

Audit



Report

DEFENSE MILITARY PAY
YEAR 2000 END-TO-END TESTING

Report Number 00-017

October 21, 1999

Office of the Inspector General
Department of Defense

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Acronyms

DFAS	Defense Finance and Accounting Service
DISA	Defense Information Systems Agency
DJMS	Defense Joint Military Pay System
DRAS-APS	Defense Retiree and Annuitant Pay System-Annuitant Pay Subsystem
DRAS-RCPS	Defense Retiree and Annuitant Pay System-Retiree Casualty Pay Subsystem
MCTFS	Marine Corps Total Force System
OMB	Office of Management and Budget
ROTC	Reserve Officer Training Corps
Y2K	Year 2000



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October 21, 1999

MEMORANDUM FOR DIRECTOR, DEFENSE FINANCE AND ACCOUNTING
SERVICE

SUBJECT: Audit Report on Defense Military Pay Year 2000 End-to-End Testing
(Report No. 00-017)

We are providing this report for information and use. This is one in a series of reports that the Inspector General, DoD, is issuing in accordance with an informal partnership with the DoD Chief Information Officer to monitor Defense Finance and Accounting Service efforts to address the Year 2000 computing challenge. We considered management comments on a draft of this report when preparing the final report. Management comments met the requirements of DoD Directive 7650.3.

We appreciate the courtesies extended to the audit staff. For additional information on this report, please contact Ms. Kimberley A. Caprio at (703) 604-9139 (DSN 664-9139) (kcaprio@dodig.osd.mil), Mr. Dennis L. Conway at (703) 604-9158 (DSN 664-9158) (dconway@dodig.osd.mil), or Mr. Eric L. Lewis at (703) 604-9144 (DSN 664-9144) (elewis@dodig.osd.mil). See Appendix E for the report distribution. See the inside back cover for a list of audit team members.

A handwritten signature in black ink, reading "David K. Steensma".

David K. Steensma
Deputy Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 00-017
(Project No. 9FG-9026)

October 21, 1999

Defense Military Pay Year 2000 End-to-End Testing

Executive Summary

Introduction. This is one in a series of reports that the Inspector General, DoD, is issuing in accordance with an informal partnership with the DoD Chief Information Officer to monitor DoD efforts to address the Year 2000 (Y2K) computer challenge. For a list of audit projects addressing the issue, see the Y2K website on the IGnet at <http://www.ignet.gov>.

The purpose of end-to-end testing is to verify that the interrelated systems supporting an organizational function, such as military pay and retirement and annuitant pay, interact as intended in an operational environment. For purposes of conducting end-to-end assessments, the Defense Finance and Accounting Service identified seven critical business processes referred to as events. Military pay was identified as one of the seven events. The military pay mission is to process military and retiree payroll and to make annuity payments resulting from notification of death. Between May and October 1999, the Defense Finance and Accounting Service will conduct end-to-end testing of the systems that pay active-duty military, retirees, and annuitants.

Objective. The overall audit objective was to evaluate the plans for end-to-end testing of DoD military pay and retirement and annuitant pay. Specifically, we reviewed the Defense Finance and Accounting Service Y2K End-to-End Master Test Plan and the plans for conducting end-to-end testing of military pay and retirement and annuitant pay.

Results. The Defense Finance and Accounting Service plans for conducting military pay end-to-end testing were not in accordance with the Defense Finance and Accounting Service Y2K End-to-End Master Plan, which would have provided a sound approach with maximum risk mitigation, in several key areas. Specifically, the end-to-end test plans:

- did not provide for testing all critical dates;
- provided for testing in a simulated environment without an analysis of the risks involved;
- did not require baselines as stated in the Master Plan (the baseline is the set of known end-to-end test inputs and outputs extracted from systems that have been certified as Y2K compliant);

- did not include a standard methodology for tracking the tests; and
- did not provide for a risk assessment and management program.

As a result, the test results alone may not provide sufficient assurance that Y2K disruptions will not occur.

Summary of Recommendations. Because end-to-end testing is substantially complete, we recommend that the Director, Defense Finance and Accounting Service, take alternative measures to mitigate the risk that military pay systems will be unable to successfully process data after 2000. Such alternatives may include performing supplementary end-to-end tests, using code scanners, or expanding the contingency plans.

Management Comments. The Defense Finance and Accounting Service, Director, Information Technology, concurred with the recommendations and stated that:

- DFAS has hired the Joint Interoperability Test Command to independently review, validate, and assist in documenting the end-to-end testing of systems.
- Additional contingency plans have been drafted, and contingency testing beyond the minimum requirements will be conducted.
- An independent contractor has performed code scanning of the Defense Joint Military Pay System, and the other military pay systems will be scanned before November 30, 1999.

Refer to the Finding for a discussion of management comments and to the Management Comments section for the complete text of the comments.

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Background

Addressing the Year 2000 Computing Challenge. This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor efforts to address the Year 2000 (Y2K) computing challenge. For a list of audit projects on this issue, see the Y2K website at www.ignet.gov.

The Defense Finance and Accounting Service (DFAS) is the principal agency responsible for DoD accounting. In FY 1998, DFAS processed a monthly average of 9.8 million payments to DoD personnel, 1.2 million commercial invoices, 600,000 travel vouchers or settlements, 500,000 savings bonds, and 120,000 transportation bills of lading. The agency's monthly disbursements totaled approximately \$24 billion.

For Y2K purposes, DFAS has identified 45¹ systems as mission-critical. To test mission-critical systems for Y2K compliance, DFAS has identified its critical business processes and has developed plans to test those processes. Critical processes are those that, if not performed, would prevent or immediately impair disbursement, pay, and accounting. Specifically, DFAS identified the following seven critical business processes: civilian pay, military pay (including retirement and annuitant pay), contractor and vendor pay, transportation pay, travel pay, accounting, and disbursing.²

End-to-End Testing. The end-to-end process is the flow of data through a set of interconnected systems that performs a core business process, function, or mission. Data flow begins with the initial input of data into the first system and ends with the final receipt of data in the last system and the receipt of output by the user. The purpose of Y2K end-to-end testing is to verify that the set of interrelated systems supporting DFAS business processes, such as DoD military pay, operate and appropriately process Y2K-related data.

DFAS End-to-End Testing. DFAS has organized its end-to-end testing into seven testing events, one for each critical mission or business process. DFAS has further divided each event or business process into threads. A thread is a system or set of systems that perform the functions within the business process. Each event can contain one or more threads.

DoD Y2K Management Plan. The "DoD Y2K Management Plan," version 2.0, December 1998, defines the DoD Y2K management strategy, including the planning and execution of end-to-end testing. Appendix I of the management plan, "Guidelines to Support DoD Y2K Operational Readiness," provides guidance on planning, executing, and evaluating activities required to

¹ In previous audit reports, we identified 42 DFAS mission-critical systems. DFAS recently added three systems to its mission-critical list: the Standard Accounting and Reporting System-One Pay, the Standard Army Financial Accounting and Reporting System, and the Standard Base Supply System.

² A disbursing system makes payments based on a pay system's calculations.

assess Y2K readiness. These activities include end-to-end tests of functional areas. Appendix I identifies roles and responsibilities and defines the requirements for developing end-to-end master plans, event plans, reporting, risk assessment, data collection and data analysis, execution, and management controls.

DFAS Y2K End-to-End Testing Guidance. DFAS issued the “DFAS Year 2000 Management Plan (the Management Plan),” version 2.0, in May 1999. The Management Plan provides guidance for the entire Y2K process, including testing, to ensure the continuation of DFAS operations through January 2000 and beyond. For purposes of testing, the Management Plan identifies requirements that include the following:

- use of the test procedures and processes defined in DFAS Regulation 8000.1-R, “Information Management Policy and Instructional Guidance,” August 21, 1996;
- mandatory completion, signing, and approval of Y2K checklists for certifying systems as Y2K compliant; and
- documented proof of Y2K compliance from systems of which DFAS is a minority owner.

DFAS Y2K End-to-End Master Plan. DFAS issued the “DFAS Y2K End-to-End Master Plan (the Master Plan),” version 2.2, June 1, 1999, specifically for Y2K end-to-end testing of its mission-critical business processes. The Master Plan identifies roles and responsibilities; assumptions and constraints related to testing; interfaces with non-DFAS organizations; and the requirements for planning, testing, and reporting on test results.

Roles and Responsibilities. DFAS designated a Y2K project manager and a military pay functional proponent at DFAS headquarters who have overall Y2K testing responsibility. DFAS directed its functional proponents to assign event leaders and thread leaders to execute the end-to-end testing. DFAS has also assigned roles and responsibilities to system managers for controlling their segments of the end-to-end testing process.

Assumptions and Constraints. Because of limited time and resources, the Master Plan acknowledged constraints and identified assumptions related to Y2K end-to-end testing. These included the assumptions that third-party software and computing platforms are Y2K compliant; that operations and compliance testing takes precedence over end-to-end testing; that partner organizations will conduct their own internal end-to-end tests and provide input for DFAS; and that all mission-critical systems will have contingency plans in place.

Interface Requirements. The Master Plan stated that each test event will include critical automated interfaces with other departments and agencies. However, because of size limitations at the DISA Megacenters that support testing, DFAS and the other DoD organizations may not be able to run

true end-to-end tests simultaneously. Rather, each organization will maintain sufficient control of its segment of the end-to-end testing process to ensure the integrity of the data flow from one system to another.

Planning, Testing, and Reporting. The Master Plan included the following:

- **Live Versus Simulation Testing.** DFAS plans to test its business processes under normal operating conditions when possible. Otherwise, DFAS will use a time machine or simulated operating environment and will document the reasons and the associated risks ³
- **Critical Dates.** Although the Master Plan did not designate specific dates for testing, it recommended that testing cover the following five periods: the fiscal Y2K crossover, calendar year 2000 crossover, fiscal year 2001 crossover, calendar year 2001 crossover, and leap year (February 29, 2000). DFAS recommended that the dates chosen for testing be consistent with the dates tested by interfacing systems.
- **Baselines.** The Master Plan stated that after testing the dates, DFAS organizations would compare their test results to outcomes previously determined as the baseline. (The baseline is the set of known end-to-end test inputs and outputs extracted from systems that have been certified as Y2K compliant.) Each DFAS organization will document the discrepancies between each of the tests and the baseline.
- **Data Analysis and Documentation.** The Master Plan required that each DFAS organization develop and document in its test plan a data collection and analysis strategy with sufficient information to support end-to-end test design, results, and analysis. The Master Plan left the details of data analysis or documentation to the organizations responsible for testing.

Military Pay Event. DFAS identified military pay as one of the seven critical business processes. The military pay mission is to process military and retiree payroll and make annuity payments resulting from notification of death. End-to-end testing of military pay systems is scheduled to take place between May and August 1999.

High-Impact Federal Program. On March 26, 1999, the Director, Office of Management and Budget (OMB), issued memorandum M-99-12, "Assuring the Year 2000 Readiness of High-Impact Federal Programs," to the heads of the Executive departments and agencies. The memorandum identified 42 Federal

³Time-machine tests involve setting system clocks to the year 2000 and operating under test conditions. A simulation is a program that allows testers to simulate changing dates on files rather than actually changing the system dates. Consequently, a simulation does not test the transition to a Y2K date.

programs that are high-impact in terms of delivery of services to the public and assigned a lead agency for each program. Military retirement was listed as a high-impact program, and DoD was designated as the lead agency for the program. Lead agencies are required to provide additional details on Y2K readiness of high-impact programs in quarterly reports to OMB. The computer system used to process pay for retired military personnel is the Defense Retirement and Annuitant System (DRAS), which is owned by DFAS.

Objectives

The overall audit objective was to evaluate the effectiveness of the planned end-to-end testing of DoD military pay and retirement and annuitant pay. Specifically, we reviewed the Master Plan and plans for conducting end-to-end testing of military pay and retirement and annuitant pay.

This report addresses plans for conducting Y2K end-to-end testing for DoD military pay and retirement and annuitant pay systems. Future reports will address other critical business processes at DFAS. See Appendix A for a discussion of the audit scope and methodology and the management control program and for information on prior audit coverage.

Plans for End-to-End Testing of Military Pay Systems

Military pay system managers at DFAS took the initiative of developing plans for end-to-end testing before the DFAS Y2K Master Plan was issued. The plans were based on sound methodologies and presented a detailed outline. However, DFAS plans for the end-to-end testing of the military pay functional area did not provide sufficient evidence to ensure that data would be appropriately processed and that payments to active-duty military, retirees, and annuitants would continue unaffected by Y2K problems. The end-to-end test plans:

- did not provide for testing all critical dates;
- provided for testing in a simulated environment without an analysis of the risks involved;
- did not require baselines as stated in the Master Plan (the baseline is the set of known end-to-end test inputs and outputs extracted from systems that have been certified as Y2K compliant);
- did not include a standard methodology for ongoing tracking of the tests; and
- did not provide for a risk assessment and management program.

As a result, DFAS needed to take alternative measures to provide assurance that testing would mitigate risks and that the systems that pay over 4.5 million active-duty military, retirees, and annuitants would continue to function properly.

DoD Military Pay Mission

Mission of Military Pay. To conduct end-to-end assessments, DFAS identified seven critical business processes referred to as events. DFAS identified military pay as one of those events. The military pay mission is to process military and retiree payroll and make annuity payments resulting from notification of death. The military pay systems transmit data to the Federal Reserve Banks and disbursing systems (the Marine Corps military pay system has its own disbursing module) for actual payment. Disbursing is one of the seven events and is covered separately. End-to-end testing of military pay began in May 1999 and should conclude in October 1999. As of August 27, 1999, the schedule for end-to-end testing was as follows.

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- The Defense Joint Military Pay System (DJMS) Active Component began end-to-end testing on August 23, 1999, and should be complete by October 31, 1999.
 - The DJMS Reserve Component began end-to-end testing on July 8, 1999, and will finish in late September 1999. The Naval Reserve Component of DJMS will not start testing until October 13, 1999, and should be complete by October 31, 1999.
 - End-to-end testing of the Defense Retiree and Annuitant Pay System-Retiree Casualty Pay Subsystem (DRAS-RCPS) began on May 3, 1999, and was completed on August 19, 1999.
 - The Defense Retiree and Annuitant Pay System-Annuitant Pay Subsystem (DRAS-APS) began end-to-end testing on June 4, 1999. Test completion was scheduled for August 13, 1999. However, one test remains with the Defense Manpower Data Center; the estimated completion date is no later than October 31, 1999.
 - End-to-end testing of the Marine Corps Total Force System (MCTFS) began on June 21, 1999, and was completed on August 12, 1999.

Military Pay Systems and Critical Interfacing Systems. The Master Plan divided the military pay event into the following threads:

- satisfying a payday for Active Component personnel;
- satisfying a payday for Reserve Component personnel;
- satisfying a payday for retirees; and
- making annuitant payments.

Critical Interfacing Systems. DFAS headquarters identified four DFAS-owned computer systems necessary to support the military pay mission. The four systems are:

- DJMS Active and Reserve Components,
- MCTFS,
- DRAS-RCPS, and
- DRAS-APS.

The system managers took the initiative of preparing the test plans for each of their systems, including identifying the interfaces to be tested for their respective systems. System managers determined that about 20 percent (or 71 of 356) of the interfaces contained the critical military pay functions for end-to-end testing.

Execution of End-to-End Test Procedures

The end-to-end test plans for military pay, prepared by the four system managers, were completed before DFAS-wide guidance was issued. The DFAS Y2K Project Office (the Project Office) issued the guidance on May 11, 1999. However, the DFAS military pay functional proponent (the functional proponent) and the system managers recognized that little time was allowed for preparing the plans and developed their plans before the guidance was published. As a result, the event plans did not include key test procedures, as prescribed in the DFAS Master Plan. Specifically, the plans:

- did not provide for testing all critical dates;
- provided for testing in a simulated environment, without an analysis of the risks involved;
- did not require baselines as stated in the Master Plan (the baseline is the set of known end-to-end test inputs and outputs extracted from systems that have been certified as Y2K compliant);
- did not include a standard methodology for ongoing tracking of the tests; and
- did not provide for a risk assessment and testing of critical dates.

Testing of Critical Dates. DFAS military pay systems plans did not provide for testing all of the critical Y2K dates. Personnel in the Project Office stated that they had initially intended to require testing of five specific, critical dates, as recommended by the DoD Y2K Testing Office.⁴ However, the Project Office personnel stated that because the DoD Y2K Testing Office had recommended, but did not require testing the dates, the requirement to test all five critical dates was dropped from the Master Plan.

Critical Dates for Military Pay Systems. The functional proponent stated that the critical dates for the military pay systems were January 1, 2000, and February 29, 2000. However, MCTFS was scheduled for testing only on February 29, 2000. The functional proponent stated that because the military pay systems operated on a calendar year basis, testing the fiscal year-end dates (October 1, 1999, and October 1, 2000) was not required. Further, the functional proponent also stated that testing for the January 1, 2001, date would

⁴ Those dates were the FY 2000 crossover, the calendar year 2000 crossover, the FY 2001 crossover, the calendar year 2001 crossover, and the leap year (February 29, 2000).

be difficult because of the time and funding constraints of aging the military pay databases. Consequently, the functional proponent believed that the risk of not end-to-end testing all five critical dates would be low.

Dates Tested During Y2K Certification. The functional proponent also stated that the five dates had been tested during the Y2K certification of each military pay system; therefore, the functional proponent was confident that the systems would function properly on the recommended dates. However, these dates were not tested from end to end with the interfacing systems. The functional proponent believed that this limited testing was adequate, based on the assumption that the greatest risk was whether the military pay systems would recognize leap year dates correctly.

Independent Verification of Prior Certifications. Because Y2K end-to-end certification testing was not done, the Project Office and the functional proponent assumed a higher risk. To reduce this risk, an independent verification of the prior certifications will be conducted to determine whether previous tests of the military pay systems met the intent of end-to-end testing. The Joint Interoperability Test Command will perform these reviews for the Project Office to determine whether the intent of end-to-end testing has been met or further end-to-end testing is necessary. The Joint Interoperability Test Command reviews for military pay systems are scheduled for October 4 through 18, 1999.

Risks of Simulated Testing. DFAS system managers had not documented the increased risks of the plans to use simulation software, rather than time machines, for testing. The Master Plan required tests to be performed in a live (production) environment, if possible, and to use time machines when a live environment was not feasible. A time machine changes the test environment (hardware and software) to Y2K; simulation software changes only the dates on software files. The Master Plan stated that if time-machine testing were not possible, the testing organization would have to use simulation and document the reasons for doing so, as well as the associated risk.

Use of a Time-Machine Environment. The Project Office proposed requiring the use of a time-machine environment for Y2K end-to-end testing. However, the functional proponent stated that the time and money constraints imposed a hardship, and the requirement was dropped. The functional proponent had stated that DISA probably would not have enough time machines to conduct the testing. Further, the Project Office did not require the functional proponent to prepare an analysis of the risks of using simulation software compared to a time-machine environment. On July 19, 1999, the functional proponent stated that additional time machines had been made available and would be incorporated into the testing for all systems except DRAS-APS and DRAS-RCPS. DRAS-RCPS will perform limited retesting if a time machine is available, and DRAS-APS will not use a time machine. However, we determined that only MCTFS used the time machine to conduct end-to-end tests.

Available Tools. The DFAS decision not to use available time machines should be reconsidered. Time machines can find errors that simulation software cannot. Additionally, code scanners can also find errors that simulation software can miss. The DoD Y2K Program Office has strongly endorsed the use of code scanners and has bought licenses for two such tools, which have been made available for DoD Components' use. Numerous other products can be procured as well.

Use of Baseline Data. The Master Plan specifically required the use of baselines for end-to-end testing. A baseline is a set of known inputs and outputs that define the state of a system at a point in time and is used as a measure for future test comparisons. The use of a baseline allows testers to identify deviations from test results and errors in logic and enhances the viability of the test product. A baseline test is run to provide the necessary data.

Current Baseline Test. One of the four military pay systems, DRAS-APS, plans to run a current baseline test to compare with the end-to-end test results. Testers for the other systems stated that the requirement to produce a baseline occurred after the event plans had been made. Further, a tester stated that conducting a current baseline test and the end-to-end test would double the amount of time required to accomplish the testing. However, personnel in the Project Office stated that the August 1999 target date could be extended.

Developing the Expected Results. In response to concerns about the lack of baselines, the functional proponent stated that all system managers had developed the expected results for their tests. The functional proponent also stated that since the Y2K certification testing was conducted, DJMS and MCTFS had made no major computational changes that would affect test results. In this case, the lack of a current baseline could distort the test results. Specifically, it may be difficult to determine whether a test failure is attributable to Y2K testing scenarios or to errors made by functional personnel when modifying a system's software after the Y2K certification testing.

Time Needed to Conduct a Baseline Test. The functional proponent explained that military payroll processing is cyclical, and that if a current baseline were necessary, this would double the time needed for testing. Because the definition of baseline data had not been properly explained to the testers, and they were operating under time constraints, the functional proponent believed that running baseline tests was not reasonable. However, that assumption increased the risk that the results expected from the tests may be inaccurate. We recommended that the functional proponent and the Project Office review how the testers and system managers had prepared the expected results and assess the risks involved in using those data. On July 19, 1999, the functional proponent responded by stating:

“The baseline data each of the centers will be using is the payroll data for the prior month...The baseline data will be compared with the test results and differences reviewed. Any differences that cannot be attributed to across-the-board pay increases, promotions, demotions,

longevity increases, end-of-service dates, retirements, etc. will be considered discrepancies and will be investigated as to cause. Based on this approach, the risk level associated with the use of the chosen baseline is assessed as low.”

Although we cannot verify that the risk of using the chosen baselines is low, the functional proponent has addressed our concerns about reviewing and assessing the risks involved in using baseline data.

Test Readiness Reviews. The Master Plan stated that one of the exit criteria for the planning phase of end-to-end testing was conducting a test readiness review and resolving issues from the review. As stated in DFAS 8000.1-R, test readiness reviews determine whether the systems are prepared to undergo the next level of testing. The Project Office personnel and the functional proponent stated that the staff and resources to conduct test readiness reviews were not available. In place of the readiness reviews, Project Office personnel stated that site visits were conducted to ensure that the testing personnel understood what was expected from them. However, those visits did not produce documented evidence that the systems were ready for testing or that reviews of test plans had been performed. Project Office personnel also stated that the testing process would be reviewed after the testing is complete. We do not see the benefit of conducting test readiness reviews after testing has been completed. On July 19, 1999, the functional proponent addressed these concerns by stating:

“A template for end-to-end status reporting was developed after the IG Audit began for each of the test threads and is the standard methodology currently in place for tracking the testing progress at each of the centers. Based upon a review of the templates, the risk level associated with their use is assessed as low.”

These templates were designed to report the status of testing, rather than to determine whether the systems were ready to be tested. The templates are good management tools, but are not a substitute for test readiness reviews. We recommended that DFAS provide the staff and resources to conduct test readiness reviews, because the reviews cannot reduce risks after testing has started.

Use of Checklists to Track Test Progress. The Master Plan included four checklists to be used by personnel at DFAS headquarters, the functional proponent, the event leader, and the tester to assess the effectiveness of end-to-end testing at each level. The Master Plan stated that these checklists would “provide independent auditors with evidence of compliance with the end-to-end test requirement.” Three of the four military pay system managers and testers completed the planning sections of the checklists at the request of the auditors. The checklists would provide documentation that important processes were addressed during the end-to-end testing and would aid in providing proof of the testing. However, neither the Project Office, nor the functional proponent required use of the entire checklists.

Completed Planning Checklists. The degree of compliance with use of the checklist was low. However, the functional proponent stated that use of the checklists would not be required.

Informal Tracking Methods. The Project Office stated that an informal method of tracking the testing process would be developed. However, the tracking would be done after the completion of testing. The functional proponent stated that informal methods would also be used to track the progress of ongoing tests, based on feedback from system managers. The system managers may not follow end-to-end guidance; therefore, the informal tracking of progress based on feedback from system managers does not ensure that end-to-end test requirements will be satisfied.

Effective End-to-End Testing Requirements. The current process carries a substantial risk that deviations from effective end-to-end testing requirements will not be discovered promptly. DFAS should require that the checklists be completed, signed, reviewed, and maintained as documentation that essential steps were taken to accomplish the goals of end-to-end testing. Although the functional proponent stated that the system managers had their own methods for evaluating progress, use of the checklists would set a standard among the four threads in the military pay event.

Risk Assessment and Management. Although the Master Plan stated that a program to identify, track, and manage risks would be part of the management controls for end-to-end testing, the functional proponent for military pay stated that updated risk assessments were not needed for the military pay area. Therefore, a risk management program for military pay end-to-end testing will not be implemented.

The functional proponent stated that the initial risk assessments prepared for each system during the remediation phases of the overall Y2K project were still valid, and no updates were necessary. The Management Plan for the remediation phase required that risk assessments be prepared and updated as exit criteria for four of the five phases. Because of the lack of time and resources and the number of deviations from the Master Plan, a risk management program for military pay must be put in place to ensure that the end-to-end testing process is conducted with minimal risk. We recommended that the functional proponent request updated risk assessments from each of the system managers and review those assessments for opportunities to mitigate the testing risks. Before this report was issued, the functional proponent addressed our concerns by stating that an informal risk assessment process was being used and steps were under way to implement a formal, documented risk management program.

DFAS Comments on Preliminary Audit Results

On May 28, 1999, the Inspector General, DoD, provided preliminary audit results in a memorandum to the DFAS Director for Information and Technology. DFAS responded in a memorandum dated June 8, 1999, which addressed six issues. The sections of the memorandum on Master Plan checklists, interfacing systems, and critical crossover dates are discussed below.

Master Plan Checklists. Our memorandum expressed concern that the Master Plan did not require completion of the checklists. DFAS responded that the use of checklists will be encouraged, but not mandatory. DFAS also stated that the checklists were issued as tools to assist its personnel in planning, tracking, and conducting end-to-end testing. Further, because each business area had established a normal testing practice, DFAS did not make the checklists mandatory. We recommended that DFAS reconsider making the checklists a mandatory part of end-to-end testing, as the checklists provide an excellent means to:

- ensure the completion of essential steps in the planning process,
- ensure compliance with requirements of the Master Plan, and
- allow for early correction of deviations or omissions from the Master Plan.

Interfacing Systems. Our memorandum stated that DFAS relies heavily on interfacing systems to provide a majority of data. Therefore, coordination and compatibility of data exchange with interfacing systems are critical to ensuring successful Y2K end-to-end tests. DFAS concurred, stating that its system managers were aware of the status of each of its interfacing partners and that DFAS would continue to track and monitor the status of each partner. DFAS did not provide details of how it would track or monitor the progress of the partners. During the audit, we found that military pay system managers could confirm the status of their systems, but could not always confirm the status of systems not owned by DFAS.

Critical Crossover Dates. Our memorandum expressed concern that DFAS was not requiring the testing of all the critical crossover dates in its end-to-end tests. Conceptually, end-to-end testing involves the interoperability of a number of systems. Omission of specific date testing in one system could invalidate the date testing in another. The purpose of Y2K end-to-end testing is to verify that the set of interrelated systems supporting DFAS business processes, such as DoD military pay, operate and process Y2K-related data appropriately. Therefore, testing of all dates becomes essential. For example, the military pay event plans did not include the testing of many critical dates in the Master Plan. The functional proponent stated that the system managers had tested those dates with their interface partners during system-level testing. Because all dates were not tested, the disbursing and accounting events could be affected. DFAS

responded that it concurs and has encouraged coordination of dates among partners. DFAS has also authorized its functional managers (proponents) to determine which dates should be tested.

Summary of Military Pay End-to-End Test Planning

DFAS had accurately documented that the end-to-end testing for military pay and other functional areas carried significant risks. DFAS stated that:

- the time available for testing is short,
- the test scope may be too limited to provide reasonable assurance,
- the test environment may not be realistic,
- test schedules may slip,
- costs may be prohibitive,
- segment testing will be done instead of end-to-end testing,
- a lack of participation from interfacing organizations was probable, and
- including overseas components in the testing will be difficult.

To alleviate some risk, the DFAS functional proponent stated that DFAS had reviewed the selection of all critical interfaces. The functional proponent also stated that the validity of the testing constraints and assumptions in the Master Plan had been verified. Specifically, the functional proponent stated:

“All systems except Navy systems have been Y2K certified and DISA has provided the required resources in a timely fashion except the time machine for DRAS-RCPS. Both exceptions are expected to be cleared before October 30, 1999.”

Other specific areas of risk need to be addressed. These areas include the dates tested, test environment, test readiness reviews, use of code scanners, and risk management. On July 14, 1999, we informed DFAS of our concerns in these areas. Because the issues identified in this report are not likely to be resolved before testing is completed, DFAS should take alternative measures to reduce the risk that military pay systems will be unable to process data successfully after 2000. Alternative measures may include performing supplementary end-to-end tests, using code scanners, or expanding the contingency plans.

Recommendation and Management Comments

We recommend that the Director, Defense Finance and Accounting Service, direct the Defense Finance and Accounting Service Year 2000 Project Office and the functional proponent to take alternative measures to reduce the risk that military pay systems will be unable to process data successfully after 2000. Alternative measures may include performing supplementary end-to-end tests, using code scanners, or expanding the contingency plans.

Management concurred. The Defense Finance and Accounting Service, Director, Information Technology, stated that:

- DFAS has hired the Joint Interoperability Test Command as an independent third party to review, validate, and assist in documenting the end-to-end testing of systems.
- Additional contingency plans have been drafted, and contingency testing beyond the minimum requirements will be conducted.
- An independent contractor has performed code scanning of the Defense Joint Military Pay System, and the other military pay systems will be scanned before November 30, 1999.

Appendix A. Audit Process

This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the DoD Chief Information Officer to monitor DFAS efforts to address the Y2K computing challenge. For a listing of audit projects addressing the issue, see the Y2K website at <http://www.ignet.gov>.

Scope and Methodology

We reviewed Y2K reporting requirements and policies issued by the Office of the Secretary of Defense and DFAS. We reviewed the DFAS Y2K Master Plan and event plans and held discussions with DFAS managers to obtain information on the roles and responsibilities of its Y2K managers.

DoD-wide Corporate-Level Government Performance and Results Act Goals. In response to the Government Performance and Results Act, the DoD has established 2 DoD-wide goals and 7 subordinate performance goals. This report pertains to achievement of the following goal and subordinate performance goals.

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 DoD to achieve a 21st century infrastructure.

- **Performance Goal 2.2:** Transform U.S. military forces for the future. (00-DoD-2.2)
- **Performance Goal 2.3:** Streamline the DoD infrastructure by redesigning the Department's support structure and pursuing business practice reforms. (00-DoD-2.3)

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

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

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

Use of Computer-Processed Data. We did not use computer-processed data to perform this audit.

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 its FY 1998 Annual Statement of Assurance.

Prior Audit Coverage

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews related to Y2K issues. General Accounting Office reports can be accessed on the internet at www.gao.gov. Inspector General, DoD, reports can be accessed on the internet at www.dodig.osd.mil.

Appendix B. Descriptions of DoD Military Pay Systems

Defense Joint Military Pay System

The Defense Joint Military Pay System (DJMS) provides pay services for active-duty and Reserve personnel in the Army, Navy, and Air Force. Members of the National Guard, the Reserve Officer Training Corps (ROTC), the Junior ROTC, the Health Professionals Incentive Program, and the military academies are also paid through DJMS.

The system databases, located in Denver, Colorado, and Chambersburg, Pennsylvania, support more than 2.2 million accounts and process more than 6 million transactions monthly. The heart of the system is a central automated master file containing Service members' master military pay accounts. The master military pay account contains data about the Service member that affect pay accrual and distribution. Data flow into the master military pay account and update the system, providing daily output that results in a payroll.

The DJMS program manager is responsible for scheduled implementations of enhancements as well as making changes required by legislation.

Marine Corps Total Force System

The Marine Corps Total Force System (MCTFS), jointly owned by DFAS and the Marine Corps, is an integrated system with personnel, payroll, and disbursing modules. MCTFS supports both Active and Reserve Components of the Marine Corps and the personnel management of all retired Marines.

The MCTFS central database, located in Kansas City, Missouri, supports more than 450,000 accounts. The accounts are available for payroll, personnel management, and management reporting. MCTFS is used during peacetime, wartime, and in times of crisis. It supports worldwide deployments and contingencies and provides for seamless mobilization of Reserve units and individuals.

Defense Retiree and Annuitant Pay System-Annuitant Pay Subsystem

The Defense Retiree and Annuitant Pay System-Annuitant Pay Subsystem (DRAS-APS) provides pay services for the survivors of military personnel. The surviving annuitants are paid by the DFAS Denver Center. DRAS-APS processes more than 250,000 annuity accounts.

Defense Retiree and Annuitant Pay System-Retiree Casualty Pay Subsystem

The Defense Retiree and Annuitant Pay System-Retiree Casualty Pay Subsystem (DRAS-RCPS) provides pay services for retired military personnel. The DFAS Cleveland Center, Cleveland, Ohio, provides retired pay to approximately 1.9 million retirees.

DRAS and its subsystems helped to standardize retired and annuity pay policies and procedures across all DoD Military Services.

Appendix C. Inspector General, DoD, Interim Reporting on Test Plans



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884

MAY 28 1999

MEMORANDUM FOR DIRECTOR FOR INFORMATION AND TECHNOLOGY,
DEFENSE FINANCE AND ACCOUNTING SERVICE

SUBJECT: Status of Audits of Finance Functional Area Year 2000 End-to-End Tests

In April 1999, we initiated the following audit projects to evaluate the effectiveness of Y2K end-to-end testing by the Defense Finance and Accounting Services (DFAS). The projects were aligned by functional area in accordance with the functional break-out identified by DFAS

Civilian Pay	Project 9FG-9025
Military/Retiree/Annuitant Pay	Project 9FG-9026
Vendor/Contractor Pay	Project 9FG-9027
Transportation Pay	Project 9FG-9028
Disbursing	Project 9FG-9029
Accounting	Project 9FG-9030
Travel Pay	Project 9FG-9031

Our review, to date, has focused on analyzing the adequacy of test plans for the seven areas. We evaluated the adequacy of the DFAS Y2K test plans using requirements contained in the DoD Y2K Management Plan, Version 2.1, Appendix I; the DFAS Y2K Management Plan, Version 1.0; the DFAS Y2K End-to-End Master Plan, Version 2.1; the DFAS Regulation 8000.1-R, "Information Management and Instruction Guidance," Version 5.0; and the GAO Operational Evaluation Assessment Tool. We anticipate future audits will assess test results and contingency planning efforts by DFAS.

Because of the urgency of Year 2000 efforts, our intent is to communicate potential areas of concern as quickly as possible so that management may address these issues in a timely manner. The attachment to this memorandum reports the initial results of our review. During our preliminary review, we identified concerns regarding the adequacy of DFAS planning efforts for functional end-to-end testing. If these concerns are not addressed, there is increased risk that DFAS end-to-end testing may not detect a significant Y2K problem. We may include these and any additional issues in a draft report at a later date. We request that you provide a response to this memorandum by June 8, 1999. If there are any questions, please contact Ms. Kimberley Caprio, Program Director at (703) 604-9139 or DSN 664-9139.

Handwritten signature of F. Jay Lane in black ink.

F. Jay Lane
Director

Finance and Accounting Directorate

DFAS has made significant progress in addressing testing requirements for its functional areas including the issuance of a Master Plan, identification of levels of responsibility, and checklists for test planning purposes. During our review, we identified the following concerns that should be addressed by DFAS. On May 27, 1999, we met with DFAS officials to discuss the concerns and actions to be taken.

1. **Roles and Responsibilities.** The DFAS Master Plan identified four levels of responsibility for end to end testing including Headquarters functional proponents, systems managers, event leaders, and thread leaders. The Plan defined roles and responsibilities for functional proponents and systems managers, but did not provide details on the responsibilities for either the event or thread leaders. During the May 27, 1999 meeting, DFAS Headquarters personnel, acknowledged the need for oversight and agreed to provide the details immediately.

In addition, the Master Plan was not issued until May 11, 1999, and in some cases had not arrived at the event leader level until May 18, 1999. However, functional event plans and allocation of responsibilities was already occurring. As a result, the individuals delegated the responsibilities may not have been appropriate. For example, for the Travel pay event, the same person was tasked as both the functional proponent and the event leader. As a result, it precludes the separation of duties by allowing one function to oversee the other function. To ensure that the 4 levels of responsibility are appropriately staffed, the DFAS Headquarters Project Office should review the assigned personnel and ensure that they are aware and understand their delegated responsibilities.

2. **Master Plan Checklists.** The DFAS Y2K Master Plan included four checklists to be used by DFAS Headquarters personnel, the functional area proponent, the event leader, and the tester. These checklists require DFAS personnel to assess the effectiveness of the end-to-end testing program at each designated level including such items as assessing the adequacy of testing staff, funds, and interface agreements. The DFAS Master Plan stated that these checklists would "provide independent auditors with evidence of compliance with the end-to-end test requirements," however, the Master Plan did not make completion of the checklists mandatory.

We believe the checklists should be mandatory and maintained at the functional level along with test results. The 2 to 3 page checklists provide an excellent means to ensure and document that essential steps were taken prior to performing end to end testing of DFAS functional areas. Completion of the planning section of these checklists provides a tool to help ensure compliance with the Master Plan requirements and allow for early corrections of deviations or omissions from the plan. Further, use of the checklist affords standardization of the process used throughout DFAS for end to end test planning efforts. Without the use of the checklists, DFAS lacks assurance that the testing was complete, adequate, and consistent. We also believe that a

Attachment
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signature block or notation should be included in the checklists to establish accountability for the responses and to facilitate quick actions should a problem arise later.

3. **Interfacing Systems.** DFAS relies heavily on interfacing systems to provide the majority of data included in DFAS systems. As such, coordination and compatibility of data exchanged with interfacing systems is critical to ensuring successful Y2K end to end tests. If data from a non-compliant system feeds into a DFAS system, the potential exists for the DFAS system to not be able to function properly after Y2K. The level of assurance being obtained by DFAS functional area officials regarding Y2K compliance of interfacing systems varies from exchanging documentation to merely assuming that interfacing systems are compliant or relying on verbal responses

Given the significant potential impact of interfaces on successful testing, we believe that DFAS functional leaders should take the extra step to validate that key interfacing systems are, in fact, compliant. Information on the compliance of each DoD mission critical system should be available in the OSD database. As such, DFAS personnel for the functional areas should be able to access the database and validate that those applicable interfacing partners are clearly designated as Y2K compliant before entering the end-to-end test. We discussed this matter with DFAS Headquarters officials who agreed that, while they are only testing with compliant interfacing partners, it is reasonable that DFAS review the database to ensure that interfacing partners are compliant prior to testing.

4. **Critical Crossover Dates.** The DFAS Master Plan identified 5 critical crossover dates as mandatory for inclusion during end-to-end tests. The dates are consistent with the 5 dates recommended by the Assistant Secretary Defense (Command, Control, Communications, and Intelligence). The dates are fiscal year 2000, calendar year 2000, leap year crossing (February 29, 2000), fiscal year 2001, and calendar year 2001. Developers of DFAS test plans have not planned to test all 5 dates. For example, the Marine Corp Total Force System is only testing the leap year 2000 crossover. The Computerized Accounts Payable System is not testing the fiscal year and the calendar year 2001 crossovers. The reduced number of dates being tested is a result of:

- The test plans being developed prior to the issuance of the DFAS Master Plan on May 11, 1999,
- Personnel pay systems, for example, not being impacted by fiscal year changes,
- Funding being allocated based on test plans developed prior to the Master Plan

In order to ensure compatibility of interfacing systems, it is important that the same dates are tested, particularly where DFAS systems feed data to other systems. For example, data from systems within the Travel Pay test event feed into systems within the Disbursing test event. Further, once processed within disbursing, data is fed to both

Attachment
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accounting and back to travel systems. Incoming files to the Automated Disbursing System (ADS) (part of the Disbursing test event) plan to test all dates specified in the DFAS Y2K Master Plan. However, the Travel Pay test event does not plan to test the fiscal year 2000 to 2001 crossover. As a result, the potential exists that data relying on the fiscal year 2000 to 2001 crossover may not function properly. Meanwhile, DFAS may report a successful test based on the less than 5 dates being tested.

It is important that interfacing systems select test dates in a similar manner to ensure Y2K data flows through each system appropriately. DFAS functional leaders should ensure that critical crossover dates for each of the seven functional areas are compatible prior to testing.

5. **Data Collection and Analysis.** The DoD Y2K Management Plan states that Y2K event output products such as plans and procedures should specify in detail what data needs to be collected, who will analyze the data, and how it will be analyzed. Essentially, the requirement is to define expected test results. Consistent with the DoD Plan, the DFAS Master Plan requires, as exit criteria to the test planning phase, that responsible parties specify pass/fail criteria for all tests, that data collection procedures are in place, and mechanisms needed to capture data are installed. The DFAS Master Plan, however, does not specify:

- What types of data should be collected to ensure consistency in reporting test results
- A methodology for each DFAS organization to document the data collection process in the appropriate Event Plan

For the 7 DFAS functional events, data collection and data analysis plans are either nonexistent or do not ensure the tests will be judged objectively. For example, the Defense Industrial Financial Management System (DIFMS) Test Plan, which is part of the Accounting Test Event, plans to review reports, queried data, and DIFMS screens to accomplish data analysis, but did not establish expected test results criteria or a baseline that could be used to determine the adequacy or accuracy of the reports, queries, and screens. As another example, the Civilian Pay Event lacks either a data collection plan or a data analysis plan. Instead, the Event Leader indicated that years of prior testing and DCPS experience will identify discrepancies should they arise.

Both DoD and DFAS require the establishment of a structured approach to testing including identifying expected outcomes, test participants, and other details. Without such plans, there is no organized or standardized approach between the participating systems, nor any assurance that test goals are met and tests were successful. Given the nature of end-to-end testing, with its large numbers of participating or "partner" systems, it is prudent to ensure that the data collection is as consistent as possible for each event, and that the analysis of the test data is objective. Without the definition of data collection and data analysis plans before testing begins, this will be difficult.

DFAS Functional Test Leaders need to ensure that detailed test collection, results, and analysis requirements are clearly defined prior to testing

6. **Transportation Pay Event.** DFAS identified Transportation Pay as one of the 7 functional areas for testing purposes. However, DFAS has not yet developed an end-to-end test plan for the event. There are two systems involved in transportation, the Defense Transportation Pay System (DTRS) and the Military Traffic Management Command - Financial Management System (MTMC-FMS). The Transportation Pay Event Leader stated that MTMC-FMS testing during Y2K conversion process accomplished the end-to-end requirements of the Master Plan. DFAS has subsequently contracted with the Joint Interoperability Testing Command (JITC) to independently verify and validate the prior testing. We plan to follow-up on this functional area

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Appendix D. Defense Finance and Accounting Service Comments on Inspector General, DoD, Interim Report



DEFENSE FINANCE AND ACCOUNTING SERVICE

1931 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22240-5291

JUN 8 1999

DFAS-HQ/S

MEMORANDUM FOR DIRECTOR, FINANCE AND ACCOUNTING DIRECTORATE
OFFICE OF THE INSPECTOR GENERAL, DEPARTMENT OF
DEFENSE

SUBJECT: Status of Audits of Financial Functional Area
Year 2000 End-to-End Tests

The attached outlines Defense Finance and Accounting Service (DFAS) response to the DoD Inspector General's (IG) initial review of and concerns about DFAS' End-to-End Test (E2E) Plans. DFAS recognizes that a great deal of work is still to be done to ensure all necessary requirements for E2E are accomplished. To meet this goal, DFAS has conducted meetings with event and thread leaders to review all E2E guidelines and requirements.

All concerns addressed in the DoD IG's memo are being addressed.

Roles and Responsibilities: Concur. Action to expand event and thread leader roles will be accomplished by June 25, 1999.

Master Plan Checklist: Non-concur. DFAS will not mandate the checklist.

Interfacing Systems: Concur. This action is considered completed, but with periodic updates.

Critical Crossover Dates: Concur. This action is completed.

Data Collection and Analysis: Concur. This is an ongoing action with no specific target date.

Transportation Pay Event: Concur. This is an ongoing action with a target completion date of June 30, 1999.

A handwritten signature in cursive script, appearing to read "C. Vance Kauzlarich".

C. Vance Kauzlarich
Director for Information and Technology

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Roles and Responsibilities. Concur. DFAS acknowledges that testing and planning activities were occurring prior to the issuance of the Master Plan on 6 May. However, several coordination meetings had already occurred and guidance on developing Event Plans was issued on 31 March. DFAS also acknowledges the need to clarify and augment the roles and responsibilities of the event and thread leaders in the DFAS E2E Master Plan. We are currently making site visits and meeting with the testing teams to clarify roles and responsibilities and are updating the Master plan as well. It should be noted there may be an overlap in the area of responsibility, due to the fact that the internal DFAS support structure for each business process/application has a great bearing upon the specific breakout of roles and responsibilities. DFAS does not view this as a conflict or an inappropriate assignment of duties.

Master Plan Checklist. Non-concur. DFAS designed and issued these checklists as tools to assist DFAS personnel responsible for planning, tracking, and conducting end to end testing. Because each business area/application has a normal testing practice already established, DFAS did not make the checklists mandatory, and would prefer to keep the use of checklists optional. However, DFAS will encourage the use of the checklists whenever possible.

Interfacing Systems. Concur. DFAS agrees that coordination and compatibility of data exchange between DFAS systems and their interface partners is essential to a successful Y2K effort. DFAS has pursued this goal for the past two years. DFAS has established Interface Agreements with all of its interface partners. This effort generated in excess of 1400 agreements. In addition, DFAS has tracked and updated on a monthly basis the status of testing and compliance of each of its interface partners. DFAS system managers are well aware of the status of each of its partners. DFAS will continue to track and monitor the status of its interface partners mission critical and other.

Critical Crossover Dates. Concur. DFAS acknowledges the importance of testing as many dates as possible, and the coordination of these dates among partners. All DFAS managers have been encouraged to coordinate this initiative with all pertinent parties. It must be understood that dates do not necessarily play an important part in the relationship of one system to another. The DFAS E2E Master Plan has recently been updated to empower the Functional

Managers with determining which dates are critical for testing within their specific business process. We have also hired JITC to independently validate and verify our planning efforts.

Data Collection and Analysis. Concur. DFAS agrees that current plans lack specific exit criteria and we are taking action to strengthen this area of our plans. DFAS 800.1-R, Part E, Chapter 3, Test and Evaluation provides guidance concerning data collection and analysis. Our central design activities normally plan and execute their tests, using this guidance, precluding the need for specific guidance to be issued relative to E2E testing.

Each testing agent within DFAS implements the regulation within their own construct, resulting in a non-standard, but successful, data collection and analysis process. Because Y2K E2E testing requirements are not system centric, but business process centric, we have hired JITC to independently validate and verify our E2E planning and testing efforts. The JITC analysis/evaluation will document specific risks associated with data collection and analysis procedures, in sufficient time for us to take corrective action.

Another measure of risk mitigation is to conduct site visits, where we meet with all thread participants. During these meetings we are emphasizing the need for adequate documentation of their data collection and analysis procedures, as well as documenting version control and configuration management procedures.

Transportation Pay Event. Concur. In addition to the Transportation Pay System, DFAS has identified several other systems, which claim completion of the end to end testing initiative. JITC will be used to verify that these systems indeed have met E2E requirements. If any system fails to pass the validation of JITC, steps will be initiated to complete all or any portion of the E2E process that needs to be completed.

Appendix E. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense (Comptroller)
Deputy Chief Financial Officer
Deputy Comptroller (Program/Budget)
Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)
Deputy Chief Information Officer and Deputy Assistant Secretary of Defense
(Chief Information Officer, Policy and Implementation)
Principal Director for Year 2000
Director, Defense Logistics Studies Information Exchange

Joint Staff

Director, Joint Staff

Department of the Army

Assistant Secretary of the Army (Financial Management and Comptroller)
Chief Information Officer, Department of the Army
Inspector General, Department of the Army
Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Chief Information Officer, Department of the Navy
Inspector General, Department of the Navy
Auditor General, Department of the Navy
Inspector General, Marine Corps

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Chief Information Officer, Department of the Air Force
Inspector General, Department of the Air Force
Auditor General, Department of the Air Force

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Finance and Accounting Service
Director, Defense Information Systems Agency
Inspector General, Defense Information Systems Agency
United Kingdom Liaison Officer, Defense Information Systems Agency
Director, Defense Logistics Agency
Director, National Security Agency
Inspector General, National Security Agency
Inspector General, Defense Intelligence Agency
Defense Systems Management College

Non-Defense Federal Organizations

Office of Management and Budget
Office of Information and Regulatory Affairs
General Accounting Office
National Security and International Affairs Division
Technical Information Center
Director, Defense Information and Financial Management Systems,
Accounting and Information Management Division

Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

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 Finance and Accounting Service Comments



DEFENSE FINANCE AND ACCOUNTING SERVICE

1931 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22240-5291

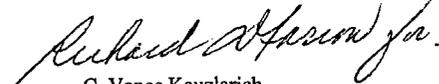
DFAS-HQ/S

SEP 30 1999

MEMORANDUM FOR DIRECTOR, FINANCE AND ACCOUNTING DIRECTORATE
OFFICE OF THE INSPECTOR GENERAL, DEPARTMENT OF
DEFENSE

SUBJECT: Draft of a Proposed Audit Report on Defense Military Pay Year 2000
End-to-End Testing (Project No. 9FG-9026) dated September 3, 1999

The Defense Finance and Accounting Service response to the Department of Defense
Inspector General's Audit Report on Defense Military Pay Year 2000 End-to-End Testing is
attached.


C. Vance Kauzlarich
Director for Information and Technology

Attachment:
As stated

COMMENTS ON
DRAFT REPORT OF AUDIT
ON MILITARY PAY
YEAR 2000 END-TO-END TESTING
PROJECT NO. 9FG-9026

DoDIG Audit Recommendation

We recommend that the Director, Defense Finance and Accounting Service direct the Defense Finance and Accounting Service Year 2000 Project Office and the functional proponent to take alternative measures to mitigate the risks of military pay systems not being able to successfully process data after the year 2000. Alternative measures may include performing supplementary end-to-end tests, using code scanners, or expanding the contingency plans

DFAS Response. Concur.

We concur with the DoDIG recommendation and have already undertaken alternate measures to further mitigate the risks of the military pay systems not being able to successfully process data after the year 2000. All Defense Finance and Accounting Service military pay systems have been certified compliant and the following sures have already been implemented:

- 1 DFAS has hired the Joint Interoperability Test Command (JITC) as an independent third party to review, validate, and assist in documenting systems end-to-end testing. The JITC visits have been scheduled for October and November. Expected completion date of the JITC Independent evaluation. 17 November 1999
- 2 Additional contingency plans have been drafted and contingency testing beyond the minimum requirements will be conducted. Expected completion date. ongoing through December.
3. An independent contractor has performed code scanning for the Defense Joint Military Pay System (DJMS), and the results are being evaluated. All other military pay systems are scheduled to have code scanning performed. Expected completion date: 30 November 1999

Audit Team Members

The Finance and Accounting Directorate, Office of the Assistant Inspector General for Auditing, DoD, prepared this report.

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Kimberley A. Caprio
Dennis L. Conway
Eric L. Lewis
Margaret B. Bennardo
Yolanda C. Watts
Susanne B. Allen