Audit Report

OFFICE OF THE INSPECTOR GENERAL

LABORATORY SUPPORT SERVICES FOR ENVIRONMENTAL TESTING

Report No. 97-098

February 21, 1997

Department of Defense

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Acronyms

BPA	Blanket Purchase Agreement
EPA	Environmental Protection Agency
PE	Performance Evaluation
PWC	Public Works Center

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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ARLINGTON, VIRGINIA 22202-2884

February 21, 1997

MEMORANDUM FOR DEPUTY UNDER SECRETARY OF DEFENSE
(ACQUISITION REFORM)
DEPUTY UNDER SECRETARY OF DEFENSE
(ENVIRONMENTAL SECURITY)
DIRECTOR, DEFENSE PROCUREMENT

SUBJECT: Audit Report on Laboratory Support Services for Environmental Testing (Report No. 97-098)

We are providing this audit report for your information and use. This report discusses the procurement and administration of environmental testing contracts. We considered management comments on a draft of this report in preparing the final report.

Comments on the draft of this report conformed to the requirements of DoD Directive 7650.3 and left no unresolved issues. Therefore, no additional comments are required.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Joseph P. Doyle, Audit Program Director, at (703) 604-9348 (DSN 664-9348) or Mr. John Yonaitis, Audit Project Manager, at (703) 604-9632 (DSN 664-9632). See Appendix H for the report distribution. The audit team members are listed inside the back cover.

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Office of the Inspector General, DoD

Report No. 97-098
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February 21, 1997

Laboratory Support Services for Environmental Testing

Executive Summary

Introduction. Commercial laboratories provide environmental test services to DoD organizations for the environmental compliance and restoration programs. DoD organizations are responsible for ensuring that all necessary contract administration procedures are followed and that quality assurance procedures are performed to ensure the quality of all environmental tests received. DoD costs of all environmental tests for FYs 1993 through 1995 were not readily available because DoD did not account for the number of environmental testing facilities and the costs of environmental tests (Appendix C). However, the 18 DoD organizations that we reviewed used 110 environmental testing contracts with contract orders valued at $27.1 million during FYs 1993 through 1995. See Appendix A for a complete list of these organizations.

Audit Objectives. The overall audit objective was to evaluate the cost and operational effectiveness of laboratory support services provided for environmental testing. Specifically, we determined whether DoD organizations (the Army, Navy, Air Force, and Defense Logistics Agency) were effectively managing their contracts for environmental test services and whether DoD organizations were effectively performing quality assurance procedures on environmental test results received from commercial laboratories. The audit also evaluated the management control programs at the audited DoD organizations as applicable to the audit objectives.

Audit Results. The 18 DoD organizations reviewed were not efficient and effective in the procurement and administration of environmental testing contracts. The procedures used resulted in environmental test prices ranging from a difference of 23 to 662 percent for the same tests, high procurement and administrative costs, and unreliable test results (Part I).

Summary of Recommendations. We recommend that the Deputy Under Secretary of Defense (Environmental Security) establish an integrated process action team with the Services and the Defense Logistics Agency, obtaining assistance from the Office of the Deputy Under Secretary of Defense (Acquisition Reform) and the Director of Defense Procurement, as needed, to consolidate the requirements of environmental tests; develop standardized quality assurance procedures; establish adequate procedures to administer contractor performance; and establish procedures to ensure inclusion of adequate Government remedy clauses in environmental testing contracts.

Management Comments. The Principle Assistant Deputy Under Secretary of Defense (Environmental Security) nonconcurred with the portion of the recommendation establishing an integrated process action team. The Principle Assistant stated that in September 1996, he established an Environmental Laboratory and Testing Working Group to review laboratory and testing issues. He will add representatives to the group

from the Offices of the Director, Defense Procurement and Deputy Under Secretary of Defense (Acquisition Reform) to address quality assurance and contract performance issues. See Part I for a discussion of management comments and Part III for the complete text of management comments.

Audit Response. The planned actions satisfy the intent of the recommendation. Therefore, no additional comments are required.

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Part I - Audit Results

Audit Background

Environmental laws and regulations were enacted to promote an environment free of hazardous substances by establishing guidelines for the use, storage, and disposal of hazardous substances. Since 1978, DoD organizations have been required to comply with Federal laws and regulations. State and local regulatory agencies have implemented Federal laws and regulations by issuing permits that specify the type and amount of contaminants permitted to be released into the environment under normal operating conditions. To ensure compliance with those permits, DoD organizations monitor the level of contamination released into the environment through sampling and environmental testing. We identified 72 DoD organizations that used 402 commercial laboratories and 41 Government laboratories to perform environmental tests included in contracts valued at $3.7 billion and $30.5 million, respectively. Commercial laboratories were the primary source for DoD organizations to obtain environmental tests. Three common contracting methods were used to obtain the environmental tests from the commercial laboratories: indefinite-delivery contracts, blanket purchase agreements (BPAs), and purchase orders. The Government purchase card was another contracting method; however, it was not used by any of the DoD organizations reviewed.

Indefinite-Delivery Contracts. An indefinite-delivery contract is established for a fixed period of time with a qualified supplier. Orders are placed against the contract by issuing delivery orders. From FYs 1993 through 1995, the 18 DoD organizations that we reviewed used 25 different indefinite-delivery contracts, valued at about $21.3 million, to support their environmental compliance program and 16 different indefinite-delivery contracts, valued at about $557.5 million, to support their environmental restoration program.

Compliance Program. The compliance program was established to ensure compliance with environmental laws, such as the Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act, by verifying that normal DoD operations did not contaminate the environment. Environmental tests are used in compliance programs to routinely monitor the levels of contamination present in the environmental media (air, water, and soil).

Restoration Program. The restoration program was established to clean up existing contamination on DoD property. Environmental tests are used in restoration programs to identify the type and extent of contamination and to prove that the hazardous substances have been cleaned up so that the contamination does not exceed a specified level. Restoration contracts are established to accomplish all phases of the cleanup process; environmental tests are just one part of that process. Therefore, the value of the restoration contracts, $557.5 million, represents the costs for the entire cleanup process, not just testing costs. The DoD organizations that we reviewed with restoration

contracts did not account separately for the amounts spent on environmental tests. We were unable to review the testing costs for the restoration contracts because the costs were not identified on the contracts. However, we were able to identify and review the quality assurance procedures used by the DoD organizations.

Blanket Purchase Agreements. A BPA is a simplified procurement method of filling anticipated repetitive needs for supplies or services by establishing buying agreements with qualified suppliers. BPAs identify the ordering procedures, a general description of the needed supplies or services, a specified period of performance, a dollar limitation for each purchase, invoicing procedures, and a list of individuals authorized to make purchases under the BPA. From FYs 1993 through 1995, the 18 DoD organizations that we reviewed issued 34 different BPAs, valued at about $5.2 million, for environmental tests that included different requirements and deliverables.

Purchase Orders. A purchase order is an offer by the Government to make a one-time purchase of specific supplies or services from a commercial source under specified terms and conditions for an aggregate amount not exceeding the simplified acquisition threshold. From FYs 1993 through 1995, the 18 DoD organizations that we reviewed awarded 51 different purchase orders, valued at about $0.6 million, for environmental tests.

Government Purchase Card. The Government purchase card is an alternative to traditional contracts and simplified purchasing methods. It is used to purchase supplies or services not exceeding $2,500 from commercial sources. From FYs 1993 through 1995, none of the 18 DoD organizations reviewed used the Government purchase card for laboratory support services for environmental testing.

Audit Objectives

The overall audit objective was to evaluate the cost and operational effectiveness of laboratory support services provided for environmental testing. Specifically, we determined whether DoD organizations were effectively managing their contracts for environmental test services and whether DoD organizations were effectively performing quality assurance procedures on test results received from commercial laboratories. We also reviewed the management control programs at the audited organizations applicable to the audit objectives. See Appendix A for a discussion of the audit scope and methodology and for the results of the review of the management control program. See Appendix B for a summary of prior coverage related to the specific audit objectives.

Procurement and Administration of Environmental Testing Contracts

Department of Defense organizations were not efficient and effective in the procurement and administration of environmental testing contracts. This occurred because contracting and environmental personnel did not consolidate procurements, used inadequate procurement and administration procedures, and did not have adequate quality assurance procedures to determine the quality of environmental test results. This resulted in environmental test prices ranging from a difference of 23 to 662 percent for the same tests, high procurement and administrative costs, and unreliable test results.

Environmental Testing Contracts

DoD organizations that we reviewed were not efficient and effective in the procurement and administration of environmental testing contracts. Commercial laboratories charged DoD organizations significantly different prices for environmental tests. The contracts awarded and administered by DoD organizations to obtain environmental tests were not always the most efficient and cost effective. DoD organizations that we reviewed did not adequately determine the quality of environmental test results that they received from commercial laboratories.

Environmental Test Prices

The DoD organizations that we reviewed did not always pay the lowest price for environmental tests. DoD organizations were charged significantly different prices for the same environmental tests by the same commercial laboratory. Also, individual DoD organizations were charged significantly different prices by different commercial laboratories for the same environmental tests.

Different Prices Charged to DoD Organizations by the Same Commercial Laboratory. Test prices charged by the same commercial laboratory for the same environmental tests varied significantly for the DoD organizations that we reviewed. Table 1 shows a sample of price differences charged by three commercial laboratories to DoD organizations during FYs 1994 and 1995. Consolidated procurements could have eliminated these differences and could have resulted in lower test prices for the affected organizations. For example, if Public Works Center (PWC) Jacksonville and PWC Pearl Harbor had used a consolidated procurement administered by one procurement activity with Anacon, Incorporated, for the "total petroleum hydrocarbons" test and the unit test price was negotiated at the price charged to PWC Jacksonville ($20 each), PWC Pearl Harbor could have saved at least $130 for each of these tests

ordered. We could find no differences in the test methods used by the commercial laboratories or any reasons for cost differences, except for each organization accepting a price that they considered adequate because procurements were not consolidated.

Table 1. Differences in Test Prices Charged by Three Commercial Laboratories

Organization	TCLP Metal[1]	Polychlorinated Biphenyls	pH[2]	Total Petroleum Hydrocarbons
Anacon, Incorporated				
NWS[3] Yorktown	$100	$30	$10	$ 30
PWC[4] Jacksonville	100	50	7	20
PWC[4] Pearl Harbor	100	40	10	150
Sound Analytical Services				
Fort Lewis	$115	$55	$11	$34
PWC[4] Pearl Harbor	45	35	10	50
Puget Sound Naval Shipyard	80	61	6	39
Clayton Environmental Consultants				
Armstrong Lab	$110	$ 47	$16	$47
ACOE-SPD[5]	150	110	20	65

[1]Toxicity Characteristics Leaching Procedure - Metal
[2]potential of Hydrogen. Measure of a liquid's acidity.
[3]Naval Weapons Station
[4]Public Works Center
[5]Army Corps of Engineers, South Pacific Division

Table 2 on the following page shows the highest and lowest prices charged by 18 commercial laboratories during FYs 1994 and 1995 for 5 test methods approved by the Environmental Protection Agency (EPA). Appendix D shows additional examples of significantly varied test prices charged by commercial laboratories during FYs 1994 and 1995.

Table 2. Range of Test Prices Charged by Commercial Laboratories

EPA Test Method	Lowest Amount Charged	Highest Amount Charged	Percentage Difference
6010	$ 81	$617	662
8020	60	250	317
8080	77	300	290
8240	85	320	276
8270	100	625	525

Different Prices Charged to the Same DoD Organization by Different Commercial Laboratories. Different commercial laboratories performing testing for the same DoD organization charged significantly different prices for the same environmental tests. Table 3 shows the price differences that five commercial laboratories charged the U.S. Army Corps of Engineers, South Pacific Division for the same four EPA-approved test methods during FY 1995. Personnel from the U.S. Army Corps of Engineers, South Pacific Division rotated the contract orders and sent samples to all five commercial laboratories with varying prices for the same environmental tests, rather than determining the most economical prices for each environmental test and using that contractor for only those specific tests.

Table 3. Differences in Test Prices Charged to the Army Corps of Engineers, South Pacific Division

	Environmental Protection Agency Approved Test Method			
Laboratory	418.1	8080	8240	8270
Clayton Environmental Consultants	$ 65	$135	$220	$400
Curtis and Tompkins	60	160	225	400
Quanterra Environmental Services	94	289	221	401
Sequoia Analytical	105	98	207	340
Superior Precision Analytical	45	*	160	325

*The contractor's price list did not include a price for this test.

As shown in Table 3, the U.S. Army Corps of Engineers, South Pacific Division, could spend from $325 to $401 (a 23-percent difference) for the EPA-approved 8270 test or from $98 to $289 (a 195-percent difference) for the EPA-approved 8080 test. We could not determine the exact amount of savings that could be realized by using the lowest priced laboratory because not all of the ordering and invoicing records were available.

Procurement and Administration Procedures

DoD organizations that we reviewed were not efficient and effective in the procurement and administration of environmental testing contracts because contracting and environmental personnel used inadequate procedures to award and administer the contracts. DoD organizations did not determine which type of contract was the most efficient and cost effective method to procure environmental tests. DoD organizations that we reviewed did not establish adequate procedures and training for personnel who administer and account for environmental testing contracts.

Awarding of Environmental Testing Contracts. All 18 DoD organizations that we reviewed did not determine which method of procuring environmental testing was more efficient and cost effective. They did not research or document their actual costs associated with awarding the different contracts. The DoD organizations that we reviewed had not considered consolidating procurements with other organizations. The cost to award indefinite-delivery contracts was higher than the cost to award BPAs or to use the purchase card. During FYs 1993 through 1995, 18 DoD organizations initiated 2,600 environmental testing requests (407 indefinite-delivery orders and 2,193 BPA orders) that were valued at less than $2,500 each. Indefinite-delivery contracts involved the extensive processes of preparing a solicitation describing the work required, advertising the solicitation to prospective contractors, reviewing contractor proposals (including its costs to complete the required work and its technical capabilities), and selecting the most cost-effective company best qualified to accomplish the required work. BPAs required the preparation of a written agreement with any laboratory that the DoD organizations chose; the Government purchase card did not require any award process, which saved additional time and money. All of the contracting personnel stated that indefinite-delivery contracts would have the highest award costs and consolidated procurements would provide lower contract costs.

Administration of Environmental Testing Contracts. The 18 DoD organizations used inadequate procedures to manage their environmental testing contracts. The DoD organizations had not established adequate procedures to administer environmental testing contracts and did not properly train the personnel responsible for ordering, administering, and accounting for the contracts. The 18 DoD organizations had numerous weaknesses in administering environmental testing contracts, such as:

o Environmental personnel split test requirements into several smaller orders to avoid exceeding the dollar limitation for BPA orders that was established by the contracting department.

o Environmental personnel did not validate test results.

o Environmental personnel rarely adjusted the estimated dollar values of BPA orders after receipt of contractor invoices to determine the amount available for additional orders.

o Contracting personnel issued and environmental personnel used purchase orders to pay for orders previously placed against BPAs because funding limitations were exceeded on the BPAs. Order amounts on three of five BPAs reviewed exceeded the U.S. Army Corps of Engineers, South Pacific Division, established funding limitations by about $32,500.

o Unauthorized personnel placed orders against BPAs.

o Environmental personnel duplicated or skipped BPA order numbers.

o Personnel did not maintain complete contract files that included key documents, such as the original contract, contractor price lists, invoices, and environmental test results.

o Prior to acquiring copies of reports or complete invoices, personnel approved contractor invoices for payment.

Appendix E identifies a detailed analysis of all the weaknesses identified in administering environmental testing contracts at the 18 DoD organizations we reviewed.

Procurement and Administration Costs

DoD organizations incurred unnecessarily high procurement and administrative costs. The 18 DoD organizations did not use the least expensive method, the Government purchase card, to procure environmental tests below the $2,500 micro-purchase threshold. In addition, the 18 DoD organizations did not use consolidated procurement and administration procedures for environmental tests above the $2,500 micro-purchase threshold.

Government Purchase Card. The 18 DoD organizations did not use the least expensive method to purchase environmental tests that did not exceed the $2,500 micro-purchase threshold. The least expensive alternative to traditional contracts and simplified purchasing methods is the Government purchase card, as shown in Table 4.

Table 4. Administrative Cost to Purchase Environmental Tests

	Indefinite Delivery	BPA	Government Purchase Card
Average Cost to Administer Orders*	$129	$72	$40

*Defense Logistics Agency cost

Since none of the organizations could determine the actual costs involved with administering indefinite-delivery contracts, BPAs, and purchase card purchases, we applied the Defense Logistics Agency estimates. We estimated that the 18 DoD organizations could have saved about $106,400 in administrative costs from FYs 1993 through 1995 if the purchase card had been used for 2,600 environmental testing requests valued at less than $2,500 each. This savings represents the difference when using the purchase card rather than indefinite-delivery contracts or BPAs ($36,200 for 407 testing requests that were ordered through indefinite-delivery contracts and about $70,200 for 2,193 testing requests that were ordered through BPAs).

Consolidated Procurement and Administration Procedures. DoD organizations did not consolidate procurement and administration procedures to efficiently and economically procure environmental tests above the $2,500 micro-purchase. During FYs 1993 through 1995, the 18 DoD organizations placed 482 testing requests (183 indefinite delivery orders, 268 BPA orders, and 31 purchase orders) valued at more than $2,500 each. Consolidated procurement and administration procedures would eliminate the duplicative tasks that the DoD organizations perform under their non-consolidated approach. Each DoD organization performed the same procedure on multiple contracts, rather than having one procuring organization perform all of the procedures.

Quality Assurance Procedures

The 18 DoD organizations did not have adequate procedures to determine the quality of environmental test results provided by commercial laboratories. Quality assurance methods to verify the quality of environmental test results received from commercial laboratories were not standardized by DoD. The most effective quality assurance methods were not always used by DoD organizations to ensure the accuracy of environmental test results received from commercial laboratories. The DoD organizations prepared inadequate statements of work that did not ensure that the commercial laboratories provided accurate environmental test results.

Quality Assurance Standardization. DoD did not establish standardized quality assurance methods to verify the quality of environmental test results received from commercial laboratories. All of the 18 DoD organizations used different quality assurance methods to verify the quality of environmental test results. For example, the U.S. Army Corps of Engineers, Missouri River Division, inspected commercial laboratories every 18 months, validated the environmental test results, and used laboratory certifications as ways of assessing the quality of environmental test results. In addition, Hill Air Force Base verified the quality of environmental test results by auditing the laboratory and ensuring that the laboratory was certified. The Defense Fuel Supply Center and the Marine Corps Combat Development Command, Quantico, only relied on the contractor to be certified by the state or EPA.

Senate Appropriations Committee report number 102-408, September 17, 1992, directed the Secretary of Defense to provide financial data and management information on the cost of performing environmental tests. Also, DoD was to report on the full extent of all laboratories used by DoD and their potential use for environmental sampling, analysis, and monitoring of laboratory work. The Army, in responding to the Committee, identified the overall lack of quality assurance standardization and stated that standardized quality assurance procedures were needed to ensure the consistent quality of environmental test results. However, no standardized quality assurance procedures were established. We agree with the Army that standardized quality assurance methods should be established to verify the quality of environmental test results.

Quality Assurance Methods. DoD organizations did not always use the most effective quality assurance methods to confirm the quality of environmental test results. The 18 DoD organizations used differing methods to determine the quality of environmental test results received from commercial laboratories. Seven of the 18 DoD organizations used the quality assurance methods identified by EPA as being ineffective in verifying the quality of environmental test results. The remaining 11 of the 18 DoD organizations used a combination of ineffective and effective quality assurance methods. EPA recommended five quality assurance methods as the most effective and three additional methods as less effective. Table 5 shows the effective and ineffective quality assurance methods used by the 18 DoD organizations.

Table 5. Quality Assurance Methods Used by Organizations

	Most Effective Methods					Less Effective Methods		
	Data Validation	Double Blind PE	Lab Audit	Magnetic Tape Audit	Split Samples	Single Blind PE	Lab Certification	Past Performance
Organizations								
ACOE MRD Lab	x		x		x	x	x	
ACOE SPD Lab							x	x
AFCEE	x	x	x				x	x
Armstrong Lab	x	x	x			x	x	
DCSC							x	
DFSC							x	
Fort Lewis	x						x	
Hickam AFB							x	
Hill AFB			x		x		x	
MCB Quantico							x	
McClellan AFB	x				x		x	x
NAS Key West							x	x
Norfolk NS	x		x		x		x	x
NTC Great Lakes					x		x	x
NWS Yorktown	x						x	
Puget Sound NS						x	x	
PWC Pearl Harbor	x				x		x	x
PWC Jacksonville	x				x		x	
Totals	**9**	**2**	**5**	**0**	**7**	**3**	**18**	**7**

ACOE	Army Corps of Engineers	NAS	Naval Air Station
AFB	Air Force Base	NS	Naval Shipyard
AFCEE	Air Force Center for Environmental Excellence	NTC	National Training Center
DCSC	Defense Construction Supply Center	NWS	Naval Weapons Station
DFSC	Defense Fuel Supply Center	PE	Performance Evaluation
MCB	Marine Corps Base	PWC	Public Works Center
MRD	Missouri River Division	SPD	South Pacific Division

Ineffective Methods. Of the 18 DoD organizations, 7 organizations administering contracts valued at $12.9 million, to include $9.3 million for restoration contracts, only used the quality assurance methods that EPA identified as ineffective in verifying the quality of environmental test results such as laboratory certification, past performance of the commercial laboratories, and single-blind performance evaluation (PE). See Appendix F for definitions of these quality assurance methods.

Laboratory certifications only identify the type of tests that the laboratories were qualified to perform at some point in time, based on the requirements of the regulatory agency at the time of certification, and do not detect problems with

environmental test results. Past performances of the laboratories are only effective in verifying the quality of environmental test results when the current results of the environmental test are determined to be unusual as compared with past test results. Our analysis showed that laboratories rarely submitted current environmental test results that deviated from past test results that had been determined to be normal or usual. Another ineffective method that was used by the DoD organizations was the single-blind PE sample. Although a laboratory would not know the concentration levels of contamination in a single-blind PE sample, it would know that the sample is a PE, prompting the laboratory to exert an extra effort to perform a thorough analysis.

The above methods were not an effective means of detecting problems in the quality of environmental test results or laboratory falsification of environmental test results. Using the above methods for determining the quality of environmental test results from commercial laboratories does not assure that the environmental test results received from the commercial laboratories are accurate.

Effective Methods. Of the 18 DoD organizations, the remaining 11 organizations used a combination of quality assurance methods identified by EPA as effective and ineffective. The EPA has identified and recommended the following methods as being the most effective for evaluating the quality of environmental test results and providing a greater assurance of the quality of environmental test results.

o Data validation - provides assurance that data are adequate for the intended use.

o Double-blind PE sample - shows the ability of a laboratory to produce accurate results because the laboratory is unaware that the samples are a performance evaluation.

o Laboratory audit - identifies technical areas that may cause laboratories to improperly identify or quantify chemicals.

o Magnetic tape audit - detects whether the laboratory is complying with its contract, the integrity of the laboratory's computer systems, and the appropriateness of any software editing.

o Split sample - verifies the use of proper analytical methodology and detects unusual data trends.

None of the 18 DoD organizations used magnetic tape audits, and only 2 organizations used double-blind PE samples to verify the quality of environmental test results. Methods that organizations used most often included: data validation, split samples, and past performance. We could not determine if organizations combined both effective and ineffective methods for every contract or only used one effective or ineffective method because documentation was not always available at the DoD organizations specifying which quality assurance method was used to assess each commercial laboratory.

Statements of Work. The statements of work and description of services provided to the commercial laboratories were not sufficient to ensure that the commercial laboratories reported accurate environmental test results. The statements at the 18 DoD organizations did not always adequately identify the tasks to be performed by the commercial laboratories under the contract and did not always identify Government remedies for inadequate contractor performance.

Detailed Clauses. The statements of work for 27 of the 59 indefinite-delivery contracts and BPAs reviewed did not include the tasks to be performed by commercial laboratories under the contract. In addition to the 59 indefinite-delivery contracts and BPAs, 51 purchase orders were reviewed that did not contain any detailed description of services to be provided by the commercial laboratories. Tasks to be performed by the commercial laboratories should include using EPA-approved test methods, providing test results in a standard format within a specified time frame, and performing quality assurance procedures to ensure the reliability of the test results.

Indefinite Delivery Contracts and BPAs. The 27 indefinite-delivery contracts and BPAs only contained general statements of work that did not ensure the contractors would provide quality test results. The statements did not contain any details on what environmental tests to perform, how to perform the environmental tests, or how and where to report their results. For example, the only contractor requirement on the statements of work used by the Corps-SPD, was for the contractor to perform chemical analyses when requested by the contracting officer or an authorized representative. In contrast, a better example of a contract with some detailed clauses in its statement of work was a contract issued by PWC Jacksonville. The statement of work included a well-written description of the work to be performed under the contract; sample collection, shipment, and preservation procedures; proper analysis procedures; quality control procedures to implement; and reporting requirements.

Purchase Orders. The 51 purchase orders did not contain any detailed description of services the commercial laboratories were to provide. The only commercial laboratory requirement on these purchase orders was for the laboratory to perform environmental testing.

Government Remedies. Only one of the statements of work and descriptions of service, by the Naval Weapons Station Yorktown, specified what Government actions would be taken to penalize contractors for inadequate performance. Commercial laboratories performed required tests incorrectly, which required retesting that eventually delayed environmental projects. Also, commercial laboratories submitted late reports of test results and committed gross clerical errors on test reports, without those laboratories receiving any penalties for their poor performance. For example, one of the commercial laboratories used by PWC Jacksonville incorrectly analyzed samples and had to retest the samples. This retesting compromised PWC Jacksonville's ability to

meet Federal and State regulatory compliance time frames for hazardous waste holding and monitoring, as specified in its permit requirements, but the commercial laboratory was never penalized for the incorrect analysis.

Relying on Test Results

DoD organizations that we reviewed could not rely on environmental test results because no standardized quality assurance procedures existed to verify the quality of the results. The DoD organizations used quality assurance methods that were not the most effective, and the statements of work and description of services provided to the commercial laboratories were not sufficient to ensure that the commercial laboratories reported accurate environmental test results.

Organizations could have increased their level of quality assurance if they had used the quality assurance methods recommended by EPA. For example, by using the recommended quality assurance methods such as magnetic tape audits and double-blind PE samples, the EPA was able to determine that the computer used by a commercial laboratory to produce test results and the laboratory itself were incapable of producing accurate data. As a result, EPA detected the falsified data produced by the laboratory before it affected the using organizations. The quality of environmental test results is ensured only when effective quality assurance methods are used.

Summary

DoD organizations were not efficient and effective in procuring and administering environmental testing contracts because the organizations did not use consolidated procurement procedures, used inadequate procurement and administration procedures, and did not have standard quality assurance procedures for determining the quality of environmental test results. The results of our audit are specific to the 18 DoD organizations that we reviewed. However, the conditions identified could apply to every DoD organization because every organization is required to comply with all environmental laws and regulations. Therefore, all DoD organizations could have the same adverse conditions as those reported because DoD non-consolidated procurement and administration procedures have resulted in numerous inefficiencies. Consolidated procurement of environmental tests could be performed using the procedures in the Defense Federal Acquisition Regulation, Subpart 208.70, "Coordinated Acquisition," December 31, 1991, which governs procurements for which the contracting responsibility is assigned to one agency, such as Military Traffic Management Command and its consolidated procurements for household goods shipments.

Recommendations, Management Comments, and Audit Response

Revised Recommendations. We deleted the portion of the recommendation about centralizing procurements for laboratory testing. The Principle Assistant Deputy Under Secretary of Defense (Environmental Security) stated that "centralization is the antithesis of procurement reform and empowerment of contracting and technical personnel," and that the data in the report does not support centralization as a solution to the problems. After further analysis of the data, we revised the recommendation. We want to point out that under acquisition reform, regionalization and consolidation of contracts is occurring for items and services as diverse as canned motor oil, pharmaceuticals, and Travel Agency Services. This consolidation of contracting is reducing the number of procurement actions and costs while helping improve quality. We believe that with the new Laboratory and Testing Group working on the issue and expanded use of the Government purchase card, reduced contracting costs for environmental laboratory testing services should occur.

We recommend that the Deputy Under Secretary of Defense (Environmental Security) establish an integrated process action team to include the Services and the Defense Logistics Agency, obtaining assistance from the Office of the Deputy Under Secretary of Defense (Acquisition Reform) and the Director of Defense Procurement as needed, to consolidate the requirements for the procurement of environmental tests during FY 1997. The process action team should also accomplish the following tasks.

Management Comments. The Principle Assistant Deputy Under Secretary of Defense (Environmental Security) nonconcurred with the recommendation to establish an integrated process action team. However, he stated that they have established a DoD Laboratory and Testing Work Group in September 1996 to develop coordinated environmental positions and make recommendations for action. He is adding representatives from the Director, Defense Procurement and Under Secretary of Defense (Acquisition Reform) to the group to address the actions recommended in this report.

Audit Response. The establishment of the DoD Laboratory and Testing Work Group in September 1996 satisfies the intent of the recommendation. The addition of acquisition and contracting officials to the Working Group will provide needed expertise to resolve the problems identified.

a. Develop standardized statements of work and description of services for environmental testing to be used in all environmental testing contracts. They should include a well-written description of the work to be performed under the contract, sampling procedures, proper analysis procedures, and reporting requirements.

Management Comments. The Principle Assistant Deputy Under Secretary of Defense (Environmental Security) nonconcurred with the recommendation to develop standardized statements of work and description of services. He stated that accepted Environmental Protection Agency procedures exist for performing required tests and the suggested formats could be helpful.

Audit Response. The acceptance of existing Environmental Protection Agency procedures and suggested formats for customizing the requirements for performing required environmental tests satisfies the intent of the recommendation.

b. Establish standardized DoD procedures to ensure that Environmental Protection Agency approved quality assurance methods are used to adequately determine the quality of environmental test results received from commercial laboratories.

Management Comments. The Principle Assistant Deputy Under Secretary of Defense (Environmental Security) nonconcurred with the recommendation. He stated that the DoD is examining the need for additional guidance on the appropriate use of various Environmental Protection Agency quality assurance guidelines through the DoD Laboratory and Testing Work Group.

Audit Response. Examining the need for additional guidance on the appropriate use of various Environmental Protection Agency quality assurance guidelines through the DoD Laboratory and Testing Work Group satisfies the intent of the recommendation.

c. Establish adequate procedures to administer environmental testing contracts.

Management Comments. The Principle Assistant Deputy Under Secretary of Defense (Environmental Security) partially concurred and stated that the DoD Laboratory and Testing Work Group will address contract administrative procedures as part of its review.

Audit Response. The planned actions satisfy the intent of the recommendation.

d. Establish procedures to ensure that adequate Government remedy clauses are included in environmental testing contracts as a means of holding the contractor accountable for inadequate contractor performance.

Management Comments. The Principle Assistant Deputy Under Secretary of Defense (Environmental Security) partially concurred and stated that the DoD Laboratory and Testing Work Group will address the need for installations to make full use of existing remedy clauses.

Audit Response. The planned actions satisfy the intent of the recommendation.

Part II - Additional Information

Appendix A. Scope and Methodology

Scope

Audit Scope. A universe of Government and commercial laboratories used by DoD organizations and the annual dollar amounts spent for environmental tests could not be determined. We judgmentally selected 100 DoD organizations including Government laboratories, military installations, and Defense Logistics Agency organizations and sent questionnaires to those organizations to determine the Government and commercial laboratories used and the amount expended for environmental tests. Of the 100 organizations receiving questionnaires, 72 responded. During FYs 1993 through 1995, the 72 DoD organizations contracted with 402 commercial laboratories and 41 Government laboratories to perform environmental tests at a cost of $3.7 billion and $30.5 million, respectively.

Audit Sample. We judgmentally selected 18 of the 100 DoD organizations to review the administration of environmental testing contracts and evaluate the quality assurance procedures used by these organizations. We reviewed 110 contracts, valued at $27.1 million, with commercial laboratories (see table on the next page).

Audit Period, Standards, and Locations. We performed this economy and efficiency audit from September 1995 through September 1996, in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We included tests of management controls considered necessary. Appendix G lists the organizations we visited or contacted.

Limitations to Audit Scope. We were unable to review the testing costs on restoration contracts because the costs were not identified on the contracts. Testing was a small portion of the overall restoration contracts and the DoD organizations that we reviewed did not track testing costs or require contractors to include detailed testing costs on invoices.

Organizations Reviewed During Audit

Organization	Number of Contracts	Dollar Value of Contracts (millions)
Air Force Center for Environmental Excellence	*	$ *
Armstrong Laboratory	3	1.2
Army Corps of Engineers Missouri River Division	2	11.0
Army Corps of Engineers South Pacific Division	28	0.5
Defense Construction Supply Center	2	0.1
Defense Fuel Supply Center	*	*
Fort Lewis	2	1.2
Hickam Air Force Base	3	0.2
Hill Air Force Base	10	0.8
McClellan Air Force Base	4	5.2
National Training Center Great Lakes	1	0.5
Naval Air Station Key West	6	0.2
Naval Weapons Station Yorktown	20	0.7
Norfolk Naval Shipyard	11	0.2
Public Works Center Jacksonville	3	1.2
Public Works Center Pearl Harbor	7	2.0
Puget Sound Naval Shipyard	2	1.6
Quantico Marine Corps Base	6	0.5
Total	**110**	**$27.1**

*These organizations used restoration contracts.

Methodology

Laboratory Support Services. We interviewed contracting personnel and environmental managers at DoD organizations and reviewed the contracting instruments that were used to procure testing services from commercial laboratories from FYs 1993 through 1995. The contracting instruments included indefinite-delivery contracts, blanket purchase agreements, and purchase orders. We also reviewed contractor price lists, invoices, chain-of-custody documents, test results, and the procedures used to analyze test results. In addition, we reviewed whether the commercial laboratories used by the 18 DoD organizations from FYs 1993 through 1995 were debarred or suspended.

Use of Computer-Processed Data. We did not rely on computer-processed data to determine the contractor or Government laboratory capabilities and costs.

Management Control Program

DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987,* requires DoD organizations to implement a comprehensive system of management controls that provide reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of Review of Management Control Program. We reviewed the adequacy of management controls over the contract administration of environmental testing contracts and the quality of test results received from commercial laboratories. The adequacy of management's self-evaluation was not assessed.

Adequacy of Management Controls. The audit identified material management control weaknesses as defined by DoD Directive 5010.38. Management controls were not adequate to effectively administer contracts and ensure the quality of environmental test results. These material management control weaknesses will be corrected by the recently established Laboratory and Testing Work Group addressing developing standardized quality assurance procedures; establishing adequate procedures to administer contractor performance; and establishing procedures for inclusion of adequate Government remedy clauses in environmental testing contracts. A copy of the report will be provided to the senior official responsible for management controls at the Deputy Under Secretary of Defense (Environmental Security).

*DoD Directive 5010.38 has been revised as "Management Control Program," August 26, 1996. The audit was performed under the April 1987 version of the directive.

Appendix B. Summary of Prior Audits and Other Reviews

General Accounting Office

General Accounting Office Report No. GAO/RCED-95-118, (OSD Case No. B-260566), "Nuclear Facility Cleanup: Centralized Contracting of Laboratory Analysis Would Produce Budgetary Savings," May 1995. The report states that the Department of Energy paid substantially higher prices than the EPA for the same types of laboratory analysis at commercial laboratories because the Department of Energy used decentralized contracts and the EPA used centralized contracts. The Department of Energy decentralized approach, which involved multiple contract awards and contract management activities, resulted in numerous inefficiencies. The General Accounting Office recommended that the Secretary of Energy centralize the procurement of its commonly used laboratory analyses for environmental contaminants in the cleanup of its nuclear facilities and to identify and eliminate the contractor resources that will no longer be needed under a central procurement system. The General Accounting Office did not obtain written agency comments on a draft of this report. However, the General Accounting Office did discuss the factual information with Department of Energy officials. The officials generally agreed with the facts presented.

Inspector General, DoD

Inspector General, DoD, Report No. 96-065, "Quick-Reaction Report on Wastewater Testing at the Marine Corps Combat Development Command, Quantico, Virginia," February 2, 1996. The report states that the Marine Corps Combat Development Command (the Command) did not plan for or use the most cost-effective method for testing wastewater. As a result, the Command could spend about $310,000 in unnecessary costs for the testing of wastewater over the next 5 years. We recommended that the Command perform all environmental testing of wastewater at its in-house laboratory and remove the requirement to test wastewater from the current solicitation for contracted environmental tests.

The Department of the Navy generally concurred with the recommendation to remove the requirement to test wastewater from the solicitation for environmental tests and stated that until the in-house lab has a proven record of uninterrupted testing, the contract serves as a backup.

Army Audit Agency

Army Audit Agency Report No. AA 96-247, "Contracting for Defense Environmental Restoration Account Projects," July 22, 1996. The report stated that environmental managers did not effectively review testing costs to identify significant differences in the prices that contractors charged for performing similar types of tests. As a result, the Army unnecessarily paid about $9 million for tests over a 1-year period, with the potential for overpayments of about $48 million over 6 years. The Army Audit Agency recommended that the Army centralize contracting for testing services. The Army generally agreed with the recommendation and said it would take corrective action.

Environmental Protection Agency

Inspector General, EPA, Report No. E1SKF5-09-0031-5100505, "Environmental Data Quality at DoD Superfund Sites in Region 9," September 26, 1995. The report states that Region 9 did not significantly strengthen its oversight program over DoD environmental test results, even though serious laboratory problems were identified. The report also states that the Region did not require DoD to modify the quality assurance project plans to increase the opportunity to detect data quality problems. EPA recommended that Region 9 could better fulfill its oversight role and assist DoD in avoiding future data quality problems and cleanup delays by strengthening oversight of quality assurance activities, including key quality assurance activities in quality assurance project plans, and ensuring that activities comply with quality assurance project plans.

The Region did not specifically address the recommendations; however, they commented by identifying 10 ongoing and planned corrective actions to improve data quality. These actions included requiring DoD to follow the Environmental Protection Agency data quality objective process and ensuring that DoD complied with its quality assurance project plans.

Appendix C. Other Matters of Interest

Charge for Environmental Tests

While reviewing the costs of analytical tests that the PWC Pearl Harbor laboratory charged its customers, we determined that the customers were overcharged for two types of analytical tests, Toxicity Characteristic Leaching Procedure - Metals test and a Flashpoint test. The PWC laboratory charges its customers a $7 disposal fee for these two tests, but only when they are performed by the PWC laboratory. However, we determined that the PWC laboratory was charging the disposal fee for the two analytical tests even when they were performed by commercial laboratories. This overcharge occurred from October 1995 through February 1996 and totaled about $7,400. We informed the PWC laboratory that it had charged its customers in error. The PWC laboratory agreed with our finding, fully reimbursed its customers, and provided us with documentation showing the reimbursement.

Consolidated Report on Environmental Testing Costs

In FY 1992, the Senate Appropriations Committee directed the Secretary of Defense to provide financial data and management information on environmental testing costs and report on the capabilities of all DoD laboratories, including a formal plan for the consolidation and sharing of DoD environmental assessment activities and capabilities. In response to the Senate Appropriation Committee request, the Deputy Under Secretary of Defense (Environmental Security) directed the military departments to collect the environmental testing data. The military departments prepared individual draft reports on the testing data. However, a consolidated final report for all environmental testing facilities and their costs has not yet been issued to the Senate Appropriations Committee.

Appendix D. Test Price Differences

Commercial Laboratory	Environmental Protection Agency Approved Test Method				
	6010[1]	8020[2]	8080[3]	8240[4]	8270[5]
American West Analytical	$195	$120	$120	$NP[6]	$455
Anacon, Incorporated	100	100	100	100	100
Bayside Environmental	NP[6]	60	90	85	NP[6]
Chemtech, Incorporated	200	100	200	250	625
Clayton Environmental Consultants	200	120	135	220	400
Curtis and Tompkins	175	100	160	225	400
Data Chem	198	154	254	353	617
Environmental Conservation	245	90	150	150	350
Grace Analytical Laboratory	160	80	120	220	350
IT Corporation	160	95	225	280	530
Laucks Testing Laboratory	195	80	150	150	246
Pace Laboratories	175	75	125	NP[6]	350
Quanterra Environmental Services	81	101	289	221	401
Sequoia Analytical	NP[6]	91	98	207	340
Sound Analytical Services	138	88	165	182	347
Southwest Research	595	250	300	300	450
Superior Precision Analytical	NP[6]	75	NP[6]	160	325
Thiokol Corporation	120	NP[6]	NP[6]	185	380

[1]This method tests for 13 pollutant metals, and could cost from $81 to $595 per test.

[2]This method tests for aromatic volatile organics, and could cost from $60 to $250 per test.

[3]This method tests for pesticides and polychlorinated biphenyls, and could cost from $90 to $300 per test.

[4]This method tests for volatile organics, and could cost from $85 to $353 per test.

[5]This method tests for semi-volatile organics, and could cost from $100 to $625 per test.

[6]No Price. The contractor's price list did not include a price for this test.

Appendix E. Administration Weaknesses of Environmental Testing Contracts

	ACOE-MRD	ACOE-SPD	AFCEE	Armstrong Lab	DCSC	DFSC	Fort Lewis	Hickam AFB	Hill AFB	McClellan AFB	NTC Great Lakes	NAS Key West	NWS Yorktown	Norfolk NSY	PWC Jacksonville	PWC Pearl Harbor	Puget Sound NSY	Quantico MCCDC	Totals
Did not have detailed statement of work		x		x			x		x	x		x				x	x	x	9
Did not verify invoices			x					x	x			x		x				x	6
Received incomplete invoices & test results		x				x		x								x			4
Did not validate test results		x			x		x	x	x		x	x							7
Received incorrect test results													x		x	x			3
Received late test results									x				x		x	x			4
Did not find test results						x		x		x							x		4
Competed each BPA call											x				x	x			3
Did not properly maintain BPA call log		x					x	x	x	x	x								6
Split BPA orders		x		x															2
Unauthorized use of BPA	x	x		x															3
Used costly contracts	x		x				x		x	x			x	x	x	x		x	10
Did not close contracts					x				x										2
Had incomplete contract files		x	x			x		x	x	x							x		7
Overpaid contractors					x				x										2
Had unaccounted funds	x						x	x		x									4
Had unqualified personnel		x						x			x	x						x	5
Paid sales tax								x								x			2

ACOE-MRD Army Corps of Engineers Missouri River Division
ACOE-SPD Army Corps of Engineers South Pacific Division
AFB Air Force Base
AFCEE Air Force Center for Environmental Excellence
BPA Blanket Purchase Agreement
DCSC Defense Construction Supply Center
DFSC Defense Fuel Supply Center
MCCDC Marine Corps Combat Development Command
NAS Naval Air Station
NSY Naval Shipyard
NTC National Training Center
NWS Naval Weapons Station
PWC Public Works Center

Appendix F. Glossary

Data Validation. A method for ensuring that environmental test results are of known quality. It involves reviewing data against a set of criteria to provide assurance that data is adequate for its intended use.

Double-Blind Performance Evaluation Samples. Samples that are prepared by "spiking" a known concentration of chemicals into a contaminant-free media, such as water or soil. It is submitted as part of a field sample shipment, so that the laboratory is not aware of the concentration levels or that the sample is a performance evaluation.

Laboratory Audits. On-site audits of laboratories designed to identify technical areas that may cause the laboratories to improperly identify or quantify chemicals. Audits normally evaluate a laboratory's technical expertise, standard operating procedures, facility and equipment sufficiency, and possible sources of sample contamination.

Laboratory Certification. Certificate provided to the laboratory by a regulatory agency (e.g., State or EPA) identifying the type of tests that the laboratory is qualified to perform at a point in time.

Magnetic Tape Audits. Laboratory analyses produce electronic data and the data are often provided on magnetic tapes. By obtaining magnetic tapes (or other electronic data) from a laboratory, audits can be conducted to help determine whether the laboratory is complying with its contract; the integrity of the laboratory's computer systems; and the appropriateness of any software editing.

Past Performance. The performance of commercial laboratories on environmental test results over a period of time. The current results of environmental tests are compared to past test results to identify unusual changes in the results.

Single-Blind Performance Evaluation Samples. Samples that are prepared by "spiking" a known concentration of chemicals into a contaminant-free media, such as water or soil. The laboratory is aware that the sample is a performance evaluation but does not know the chemical concentration levels.

Split Samples. Samples collected in the field that are divided into two samples. One sample is sent to the commercial laboratory and the other is sent to an independent laboratory. The results from the two laboratories are compared and the differences analyzed.

Appendix G. Organizations Visited or Contacted

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology, Washington, DC
  Deputy Under Secretary of Defense (Environmental Security), Washington, DC
Director, Defense Research and Engineering, Washington, DC

Department of the Army

Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health), Washington, DC
Assistant Chief of Staff for Installation Management, Washington, DC
Auditor General, Department of the Army, Washington, DC
Army Audit Agency, Falls Church, VA
Army Corps of Engineers, Washington, DC
  Missouri River Division, Omaha, NE
  New England Division, Hubbardston, MA
  North Pacific Division, Troutdale, OR
  Ohio River Division, Cincinnati, OH
  South Atlantic Division, Marietta, GA
  South Pacific Division, San Francisco, CA
  Southwestern Division, Dallas, TX
  Waterways Experiment Station, Vicksburg, MS
Forces Command, Fort McPherson, Atlanta, GA
  Fort Greely, Delta Junction, AK
  Fort Irwin, Barstow, CA
  Fort Lewis, Tacoma, WA
  Fort McPherson, Atlanta, GA
  Fort Richardson, Anchorage, AK
  Fort Sam Houston, San Antonio, TX
  Fort Stewart, Hinesville, GA
  Fort Wainwright, Fairbanks, AK
Fort Bliss, El Paso, TX
Fort Chaffee, Fort Smith, AR
Fort Dix, Wrightstown, NJ
Fort Gordon, Augusta, GA
Fort Monmouth, Eatontown, NJ

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller), Washington, DC
Deputy Assistant Secretary of the Navy (Environment and Safety), Washington, DC
Naval Audit Service, Falls Church, VA
Charleston Naval Shipyard, Charleston, SC
Long Beach Naval Shipyard, Long Beach, CA

Department of the Navy (cont'd)

Mare Island Naval Shipyard, Vallejo, CA
Marine Corps Air Station Cherry Point, Havelock, NC
Marine Corps Air Station New River, Jacksonville, NC
Marine Corps Air Station Twentynine Palms, Twentynine Palms, CA
Marine Corps Air Station Yuma, Phoenix, AZ
Marine Corps Base Camp H M Smith, Honolulu, HI
Marine Corps Base Camp Lejeune, Jacksonville, NC
Marine Corps Base Camp Pendleton, Oceanside, CA
Marine Corps Base Hawaii, Kaneohe Bay, HI
Marine Corps Logistics Base Albany, GA
Marine Corps Logistics Base Barstow, CA
Marine Corps Recruit Depot Parris Island, Beaufort, SC
Marine Corps Combat Development Command Quantico, Quantico, VA
National Training Center Great Lakes, North Chicago, IL
Naval Air Station Adak, AK
Naval Air Station Brunswick, Topsham, MN
Naval Air Station Corpus Christi, TX
Naval Air Station Key West, FL
Naval Air Station Meridian, MS
Naval Air Station Miramar, San Diego, CA
Naval Air Station North Island, San Diego, CA
Naval Air Station South Weymouth, MA
Naval Air Weapons Station China Lake, CA
Naval Facilities Engineering Command, Alexandria, VA
  Engineering Field Activity, Chesapeake, Washington, DC
  Naval Facilities Engineering Service Center, Port Hueneme, CA
  Navy Public Works Center Jacksonville, FL
  Navy Public Works Center Norfolk, VA
  Navy Public Works Center Pearl Harbor, HI
  Navy Public Works Center Pensacola, FL
  Navy Public Works Center San Diego, CA
Naval Ordnance Center Pacific Division Detachment Port Hadlock, WA
Naval Ordnance Station Louisville, KY
Naval Submarine Base Kings Bay, GA
Naval Submarine Base New London, Groton, CT
Naval Support Activity New Orleans, LA
Naval Surface Warfare Center Crane Division, Crane, IN
Naval Surface Warfare Center Indian Head Division, Indian Head, MD
Naval Weapons Station Concord, CA
Naval Weapons Station Earle, NJ
Naval Weapons Station Seal Beach, CA
Naval Weapons Station Yorktown, VA
Navy Command and Telecommunications Station Cutler, East Machias, ME
Norfolk Naval Shipyard, VA
Pearl Harbor Naval Shipyard, HI
Philadelphia Naval Shipyard, PA
Portsmouth Naval Shipyard, VA
Puget Sound Naval Shipyard, Bremerton, WA
United States Naval Academy, Annapolis, MD

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller), Washington, DC
Deputy Assistant Secretary of the Air Force (Environment, Safety, and Occupational Health), Washington, DC
Air Force Audit Agency, Riverside, CA
Air Force Center for Environmental Excellence, San Antonio, TX
Bergstrom Air Force Base, Austin, TX
Brooks Air Force Base, San Antonio, TX
Dover Air Force Base, DE
Eielson Air Force Base, Fairbanks, AK
Elmendorf Air Force Base, Anchorage, AK
Fairchild Air Force Base, Spokane, WA
Hickam Air Force Base, Honolulu, HI
Hill Air Force Base, Ogden, UT
Kelly Air Force Base, San Antonio, TX
Langley Air Force Base, Hampton, VA
Little Rock Air Force Base, AR
Los Angeles Air Force Base, CA
MacDill Air Force Base, Tampa, FL
McClellan Air Force Base, Sacramento, CA
Nellis Air Force Base, Las Vegas, NV
Patrick Air Force Base, Cocoa Beach, FL
Randolph Air Force Base, San Antonio, TX
Robins Air Force Base, Macon, GA
Scott Air Force Base, Belleville, IL
Tinker Air Force Base, Oklahoma City, OK
Vandenberg Air Force Base, Lompoc, CA

Other Defense Organizations

Defense Criminal Investigative Service, Arlington, VA
Defense Criminal Investigative Service, Dayton, Ohio
Defense Logistics Agency, Springfield, VA
- Defense Construction Supply Center, Columbus, OH
- Defense Electronic Supply Center, Dayton, OH
- Defense Fuel Supply Center, Springfield, VA
- Defense General Supply Center, Richmond, VA
- Defense Industrial Supply Center, Philadelphia, PA
- Defense Personnel Support Center, Philadelphia, PA

Non-Defense Federal Organizations

Environmental Protection Agency, Washington, DC
- Office of the Inspector General, Washington, DC
  - Region IX, Sacramento, CA

General Services Administration, Washington, DC

Non-Government Organizations

Advanced Analytics Laboratories, Columbus, OH
Aecos, Kailua, HI
Alliance, Tampa, FL
American West Analytical Laboratories, Salt Lake City, UT
Anacon, Houston, TX
Association of Independent Scientific, Engineering and Testing Firms, Washington, DC
Baker Environmental, Coraopolis, PA
Bayside Environmental Services, Hampton, VA
CH2M Hill, Salt Lake City, UT
Chemtech Laboratories, Salt Lake City, UT
Clayton Environmental, Pleasanton, CA
Curtis and Tompkins, Berkeley, CA
Dames and Moore, Salt Lake City, UT
Datachem, Salt Lake City, UT
Earth Tech Analytical, Grand Rapids, MI
Environmental Conservation Laboratories, Orlando, FL
Environmental Lab of the Pacific, Honolulu, HI
Environmental Testing Services, Norfolk, VA
Eureka Laboratories, Sacramento, CA
Flowers Chemical Laboratories, Altamonte, FL
Grace Analytical, Berkeley, IL
Hawaiian Remediation and Recycling, Kapolei, HI
Impact Technologies, Colorado Springs, CO
Jacobs Engineering, Pasadena, CA
James R. Reed and Associates, Newport News, VA
Lyle Laboratories, Columbus, OH
Marine Chemist Service, Newport News, VA
Montgomery Watson Americas, Boulder, CO
Montgomery Laboratories, Pasadena, CA
Mountain State Analytical, Salt Lake City, UT
O'Brien and Gere Engineers, Syracuse, NY
Ogden Environmental and Energy, Fairfax, VA
Orlando Laboratories, Orlando, FL
Pace, Minneapolis, MN
Precision Micro-Analysis, Sacramento, CA
Professional Services Industries, Salt Lake City, UT
Professional Services Industries/Hall-Kimbrell, Honolulu, HI
Quantem Laboratories, Oklahoma City, OK
Quanterra Environmental Services, Santa Ana, CA
Radian Analytical Services, Austin, TX
Sequoia Analytical, Redwood City, CA
Shannon and Wilson, Anchorage, AK
SM and E, Mount Pleasant, SC
Sound Analytical Services, Tacoma, WA
Southeastern Environmental Laboratory, Orange Park, FL

Non-Government Organizations (cont'd)

Southwest Research Institute, San Antonio, TX
Superior Precision Analytical, Martinez, CA
Tetra Tech, Long Beach, CA
Thiokol Corporation, Brigham City, UT
Universal Laboratories, Hampton, VA

Appendix H. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
  Deputy Under Secretary of Defense (Acquisition Reform)
  Deputy Under Secretary of Defense (Environmental Security)
  Director, Defense Logistics Studies Information Exchange
  Director, Defense Procurement
  Director, Defense Research and Engineering
Under Secretary of Defense (Comptroller)
  Deputy Chief Financial Officer
  Deputy Comptroller (Program/Budget)
Assistant to the Secretary of Defense (Public Affairs)

Department of the Army

Assistant Secretary of the Army (Financial Management and Comptroller)
Assistant Secretary of the Army (Installations, Logistics, and Environment)
  Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health)
Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Assistant Secretary of the Navy (Installation and Environment)
  Deputy Assistant Secretary of the Navy (Environment and Safety)
Auditor General, Department of the Navy
Dudley Knox Library, Naval Postgraduate School

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Assistant Secretary of the Air Force (Manpower, Reserve Affairs, Installations, and Environment)
  Deputy Assistant Secretary of the Air Force (Environment, Safety, and Occupational Health)
Auditor General, Department of the Air Force

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Logistics Agency
Director, National Security Agency
  Inspector General, National Security Agency
Inspector General, Defense Intelligence Agency

Non-Defense Federal Organizations and Individuals

Office of Management and Budget
Technical Information Center, National Security and International Affairs Division, General Accounting Office

Chairman and ranking minority member of the following congressional committees and subcommittees

  Senate Committee on Appropriations
  Senate Subcommittee on Defense, Committee on Appropriations
  Senate Committee on Armed Services
  Senate Committee on Governmental Affairs
  House Committee on Appropriations
  House Subcommittee on National Security, Committee on Appropriations
  House Committee on Government Reform and Oversight
  House Subcommittee on National Security, International Affairs, and Criminal Justice, Committee on Government Reform and Oversight
  House Committee on National Security

Part III - Management Comments

Deputy Under Secretary of Defense (Environmental Security) Comments

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON DC 20301-3000

ACQUISITION AND TECHNOLOGY

January 21, 1997

MEMORANDUM FOR DOD INSPECTOR GENERAL
ATTENTION: DIRECTOR, CONTRACT MANAGEMENT DIRECTORATE

SUBJECT: Draft Audit Report on Laboratory Support Services for Environmental Testing
Project No. 5CK-0053

This memorandum responds to the subject Draft Audit, dated October 18, 1996. The audit concludes that the DoD organizations reviewed were not efficient nor effective in procuring and administering environmental testing contracts. Additionally, the draft report states that the inefficient and ineffective procedures resulted in widely ranging prices, high administrative costs, and unreliable test results. The draft report recommends that DoD establish an integrated process action team to centralize procurement, develop standardized quality assurance procedures; establish adequate procedures to administer contractor performance; and establish procedures to ensure inclusion of adequate government remedy clauses in environmental testing contracts.

The audit report states that the main reason for the problems was that the Department used decentralized procurement procedures. While the data indicate that some installations did pay widely ranging costs for the same tests, the data do not indicate that decentralized procurement is the reason for the cost differences. Additionally, the data do not document that there are not valid reasons for some of the cost differences. Without more detail concerning such issues as the type and purpose of testing, state and local regulations, the presence or absence of specific contaminants, sample quantities, and the response time for each test, the data as presented do not support the conclusion that contracts were inefficient and ineffective.

The audit does raise issues about quality assurance procedures, contract administration, and adequate government remedy clauses that warrant further DoD attention. However, I do not agree with the recommendation to form an integrated process action team to address these issues. The Navy currently chairs a DoD Environmental Laboratory and Testing Work Group under the auspices of the Defense Environmental Security Council. Adding representatives from the Director of Defense Procurement and the Office of the Under Secretary of Defense (Acquisition Reform) to this working group, as required, should fulfill the requirement to address the quality assurance and performance issues. I will task that working group to respond to these issues, and will provide your office with a copy of that tasking.

Specific comments on the audit recommendations, the material control weaknesses, and the data presented in the draft report are attached. Mr. Charlie Wood (697-1015) is the point of contact for this audit.

Gary D. Vest
Principal Assistant Deputy Under Secretary
of Defense (Environmental Security)

Attachments

Environmental Security *Defending our Future*

Final Report Reference

Comments on
Draft Audit Report on
Laboratory Support Services
Recommendations

IG Recommendation: That the Deputy Under Secretary of Defense (Environmental Security) establish an integrated process action team to include the Services, the Defense Logistics Agency, and obtain assistance from the Office of the Deputy Under Secretary of Defense (Acquisition Reform) and the Director of Defense Procurement, as needed, to consolidate the requirements and centralize the procurement of environmental tests during FY 1997. Revised

DUSD(ES) Response: Non concur. The data do not support centralization as a solution to the problem. Centralization is the antithesis of procurement reform and empowerment of contracting and technical personnel. This office established a DoD Laboratory and Testing Work Group in September 1996, chaired by the Navy. The purpose of this group is to review laboratory issues, develop coordinated positions, and make recommendations on actions through the Compliance Committee of the Defense Environmental Security Council. That group, with necessary support from Procurement and Acquisition Reform representatives, is the correct group to address the issues of compliance with contract administration requirements, guidance regarding DoD quality assurance methodologies, and use of appropriate government remedy clauses.

Recommendation a. Develop standardized statements of work and description of services for environmental testing to be used in all environmental testing contracts. They should include a well written description of the work to be performed under the contract, sampling procedures, proper analysis procedures, and reporting requirements.

DUSD(ES) Response: Non concur. There are accepted procedures for performing the EPA required tests. While a suggested format could be helpful, the details would need to be customized to the task at hand. Requirements such as the type, scope and purpose of sampling and testing, state and local regulations, sensitivity of each sample, response time, shipping & handling instructions and costs, the numerous test matrices required, and the number and complexity of contaminants present in each sample must be factored into each test, and the cost for each test could vary accordingly.

Recommendation b. Establish standardized DoD procedures to ensure that Environmental Protection Agency approved quality assurance methods are used to adequately determine the quality of environmental test results received from commercial laboratories.

DUSD(ES) Response. Non concur. The development of standardized quality assurance procedures for all DoD contracts is contrary to acquisition reform and would not be cost effective. The scope and purpose of sampling and testing can vary markedly; the quality assurance procedures required will also vary accordingly. DoD is examining the need for additional guidance on the appropriate use of various EPA quality assurance guidelines through the DoD Environmental Laboratory Working Group previously mentioned.

Recommendation c. Establish adequate procedures to administer environmental testing contracts.

DUSD(ES) Response. Partially concur. Each organization should have procedures to ensure that purchase thresholds are not exceeded, that orders are not split to avoid such thresholds, and that only authorized personnel place orders under the authority of any such contracting mechanism. The Lab Working Group will address the contract administrative procedures as part of their review.

Recommendation d. Establish procedures to ensure that adequate Government remedy clauses are included in environmental testing contracts as a means of holding the contractor accountable for inadequate contractor performance.

DUSD(ES) Response. Partially concur. The Lab Working Group will address the need for the Components to make sure that their installations make full use of the existing remedy clauses.

Comments on the Material Control Weaknesses

The recommendations to correct the material control weaknesses are the same as the recommendations for the entire audit, e.g.

> "Establish an integrated process action team to consolidate requirements and centralize the procurement of environmental tests; develop standardized quality assurance procedures; establish adequate procedures to administer contractor performance; and establish procedures to ensure inclusion of adequate Government remedy clauses in environmental testing contracts."

The response is also the same. The Lab Working Group established under the auspices of the Defense Environmental Security Council will address the management control weaknesses. However, centralized procurement is not the method to solve the problem. The report is critical (pages 10-11) of the environmental organizations for not making use of the government purchase card for contracts costing less than $2,500. That appears to be in direct opposition to the recommendation to centralize and consolidate contracts for environmental testing. The individual contracting offices and technical personnel must improve the way they use existing guidance on monitoring contract administration, include quality assurance requirements in the contract, and approve invoices for payment. However, none of these problems would appear unique to the Environmental arena, but are problems that need to be addressed across the board in contract administration.

The Director of Defense Procurement and the Deputy Under Secretary of Defense for Acquisition Reform should be added to the official report distribution list.

Final Report Reference	
	Specific Comments on the Draft Report
Revised	Under the Audit Results section of the Executive Summary, the report states that inefficient and ineffective procedures resulted in environmental test prices ranging from a difference of 123% to 762% for the same tests... The validity of the data documenting the differences is discussed later in this commentary. However, the difference in prices is incorrectly calculated. The range should be from 23% to 662%.
Page 2	On page two, in the first paragraph, the report includes the value of environmental restoration contracts, $3.7 billion, in the scope of the audit. There should be a disclaimer inserted at this point to indicate that there is no data available to analyze for the cost of environmental lab testing for environmental restoration contracts. The same statement applies to the $548.9 million stated in the Indefinite-Delivery Contracts paragraph, also on page two.
Page 4	On page 5, the statement at the head of the page is in dispute. The audit does not prove that "Organizations were not efficient and effective because contracting and environmental personnel used decentralized procurements..." Additionally, the percentage of price variations is again misstated at 123% to 762%. While additional savings may be possible through better coordination of requirements and available contracts, centralization is not the cure.
	Under the heading Decentralized Procurements on page 5, the report again contains the statement that the problems the IG discovered were caused by decentralized procurement. The audit does not prove the cause of the problems.
Page 7	Table 2, on page 8, calculates the Percentage Difference incorrectly for all of the examples. The last sentence on page 8 also calculates the difference incorrectly, the amount should be 23%, not 123%.
Pages 6-7	The data on pages 7 and 8, and in appendix D, do not indicate whether or not all testing methods were performed to the same level at each lab. Even when test methods are the same, the different metals for which tests are conducted will have a bearing on the price. The data are not in dispute, however, it is not necessarily an indication of inefficiency nor ineffectiveness.
Page 11 Page 19 Page 11 Page 11	Table 5, on page 13, shows that 7 organizations used only the quality assurance methods the EPA identified as being less effective. The data in the Table on page 21 indicates that these locations account for $3.6 million of the identified costs for lab support services. However, the first sentence on page 14 states that the cost at these locations is $12.9 million. The disconnect may include restoration contracts for which test costs were not available, but regardless of the source, the statement on page 14 is not supported in the data provided on page 21. Additionally, the table says less effective, the audit language says ineffective.
Page 13	On page 15, under the heading "Indefinite Delivery Contracts and BPAs", the report compares the Corps-South Pacific Division statements of work with those of PWC Jacksonville, preferring those at Jacksonville which were more thoroughly written. However, the Corps-SPD awarded 28 contracts at a total cost of $0.5 million. Jacksonville awarded 3 contracts at a cost of $1.2 million. Based upon the size of the contracts, the Corps-SPD may have had sufficient documentation to support a limited test as opposed to the Jacksonville scope of work.

Final Report Reference

On page 16, under the heading "Government Remedies," the report notes that one of the Jacksonville labs provided an invalid test. Jacksonville used two of the more effective quality assurance protocols, had the more detailed specifications, and still got bad results from the lab. Without knowing the volume of data tested, the timing and response times for each test, and the presence or absence of specific contaminants, it is impossible to fully support the conclusions in the audit with respect to the cost effectiveness of any one of the contracts.

Page 13

Based on the data on pages 13 and 21, please note that although only 7 of the 18 locations used the most effective quality assurance methods, that those most effective quality assurance methods were in effect for over 85% of the identified dollar value of the contracts reviewed by the audit team.

Pages 11 and 19

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