Audit Report

PROCUREMENT SYSTEMS YEAR 2000
END-TO-END TESTS

Report No. D-2000-035 November 9, 1999

Office of the Inspector General
Department of Defense

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Acronyms

DISA	Defense Information Systems Agency
DLA	Defense Logistics Agency
DPACS	Defense Logistics Agency Pre-Award Contracting System
DSDC	Defense Logistics Agency Systems Design Center
ITIMP	Integrated Technical Item Management and Procurement
MOCAS	Mechanization of Contract Administration Services
NECO	Navy Electronic Commercial On-Line
SPEDE	SAMMS Procurement by Electronic Data Exchange
UICP	Uniformed Inventory Control Program
Y2K	Year 2000

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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November 9, 1999

MEMORANDUM FOR DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Audit Report on Procurement Systems Year 2000 End-to-End Tests (Report No. D-2000-035)

We are providing this report for information and use. This report is one in a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the DoD, Chief Information Officer to identify progress made by DoD Components that are preparing information and technology systems for year 2000 compliance. We considered management comments on a draft of this report when preparing the final report.

The Defense Logistics Agency comments conformed to the requirements in DoD Directive 7650.3; therefore, no additional comments are required.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Garold E. Stephenson at (703) 604-9332 (DSN 664-9332) (gstephenson@dodig.osd.mil) or Mr. Eugene E. Kissner at (703) 604-9323 (DSN 664-9323) (ekissner@dodig.osd.mil). See Appendix C for the report distribution. The audit team members are listed inside the back cover.

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Office of the Inspector General, DoD

Report No. D-2000-035 **November 9, 1999**
(Project No. 9CH-5047)

Procurement Systems Year 2000 End-to-End Test

Executive Summary

Introduction. This report is one in a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the year 2000 computing challenge. This report addresses year 2000 issues that pertain to the end-to-end testing that occurred on procurement systems. For a listing of audit projects addressing the issue, see the year 2000 web page on the IGNET at http://www.ignet.gov.

The "DoD Year 2000 Management Plan," Appendix I, "Guidelines to Support DoD Y2K Operational Readiness," assigns responsibility to the Secretary of Defense Principal Staff Assistants for ensuring the end-to-end functional process flows that support their functional area are addressed either in a Joint Staff/Commander in Chief year 2000 operational evaluation, a Service-sponsored system integration test, or through a functional-area year 2000 end-to-end test. Appendix I also states that the Principal Staff Assistants' responsibilities include planning, executing, and evaluating all mission-critical systems not otherwise tested and for ensuring that processes that fall within their purview are evaluated. The Director, Defense Procurement performs those functions for procurement.

Objectives. The overall objective was to evaluate the effectiveness of the planned year 2000 end-to-end tests for procurement systems. Specifically, we reviewed the test plans and the results of selected test events for procurement systems that were designated as mission-critical and non-mission critical by the Military Services and Defense agencies, to determine if the tests were adequately planned and executed, and the results were adequately documented.

Results. More needs to be done to provide assurance that the Defense Logistics Agency Mechanization of Contract Administration Services procurement system will function properly in the year 2000. The Defense Logistics Agency conducted end-to-end tests of its mission-critical procurement systems, but did not test external interfaces for any of its mission-critical procurement systems. Without additional checks, the Director, Defense Logistics Agency cannot ensure that the procurement process will not be adversely affected by data from external interface partners. At a minimum, checks are needed to ensure that the window being used to interpret the century from the year is clearly defined and communicated to the interface partners to

mitigate the risk that the Mechanization of Contract Administration Services procurement system will not function properly in year 2000. See the Finding section of the report for a discussion of the audit results.

Summary of Recommendation. We recommend that the Director, Defense Logistics Agency check all external interfaces of the Mechanization of Contract Administration Services procurement system to ensure that the window being used to interpret the century from the year is clearly defined and successfully communicated to the interface partners.

Management Comments. The Defense Logistics Agency agreed to conduct a risk mitigation study of all external interfaces between the Mechanization of Contract Administration Services procurement system and the systems that use it. The study will concentrate on the specific windowing techniques used by the Mechanization of Contract Administration Services procurement system and its external partner systems. Memoranda of Agreement with the external partners will be updated or implemented where necessary. A discussion of management comments is in the Finding section of the report and the complete text of management comments is in the Management Comments section.

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Background

The Year 2000 Problem. The year 2000 (Y2K) problem is the term most often used to describe the potential failure of information technology systems to process or perform date-related functions. The Y2K problem is rooted in the way that automated information systems record and compute dates. Systems have typically used two digits to represent the year such as "98" representing 1998 to conserve electronic data storage capacity and to reduce operating costs. With the two-digit format, however, the year 2000 is indistinguishable from 1900. Calculations of Y2K dates are further complicated because 2000 is a leap year, the first century leap year since 1600. Computer systems and applications must recognize February 29, 2000, as a valid date.

The DoD operates thousands of information systems. These systems support every function of the DoD enterprise, including core business functions such as contract, financial, logistics, and personnel management and health care. Failure of the information systems to recognize the changes that Y2K brings will result in incorrect data being generated and could have detrimental effects on information systems. The problem can become increasingly complex since corrupted data can be perpetuated through interfaces with other feeder systems.

Executive Order. On February 4, 1998, the President issued Executive Order 13073, "Year 2000 Conversion," mandating that Federal agencies do what is necessary to ensure that no critical Federal program experiences disruption because of the Y2K problem. The Executive Order also requires that the head of each agency ensure that efforts to address Y2K issues receive the highest priority.

DoD Y2K Management Plan. As the DoD, Chief Information Officer, the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) issued the "DoD Year 2000 Management Plan" (DoD Y2K Management Plan) in April 1997. The current version of the plan is dated December 1998. The DoD Y2K Management Plan provides the overall DoD strategy and guidance to inventory, prioritize, fix or retire systems, and monitor test progress. The DoD Y2K Management Plan states that a Y2K program goal is to ensure the continuance of a mission-capable force that is able to execute the National Military Strategy before, on, and after January 1, 2000, unaffected by the failure of mission critical or support systems to properly process Y2K date-related information. The DoD Management Plan states that the DoD, Chief Information Officer has overall responsibility for overseeing the DoD solution to the Y2K problem.

Deputy Secretary of Defense Memorandum. The Deputy Secretary of Defense, memorandum, "Year 2000 Verification of National Security Capabilities," August 24, 1998, tasked each Principal Staff Assistant of the Office of the Secretary of Defense to verify that all functions under his or her purview will continue unaffected by Y2K issues. The memorandum requires that the designated Principal Staff Assistant provide plans for Y2K-related end-to-end testing of each process within their functions to ensure Y2K

compliance in their functional areas. The end-to-end testing was to be conducted during the first half of 1999. The testing was to be planned and conducted from a mission perspective, rather than a system perspective, to increase the confidence that any errors or omissions in system remediation would be found.

Capstone Test Plan for Procurement Systems for Y2K Compliance. The Capstone Test Plan for Procurement Systems for Y2K Compliance (the Capstone Plan) prepared by the Director, Defense Procurement was approved by the Principal Deputy Under Secretary of Defense for Acquisition and Technology on March 3, 1999. The Capstone Plan requires the Military Services and Defense agencies to prepare an end-to-end test plan, a contingency plan, and a continuity of operations plan for each procurement system that interfaces with other systems. Also, the Capstone Plan requires the Military Services and Defense agencies to perform end-to-end testing of systems to ensure that the procurement component of networked systems will operate throughout the Y2K transition.

End-to-End Testing. The DoD Y2K Management Plan defines end-to-end testing as an assessment of a functional area to determine the Y2K readiness of automated information systems supporting that function. End-to-end testing increases the level of confidence beyond that provided by system-level and acceptance testing performed to certify that systems are Y2K compliant.

Objectives

The overall objective was to evaluate the effectiveness of the planned Y2K end-to-end tests for procurement systems. Specifically, we reviewed the test plans and the results of selected test events for procurement systems that were designated as mission-critical and non-mission critical by the Military Services and Defense agencies, to determine if the tests were adequately planned and executed, and the results were adequately documented. See Appendix A for a discussion of the audit scope, methodology, and prior audit coverage.

End-to-End Testing of Procurement Systems

More needs to be done to provide assurance that the Defense Logistics Agency Mechanization of Contract Administration Services procurement system will function properly in the year 2000. The Defense Logistics Agency completed end-to-end testing of mission critical procurement systems required by the Capstone Plan. However, the end-to-end tests did not include external interface testing for its mission-critical procurement systems. As a result, the Director, Defense Logistics Agency cannot ensure that the procurement process will not be adversely affected by data from external interface partners.

Planning End-to-End Tests

End-to-end test planning for the procurement function generally met the requirements of the DoD Y2K Management Plan. As the Principal Staff Assistant for Procurement, the Director, Defense Procurement coordinated the Capstone Plan with the Military Services and Defense agencies. The Capstone Plan provides the overall strategy for conducting end-to-end tests of procurement systems and includes the test plans submitted by the Military Services and Defense agencies. The end-to-end tests were designed to replicate production information flows and validate that data flows would continue unaffected across networked systems for the critical change over dates December 31, 1999, to January 1, 2000; February 28 to February 29, 2000; and February 29 to March 1, 2000, as identified in the DoD Y2K Management Plan. The Capstone Plan requires completion of end-to-end mission-critical systems testing by June 30, 1999, and non-mission critical systems by September 30, 1999.

Identifying Mission-Critical Procurement Systems

The Director, Defense Procurement and the Principal Deputy Under Secretary of Defense for Acquisition and Technology relied on the Military Services and the Defense agencies to identify their mission-critical procurement systems and accepted their submissions. However, the Military Services and Defense agencies were not consistent in classifying systems. For example, the Navy classified the Integrated Technical Item Management and Procurement System (ITIMP) as mission critical while the Army and Air Force classified similar systems (Army Procurement Automated Data and Documentation System and Air Force Automated Contract Preparation System) as non-mission critical systems. The following systems are currently designated mission-critical procurement systems requiring end-to-end testing: the Navy ITIMP system, DLA Mechanization of Contract Administration Services (MOCAS), DLA Pre-Award Contracting System (DPACS), and SAMMS Procurement by Electronic Data Exchange (SPEDE).

Testing Mission-Critical Procurement Systems

Navy ITIMP System. The Naval Inventory Control Points at Philadelphia and Mechanicsburg, Pennsylvania, use the ITIMP system to automatically process

solicitations, solicitation responses, contract awards, and contract modifications. The Fleet Material Support Office is the central design agent for the ITIMP system and maintains the ITIMP software. The Naval Inventory Control Points and the Fleet Material Support Office are subordinate organizations of the Naval Supply Systems Command. The solicitation and award processes are the essential procurement processes of the system.

The solicitation process begins when the Uniformed Inventory Control Program (UICP) system, an inventory management system, notifies the ITIMP system that it is necessary to buy or commercially repair an item for stock and that a procurement vehicle does not already exist. The ITIMP system creates a solicitation document and transmits that document to the Navy Electronic Commercial On-Line (NECO) system. The NECO system forwards the solicitation to vendors qualified to offer the item and may publish the solicitation on its web site. After the specified time period has elapsed, offers from interested vendors are consolidated and the ITIMP system forwards the information to the buyer at the cognizant Inventory Control Point. The buyer selects a vendor for contract award and enters the information in the ITIMP system to begin the contract award process. The solicitation process ends when the ITIMP system forwards the information on offers to the responsible buyer.

The contract award process is triggered in one of two ways. The process will begin when a buyer notifies the ITIMP system of the selected vendor for contract award at the end of the solicitation process. Alternatively, the process will begin when the UICP system notifies the ITIMP system that it is necessary to buy or commercially repair an item for stock and that a procurement vehicle already exists. The ITIMP system creates the award document and forwards it to the NECO system. The ITIMP system also creates and transmits financial and inventory information to the UICP system. The NECO system electronically transmits the award document to the vendor and pertinent award information to the MOCAS system. The contract award process ends when the NECO system transmits the award document to the vendor and award information to MOCAS.

ITIMP System Testing. The Naval Supply Systems Command testing officials organized, coordinated, and supervised the end-to-end testing of the ITIMP system. The officials conducted testing from March 10 through March 25, 1999, using production software and equipment logically partitioned to create a test bed. Because time and resource constraints prevented testing of every process in the ITIMP system, the Naval Supply Systems Command functional managers selected the two essential processes of the system (solicitation and contract award) for testing. The test began with requirements transmitted by the UICP system to the ITIMP system for processing. The test transactions used 11 different change over dates, including the critical change over dates required by the DoD Y2K Management Plan. A total of 99 transactions comprising 5 stock buys and 4 repair buys for each of the 11 test dates were processed through the ITIMP system as normal production runs. The interfaces between the ITIMP system and the UICP and NECO systems were tested, as well as interfaces between the NECO system and four key Navy vendors who agreed to participate in the test. The interface between NECO and the MOCAS system was not tested because the testing officials believed MOCAS would process the test transactions as live (real) transactions causing production problems. Additionally, DLA had no plan to coordinate and conduct end-to-end test of MOCAS with the Navy.

ITIMP System Test Results. The Naval Supply Systems Command testing officials reported that the end-to-end testing of the ITIMP system was successful. The testing officials used a normal production run as a base line. The testing officials identified expected changes in output for the test transactions and used the automated file compare function to identify changes between test output and baseline output. The testing officials verified that data in non-date-related fields did not change, and that only the expected date-related changes occurred. All test transactions processed through the system correctly with one exception. The NECO system software failed to process transactions with the February 29, 2000 date. The failed application was disengaged and processing continued uninterrupted with no further failures. The failure was corrected by installing a software release that included correcting the February 29 problem. The Naval Supply Systems Command testing officials retested the system on July 6, 1999. The retest showed that transactions dated February 29, 2000 processed correctly. The Naval Supply Systems Command testing officials concluded that no significant Y2K-driven system failures would occur before, during, or after the Y2K rollover. We believe there is minimal risk that NECO transmissions of ITIMP data to MOCAS will fail as a result of not testing the NECO - MOCAS interface with Y2K dates. The NECO system has been transmitting ITIMP data to MOCAS in ANSI X12 format without problems and will continue to use ANSI X12 format in year 2000.

DLA MOCAS System. The Defense Contract Management Command and the Defense Finance and Accounting Service use MOCAS to support contract administration and payment functions. The MOCAS system consists of nine distinct subsystem structures: contract maintenance, material control, financial management, contract management, quality management, program and technical support, management information, system support and operations support. Each of these subsystem structures supports specific business functions within the Defense Contract Management Command and the Defense Finance and Accounting Service. Additionally, MOCAS interfaces with at least 32 external systems in the Military Services, other Defense agencies, other Federal agencies, and vendors to receive and provide information on contract awards, deliveries, payments, taxes and other information needed to administer contracts and manage payments. The MOCAS system includes about 2,400 applications with about 1.5 million lines of code written in COBOL and MANTIS.

DLA DPACS System. Procurement personnel at the Defense Supply Centers use DPACS to automatically prepare solicitation and contract award packages for awards not exceeding $100,000. The DPACS system is a comprehensive electronic integrated contracting system that supports more than 3,000 users at the Defense Supply Centers. The system provides all of the purchase request management data that a buyer needs to complete a solicitation and award package.

DLA SPEDE System. Procurement personnel at the Defense Supply Centers use SPEDE to solicit quotations, receive vendor responses, and award purchase orders electronically for awards not exceeding $25,000. The SPEDE system receives information from manual sources, internal and external systems, and automatically prepares the appropriate procurement documents for transmission.

MOCAS, DPACS, SPEDE Systems End-to-End Testing. The DLA Systems Design Center (DSDC) in Columbus, Ohio, was responsible for the end-to-end testing of

MOCAS, DPACS, and SPEDE. The DSDC testing officials conducted tests from April 5 through April 9, 1999, following guidance in the DLA Systems Cross Functional End-to-End Test Plan for Y2K Enterprise Testing (The Logistics Plan). The Logistics Plan defines three levels of testing, consisting of intra-component (level I), inter-component (level II), and post-test activities that include retest (level III). The DLA determined that all MOCAS, DPACS, and SPEDE mission-critical interfaces were internal to DLA and scheduled the systems for level I testing only. The DLA concluded that because the internal interfaces tested are the same interfaces used to communicate with systems belonging to the Military Service there was no need to test the interfaces with external systems. This conclusion assumes that the owners of the external systems have not made changes to communications, application software, and equipment that would impact the DLA systems, and that windows used to interpret the century from the year are matching. The Logistics Plan identified the direct vendor delivery process, the contract award process, the contract shipment process, and the shipment alert process as the four mission-critical internal threads that involved MOCAS, DPACS, or SPEDE. The testing process consisted of four cycles with multiple tests of the mission-critical threads. For example, in testing the contract award process, procurement transaction data flows were tested along the mission-critical thread from DPACS, through three different logistics systems, and finally to MOCAS. The test beds were logically configured to match the production environment, and the transactions used to execute the tests were designed by system users to maximize the amount of data exercised and provide assurance that the systems performed correctly.

MOCAS, DPACS, SPEDE Test Results. The DSDC testing officials reported that end-to-end testing of MOCAS, DPACS and SPEDE under the Logistics Plan was successful. A total of 47 transactions were tested for MOCAS, 42 passed and 5 were canceled because of typing errors. The five canceled tests were not rerun because the errors were not date related and sufficient tests were successfully completed. For DPACS, 13 transactions were successfully tested and for SPEDE, 4 transactions were successfully tested. However, the tests for the three systems only addressed intra-agency (level I) processing. The level I tests provide reasonable assurance that MOCAS, DPACS, and SPEDE will function properly within DLA during the Y2K transition, and limited assurance that external interfaces will function properly. On October 5, 1999, DLA issued a plan to test DPACS and SPEDE external interfaces, but had no plan to test MOCAS external interfaces.

Concerning MOCAS external interfaces, many of these interfacing systems use standard military and electronic commerce/electronic data interchange formats that will not change before or immediately after the Y2K transition. This means that the year information in data fields is kept as two characters and the receiving system determines the century using a windowing technique.* Therefore, there is a logic change in the interface even if the physical format did not change. For an interface to be successful, the window used by the sending system and receiving system must match. The window must be accurately defined and communicated to the sending and receiving systems for implementation. Only 1 of the 22 interface agreements between MOCAS and

*A windowing technique establishes a 100-year range of acceptable dates. For example, a 50/50 window can be defined as a 2-digit date that is equal to or greater than 50 (95) representing a year in the 20th century (1995). A 2-digit year that is less than 50 (01) represents a year in the 21st century (2001).

interfacing systems accurately defined the window. Another agreement stated a 75/25 window was to be used, but did not specify how the 75/25 would be interpreted. Therefore, MOCAS is at risk of corrupting its data or other system's data because of incorrect determination of century based on communicated date information. Even if an interface window is well defined, the interface should be tested to validate that both partners are using the same window. When the window is not well defined, extra effort is needed to correct this deficiency. To provide additional assurance that MOCAS interfaces with external systems will function properly in Y2K, DLA should check all MOCAS external interfaces to ensure that the window being used to interpret the century from the year is clearly defined and successfully communicated to the interface partners. We are not making a recommendation concerning DPACS and SPEDE because on October 5, 1999, DLA issued a draft plan to test DPACS and SPEDE external interfaces with vendors. On November 1, 1999, DLA officials advised that the tests would be completed by November 19, 1999.

Independent Verification and Validation of Logistics Plan Level I Testing. A DLA contractor supported DSDC by performing independent verification and validation of the systems tested. The contractor gathered test results for each system and verified that the actual test results produced were the same as the expected results. The contractor concluded that there were no failures in the tests because of date processing, and that no Y2K errors were found during the system test or the independent verification and validation process. The contractor also noted that DPACS and SPEDE external interfaces with vendors were not tested and recommended further testing on DPACS and SPEDE involving at least a few vendors.

Non-Mission Critical Systems

The Military Services and Defense agencies identified a total of 35 non-mission critical procurement systems. The Capstone Plan requires that testing of these systems be completed by September 30, 1999. See Appendix B for a listing of non-mission critical procurement systems and testing status as of September 1999.

Contingency and Continuity of Operations Plans

The Navy and DLA prepared Contingency and Continuity of Operations Plans for each mission-critical procurement system as required by the Capstone Plan. The Navy tested its contingency plan for ITIMP during exercise Positive Response, which concluded on September 3, 1999. The DLA completed testing of the contingency plans for MOCAS, DPACS, and SPEDE in June 1999.

Additional Opportunities to Mitigate Risk

There are additional methods that DoD organizations can use to reduce the risk of mission-critical procurement system failures in Y2K. These methods include testing the interfaces between external systems and using code-scanning tools to examine application software.

Testing External Interfaces. One risk mitigation method is to test external interfaces. End-to-end testing should ensure the accurate flow of data through the interfaces. Accurate flow of data through interfaces is critical to avoid propagating errors from one system to another.

Automated Scanning of Application Software. Another risk mitigation method is to use Y2K automated software-testing tools to examine application software. The DoD placed emphasis on computer code testing and purchased software for scanning application software for Y2K errors. In an August 11, 1999, memorandum, the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) strongly recommends that every DoD organization perform software maintenance using automated software quality and testing tools to verify the integrity of remediated code. Some DoD organizations had already planned to take the initiative of scanning software codes to provide additional assurance that the Y2K risk was reduced. For example, in October 1999, DLA stated that it is using both commercial and in-house software to scan application software for Y2K code problems. The Inspector General, DoD, believes that code scanning should be used aggressively to provide additional assurance that mission-critical systems will be operational in Y2K and beyond, especially when any doubt exists about the executability or rigor of the end-to-end tests. On July 29, 1999, the Inspector General, DoD, announced the "Audit of the Use of Analysis and Renovation Tools for Year 2000 Assurance." The audit will evaluate the use of automated tools to scan application software for coding errors.

Conclusion

The end-to-end tests conducted by the Navy and DLA provided reasonable assurance that mission-critical procurement systems will operate properly internally in year 2000. The Navy test also provided assurance that ITIMP and NECO will operate properly with external interfaces except that the NECO interface with the DLA MOCAS system was not tested. However, we believe there is minimal risk that NECO transmissions of ITIMP data to MOCAS will fail. The NECO system has been transmitting ITIMP data to MOCAS in ANSI X12 format without problems, and will continue to use ANSI X12 format in Y2K. The DLA tests provided limited assurance that MOCAS, DPACS, and SPEDE will operate properly with external interfaces because the external interfaces were not tested. The DLA plans to test DPACS and SPEDE external interfaces with vendors by November 19, 1999, but does not plan to test MOCAS external interfaces. To mitigate the risk that MOCAS external interfaces will fail during the Y2K transition, DLA should check all MOCAS external interfaces to ensure that the window being used to interpret the century from the year is clearly defined and successfully communicated to the interface partners.

Management Comments on the Finding and Audit Response

DLA Comments. The DLA partially concurred with the Finding. The DLA indicated that the test between the MOCAS and DLA internal systems can also be considered as a test of the MOCAS external interfaces. The DLA stated that the transaction sets tested between MOCAS and the internal systems are identical to the interfaces between MOCAS and its external systems, including the Navy ITIMP system. The DLA

agreed, however, that more needs to be done to provide assurance that MOCAS will function properly in year 2000 and stated that it will evaluate and assess test data, transmission formats, internal and external interfaces, windowing, and Memoranda of Agreement to assure the risk is mitigated.

Audit Response. The DLA comments are generally responsive. Because DLA agreed to take corrective action in this area, no additional comments are required.

Recommendation and Management Comments

We recommend that the Director, Defense Logistics Agency check all MOCAS external interfaces to ensure that the window being used to interpret the century from the year is clearly defined and successfully communicated to the interface partners.

Defense Logistics Agency Comments. The Deputy Director, Defense Logistics Agency concurred, stating that a risk mitigation study will be conducted to assure acceptable risks for all external interfaces between MOCAS and the 45 systems that use it. The study will concentrate on the specific windowing techniques MOCAS and its external partner systems use and the Memoranda of Agreement covering the external interfaces and windowing techniques. The study will be completed by November 30, 1999.

Appendix A. Audit Process

This report is one in a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the Y2K computing challenge. For a list of audit projects addressing the issue, see the Y2K web pages on the IGNET at http://www.ignet.gov.

Scope

We reviewed test plans and available documentation supporting end-to-end tests of procurement systems determined by the Military Services and Defense agencies as mission critical and non-mission critical. We interviewed Army, Navy, Air Force, DLA, DISA, DSDC, and NIMA management and program officials involved in Y2K compliance efforts to determine the status of their Y2K testing efforts. We reviewed end-to-end processes and test results at the Naval Supply Systems Command and the Defense Logistics Agency Systems Design Center. Additionally, we interviewed officials from the office of the Director, Defense Procurement, the office of the Assistant Secretary of the Navy (Research, Development, and Acquisition), and DLA headquarters to discuss oversight of implementation of the Capstone Test Plan for Procurement Systems for Y2K compliance.

DoD-Wide Corporate Level Government Performance and Results Act Goals. In response to the Government Performance Results Act, the Department of Defense has established 2 DoD-wide corporate level performance objectives and 7 subordinate performance goals. This report pertains to achievement of the following goal (and subordinate performance goal):

> **Goal 2:** Prepare now for an uncertain future by pursuing a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. Transform the force by exploiting the Revolution in Military Affairs, and reengineer the Department to achieve a 21st century infrastructure. **Performance Goal 2.2:** Transform U.S. military forces for the future. **(00-DoD-2.2)**

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objectives and goals.

- **Information Technology Functional Area. Objective:** Become a mission partner. **Goal:** Serve mission information users as customers. **(ITM-1.2)**

- **Information Technology Management Functional Issue Area. Objective:** Provide services that satisfy customer information needs. **Goal:** Modernize and integrate DoD information infrastructure. **(ITM-2.2)**

- **Information Technology Management Functional Issue Area. Objective:** Provide services that satisfy customer information needs. **Goal:** Upgrade technology base. **(ITM-2.3)**

GAO High Risk Area. The General Accounting Office (GAO) has identified several high-risk areas in the Department of Defense. This report provides coverage of the Information Management and Technology high-risk area.

Methodology

Use of Computer-Processed Data. We did not evaluate the general and application controls of the ITIMP, MOCAS, DPACS, and SPEDE systems, although we used data generated by those systems to verify that test transactions matched the expected test results. We did not evaluate the controls because the test transactions were processed using production software, databases, and equipment (partitioned as test beds) and we had no reason to question the reliability of the controls for the production systems. Nothing came to our attention as a result of our verification procedures that caused us to doubt the reliability of the computer-processed data.

Use of Technical Assistance. We obtained assistance from a Computer Engineer in the Inspector General, DoD, Audit Followup and Technical Support Directorate. The Computer Engineer assisted in the evaluation of test results for the MOCAS, DPACS, and SPEDE systems.

Audit Type, Dates, and Standards. We performed this program audit from April through September 1999, in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD. Further details are available upon request.

Management Control Program

We did not review the management control program related to the overall audit objective because DoD recognized the Y2K issue as a material management control weakness area in the FY 1998 and FY 1999 Annual Statements of Assurance.

Summary of Prior Coverage

The General Accounting Office and the Office of the Inspector General, DoD have conducted numerous reviews related to Y2K issues. General Accounting Office reports can be assessed over the Internet at http://www.gao.gov. Inspector General, DoD reports can be assessed over the Internet at http://www.dodig.osd.mil.

Appendix B. Non-Mission Critical Procurement Systems and Testing Status

Non-Mission Critical Systems

Army

Standard Army Automated Contracting System (SAACONS)
Procurement Automated Data and Documentation System (PADDS)

Navy

Contract Monitoring Automated System (CMAS)
Requisition Automated Processing System (RAPS)
Small Procurement Electronic Data Interchange (SPEDI)
Integrated Production Management System (IPMS)
Procurement Contract Monitoring Automated System (PROCMAS)
Navy Electronic Commerce On-Line (NECO)
Purchase Card System (PCS)
Quicklook Contracts System (QUICKLOOK)

Air Force

Contract Action Reporting System (CARS)
Contract Action Query System (CAQS)
Contract Profit Reporting System (CPRS)
Acquisition Management Information System (AMIS)
Acquisition and Due-In System (ADIS)
Contract Information Database System (CIDS)
Automated Contract Preparation System (ACPS)
Base Contracting Automated System (BCAS)
Menu Assisted Data Entry System (MADES)

Defense Information Systems Agency

Contract Status Tracking System (CSTS)
Contractual On-Line Procurement System (COPS)
Rates and Tariffs File System (RTFS)
Web-Order Entry (WEB-OE)

Defense Intelligence Agency

Standard Automated Contracting System (SACONS-Federal)

Defense Logistics Agency

ACO Modification Module Increment II (ACOMOD)
Contract Administration Paperless Automated Support System (COMPASS)
Contract Audit Follow-up (CAFU)
Customs Duty Free Management System (CUSTOMS)
Defense Contract Administration Reimbursable Reporting System/Personnel Labor Accounting System (DCARRS/PLAS)
Defense Contract Management Command Information Repository Automated Metrics System (DIRAMS)
Over and Above System (OASYS)
Plant Clearance Automated Reutilization Screening System (PCARSS)
Supplier Information Service (SIS)
Termination Automated Management System (TAMS)

National Imagery and Mapping Agency

Procurement Request Information System Windows (WPRISM)

The non-mission critical procurement systems listed above have been certified Y2K compliant.

End-to-End Testing Status

Army. The SAACONS will be replaced by the Standard Procurement System. The Army is testing those SAACONS interfaces that will be used by the Standard Procurement System when implemented. As of October 30, 1999, the Army successfully tested all but one of SAACONS primary interfaces for exchanging requirement and obligation data. The Army experienced problems with the load application on the remaining primary interface. On November 1, 1999, the Army advised that it was working to resolve the problems with the interface and complete SAACONS testing. The Army does not plan to test PADDS because it is a stand-alone system.

Navy. The Navy completed end-to-end tests of two of its eight non-mission critical systems. The end-to-end test of RAPS was successfully completed May 22, 1999. The NECO system was end-to-end tested in conjunction with the end-to-end test of Navy ITIMP system, a mission-critical system. The test was successfully completed on July 6, 1999. The Navy does not plan to test the other six systems.

Air Force. The Air Force does not plan to conduct end-to-end tests but is performing independent verification and validation of its non-mission critical procurement systems. The Air Force anticipates the independent verification and validation will be completed by December 1999.

Defense Information Systems Agency. The Defense Information Systems Agency successfully end-to-end tested the COPS, RTFS, and WEB-OE systems in July 1999. The Defense Information Systems Agency does not plan to test CSTS because it is a stand-alone system.

Defense Intelligence Agency. The Defense Intelligence Agency does not plan to end-to-end test SACONS-Federal because it is a stand-alone system that does not interface with other systems.

Defense Logistics Agency. The Defense Logistics Agency does not plan to end-to-end test its non-mission critical procurement systems. The Defense Logistics Agency stated that all its non-mission critical procurement systems underwent other tests that made them Y2K compliant and certified.

National Imagery and Mapping Agency. The National Imagery and Mapping Agency does not plan to end-to-end test the WPRISM. The WPRISM system is a stand-alone procurement system that provides data to the Defense Finance and Accounting Service Integrated Accounts Payable System. The WPRISM interface with the Integrated Accounts Payable System was successfully tested in August 1999.

Appendix C. Report Distribution

Office of the Secretary of Defense

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  Deputy Under Secretary of Defense (Logistics)
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Under Secretary of Defense (Comptroller)
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Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
Senate Special Committee on the Year 2000 Technology Problem
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Reform
House Subcommittee on Government Management, Information, and Technology, Committee on Government Reform
House Subcommittee on National Security, Veterans Affairs, and International Relations, Committee on Government Reform
House Subcommittee on Technology, Committee on Science

Defense Logistics Agency Comments

DEFENSE LOGISTICS AGENCY
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FT. BELVOIR, VIRGINIA 22060-6221

IN REPLY
REFER TO DD

OCT 25 1999

MEMORANDUM ASSISTANT INSPECTOR GENERAL FOR AUDITING
DEPARTMENT OF DEFENSE

SUBJECT: DoD IG Draft Report, Procurement Systems Year 2000 End-to-End Tests (Project No. 9CH-5047)

The following comments are provided in response to your October 8, 1999, request in the subject report. Defense Logistics Agency (DLA) partially concurs with the finding and concurs with the recommendation. Comments to the report are shown below.

FINDING: End-to-End Testing of Procurement. More needs to be done to provide assurance that the Defense Logistics Agency Mechanization of Contract Administration Services procurement system will function properly in the year 2000. The Defense Logistics Agency completed end-to-end testing of mission critical procurement systems required by the Capstone Plan. However, the end-to-end tests did not include external interface testing for its mission-critical procurement systems. As a result, the Director, Defense Logistics Agency cannot ensure that the procurement process will not be adversely affected by data from external interface partners.

DLA COMMENTS: Partially concur. The procurement end-to-end testing included four DLA Mission Critical Procurement Systems (MOCAS, SAMMS, SPEDE and DPACS). The testing included transmission of MILSCAP and ANSI X.12 Electronic Data Interchange (EDI) transaction sets between these systems. The MILSCAP and EDI transaction sets tested are identical to the interfaces between MOCAS, the Navy's mission critical ITIMP, and other external systems. DLA will conduct a risk migration study on interfaces and windowing. The study will evaluate and assess test data, MILSCAP and EDI transmission formats, internal and external interfaces, windowing, and Memoranda of Agreement to assure the risk is mitigated.

RECOMMENDATION: We recommend that the Director, Defense Logistics Agency check all MOCAS external interfaces to ensure that the window being used to interpret the century from the year is clearly defined and successfully communicated to the interface partners.

DLA COMMENTS: Concur. DLA will conduct a risk mitigation study to assure acceptable risks for all external interfaces between MOCAS and the 45

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systems that utilize MOCAS. This effort will include mission critical, non-mission critical, and unique systems internal to DLA as well as those external systems that interface with MOCAS. The study will concentrate on the specific windowing techniques MOCAS and its external partner systems are using and Memoranda of Agreement covering the external interfaces and windowing techniques. Memoranda of Agreement will be updated or implemented where necessary. The study will also evaluate the existing interface test results and reports. All these areas will be evaluated to assure that Y2K data can be processed effectively between MOCAS and its partners. This will assure that all interfaces, including MILSCAP and EDI formats, are Y2K compliant. The study will be completed by November 30, 1999.

DISPOSITION:
Action is Ongoing. ECD: November 30, 1999

RAYMOND ARCHER III
Rear Admiral, SC, USN
Deputy Director

Audit Team Members

The Contract Management Directorate, Office of the Assistant Inspector General for Auditing, DoD, prepared this report. Personnel of the Office of the Inspector General, DoD, who contributed to the report are listed below.

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