup>				
WHMC Lackland AFB TX		New <sup>8</sup>			
BAMC Ft Sam Houston TX	1990				
Sheppard AFB TX	1989				
Carswell AFB TX	1988		Closing 9/93		
Langley AFB VA	1989				
Clark AFB PI	1987	(Transferred	to Navy	in 1991)	
<b>TOTAL NUMBER</b>	<b>25</b>	<b>27</b>	<b>28</b>	<b>27</b>	<b>27</b>
<b>NO. SERVICE CONTRACTS</b>	<b>21</b>	<b>20<sup>1/2</sup></b>	<b>23<sup>1/2</sup></b>	<b>26</b>	<b>27</b>

- 1 Under warranty until 25 Mar 1993
- 2 Maintained in-house
- 3 Under warranty until 23 Aug 1992 (maintenance contract for 1 quarter in 92)
- 4 Under warranty until 15 May 1993
- 5 Scheduled for installation in early 1993
- 6 Under warranty until 12 Feb 1993
- 7 Under warranty until 23 Nov 1992 (maintenance contract for 1 month in 92)
- 8 Under warranty until 29 Apr 1993

Atch 1

COMPUTATION OF CONTRACT SERVICING COSTS'  
(9000)

	1993	1994	1995	1996	1997	1998	TOTAL
CT Scanner Maintenance Service Contracts	23 1/2	26	27	27	27	27	27

Cost Savings for Contract Competition:<sup>2</sup>

Projected Contract Costs	\$2,584	\$2,880	\$2,990	\$2,990	\$2,990	\$2,990	\$17,424
Costs with Competition	\$1,644	\$1,832	\$1,902	\$1,902	\$1,902	\$1,902	\$11,084
Cost Avoidance	\$940	\$1,048	\$1,088	\$1,088	\$1,088	\$1,088	\$6,340

Cost Savings for In-House Maintenance Service compared to Contract Competition:<sup>3</sup>

Costs with Competition	\$1,832	\$1,902	\$1,902	\$1,902	\$1,902	\$1,902	\$9,440
In-house Costs	\$2,005	\$1,955	\$1,951	\$1,951	\$1,951	\$1,951	\$9,813
Cost Avoidance	-\$173	-\$53	-\$49	-\$49	-\$49	-\$49	-\$373

- 1 Average contract cost with and without tubes and distribution of competitive and non-competitive contracts (25% & 75%) are the same as used in draft report Appendix A (except for mathematics correction)
- 2 A 36% savings results if maintenance contracts are advertised and negotiated when the option is exercised
- 3 The numbers used in this section are corrected for actual labor, fringes, and training

Atch 2

DEPARTMENT OF THE AIR FORCE COMMENTS (cont'd)

Final Report  
Page No.

Corrections to Appendix D

DoD Computed Tomography Scanners and Nearby Department of  
Veterans Affairs Medical Centers.

- 25 a. Reference 1. Southern California. Your list of potential DoD hospitals with CT scanners includes George AFB which is scheduled for closure in December 1992. A CT scanner will not be located there. Edwards AFB and Vandenberg AFB are 25 and 20 bed facilities, respectively, and are not candidates for CT scanners.
- 25 b. Reference 2. Florida. Your list of existing CT scanners includes Homestead AFB which was destroyed by Hurricane Andrew and the CT scanner was removed. The list of potential sites includes Eglin AFB and Tyndall AFB which already have CT scanners which were installed in 1987 and 1991, respectively. Patrick AFB is a 19 bed clinic and not a candidate for a scanner.
- 26 c. Reference 4. Texas. The list of existing scanners should be updated to include a third scanner at Wilford Hall USAF Medical Center, Lackland AFB. Potential scanners includes Sheppard AFB which had a scanner installed in 1989. Reese AFB and Dyess AFB are 9 and 20 bed facilities, respectively, and are not candidates for a scanners.
- 27 d. Reference 5. Northern California. You have listed David Grant USAF Medical Center, Travis AFB as having two scanners, while they have only one. A replacement for this scanner is tentatively scheduled for 1994. Beale AFB is a 15 bed facility and not a candidate for a scanner.
- 28 e. Reference 8. Georgia. Robins AFB is a 35 bed facility and not a candidate for a CT scanner.
- 28 f. Reference 9. Illinois/Missouri. Chanute AFB is scheduled for closure in September 1993 and, therefore, is not a candidate for a scanner.
- 28 g. Reference 10. Washington. Fairchild AFB uses contract CT services and is a 35 bed facility and, therefore, is not a candidate for a CT scanner.
- 29 h. Reference 12. Colorado. Under potential DoD hospitals with CT scanners you list Colorado Springs. If this refers to the USAF Academy, they already have a CT scanner which was installed in 1987.
- 30 i. Reference 14. Oklahoma. The USAF Hospital Tinker, Tinker AFB is listed as an existing site, but they do not have a scanner. They requested a scanner at one time but being only a 35 bed facility they did not qualify based on expected workload. Altus AFB is a 15 bed facility and, therefore, not a candidate for a scanner.
- 30 j. Reference 16. Mississippi. Keesler AFB is listed as having one CT scanner. They will install a second scanner in early 1993 which will be under warranty until 1994. The list of existing scanners should be updated to reflect this addition.

Atch 3

**DEFENSE LOGISTICS AGENCY COMMENTS**



**DEFENSE LOGISTICS AGENCY  
HEADQUARTERS  
CAMERON STATION  
ALEXANDRIA, VIRGINIA 22304-6100**



IN REPLY  
REFER TO **DLA-CI**

16 DEC 1992

**MEMORANDUM FOR DEPUTY ASSISTANT INSPECTOR GENERAL FOR AUDITING,  
DEPARTMENT OF DEFENSE**

**SUBJECT: DoD IG Draft Report on "Computed Tomography Scanner  
Maintenance Service Contracts" (Project No. 2CD-8006)**

**This is in response to the subject report. Major General  
Lawrence P. Farrell, USAF, Deputy Director, Defense Logistics  
Agency, has approved these positions.**

**2 Encl  
w/2 Attachments**

*A.R. Audin*  
*for* **JACQUELINE G. BRYANT  
Chief, Internal Review Division  
Office of Comptroller**

**cc: DLA-PPP  
DLA-G  
DLA-SE  
DLA-LX**

## DEFENSE LOGISTICS AGENCY COMMENTS (cont'd)

FORMAT 1 OF 2

TYPE OF REPORT: AUDIT                      DATE OF POSITION: 06 NOV 1992

PURPOSE OF INPUT: INITIAL POSITION

AUDIT TITLE AND #: Computed Tomography Scanner Maintenance  
Service Contracts (Project No. ZCD-8006)

**FINDING:** Maintenance costs for CT scanners was excessive. These excessive costs occurred because competition restrictions resulted in sole-source awards and because in-house maintenance service for CT scanners was not considered. Consequently, we estimated that the lack of competition will increase DoD costs by \$37,466,000 (54 percent) and lack of in-house servicing will increase costs an additional \$26,477,000.

**DLA COMMENTS:** Nonconcur.

We do not agree with the language "competition restrictions" and "sole-source" award. See comments under Recommendation 1.

Excessive costs have not been adequately established in the audit, because of "competition restrictions". The differences in costs of compared contracts could have been due to numerous other factors besides "competition restrictions." Elements of required performance (response time after service call and scheduled availability), types of system (high or low performance machines), coverage of ancillary components, and location of hospital may be responsible for the differences. For example, the maintenance service contract on the systems at the Naval Hospital, San Diego, CA include servicing two 3M laser imagers and two independent workstations with separate mainframe computers. Also, some of the "sole source" contracts cited have significantly higher costs because the activities are in remote overseas locations. Without factoring out these other variables, a true assessment of excess costs cannot be made.

The pricing considerations and comparisons used by the DoD IG do not include data reflecting any savings available through total systems acquisition as opposed to the separate purchase of system components (equipment and maintenance services). Without this type of analysis, a true assessment of savings cannot be made.

The potential savings cited appear to be overstated because in-house costs are understated. No factor is included to cover the additional tools and diagnostic equipment needed to support CT maintenance services. This cost could run as much as \$90,000

**DEFENSE LOGISTICS AGENCY COMMENTS (cont'd)**

per system. Biomedical equipment repairmen are in great demand and the Services have traditionally experienced difficulty in hiring (due to lower salaries offered) and retaining trained personnel. The costs estimated for training CT scanner maintenance personnel makes no allowance for personnel turnover, or retraining requirements needed based on system upgrades and replacements.

The possible need for "back-up maintenance" agreements if training is obtained from Original Equipment Manufacturers (OEMs) has also not been addressed. OEMs usually only give their own employees training on the full range of maintenance service. In-house personnel with OEM training would not be able to cover the indirect cost associated with down-time and contracting for the "back-up maintenance". The parts cost estimate is extremely low considering the replacement costs for a single CT X-Ray tube is approximately \$35,000. Most moderate to high volume hospitals will require at least one replacement tube each year.

A more comprehensive analysis of the potential costs of performing in-house maintenance is needed to establish the feasibility of initiating in-house maintenance. DPSC will explore alternative methods to provide CT Scanner maintenance services.

**DISPOSITION:**

- Action is ongoing. Estimated Completion Date
- Action is considered complete.

**INTERNAL MANAGEMENT CONTROL WEAKNESSES:**

- Nonconcur. (Rationale must be documented and maintained with your copy of the response.)
- Concur; however, weakness is not considered material. (Rationale must be documented and maintained with your copy of the response.)
- Concur; weakness is material and will be reported in the DLA Annual Statement of Assurance.

**MONETARY BENEFITS:** NONE

**DLA COMMENTS:** N/A  
**ESTIMATED REALIZATION DATE:** N/A  
**AMOUNT REALIZED:** N/A  
**DATE BENEFITS REALIZED:** N/A

**ACTION OFFICER:** Martha King, DLA-PPC, x47936, 19 Oct 92  
**PSE REVIEW/APPROVAL:** Billy B. Williams, Deputy Executive  
Director of Contracting, DLA-PD,  
x46403, 20 Oct 92

**DLA APPROVAL:**



**LAWRENCE P. FARRELL, JR.**  
Major General, USAF  
Deputy Director

DEFENSE LOGISTICS AGENCY COMMENTS (cont'd)

FORMAT 2 OF 2

TYPE OF REPORT: AUDIT

DATE OF POSITION: 06 NOV 1992

PURPOSE OF INPUT: INITIAL POSITION

AUDIT TITLE AND #: Computed Tomography Scanner Maintenance  
Service Contracts (Project No. 2CD-8006)

RECOMMENDATION: We recommend that the Defense Personnel Support Center open solicitations for the computed tomography scanner maintenance service to all responsible bidders.

DLA COMMENTS: Partially Concur

Currently, awards for maintenance service are competitive, not "sole source". Maintenance services are part of a comprehensive system (equipment, installation, warranty, etc.) that is solicited and awarded on a competitive basis. This systems approach allows consideration of life cycle costs and use of best value buying procedures, both of which comply with current regulation (DFARS 207.103(h)(11) and DLAR 4105.1, paragraph 15.613-90(a), see Attachments 1 and 2, respectively). The maintenance requirements are included as an option and are awarded if DPSC determines that the exercise of the option is the most advantageous method of fulfilling the Government's need, price, and other factors considered.

We will determine the availability of scanner maintenance services by issuing a "test" solicitation for these maintenance services in lieu of soliciting for an entire systems acquisition that would include equipment, service, warranty, and installation costs. After testing the market, DPSC will be in a better position to determine if this type of solicitation is feasible.

DISPOSITION:

- Action is ongoing. Estimated Completion Date: 1 Nov 93
- Action is considered complete.

INTERNAL MANAGEMENT CONTROL WEAKNESSES:

- Nonconcur. (Rationale must be documented and maintained with your copy of the response.)
- Concur; however, weakness is not considered material. (Rationale must be documented and maintained with your copy of the response.)
- Concur; weakness is material and will be reported in the DLA Annual Statement of Assurance.

MONETARY BENEFITS: NONE

DLA COMMENTS: N/A

ESTIMATED REALIZATION DATE: N/A

AMOUNT REALIZED: N/A

DATE BENEFITS REALIZED: N/A

ACTION OFFICER: Martha King, DLA-PPC, x47936, 19 Oct 92

PSE REVIEW/APPROVAL: Billy B. Williams, Deputy Executive Director of Contracting, DLA-PD, x46403, 20 Oct 92

DLA APPROVAL:



LAWRENCE P. FARRELL, JR.  
Major General, USAF  
Deputy Director

... acquisition planning

SUBPART 207.1--ACQUISITION PLANS

207.103 Agency-head responsibilities.

(c)(i) Military departments and agencies shall prepare written acquisition plans for--

(A) Acquisitions for development, as defined in FAR 35.001, when the total cost of all contracts for the acquisition program is estimated at \$5 million or more;

(B) Acquisitions for production or services when the total cost of all contracts for the acquisition program is estimated at \$30 million or more for all years or \$15 million or more for any fiscal year; and

(C) Any other acquisition considered appropriate by the department or agency.

(ii) Written plans are not required in acquisitions for a final buy out or one-time buy. The terms "final buy out" and "one-time buy" refer to a single contract which covers all known present and future requirements. This exception does not apply to a multiyear contract or a contract with options or phases.

(d) Prepare written acquisition plans for acquisition programs meeting the thresholds of paragraphs (c)(i)(A) and (B) of this section on a program basis. Other acquisition plans may be written on either a program or an individual contract basis.

(f) The program manager, or other official responsible for the program, has overall responsibility for acquisition planning.

(h)(i) Apply design-to-cost principles--

(A) In all major defense acquisition programs (DoDD 5000.1, Defense Acquisition), unless exempted by the Secretary of Defense; and

(B) To the acquisition of systems, subsystems, and components below the thresholds for major defense acquisition programs, to the extent prescribed DoDD 5000.1.

~~(g)~~ Consider life-cycle-cost in all acquisitions of systems and equipment.

207.105 Contents of written acquisition plans.

For acquisitions covered by paragraphs 207.103(c)(i)(A) and (B), correlate the plan to the DoD Future Years Defense Program, applicable budget submissions, and the decision coordinating paper/program memorandum, as appropriate.

(a) Acquisition background and objectives.

(1) Statement of need.  
Include--

Attachment # 1

## DEFENSE LOGISTICS AGENCY COMMENTS (cont'd)

15.612

DEFENSE LOGISTICS ACQUISITION REGULATION 4105.1

(d) Notify offerors that proposals that are unrealistic in terms of technical or schedule commitments, or unrealistically low in price, will be considered indicative of a lack of understanding of the solicitation requirements.

(e) In conjunction with the source selection plan, the evaluation factors, evaluation standards, and the acquisition plan, be reviewed as prescribed in 1.690-2(b) (also see 15.612(b)(90)(D), 15.612(b)(91)(B), and (G)).

15.613 Alternative source selection procedures.

~~15.613-00~~ Buying best value.

~~(A)~~ Policy

Best value buying procedures can be used to introduce value into the source selection process by fostering competition on quality as well as price. They demonstrate our uncompromising commitment to buying and supplying the highest quality products and services. Best value buying procedures encourage award decisions on the basis of a business judgment and recognize that an award to other than the low offeror may represent the overall best value to the Government. Use of best value buying procedures is encouraged where they would be of benefit in improving the quality of award decisions and in giving contracting officers the authority to exercise business judgment in their award decisions.

(b) Definitions.

"Best value buying procedures" are those procurement procedures applied in the evaluation for award process, with or without use of formal source selection procedures, and from which a best value decision can be made.

15.613-91 Quality Vendor Program.

(a) Quality Vendor Program is a best value buying procedure. It formalizes the contracting officer's authority to exercise business judgment in awarding contracts that have historically been awarded on the basis of price only. It recognizes that among responsible offerors, varying degrees of quality and delivery performance history exist.

(b) When applying this best value buying technique, contracting officers shall consider not only price, but also past quantifiable quality and delivery performance in arriving at an award decision.

(c) General. Existing law and regulation authorizes awards to be made based on the consideration of price and other evaluation factors that are stated in the solicitation (see 15.406-5(c)(92) and FAR 15.605). An award made under the procedures in this subpart may be made to other than the low-priced offeror.

15-12

Attachment # 2

AUDIT TEAM MEMBERS

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