Audit Report

OFFICE OF THE INSPECTOR GENERAL

QUALITY ASSURANCE ACTIONS RESULTING FROM ELECTRONIC COMPONENT SCREENING

Report Number 92-099

June 8, 1992

Department of Defense

The following acronyms are used in this report.

CAL.....Contractor Alert List
CAPE.....Contractor Assessment-Product Evaluation
CDCS.....Customer Depot Complaint System
CPS.....Contractor Profile System
DCMC.....Defense Contract Management Command
DESC.....Defense Electronics Supply Center
DFARS.....Defense Federal Acquisition Regulation Supplement
DGSC.....Defense General Supply Center
DLA.....Defense Logistics Agency
DLAR.....Defense Logistics Agency Regulation
FAR.....Federal Acquisition Regulation
FSC.....Federal Supply Class
GIDEP.....Government-Industry Data Exchange Program
IQUE.....In-Plant Quality Evaluation
PQDRs.....Product Quality Deficiency Reports
QAL.....Quality Alert List
QAR.....Quality Assurance Representative
QEP.....Quality Evaluation Program
WR-ALC.....Warner Robins Air Logistics Center

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June 8, 1992

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

SUBJECT: Audit Report on Quality Assurance Actions Resulting from Electronic Component Screening (Report No. 92-099)

We are providing this final report for your information and use. Comments on a draft of this report were considered in preparing the final report.

DoD Directive 7650.3 requires all audit recommendations to be resolved promptly. Therefore, all addressees except for the Assistant Secretary of Defense (Production and Logistics) must provide final comments on the unresolved recommendations by August 10, 1992. See the "Status of Recommendations" section at the end of each finding for the unresolved recommendations and the specific requirements for your comments.

If you nonconcur with the estimated monetary benefits or any part thereof, you must state the amounts you nonconcur with and the basis for your nonconcurrence. Recommendations and potential monetary benefits are subject to resolution in accordance with DoD Directive 7650.3 in the event of nonconcurrence or failure to comment. We also ask that your comments indicate concurrence or nonconcurrence with the internal control weakness highlighted in Part I.

We appreciate the cooperation and courtesies extended to the audit staff, especially by the Defense Electronics Supply Center. If you have any questions on this audit, please contact

Mr. Salvatore D. Guli, Program Director, at (703) 692-3025 (DSN 222-3025); or Mr. C. J. Richardson, Project Manager, at (703) 692-3220 (DSN 222-3220). Copies of the final report will be distributed to the activities listed in Appendix P. The audit team members are listed inside the back cover.

Robert J. Lieberman
Assistant Inspector General
for Auditing

cc:
Secretary of the Army
Secretary of the Navy
Secretary of the Air Force
Director, Defense Acquisition Regulations Council
Chief Executive Officer, Federal Prison Industries

Office of the Inspector General, DoD

AUDIT REPORT NO. 92-099 June 8, 1992
(Project No. OCF-0062)

QUALITY ASSURANCE ACTIONS RESULTING FROM ELECTRONIC COMPONENT SCREENING

EXECUTIVE SUMMARY

Introduction. The Electronic Component Federal Supply Group includes resistors, semiconductor devices, microcircuits, cable cord wire, and other electronic components. Electronic components are generally inexpensive, but the reliability of components is vital to the operation of tactical end items. In FY 1990, the Defense Logistics Agency (DLA) managed about 81 percent of the consumable electronic components within DoD. This percentage will increase to about 95 percent by 1994.

Objectives. The audit objectives were to determine: whether contracting officers received and acted on quality assurance information resulting from DoD electronic component screening programs; the extent of planned electronic component quality assurance screening provided by the Services and the DLA; and to evaluate the overall effectiveness of internal controls related to the administration of contracts that have items subject to the DoD electronic component screening process.

Audit Results. Contracting officers in the Services and DLA did not receive information on quality deficiencies because the information was not effectively collected and distributed. The Services and DLA did not perform adequate electronic component testing and screening to identify and follow-up on contractors who provided electronic components containing nonconformances.

The Services and DLA operated automated systems that did not effectively identify contractors who historically provided nonconforming electronic components. Consequently, historical quality information that could affect contract award decisions was not provided to contracting officers **(Finding A).** DoD did not have effective remedies available in the Defense Federal Acquisition Regulation Supplement (DFARS) to obtain reimbursement or replacement for those major and critical nonconforming products with patent defects. Consequently, DoD can expect to recoup less than 5 percent of the value of major and critical nonconforming products that Defense contractors may potentially supply **(Finding B).** The Product Quality Deficiency Report (PQDR) Program lacked the necessary controls to ensure that applicable quality information was reported to the Government-Industry Data Exchange Program. Therefore, pertinent information needed to improve the acquisition process, useful to other Federal agencies or affecting public safety, was not distributed **(Finding C).**

Internal Controls. Internal controls were not adequate to ensure effective execution of the PQDR Program and appropriate reporting of products with defects to the Government-Industry Data Exchange Program. See Findings A and C for details of these deficiencies and page 4 for an assessment of the internal controls.

Potential Benefits of Audit. We calculated potential reimbursements that ranged from $399 million to $2.1 billion over a 6-year period. Potential reimbursements are achievable if our recommended DFARS revisions are implemented. The revisions would make contractors liable for the cost of the product, discovery testing, and administrative processing related to patent defects. However, we chose not to claim the potential monetary benefits because we were unable to develop statistically precise estimates of products with patent defects and the improvements in the DoD quality assurance program that result in decreases in the number of patent defects. Other benefits of the audit include controls to ensure that contracting officers and the GIDEP receive needed quality deficiency information. A summary of the potential benefits resulting from the audit is at Appendix M.

Summary of Recommendations. We recommended enhancements to quality assurance testing programs, revisions to the DFARS to provide remedies for obtaining reimbursements for critical and major nonconforming products, and procedural changes to improve the Product Quality Deficiency Report Program.

Management Comments. The Principal Deputy Assistant Secretary of Defense (Production and Logistics) concurred with the recommendations to improve the PQDR Program and to alert the Government-Industry Data Exchange Program of quality deficiencies. The Director of Defense Procurement nonconcurred with recommendations to revise the DFARS to provide remedies for obtaining reimbursements for products with patent defects, but the Director agreed to include definitions for patent and latent defects in the DFARS. The Army and Navy generally agreed with the need for expanded testing and making the DFARS revisions. The DLA agreed to use specific numbers of PQDRS to evaluate contractors for quality control problems, improve automated edits of PQDRs and expand testing of electronic products. The Air Force comments were general in nature. The Chief Executive Officer of the Federal Prison Industries also provided comments.

We request that the Director of Defense Procurement, Army, Navy, Air Force and DLA provide additional comments to the final report by August 10, 1992. A discussion of the responsiveness of management comments is included in Part II of the report, and the complete texts of management comments are included in Part IV of the report.

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This audit report was prepared by the Contract Management Directorate, Office of the Assistant Inspector General for Auditing, DoD. Copies of the report can be obtained from the Information Officer, Audit Planning and Technical Support Directorate, (703) 614-6303.

PART I - INTRODUCTION

Background

From October 1987 through September 1990, the Services and the Defense Logistics Agency (DLA) purchased about $4.3 billion of electronic components for the 25 Federal Supply Classes (FSCs) shown in Appendix A. During 1991, a plan to transfer management responsibility for about 14 percent of the 1,226,596 consumable electronic components was formulated under the Consumable Item Transfer Program. The number of consumable electronic components managed and the number of transfer candidates are shown in Appendix B.

The Joint Services Regulation, DLAR 4155.24, "Product Quality Deficiency Report Program," established a Standard Form 368 (SF-368) "Product Quality Deficiency Report" for feedback of product quality deficiency data. The purpose of the Product Quality Deficiency Report (PQDR) Program is to provide the initial reporting, cause, correction, and status accounting of individual product quality deficiencies. Also, program data are used to identify problems, trends, and recurring deficiencies. The Regulation requires each Service and DLA to have a product quality deficiency reporting system, which has the capability to selectively interchange quality deficiency data.

The DoD Quality Assurance System depends on the integrity of contractors to ensure that only conforming products are accepted by the Government. As part of the DoD Total Quality Management Program, DoD devised the In-Plant Quality Evaluation (IQUE) as the primary quality assurance program to assess the ability of a contractor to maintain an effective quality control system. As of June 30, 1991, DLA estimated that the IQUE Program was implemented to a limited extent, at about 16,859 of 17,380 contractor plants in the five Defense Contract Management Command (DCMC) Districts.

DLA has also initiated two programs, the Contractor Assessment-Product Evaluation (CAPE) Program and the Contractor Profile System (CPS) to assist DoD contracting officers in making contract award decisions based on a contractor's prior performance. The CAPE and CPS programs are separate automated systems that were still under development as of December 1991. All of the DoD quality assurance initiatives, which are sources of quality deficiency information for contracting officers, are listed in Appendix C. The Federal Acquisition Regulation (FAR), Defense Federal Acquisition Regulation Supplement (DFARS), and Military Standard 109B "Quality Assurance Terms and Definitions" refer to defects and nonconformances interchangeably. Similarly, the terms defects and nonconformances are used interchangeably in this audit report.

Objectives

The primary objective of the audit was to determine whether contracting officers received and appropriately acted on quality assurance information resulting from DoD electronic component screening programs. However, during the audit, we expanded this objective to include all PQDRs for electronic components regardless of the source. The remaining objectives were to determine the extent of planned electronic component screening coverage that the Services and DLA provided and the overall effectiveness of internal controls relative to the quality assurance of these procurements.

Scope

Audit period, standards and locations. The audit was conducted from April 1990 through October 1991 at quality assurance, electronic component testing, and procurement activities in the Army, Navy, Air Force and DLA. This program audit was performed in accordance with government 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. The activities visited or contacted are listed in Appendix O, but the primary audit site was the Defense Electronics Supply Center (DESC).

Use of computerized information. To achieve the audit objectives, we relied on computer-generated product quality deficiency information contained in four systems that the Army, Navy, Air Force and DLA operated separately. Our review of system controls and the result of data tests showed an error rate that casts doubt on the validity of large amounts of the data in those systems. However, we reviewed the data in context with other available evidence and attempted to eliminate the inaccurate and duplicate data. We believe the opinions, conclusions, and recommendations based on the analysis of computer-generated data in this report are valid.

We retrieved that portion of the data from the four data bases germane to electronic component National Stock Numbers. We examined the data and determined that the contractor identification and report control number data fields were often incomplete and inaccurate. However, by manually comparing the data in each system, we were able to separate incomplete, inaccurate or duplicate PQDRs from those that were complete and appeared to be accurate.

During the period October 1, 1987, through September 30, 1990, there were 5,952 completed (closed) PQDRs recorded in the four systems for which contractors were responsible for the deficiencies. We determined that 1,847 of 5,952 PQDRs were

adequately recorded and not duplicated, and that 976 contractors were identified in the 1,847 PQDRs. We used the PQDRs to identify 142 contractors with a history of providing products with nonconforming products that resulted in PQDRs. The audit results on PQDRs only pertain to quality problems in one FSC for each contractor. The audit did not identify a contractor with quality problems in more than one FSC. In addition, PQDRs are only one of several sources of information used within the DoD to assess contractors quality. Further, PQDRs by themselves do not provide a complete overview of contractors quality.

Contract award information. From October 1989 to February 1991, the U.S. Army Communications-Electronics Command, the major procurement activities of the Navy as reported by the Naval Supply Systems Command, the Air Force Air Logistics Centers at Warner Robins and Sacramento, the Defense General Supply Center (DGSC), and the DESC awarded $66 million of contracts to the 142 contractors with 3 or more PQDRs. Contract award information obtained from the Navy and DESC was limited to the contracts awarded from October 1989 to September 1990. Using information extracted from the DD 350 data base (Individual Contract Action Reports) for the period October 1987 to September 1990, we also identified contract awards made to the largest suppliers of electronic components to the number of PQDRs identified to these suppliers.

Universe and statistical sample at DESC. We identified an audit universe at DESC to evaluate the quality assurance actions resulting from electronic component testing. The universe consisted of 298 contracts valued at $5.4 million, which related to 375 test lots containing electronic components that failed laboratory tests. The tests were performed at DESC during FY 1990. A random selection of 100 test lots yielded an audit sample of 93 contracts. The statistical sampling methodology is described in Appendix D.

Use of technical staff. Technical staff of the Audit Planning and Technical Support Directorate assisted in this audit. Analysts in the Quantitative Methods Division assisted in formulating a statistical sampling plan and in computing statistical projections. Contract specialists in the Technical Assessment Division provided assistance in developing recommendations for DFARS revisions. Also, the DoD Office of General Counsel (Fiscal and Inspector General) advised us on the contents of the FAR inspection clauses and warranty concepts.

Internal Controls

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. We evaluated internal controls related to the PQDR Program as described in DLAR 4155.24. We also evaluated the DESC procedures for ensuring that the results of electronic tests culminated in quality assurance actions. The audit showed that internal controls were not adequate to ensure that correct and complete PQDR information was recorded in the automated quality deficiency data bases, and that PQDRs were prepared for all quality deficiencies. Further, controls were not adequate to ensure that information useful to other Government agencies or that would protect the public, was reported to the Government-Industry Data Exchange Program (GIDEP). We consider these internal control weaknesses to be material. Recommendations A.1.b., A.1.c., and C.1., if implemented, will correct the internal control weaknesses; however, we could not determine the monetary benefits to be realized by implementing those recommendations. A copy of this final report will be provided to the senior officials responsible for internal controls within the Office of the Secretary of Defense and the Defense Logistics Agency.

Prior Audits and Other Reviews

A synopsis of seven prior audit reports and other reviews that contain findings and recommendations related to quality assurance actions for nonconforming products are included in Appendix E. The office of Inspector General, DoD, has an ongoing audit of recoupments for quality deficiencies (Project No. OCF-0062.02). The audit is evaluating the procedures used to obtain recoupment from suppliers for defective products that were reported on PQDRs.

Other Matters of Interest

Standard definitions. The first objective of the "DoD Action Plan for Continuously Improving the Quality of Spare and Repair Parts," March 2, 1990, is to standardize the DoD definitions and terminology for a nonconformance. The intent of the standardization is to eliminate inconsistencies in Military Standards and Service Regulations and the FAR. The standardization was accomplished in part by modifying the DFARS in April 1991. The DFARS clause that defines critical, major, and minor nonconformances is included in Appendix F.

Standard reporting system. The Services and DLA have developed separate, noninteractive PQDR reporting systems as follows.

- o Army - Deficiency Reporting System
- o Navy - Product Deficiency Reporting and Evaluation Program
- o Air Force - Information Center
- o Marine Corps - Quality Deficiency Information System
- o DLA - Customer Depot Complaint System (CDCS)

In June 1991, DoD published the "DoD Logistics Standard Information Systems Concept Plan for Acquisition Material Management" (the Concept Plan), to address the development of a single DoD-wide standard discrepancy reporting system by fiscal year 1993. The Functional Review Team that developed the Concept Plan evaluated the five PQDR systems maintained by the Services and DLA, and selected the Army Discrepancy Reporting System as the basis for the standard system. However, in March 1992, the Joint Logistics Systems Command officially assumed responsibility for the development and formulation of the Single Deficiency Reporting System. As of April 21, 1992, the Joint Logistics Systems Command determined that a more capable system was needed, and the requirements for the improved system needed to be identified. There was no funding for procurement nor was there a projected completion date.

Proposed DFARS revisions. In September 1990, the Defense Acquisition Regulations Council proposed a rule change to the DFARS. The rule change addressed contractor responsibilities to investigate quality deficiencies after supplies were inspected and accepted by the Government (DAR Case 89-073, Product Quality Deficiency Reports). The proposed change contained a clause whereby Defense contractors would agree to investigate product quality deficiencies found by the Government, for up to 4 years after delivery of the last contract item, notwithstanding previous Government inspection and acceptance. The proposed change did not address reimbursement of the costs for conducting investigations. Industry did not support the proposed change because the length of time (4 years) was considered inappropriate and the change appeared to be an attempt by the Government to obtain a service (testing) at no cost. Within DoD, the Office of the Director for Defense Procurement was also concerned about the enforceability of the proposed revision. Therefore, the proposed change was withdrawn and the case closed by the Director, Defense Acquisition Regulations Council. In Finding B we are addressing the need for a DFARs change that relates to products with defects. The proposed change would address the primary concerns of industry and the Director related to this DAR case.

In January 1992, DLA proposed a Defense Acquisition Regulatory Case, "Revocation of Acceptance," which would provide for a remedy for patent defects in products accepted by the Government.

> The Government may revoke acceptance for patent defects in supplies furnished to the Government for a period of one year after acceptance by the Government. The rights and remedies provided in this clause are in addition to any other rights or remedies of the Government contained in this contract or otherwise provided by law.

The proposed change is designed: to require contractors to accept responsibility for correcting patently defective supplies; to give DoD a contractual basis to recover losses when contractors furnish patently defective supplies; to reinforce the policy that DoD is only interested in doing business with responsible contractors; and to provide contractors additional incentive to furnish only conforming supplies.

The DLA case is similar to the revision to the DFARS we included as Recommendation B.1. in this report and as described in Appendix L. The principal differences between the DLA proposed change, and our recommendation is that we limited the patent defects to major and critical defects, and we proposed a unit cost ceiling of $10,000.

PART II - FINDINGS AND RECOMMENDATIONS

A. IDENTIFYING CONTRACTOR QUALITY HISTORIES

Automated programs designed to collect, distribute, and use product quality deficiency information did not adequately identify contractors who historically provided nonconforming electronic components. This occurred because programs employed by the Services and DLA did not electronically interact to provide contracting officers with comprehensive quality deficiency information needed for source selection decisions. Additionally, there were no edit procedures to ensure that PQDR data were accurate and complete. In addition, there was no common standard for determining how many quality deficiencies constituted poor performance by contractors. Further, the amount of electronic quality assurance testing conducted to follow-up on quality problems and to determine the overall quality of new receipts and the validity of PQDRs was inadequate. As a result, DoD contracting officers did not get feedback from the PQDR Program that might have influenced contract awards to 102 suppliers during FYs 1990 and 1991 for electronic components valued at $66 million. In addition, a statistically reliable measure of the quality of electronic components by FSC did not exist. Lastly, there was inadequate assurance that future deliveries from contractors with a history of providing nonconforming products would be subjected to testing prior to or after acceptance.

DISCUSSION OF DETAILS

Background

The PQDR Program was designed to provide feedback to DoD contracting officers. Ultimately, DoD contracting officers will be able to access quality history and other performance data through the Contractor Performance System scheduled for full implementation in June 1994.

DoD contracting officers receive Contractor Alert Lists (CALs) prepared by DLA to identify contractors that have experienced serious quality or safety problems, or an unsatisfactory estimating, purchasing or accounting system review. In addition to CALs, contracting officers in DLA have quality information available to them through the automated Quality Evaluation Program which is a Customer Depot Complaint System (CDCS) subsystem. The CDCS also feeds information into the automated DLA consolidated PQDR System. The PQDR System merges information from each of the DLA Supply Centers so that contracting officers and other personnel can immediately access DLA PQDR information.

DoD contracting officers also have access to DLA Quality Alert Lists and Navy Vendor Data Analysis Reports, both of which identify contractors with quality problems. In the future, DoD contracting officers will have additional information available to them when the automated CAPE and CPS become operational. However, only the nonautomated Contractor Alert Lists, Quality Alert Lists, and Navy Vendor Data Analysis Reports are analytical products designed to identify contractors who have serious performance problems. The programs, systems, and lists, which are sources of product quality deficiency information to the contracting officers, are included in Appendix C.

Contractor Quality History

PQDR information was not used effectively to identify contractors with poor quality histories. PQDRs may be indications of serious quality problems with the products in a contract and the contractor's quality controls. When a PQDR is recorded against a contractor, DoD needs to know if the contractor has serious quality problems, if the nonconformance materially reduces the usability of the product, and if similar quality deficiencies exist in other products supplied by the contractor. Contractors who supply products containing major or critical nonconformances or who have a significant number of PQDRs recorded against them in one FSC should be identified systematically to contracting officers.

Quality of PQDR information. We identified 5,952 PQDRs by merging the PQDR records maintained by the Services and DLA that applied to electronic component National Stock Numbers. We determined that only 1,835 (31 percent) of the 5,952 PQDRs recorded during FYs 1988 through 1990 were completely useful to contracting officers. The remaining 4,117 PQDRs (69 percent) were not completely useful to contracting officers because the PQDRs did not contain contract numbers or contractor identification codes, or the PQDR was a duplicate. The incomplete or duplicate PQDRs recorded against electronic components during FYs 1988 through 1990 by each Service and DLA are shown in Appendix G.

Our review at DESC and DGSC showed that accuracy checks were not effective to ensure that contract numbers and contractor identification codes were included in the PQDRs. In addition, there were no automated edits to ensure that all data fields in the PQDRs were completed. Also, Quality Assurance Specialists at DESC and DGSC did not verify that the automated PQDR information was accurate and complete. PQDRs that lack contract numbers are ineffective because feedback to the contracting officer and the contractor on the nonconforming products cannot be completed. Incomplete PQDR information cannot be incorporated into a

contractor's quality history data base for use in considering future contract awards. This hampers the ability of DoD contracting officers to identify contractors who supply nonconforming products.

Developing quality histories. Within DLA, the Quality Evaluation Program (QEP) was established as the contractor quality history data base to provide the contracting officer immediate access to each contractor's quality history. The development of quality histories should be based on specific criteria relating to past performance. During the audit, we determined that there were 142 contractors who historically provided products with nonconformances that resulted in PQDRs. This determination was made based on our criterion that an average of three or more PQDRs, recorded against each of these contractors in the same FSC during FYs 1988 through 1990, represented poor quality performance. However, of 945 PQDRs recorded against the 142 contractors with a history of providing nonconforming products, the QEP at DESC contained a record of only 201 (21 percent) of the 945 PQDRs.

DESC officials indicated that the PQDRs were not recorded in the QEP for two reasons. First, a manual entry was not made to activate the automatic transfer of records from the CDCS to the QEP. Second, the manufacturer's identifying Commercial and Government Entity codes were erroneously recorded. Therefore, DLA contracting officers did not have access to complete information in the contractor's quality history data base. We did not make a recommendation that would require a significant number of manual entries because manual entries will not be necessary when modernization of the overall system (Standard Automated Material Management System) is completed in FY 1993.

In addition, PQDR information related to the 142 contractors was not readily available to contracting officers in the Services because the Service and DLA PQDR systems did not interact. Consequently, contracting officers in the Services did not know that additional evaluations were appropriate before awarding contracts for electronic components to the 142 contractors. The largest buyers of electronic components in DoD awarded 6,143 contracts, valued at $65.9 million, to 102 of the 142 contractors, that were performing poorly, based on our criteria, during FY 1990 and the first quarter of 1991. No contracts were awarded to the other 40 contractors during the time period.

Quality performance assessment criteria. The criteria for assessing a contractor's past performance in terms of quality deficiencies were not established throughout DoD. The Navy has developed the Red, Yellow, and Green Program to evaluate contractors. This program determines the risk associated with a contractor based on DCMC quality assurance feedback, pre-award

surveys, special quality reviews, reject rates, first article tests, PQDRs, Reports of Discrepancy and waivers/deviations. The Navy PQDR criterion for a high-risk contractor is two or more Category I PQDRs, which are described in the PQDR Program as nonconformances that represent a serious risk to safety of personnel, weapon systems, production lines or combat readiness. Simply stated, Category I PQDRs are major nonconformances that pose a serious risk.

Audit criteria for assessing quality performance. Based on our audit criteria of an average of 3 or more PQDRs over a 3-year period for a poor performer, we determined that there were 142 contractors that were characterized as poor performers. From a more conservative perspective, we believe that three or more PQDRs that describe critical or major nonconformances in one FSC during a 1-year period should be part of the DoD criteria for assessing and evaluating whether a contractor's performance should be categorized as poor. We found that 99 of the 142 contractors met this criterion.

In order to test the effectiveness of the DoD programs designed to identify contractors with a history of providing nonconforming electronic components, we compared the 142 contractors, in our audit test, to the Contractor Alert List (CAL) and the Quality Alert List (QAL). This comparison showed that the CAL included 30 of the 142 contractors and QAL had none. We further analyzed the 142 contractors and found that 15 were charged with 9 or more PQDRs during 1988 through 1990. These 15 contractors were compared to the CAL for the period September 1989 to April 1991, and we found only 4 contractors on the CAL and none on the QAL for the same period (Appendix H).

Contractors with nine or more PQDRS. From FY 1988 through 1990, 245 PQDRs were recorded against the 15 contractors (Appendix I), and 2 contractors accounted for 128 of the 254 PQDRs as follows.

- o UNICOR, a Government corporation, also referred to as Federal Prison Industries (FPI), accounted for 100 PQDRs at 3 factory locations (Oxford, Wisconsin - 40; Lexington, Kentucky - 37; and Memphis, Tennessee - 23).

- o McGuire Products Company accounted for 28 PQDRs.

The absence of PQDR information in the QEP makes both the CAL and the QAL more important to the contracting officer. However, neither the CAL nor the QAL use PQDRs as part of the criteria for inclusion on the lists. The identification of "chronic poor performing contractors" is an objective in the "DLA Action Plan for Continuously Improving the Quality of Spare and Repair Parts in the Defense Logistics Systems." Thus, we believe the CAL

should include contractors with chronic histories of providing nonconforming products as identified through the PQDR process.

PQDRs and large suppliers. Using contract award information from the DD 350 database, we identified the number of PQDRs for each of the 20 contractors (Appendix J) who provided the largest dollar value of electronic components to DoD. We determined that 19 of 20 contractors did not have 9 or more PQDRs in any single FSC (Appendix J). Therefore, we concluded that the high number of PQDRs was due to poor quality controls by the contractor and was not related to the volume of business conducted with DoD.

Quality Information from Testing Activities

Testing activities can be a valuable source of contractor quality information. All of the testing organizations that we visited were preparing PQDRs. However, prior to FY 1990, the Naval Avionics Center, and the Warner Robins Air Logistics Center (WR-ALC), generally did not prepare PQDRs on electronic component test failures.

During a Navy Quality Evaluation of Spare Parts Suppliers test, the Naval Avionics Center identified 60 contractors as "high risk" for certain electronic components. According to the Navy, those contractors had a poor quality record during FY 1988 through 1990. Test failures recorded by the Avionics Center were generally not included in the Navy Product Deficiency Reporting and Evaluation Program. During FY 1990, the Avionics Center started preparing PQDRs based on test failures.

The Electronic Component Screening Program at WR-ALC tested electronic components to ensure that only highly reliable parts were used in the repair or manufacture of certain avionics end items. During calendar year 1989, 5,750 electronic components failed. We determined that 113 potential PQDRs should have been prepared, but only 4 were actually prepared. After being informed of the problem, WR-ALC management instituted procedures in 1991 to ensure that PQDRs were prepared for future test failures.

The contractor quality history data base, which for DLA is the QEP, should contain the results of testing, whether the products pass or fail the tests. At DESC, test and evaluation files contain the results of electronic component testing. However, procedures needed to ensure that the information in the files was recorded in the QEP did not exist at the time of our audit. When tests are conducted at DESC, a test and evaluation file is established (opened) and the file is closed at the conclusion of the test. We estimated that the results of testing were included in the QEP for 224 (75 percent) of the 298 contracts in our audit universe at DESC. This occurred primarily because of an administrative decision to not include positive test results for

all contractors in the QEP. Thus, contracting officers who depend on the QEP for quality related information would not receive all of the information they need to make sound contract award decisions. In our opinion, contracting officers need to know the results of all testing, pass or fail, for each contractor.

Quality Assurance Testing

Our review showed that there was not enough quality assurance testing for electronic components in DoD. Except for DESC, we found that most electronic component testing was not related to quality assurance programs, but was related to maintenance or manufacturing activities. In 1993, DESC will be assigned management responsibility for about 88 percent of the Electronic Component National Stock Numbers. Therefore, DESC is primarily responsible for measuring the effectiveness of quality assurance in the acquisition process. Electronic component quality assurance testing programs should be based on sufficient testing to address the requirements of follow-up, support, and random testing.

Follow-up testing. Follow-up testing is helpful in determining the extent of a quality problem. During FY 1990, the Stock Quality Assurance Program at DESC performed follow-up tests on 623 of the 2,924 test lots containing electronic components shipped from contractors who previously provided defective products. However, we determined that none of the products supplied by 8 of the 15 contractors with 9 or more product quality deficiency reports (Appendix H) were tested during the 18-month period from October 1, 1989, to March 30, 1991. Of the eight contractors, five provided supplies to DESC and three provided supplies to DGSC. We believe that follow-up testing should target contractors who have large numbers of PQDRs, who are on the CALs, or who otherwise are significant quality risks.

For example, the Test Division at DESC identified defective capacitors that were procured for Desert Shield. Most of the capacitors were defective and appeared to be "used capacitors," which were sold as new. Upon discovery, DESC reported the possible fraud to the Defense Criminal Investigative Service. DESC then tested capacitors and other items delivered on four previous contracts from the same supplier. These tests did not reveal any other nonconforming products, but the tests were necessary to confirm the quality of the products delivered. In our opinion, DESC took effective follow-up action to protect themselves and DoD from a potential source of defective electronic components.

Support testing. Often, PQDRs need the supporting scientific and empirical evidence of a laboratory test to determine the extent of a quality problem. A significant portion of the DESC Test Division work load should support testing of products cited on PQDRs. However, of the total FY 1990 work load of 2,924 test lots, only 81, or 2.7 percent were performed to support PQDRs. For example, an electronic capacitor may appear to be defective, but a laboratory test is needed to determine the extent of the capacitance. Laboratory testing is often essential to the determination of a major quality problem.

Random statistical testing. Random statistical testing of new receipts provides a measurable barometer of how well the quality assurance system is working in targeted areas. Of the 2,924 test lots at DESC, 1,748 were based on random selection of new receipts. The tests of new receipts, however, were not conducted using statistical sampling procedures; and the results could not be used as a reliable basis for statistical projection. In our opinion, DESC should target two or three FSCs each year, such as resistors and semiconductors, to determine the relative effectiveness of the Government quality assurance actions provided in those FSCs. The Defense Operations Research and Economic Analysis Office at DLA has developed a statistical sampling plan that would provide for statistical projection to the FSC level. We believe that DESC should modify the method for testing new receipts by using statistical sampling procedures that provide a reliable basis for projecting results to a specific electronic component in the FSC.

Conclusion

The DoD Quality Assurance function needs the support of a standard DoD-wide PQDR system. The incomplete and inaccurate data in the PQDR systems, maintained by the Services and DLA, reflect the limitations of the existing systems to record and store PQDR information. The Joint Logistics Systems Command has assumed responsibility for the development of a standard deficiency reporting system for use in the DoD. Additionally, standard PQDR criteria should be developed to assist in the evaluation of contractor quality and to identify those contractors that should be on the CAL. Also, more laboratory testing of electronic components is needed to ensure that the contracting officer's need for adequate information is effectively supported.

RECOMMENDATIONS, MANAGEMENT COMMENTS, AND AUDIT RESPONSE

1. We recommend that the Director of the Defense Logistics Agency:

a. Define and adopt specific Product Quality Deficiency Report criteria for determining which contractors should be

included on the Contractor Alert List. Those criteria should include a definite number of Product Quality Deficiency Reports that identify critical or major nonconforming products.

DLA comments. The Deputy Comptroller, DLA partially concurred, stating that using a proposed criteria of five or more PQDRs within a 2-year period, may be the appropriate rule of thumb to review whether contractors should be placed on the CAL. The review would consider the merits of the PQDRs and the PQDRs' reflection on the overall quality of the contractor. In no event would the issuance of a fixed number of PQDRs automatically result in a contractor being placed on the CAL without a review and evaluation of those PQDRs. The planned action for establishing the review criteria was to occur by October 30, 1992.

Audit response. An evaluation of the contractor's performance upon receipt of five PQDRs meets the intent of the recommendation.

Navy comments. The Assistant Secretary of the Navy (Research, Development and Acquisition) concurred with the recommendation, stating that categorization of deficiencies into critical, major, and minor is useful for applying resources to the most important problems. On the other hand, all defects should be used to rate a contractor because a defect in one application may be minor but major in another application.

Audit response. The audit report acknowledges that the Navy has developed a contractor rating system. In our opinion, the Navy's Red, Yellow, and Green Program is an excellent rating system.

b. Develop standard recording and reporting procedures that require test and evaluation activities to record and report the results of all Defense Logistics Agency sponsored product quality tests in the Quality Evaluation Program.

DLA comments. The Deputy Comptroller, DLA partially concurred and stated that the requirement existed in DLAM 4155.2 for Defense Supply Centers to include laboratory tests in the QEP for future review by contracting officers. In addition, DLA Supply Centers record and report the results of all DLA sponsored product quality tests through the combination of the DLA System for Analysis of Laboratory Testing (SALT) and the QEP. Further, the PQDR information is recorded in the CDCS. PQDR information in the CDCS will be displayed to contracting officers on future buys for specific products.

Audit response. We do not consider the DLA comments responsive. The QEP is the only system that is available to the contracting officer for immediate use that provides

comprehensive quality information on a given contractor. Although the DLAM 4155.2 requires the recording of laboratory tests in the QEP, the audit showed that 25 percent of the laboratory test results were not entered into the QEP even though the requirement existed. Additional procedures were needed for ensuring that test results were recorded in the QEP for both conforming and nonconforming products. The procedures were needed to ensure that contracting officers were fully informed about a contractors performance. We request that DLA provide comments on the recommendation in response to the final report. The utility of the information in the SALT and CDCS is marginal for the contracting officer because it is difficult and time-consuming for contracting officers to retrieve the information.

c. Develop automated edits to verify that all Product Quality Deficiency Report data fields are completed and that procedures for effective quality control reviews of automated Product Quality Deficiency Reports are accurate and complete.

DLA comments. The Deputy Comptroller, DLA concurred and stated that the automated edits were being developed to verify that PQDR data were complete and accurate. The estimated completion date was August 1, 1992.

2. We recommend that the Commander of the Defense Electronics Supply Center:

a. Perform appropriate follow-up testing of all contractors that supply electronic components who are listed on the Contractor Alert List.

DLA comments. The Deputy Comptroller, DLA concurred and stated that they agreed with follow-up testing on products provided by contractors on the CAL for quality reasons.

Army comments. The Deputy Assistant Secretary of the Army (Procurement) recommended that the source of funding for product testing be included in a policy that holds contractors liable for testing, which is necessary when contractors are on the CAL.

Audit response. The implementation of Recommendation B.1.b. would hold contractors liable for testing costs if major or critical nonconforming products are discovered.

Navy comments. The Assistant Secretary of the Navy (Research Development and Acquisition) concurred and stated that follow-up testing should include the physical analysis of failed items to determine the failure modes and mechanisms internal to the part. The tests should determine if the defect was caused by the contractor or by the user.

b. Perform support testing for all Product Quality Deficiency Reports that need scientific evidence to determine if a nonconformance is valid and major.

DLA comments. The Deputy Comptroller, DLA partially concurred and stated that support testing was provided as needed or required. However, there are instances when the PQDR validity and type of nonconformance can be determined without the need for testing.

Audit response. The audit showed that only 81 of 2,924 test lots were performed to support approximately 800 PQDRs in FY 1990. The audit did not prove that this was an inadequate amount, but the follow-on audits of quality assurance at DESC will address the amount of testing support provided for PQDRs. Therefore, no additional comments are needed for the final report.

Army comments. The Deputy Assistant Secretary of the Army (Procurement) commented that the preferred method of testing is to ensure that the contractor tests provide scientific evidence to determine major nonconformance.

Navy comments. The Assistant Secretary of the Navy (Research, Development and Acquisition) concurred and stated that products should be physically analyzed to determine the reasons that products fail.

c. Use statistical random testing procedures to test specific Federal Supply Classes in the Electronic Component Federal Supply Group.

DLA comments. The Deputy Comptroller, DLA partially concurred with Recommendation 2.c. and stated that it would expand random testing to ensure that each item with technical data managed by DESC will have the opportunity to be selected for laboratory testing. The expanded scope of testing would increase the overall statistical confidence levels for some of the FSCs.

DLA comments on the Finding. The Deputy Comptroller, DLA concurred with Finding A, but disagreed with part of the finding paragraph, which stated there was no assurance that future deliveries from contractors with a history of providing nonconforming products would be tested. DESC actively attempts to identify contractors with a history of nonconformances and to test their products before and after acceptance.

Audit response. We have revised the statement "Lastly, there was no assurance..." in the finding to read: "Lastly, there was inadequate assurance that future deliveries from contractors with a history of providing nonconforming products would be subjected to testing prior to or after

acceptance." The audit showed that the electronic products from contracts awarded to 8 of 15 contractors with a chronic history of poor performance during 1988 to 1990 were not tested by DESC, DGSC, or the Military Services. The lack of testing on products supplied by chronic poor performers shows there was inadequate assurance that future deliveries from contractors with a history of providing nonconforming products would be subjected to testing prior to or after acceptance.

STATUS OF RECOMMENDATIONS

A response from the DLA is required for Recommendation 1.b. The response should cover concurrence or nonconcurrence, proposed action, and the completion date. The recommendation effects internal controls.

B. REIMBURSEMENTS FOR MAJOR AND CRITICAL NONCONFORMING PRODUCTS

DoD does not have an effective contractual or administrative remedy for recovering the cost of major and critical nonconforming products containing patent defects. The current contractual remedies included in the FAR - inspection clauses, warranties, and certificates of conformance - are too costly or difficult to enforce, and depend on voluntary actions by the contractor. In addition, neither the FAR nor the DFARS defines patent and latent defects or adequately addresses a contractor's liability for the testing and administrative costs of discovering defective products after acceptance. Quality assurance systems available to the Government cannot cost-effectively detect most patent defects. Further, reimbursements from contractors are voluntary for products with patent defects. Based on the current rate of reimbursement and trends in the frequency of nonconforming products, DoD would recover only about 5 percent of the approximately $7.8 billion value of major and critical nonconforming products that may be accepted into the Defense Supply System during FYs 1992 through 1997.

DISCUSSION OF DETAILS

Background

The FAR 52.246-2 clause, "Inspection of Supplies--Fixed-Price" states:

> Inspections and tests by the Government do not relieve the Contractor of responsibility for defects or other failures to meet contract requirements discovered before acceptance. Acceptance shall be conclusive, except for latent defects, fraud, gross mistakes amounting to fraud, or as otherwise provided in the contract.

In most cases, the Government owns the material and its defects if it accepts the material, even if acceptance was based on an inadequate contractor or Government inspection.

Under the FAR inspection clauses, the Government has the right to inspect and test all work called for by the contract, to the extent practical at all places and times, including the period of performance, and in any event, before acceptance. The Government may also reinspect, for example, to look for damage in transit or product substitution. The Government can reject defective material, accept it at a reduction in price, or require correction or replacement. If latent defects, fraud, or gross negligence amounting to fraud are determined to have caused acceptance of the item, the acceptance may be revoked.

Latent and Patent Defects

The distinction between a latent and a patent defect can be unclear and the terms are not defined in the FAR or the DFARS. The Armed Services Board of Contract Appeals has determined the essential elements of latent and patent defects through case law. According to the Board's determination, a latent defect is a defect that existed at the time of acceptance and could not be detected by a reasonable product inspection. Similarly, a patent defect is one that can be determined by reasonable inspection or by tests specified in the contract.

Classifying a defect as latent or patent depends on whether the Government could reasonably perform the type of test or inspection needed to make the determination. For example, dimensional defects are normally held to be patent because dimensions are generally easy to test. A defect is normally considered to be latent if the defect cannot be seen without disassembling the unit (and disassembly is not considered reasonable) or determined without continuous operation for a long period. However, depending on the item, and the inspection and testing facilities available, the determination of latent or patent defects can be complex and sometimes requires sophisticated and expensive testing. The eventual determination may require extensive deliberation which, at times, results in litigation between the Government and a contractor.

Inspection Clauses

Historically, Government quality assurance or inspection efforts have not been successful in preventing the acceptance of large amounts of supplies containing patent defects. This problem was described in the DoDIG reports on nonconforming products at WR-ALC and the Defense Industrial Supply Center. Both reports are synopsized in Appendix E of this report.

Quality assurance representatives (QARs), who inspect and accept items at source, are often assigned responsibility for review and approval of items ranging from automobile parts to sophisticated electronic components. Similarly, depot destination receiving inspectors (depot inspectors) inspect and accept shipments containing thousands of items daily. Counting and identifying products and determining the proper packaging for storage of the items are all that depot inspectors can normally accomplish. Patent defects generally are not readily discernible without test equipment, and Government inspection/acceptance is not usually conducted in a test laboratory. Quality inspections that would include laboratory tests are unrealistic and are usually not performed by QARs and depot inspectors.

The 8,178 QARs in DoD do not inspect all products, supplied by the 17,380 contractor facilities, prior to acceptance. In order to perform complete product testing on 100 percent of the contracts, DLA officials estimated that about 40,000 to 50,000 QARs, supported by costly training programs and large investments in test equipment, would be required. The overall cost of 100 percent testing would exceed the monetary benefits from improved quality. Further, the focus of quality assurance within the DoD quality community has changed from one based on extensive quality inspection and testing to a system based more on process control, statistics, and integrity. The changes are most visible in the DLA In-Plant Quality Evaluation (IQUE) Program, which evaluates the contractor's quality control processes and does not normally employ extensive reinspections. Further detail on the IQUE Program is shown in Appendix C.

Warranties

A warranty is a contractual remedy the Government can enforce when defective products are supplied. Warranty guidelines are provided in FAR Subpart 46.7, "Quality Assurance-Warranties." Generally, the derivative benefits of a warranty must be commensurate with its cost to the Government. In determining whether a warranty is appropriate for a specific acquisition, the contracting officer shall consider the nature and use of the supplies and the cost of the warranty. The cost of the warranty is the sum of the contractor's charge for accepting the deferred liability for either patent or latent defects and the cost the government incurs to administer and enforce the warranty.

Spare and repair parts generally have a low unit cost and are purchased in large quantities. Low cost items are generally not cost-effective candidates for warranties. A previous Army study showed that the benefits received from failure-free warranties for low cost items do not justify the cost, or the administrative burden placed on the soldier and the procurement activity to ensure compliance with the provisions of a warranty (see Appendix E). On the other hand, the liability of the contractor should be limited for complex high-cost items with unit costs in excess of $10,000. In our opinion, a cost-effective warranty would be appropriate for the high-cost items.

Certificates of Conformance and Fast Payment Clauses

FAR Subparts 46.504 and 52.246.15, both titled "Certificates of Conformance," provide for individual clauses that are similar to a warranty, but do not carry the same burdens of cost and administration. Certificates of conformance clauses may be used instead of source inspection at the discretion of the contracting officer if the following conditions apply:

> Acceptance on the basis of a contractor's certificate of conformance is in the Government's interest.
>
> (1) Small losses would be incurred in the event of a defect; or
>
> (2) Because of the contractor's reputation or past performance, it is likely that the supplies or services furnished will be acceptable and any defective work would be replaced, corrected, or repaired without contest. In no case shall the Government's right to inspect supplies under the inspection provisions of the contract be prejudiced.

Although there is no contractual obligation for reimbursement, there is a contractual obligation to promptly replace, correct, or repair rejected products at the contractor's expense for a limited period of time and to expedite the acceptance process.

FAR Subpart 52.213 "Fast Payment Procedure," also provides for reimbursement for patent defects. However, the clause applies only for small purchases of less than $25,000 and gives the Government up to 180 days after payment to accept or reject products. Fast payment is exchanged for a certification by the contractor to provide the correct item of supply and to allow the Government up to 180 days to evaluate the products.

Voluntary Reimbursements for Patent Defects

The hope for obtaining reimbursement or replacement of products with patent defects is based primarily on the contractor's business integrity. Even after acceptance, some contractors are willing to reimburse the Government or replace defective products. However, contractors can, and many do, refuse to reimburse the Government for the cost of the item or to replace defective products. In any case, the Government rarely obtains full reimbursement for the cost of the product and the cost of accepting, storing, distributing, identifying, recovering, replacing and disposing of defective products.

Administratively, contracting officers may recommend establishment of an accounts receivable based on a request for reimbursement from contractors who supplied defective products. The debt may include the cost of the defective products, as well as testing, administration, and holding costs. Contractors may appeal the debt and continue doing business with the Government even though there is an outstanding debt. The hope for recoupment against the debt is actually based on the good faith response of the contractor for replacement of the item and not on any binding contract clause.

Major nonconforming products with patent and latent defects amounting to $186 million in 23 FSCs were identified in previous Inspector General, DoD audit reports on nonconforming products at the WR-ALC and at the Defense Industrial Supply Center. These two buying centers attempted to obtain reimbursements for nonconforming products with patent defects. The results showed that reimbursement remedies available to the Air Force and DLA were limited to requests for voluntary reimbursements.

Air Force reimbursements. The Inspector General, DoD Audit Report No. 89-065, "Nonconforming Products in the Defense Supply System at Warner Robins Air Logistics Center," April 10, 1989, reported that in 1987 the Air Force investigated a $1.5 million procurement of conveyer elements for the 30 millimeter Gatling gun and determined they contained patent defects. The contractor who supplied the defective conveyer elements refused to replace the parts, claiming that the Government's acceptance of the parts was final. As part of the WR-ALC audit, a statistical sample identified 55 contracts that contained products with major nonconformances valued at $1.3 million. Since 1989, the Air Force has collected $111,000 from the contractors who supplied the nonconforming products with patent defects.

DISC reimbursements. The Inspector General, DoD Audit Report, No. 90-113, "Nonconforming Products Procured by the Defense Industrial Supply Center," September 27, 1990, statistically projected that $171.6 million was paid for products with major nonconformances. The projection was based on 119 contracts, valued at $1.8 million that contained major nonconforming products. As of April 1991, the Defense Industrial Supply Center had recovered $101,000 on the 119 contracts.

DESC reimbursements. From our audit sample of 93 contracts at DESC, we determined that contracting officers obtained either full or partial reimbursement or replacement of the nonconforming products in 20 of 48 contracts requiring recoupment action. Of the remaining 28 contracts, DESC did not request a reimbursement on 23 contracts and contractors refused the DESC request on the other 5 contracts.

Testing and administration costs. In projecting the cost of the products with patent defects at DESC, we determined that the Government will absorb $239,000 for the full cost of testing, accepting, storing, distributing, identifying, recovering, replacing and disposing of defective products for 298 contracts in the audit universe (Appendix D), as well as $1.9 million for the cost of products with patent defects. In our opinion, those costs should be recoverable as part of the cost of defective products. Our discussion with procurement officials at DESC disclosed that because there was no contractual requirement for

reimbursement, there was no reason to develop procedures for requesting reimbursements for the cost of testing, administration, and storage.

Exceptions to Acceptance

According to FAR standard inspection clauses, the exceptions to acceptance are latent defects, fraud, gross mistakes amounting to fraud or as otherwise provided in the contract. These exceptions are difficult to enforce.

Latent defects. Latent defects are faults present at the time of inspection, but are of such a nature that reasonable inspection would not have disclosed them. The Government has a heavy burden of proof to enforce the FAR inspection clause because it must prove that the defects were actually present at the time of inspection and could not have been discovered by use of reasonable care. If defects are discovered by the exercise of reasonable care (inspection), they are considered patent rather than latent defects. The General Services Administration provides an example in its Contract Quality Assurance text regarding detection of patent defects in castings.

Excessively porous castings are usually not identified through ordinary quality assurance inspections. However, because these castings may be useless for some applications if they break, the Government is expected to practice reasonable care. Knowing that porosity can be a problem, the Government should provide for inspection, such as radiography to detect excessive porosity, which is considered to be a patent defect. In our opinion, similar scenarios can be repeated for a significant portion of the millions of different items procured by DoD.

Another example of the difficulty in establishing a solid latent defect case was found in the Inspector General, DoD audit report, "Nonconforming Products Procured by the Defense Industrial Supply Center." The report showed that the Commander of the Supply Center issued a Government-Industry Data Exchange Program (GIDEP) safety alert in September 1989 on low smoke electrical wire cable. The safety alert stated that smoke from the cable could be toxic when the cable burned. The defective jacketing material used on the cable adversely affected 189 National Stock Numbered items used on a variety of ships and submarines. The value of the contracts containing the defective products was about $14.4 million. As of July 1991, 22 months after the GIDEP safety alert, DLA still had not recouped funds based on the latent defect claim.

Gross mistakes. Proving contractor gross mistakes is also a difficult task for the Government. The Government must show that the contractor simply or blatantly ignored, although perhaps not intentionally, proper quality assurance standards or other

contract requirements. Proving allegations of willful negligence that borders on fraud is also a slow and expensive process, which requires the Government to provide evidence that the contractor avoided recognized quality standards and intentionally provided nonconforming products.

On September 26, 1990, DESC issued a GIDEP alert involving resistors with possible latent defects. A large manufacturer, who was qualified to supply approximately 5,500 different resistors each with a separate National Stock Number, unilaterally altered the manufacturing process. The unauthorized alteration will shorten the operation period for the resistors from 10,000 hours to 5,000 hours. The defective resistors may cause premature failure in many DoD weapon systems to include radar, guidance, and communications systems. Although resistors are inexpensive, the labor cost to identify and replace the defective resistors will be expensive. As of September 1991, DESC was still attempting to define the scope of the problem caused by those latent defects.

Potential Reimbursements for Major Nonconforming Products

DoD plans to procure about $18.2 billion of spare parts and clothing and textile items during FY 1992. Assuming that spare parts procurements are reduced by 25 percent over the next 5 years, DoD will procure about $96.3 billion of these items from FYs 1992 through 1997. DLA test records indicate that about 10 percent of the items they procure contain major nonconformances. Based on an estimated annual improvement rate of 9 percent for major nonconforming products and an annual reduction of 5 percent for overall procurements, we calculated that the cost of major nonconforming products will be about $7.8 billion during FYs 1992 through 1997. We also calculated potential reimbursements for major nonconforming products with both patent and latent defects to range from $370 million to $1.85 billion through 1997. In addition, we calculated potential reimbursements for testing and administering major nonconforming products to range from $29 million to $245 million through 1997. The potential reimbursements for major nonconforming products, the testing to identify major nonconforming products, and the administration and storage of major nonconforming products are calculated to be $399 million to $2.1 billion through 1997. Our calculations are shown in Appendix K.

Conclusion

Patent defects can be costly and can represent a safety risk to personnel. The primary options for the Government for addressing patent defects include warranties and total inspection before acceptance. However, warranties and total inspection are not cost-effective for low-cost, high-volume, small-dollar procurements, which are characteristic of spare and repair parts.

Warranties are difficult and costly to administer and total inspection should not be necessary when the supply source is competent and creditable.

Quality assurance testing should not be used as a means to "test in quality." Whenever testing after acceptance is conducted solely to identify nonconforming products and eliminate those products from the inventory, DoD is performing the function that the supplier should perform. On the other hand, when quality assurance testing is used selectively to measure effectiveness of the overall quality assurance system in the acquisition process, then DoD receives a lasting benefit from the testing program through the identification of contractors who supply nonconforming products.

The quality assurance testing programs in DoD need the enforcement support created by full recoupments for major and critical nonconforming products. Contractors who provide nonconforming products must know that the Government has the right to reimbursement or replacement of major and critical nonconforming products. This knowledge should discourage incompetent and dishonest contractors whose products constitute a risk to the safety of personnel or to the reliability of end items. Ultimately, contractors must be held accountable for providing quality products.

A previously proposed DFARS revision, discussed in "Other Matters of Interest," generated widespread opposition by industry because contractors would have been required to investigate product quality deficiencies for up to 4 years after delivery of the last contract item. The proposal was withdrawn because the length of time (4 years) was considered inappropriate. We believe that a period of 1 year after Government acceptance is a reasonable time period for the Government to identify products supplied with patent defects.

A reporting mechanism is needed to enable DoD policy makers to assess the effectiveness of efforts to enforce contractor accountability. The Assistant Secretary of Defense (Production and Logistics) and other managers need to be kept informed annually about the amount of reimbursements for critical and major nonconforming products containing patent and latent defects that the Services and DLA obtain from contractors.

RECOMMENDATIONS, MANAGEMENT COMMENTS, AND AUDIT RESPONSE

1. We recommend that the Director of Defense Procurement direct the Defense Acquisition Regulations Council to revise the Defense Federal Acquisition Regulation Supplement to:

a. Include major and critical nonconformances in spare and repair parts, clothing and textiles, and consumables priced at

less then $10,000 per item as exceptions to acceptance in Federal Acquisition Regulation Subpart 52.246-2 (m). Acceptance in the revised Defense Federal Acquisition Regulation Supplement would be conclusive, except for latent defects, fraud, gross mistakes amounting to fraud, and major or critical nonconformances. The specific wording of the revision is included in Appendix L.

b. Make contractors liable for the cost of laboratory testing performed if major and critical nonconforming products are discovered either prior to acceptance or up to 1 year after acceptance. The specific wording of the revision is included in Appendix L.

c. Develop standard definitions for latent and patent defects for inclusion in the Defense Federal Acquisition Regulation Supplement. The specific wording of the revision is included in Appendix L.

Director of Defense Procurement comments. The Director of Defense Procurement nonconcurred with Recommendations B.1.a. and B.1.b., stating that to add major or critical nonconformances to the circumstances under which acceptance would not be conclusive, would amount to a warranty. The Director also commented that making contractors liable for the cost of laboratory testing performed if major or critical nonconforming products are discovered would create a contingent liability that contractors would build into their prices resulting in higher contract costs.

The Director concurred with Recommendation B.1.c., stating that the FAR should include definitions of latent and patent defects. The Director will also request that the Defense Acquisitions Regulations Council open a case to consider the definitions proposed in the audit report.

Principal Deputy Assistant Secretary of Defense comments. The Principal Deputy stated that he generally supported the recommendations.

Army comments. The Deputy Assistant Secretary of the Army (Procurement) concurred and stated that these efforts by themselves will not achieve the true objectives of good quality that are the elimination of quality deficiencies in the first place. The Deputy also recommended rewording Recommendation B.1.b. to:" ...the cost of Government or independent laboratory testing necessary as a result of discovery of major or critical nonconforming products either prior..." This revised wording recognizes that the revision of contractor testing procedures can suffice and can be substantially cheaper than conducting Government or independent laboratory testing.

Navy comments. The Assistant Secretary of the Navy (Research, Development and Acquisition) concurred with the need

for the recommendations and stated that minor nonconformances should also be included. Furthermore, there may be no Government inspection for products such as integrated circuits until a situation arises that makes it apparent that a vendor's quality has fallen off. By that time, large quantities of circuits may be shipped and installed before it is discovered the circuits have nonconformances. In this case, it becomes very expensive to locate the circuits with nonconformances. Furthermore, the costs for special test equipment or laboratory testing should be passed on to the manufacturer or distributor of poor quality products. The Assistant Secretary also cited similar problems and costs associated with semiconductors. The costs associated with screening inventory should be passed on to the vendors of the poor quality products.

DLA comments. The Deputy Comptroller, DLA in response to Recommendation B.3. stated that until the DAR Council adopts the recommended DFARS changes or a variant proposed by DLA then the ability of DoD to obtain postacceptance reimbursements for nonconforming products will remain on a voluntary basis.

Audit response. Adding major or critical nonconformances to the circumstances under which the finality of acceptance would not be conclusive fills a void in the remedies available to DoD against suppliers who do not comply with contract specifications. The effect of adding major or critical nonconformances to the exceptions of acceptance provides real incentive to contractors to implement the quality controls needed to ensure that they provide products that do not contain major or critical nonconformances. Paying lower prices to contractors who do not have effective quality controls is false economy and ultimately leads to a higher cost for DoD.

In our opinion, the Director of Defense Procurement speculated that the price of products will increase if contractors are liable for what amounts to retesting to discover major or critical nonconformances. However, we do not believe that prices of competent contractors will increase. Competent contractors are confident of their quality controls, and their liability is minimal because their products rarely contain major or critical nonconformances. Furthermore, the Assistant Secretary of Defense (Production and Logistics) Army, Navy, and Defense Logistics Agency all commented on the need for the DFARS change. Accordingly, we request that the Director provide comments on Recommendations B.1.a. and B.1.b. in response to the final report.

While the Director concurred with Recommendation B.1.c., the Director did not provide a date for establishing the DFARS case. We therefore request that the Director provide a date for establishing the DFARS case.

2. We recommend that the Assistant Secretary of the Army (Research, Development, and Acquisition), the Assistant Secretary of the Navy (Research, Development and Acquisition), the Assistant Secretary of the Air Force (Acquisition), and the Director, Defense Logistics Agency:

a. Report the reimbursements, obtained from contractors for critical and major nonconforming products, to the Assistant Secretary of Defense (Production and Logistics) at least annually through FY 1997 if and when Recommendation B.1.a. is implemented.

Army comments. The Deputy Assistant Secretary of the Army (Procurement) concurred with Recommendation 2.a.

Navy comments. The Assistant Secretary of the Navy (Research, Development and Acquisition) nonconcurred with Recommendation 2.a. because the data bases and methodologies that are prerequisite to effective implementation are not in place. The Assistant Secretary also stated that revising the DFARS through the implementation of Recommendation B.1.a. was also a necessary prerequisite for the Navy to proceed with obtaining and reporting reimbursements.

Air Force comments. The Assistant Deputy Assistant Secretary (Management Policy and Program Integration), Office of the Assistant Secretary (Acquisition) made no specific comments on the recommendation. However, the Assistant Deputy stated that the Air Force will join with Army and Navy to support DCMC and OSD in the pursuit of an effective and economical approach to quality assurance.

DLA comments. The Deputy Comptroller nonconcurred with Recommendation 2. as stated in the draft report because a requirement to report voluntary replacements or refunds (the only current remedy for major and critical nonconformance products discovered after acceptance) would not be of sufficient value to justify the costs. The Deputy Comptroller also commented that when acceptance is no longer conclusive for critical or major patent nonconformances, there would a true need for reporting collection activity, and DLA would readily provide such information.

Audit response. Based on comments, we have modified the recommendation to make it conditional on the revision of the DFARS as recommended in Recommendation B.1.a. Accordingly, we request the Army, Navy, and Air Force provide additional comments to the revised recommendation.

b. Provide comments supporting the establishment of the two Defense Federal Acquisition Regulation Supplement cases included in Recommendations B.1.a. and B.1.b. These comments

should help inform the Director of Defense Procurement how the changes to the DFARS will benefit DoD.

Added recommendation. Recommendation 2.b. was added to the report to give the Military Departments and DLA the opportunity to inform the Director of Defense Procurement of the benefits to be obtained and the problems that can be remedied by revising the DFARS in accordance with Recommendations B.1.a. and B.1.b.

3. We recommend that the Director, Defense Logistics Agency, develop standard supply center procedures for obtaining full reimbursements from contractors for major and critical nonconforming products, to include the cost of the products and all related testing, administration, and storage costs.

DLA comments. The Deputy Comptroller partially concurred with Recommendation 3., stating that until there is a DFARS revision that changes the conclusiveness of acceptance for patent defects, postacceptance reimbursement will have to remain on a voluntary basis. Advisory guidance would be provided to the field for determining when and how to request voluntary refunds.

Audit response. The DLA comments satisfy the intent of the recommendation.

Deleted recommendation. We deleted draft report Recommendation B.4. because there was not enough product remaining in the inventory to justify the additional administrative cost required to implement the recommendation.

STATUS OF RECOMMENDATIONS

		Response Should Cover:			
Number	Addressee	Concur/ Nonconcur	Proposed Action	Completion Date	Related Issues
1.a.	Director of Defense Procurement	X	X	X	
1.b.	Director of Defense Procurement	X	X	X	
1.c.	Director of Defense Procurement			X	
2.a.	Navy	X	X	X	IC
	Air Force	X	X	X	IC
2.b.	Army	X	X	X	
	Navy	X	X	X	
	Air Force	X	X	X	
	DLA	X	X	X	
3	DLA				

C. PRODUCT QUALITY DEFICIENCY REPORT PROGRAM

The PQDR Program within DoD was incomplete. Procedures were not adequate to verify that all quality deficiency information needed by other Federal agencies was accounted for and reported to the GIDEP. In addition, the PQDR Program does not provide for adequate feedback on nonconforming products accepted and inspected at destination. Further, the program does not differentiate between major and minor nonconformances through incorporation of the standard DoD definitions (Appendix F) for critical, major, and minor nonconformances. Consequently, feedback from the PQDR Program does not provide all the information needed to improve the acquisition process or to ensure the safety of the public.

DISCUSSION OF DETAILS

Background

Proposed changes to the PQDR Program are staffed by a joint working group of representatives from each of the Services and DLA. The working group reports to the DoD Quality Council and is responsible for maintaining the Joint Services Regulation "Product Quality Deficiency Report Program," which was promulgated in the Services under the same title as Army Regulation 702-7, Secretary of the Navy Instruction 4855.5, Air Force Regulation 74-6, Marine Corps Order 4855.5F, and DLA Regulation 4155.24.

Government-Industry Data Exchange Program

The Government-Industry Data Exchange Program (GIDEP) collects and records quality deficiency data and enables Government and industrial organizations to exchange technical information applicable to Government contracts and equipment. Until recently, participation in GIDEP was voluntary. On April 15, 1991, the Office of Management and Budget, Office of Federal Procurement Policy, published Policy Letter No. 91-3, "Reporting Nonconforming Products," requiring Federal agencies to participate in the failure experience data interchange portion of the GIDEP data base.

The intent of Policy Letter 91-3, was to establish a central Federal system for exchanging information on nonconforming products that would be useful to other Federal agencies or that would protect the public. This information exchange would help eliminate instances where Federal agencies or their contractors acquire products and materials previously identified as nonconforming by other Federal agencies. DoD organizations generally participate in the GIDEP, but there are no controls to ensure compliance with Policy Letter 91-3. Our audit sample at DESC showed no evidence that any PQDRs were evaluated to

determine if they should be reported to GIDEP. The PQDR Program employs Standard Form 368 (SF 368), "Product Quality Deficiency Report," to report product quality deficiencies. However, the SF 368 is not used to record the evaluations and determinations pertaining to GIDEP reporting. The SF 368 would be an excellent tool for controlling GIDEP reporting requirements because it is already established as the DoD standard reporting form for quality deficiencies.

Destination Acceptance

During the audit, DESC did not report nonconforming electronic components previously accepted at destination to the five Defense Contract Management Command (hereafter referred to as Contract Management Command) districts because DLA Regulation 4155.24 does not require it. DLA officials stated that reporting nonconforming products accepted at destination would increase QAR work load. Therefore, DLA headquarters decided that instead of reporting deficiencies to the Contract Management Command, DESC and the other supply centers could record deficiencies in the Customer Depot Complaint System, which provides the deficiency information to contracting officers for administrative use.

From our audit sample of 93 contracts at DESC, 60 had nonconforming electronic components. Of the 60 contracts, 39 were accepted at destination. There were no PQDRs sent to the Contract Management Command on the 39 contracts. We estimate that 125 of the 298 contracts in the audit universe contained nonconforming electronic components accepted at destination.

In our opinion, the Defense Supply Centers should forward all PQDRs to the QARs at the five Contract Management Command districts to ensure that product quality deficiencies will be investigated, that contractor quality control breakdowns will be identified, and that the contractor will make improvements and corrections before providing more products to the Government. If the QARs work load becomes too great to complete the action on every PQDR, the Contract Management Command should prioritize the work load. QARs should at least inform the contractor of each possible deficiency as described on SF 368 and thereby, standardize communication and maintain accountability and control over product quality deficiencies.

Identification of Major and Critical Nonconformances

Contractors who supply nonconforming components should be identified based on the significance of the quality problem and the number of PQDRs reported. Since the revision of the DFARS Subpart 246.407, nonconforming products are defined as critical, major, or minor; and contracting officers are to use these definitions in determining conformance with contract requirements. However, corresponding changes were not made to

record nonconformances as critical, major, or minor on the SF 368. The SF 368 should also be used to record the Service Engineering Support Activities' determination of whether a nonconformance was critical, major, or minor.

Conclusion

The PQDR Program, as described in the DoD Quality Program, was designed to provide for cross reporting of nonconforming products between the Services and DLA; provide necessary corrective actions throughout the acquisition and support process; and maintain contractor quality history. However, the PQDR Program needs improvement. Revisions that will help improve the program include: reporting applicable nonconformances to GIDEP, reporting destination inspected nonconforming products to the Contract Management Command and the contractor, and identifying nonconforming products as critical, major, or minor.

RECOMMENDATIONS FOR CORRECTIVE ACTION

We recommend that the Assistant Secretary of Defense (Production and Logistics) direct the DoD Quality Council to revise the Joint Services Regulation DLAR 4155.24, "Product Quality Deficiency Report Program" and Standard Form 368, "Product Quality Deficiency Report," as follows:

1. Incorporate the requirements of Policy Letter 91-3, "Reporting Nonconforming Products," Office of Management and Budget, Office of Federal Procurement Policy, to report information on nonconforming products that would be useful to other Government agencies or that would protect the public. Specifically, the revision should include a requirement to evaluate nonconformances to determine if they meet the criteria for a Government-Industry Data Exchange Program alert.

2. Require that quality deficiency information on products inspected and accepted at destination be reported to the Defense Contract Management Command on Standard Form 368.

3. Incorporate the definition of critical, major, and minor nonconformances as promulgated in Defense Federal Acquisition Regulation Supplement, Subpart 246.407, "Nonconforming Supplies or Services."

4. Include a separate section in Standard Form 368 for the determination and classification of nonconformances as either critical, major, or minor.

MANAGEMENT COMMENTS

The Principal Deputy Assistant Secretary of Defense (Production and Logistics) concurred with all recommendations. The Principal

Deputy stated that implementing action on Recommendation C.1. would occur when DLA revised DLAR 4155.24 during the second quarter of 1992, and the revision will include a requirement to evaluate nonconformances to determine if they meet the criteria for a Government-Industry Data Exchange Program alert. On Recommendation C.2., DLA issued a policy letter to require PQDR information to be submitted to DCMC on materiel inspected and accepted at destination that contained nonconformances caused by the contractor. On Recommendations C.3. and C.4., the Principle Deputy stated that the revised DLAR 4155.24 would include the definitions of critical, major, and minor nonconformances and require classification of nonconformances as critical, major, or minor on the SF 368 form.

PART III - ADDITIONAL INFORMATION

APPENDIX A: ELECTRONIC COMPONENT FEDERAL SUPPLY CLASSES

Federal Supply Class	Nomenclature	DESC Capable to Test */
5905	Resistors	Yes
5910	Capacitors	Yes
5915	Fuses and Lightning Arrestors	Yes
5920	Filters and Networks	Yes
5925	Circuit Breakers	Yes
5930	Switches	Yes
5935	Electrical Connectors	Yes
5940	Lugs Terminals and Terminal Strips	No
5945	Relays and Solenoids	Yes
5950	Coils and Transformers	Yes
5955	Piezoelectric Crystals	Yes
5960	Electron Tubes and Associated Hardware	Yes
5961	Semi Conductor Devices and Associated Hardware	Yes
5962	Microcircuits - Electronic	Yes
5963	Electronic Modules	No
5965	Headsets Handsets Microphones and Speakers	Yes
5970	Electrical Insulators and Insulating Material	No
5975	Electrical Hardware and Supplies	No
5977	Electrical Contact Brushes and Electrodes	No
5980	Optoelectronic Devices and Associated Hardware	Yes
5985	Antennas, Waveguides and Related Equipment	Yes
5990	Synchros and Resolvers	No
5995	Cable Cord Wire Assemblies	No
5998	Circuit Cards and Circuit Assemblies	No
5999	Msc Electrical and Electronic Components	Yes

*/ During the audit, the DESC Director of Quality provided information regarding the ability of the Test and Evaluation laboratory to test by Federal Supply Class.

APPENDIX B: TRANSFER SCHEDULE OF ELECTRONIC COMPONENTS

	Number of NSNs [1]	Candidates for Transfer to DLA			Total Candidates
		1991	1992	1993	
Army: (Consumables)		13,195	N/A[2]	N/A[2]	13,195
CECOM[3]	14,692				
Missile Command	10,003				
Others	12,027				
Navy: (Consumables)		12,007	24,657	17,600	54,264
Ships Parts Control Center	61,003				
Aviation Supply Office	24,268				
Marine Corps	176				
Air Force: (Consumables)		42,006	25,201	31,623	98,830
Warner Robins ALC[4]	33,477				
Sacramento ALC[4]	27,870				
San Antonio ALC[4]	21,707				
Others	25,616				
DLA: (Consumables and Nonconsumables)		All Transfers to DESC			
DESC	908,348				
DGSC	87,409				
Total	1,226,596				166,289

[1] NSNs -- National Stock Numbers items as of November 1990
[2] N/A -- Not applicable because the Army did not have its candidates identified as of July 1991
[3] CECOM -- Communications-Electronics Command
[4] ALC -- Air Logistics Center

APPENDIX C: SOURCES OF QUALITY DEFICIENCY INFORMATION

IQUE - (In-Plant Quality Evaluation) The program is managed by DCMC. IQUE information is available through the Contractor Improvement Program and by request for information through DCMC. IQUE relies on quality auditing principles and statistical techniques. The DLA Manual 8200.5, "In-Plant Quality Evaluation," provides a description of the IQUE concept that concentrates on knowledge of contractor processes. According to the manual, IQUE is designed to examine the adequacy of contractor processes to consistently produce conforming products and to identify opportunities for process improvements through analysis of process measurement data. It incorporates the need for comprehensive knowledge of product and the processes associated with its design, development, and production. Through use of auditing principles and statistical techniques, IQUE assesses the adequacy of contractor processes and promotes reduction in process variation, leading to continuous improvement.

CAPE - (Contractor Assessment-Product Evaluation) The program is managed by DLA Headquarters. CAPE information will be available to DLA personnel through the Standard Automated Management System. Initiated in June 1991, CAPE will provide a comprehensive assessment of contractor quality performance when fully operational in the fourth quarter of FY 1992. A major objective of CAPE is to ensure that contractors with good quality histories are preferred over contractors with poor quality histories in awarding contracts. The CAPE program determines contractor capabilities from the following sources of quality performance information: testing by DLA laboratories; independent laboratory testing conducted by the Service laboratories or commercial laboratories; product quality auditing and product receipt evaluations of contractor supplied parts in DLA depots; first article tests; investigation of PQDRs; and the IQUE program. DLA plans to conduct in excess of 15,000 tests each year in support of the CAPE program. The majority of testing will be accomplished at new or enhanced laboratory test facilities at the Sharpe Army Depot, New Cumberland, and Columbus Defense Depot. The quality performance information generated from testing can be used to determine contractor responsibility, select the best value sources and appropriate contract quality requirements, or recommend debarment based on poor performance.

CPS - (Contractor Profile System) The system is managed by DLA Headquarters. CPS information will be available through the Modernization of Contract Administration Services system. CPS was initiated in January 1990, and will collect and share aggregate contractor performance information with all DoD agencies, the Services, and DLA when fully operational in June 1994. The information provided will be considered in making source selection decisions. CPS is expected to be an on-line system that will provide a profile of a contractor's performance history. Contracting officers will have access to large amounts of contract/contractor data from numerous Government and commercial activities for consideration prior to the award of a contract. Major contractor data areas included in the CPS will be mobilization planning, preaward survey, quality assurance, financial/cost performance, and integrity.

CAL - (Contractor Alert List) The CAL is managed by DLA Headquarters. The list is routinely distributed to DoD contracting officers. It serves a notice to contracting officers that the DCMC has placed a contractor in the Contractor Improvement Program because a condition exists at the contractor's facility, which the contracting officer should consider prior to awarding future contracts.

CDCS - (Customer Depot Complaint System) The system is managed by DLA Supply Centers. CDCS information is available throughout DLA. The system is designed to standardize and automate the processing of customer and depot complaints. CDCS establishes a record of product quality deficiencies reported in PQDRs and Reports of Discrepancy and retains these records for 5 years.

DRS - (Deficiency Reporting System) The system is managed by the Army Materiel Command. DRS information is available to subordinate Army commands. The system is used to record and disseminate automated contractor quality deficiency information initiated in the Army.

INFOCEN - (Information Center) The system is managed by the Air Force Logistics Command. INFOCEN information is available to all of the Air Force Logistics Centers. The system is used to record PQDRs and Reports of Discrepancy and disseminate automated contractor quality deficiency information within the Air Force.

PDREP - (Product Deficiency Reporting and Evaluation System) The system is managed by the Navy. PDREP information is available to Navy procurement activities. The system is used to record and disseminate automated contractor quality deficiency information initiated in the Navy.

QAL - (Quality Alert List) The QAL is managed by DLA Headquarters. The list is routinely distributed to DoD contracting officers. The QAL is a list of contractors with quality problems that require contractor top management involvement. The QAL identifies contractors that cannot or will not affect corrective action in their own operations or at subcontractor facilities. DLA plans to make the QAL part of the CAL in FY 1992.

QEP - (Quality Evaluation Program) The program is managed by DLA Supply Centers. QEP information is available, as a subsystem of the CDCS, to DLA contracting officers. It is an automated program that records contractor quality performance and provides contracting officers access to it.

VDAR - (Vendor Data Analysis Report) The report is managed by the Navy. The VDAR is distributed throughout the Navy and is also provided to DLA for use in compiling the Contractor Alert List. The report identifies contractors who have a history of providing poor quality products to the Navy.

APPENDIX D: STATISTICAL SAMPLING METHODOLOGY

Universe and sample at DESC. A random statistical sample was selected at DESC to analyze quality assurance actions resulting from electronic component screening. Based on information provided by DESC, we identified an audit universe of 2,428 test lots of electronic components that were tested in FY 1990. A "lot" is a specific portion of a contract. Of the 2,428 test lots, 375 reported electronic components with at least one failure. An audit universe of 298 contracts, valued at $5.4 million, was constructed from the 375 test lots that failed a specific test. A random selection of 100 test lots was selected from the 375 test lots. An audit sample of 93 contracts was identified that was related to the 100 test lots. These 93 contracts were evaluated as a representative sample of the 298 contracts in the audit universe.

Statistical projection estimates. Statistical projections were based on a 95-percent confidence level with a precision of ±8.4 percent for attributes and ±53 percent for variables. We estimated that PQDRs for nonconforming products were required on 161 (±31) of the 375 test lots. We also estimated that the cost of nonconforming products related to the PQDRs represented $2.1 million (±$1.1 million) of the $5.4 million dollar value for the 298 contracts.

APPENDIX E: SYNOPSIS OF PRIOR AUDITS AND OTHER REVIEWS

Inspector General, DoD Report No. 90-113, "Nonconforming Products Procured by the Defense Industrial Supply Center," September 27, 1990, reported that: the estimated value of major nonconforming parts procured by the Supply Center in 1986 and 1987 was $171.6 million; and the PQDR Program was ineffective and incomplete. PQDRs were not included in the Quality Evaluation Program, and PQDRs were not prepared when nonconforming products were accepted at destination. DLA generally concurred with recommendations to correct the problems and stated that implementation of the "DLA Action Plan for Continuously Improving the Quality of Spare and Repair Parts in the DoD Logistics System," would cover the intent of the recommendations.

Inspector General, DoD Report No. 89-065, "Nonconforming Products in the Defense Supply System at Warner Robins Air Logistics Center," April 10, 1989, reported that $14.4 million of spare parts were unusable and that the Air Force Quality Deficiency Reporting System did not provide an adequate data feedback system or a reflection of the quality of spare parts provided to the field. The report made two recommendations to improve the Quality Deficiency Reporting System. Air Force management concurred with both recommendations.

Inspector General, DoD Inspection Report No. 90-INS-17, "DoD Quality Assurance Program," August 29, 1990, reported that administrative contracting officers were not seeking consideration for excessive amounts of minor nonconforming material. The report recommended that DLA establish and implement policy that ensured that consideration would be sought for each contract containing nonconforming material. DLA nonconcurred with the recommendation stating that its policy was consistent with the FAR. It was resolved that the proposed actions in the DLA Action Plan for Continuously Improving the Quality of Spare and Repair Parts would provide the needed improvements to the quality of products.

Army Audit Agency Report of Audit, "Quality of Materiel U.S. Army Materiel Command," January 16, 1990, reported that data essential to manage and evaluate the quality deficiency investigation and resolution process either were not recorded or were not recorded correctly. The report made three recommendations to correct the problems. Management nonconcurred with two of the recommendations, but stated that a planned on-line system would correct the reported problems. The Army Audit Agency agreed that the command actions would resolve the problems in the long-term, but stated that until the revised on-line system and controls were operational, the system would be subjected to the same wholesale data omissions, inaccuracies, and incompleteness found during the audit.

Army Audit Agency report, "Army Warranty Program, U.S. Army Communications-Electronics Command, Fort Monmouth, New Jersey," December 3, 1990, reported that $110,000 was spent on warranties for navigational equipment that could be repaired for an estimated $56,000. The report also showed that warranties often expired before they were exercised, warranty claims were not processed promptly, warranted material was issued without adequate documentation, and warranty provisions were not enforced. The report made recommendations to improve warranty acquisitions, administration, and management. Management agreed with all of the recommendations.

Air Force Audit Agency Report No. 89062016, "Management of the Depot Maintenance Quality Assurance Program," September 20, 1990, reported that quality deficiency reports were not adequately analyzed to ensure prompt resolution of quality defects, and that installation maintenance organizations were not reporting all quality defects. The report made two recommendations to correct the problems. Management concurred with both recommendations.

The Office of Product Assurance and Testing, Army Materiel Command, analyzed the Army's warranty program in April 1990. The analysis criticized the failure-free warranty coverages used by the Army. The analysis found that failure-free warranties were disguised maintenance contracts that guaranteed full payment to the contractor whether or not the failures were identified through warranty claim actions. The benefits received from failure-free warranties did not justify the cost or the administrative burden placed on the soldier and the procurement activity to ensure compliance with the warranty provisions.

APPENDIX F: DEFINITIONS FOR NONCONFORMANCES

DFARS 246.407 Nonconforming supplies or services.

(1) Contracting officers shall use the following MIL-STD-109 definitions in determining conformance with contract requirements --

(i) "Critical nonconformance" is a nonconformance that judgment and experience indicate --

(A) Is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the supplies or services; or

(B) Is likely to prevent performance of a vital agency mission.

(ii) "Major nonconformance" is a nonconformance, other than critical, that is likely to result in failure, or to materially reduce the usability of the supplies or services for their intended purpose.

(iii) "Minor nonconformance" is a nonconformance that is not likely to materially reduce the usability of the supplies or services for their intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the supplies or services.

(2) Contracting officers shall ensure that --

(i) Nonconformances are identified; and

(ii) The significance of a nonconformance is established when considering the acceptability of supplies or services that do not meet contract requirements.

(f) If nonconforming material or services are discovered after acceptance, the defect appears to be the fault of the contractor, any warranty has expired, and there are no other contractual remedies, the contracting officer --

(i) Shall notify the contractor in writing of the nonconforming material or service;

(ii) Shall request that the contractor repair or replace the material, or perform the service, at no cost to the Government; and

(iii) May accept consideration if offered. For guidance on solicitation of a refund, see Subpart 242.71.

APPENDIX G: PRODUCT QUALITY DEFICIENCY REPORTS RECORDED AGAINST ELECTRONIC COMPONENTS

	PRDRs Including Duplicates[1]						
	Army	Navy	Air Force	DLA	Totals	Separate PQDRs	Duplicate PQDRs
Complete CAGE[2] and Complete Contract[3]	581	608	794	1,708	3,691	1,847	1,844
No CAGE and Complete Contract[4]	21	20	106	757	904	666	238
Complete CAGE and No Contract[5]	76	47	452	140	715	378	337
No CAGE and No Contract[6]	35	13	96	498	642	485	157
	713	688	1,448	3,103	5,952	3,376	2,576

[1] PQDRs recorded against National Stock Numbered electronic components during FYs 1988 through 1990. PQDRS were recorded in the Army Deficiency Reporting System, the Navy Product Defeciency Reporting and Evaluation System, the Air Force Information Center and the Defense Logistics Agency Customer Depot Complaint System.

[2] CAGE -- Commercial and Government Entity Code.
[3] Contractor and contract number identified.
[4] Contractor not identified and contract number identified.
[5] Contractor identified and contract number not identified.
[6] Contractor and contract number not identified.

APPENDIX H: COMPARISON OF CONTRACTORS TO ALERT LISTS

CONTRACTORS[1]	CAGE CODE[2]	NUMBER OF PQDRs[3]	FOLLOW-UP TEST[4]	CONTRACTOR ALERT LIST	QUALITY ALERT LIST
American Trans-Coil Corporation	18212	15	0	NO	NO
Electro Dynamics Crystals Corporation	18853	11	44	YES	NO
Freed Transformer Company	73386	15	0	NO	NO
Hytronics Corporation	29525	9	0	NO	NO
Litton Potentiometer Division	04454	13	4	NO	NO
M P D Incorporated	33173	9	0	NO	NO
McGuire Products Company	00814	28	2	NO	NO
Microtech Incorporated	54647	9	4	YES	NO
Miller R A Industries Incorporated	05211	9	0	NO	NO
National Electronics	83781	9	1	YES	NO
Sonetronics Incorporated	16575	9	7	NO	NO
Struthers Electronics Corporation	00341	9	1	YES	NO
UNICOR FPI[5] - Oxford, Wisconsin	53753	40	0	NO	NO
UNICOR FPI[5] - Lexington, Kentucky	54736	37	0	NO	NO
UNICOR FPI[5] - Memphis, Tennessee	55928	23	0	NO	NO
		245			

1/ Contractors with nine or more PQDRs recorded against them during FY 1988 through 1990
2/ CAGE -- Commercial and Government Entity Code
3/ Number of PQDRs in one Federal Supply Class
4/ Follow-up Tests Recorded in QEP for Contracting Officers's Review
5/ UNICOR Federal Prison Industries

APPENDIX I: CONTRACTORS WITH NINE OR MORE PRODUCT QUALITY DEFICIENCY REPORTS

CONTRACTOR	CAGE[1] CODE	FSC[2]	NUMBER OF[3] PQDRs	VALUE OF CONTRACTS ISSUED DURING FY 1990[4]
American Trans-Coil Corporation	18212	5950	15	$ 69,000
Electro Dynamics Crystals Corporation	18853	5955	11	93,000
Freed Transformer Company	73386	5950	15	429,000
Hytronics Corporation	29525	5950	9	178,000
Litton Potentiometer Division	04454	5905	13	574,000
M P D Incorporated	33173	5960	9	895,000
McGuire Products Company	00814	5905	28	244,000
Microtech Incorporated	54647	5985	9	516,000
Miller R A Industries Incorporated	05211	5985	9	2,847,000
National Electronics	83781	5960	9	984,000
Sonetronics Incorporated	16575	5965	9	944,000
Struthers Electronics Corporation	00341	5985	9	190,000
UNICOR FPI[5] - Oxford, Wisconsin	53753	5995	40	1,692,000
UNICOR FPI[5] - Lexington, Kentucky	54736	5995	37	5,751,000
UNICOR FPI[5] - Memphis, Tennessee	55928	5995	23	6,159,000
			245	$21,565,000

1/ CAGE -- Commercial and Government Entity Code

2/ FSC -- Federal Supply Class

3/ PQDRs received during 1988 through 1990 against contracts awarded prior to 1990, most of which were awarded prior to 1986 and a few before 1980.

4/ Contracts awarded during the first 5 months of Fiscal Year 1991 are included in the contracts awarded by: Communications-Electronics Command, Warner Robins and Sacramento Air Logistics Centers and the Defense General Supply Center.

5/ UNICOR FPI -- Federal Prison Industries.

APPENDIX J: LARGEST SUPPLIERS OF ELECTRONIC COMPONENTS

CONTRACTOR NAME	CITY	ST	NUMBER OF PQDRs [2]	PROCUREMENT DOLLARS [1] ($000) FY90	FY88 and 89	TOTAL
Hughes Aircraft Company	Fullerton	CA	12	$98,509	$318,888	$417,397
Unisys Corporation	St. Paul	MN	7	89,216	207,443	296,659
Westinghouse Electric Corporation	Baltimore	MD	6	58,427	51,292	109,719
Rockwell International Corporation	Anaheim	CA	4	57,711	91,903	149,614
Varian Associates	Beverly	MA	8	57,077	15,711	72,788
International Business Machines Corp.	Manassas	VA		52,099	133,290	185,389
CAE Link Corporation	Binghamton	NY		35,616	49,892	85,508
UNICOR - Federal Prison Industries [3]	Washington	DC	106	31,992	60,055	92,047
Raytheon Company	Marlboro	MA		24,020	3,268	27,288
Martin Marietta Corporation	Orlando	FL		20,362	41,263	61,625
Watkins-Johnson Company	San Jose	CA		16,369	693	17,062
Hughes Aircraft Company	Los Angeles	CA	5	15,975	10,374	26,349
Motorola Incorporated	Scottsdale	AZ		15,922	28	15,950
Loral Electronic Systems	Yonkers	NY	1	15,563	377	15,940
Loral Defense Systems Akron	Akron	OH	1	14,949	0	14,949
Rockwell International Corporation	Cedar Rapids	IA	11	13,429	12,755	26,184
Magnavox Govt & Indstrl Electronics	Torrance	CA		12,779	65	12,844
ITT Corporation	Van Nuys	CA	4	11,711	1,857	13,568
Harris Corporation	Melbourne	FL		11,144	1,624	12,768
Varian Associates	San Carlos	CA	5	11,089	17,251	28,340

1/ Contracts awarded to contractors based on specific Dunn and Bradstreet identification numbers recorded in the DD350 data base of Individual Contract Action Reports.

2/ Product Quality Deficiency Reports recorded against all Federal Supply Classes in the Electronic Component Federal Supply Group. Only UNICOR had more than nine PQDRs recorded in one FSC. The PQDRs recorded against Hughes Aircraft Company and Rockwell International Corporation products were in two or more Federal Supply Classes.

3/ Procurement dollar figures were obtained from UNICOR - Federal Prison Industries (FPI). PQDRs were recorded against seven different FPI factories.

APPENDIX K: CALCULATION OF POTENTIAL REIMBURSEMENTS FOR MAJOR AND CRITICAL NONCONFORMANCES

Calculated Amount of Major and Critical Nonconformances during 1992-1997

FY 1992 Planned Procurement of Spare Parts, and Clothing and Textiles	$18.2 Billion[1]
Calculated Rate of Major Nonconforming Products By DLA Based on Test Results as of August 1991	.10[2]
Calculated Major Nonconforming Products in FY 1992 Procurement	$ 1.82 Billion

DLA's Major Nonconforming Products Annual Improvement Rate: 9 Percent[3]

Major Nonconforming Products Calculated[4]

For: FY 1992	$1.82 Billion
FY 1993 ($17.29 Billion x .091)	1.57 Billion
FY 1994 ($16.42 Billion x .082)	1.35 Billion
FY 1995 ($15.59 Billion x .075)	1.17 Billion
FY 1996 ($14.81 Billion x .068)	1.01 Billion
FY 1997 ($14.07 Billion x .062)	0.87 Billion
Total	$7.79 Billion

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[1] The amount of spare parts is expected to decline. An estimated reduction of 25 percent over 5 years is included in the annual calculations.

[2] DLA calculated rate based on actual testing of parts in 53 Federal Supply Groups during the past 3 years. In the audits of nonconforming products at DISC and WR-ALC, major nonconformance by dollar value was 16.8 and 13.0 percent, respectively. Therefore, the 10-percent rate appears to be conservative based on previous audits.

[3] DLA rate of annual improvement was based on FY 1991 experience of a 9-percent rate of improvement during the year. DLA officials believed this rate was representative of the improvement expected through 1997.

[4] Estimated procurement of spare parts, and clothing and textiles multiplied by the DLA expected rate of major nonconforming products.

Calculated Range of Reimbursements and Replacements for the $7.79 Billion Based on a Range of Potential Identification Rates.

Range of potential identification rates of major nonconforming products during FYs 1992-1997 (5 Percent, 15 Percent and 25 Percent)[5/]

($7.79 Billion x .05) = $389 Million
($7.79 Billion x .15) = $1.17 Billion
($7.79 Billion x .25) = $1.95 Billion

Adjustment for voluntary reimbursements and replacements based on a 5 percent voluntary reimbursement rate[6/]

($389 Million x .95) = $370 Million
($1.17 Billion x .95) = $1.11 Billion
($1.95 Billion x .95) = $1.85 Billion

5/ Range of 5 percent through 25 percent identification rates is based on the potential effectiveness of increased testing of products provided by contractors with a history of providing nonconforming products.

6/ Based on recoupment experiences at Warner Robins Air Logistics Center, Defense Industrial Supply Center and Defense Electronics Supply Center, the expected voluntary recoupment is about 5 percent.

Calculated Range of Costs of Laboratory Testing, and Administration and Storage of Nonconforming Products Based on a Range of Nonconforming Products Identification Rates through DoD Laboratory Testing (1992-1997).

The cost of laboratory testing, storage, distribution, identification, recovery, replacement and disposition of nonconforming products is approximately 10 percent ± 25 percent (.075 to .125)

The range for those cost was based on major nonconforming products identified during testing (1992-1997).

$389 Million = $ 29 Million to $ 49 Million
$1.17 Billion = $ 88 Million to $146 Million
$1.96 Billion = $147 Million to $245 Million

Calculated Range of Reimbursements and Replacements for Nonconforming Products, Cost of Laboratory Testing, and Administration and Storage of Nonconforming Products (1992-1997).

	Low Range	High Range
Nonconforming Products	$370 million	$1,850 million
Laboratory Testing, Administration & Storage	$29 million	$245 million
Total	$399 million	$2,095 million

APPENDIX L: PROPOSED ADDITIONS TO DEFENSE FEDERAL ACQUISITION REGULATION SUPPLEMENT

246.302 Fixed-price supply contracts. The contracting officer shall substitute paragraphs (a), (k), and (m) in DFARS 252.246-2, Inspection of Supplies - Fixed Price, in place of paragraphs (a), (k), and (m) of FAR clause 52.246-2, Inspection of Supplies - Fixed Price, in solicitations and contracts for supplies, or services that involve the furnishing of supplies with a fixed-price contract and the unit cost of the supplies is less than $10,000.

252.246-2 Inspection of Supplies - Fixed Price. As prescribed in 246.302 substitute paragraphs (a), (k), and (m) below for paragraphs (a), (k), and (m) of FAR clause 52.246-2 Inspection of Supplies - Fixed Price.

252.246-2(a) Definitions. The term "Supplies," as used in this clause, includes but is not limited to raw materials, components, intermediate assemblies, end products, and lots of supplies.

"Patent Defect" as used in this clause means a defect that can be determined by a reasonable inspection or an inspection specified by contract; one that is open to observation, is readily discernible or easily observed.

"Latent Defect" as used in this clause means a defect that is not easily detected, that would require testing beyond that considered reasonable to determine the defect, or that could be detected only after long hours of operation.

252.246-2(k) Inspections and tests by the Government do not relieve the contractor of responsibility for defects or other failures to meet contract requirements discovered before acceptance. Acceptance shall be conclusive, except for latent defects, fraud, gross mistakes amounting to fraud, certain major or critical nonconformances as described in 52.246-2(m), or as otherwise provided in the contract.

252.246-2(m)	Acceptance is not conclusive for major and critical nonconformances in spare and repair parts, clothing and textiles, and consumables procured by the Defense Logistics Agency, or those non-end items procurements made by the Services priced at less than $10,000 per item. If major and/or critical nonconforming products exist, the Government has one year after acceptance to identify them to the contractor. When major and/or critical nonconforming products are identified to the contractor within one year, the provisions in FAR 52.246-2(l) apply.

APPENDIX M: SUMMARY OF POTENTIAL BENEFITS RESULTING FROM AUDIT

Recommendation Reference	Description of Benefit	Amount and/or Type of Benefits
A.1.a.	Program Results. DoD components will have standard PQDR criteria for determining whether a contractor should be included on the Contractor Alert List.	Monetary benefits cannot be reasonably estimated.
A.1.b.	Internal Control. DLA can ensure that all product quality testing results are included in the contractor's quality history data base.	Nonmonetary
A.1.c.	Internal Control. Defense Supply Centers improve the accuracy of information in the contractors quality history data base.	Nonmonetary
A.2.a.	Program Results. DESC expands the testing program to measure the quality of specific Federal Supply Classes.	Benefits included in Recommendation B.1.a.
A.2.b.	Program Results. DESC expands testing to include the products of known poor performers.	Monetary benefits cannot be reasonably estimated.
A.2.c.	Program Results. DESC expands testing to provide independent scientific support for quality deficiency examinations.	Monetary benefits cannot be reasonably estimated.
B.1.a.	Program Results. Provides a significant remedy for unusable products. Covers a gap in the procurement regulation that undermines quality assurance and it increases the benefits of quality assurance testing after acceptance.	Monetary benefits cannot be reasonably estimated.
B.1.b.	Program Results. Makes contractors liable for the cost of testing performed to determine that a product has a major nonconformance.	Monetary benefits cannot be reasonably estimated.

APPENDIX M: SUMMARY OF POTENTIAL BENEFITS RESULTING FROM AUDIT
(continued)

Recommendation Reference	Description of Benefit	Amount and/or Type of Benefits
B.1.c.	Program Results. Develops standard definitions for use in the Defense Federal Acquisition Regulation Supplement.	Nonmonetary.
B.2.a.	Internal Control. Provides oversight for obtaining monetary benefits from Recommendation B.1.a. and B.1.b.	Monetary benefits to be determined by the Military Services and DLA and reported through 1997. A reasonable estimate of monetary benefits cannot be calculated.
B.2.b.	Program Results. Develops support for regulatory change that benefits the missions of the Military Services and DLA.	Nonmonetary.
B.3.	Program Results. Develops standard recoupment procedures for defective products.	Monetary benefits cannot be reasonably estimated.
C.1.	Internal Control. Ensures compliance with Laws and Regulations. Incorporates intent of Office of Federal Procurement Policy Policy Letter 91-3 to report information on nonconforming products useful to other Government agencies.	Nonmonetary.
C.2.	Internal Control. Revises the joint regulation, DLAR 4155.24, to include destination inspected products in the provisions for the PQDR Program.	Nonmonetary.
C.3.	Internal Control. Incorporates the nonconformance definitions, as stated in DFARS 246.407, into DLAR 4155.24.	Nonmonetary
C.4.	Internal Control. Revises Standard Form 368 to include a section to define the degree of nonconformance.	Nonmonetary

APPENDIX N: DETAILED AUDIT RESPONSES TO FEDERAL PRISON INDUSTRIES COMMENTS

The comments provided by the Federal Prison Industries (FPI) indicates a commitment to improve product quality. Also, FPI points out some basic management deficiencies in the PQDR Program. However, some FPI comments incorrectly minimize quality control problems or incorrectly interpret the meaning of audit evidence.

FPI comment. PQDRs do not provide an overall assessment of contractor quality. An overall assessment should include deficiency rates and take into account the nature of the products and contractual acceptance rates.

Audit response. We agree that an overall assessment of a contractor's quality should include more than just PQDRs. However, valid PQDRs that represent quality deficiencies caused by the manufacturer are indications of quality controls that need improvement.

FPI comment. Many PQDRs identified in the Report have not been returned to FPI.

Audit response. Copies of PQDRs that reflect quality deficiencies caused by the manufacturer should be provided to the contractor. We provided the report control numbers for the PQDRs that we used in the audit report to FPI. FPI informed us that DLA was unable to provide copies of the PQDRs to them. In our opinion, this is a poor reflection on the management of the PQDR Program. We offered to provide FPI copies of the PQDRs that we collected as part of our follow-on audit of recoupments for defective products. Of 106 PQDRs that we refer to in this report, we provided 81 hard copy PQDRs on Standard Form 368, automated information from the DLA Customer Depot Complaint System for 12 PQDRs and the report control numbers, contract numbers and National Stock Numbers for 13 other PQDRs. FPI will have to request additional information from DLA and the Army Communications-Electronics Command on the last 13 PQDRs.

FPI comment. It should be noted that many of the PQDRs are testimonials to FPI product quality. They indicate the extremely low-level of nonconformance to the quantities produced.

Audit response. Historically, only a small number of PQDRs are prepared by the Military Services because of the difficulty in accomplishing the required PQDR paperwork in field environments. Valid PQDRs that represent quality deficiencies caused by the manufacturer are indications of quality controls that need improvement. Unless PQDRs are investigated, the extent of the nonconformances in the

inventory will not be known. The PQDRs recorded against FPI do not appear to have been investigated. We are examining that possibility in our follow-up audit.

FPI comment. It is reassuring to see that FPI's warranty/refund policy is effectively working, as reimbursement is frequently being provided for contracts with contractor caused nonconformances.

Audit response. FPI replaced all of the nonconforming cables that were returned. The FPI "lifetime" warranty is honored at each of the FPI factories we contacted. However, the replacement of a cable is only a small part of the total cost associated with a nonconforming product that fails in use. The maintenance costs for assembly and disassembly are often much more costly than the component cost.

FPI comment. In order to prevent confusion and the drawing of erroneous conclusions, FPI requests that the report clearly state at the outset, that the report was not designed to yield information concerning the quality of contractors products, and that the report should not be interpreted to yield such information.

Audit response. In Part I of the audit report, we qualified the scope of the report under use of computerized information to state that we used PQDRs to identify 142 contractors with a history of providing products with nonconformances that resulted in a PQDR and that PQDRs by themselves do not provide a complete overview of a contractor's quality. The audit results only pertain to quality problems in one FSC for each contractor. The audit did not identify a contractor with quality problems in more than one FSC. The primary objective of the audit was to determine if contracting officers received and appropriately acted on quality assurance information. PQDRs represent a significant source of quality assurance information that identifies the need for improved manufacturing quality controls.

FPI comment. FPI as a long time provider of cable assemblies to DoD, has a fine reputation for quality, and is eager to work in partnership with DoD to improve the PQDR evaluation process.

Audit response. The large number of PQDRs recorded during fiscal years 1987, 1988, and 1990 against FPI contracts awarded during the period from 1978 to 1989 indicates that FPI had quality control problems with the manufacture of electronic cable cord wire assemblies. If products are manufactured in accordance with contract specifications, there should not be multiple PQDRs that identify a specific contractor as the cause of the nonconformance. When multiple PQDRs are recorded against a specific contractor, DLA should investigate to determine the extent of the problem and alert the contracting officer involved.

The FPI stated they were not aware of any quality problems until they were informed by the Office of the Inspector General, DoD of the number of PQDRs recorded against FPI. FPI has stated that the PQDR information will be used to improve their quality processes. In August 1991, FPI informed us that they were instituting a Quality Director in the FPI Headquarters to ensure that appropriate quality controls were maintained at all FPI factories. This is the type of positive reaction that should occur when DLA brings PQDRs to the attention of any contractor.

FPI comments. FPI commented that they were concerned that the audit report will be misused despite the stated objectives of the audit report to evaluate the DoD quality assurance system and not the quality of FPI or other contractors' products. FPI stated that counting the number of PQDRs pertaining to a particular contractor reveals very little about the quality of the contractor's product. In order to assess quality, it is necessary to determine the rate of deficiencies. FPI noted that FPI contracts included in the audit represented over 300,000 units shipped.

FPI also commented on the use of dollar value as an indicator of deficiency rate, referring to page 19 in the draft report (page 11 in the final report) that the number of PQDRs was "due to poor quality controls by the contractor and was not related to the volume of business conducted with DoD." FPI noted that the dollar value was not necessarily a good reflector of the number of items provided because, depending on the product, a single item may account for much of the entire dollar amount. Also, the dollar value says nothing about the types of items provided.

Audit response. Our audit did not assess the quality controls at FPI factories. The audit showed that DoD was not using the information that was collected for the PQDR Program and was not effectively managing the information in the PQDR

Program. However, quality deficiencies rarely occur when manufacturing processes have strong quality controls. The number of PQDRs recorded against FPI indicates there was a quality control problem. Our comparison with other contractors that have a large volume of business with DoD was an attempt to ascertain if volume was the reason for large numbers of PQDRs.

APPENDIX O: ACTIVITIES VISITED OR CONTACTED

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition, Washington, DC
Assistant Secretary of Defense (Production and Logistics), Washington, DC
Director of Defense Procurement, Washington, DC
Deputy Assistant Secretary of Defense (Logistics), Washington, DC
Deputy Assistant Secretary of Defense (Production Resources), Washington, DC
Director, Defense Acquisition Regulations Council, Arlington, VA

Department of the Army

Assistant Secretary of the Army (Research, Development and Acquisition), Washington, DC
Army Materiel Command, Alexandria, VA
  Communications-Electronics Command, Fort Monmouth, NJ
  Tobyhanna Army Depot, Tobyhanna, PA
  Sacramento Army Depot, Sacramento, CA

Department of the Navy

Assistant Secretary of the Navy (Research, Development and Acquisition), Washington, DC
Naval Air Systems Command Headquarters, Arlington, VA
Washington Navy Yard, Washington, DC
Naval Avionics Center, Indianapolis, IN
Naval Sea Systems Command Headquarters, Arlington, VA
  Naval Material Quality Assessment Office, Portsmouth, NH
  Naval Weapon Support Center, Crane, IN
Space and Naval Warfare Systems Command, Arlington, VA
  Naval Electronic Systems Engineering Activities, Saint Inigoes, MD
Naval Supply Systems Command Headquarters, Arlington, VA
  Aviation Supply Office, Philadelphia, PA
  Ship Parts Control Center, Mechanicsburg, PA
Government-Industry Data Exchange Program, Corona, CA

Department of the Air Force

Office of the Assistant Secretary of the Air Force (Acquisition) Washington, DC
Air Force Logistics Command, Wright Patterson Air Force Base, Dayton, OH
Sacramento Air Logistics Center, McClellan Air Force Base, Sacramento, CA
Warner Robins Air Logistic Center, Warner Robins Air Force Base, Warner Robins, GA

APPENDIX O: ACTIVITIES VISITED OR CONTACTED (continued)

Defense Agencies

Defense Logistics Agency, Alexandria, VA
  Defense Electronics Supply Center, Dayton, OH
  Defense General Supply Center, Richmond, VA

Non-DoD Agencies

Office of Management and Budget, Office of Federal Procurement Policy, Washington, DC
General Accounting Office, Washington, DC
Department of Justice, Federal Prison Industries, Washington, DC

APPENDIX P: REPORT DISTRIBUTION

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition
Assistant Secretary of Defense (Production and Logistics)
Assistant Secretary of Defense (Public Affairs)
Director of Defense Procurement
Deputy Assistant Secretary of Defense (Logistics)
Deputy Assistant Secretary of Defense (Production Resources)

Department of the Army

Secretary of the Army
Assistant Secretary of the Army (Financial Management)
Assistant Secretary of the Army (Research, Development, and Acquisition)
Commander, Army Materiel Command
Commander, Communications-Electronics Command

Department of the Navy

Secretary of the Navy
Assistant Secretary of the Navy (Financial Management)
Assistant Secretary of the Navy (Research, Development and Acquisition)
Commander, Naval Air Systems Command
Commander, Naval Sea Systems Command
Commander, Naval Supply Systems Command
Commander, Aviation Supply Office
Commander, Ship Parts Control Center
Director, Naval Material Quality Assessment Office
Program Manager, Government-Industry Data Exchange Program

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)
Deputy Chief of Staff of Logistics and Engineering
Commander, Air Force Logistics Command
Commander, Sacramento Air Logistics Center
Commander, Warner Robins Air Logistics Center

Defense Activities

Director, Defense Logistics Agency
Commander, Defense Electronics Supply Center
Commander, Defense General Supply Center

Department of Justice

Department of Justice, Inspector General
Department of Justice, Federal Prison Industries

When this report is produced in final form, it will be distributed to additional interested parties in the Department of Defense, as well as to the following non-DoD Federal organizations.

Non-DoD Federal Organizations

Office of Management and Budget
U.S. General Accounting Office, NSIAD Technical Information Center
Department of Justice, Federal Prison Industries

Congressional Committees:

Subcommittee on Defense, Senate Committee on Appropriations
Ranking Minority Member, Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Ranking Minority Member, Senate Committee on Armed Services
Senate Committee on Governmental Affairs
Ranking Minority Member, Senate Committee on Governmental Affairs
House Committee on Appropriations
Ranking Minority Member, House Committee on Appropriations
Subcommittee on Defense, House Committee on Appropriations
Ranking Minority Member, Subcommittee on Defense, House Committee on Appropriations
House Committee on Armed Services
Ranking Minority Member, House Committee on Armed Services
House Committee on Government Operations
Ranking Minority Member, House Committee on Government Operations
Subcommittee on Legislation and National Security, House Committee on Government Operations
Ranking Minority Member, Subcommittee on Legislation and National Security, House Committee on Government Operations

PART IV - MANAGEMENT COMMENTS

Office of the Assistant Secretary of Defense (Production and Logistics)

Director of Defense Procurement

Assistant Secretary of the Army (Research, Development, and Acquisition)

Assistant Secretary of the Navy (Research, Development and Acquisition)

Assistant Secretary of the Air Force (Acquisition)

Director Defense Logistics Agency

Federal Prison Industries

PRODUCTION AND LOGISTICS

THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON DC 20301-8000

April 9, 1992

MEMORANDUM FOR INSPECTOR GENERAL

SUBJECT: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

We have reviewed the subject draft report enclosed in your February 6, 1992, memorandum. This response addresses the recommendations directed to Production and Logistics in Part IIC.

We concur with Recommendation C.1 to revise the joint Service regulation on the Product Quality Deficiency Report (PQDR) Program to include a requirement to evaluate nonconformances to determine if they meet the criteria for a Government-Industry Data Exchange Program alert. This revision is already in progress. DLA has indicated that publication of the revised regulation is expected in the second quarter of 1992.

We concur with the intent of Recommendation C.2 to require PQDR submittal to Defense Contract Management Command (DCMC) on material inspected and accepted at destination. The recommendation should be narrowed to include only those nonconformances that are caused by the contractor. We believe that this limited category of PQDRs actually provides more useful information because information on nonconformances where the cause is not determined is likely to distort contractor performance analyses. DLA has issued a policy letter, DLA/DCMC-Q Letter No. 91-5 dated September 13, 1991, to implement this narrower recommendation.

We also concur with Recommendation C.3 to incorporate the definitions of critical, major, and minor nonconformances into the joint regulation. This will be included in the revised regulation which will be published in the second quarter of 1992.

We concur with the intent of Recommendation C.4 to include classification information on SF 368. The requirement to include critical, major, or minor nonconformance classification on the form has been added to the text of the draft revised regulation.

In summary, we generally support all of your recommendations in this report and appreciate your assistance in improving the Product Quality Deficiency Report Program. We intend to continue our liaison with DLA to assure that the revised regulation is published in a timely manner. Any questions on this response may be addressed to Mr. Ira Epstein at 756-2323.

David J. Berteau
Principal Deputy
Assistant Secretary of Defense
for Production & Logistics

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OFFICE OF THE UNDER SECRETARY OF DEFENSE

WASHINGTON, DC 20301-3000

ACQUISITION

APR 07 1992

DP (DARS)

MEMORANDUM FOR DEPUTY ASSISTANT INSPECTOR GENERAL, GAO AND AUDIT FOLLOW-UP

THROUGH: CHIEF, CONGRESSIONAL ACTIONS AND INTERNAL REPORTS 8APR92

SUBJECT: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. OCF-0062)

This responds to your February 6, 1992, memorandum requesting comments on the subject draft audit report.

We agree that the Federal Acquisition Regulation (FAR) should be revised to include definitions of latent and patent defects. I will ask the Director of the Defense Acquisition Regulations Council to open a case for consideration of your proposed definitions.

We do not agree with your recommendation to revise the clause at FAR 52.246-2 to include major and critical nonconformances of spare and repair parts, clothing and textiles, and consumables as exceptions to acceptance, or to add "major or critical nonconformances" of these items to the list of circumstances under which acceptance would not be conclusive. The proposed revision would be tantamount to a warranty and, as stated in the draft report at page 40, warranties are not cost-effective for low cost, high volume, small dollar procurements.

25

We do not agree with the proposed revision to the FAR inspections clause at 52.246-2, which would make contractors liable for the cost of laboratory testing performed if major and critical nonconforming products are discovered either prior to acceptance or up to one year after acceptance. The proposed change would shift additional cost risk to all contractors, and would create a contingent liability that contractors would build into their prices, ultimately resulting in higher contract costs.

Eleanor Spector

Eleanor R. Spector
Director of Defense Procurement

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, DC 20310-0103

REPLY TO ATTENTION OF

15 APR 1992

SARD-PC

MEMORANDUM FOR DEPARTMENT OF DEFENSE INSPECTOR GENERAL (AUDITING), WASHINGTON, DC

SUBJECT: Draft DODIG Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. OCF-0062)

We concur with the draft report's recommendations provided it is recognized that these efforts will not by themselves secure the true objectives of a good quality program--the elimination of quality deficiencies in the first place. Certain other comments (see enclosure) are provided for your consideration.

Questions concerning this subject should be directed to Mr. R. L. Endicott at telephone 695-0255. The opportunity to comment on the draft report is greatly appreciated.

George E. Dausman
Deputy Assistant Secretary of the Army
(Procurement)

Enclosure

RECOMMENDATION	COMMENT
Part A. 2a.	Recommend the report address the funding source for these tests. Consider a policy that holds contractors liable for the testing necessary when they are on the "alert list."
2b.	The preferred method is to ensure contractor tests provide scientific evidence to determine major nonconformance.
Part B. 1b.	Recommend re-wording the recommendation as follows: "... the cost of Government or independent laboratory testing necessary as a result of discovery of major or critical nonconforming products either prior ..." This revised wording recognizes that the revision of contractor testing procedures can suffice and can be substantially cheaper than conducting government or independent laboratory testing.

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

APR 17 1992

MEMORANDUM FOR DOD INSPECTOR GENERAL, DIRECTOR OF CONTRACT MANAGEMENT

Subj: NAVY COMMENTS ON DRAFT DOD IG REPORT, OCF-0062 ON QUALITY ASSURANCE ACTIONS RESULTING FROM ELECTRONIC COMPONENT SCREENING

Encl: (1) Department of the Navy comments

The Department of the Navy generally concurs in the recommendations and corrective actions of the report except for recommendation 2 of finding B. Enclosure (1) contains specific comments which are provided to add to or clarify the recommendations and corrective actions.

Gerald A. Cann

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DEPARTMENT OF THE NAVY COMMENTS

Finding A:1.a.(Page 24) 14

"We recommend that the Director of the Defense Logistics Agency define and adopt specific Product Quality Deficiency Report criteria for determining which contractors should be included on the Contractor Alert List. Those criteria should include a definite number of Product Quality Deficiency Reports that identify critical or major nonconforming products."

DON Comments: Concur. Categorizing deficiency criteria into Critical, Major, and Minor is useful in determining where to expend scarce resources to identify the root causes of defects, but when it comes to seeking restitution or rating/ranking contractors for quality all defective product should be used irrespective of category of defects found. It isn't always clear-cut how to categorize defects because a minor defect for one application may be a major or critical defect for another. Much of the cost attributed to the defective product is incurred in determining what it's category should be and what actions should be taken.

Finding A:1.c. (Page 25) 15

"We recommend that the Director Defense Logistics Agency develop automated edits to verify that all Product Quality Deficiency Report data fields are completed and that procedures for effective quality control reviews of automated Product Quality Deficiency Reports are accurate and complete."

DON Comments: Concur. The effort described here to develop automated edits to assure data fields are completed will be very helpful; however, it is just as important, if not more so, to assure that the data is accurate. That effort cannot be automated but can only be accomplished by the exercise of discipline on the part of those who manage the process and fill out the forms.

Finding A:2.a .& b. (Page 25) 15 &

A2.a. "We recommend that the Commander of the Defense Electronic Supply Center perform appropriate follow-up testing of all contractors that supply electronic components who are listed on the Contractor Alert List." 16

A:2.b. "We recommend that the Commander of the Defense Electronic Supply Center perform support testing for all Product Quality

1 Enclosure(1)

Deficiency Reports that need scientific evidence to determine if a non-conformance is major."

DON Comments: Concur. The follow-up testing addressed here should include the physical analysis of failed items to determine the failure modes and mechanisms internal to the part. For instance, if resistors are often found to be open we need to determine if it is open because of a manufacturing defect related to the manufacturing process or if it is open because someone applied too much voltage. The cost of such evaluations should be included in the analysis that determines what costs should be borne by the vendor.

Finding B:1.a. (Page 42) 26

We recommend that the Director of Defense Procurement direct the Defense Acquisition Regulations Council to revise the Defense Federal Acquisition Regulation Supplement to include major and critical nonconformances in spare and repair parts, clothing and textiles, and consumables priced at less than $10,000 per item as exceptions to acceptance in Federal Acquisition Regulation Subpart 52.246-2 (m). Acceptance in the revised Defense Federal Acquisition Regulation Supplement would be conclusive, except for latent defects, fraud, gross mistakes amounting to fraud, and major or critical nonconformances. The specific wording of the revision is included in appendix M."

DON Comments: Concur. Minor category should be included because under IQUE, and QML for integrated circuits, there may be no government inspection at all until a situation arises that makes it apparent that a vendors quality is falling off and a need for corrective action is perceived. By that time, large quantities may be shipped, lot and contract traceability lost because of mixing in bins, and parts may be installed before it is discovered that they are bad which will make it very expensive to locate the product and determine on a case by case basis whether or not the application requires replacement.

Finding B:1.b. (Page 42) 27

"We recommend that the Director of Defense Procurement direct the Defense Acquisition Regulations Council to revise the Defense Federal Acquisition Regulation Supplement to make contractors liable for the cost of laboratory testing performed if major and critical nonconforming products are discovered either prior to acceptance or up to one year after acceptance. The specific wording of the revision is included in appendix M."

DON Comments: Concur. The Navy has established that the defect rate for semiconductors should be no more than 100 parts per million. If defect rates are greater than 100 parts per million, then ASN requires that the parts be re-screened, a process that

adds additional cost to contracts, especially if the requirement to do so wasn't included in the contract at the outset. This is a very difficult requirement to implement at places like SPCC, inventory control points, shipyards, etc., requiring special test equipment and facilities or access to outside laboratories and funding for contracting the work out. These types of costs should be passed on to the vendors of poor quality semiconductors; either the manufacturers or the distributors. The means of acquiring and keeping track of these data are not currently in place.

Finding B:2. (Page 43) 28

"We recommend that the Assistant Secretary of the Army (Research, Development, and Acquisition), the Assistant Secretary of the Navy (Research, Development, and Acquisition), the Assistant Secretary of the Air Force (Acquisition), and the Director, Defense Logistics Agency, report the reimbursements, obtained from contractors for critical and major nonconforming products, to the Assistant Secretary of Defense (Production and Logistics) at least annually through FY 1997."

DON Comments: Do not concur. The databases and methodologies recommended by this report, and which are a prerequisite to the effective implementation of this recommendation, are not yet in place. The databases that do exist are incomplete, inaccurate, and uncoordinated as is pointed out by this report. The resources and acquisition regulation change recommended in B 1, are also a necessary prerequisite.

Finding C: PRODUCT QUALITY DEFICIENCY PROGRAM (Page 45) 31

"The PQDR Program within DOD was incomplete. Procedures were not adequate to verify that all quality deficiency information needed by other Federal agencies was accounted for and reported to the GIDEP. In addition, the PDQR Program does not provide for adequate feedback on nonconforming products inspected and accepted at destination. Further, the program does not differentiate between major and minor nonconformances through incorporation of the standard DOD definitions (Appendix F) for critical, major, and minor nonconformances. Consequently, feedback from the PDQR Program does not provide all the information needed to improve the acquisition process or to ensure the safety of the public."

DON Comments: Concur. A disciplined methodology needs to be established and enforced to assure the accuracy of the data being entered into the various data collection and distribution systems.

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC 20330-1000

OFFICE OF THE ASSISTANT SECRETARY

APR 21 1992

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL FOR AUDITING
OFFICE OF THE INSPECTOR GENERAL DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE, ARLINGTON, VA 22202-2884

SUBJECT: Draft Report on Quality Assurance Actions Resulting From Electronic Component Screening, DOD(IG) Project No. OCF-0062 (Your Memo, Feb 6, 1992) - INFORMATION MEMORANDUM

This is in reply to your memorandum for Assistant Secretary of the Air Force (Financial Management and Comptroller) requesting comments to the subject report.

We appreciate the opportunity to comment while the report is still in draft form. However, we do not have any comments to make independent of the responses from DCMC and OSD. We anticipate that OSD and DCMC will fully coordinate with the Army, Navy and Air Force to ensure an effective and economical approach is taken for concerted action and look forward to supporting them on these matters.

cc: OASD(P&L)PR

BLAISE J. DURANTE, Colonel, USAF
Assistant Deputy Asst Secretary
(Mgt Policy & Program Integration)
Assistant Secretary (Acquisition)

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

IN REPLY REFER TO DLA-CI

15 APR 1992

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL FOR AUDITING
DEPARTMENT OF DEFENSE

SUBJECT: DRAFT DoD IG Draft Audit Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. OCF-0062)

The enclosed positions are in response to your 6 Feb 92 memorandum requesting our comments on the subject draft report.

10 Encl

JACQUELINE G. BRYANT
Chief, Internal Review Division
Office of the Comptroller

Final Report
Page No.

TYPE OF REPORT: AUDIT DATE OF POSITION: 13 April 1992

PURPOSE OF POSITION: INITIAL POSITION

AUDIT TITLE & NO.: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

FINDING A: Identifying Contractor Quality Histories. (See Draft Report pages 11 & 12) 7

DLA COMMENTS: Concur. Although we concur with the Finding, we disagree with the last statement in the Finding on page 12, which reads: "Lastly, there was no assurance that future deliveries from contractors with a history of providing nonconforming products would be subjected to testing prior to or after acceptance" is not representative of what is performed at DESC. DESC is currently, and prior to the audit, performing high level "causative" or follow-up testing on quality problems identified from a number of sources. These sources include but are not limited to past test results, referrals from Product Quality and Engineering Standardization, Government Industry Data Exchange Program (GIDEP) Alerts, and legal investigations. For the parts we test, our position is that the level of follow-up testing by DESC adequately monitors the quality of the products supplied by contractors with a history of nonconformances. Also, there is a current program, "TRI-STAR," which was developed to test material from the contractor's facility prior to government acceptance. Additionally, DLAM 8200.2 allows the Quality Assurance Representative to perform independent verification tests prior to acceptance. 7

ACTION OFFICER: Herman Louie, DLA-QLA, x46448
PSE REVIEW/APPROVAL: Ernest D. Ellis, DLA-QD, x47755

DLA APPROVAL: H. T. McCoy

TYPE OF REPORT: AUDIT DATE OF POSITION: 13 April 1992

PURPOSE OF POSITION: INITIAL POSITION

AUDIT TITLE & NO.: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

RECOMMENDATION A.1.a: We recommend that the Director, Defense Logistics Agency, define and adopt specific PQDR criteria for determining which contractors should be included on the Contractor Alert List (CAL). Those criteria should include a definite number of PQDRS that identified critical or major nonconforming products.

DLA COMMENTS: Partially Concur. A discussion with the IG auditors indicates that the intent of this recommendation is to identify, as a result of the issuance of PQDRs, contractors who warrant review as to whether they should be placed on the CAL. Subsequent to having a specific number of PQDRs issued against the product(s) of a given contractor, the PQDRs would be reviewed to see if the contractor was at fault, the contract value and quantities involved. If the results of the review so indicated, the contractor would be placed on the CAL. If the results indicated that the contractor did not warrant placement on the CAL, the information and evaluation would be documented and filed. In no event would the issuance of a fixed number of PQDRs automatically result in a contractor being placed on the CAL without a review and evaluation of those PQDRs.

A rule of thumb currently proffered for use within DCMC is to review contractors who have received five (5) or more PQDRs within a two year period (i.e., the immediate past two years). We recommend this same criteria be used as the trigger for reviewing a contractor for inclusion on the CAL.

DISPOSITION:
(X) Action is Ongoing. Estimated Completion Date: 30 Oct 92

ACTION OFFICER: Stan Beitsch, DCMC-QEL
PSE REVIEW/APPROVAL: Col Charles Williams, DCMC-ED, x44690

DLA APPROVAL: H. T. McCoy

TYPE OF REPORT: AUDIT DATE OF POSITION: 13 April 1992

PURPOSE OF POSITION: INITIAL POSITION

AUDIT TITLE & NO.: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

RECOMMENDATION A.1.b: We recommend that the Director, Defense Logistics Agency (DLA), develop standard record and reporting procedures that require test and evaluation activities to record and report the results of all DLA sponsored product quality tests in the Quality Evaluation Program.

DLA COMMENTS: Partially Concur. DLA Centers record and report the results of all DLA sponsored product quality tests through the combination of the DLA System for Analysis of Laboratory Testing (SALT) and Quality Evaluation Program (QEP).

DLA has developed a standard data base (SALT) for recording test results on DLA sponsored product quality tests. The SALT data base will contain all test results for conforming as well as nonconforming material.

DLAM 4155.2, "Quality Assurance Program Manual for Defense Supply Centers and Defense Industrial Plant Equipment Center" requires that DLA Centers include laboratory test results in the QEP. In addition, when a nonconforming product is found as a result of laboratory tests, a product quality deficiency report (PQDR) is prepared. This PQDR data is entered into the Customer Depot Complaint System (CDCS) at the DLA Center. Contractor caused PQDR information in the CDCS will be displayed to the DLA contracting officer on future buys for the given item.

DISPOSITION:
(X) Action is considered complete

ACTION OFFICER: Herman Louie, DLA-QLA, x46448
PSE REVIEW/APPROVAL: Ernest D. Ellis, DLA-QD, x47755

DLA APPROVAL: H. T. McCoy

TYPE OF REPORT: AUDIT DATE OF POSITION: 13 April 1992

PURPOSE OF POSITION: INITIAL POSITION

AUDIT TITLE & NO.: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

RECOMMENDATION A.1.c: We recommend that the Director, Defense Logistics Agency, develop automated edits to verify that all Product Quality Deficiency Report data fields are completed and that procedures for effective quality control reviews of automated Product Quality Deficiency Reports are accurate and complete.

DLA COMMENTS: Concur. We are working to determine the mandatory data entries necessary for PQDRs in the Customer/Depot Complaint System (CDCS). After these are developed, a System Change Request will be sent to DSAC for implementation in CDCS. We are also determining edit checks for supply centers to use in verifying PQDR data accuracy and completeness. Supply Centers will then be advised of this procedural responsibility.

DISPOSITION:
(X) Action is Ongoing. Estimated Completion Date: 1 Aug 92.

ACTION OFFICER: Paul Conner, DLA-OSL, 46388
PSE REVIEW/APPROVAL: James J. Grady, Jr., DLA-OD, 46102

DLA APPROVAL: H. T. McCoy

TYPE OF REPORT: AUDIT DATE OF POSITION: 13 Apr 92

PURPOSE OF POSITION: INITIAL POSITION

AUDIT TITLE & NO.: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

RECOMMENDATION A.2.a: We recommend that the Commander of the Defense Electronics Supply Center perform appropriate follow-up testing of all contractors that supply electronic components who are listed on the Contractor Alert List.

DESC COMMENTS: Concur. DESC currently performs follow-up testing on contractors whenever DESC has concerns. There are approximately one hundred contractors identified for quality reasons of the five hundred contractors listed on the Contractor Alert List (CAL). The DoDIG has confirmed that the intent was to recommend follow-up only for CAL contractors listed for quality reasons. DESC agrees with follow-up testing for these contractors.

DISPOSITION:
(X) Action is considered complete

ACTION OFFICER: Herman Louie, DLA-QLA, x46448
PSE REVIEW/APPROVAL: Ernest D. Ellis, DLA-QD, x47755

DLA APPROVAL: H. T. McCoy

TYPE OF REPORT: AUDIT DATE OF POSITION: 13 April 1992

PURPOSE OF POSITION: INITIAL POSITION

AUDIT TITLE & NO.: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

RECOMMENDATION A.2.b: We recommend that the Commander of the Defense Electronics Supply Center perform support testing for all Product Quality Deficiency Reports that need scientific evidence to determine if a nonconformance is major.

DESC COMMENTS: Partially Concur. In some instances, the QAS can determine the PQDR validity and type of nonconformance without the need for support testing. Support testing for PQDRs as noted in the report is currently performed and is provided as needed or required.

DISPOSITION:
(x) Action is considered complete

ACTION OFFICER: Herman Louie, DLA-QLA, x46448
PSE REVIEW/APPROVAL: Ernest D. Ellis, DLA-QD, x47755

DLA APPROVAL: H. T. McCoy

TYPE OF REPORT: AUDIT DATE OF POSITION: 13 April 1992

PURPOSE OF POSITION: INITIAL POSITION

AUDIT TITLE & NO.: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

RECOMMENDATION A.2.c: We recommend that the Commander of the Defense Electronics Supply Center use statistical random testing procedures to test specific Federal Supply Classes in the Electronic Component Federal Supply Group.

DESC COMMENTS: Partially Concur. We will expand random testing to assure that each item with technical data managed by DESC will have the opportunity to be selected for laboratory testing. This will give us another indicator of the overall level of quality for DESC managed items. We believe that a high level of statistical confidence already exists for several FSCs in the categories of parts we select, i.e., weapon coded items with high demands.

The DESC Test Facility does use statistical sampling techniques to select material for receiving inspection tests. Sample sizes are selected in accordance with the CLIN/contract quantity to ensure statistical confidence to determine if products are conforming to contractual requirements. In addition, we make every effort to obtain statistical samples when performing stock quality assurance testing on parts pulled from inventory.

It is true that we cannot sample enough FSCs to establish a quality level for each and every FSC or device type in a specified FSC. However, we do have a high confidence level of the quality of products being received in several of the FSCs in which we test. Sufficient receipt lines are tested to gain good confidence of the overall quality level. This confidence will be increased with the expanded scope of random testing.

DISPOSITION:
(x) Action is considered complete

ACTION OFFICER: Herman Louie, DLA-QLA, x46448
PSE REVIEW/APPROVAL: Ernest D. Ellis, DLA-QD, x47755

DLA APPROVAL: H. T. McCoy

Final Report
Page No.

TYPE OF REPORT: AUDIT DATE OF POSITION: 13 April 1992

PURPOSE OF POSITION: INITIAL POSITION

AUDIT TITLE & NO.: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

Recommendati

(Revised)
Page 29

RECOMMENDATION B.2: We recommend that the Director, Defense Logistics Agency, report the reimbursements, obtained from contractors for critical and major nonconforming products, to the Assistant Secretary of Defense (Production and Logistics) at least annually through FY 1997.

DLA COMMENTS: Nonconcur. As your report acknowledges, in the current regulatory scheme, nonconformances discovered after acceptance may only be remedied by acceptance of replacement items or refunds tendered voluntarily. Presumably, your recommendations pertain only to these voluntary actions, since both the waiver/deviation process and a variety of contractual remedies exist to cover the pre-acceptance discovery of nonconformances.

With regard to this recommendation, product quality deficiency data (on which reimbursement actions are taken) may not always be of sufficient accuracy for action purposes. (Your report takes note of the accuracy issue at pages 4, 8, and elsewhere.) Therefore, reimbursement actions are necessarily handled on an individual basis. No purpose would be served in tracking those actions and collections based on data presently available. Collection information is not maintained in any automated system, and failure to pursue reimbursement reflects these practical and data problems rather than any negligent exercise of governmental rights. (In other words, we do not see this as a material weakness beyond that already acknowledged for the data itself.) Therefore, we feel that the requirement to report collection activity would impose a burden on field contracting elements without commensurate payback to them.

Page 41 states, "A reporting mechanism is needed to enable DoD policy makers to assess the effectiveness of efforts to enforce contractor accountability." However, pursuit of voluntary refunds is clearly not an enforcement issue. Furthermore, there is no indication that a report of this type is desired by ASD(P&L), or that such activity is perceived as being "value added."

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To return to the data issue, we are currently developing the DLA Vendor Rating System (DVRS), which will give increased visibility to quality problems attributable to contractor fault. Once we have greater confidence in the data, we will pursue voluntary refunds more aggressively. (However, unless and until acceptance is no longer conclusive for critical or major patent nonconformances, we will still be relying on the contractor's voluntary tender of refund or replacement.) At that time, if a true need has been identified for the reporting of such actions and dollar values of collections to the ASD(P&L) (i.e., that management will take action thereon), we will readily provide such information.

DISPOSITION:
(x) Action is considered complete

ACTION OFFICER: Mary Massaro, DLA-PPR

TYPE OF REPORT: AUDIT DATE OF POSITION: 13 April 1992

PURPOSE OF POSITION: INITIAL POSITION

AUDIT TITLE & NO.: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

RECOMMENDATION B.3: We recommend that the Director, Defense Logistics Agency, develop standard supply center procedures for obtaining full reimbursements from contractors for major and critical nonconforming products, to include the cost of the products and all related testing, administration and storage costs.

DLA COMMENTS: Partially concur. Unless and until the DAR Council adopts a currently-proposed case from DCMC-Q whereby acceptance shall no longer be conclusive for any patent defects, or until the variant that you propose (acceptance shall be conclusive but for latent defects, etc., and critical or major nonconformances), post-acceptance reimbursement will have to remain on a voluntary basis. Although guidelines pertaining to the pursuit and acceptance of voluntary refunds already exist in the DLA Acquisition Regulation (DLAR), we will provide further guidance to the field for their use. For example, we can provide parameters concerning dollar value of nonconformances or number of PQDRs submitted against a contractor which might trigger voluntary refund activity, and use of nonconforming supplies/shipments cost studies in the determination of adequate consideration for our having received such items. However, precisely because of their voluntary nature, such refunds must be handled on an ad hoc basis, and procedures from DLA headquarters must be advisory only.

With regard to collection activity for costs of testing, administration, and storage, FAR (and supplemental) guidance is clear that costs of retest are to be borne by the contractor. It would seem to follow that testing of items from contractors who have submitted nonconforming supplies on prior contracts, which testing resulted in the identification of nonconformances, could be part of the monetary recovery from the contractor. In instances of random testing, though, the testing is a governmental activity, and we should bear the initial costs. (Again, retest - conducted prior to acceptance of replacement items - would be chargeable to the contractor.) Administrative costs and storage costs associated with segregated nonconforming supplies could be negotiated as part of any amount refunded to the Government. We repeat that these are efforts toward receipt of a contractor's voluntary refund; if the contractor fails to make such an offer, we cannot charge these items to its account.

DISPOSITION:
(x) Action is Ongoing. Estimated Completion Date: Dec 92 (of guidelines provided to field contracting elements)

ACTION OFFICER: Mary Massaro, DLA-PPR
PSE REVIEW/APPROVAL: Bill Williams, DLA-P (Acting), x46417

DLA APPROVAL: Jacqueline G. Bryant for H. T. McCoy

TYPE OF REPORT: AUDIT DATE OF POSITION: 13 April 1992

PURPOSE OF POSITION: INITIAL POSITION

AUDIT TITLE & NO.: Draft Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. 0CF-0062)

RECOMMENDATION B.4: We recommend that the Commander of the Defense Electronics Supply Center establish an accounts receivable and request reimbursement for the cost of the national stock numbered products with critical and major nonconformances that are listed on the contracts in Appendix K.

Deleted from Final Report.

DESC COMMENTS: Nonconcur. Our analysis of the contracts listed at Appendix K showed that either consideration was received by the government or very little inventory covering the contracts listed in Appendix K was available to return to the contractor for correction or reimbursement. It is also noted that Appendix K included contracts with discrepancies that related to packaging problems that were not major quality discrepancies and contract items that raised issues as to the adequacy of government specifications. Furthermore, it must be recognized that all of the cost recovery actions were or would be taken after acceptance of the material by the government. Therefore, to establish an accounts receivable only to request reimbursement for the contracts under Appendix K is not legally, practically, or economically feasible (see atch 1 for a detailed analysis).

Appendix Deleted.

DISPOSITION:
(x) Action is considered complete

ACTION OFFICER: Herman Louie, DLA-QLA, x46448
PSE REVIEW/APPROVAL: Capt. William Fackenthall, USN, DLA-P

DLA APPROVAL: Jacqueline G. Bryant for H. T. McCoy

1 Attachment

U.S. Department of Justice
UNICOR
Federal Prison Industries, Inc

Washington, DC 20534

APR 8 1992

Robert J. Lieberman
Assistant Inspector General for Auditing
Department of Defense
Room 808
400 Army Navy Drive
Arlington, Virginia 22202-2884

SUBJECT: Comments to Draft DoD IG Audit Report on Quality Assurance Actions Resulting from Electronic Component Screening (Project No. OCF-0062)

Dear Mr. Lieberman:

Enclosed herewith are the comments of Federal Prison Industries, Inc. (FPI/UNICOR) on the draft DoD IG report on Quality Assurance Actions Resulting from Electronic Component Screening" (Project No. OCF-0062). FPI understands the draft report and its recommendations are not formally addressed to FPI. Nonetheless, we very much appreciate this opportunity to review the draft and provide you with our comments.

We think the report will serve a valuable purpose in terms of improving the quality assurance systems of DoD and its contractors, including FPI.

As stated in our comments, we request that a clarification be added to the report, so that it will not be construed to lead to any conclusions concerning a contractor's quality. In order that our request be fully explained, we would appreciate our response being made a part of the report.

Sincerely,

Thomas R. Kane for

J. Michael Quinlan
Chief Executive Officer,
Federal Prison Industries, Inc.
Director, Federal Bureau of Prisons

RESPONSE BY

FEDERAL PRISON INDUSTRIES, INC.

TO DRAFT REPORT

ON QUALITY ASSURANCE ACTIONS

RESULTING FROM ELECTRONIC COMPONENT SCREENING

(PROJECT NO. OCH-0062)

DATED FEBRUARY 6, 1992

APRIL 7, 1992

EXECUTIVE SUMMARY

FPI agrees with the Audit Report that Product Quality Deficiency Reports (PQDRs) are an important element in the overall assessment of the DoD Quality System. However, the PQDRs should not be used to assess overall contractor quality.

PQDRs returned by DoD to FPI are systematically processed to prevent their reoccurrence. This process is a component of the FPI Quality Assurance System which is designed in compliance with military specification requirements. Many PQDRs identified in the Report have not been returned to FPI.

FPI is concerned about the conclusion of the Report to directly use the quantity of PQDRs to provide a measure of contractor quality. PQDRs do not provide an overall assessment of contractor quality. An overall assessment should include deficiency rates. FPI has produced over 300,000 cable assemblies in conjunction with contracts audited in this report. Also, contractor assessment should take into account the nature of the products manufactured and their individual contractual acceptance levels. Cables which are the subject of this audit have been manufactured over a much greater time span than the audit and thus do not provide current indications of product quality. It should be noted that many of the PQDRs are testimonials to FPI product quality. They indicate the extremely low level of non-conformance compared to the quantities produced. PQDRs returned to FPI that were part of this audit have mixed findings in their investigation. They include contractor caused, material/storage handling, user caused and unknown causes.

It is reassuring to see that FPI's warranty/refund policy is effectively working, as reimbursement is frequently being provided for contracts with contractor caused non-conformances. In order to prevent confusion and the drawing of erroneous conclusions, FPI requests that the report clearly state at the outset, that it was not designed to yield information concerning the quality of contractors products, and that it should not be interpreted to yield such information.

FPI will continue to work with DoD to obtain and resolve details of the yet outstanding PQDRs. FPI will also use any information collected in this report to reassess its overall quality program and make all needed adjustments to continue to provide quality products to DoD. FPI, as a long time provider of cable assemblies to DoD, has a fine reputation for quality, and is eager to work in partnership with DoD to improve the PQDR evaluation process.

FPI RESPONSE TO THE DOD IG REPORT

Introduction

Federal Prison Industries, Inc. (trade name, UNICOR), hereafter referred to as FPI, has completed its review of the "Draft Report on Quality Assurance Actions Resulting From Electronic Component Screening," (Project No. OCF-0062) prepared by the Office of the Inspector General, Department of Defense, hereafter referred to as DoD IG, dated February 6, 1992. In addition to reviewing the draft, FPI requested copies of all Product Quality Deficiency Reports (PQDRs) which pertain to FPI, and we have carefully reviewed the PQDRs that have been provided to us.[1]

1. The DoD IG's Audit Serves an Important Purpose

The DoD IG's audit and report are significant and will serve an important purpose. The audit was undertaken to determine whether DoD's contracting officers received and acted on quality assurance information resulting from DoD electronic component screening programs. More specifically, it was to identify problems with processing Product Quality Deficiency Reports (PQDRs), to track the process by which the PQDRs are prepared, and to determine whether these Reports are returned to the contractor/vendor so that they may be properly analyzed and acted upon. The DoD IG draft report concludes that quality deficiency information was not effectively collected by DoD, and that there was not sufficient electronic component testing and screening to identify and follow up with contractors who provided electronic components containing "non-conformances." It further concludes that the DoD audit program did not properly provide feedback to either DoD or to the contractors on nonconforming products, and that DoD did not have effective remedies to obtain reimbursement or replacement for major nonconforming components.

FPI agrees with the conclusions and thinks that a good sharing of PQDR information between contracting officers and contractor will be invaluable to all parties concerned.

2. FPI Will Work in Partnership with DoD to Improve the PQDR Process

FPI is eager to work in partnership with DoD to improve the process by which PQDRs are collected, analyzed and returned to vendors. As indicated above, FPI has carefully reviewed the PQDRs which pertain to FPI and have been provided by the IG. Receiving PQDRs promptly would be of great value in correcting deficiencies. FPI is very gratified to see that a common entry on the PQDR was "cable assembly will be

[1] The reports cites 133 PQDRs attributed to FPI, and the IG has returned 67 to FPI.

repaired/replaced at no cost to government," acknowledging that FPI's warranty program is well understood and working.

As a long time provider of cable assemblies and other products to DoD over many decades, FPI is proud of its excellent reputation. This reputation has been confirmed by comprehensive surveys of FPI's customers, and most recently by testimonials related to equipment and supplies provided in connection with Operation Desert Storm. FPI's quality system is in full compliance with Mil-I-45208A, which establishes stringent requirements for contractors' inspection and overall quality systems. As such, FPI is in compliance with all tests and inspections necessary to substantiate product conformance to drawings, specifications and contract requirements. FPI will continuously evaluate its quality system to assure that it takes full advantage of such important information as the additional feedback provided through the DoD's quality assessment program.

3. FPI is Concerned the DoD IG Report will Be Misused

Although the DoD IG emphasized in the draft report and in an oral briefing to FPI that the purpose of the audit was to evaluate the DoD's quality assurance system and not the quality of FPI's or other contractor's products, nonetheless there is concern that the report may be misused to evaluate contractors, for the following reasons:

a. Rate of Deficiencies v. Counting Deficiency Reports. A counting of the number of PQDRs pertaining to a particular contractor reveals very little about the quality of the contractor's product. In order to properly assess quality, it is necessary to determine the rate of deficiencies. The draft (at page 18) identifies FPI as one of the two contractors accounting for the highest number of PQDRs. The ranking system is based on the frequency of the PQDRs which are submitted by the recipient of the product. A PQDR may be submitted if only one unit in a shipment is found defective. It should be noted that the FPI contracts included in the audit represented over 300,000 units shipped. Thus, the number of deficient units comprise a very small portion of the total units shipped.

b. Dollar Value as an Indicator of Deficiency Rate. The report states (at page 19) that, judging by the dollar value of electronic components provided to DoD, the high number of PQDRs was "due to poor quality controls by the contractor and was not related to the volume of business conducted with DoD." However, the dollar value is not necessarily a good reflector of the number of items provided, because depending on the product, a single item may account for much of the entire dollar amount. Also, the dollar value says nothing about the types of items provided.

c. Findings in the PQDRs Pertaining to FPI. An examination of the PQDRs themselves reveals why they cannot simply be counted as an indication of that contractor's quality. As indicated above, FPI requested the IG to provide copies of all PQDRs pertaining to FPI. Of the 133 that pertain to FPI, DoD provided 67. Of the 67, 53 contained a cover sheet with "Investigative and Finding" information, and 14 did not. Of the 53, 51 percent indicated that the report was "insignificant" and therefore no PQDR investigation was required, 15 percent indicated that the cause for the defect was unknown

(many because of the age of the contract), and 6 percent indicated the cause for the problem may be user mishandling and/or storage.

The "Investigation and Findings" section of these PQDRs reveals that the users who completed the reports in many cases were complimentary of FPI's quality rather than critical. Typical entries from the reports are as follows:

"First QDR on 2,535 cables. Random occurrence;"

"One of the cables built to a CECOM [drawing] that has exhibited an adverse trend;"

"The quality reported defective on this contract and NSN [National Stock Number] is a very small percent of the total quantity manufactured to date. This QDR does not indicate a serious problem, and is being recorded as a random failure. Repl[ace] at no cost;"

"The quantity reported defective to date on this contract and NSN is very small. No indication of serious problem. To be repaired at no cost to govt;"

"This report represented a first time occurrence failure report for the subject items. Contractor repaired assembly under commercial warranty;"

"A single failure on a 3 yr old contract for thousands of cables. No basis for continuing investigation;"

"First PQDR on 500 cables; random occurrence;"

"QDR does not indicate production problem-recorded as random failure;"

"Most QDRs over 14 years old;"

"No screening due to low percent of failure. Quality requirements are adequate.

"Number of deficient cables within percent failure tolerance;"

"Only report of failure for this NSN. An isolated occurrence; The quality reported defective to date on this contract and NSN is a very small percent of the total quantity manufactured to date;"

"Cause was user related as well as manufacturer related."

"This complaint is the only one on record and further investigation is unwarranted at this time."

d. Comparative Quality. It is not possible to compare contractors by simply counting numbers of PQDRS, where the nature of the product manufactured by the contractors varies. This does not yield an "apples-to-apples" comparison. For example,

certain products result for a highly mechanized process and can be produced with virtually no deficiencies. FPI was the only vendor of cable assemblies which included individually manufactured, manual labor intensive, custom products. Most cable assemblies rely on manual labor intensive, non-mechanized production processes which are much more likely to have inherent deficiencies.

e. Age of Products Inspected. The PQDRs provided to FPI were written between 1987 and 1990. The great majority of the contracts on which these PQDRs are based are over six years old, and many date back to the 1970's. Thus it is difficult to ascertain the cause of the problem. Also, these PQDRs do not provide good information concerning the quality of more recent manufacturing runs.

4. Customer Surveys Indicate FPI Quality is High

Recent comprehensive customer surveys, one conducted by a Congressional subcommittee, another by Deloitte and Touche (a "Big-Six" management firm), a third by GAO, and another by The Response Center, confirm that customers are pleased with the quality and value of FPI goods.

In 1990, Congressman Robert K. Kastenmeier, Chairman of the Subcommittee on Courts, Intellectual Property, and the Administration of Justice of the House Committee on the Judiciary, conducted a comprehensive survey of FPI's customers to determine the level of customer satisfaction with quality, price and delivery. The responses to the survey are a matter of public record and were published as an appendix to the BOP and FPI oversight hearings (101 Congress, 2d session, January 30 and May 10, 1990, Serial No. 102, appendix II, pp. 164-221).

In their responses to this survey, agencies mentioned that FPI products are considered to be of good quality and value, compare favorably in quality and durability with those from the private sector, and that quality control is very much in evidence. The responses were candid; many of them were quite critical concerning delivery, a problem currently being addressed. But very few were critical concerning quality, and none were critical concerning quality of products covered by this audit. The sole response directly related to cables was from the Department of the Navy, dated February 28, 1990, and stated as follows:

> "The largest and most recent requirement satisfied by FPI or UNICOR was for a buy of approximately 6,000 vehicle wiring harnesses. UNICOR entered into Contract . . . with us for the items and we feel that the results were excellent. Quality control was quite reasonable."

In 1991 Deloitte & Touche, in connection with a Congressionally mandated Independent Market Study, contacted approximately 350 representatives of virtually all Federal departments and agencies. Approximately 250 responses were provided from DoD agencies that had made purchases from FPI during the preceding five years.

The results of the survey were published in the Final Report of the Independent Market Study, submitted to Congress in August 1991. The results of the Study gave FPI excellent ratings for price, quality, and compliance with specifications. Special mention was made of FPI's electronics products, which received higher ratings than those from private contractors.

Other surveys confirm high ratings for FPI quality. In a 1990 survey conducted by an independent market research firm (The Response Center), of 166 individuals who influence purchases made by their agencies, only 11% of all respondents expressed any dissatisfaction with FPI and all of these comments were delivery time related (with one relating to price). When compared to FPI's competitors, FPI electronics products clearly surpassed the competition in terms of price, delivery, quality and timely processing.

A 1985 survey conducted by the GAO also demonstrates a reputation for good quality among FPI's customers.

Most recently, FPI has received letters of praise from key military personnel for the quality of FPI products (including electronics products) used in Operation Desert Shield and Storm: "The quantity and quality of the products that were delivered directly contributed to our quick and decisive victory." (Director of Procurement and Production for the U.S. Army Tank-Automotive Command, Michigan)

5. FPI'S Internal Quality Assurance Program is Strong and Will be Made Even Stronger with Effective PODR Feedback.

FPI's internal quality assurance program is designed with full compliance to military inspection requirements (MIL-I-45208A), which covers all necessary inspections of the production process at all stages of the manufacturing process as well as examination and testing of the finished product.

The FPI inspection system outlines requirements for the inspection and test of products to substantiate product conformance to drawings, specifications and contract requirements. This system specifically provides control for documentation, records and corrective actions to preclude repeated submission of nonconforming products. In addition, it includes controls for measuring instruments and test equipment, process controls, indications of inspection status, control of government furnished material, sampling inspections, inspection provisions, supplies or services provided by subcontract and incoming material inspection.

These system elements are applied to each contract and are continuously used by FPI and by contracting agency representatives through a systematic application of inspection and periodic audit programs. Daily direction for application of this system is provided by FPI Quality Assurance Managers, operating independently from manufacturing.

Pre-production samples (first article) are manufactured and thoroughly tested to insure compliance to drawings, specifications and contract requirements. Upon vendor/customer approval, production is initiated with in-process and final inspections

combined with 100% electrical test of all product manufactured. Upon completion, production items are selectively reviewed by government source inspectors prior to their final shipment.

If product deficiencies are identified, positive corrective actions are taken to identify the root causes and then provide remedies including inspection, test and process/design changes to preclude repeated non-conformances.

PQDRs determined to be contractor related and not considered to be an isolated incident need to be returned to FPI and subsequently processed through an internal corrective action process. Timely receipt of this information will enhance FPI's quality assurance program.

6. FPI Will Use DoD IG Audit to Strengthen its Quality Process.

FPI is continuously improving its quality assurance process. The flow of PQDRs from DoD provides valuable information as FPI strives to improve the quality of its products.

FPI has the strongest commitment to total customer satisfaction and is eager to work with DoD in applying lessons learned from the audit to ensure that FPI's quality assurance process takes advantage of all available information from the users of its products, and that FPI's products remain of the highest quality.

7. FPI Requests the DoD IG Report be Clarified.

In order to prevent confusion and the drawing of erroneous conclusions concerning contractor quality, FPI requests the report state clearly that it was not designed to yield information concerning the quality of a contractor's products, and that it should not be interpreted to yield such information.

LIST OF AUDIT TEAM MEMBERS

David K. Steensma, Director
Salvatore D. Guli, Audit Program Director
C.J. Richardson, Audit Project Manager
Curtis H. Carter, Senior Auditor
Lois A. Therrien, Senior Auditor
Ralph S. Dorris, Auditor
Stephanie M. Haydon, Auditor
Kelly D. Garland, Auditor
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