Audit Report

OFFICE OF THE INSPECTOR GENERAL

CORPS OF ENGINEERS
FINANCIAL MANAGEMENT SYSTEM

Report No. 97-051

December 18, 1996

Department of Defense

Additional Copies

To obtain additional copies of this audit report, contact the Secondary Reports Distribution Unit of the Analysis, Planning, and Technical Support Directorate at (703) 604-8937 (DSN 664-8937) or FAX (703) 604-8932.

Suggestions for Future Audits

To suggest ideas for or to request future audits, contact the Planning and Coordination Branch of the Analysis, Planning, and Technical Support Directorate at (703) 604-8939 (DSN 664-8939) or FAX (703) 604-8932. Ideas and requests can also be mailed to:

OAIG-AUD (ATTN: APTS Audit Suggestions)
Inspector General, Department of Defense
400 Army Navy Drive (Room 801)
Arlington, Virginia 22202-2884

Defense Hotline

To report fraud, waste, or abuse, contact the Defense Hotline by calling (800) 424-9098; by sending an electronic message to Hotline@DODIG.OSD.MIL; or by writing to the Defense Hotline, The Pentagon, Washington, D.C. 20301-1900. The identity of each writer and caller is fully protected.

Acronyms

CEFMS	Corps of Engineers Financial Management System
DBOF	Defense Business Operations Fund
DISA	Defense Information Systems Agency
KAR	Key Accounting Requirement
MAISRC	Major Automated Information Systems Review Council

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

December 18, 1996

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (COMPTROLLER)
DIRECTOR, DEFENSE FINANCE AND ACCOUNTING SERVICE

SUBJECT: Review of the Corps of Engineers Financial Management System (Report No. 97-051)

We are providing this report for your information and use. We performed the review in response to a request by the Defense Finance and Accounting Service. We considered management comments on a draft of this report in preparing the final report. The comments conformed to the requirements of DoD Directive 7650.3. Therefore, no additional comments are required.

We appreciate the courtesies extended to the audit staff and hope that this report met your needs. Questions on the audit should be directed to Mr. Christian Hendricks, Audit Program Director, at (703) 604-9140 (DSN 664-9140), or Mr. Dennis Conway, Audit Project Manager, at (703) 604-9158 (DSN 664-9158). See Appendix P for the report distribution. The audit team members are listed inside the back cover.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 97-051 **December 18, 1996**
(Project No. 6FG-5012)

Corps of Engineers Financial Management System

Executive Summary

Introduction. This review was performed in response to a request from the Director, Defense Finance and Accounting Service. As part of the Under Secretary of Defense (Comptroller) initiative to substantially reduce the number of financial management systems in DoD, the Defense Finance and Accounting Service started a test of the Corps of Engineers Financial Management System (CEFMS). The test was made to determine whether the CEFMS could be modified to provide financial management services for an Army post, camp, or station. The Defense Finance and Accounting Service funded $8.5 million to test the CEFMS in FYs 1995 and 1996. The tests cost $7.1 million from May 1995 to May 1996. In the "DFAS [Defense Finance and Accounting Service] Strategic Transition Plan 5-3," June 1992, DFAS estimated program management costs of $16.7 billion to implement a financial management system DoD-wide.

Audit Objective. The primary objective was to determine whether the Defense Finance and Accounting Service established effective management controls over the process used to test the CEFMS. Specifically, we were to determine whether the tests were adequate, complete, and documented.

Audit Results. The Defense Finance and Accounting Service took aggressive action to test the CEFMS and to demonstrate its ability to provide financial management service for an Army post, camp, or station. However, the Defense Finance and Accounting Service did not establish fully effective management controls over the process to validate the results. Specifically, by design, the Defense Finance and Accounting Service evaluation of functional and technical capabilities of the CEFMS was limited. As a result, DoD decision makers will need additional information to make fully informed decisions on cost, schedule, and performance goals of CEFMS to minimize the developmental risk.

In a memorandum dated May 28, 1996, the Under Secretary of Defense (Comptroller) directed the Defense Finance and Accounting Service to follow established program management procedures for the development of CEFMS. Instituting those procedures will help ensure a well structured and successful development effort.

Summary of Recommendations. We recommend that the Under Secretary of Defense (Comptroller) notify the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) of the need to classify CEFMS as a special interest program for Major Automated Information System Review Council review. The review will assist the Defense Finance and Accounting Service in structuring a program that reduces developmental risk, ensures affordability, and provides adequate information for decision making.

Management Comments. The Office of the Under Secretary of Defense (Comptroller) concurred with the recommendation to notify the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) of the need to classify CEFMS as a special interest program for review by the Major Automated Information System Review Council. Management also commented on various portions of the finding discussion. See Part I for a summary of management comments and Part III for the complete text of the comments.

Audit Response. Management is to be commended for requesting audit advice on how best to ensure success in this important system development effort and for promptly taking actions based on that advice. We considered management's comments regarding the finding discussion and made appropriate adjustments in the final report. No additional comments are required.

Table of Contents

Executive Summary i

Part I - Audit Results

Audit Background 2
Audit Objective 3
Evaluation of CEFMS as the Army's Interim Migratory System 4

Part II - Additional Information

Appendix A. Scope and Methodology
Scope 16
Methodology of Review 17
Appendix B. Summary of Prior Audits and Other Reviews 18
Appendix C. Other Matters of Interest 19
Appendix D. Glossary 21
Appendix E. Audits Performed on Army and Air Force Financial Statements 23
Appendix F. CEFMS Functionality and Interfaces 25
Appendix G. Program Management Process 26
Appendix H. Key Accounting Requirements 27
Appendix I. U.S. Army Forces Command Comments on Test Results 30
Appendix J. National Guard Bureau Comments on Test Results 32
Appendix K. U.S. Army Signal Center and Fort Gordon Comments on Test Results 33
Appendix L. U.S. Army Training and Doctrine Command Comments on Test Results 35
Appendix M. Present and Proposed Interfaces for CEFMS 37
Appendix N. Under Secretary of Defense (Comptroller) Decision 39
Appendix O. Organizations Visited or Contacted 41
Appendix P. Report Distribution 42

Part III - Management Comments

Under Secretary of Defense (Comptroller) Comments 46

Part I - Audit Results

Audit Background

This review was performed in response to a request from the Defense Finance and Accounting Service (DFAS). The DFAS concept for future operations includes improving, modifying, and implementing standard migratory finance and accounting systems throughout DoD. The glossary in Appendix D contains definitions of the technical and acquisition terms used in this report.

DFAS plans to achieve a rapid reduction in the number of accounting systems by selecting interim migratory systems to replace legacy systems. DFAS has implemented this incremental approach to reduce the risks and costs of developing systems. With this strategy, DFAS intends to overcome fundamental accounting problems, such as the lack of a standard general ledger, lack of a common budget and accounting classification code, inadequate costing methods, lack of full property accounting, and inadequate documentation. Appendix E presents deficiencies previously identified by DoD auditors in the DFAS general fund accounting systems.

In February 1992, the DFAS Strategic Transition Plan 5-3 and the Defense Business Operations Fund Review analyzed 11 accounting systems to select an interim migratory system to account for general funds and funds for the Defense Business Operations Fund. Both analyses, which included functional (requirements satisfying customer's needs) and technical evaluations, rated the Corps of Engineers Financial Management System (CEFMS) very highly as a candidate for an interim migratory system. Therefore, the Director, DFAS, tasked the DFAS Center at Indianapolis, Indiana (DFAS Indianapolis Center), to perform a test on CEFMS, from April 1995 to March 1996, to accomplish the following objectives:

o determine whether CEFMS can be modified to support the Army and DFAS business practices for Army posts, camps, and stations and whether it supports Key Accounting Requirements (KARs);

o determine whether CEFMS can be used in an operating location environment;

o determine whether CEFMS can support the volume of transactions required; and

o determine whether CEFMS is portable to multiple computer systems.

The DFAS Indianapolis Center planned to conduct only limited testing of CEFMS and did not intend to follow DoD program management procedures.

A CEFMS project office was established in April 1995 to test the CEFMS. As of March 31, 1996, the project office was staffed with 40 DFAS Indianapolis Center employees. Because CEFMS is owned by the U.S. Army Corps of Engineers (the Corps), it signed a memorandum of agreement in September 1995 with DFAS for transferring information between the two organizations for 3 years.

DFAS funded $8.5 million to test the CEFMS in FYs 1995 and 1996. The tests cost $7.1 million from May 1995 to May 1996. In the "DFAS Strategic Transition Plan 5-3," June 1992, DFAS estimated program management costs of $16.7 billion to implement a financial management system DoD-wide.

Audit Objective

The primary objective was to determine whether DFAS established effective management controls over the process used to test the CEFMS. Specifically, we determined whether the tests were adequate, complete, and documented.

See Appendix A for a discussion of the audit scope and methodology and Appendix B for a summary of prior coverage related to the audit objectives. Appendix C discusses the Army's and other DoD Components' plans to modify the CEFMS to provide Component-unique accounting services.

Evaluation of CEFMS as the Army's Interim Migratory System

The DFAS took aggressive action to test the Corps of Engineers Financial Management System and to demonstrate its ability to provide financial management service for an Army post, camp, or station. However, by design, the functional and technical evaluations were limited in scope. Limitations in the testing process, due to insufficient resources, short schedule, and limited customer involvement, affected the overall completeness of the test. In addition, the lack of full implementation of required program management procedures affected the completeness of the test. Consequently, to minimize developmental risk, DoD decision makers will need additional information to make fully informed decisions on cost, schedule, and performance goals of CEFMS.

Financial Management and Accounting System Structure

The DoD financial management and accounting system structure is presented in DoD Regulation 7000.14-R, "DoD Financial Management Regulation," volume 1, "General Financial Management Information, Systems, and Requirements," May 1993. The Regulation states that DoD is responsible for developing and maintaining an integrated financial management system structure. The financial management structure is the total of DoD manual and automated systems, for planning, budget formulation and execution, and accounting. The accounting system structure is composed of primary accounting systems that provide full general ledger control over financial transactions and resource balances and administrative accounting systems (subsidiary accounting systems and accounting support systems) that provide data to the primary accounting systems.

Subsidiary accounting systems produce functional transaction data, such as budget execution, payroll, travel, procurement, and real property data, needed for the general ledger. Accounting support systems must have full general ledger control and provide financial information on operations to the primary accounting systems. Appendix F shows the CEFMS and its interfaces with subsidiary and accounting support systems.

In accordance with DoD Regulation 7000.14-R, volume 1, an accounting system structure shall:

o be in reasonable compliance with the Comptroller General, Office of Management and Budget, Department of the Treasury, and DoD accounting principles, standards, and policies;

o provide maximum accounting and general ledger control through the use of the DoD Standard General Ledger;

o maximize the use of standardization in data administration, data processing, and data elements, and minimize the number of individual accounting and financial applications;

o maximize the most effective and economical use of data processing and telecommunications technology and accounting methodology and techniques;

o maximize the use of information systems architecture; and

o produce auditable financial statements.

The DFAS tasked the DFAS Indianapolis Center to test CEFMS for potential use as the Army's interim migratory accounting system. The DFAS tests were to ensure that the CEFMS meets the standards for a DoD accounting system.

DoD Directive 5000.1, "Defense Acquisition," March 15, 1996, states that program managers shall continually assess risks to their programs. These risks must be well understood, and approaches must be developed to minimize risks before a decision is made for the CEFMS to proceed into the next phase of the program management process. The Directive provides the process management should follow in assessing risks to their programs.

The DFAS Indianapolis Center did not intend to follow DoD program management procedures because it planned to conduct only limited testing of CEFMS. Appendix G shows the program management process for major automated information systems.

DFAS Functional and Technical Evaluations

The DFAS took aggressive action to test the CEFMS and to demonstrate its ability to provide financial management service for an Army post, camp, or station. The DFAS Indianapolis Center's functional and technical evaluations of the CEFMS were limited in scope by design, incomplete, and not sufficiently documented. The test did not ensure that CEFMS met the regulatory standards for a DoD accounting system.

Functional Evaluation of CEFMS. We examined the testing process the DFAS Indianapolis Center used in its functional evaluation of CEFMS to include the DFAS validation of compliance with KARs, involvement of customers, execution of test plans, and evaluation of the testing process.

CEFMS Compliance with Key Accounting Requirements. The DFAS Indianapolis Center had not completely tested and validated CEFMS compliance with KARs. DoD Regulation 7000.14-R, volume 1, requires that accounting systems comply with the KARs. The DFAS Indianapolis Center personnel stated in its report "Test of Corps of Engineers Financial Management System," March 1996, that eight KARs were validated; one KAR was not

applicable to the test; two KARs received limited reviews, but were not validated because CEFMS changes were required; and two KARs were reviewed, but would not be validated until after testing a model of CEFMS. We agree that DFAS validated one KAR (KAR 8-Audit Trails) and that one KAR (KAR 6-Military and Civilian Payroll Procedures) did not apply to tests on CEFMS. However, DFAS only partially validated the other 11 KARs. Full validation of the KARs will be required during CEFMS development to ensure it is in compliance with accounting principles, standards, and requirements. Appendix H describes each of the 13 KARs with which DoD accounting systems must comply.

Identification of Customer Requirements. DFAS Indianapolis Center personnel had not fully identified and evaluated customer requirements before testing the CEFMS. Also, customers either were not requested to participate in the evaluation, or based on our independent customer survey, they were not fully satisfied with the testing methods. DoD Directive 5000.1 states that the primary objective of involving customers is to obtain an understanding of their requirements and to work with them to achieve a proper balance among cost, schedule, and performance goals for an automated system.

The Army had 15 major commands as of October 1995. DFAS requested the following four major commands--U.S. Army Training and Doctrine Command, U.S. Army Forces Command, U.S. Army Signal Center, Fort Gordon, and the National Guard Bureau--to participate in the CEFMS testing process. While the participating commands may represent the majority of CEFMS users, the other 11 major commands will have their own unique requirements that will have to be addressed during CEFMS development. For example, during the development of the test plans, DFAS did not intend to test CEFMS for use at Army organizations, such as depots and arsenals; therefore, the U.S. Army Materiel Command was excluded from the test.

Our analysis of 55 questionnaires provided to customers at the participating organizations showed that they generally believed CEFMS could be modified to support the requirements of an Army post, camp, or station. However, the customers wanted CEFMS retested after all interfaces and modifications were completed before making their final decisions on CEFMS' ability to support an Army post, camp, or station. Also, the customers believed that business practices should be standardized at all posts, camps, and stations before CEFMS was implemented. Customer participation and commitment will be needed to standardize the business practices. Appendixes I through L show the customers' responses to the questionnaires.

Execution of Test Plans. The DFAS Indianapolis Center's execution of the 17 test plans was not complete. We reviewed the 17 test plans that described how the CEFMS project office would test CEFMS. Of the 17 test plans, 4 (23.5 percent) were not executed. Ten of the thirteen test plans that were completed did not have a comparison of actual output to expected output, which resulted in 14 of the 17 test plans not being fully tested. In addition, 8 of the 13 completed test plans did not include (by design) tests for evaluating the ability of CEFMS to prevent or detect the processing of invalid transactions. Furthermore, within the 17 test plans, 13 of the 67 types of

CEFMS transactions were not tested, none of the 12 cost accounting processes was tested, and 5 of the 22 reports required at an Army installation were not tested. These limitations reduced the DFAS ability to verify that CEFMS could successfully achieve customer requirements at an Army post, camp, or station. The completion of test plans will be required in the full formal software acceptance test as defined in life-cycle management guidance.

Independent Evaluation of CEFMS Test Process. An independent evaluation of the CEFMS test process was not performed. DoD Directive 5000.1 requires that an independent appraiser prepare the operational test and evaluation plan, conduct the operational tests, and report the results. Within DoD, the Director for Operational Test and Evaluation provides those services for major automated information system acquisitions. Although DFAS selected an organization separate from the CEFMS project office, the Customer Service and Performance Assessment Directorate, to perform an independent evaluation of the CEFMS test process, the Directorate was under the supervision of the Director, DFAS Indianapolis Center. Therefore, the Director, DFAS Indianapolis Center, can influence the decisions made by the evaluator. In addition, limitations in performing that independent evaluation made the results questionable. For example, the independent evaluator stated:

> This review did not include an independent test of CEFMS by the Independent Tester as defined in the Configuration Management regulations. As such, a detailed test analysis report containing Test Item Conditions . . . and Test Condition Requirements . . . with specific test results will not be published.

The evaluator stated that a complete review of the testing process was made; however, the review was limited because the CEFMS project office was not fully implementing DoD program management procedures. The Under Secretary of Defense (Comptroller) would have greater assurance that the evaluation of the testing process is not subject to influence by DFAS, if future assistance is requested from a totally independent operational test and evaluation organization.

Technical Evaluation of CEFMS. The DFAS Indianapolis Center technical evaluation of CEFMS was limited in scope by design and was incomplete. The technical evaluation included contractor tests of portability (whether CEFMS application software could be used on different computer systems) and stress tests (whether CEFMS could process the expected volume of Army transactions). The DFAS portability and stress tests were either limited or not fully completed. As a result, the DFAS Indianapolis Center's test results and recommendations were not fully supported.

Tests on the Portability of CEFMS. DFAS tests of portability were limited and incomplete. CEFMS was partially ported to the Sun Microsystems, Incorporated, computer system and the AT&T computer system. DFAS Indianapolis Center selected the Sun Microsystems computer system to test the CEFMS; however, in January 1996, the Defense Information Systems Agency (DISA) tentatively selected the AT&T computer system. Therefore, CEFMS should be tested on the AT&T computer system.

The Corps developed the computer instructions (application software) for the CEFMS and processes CEFMS transactions on a Control Data Corporation computer system. The Corps transferred a portion of the CEFMS application software to the DFAS Indianapolis Center for modification and testing. As a result of the Corps' limited transfer of CEFMS software, the electronic signature capabilities were not tested. In addition, CEFMS interfaces and software changes required to meet the needs of Army posts, camps, or stations were not tested. Furthermore, the portability to the AT&T computer system was limited because no detailed test plan was developed, transactions were not tested, and the results of what was tested were not documented.

Stress Testing of CEFMS. The DFAS Indianapolis Center personnel developed incomplete requirements for the stress tests of CEFMS. Also, limitations in the testing process resulted in incomplete stress tests.

Requirements for Stress Testing CEFMS. The DFAS Indianapolis Center personnel did not obtain sufficient requirements from prospective Army users to develop adequate requirements for the CEFMS stress tests. For example, the personnel used the volume of transactions processed from Fort Gordon, Georgia, and Fort Hood, Texas, to determine the volume of transactions and number of users expected at an operating location. The DFAS personnel did not use statistical analysis to identify or evaluate, based on historical data, the Army universe for expected CEFMS use and the level of transactions that would be necessary and did not require Army personnel to certify that their estimates were correct. The DFAS personnel estimated that an operating location consisted of a maximum of 9,500 concurrent users on a single data base. However, DFAS personnel did not calculate the risk that the number of users could be inaccurate and lead to erroneous conclusions. To obtain sufficient requirements, the DFAS personnel need to work with the user communities within the 15 major commands. This type of teamwork is referred to as the integrated product team process and will be essential for future CEFMS development.

Execution of Stress Tests. The DFAS Indianapolis Center execution of stress tests was not complete. The DFAS Indianapolis Center limited testing, by design, of transactions, interfaces and batch processing, electronic signature capabilities, and the computer system tentatively planned for use by the DISA.

Testing of Transactions. Results of the stress tests were not complete due to the limits in the testing of transactions. In a demonstration of the stress test conducted for the Inspector General, DoD, and the General Accounting Office personnel, transactions were processed in a more realistic live environment because the CEFMS had been removed from the contractor's controlled test laboratory environment. Specifically, the original stress test did not test CEFMS transactions while other computer processing was occurring. When the CEFMS was stress tested without the limitation, the speed of processing transactions decreased by 58 percent. In addition, during the demonstration, the contractor stated that the assertion in the DFAS test report

regarding CEFMS ability to process the volume of transactions by increasing the processing power of the Sun Microsystems, Incorporated, computer system was not supported by a detailed analysis or testing.

Testing of AT&T Computer System. The DFAS Indianapolis Center personnel did not perform a stress test on the AT&T computer system tentatively planned for CEFMS. DFAS personnel began testing on a Sun Microsystems, Incorporated, computer system before DISA tentatively selected the AT&T computer system for CEFMS. As of June 1996, the DISA had not finalized its decision as to which computer system will be used for CEFMS.

Testing of Interfaces and Batch Processing. DFAS did not perform tests of interfaces and batch processing. Interfaces will allow systems (Appendix M shows the systems interfacing with the Army's present accounting system and the systems proposed for interfacing with the CEFMS) to provide data to CEFMS. The data will usually be transferred by batch processing, which will allow the interfaced systems to systematically transfer data at a given time into CEFMS. The CEFMS application software will process 90 percent of customers' transactions interactively and 10 percent in batches. However, the DFAS Indianapolis Center noted in its test report that batch processing is expected to account for 45 percent of the transactions processed by CEFMS. The Sun Microsystems, Incorporated, and Oracle Corporation stated in their workload report that as the percentage of batch processing increases, the amount of processing power needed to satisfy system performance will increase as well. The DFAS Indianapolis Center also noted that CEFMS must be modified to work effectively at an Army post, camp, or station; however, the risks associated with making those modifications or the effect on the CEFMS performance had not been determined.

Use of Electronic Signatures. General Accounting Office personnel stated that the use of electronic signatures was the key internal control for CEFMS. The Corps' personnel stated that the electronic signature capability affects 75 percent of all transactions processed in the CEFMS. DFAS Indianapolis Center personnel stated that they simulated the effects of using electronic signature with the functional tests of CEFMS. Additionally, the DFAS Indianapolis Center personnel stated that the portability and stress tests of the electronic signature could not be completed because:

- o computer equipment needed to complete the test was not available,
- o problems were experienced with communications hardware and software,
- o changes were needed in the application software,
- o General Accounting Office personnel had not approved the electronic signature program, and
- o the contractor could not simulate the use of electronic signatures.

The electronic signature capability could not be tested effectively because it had not yet been fully developed by the Corps of Engineers. Therefore, the DFAS Indianapolis Center personnel decided to test CEFMS without it. As a result, insufficient information was available to determine the effect of not stress testing the CEFMS with the electronic signature capability.

Implementing CEFMS at an Operating Location. After the test report was issued, DFAS Indianapolis Center and DFAS headquarters personnel stated that implementing CEFMS at an operating location may be too costly and that implementation at a Defense megacenter (a computer facility used for centralized computer processing within DoD) may be necessary. However, the testing completed as of March 22, 1996, was not representative of the environment at operating locations or megacenters. The contractor that performed the stress test stated in its test report that the test results for an installation could be expanded to support a successful implementation at an operating location. However, the contractor could not support that conclusion. Therefore, testing at operating locations and megacenters remains to be fully completed and evaluated.

Test Process Limitations

Limitations in the testing process, due to insufficient resources, short schedule, and limited customer involvement, affected the overall completeness of the test. In addition, the DFAS did not apply management controls to minimize the risks because it decided at the beginning of the test not to fully implement program management procedures.

DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information Systems," March 15, 1996, states that each program manager must establish a risk management program for each automated information system program to identify and control cost, schedule, and performance risks.

Insufficient Resource Costs. CEFMS has insufficient resources to fully execute the DFAS test plans. For example, the CEFMS Contracting Officer Technical Representative stated that funding limitations did not allow for the use of equipment and for personnel needed to run the electronic signature program for the stress test. In addition, a U.S. Special Operations Command official stated that funding limitations had prevented tests at the command on CEFMS' ability to process travel transactions. The lack of adequate funding to test key elements of CEFMS increased the risk that it may not perform as required.

Schedule for Testing CEFMS. The aggressive schedule for testing CEFMS adversely affected the completeness of tests the DFAS Indianapolis Center performed. As a result, functional and technical tests made on CEFMS were incomplete or were not performed on the AT&T computer system.

Specifically, functional tests for 11 of the 13 KARs and 14 of the 17 test plans were not fully completed. In addition, no stress testing and only limited portability testing was performed on the AT&T computer system.

Although the DFAS Indianapolis Center determined from its testing that CEFMS must be modified to work at an Army post, camp, or station, there was insufficient time to gather sufficient test data to determine the potential risks of making the modifications and whether all needed modifications were identified during the testing process.

Achieving the Expected Performance of CEFMS. The DFAS Indianapolis Center had not intended to fully implement program management procedures; therefore, it had not developed detailed plans for reducing the risks of achieving the expected performance of CEFMS. DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information Systems," March 15, 1996, states that each program manager must establish a risk management program for each automated information system program to identify and control cost, schedule, and performance risks. However, the analysis of customers' requirements prepared by the DFAS Indianapolis Center was incomplete because an integrated product team that included representatives for all customers had not been organized.

The operational requirements used to test the CEFMS were based on the procedures needed only at Fort Gordon, Georgia. Because requirements were not requested from all Army customers, a substantial risk exists that the test data will not be representative of the Army's needs. Further, because the DFAS Indianapolis Center did not include all customer representatives in its testing, the Under Secretary of Defense (Comptroller) did not have sufficient information, in our opinion, to validate CEFMS' final test report conclusion asserting that CEFMS can satisfy Army needs. The information is needed to enter Phase 0 of the program management process. The risks associated with not being assured that CEFMS can meet the performance expectations of Army customers could be reduced by using an integrated product team.

Rather than quantitative measures, the DFAS Indianapolis Center used qualitative performance measures to test and evaluate CEFMS. Qualitative measures are subjective and do not provide a basis to make fully informed decisions. For example, DFAS had not determined the maximum number of users expected to use the CEFMS simultaneously. Therefore, to make decisions, the DFAS assumed a risk of using test results not representative of Army usage of CEFMS. In addition, the DFAS Indianapolis Center did not use DoD independent testers (the Directors of Test System Engineering and Evaluation and Operational Test and Evaluation) to evaluate the test and evaluation strategy. As a result, the DFAS stress and portability testing strategies did not provide sufficient quantitative information to make fully informed decisions and to reduce the risks that CEFMS may not achieve the performance expected by Army customers.

Cost, Schedule, and Performance Goals

To minimize the developmental risk, DoD decision makers will need additional information to make fully informed decisions on cost, schedule, and performance goals of the CEFMS.

Cost of CEFMS. The DFAS Indianapolis Center did not obtain sufficient information from its evaluations to determine the cost of CEFMS. For example, the DFAS Indianapolis Center had not determined the number of customers that would use the CEFMS, the customers' requirements, the method for implementing the CEFMS, or the DISA computer system that would support the CEFMS. This information will be needed to prepare the analysis of alternatives, which provides documentation for the decision maker to determine the best alternatives for the user.

Development of an Acquisition Schedule. DFAS will need to develop an acquisition schedule in accordance with DoD Regulation 5000.2-R. Proper scheduling is important for estimating the potential cost of a system and for allowing customers to determine whether the proposed schedule is acceptable to their operations. Also, an important part of the acquisition schedule is determining the time needed to meet customer requirements.

Proposed CEFMS Performance. The DFAS Indianapolis Center evaluation did not provide reasonable assurance that the proposed CEFMS performance would be acceptable. Specifically, the DFAS evaluation did not adequately test the volume of transactions that could be processed through the CEFMS, the interfaces and ability to process batches of transactions, the performance of the data base, and Army accounting practices. Until the performance requirements are clearly understood and tested, an analysis to determine CEFMS costs will be difficult.

The DFAS Indianapolis Center evaluation provided a basis to begin the CEFMS design and development process, but not a firm basis on which to make decisions. Program management procedures must be established and fully implemented to minimize, to the extent practicable, the risks associated with the cost, scheduling, and performance of CEFMS as it is modified to meet customer requirements.

Conclusion

The program management process for major automated information management systems provides the controls and discipline necessary to minimize risk in system development. The DFAS took aggressive action to test CEFMS and to demonstrate its ability to provide financial management service for an Army post, camp, or station. However, the limitations of the evaluations prevented the DFAS Indianapolis Center from fully implementing established program management procedures. The DFAS Indianapolis Center will be able

to identify a more feasible solution for Army accounting by implementing program management procedures designed to reduce risk, ensure affordability, and provide adequate information for decision making.

Actions Taken by the Under Secretary of Defense (Comptroller)

We briefed the Under Secretary of Defense (Comptroller) and the Director, DFAS, on the results of this review and recommended:

o implementing program management procedures to ensure that CEFMS progresses through a structured development process, and

o notifying the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) of the need for CEFMS to be reviewed by the MAISRC.

In a memorandum dated May 28, 1996, the Under Secretary of Defense (Comptroller) directed the DFAS to follow the program management process for developing CEFMS (see Appendix N). Implementation of that process will assist DFAS in structuring a program that is designed to reduce risk, ensure affordability, and provide adequate information for decision making. Therefore, we are presenting only one recommendation in this report regarding reviews of the CEFMS by the Major Automated Information Systems Review Council (MAISRC).

The primary purpose of the MAISRC is to review automated information systems to determine whether the acquisition or development of a major automated information system should be continued, redirected, or terminated. The MAISRC is chaired by the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) who also serves as the milestone decision authority. The MAISRC performs milestone reviews (Milestone 0 through Milestone III) to evaluate program performance, assess plans for the rest of the program, and establish criteria for the next program management phase. The MAISRC also reviews documentation submitted by automated information system program managers to determine program deficiencies, issues, or concerns and tries to resolve any problems in coordination with the program managers.

Recommendation, Management Comments, and Audit Response

We recommend that the Under Secretary of Defense (Comptroller) notify the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) of the need to classify the Corps of Engineers Financial Management System as a special interest program for Major Automated Information System Review Council review.

Management Comments. The Under Secretary of Defense (Comptroller) concurred with the recommendation and stated that the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) has been notified of the need to classify CEFMS as a special interest program for MAISRC review. Further, CEFMS was placed on the proposed MAISRC list of major automated information systems as of September 13, 1996, and the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) would approve the entry of CEFMS into each milestone phase. The Comptroller also commented on other aspects of the finding discussion.

Audit Response. Management is to be commended for requesting audit advice on how best to ensure success in this important system development effort and for promptly taking actions based on that advice. We made minor adjustments to the finding discussion as a result of management comments. Since we consider the comments responsive, no additional comments are required.

Part II - Additional Information

Appendix A. Scope and Methodology

Scope

CEFMS Test Process. This review was requested by DFAS to ensure that the DFAS Indianapolis Center followed internal controls during the testing of CEFMS at the DFAS Indianapolis Center.

Limitations of Scope.

Limited Review on the Process for Testing CEFMS. DFAS requested that we perform a limited review on the process for testing CEFMS. Specifically, our review was limited to determining whether the DFAS Indianapolis Center tests were adequate, complete, and documented. Therefore, we did not evaluate the adequacy of the DFAS Indianapolis Center's management control program or management's self evaluation of that program. We do not believe that this limitation in scope materially affected the results of our review.

Limitations in the Testing Process. The DFAS Indianapolis Center identified limitations in the testing process that also limited the scope of our review. Those limitations were identified in the CEFMS project office's test plan and in the results of its test report.

Limitations Reported in the CEFMS Test Plan. DFAS Indianapolis Center personnel stated that their tests were limited in that compliance with Office of Management and Budget, General Accounting Office, and DoD accounting principles and standards would not be reviewed; procedures for managing changes to the plan for using computer equipment would not be accomplished; program management principles and standards would not be followed; and technical and physical environmental controls and computer program library and release controls would not be managed by the DFAS Indianapolis Center.

Limitations Reported in the CEFMS Test Report. The DFAS Indianapolis Center personnel reported six limitations in the CEFMS test report. Those limitations were that CEFMS software and Army business practices must be modified for use at Army post, camps, and stations; the test on the CEFMS maximum capability for processing data did not include the use of telecommunication networks under normal operating conditions; year-end processes were not completed because of insufficient time; validation of CEFMS program management products were not accomplished; interfaces were not tested with other systems; processing of transactions in batches resulting from those interfaces were not tested; and the ability to electronically sign documents was not tested.

These limitations affected the ability of DFAS and the Inspector General, DoD, to determine whether the test results were adequate to support implementing CEFMS at an Army post, camp, or station. However, we do not believe that these limitations in scope materially affected the results of our review.

Reliability of Computer-Processed Data. We performed limited tests on the reliability of computer-processed data provided by the CEFMS project office. To the extent that we reviewed computer-processed data produced by the CEFMS' evaluation process, we concluded that the data were sufficiently reliable to meet the review objective.

Review Period, Standards, and Locations. We performed this program review from October 1995 through May 1996 and reviewed information dated from May 1991 through May 1996. The review was made in accordance with the auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. Appendix O lists the organizations we visited or contacted.

Methodology of Review

The methodology of review included analyses, interviews, and observations on the CEFMS testing process. Specifically, we:

- reviewed test plans;
- analyzed questionnaires prepared by potential customers of CEFMS;
- observed the testing procedures and process at the DFAS Indianapolis Center and Fort Gordon, Georgia;
- interviewed DFAS personnel and contractors conducting stress and portability tests on CEFMS;
- reviewed the methodology used by the DFAS Indianapolis Center for conducting the portability and stress tests; and
- reviewed the Corps' program management documentation.

We issued a series of management advisory memorandums to management at the DFAS Indianapolis Center on deficiencies discovered during the testing of CEFMS. The memorandums were provided as areas that we considered needed improvement.

Technical Assistance. The General Accounting Office assisted us in the analysis and evaluation of the methodology used to conduct stress and portability tests. The Army Audit Agency assisted in the review of CEFMS' ability to meet Army customers' requirements.

Appendix B. Summary of Prior Audits and Other Reviews

During the last 5 years, the Office of the Inspector General, DoD, issued one report that discusses the auditability of general fund financial statements. Also, DFAS performed two reviews on CEFMS that evaluated management controls and the suitability of CEFMS for providing accounting services to DoD transportation operations.

Inspector General, DoD

Inspector General, DoD, Report No. 95-301, "Major Deficiencies Preventing Auditors From Rendering Audit Opinions on DoD General Fund Financial Statements," August 29, 1995, states that major deficiencies inhibit the ability of DoD to produce auditable general fund financial statements. The report states that auditors will be unable to render an opinion on DoD general fund financial statements until March 2000. This conclusion was based, in part, on the two-phased accounting system improvement plan established by the DFAS. The report contained no recommendations.

Defense Finance and Accounting Service

The DFAS Customer Service and Performance Assessment Deputate issued an evaluation, "Evaluation of the Corps of Engineers Financial Management System," April 14, 1995. The evaluation stated that CEFMS was unable to reconcile various accounts due to the lack of an ending date for recording accounting transactions; inadequate reconciliation reports; and the lack of defined procedures for reconciling the accounts. In addition, the Corps had 697 incomplete change requests, dating to June 1992, for changing CEFMS. The requests for changes included 251 requests rated as a high priority for completion and 310 rated as a medium priority for completion. The Corps generally concurred with the findings and recommendations.

DFAS headquarters, "Report on the Comparative Evaluation of the Candidate Interim Migratory Systems for the Transportation Business Area," September 1994, ranked CEFMS as the best system for meeting customers' accounting requirements and with the second best ability to meet users' technical requirements when compared to three other systems. However, the Financial Management Information System was recommended as the interim migratory system for DoD transportation operations because the cost to enhance the system to the minimum customers' requirements was less than the other systems. The ability of CEFMS to meet the customers' technical requirements was reduced because its programming was completed without using automated tools, the continuity of operations plan had not been tested, and CEFMS was not written in a high order language (that is, a computer programming language easily understood because it is similar to the human language).

Appendix C. Other Matters of Interest

Our primary objective was to determine whether DFAS established effective management controls over the process used to test CEFMS. However, we identified other concerns on the development of CEFMS throughout DoD.

Structure of Accounting Systems. DoD Regulation 7000.14-R states that the structure of an accounting system shall maximize the use of standardization in data administration, data processing, and data elements and minimize the number of individual accounting and financial applications. To fulfill that requirement, the Director, DFAS, required that the DFAS Indianapolis Center test CEFMS to determine whether it could be modified to support the Army and DFAS business practices for Army posts, camps, and stations. In addition, the Navy and the Marine Corps were developing systems to provide their own general fund accounting services. Further, the Army, the Air Force, and the U.S. Transportation Command were planning to implement CEFMS with modifications to provide their own unique accounting services.

DFAS personnel stated, during the review, that CEFMS is planned to provide financial management services throughout DoD. However, modification of the CEFMS may result in nonstandardization of DoD financial management systems because DoD Components are developing systems to support their unique financial management needs. Descriptions of the financial management systems and the status of work on each system follow.

Testing of CEFMS at the DFAS Denver Center. The DFAS Denver Center in Denver, Colorado, started an evaluation of CEFMS in March 1996, to determine whether the system could provide accounting services at Air Force installations. The DFAS Denver Center draft report on the evaluation stated that the test was limited by both time constraints and the scope of functionality considered. Further, the draft report stated that the test was conducted by relying on assumptions made in previous studies of CEFMS. However, DFAS Denver Center personnel concluded that CEFMS has the potential to satisfy the accounting and reporting requirements for Air Force activities.

Standard Transportation Accounting System. On May 10, 1996, the Office of the Under Secretary of Defense (Comptroller) released the "Final Report on the Economic Analysis of the Transportation Accounting System." This report referred to the accounting system that will support the transportation business area as the Standard Transportation Accounting System. The report described the results of the analysis of the CEFMS. Also, the report includes the March 21, 1996, Electronic Data Systems "CEFMS Technical Analysis." The report concludes that a modified version of CEFMS was a viable candidate system to support the DoD transportation operations. However, the report noted the following six areas that would present major risks to successful use of the system.

User Acceptance of the CEFMS. The CEFMS was specifically designed for the Corps to manage its projects. As the Standard Transportation Accounting System, it will be used by many DoD Component customers for general funds and Defense Business Operations Fund accounting. Acceptance of the system by all customers will be important to its successful implementation.

Significant Software Development Required. Modifying CEFMS will require significant development of computer software to meet customers' needs. Significant software development is prone to budget overruns and schedule delays. The development cost for the Standard Transportation Accounting System is estimated at $37 million over 39 months.

System Performance. The CEFMS was designed for a small number of customers. The Standard Transportation Accounting System has not been stress tested to the expected volumes of transactions because the DFAS Indianapolis Center was performing those tests.

Significant Database Conversions. A significant work load will be required to convert the legacy database elements and combine them into a common data base. These changes are prone to budget overruns and schedule delays.

Managing Changes to CEFMS Structure. Use of CEFMS by multiple DoD Components will encourage modifications over time which will compromise the integrity of the main system, subsystem, and gateways.

Software Conversion. Difficulty may be experienced disconnecting the project management functionality, designed in the system for use by the Corps, from the financial management functionality. Also, the system may contain Army-unique tables or codes upon which processes may be dependent, causing DoD-wide usage problems.

The Army's CEFMS. The Army's CEFMS will function as the financial management system for the Corps. The CEFMS is projected to operate at 60 Corps sites and has the capacity to serve 7,000 users simultaneously. As of December 1, 1995, CEFMS was operational at six Corps sites. The cost to develop and deploy CEFMS as of March 31, 1996, was $31 million.

Conclusion. The Director, DFAS, required the testing of CEFMS to determine whether it could support financial management activities DoD-wide. However, the DoD Components are developing systems to support their specific general fund accounting. The CEFMS is the system that DoD believes is a viable candidate to provide general ledger accounting support to all DoD Components. However, the possibility of developing nonstandard systems exists because the DoD Components are developing systems to support their specific financial management needs.

Appendix D. Glossary

Automated Information System. A combination of information, computer and telecommunications resources and other information technology and personnel resources, that collect, record, process, store, communicate, retrieve, and display information.

Batch Processing. Transactions collected and processed at the end of the day or at some other time.

Data base. A collection of related information about a subject organized in a useful manner that provides a base or foundation for procedures, such as retrieving information, drawing conclusions, and making decisions.

Data Element. A named identifier of each of the entities and their attributes that are represented in a data base.

Electronic Signature. An electronic method of identifying the signer of information and verifying that critical data on a document have not been altered. Electronic signatures can replace certain paper-based financial transactions while still ensuring that fiscal integrity and internal controls are maintained over data and approvals.

Gateways. Devices that connect two different local area networks or connect a local area network to a wide area network or a computer with multiple users in a small or large organization (a local area network has personal computers located in a limited area that are connected by cables so that users can share information and obtain data stored in a centrally located computer. A wide area network is a computer network that uses high-speed, long-distance communications or satellites to connect computers located at distances greater than 2 miles).

Generating Customer Requirements. The process of generating customer requirements produces information for decision makers on projected mission needs. Customer requirement information is documented in the mission need statement for Phase 0, Concept Exploration, and the operational requirements document for subsequent phases.

Integrated Product Team. The Secretary of Defense directed that DoD will utilize integrated product teams to perform as many acquisition functions as possible, including oversight and review. The teams are composed of representatives, from all appropriate functional disciplines, who work together to ensure the success of the program. The integrated product teams identify and resolve issues and make sound and timely recommendations to facilitate decision making.

Key Accounting Requirements. KARs include the General Accounting Office, Office of Management and Budget, Department of Treasury, and DoD requirements with which an accounting system must comply. DoD managers use the KARs for reviewing the compliance of accounting systems with accounting principles, standards, and requirements.

Legacy System. An existing automated information system that has not been officially selected as a migratory system and until terminated, duplicates the support services provided by the migratory system.

Migratory System. An existing or planned and approved automated information system that has been designated to support a functional process on a DoD-wide basis.

Portability Test. A test to determine the ease of moving software from one computer system to another computer system.

Platform. A well-known type of computer equipment. Computer programs created for one type of computer equipment will not operate satisfactorily on other equipment.

Stress Test. A test of key system components of a specific system configuration in which the system is brought to its peak limits so that end-user system performance goals become unattainable.

Test and Evaluation. The test and evaluation program is structured to provide essential information to decision makers, to assess attainment of technical performance parameters, and to determine whether systems are operationally effective, suitable, and survivable for intended use.

Appendix E. Audits Performed on Army and Air Force Financial Statements

Audits performed on Army and Air Force financial statements identified deficiencies in the DFAS general fund accounting systems. The deficiencies in FYs 1994 and 1995 are summarized below.

Army General Fund Financial Statements

Using Integrated, Transaction-Driven Standard General Ledgers. The Army accounting systems were not in compliance with the Office of Management and Budget requirement for using integrated, transaction-driven standard general ledgers.

Compiling Amounts for Physical Assets. The Army was compiling amounts for physical assets in its financial statements from management systems not intended and not suitable for financial reporting.

Producing Subsidiary Ledgers. The accounting systems were not producing subsidiary ledgers. Therefore, the audit trails needed to verify the values reported for cash-based accounts on the Army's financial statements did not exist.

Presenting Amounts for all Types of Assets, Liabilities, and Expenses. Army accounting records were not presenting amounts for all types of assets, liabilities, and expenses.

Accumulating the Value of Government Property. The Army's accounting systems were not adequately used for accumulating the value of Government property furnished to contractors.

Recording the Values of Equipment and Real Property. Army accounting systems were improperly recording the values of equipment and real property from asset management and physical accountability records.

Recording Wholesale Assets. The Army was not recording wholesale assets in a complete or accurate manner in the accounting systems. The data either were not used for financial reporting or were used to report asset values, but were not auditable or consistent.

Air Force General Fund Financial Statements

Compiling and Reporting Financial Information. The Air Force does not have a transaction-driven general ledger for compiling and reporting financial information in its financial statements.

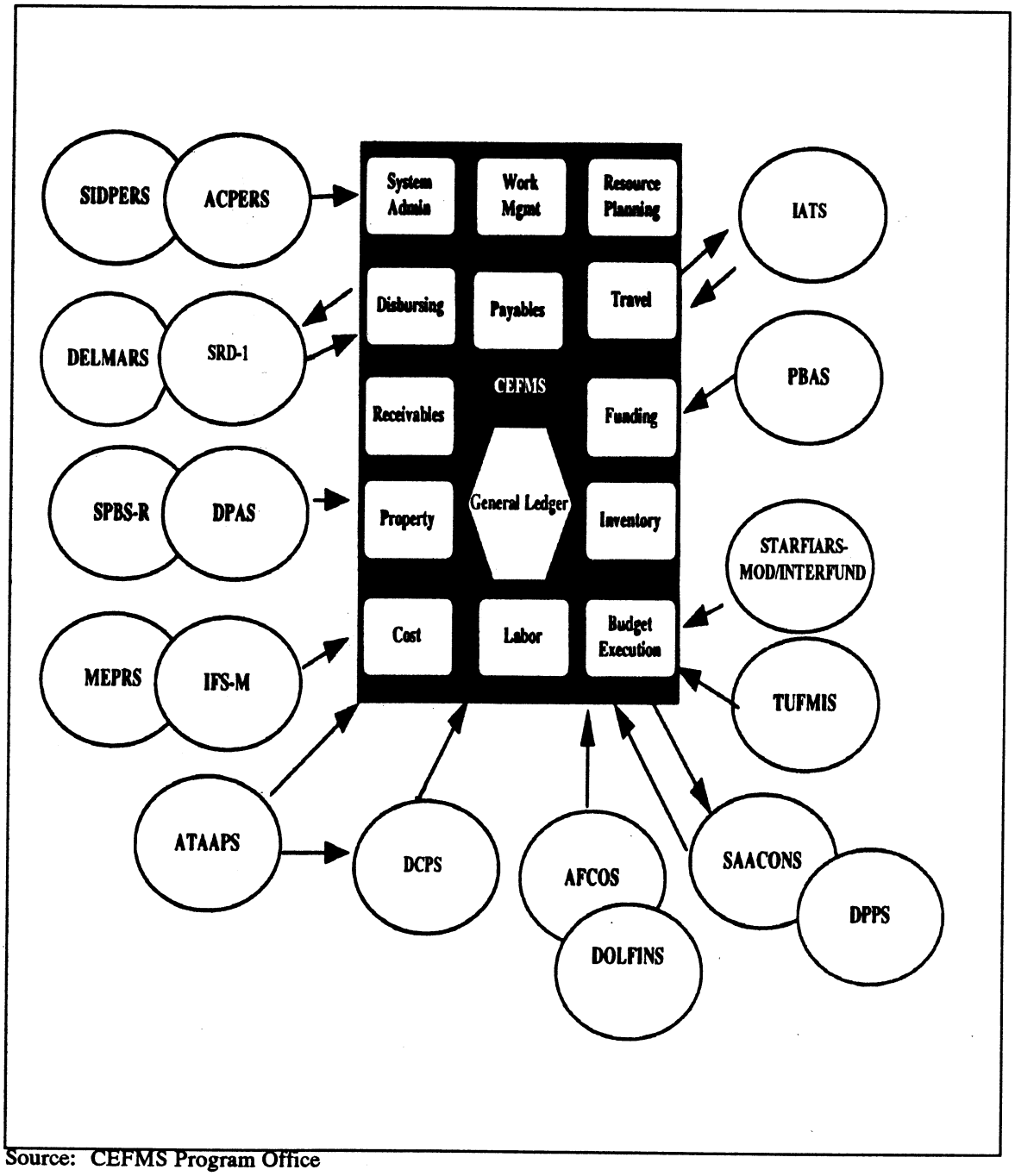
Producing Auditable Financial Statements. The Air Force's accounting systems were not producing auditable financial statements. Air Force and DFAS Denver Center personnel were extracting financial data from automated and manual systems to produce the Air Force's consolidated financial statements.

Reporting of Equipment and Inventory Amounts. Reporting of equipment and inventory amounts was not accurate. Air Force auditors identified errors in balances on hand and unit prices for inventories reported in Air Force inventory systems.

Reconciling Differences in Amounts of Disbursements and Collections. The Air Force was not always reconciling differences in the amounts of disbursements and collections of funds between DFAS Denver Center accounting records and installation accounting records.

Recording Military Equipment and Vehicles. The Air Force was not using acquisition costs for recording military equipment and vehicles in financial statements.

Appendix F. CEFMS Functionality and Interfaces



Source: CEFMS Program Office

Note: The figure shows the CEFMS processing capability with circles representing subsidiary systems that need to interface with the CEFMS. The acronyms are defined in Appendix M.

Appendix G. Program Management Process

DoD Directive 5000.1, "Defense Acquisition," March 15, 1996, and DoD Regulation, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPS) and Major Automated Information System (MAIS) Acquisition Programs," March 15, 1996, provides policies and procedures for implementing an acquisition. The DoD guidance also provides a process to assist managers in making decisions for major automated information systems. The process includes a series of management phases and milestone decision points as described below.

Phase 0: Concept Exploration. Phase 0 consists of competitive, parallel short-term concept studies that define and evaluate the feasibility of alternative concepts. The studies provide a basis for assessing the advantages, disadvantages, and the degree of risk of the concepts at the next milestone decision point. The most promising concepts are defined as broad objectives for determining cost, schedule, and performance.

Phase I: Program Definition and Risk Reduction. During phase I, assessments of the advantages and disadvantages of alternative concepts for a system are refined. Models are developed, demonstrations are conducted, and assessments of operational capabilities are performed to reduce risks before the next decision point.

Phase II: Engineering and Manufacturing Development. During phase II, the most promising approach for designing the system is translated into a stable, producible, supportable, and cost-effective design; the manufacturing or production process is validated, and the system capabilities are tested.

Phase III: Production, Fielding or Deployment, and Operational Support. During phase III, an operational capability that satisfies mission needs is achieved. Deficiencies encountered in the developmental test and evaluation and initial operational test and evaluation segments are resolved, and fixes are verified. During implementation and throughout operational support, the potential for modifications to the implemented system continues.

Milestone 0: Approval to Conduct Concept Studies. At milestone 0, the Joint Requirements Oversight Council or the Principal Staff Assistant at the Office of the Secretary of Defense verifies the need for an automated system. Also, the Assistant Secretary of Defense (Command, Control, Communications and Intelligence), as chairman of the Major Automated Information Systems Review Council, decides whether the system should proceed into the phase 0.

Milestone I: Approval to Begin a New Acquisition Program. At the milestone I decision point, the review determines whether the results of phase I justify establishing a new acquisition program and to approve entry into phase I.

Milestone II: Approval to Enter Engineering and Manufacturing Development. At the milestone II decision point, a review is made by the milestone decision authority to determine whether the results of phase I justify continuing the program and to approve entry into phase II.

Milestone III: Production or Fielding or Deployment Approval. At the milestone III decision point, deployment of an automated information system is approved by the milestone decision authority.

Appendix H. Key Accounting Requirements

The Key Accounting Requirements (KARs) are a consolidation of all General Accounting Office, Office of Management and Budget, Department of the Treasury, and DoD requirements with which an accounting system must reasonably comply.

KAR 1-General Ledger Control and Financial Reporting. A system must have general ledger control and maintain an appropriate account structure approved by DoD. The general ledger account structure must follow the general ledger accounts for assets, liabilities, equity, expenses, losses, gains, transfers in and out, and financing sources. A double entry set of accounts must be maintained within the system to reflect budget authority, undelivered orders, obligations, expenditures, and other necessary accounts. The system must list both control and subsidiary general ledger accounts by title and number, including a definition of each account. Subsidiary accounts should be reconciled to the control accounts at least monthly. Full financial disclosure, accountability, adequate financial information, and reports must be provided for management purposes, and for necessary external reporting to Office of Management and Budget and the Department of the Treasury.

KAR 2-Property and Inventory Accounting. The system must account in quantitative and monetary terms for the procurement, receipt, issue, and control of plant, property, equipment, inventory, and material. Most acquisitions are recorded upon receipt of goods. Inventory accounting must entail accounting and control over the acquisition and issuance of materials, the comparison of physical inventories and records, the planning for procurement and utilization, and effective custody of the materials.

The property management system must include accounting controls over inventory ledgers that identify the item, its location, quantity, acquisition date, cost, and other information. Subsidiary property records are reconciled periodically to general ledger accounts. Physical controls include assigning specific individuals to inventory, placing physical safeguards on inventory, and periodically reconciling physical inventories to the accounting records.

KAR 3-Accounting for Receivables Including Advances. The system must account for all accounts receivables (any public indebtedness to the U.S. Government). Accounts receivable shall be recorded accurately and promptly to provide a timely and reliable financial status. All collections shall be under general ledger accounting control. Cash shall be deposited as expeditiously as possible and immediately recorded in the accounting records. Advances shall be recorded as assets until receipt of the goods or services or until contract terms are met. Accounting control must be maintained over advances made to employees, contractors, and all others. Advances must be promptly recorded and reconciled to general ledger control accounts.

KAR 4-Cost Accounting. Cost accounting must involve accounting analysis and reporting on costs of production of goods or services or operation of programs, activities, functions, or organizational units. Cost accounting shall be provided in the accounting system if cost accounting is required in such instances as pricing decisions, productivity improvement decisions or measurement of performance, efficiency comparisons of like activities, and industrial fund activities. Industrial fund accounting shall provide an effective means for controlling the cost of goods and services produced or furnished by industrial and commercial type activities. Cost accounting should be used in job order and process cost and in determining operating results.

KAR 5-Accrual Accounting. Accrual accounting must recognize the accountable aspects of financial transactions or events as they occur. Transactions may be recorded in accounting records as they occur or be adjusted to the accrual basis at the end of each month. Accrual accounting should be used to meet the specific needs of management and Congress.

KAR 6-Military and Civilian Payroll Procedures. Wherever feasible, DoD will use modern technology in its computer systems to process payroll transactions. The payroll system will interface with the accounting system providing obligation and accrual data. The military and civilian payroll processes and procedures must be available to management, users, auditors, and evaluators.

KAR 7-System Controls (Fund and Internal). There are two types of system controls, fund and internal control.

o Fund Control. The system must ensure that obligations and expenditures do not exceed the amount appropriated, apportioned, reapportioned, allocated, and allotted (United States Code, title 31, section 1341). The system must provide a process and procedures for control over errors to ensure that once errors are detected, corrections are made in a timely manner and reentered into the appropriate processing cycle, corrections are made only once, and the correction is validated. The system must show the appropriations and funds to be accounted for and a description of the accounting entity's proposed fund distribution and control process. The system must have good fund control procedures to prevent untimely liquidation of obligations, unmatched expenditures, and undistributed disbursements.

o Internal Controls. The system must have adequate internal controls to prevent, detect, and correct errors and irregularities that may occur throughout the system. Separation of duties and responsibilities must be maintained for initiating, authorizing, processing, recording, and reviewing transactions. Automated systems must have system security and integrity for authorized processing to include procedures and controls that protect hardware, software, and documentation from physical damage by accident, fire, flood, environmental hazards, and unauthorized access. Also, the system must have controls to prevent unauthorized use of confidential information.

KAR 8-Audit Trails. Audit trails permit tracing transactions through a system. Audit trails allow auditors or evaluators to ensure that transactions are properly accumulated and correctly classified, coded, and recorded in all affected accounts. Audit trails should allow a transaction to be traced from initiation through processing to final reports. In addition, good audit trails allow for the detection and tracing of rejected or suspended transactions, such as unmatched disbursements, for ultimate systematic correction in a reasonable time frame.

KAR 9-Cash Procedures and Accounts Payable. The system shall be designed to ensure timely payments based on properly approved disbursement documents. The payment process and procedures must comply with the Prompt Payment Act. Accounts payable are liabilities that should be recorded when goods or services are received. The liability reported in the annual financial statements shall reflect amounts due for goods and services received and shall be recorded in the proper accounting period.

KAR 10-System Documentation. The accounting system must have adequate system documentation that must include interfaces between accounting system segments. The detailed accounting system design package shall adequately document the functional user's accounting requirements. Such documentation must be available in users' manuals and subsystem specifications.

KAR 11-System Operations. Adequate organization and planning shall exist regarding systems operations to assure that financial management and accounting objectives are met in an economical and efficient manner. Systems must operate in a manner that satisfies legal requirements, laws, regulations, accounting principles and standards, and related requirements as prescribed by the General Accounting Office, Office of Management and Budget, and DoD. Also, periodic system reviews should assure that the system is functioning as intended, required procedures are being followed, any operating problems are promptly identified and corrected, and possible state-of-the-art enhancements are incorporated as appropriate.

KAR 12-User Information Needs. User information needs and requirements as to quality, accuracy, timeliness, reliability, and responsiveness of the system shall be adequate in response to program managers, financial managers, and other users. The system shall satisfy users' reporting requirements particularly as they relate to month-end reports. The system must also satisfy user needs to facilitate their management decision making process. In addition, if there are departures in other KARs that adversely affect the users of the system, the materiality of those departures will be determined under this KAR.

KAR 13-Budgetary Accounting. The system shall support formulation of the budget, support budget requests, and control budget execution. Programming, budgeting, accounting, reporting classification, and coding structure should be uniform and consistent with each other and synchronized with the organizational structure so that actual activity reported within the accounting system can be compared with enacted budgets and can support future budget formulation for each activity.

Appendix I. U.S. Army Forces Command Comments on Test Results

AFRM-FB (DFAS-IN-AJ/no date) 1st End 06 MAR 1996
SUBJECT: Request for Input to Final Test Report on the Test of the Corps of Engineers Financial Management System (CEFMS) Test at an Army Post, Camp, or Station

Commander, U.S. Army Forces Command, ATTN: AFRM-FB, Fort McPherson, GA 30330-6000

FOR Director, Defense Finance and Accounting Service-Indianapolis Center, ATTN: DFAS-IN-AF, 8899 East 56th Street, Indianapolis, IN 46249-0120

1. You requested input concerning the CEFMS test. The process was more of a learning experience than a system test. We note that the CEFMS test did not include several key elements. In particular, CEFMS lacked interfaces for labor, supplies and equipment costs. Further, funded reimbursement transactions capability does not exist in CEFMS; input from the Program Budget Accounting System was required at the execution level, therefore not tested; and many of the transactions were manually input. You note that the portability and stress tests are currently being conducted; however, we cannot evaluate the system.

2. Responses are keyed to your questions:

a. Testing Process. The process was thorough with respect to the data tested. The scope was far too limited to be considered as a comprehensive review of CEFMS performance.

b. CEFMS Capabilities. The system does have the capability to support post, camp and station accounting, pending outcome of portability and stress results. Major areas were identified where system modifications and interfaces were necessary. The system was oriented towards project management, which concentrates on a relatively small number of large dollar projects. The Operation and Maintenance environment requires capability to include a very substantial volume of transactions.

AFRM-FB
SUBJECT: Request f Input to Final Test Report on the Test of the Corps of Engineers Financial Management System (CEFMS) Test at an Army Post, Camp, or Station

c. Recommendation. We cannot recommend adoption of CEFMS until completion of interfaces and major changes. System would then need to be tested and used as a prototype. We also recommend that the system be analyzed for capability to support activity-based costing which we see as a cornerstone for future reengineering efforts.

JOSEPH E. ODER
Brigadier General, USA
Director, Resource Management, G8

CF:
Deputy Assistant Secretary of the Army (Financial Operations),
ATTN: SAFM-FO, 109 Army Pentagon, Washington, DC 20310-0109

Appendix J. National Guard Bureau Comments on Test Results

DEPARTMENTS OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
111 SOUTH GEORGE MASON DRIVE
ARLINGTON, VA 22204-1382

NGB-ARC-A

13 MAR 1996

MEMORANDUM FOR DIRECTOR, DEFENSE FINANCE AND ACCOUNTING SERVICE -- INDIANAPOLIS CENTER, ATTN: DFAS-IMAJ, INDIANAPOLIS, IN 46249-0001

SUBJECT: Test of the Corps of Engineers Financial Management System (CEFMS)

1. This memorandum is in response to your request for input to the final test report on the results of CEFMS testing at an Army post, camp, or station. We appreciate the opportunity to be part of CEFMS testing, and look forward to continued participation

2. We are pleased with the progress made in CEFMS testing and the manner in which testing has been conducted. Based on test results, we believe that CEFMS can be modified to operate in a United States Property and Fiscal Office (USPFO) environment. With modifications and the addition of critical financial interfaces, CEFMS will have the potential of supporting the financial requirements of a USPFO. We are also confident that CEFMS will operate within the NGB and RCAS environments. Future modifications and interfaces will require additional testing. Therefore, we recommend that CEFMS be modified functionally for further testing of operability within a USPFO environment.

3. In our memorandum of 25 January 1996 (enclosed), we identified the need for CEFMS interfaces, and requested permission to test and execute a prototype deployment of CEFMS within a USPFO. The ASA(FM&C) has concurred with our request; we look forward to your response. The current progress in CEFMS testing has been encouraging. We plan to continue our participation in CEFMS testing with the goal of adopting CEFMS as the standard accounting system within the NGB. Our point of contact for CEFMS issues is MAJ Ann Willi, DSN 327-7593.

FOR THE CHIEF, NATIONAL GUARD BUREAU:

Encl

MORGAN F. DENNY
Colonel, GS
Director, Army Comptroller

Appendix K. U.S. Army Signal Center and Fort Gordon Comments on Test Results

ATZH-RM (DFAS-IN-AJ/undated) 1st End COL Laszok/cd/780-3178
SUBJECT: Request for Input to Final Test Report on the Test of the Corps of Engineers Financial Management System (CEFMS) at the Army Post, Camp, or Station

HQ, U.S. Army Signal Center and Fort Gordon, ATTN: ATZH-RM (COL Laszok), Fort Gordon, Georgia 30905-5010 15 Mar 96

FOR Defense Finance and Accounting Service, CEFMS Project Office, ATTN: Phyllis Campbell, Indianapolis Center, Indianapolis, IN 46249

1. In its current state, CEFMS is not capable of providing financial management support to a class 1 installation. Civilian pay and supply transactions (the major portions of our budget) could not be evaluated under the CEFMS model. The travel and training modules were evaluated, and probably would work after applying major software modifications and implementing changes to installation business operations.

2. I don't wish to convey a completely negative opinion of CEFMS. This system does have potential. I don't think there is presently a commercial off the shelf system that could easily be adapted to installation financial operations. CEFMS should be used to form the basis for the next financial management system.

3. As we move closer to the development and fielding of the 21st Century financial management system, I offer the following observations, based on our CEFMS use:

a. The 21st Century financial management system will require a very large communication trunk to process the high volume of data. Our CEFMS training was severely constrained because we couldn't process training data in a reasonable time. The installation of a T-1 line solved this problem, but only after the training was completed.

b. No financial management system is going to be perfectly adaptable to every installation. There will have to be modifications to installation current business practices regardless of the system adopted for use. Users should be kept well informed of anticipated CEFMS changes.

c. We need to invest in the training that will be required to field the new system. In this regard, I can only provide the highest compliments to the CEFMS instructors that provided us with our training. They were extremely knowledgeable. Without exception, every student critique sheet had only the highest compliments for these instructors.

ATZH-RM
SUBJECT: Request for Input to Final Test Report on the Test of the Corps of Engineers Financial Management System (CEFMS) at the Army Post, Camp, or Station

4. Our efforts during the past six months were primarily involved in data gathering rather than CEFMS testing. Once recommended CEFMS modifications are made, we strongly urge it again be used at a class one installation in a true test environment. We also recommend that the test identify conditions and standards for measurement and analysis.

5. Overall, there was a good cooperative effort between the fielding agency and Fort Gordon. We worked as a team, learned together, identified problems and developed solutions. With continued focused efforts, CEFMS will become the financial management system of DoD.

6. Attached is a more detailed memorandum which addresses each of the issues you have requested we comment on.

Atch

RICHARD W. LASZOK
COL, GS
Director of Resource Management

Appendix L. U.S. Army Training and Doctrine Command Comments on Test Results

ATRM/A (DFAS-IN/Undated) 1st End Mr. Scott/ja/680-3447

SUBJECT: Input to Final Test Report on Corps of Engineers Financial Management System (CEFMS)

Commander, U. S. Army Training and Doctrine Command, Fort Monroe, Virginia 23651

FOR DFAS, ATTN: DFAS-IN-AJ (Mr. Cannon), Indianapolis, IN 46249

1. We evaluated CEFMS performance at Fort Gordon. Below are our comments to the specific questions your asked.

a. *Can CEFMS be modified to support Army posts, camps, and stations, and be used in an operating location environment?*

CEFMS can be modified to support Army needs. However, one overriding requirement is that CEFMS must be flexible enough to support a variety of installation structures and units without being overly labor intensive. Test to date has not adequately evaluated total functionality of CEFMS and its ability to operate with other current systems.

b. *Does CEFMS support key accounting requirements?*

CEFMS does appear to support the CFO act's requirement for a transaction based general ledger system that will generate auditable financial statements. However, there appears to be a disconnect between current regulatory guidance and procedures built into the CEFMS system. That disconnect must be remedied before a determination can be made as to the system's ability to satisfy key accounting requirements.

c. *Can CEFMS handle the volume of transactions required?*

CEFMS ability to handle a large volume of transactions cannot be determined at this time. Not all of the system's interfaces were functional during the test nor was CEFMS tested at a large installation.

d. *Is CEFMS portable across multiple platforms?*

Cannot determine if CEFMS is portable across multiple platforms.

ATRM
SUBJECT: Input to Final Test Report on Corps of Engineers Financial Management System (CEFMS)

e. In your opinion, was the test conducted in a thorough and comprehensive manner? (Please provide brief explanation of your response.)

Test period was too short and lead time insufficient to ensure proper automation equipment and communication networks were deployed for the test. The processes of getting the test underway and making appropriate changes to meet all situations required many modifications to the initial stated purpose. The portion of the test that was completed was conducted thoroughly and comprehensively which provided proof of principle that CEFMS could support the Army, however not all functional aspects of the system were tested.

f. CEFMS capabilities and potential to support the financial management requirements for an Army post, camp, or station: Although there are areas within CEFMS where systems modifications/changes have been identified as necessary to support Army business requirements, is your assessment that CEFMS does/does not have the potential to support Army posts, camps, and stations? (Please provided a brief explanation of your response.)

CEFMS has potential to support system modifications and interfaces. CEFMS requires a well-developed and complete automation/communication network on the installation. Fort Gordon is among the top installations in advanced automation/communications and the test still taxed their capabilities to support. If extended to other "less developed," installations, there will be a large automation/communications bill associated with fielding the system.

g. Recommendation: Do you recommend/not recommend that CEFMS be modified functionally and adopted as the Army's general funds financial management system for posts, camps, and stations? (Please provide a brief explanation of your response.)

After modification, recommend a complete user test be conducted prior to fielding of the system. It is premature to recommend either adoption or rejection as the Army's standard system at this point.

Appendix M. Present and Proposed Interfaces for CEFMS

Present Interfaces With the Standard Finance System	Proposed Interfaces With the CEFMS
Defense Civilian Pay System	Defense Civilian Pay System (DCPS)
Integrated Facility System Micro/Mini-Computer	Integrated Facility System Micro/Mini-Computer (IFS-M)
Standard Installation/Division Personnel System	Standard Installation/Division Personnel System (SIDPERS)
Standard Finance System-Redesign 1	Standard Finance System-Redesign 1 (SRD-1)
Standard Army Financial Inventory Reporting System	Standard Army Financial Inventory Reporting System-Modification (STARFIARS-MOD) (Provides interfund capability.)
Tactical Unit Financial Management Inventory System	Tactical Unit Financial Management Inventory System (TUFMIS)
Automated System for Army Commissaries	Army Civilian Personnel System (ACPERS)
Defense Automated Addressing System	Defense Procurement Payment System (DPPS)
Departmental Accounting Operations, DFAS Indianapolis Center	Integrated Army Travel System (IATS)
Database Commitment Accounting System	Program Budget Accounting System (PBAS)

Appendix M. Present and Proposed Interfaces for CEFMS

Present Interfaces With the Standard Finance System	Proposed Interfaces With the CEFMS
Defense Joint Military Pay System-Active Component	Daily Order Ledgers Finance System (DOLFINS)
Defense Joint Military Pay System-Reserve Component	Standard Army Automated Contract System (SAACONS)
Medical Expense and Performance Reporting System	Automated Fund Control and Order System (AFCOS)
Standard Army Voucher Examination System	Automated Time and Attendance Process System (ATAAPS)
Standard Army Civilian Pay System	Defense Property Accountability System (DPAS)
Standard Army Civilian Pay System-Redesign	Standard Property Book System -Redesign (SPBS-R)
Test Evaluation Analysis Management Uniformity Plan	Medical Expense and Performance Reporting System (MEPRS)
	Defense Joint Military Pay System (Active and Reserve Component) (DJMS)
	Data Element Management and Reporting System (DELMARS)

Appendix N. Under Secretary of Defense (Comptroller) Decision

UNDER SECRETARY OF DEFENSE
1100 DEFENSE PENTAGON
WASHINGTON, DC 20301-1100

COMPTROLLER

MAY 28 1996

MEMORANDUM FOR DIRECTOR, DEFENSE FINANCE AND ACCOUNTING SERVICE

SUBJECT: Accounting System Selection for DFAS Indianapolis Center Customer Base

I have spent a lot of time thinking about the CEFMS briefing you gave me and the GAO/DoDIG/AAA audit of the CEFMS test. I believe the GAO/DoDIG/AAA audit was excessively critical because they misunderstood the purpose of the CEFMS test. I was gratified to hear them say that CEFMS functionality justified its selection as a future modern accounting system to replace the numerous inadequate accounting systems that currently are being used. No one in our meetings recommended we not go ahead with CEFMS implementation. But I agree with the GAO/DoDIG/AAA team that we need additional work before deployment. Too much depends on successful CEFMS implementation to cut corners and fail to approach this problem in a disciplined way.

Consequently, I direct that you proceed with the development of CEFMS as the General Accounting Migratory System for DFAS Indianapolis customers and for use for U.S. Transportation Command activities and components. You are also directed to place the CEFMS development program under program management discipline, to include:

a. Follow the DoD life cycle management process outlined in DoDD 5000.1 and DoD 5000.2-R.

b. Prototype CEFMS at one or more Army posts, camps, or stations with accounting service provided from a DFAS Operating Location(s).

c. Upon successful testing at the prototype sites and after following the life cycle management decision process, deploy CEFMS to all Army posts, camps, and stations.

d. Begin the evaluation to use CEFMS for the remaining DFAS Indianapolis customers; e.g., Army Material Command and Army National Guard.

e. After evaluating CEFMS for the remaining DFAS Indianapolis customers, follow the same life cycle management decision process to test and deploy the system for these activities.

2

The above requirements should be implemented under the guidance and direction of the new DFAS Defense Accounting System Program Management Office. I appreciate the willingness of the GAO/DoDIG/AAA team to participate in your project management. I leave it to your judgment to decide how you wish to work with them in this effort, but I would request that you ask the audit community to designate one of their agencies as the lead. As a minimum, I would like to have you review the implementation plans and activities with representatives of the audit team on at least a quarterly basis.

John J. Hamre

Appendix O. Organizations Visited or Contacted

Office of the Secretary of Defense

Under Secretary of Defense (Comptroller), Washington, DC
  Director, Program Analysis and Evaluation, Washington, DC
Assistant Secretary of Defense (Command, Control, Communications and Intelligence), Washington, DC
  Deputy Assistant Secretary of Defense (Command, Control, Communications and Intelligence Acquisition), Washington, DC
Director, Operational Test and Evaluation, Washington, DC

Department of the Army

Headquarters, Army Audit Agency, Alexandria, VA
Headquarters, U.S. Army Corps of Engineers, Washington, DC
  U.S. Army Corps of Engineers, Huntsville Finance Center, Huntsville, AL

Unified Commands

Headquarters, U.S. Special Operations Command, MacDill Air Force Base, FL

Defense Organizations

Headquarters, Defense Finance and Accounting Service, Arlington, VA
  Defense Finance and Accounting Service, Indianapolis Center, Indianapolis, IN
    Defense Accounting Office, Fort Gordon, GA
  Defense Finance and Accounting Service, Denver Center, Denver, CO
Headquarters, Defense Information Systems Agency, Alexandria, VA
  Defense Information Systems Agency, Western Hemisphere, Defense Megacenter, Huntsville, Huntsville, AL
Headquarters, Defense Systems Management College, Fort Belvoir, VA

Non-Government Organizations

Advanced Technology Systems, Huntsville, AL
Computer Sciences Corporation, Indianapolis, IN
Control Data Corporation, Huntsville, AL
Gradkell Systems Incorporated, Huntsville, AL
Sun Microsystems, Incorporated, Indianapolis, IN
Ventura Technology International, Indianapolis, IN

Appendix P. 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)
Assistant to the Secretary of Defense (Public Affairs)
Director, Defense Logistics Studies Information Exchange

Department of the Army

Assistant Secretary of the Army (Financial Management and Comptroller)
Commander, U.S. Army Corps of Engineers
Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management)
Auditor General, Department of the Navy

Department of the Air Force

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

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Finance and Accounting Service
  Director, Defense Finance and Accounting Service, Indianapolis Center
Director, Defense Logistics Agency
Director, National Security Agency
  Inspector General, National Security Agency
Inspector General, Defense Intelligence Agency

Non-Defense Federal Organizations

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

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

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

Part III - Management Comments

Under Secretary of Defense (Comptroller) Comments

OFFICE OF THE UNDER SECRETARY OF DEFENSE
1100 DEFENSE PENTAGON
WASHINGTON, DC 20301-1100

COMPTROLLER

OCT 30 1996

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

SUBJECT: Draft Audit Report on the Corps of Engineers Financial Management System (CEFMS) (Project No. 6FG-5012)

This is in response to your request, dated August 7, 1996, to provide comments on the subject draft audit report. This office agrees with the recommendation presented by the audit report. The Defense Finance and Accounting Service (DFAS) has implemented the audit report recommendation by forwarding the CEFMS to the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) (C3I), for inclusion as a Major Automated Information System Review Council (MAISRC) system. The ASD(C3I) released the CEFMS on its proposed MAISRC list of systems on September 13, 1996.

Although this office concurs with the recommendation of the report, it does not agree fully with the presentation of the discussion in the audit report. The report should more clearly emphasize that the DFAS was conducting a feasibility evaluation as defined under the objectives of the test which are identified on page 2 of the draft audit report, and was not conducting a full formal software acceptance test in accordance with DoD Directive 5000.1, Defense Acquisition, and DoD Regulation 5000.2-R, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs. A full test was not required and was not conducted, because the CEFMS already is an operational system. The DFAS' primary objective was to evaluate the flexibility of the system for use at Army posts, camps and stations as compared to its current operational environment and the origins of the system.

In addition to the suggested modification identified above, this office also suggests that the draft audit report be revised and structured to more positively focus on the primary objective of the audit as defined on page (i) of the report. Specific comments on individual findings, and the recommendation, contained in the DoDIG report, are attached.

My point of contact for this report is Mr. James R. Rivera. He may be reached at (703) 697-8281; e-mail: riveraj@ousdc.osd.mil.

Alvin Tucker
Deputy Chief Financial Officer

Attachment

Final Report Reference

DODIG DRAFT REPORT - DATED AUGUST 7, 1996

"CORPS OF ENGINEERS FINANCIAL MANAGEMENT SYSTEM"

UNDER SECRETARY OF DEFENSE (COMPTROLLER) COMMENTS ON THE DODIG RECOMMENDATION

RECOMMENDATION: "We recommend that the Under Secretary of Defense (Comptroller) notify the Assistant Secretary of Defense (Command Control, Communications and Intelligence) of the need to classify the Corps of Engineers Financial Management System (CEFMS) as a special interest program for Major Automated Information System Review Council review." (pp.-15/GAO Draft Report)

USD(C) RESPONSE: Concur. The recommendation contained in the audit report has been implemented. The proposal to designate CEFMS as a Major Automated Information System Review Council (MAISRC) system was forwarded to the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) (C3I) Acquisition. On September 13, 1996, the ASD (C3I) released the CEFMS on its proposed MAISRC list of systems and has indicated that it, as the Milestone Decision Authority (MDA), will approve the entry of CEFMS into each milestone phase. The Defense Finance and Accounting Service (DFAS) also has established a single program management office to guide, direct and manage the accounting system strategy.

COMMENTS ON THE DODIG FINDINGS

PAGE (i), UNDER THE CAPTION "Introduction" and PAGE (3), UNDER THE CAPTION "Audit Background." "The most current program management costs to implement the system DoD-wide (formerly called life-cycle management costs) were estimated at $16.7 billion in the 'DFAS Strategic Transition Plan 5-3,' June 1992." and "The DFAS estimated program management costs in the 'DFAS Strategic Transition Plan 5-3,' June 1992, at $16.7 billion for implementing CEFMS DoD-wide," respectively. Revised

USD(C) COMMENT: Nonconcur. The cost estimate referenced in the report was not supported with an independent cost estimate or economic analysis for the current or target environments. Currently, the DFAS plans to use CEFMS only for its DFAS-Indianapolis Center (IN), DFAS-Denver Center (DE) and the Transportation Business Area customers, and not on a DoD-wide basis. Additionally, the cost estimates appear to be irrelevant to the primary objective of the audit. Therefore, request that the referenced estimated cost be excluded from the final report.

1

Final Report Reference

Revised

PAGE (i), UNDER THE CAPTION "Audit Results," and PAGE (4), UNDER THE CAPTION "Evaluation of CEFMS as the Army's Interim Migratory System." "Insufficient resources, short schedule, and lack of customer involvement, affected the overall completeness of the test," and "Limitations in the testing process, due to insufficient resources, short schedule, and lack of customer involvement, affected the overall completeness of the test," respectively.

USD(C) COMMENT: Nonconcur with the reference made to "lack of customer involvement" in both statements. The host site, the DFAS-IN, together with representatives of the customers concerned, were extensively involved in the testing process from the very beginning of the project. Numerous meetings were held to determine customer requirements. In-process reviews (IPRs) were conducted to provide feedback to customers. Representatives from the host site, the office of the DoD Inspector General (DoDIG), the General Accounting Office (GAO) and customer sites, including the U.S. Army Training and Doctrine Command (TRADOC), the U.S. Army Forces Command (FORSCOM), and National Guard Bureau (NGB), were present at the IPRs.

Revised

PAGE (i), UNDER THE CAPTION "Audit Results," and PAGE (4), UNDER THE CAPTION "Evaluation of CEFMS as the Army's Interim Migratory System." "In addition, the absence of program management procedures affected the completeness of the test."

USD(C) COMMENT: Nonconcur with the referenced quotation, under both captions, as to the absence of program management procedures. An organizational structure, as well as working test procedures, had been formed with experienced personnel in the field of software development, software testing and program management to effect management control over the test process. The presence of program management procedures is evident by all the CEFMS plans developed to perform the testing. This also was acknowledged by the DoDIG as stated on page 7 of the report, "We [the DoDIG] reviewed the 17 test plans that described how the CEFMS project office would test the CEFMS" under the caption "Functional Evaluation of CEFMS," and subcaption "Execution of Test Plans." Accordingly, the statement under this caption is contradictory and should be deleted from the report. The on-site DoDIG representatives also requested and received biographies of the program management staff detailing their functional and systems experience.

Revised

PAGE (5), UNDER THE CAPTION "DFAS Functional and Technical Evaluations." "The DFAS-IN's functional and technical evaluations of the CEFMS were limited in scope, incomplete, and not sufficiently documented. The tests did not ensure that the CEFMS met the regulatory standards for a DoD accounting system."

USD(C) COMMENT: Nonconcur with the statement that the evaluations were limited in scope and incomplete and did not meet regulatory standards. The report should more clearly state that the DFAS was within the intended scope and purpose of the test. The DFAS was conducting only a limited feasibility evaluation, and not conducting a full formal software acceptance test as defined in life cycle management documentation.

2

Final Report Reference

PAGE (6), UNDER THE CAPTION "Functional Evaluation of CEFMS," and UNDER THE SUBCAPTION "CEFMS Compliance with Key Accounting Requirements." "We examined the testing process the DFAS-IN used in its functional evaluation of the CEFMS to include the DFAS validation of compliance with Key Accounting Requirements (KARs), involvement of customers, execution of test plans, and evaluation of the testing process. The DFAS-IN had not completely tested and validated the CEFMS compliance with KARs." Revised Page 5

USD(C) COMMENT: Nonconcur with the reference pertaining to the validation of the KARs. As noted in the report, the primary objective of the evaluation at Ft. Gordon was to determine whether the system could be modified to provide financial management services for an Army post, camp, or station. Regarding the CEFMS compliance with the KARs, the Corps' production system previously had been deemed compliant by various agencies including the DFAS, Army Audit Agency and the Department of the Treasury. The evaluation group was using the KARs only as a checklist for performing a functional assessment of the system. The evaluation group was not revalidating compliance.

PAGE (6), UNDER THE CAPTION "Functional Evaluation of CEFMS," and UNDER THE SUBCAPTION "Identification of Customer Requirements." "Furthermore, the DFAS did not intend to test the CEFMS for use at Army organizations such as depots and arsenals, therefore, the U.S. Army Materiel Command was excluded from the test." Revised

USD(C) COMMENT: Nonconcur with the inference made to the exclusion of the U.S. Army Materiel Command. Eleven major commands were not involved in this phase of the CEFMS testing because they have their own unique requirements that still need to be addressed within the development cycle. The U.S. Army Material Command will be an active participant in an assessment process if the CEFMS is evaluated for use for their customer base.

PAGE (6), UNDER THE CAPTION "Functional Evaluation of CEFMS," and UNDER THE SUBCAPTION "Identification of Customer Requirements." "Also, customers either were not requested to participate in the evaluation or were not fully satisfied with the testing methods." Revised

USD(C) COMMENT: Nonconcur with the statement that customers were not fully satisfied with the testing methods. As shown in appendix I through L of the draft audit report, customers generally stated that testing was through for the data tested. It was acknowledged that additional interfaces and some system modifications would have been even more beneficial. Prior to a full prototype evaluation for posts, camps and stations, all required interfaces will be added and a full software acceptance test will be conducted.

3

Final Report Reference

PAGE (7). UNDER THE CAPTION "Functional Evaluation of CEFMS," and UNDER THE SUBCAPTION "Execution of Test Plans." "Ten of the 13 test plans that were completed did not have a comparison of actual output to expected output which resulted in 14 of the 17 test plans not being fully tested."

USD(C) COMMENT: Nonconcur with the inference in the statement that the result of some of the tests were inconclusive. Although, some of the test plans did not have a comparison of actual output to expected output, the results achieved from all the testing showed the actual output. The actual results from the tests separately were compared to the expected output in the test plans for assessment and evaluation.

Revised

PAGE (7). UNDER THE CAPTION "Functional Evaluation of CEFMS," and UNDER THE SUBCAPTION "Execution of Test Plans." "In addition, 8 of the 13 'test plans' did not include tests for evaluating the ability of the CEFMS to prevent or detect the processing of invalid transactions."

USD(C) COMMENT: Nonconcur. This test was not a re-validation of the edit criteria, which was fully tested by the U.S. Army Corps of Engineers, but rather a feasibility evaluation to see if the customers could enter their transactions and meet mission requirements.

Revised

PAGE (7). UNDER THE CAPTION "Functional Evaluation of CEFMS," and UNDER THE SUBCAPTION "Execution of Test Plans." "...within the 17 test plans, we determined that 13 of the 67 types of CEFMS transactions were not tested..."

USD(C) COMMENT: The report should identify that the 13 transaction types not tested relate to labor and capital assets, two areas which were not fully evaluated pending system changes currently being accomplished. These areas will be completely tested during full software acceptance testing.

PAGE (7). UNDER THE CAPTION "Functional Evaluation of CEFMS," and UNDER THE SUBCAPTION "Independent Evaluation of CEFMS Test Process." "An independent evaluation of the CEFMS test process was not performed. Although the DFAS selected an organization separate from the CEFMS project office--the Customer Service and Performance Assessment Directorate--to perform an independent evaluation of the CEFMS test process, the Directorate was under the supervision of the Director, DFAS-IN. Therefore, the Director, DFAS-IN can influence the decisions made by the evaluator. In addition, limitations in performing that independent evaluation made the results questionable. For example, the independent evaluator stated, 'This review did not include an independent test of the CEFMS by the Independent Tester as defined in the Configuration Management regulations. As such, a detailed test analysis report containing Test Item Conditions...and Test Condition Requirements...with specific test results will not be published.'"

4

Final Report Reference

USD(C) COMMENT: Nonconcur with the statement and the inference as to the reason why specific test results would not be published. The statement that specific test results would not be published was made because the DFAS was conducting only a feasibility evaluation; therefore, the test results did not have to be published. The CEFMS test was not intended to be a formal test as defined in the configuration management regulations which includes a detail test analysis report with specific test conditions, test requirements, and test results. On several occasions, the DoDIG representatives were informed that the test that was being conducted was from an "end-user" perspective and not from a "functional and technical" perspective. Further, the DoDIG representatives were informed that the test would be "input to output" oriented (end-user perspective) and would not be at the "specification" level (functional and technical perspective); therefore, the test did not include test conditions and test requirements. A report was prepared by the independent evaluator/tester--the Customer Service and Performance Assessment Directorate--and was included in the final test report.

PAGE (9), UNDER THE CAPTION "Technical Evaluation of CEFMS," and UNDER THE SUBCAPTIONS "Stress Testing of CEFMS, Execution of Stress Tests, and Testing of Transactions." "In a demonstration of the stress test conducted for the DoDIG, and the GAO personnel, the contractor removed the CEFMS from an isolated test laboratory environment and attempted to process transactions in a more realistic live environment. Specifically, the original stress test did not test CEFMS transactions while other computer processing was occurring. As a result of removing the limitation, the speed of processing transactions decreased by 58 percent." Revised Page 8

USD(C) COMMENT: Nonconcur with the reference. The demonstration provided to the DoDIG and GAO by the Contractor was a separate test not sanctioned by the DFAS and was not done in a controlled environment. The DoDIG comments should remain focused on the primary objective of the DFAS test as define on page 2 of the draft audit report. This separate test conducted by the contractor is not supportable and is not repeatable.

PAGE (23), UNDER THE CAPTION "Structure of Accounting Systems." "Descriptions of the financial management system and the status of work on each system follow... Standard Accounting and Reporting Systems (STARS)... Standard Accounting, Budgeting, and Reporting System (SABRS)..." Deleted

USD(C) COMMENT: Nonconcur with including the status or information relative to the STARS and the SABRS in the report as the CEFMS will not replace either of these systems.

PAGE (24), UNDER THE CAPTION "Defense Transportation Payment System." Deleted

USD(C) COMMENT: Nonconcur with including information relative to this system in the report as the CEFMS will not replace the Defense Transportation Payment System.

Audit Team Members

This report was prepared by the Finance and Accounting Directorate, Office of the Assistant Inspector General for Auditing, DoD. Personnel from the U.S. Army Audit Agency and the General Accounting Office assisted with this audit.

F. Jay Lane
Chris Hendricks
Dennis Conway
Elaine Jennings
Eric Lewis
Wesley Lewis
Roger Goodson
John Downey
Nancy Cipolla
Traci Sadler
Ralph McConigly
Donald Friend
William Franklin
Frank Reilly
Rose Hernandez
Alan Merrill
Raj Mukerji
Karen Bell